PatBase - Search results 08 October 2020
Search query (2): FT=(pipe~ AND connector~ AND groove~ AND ring~ AND annular~ AND coupling~) and IC =(F16L)
Results: 3797

Search history

Search 1: FT=(pipe~ AND connector~ AND groove~ AND ring~ AND annular~ AND coupling~) (Results 12848)

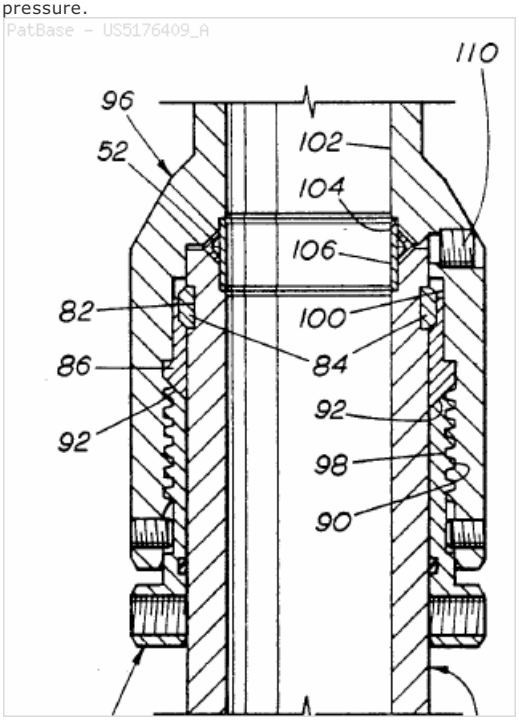
Search 2: FT=(pipe~ AND connector~ AND groove~ AND ring~ AND annular~ AND coupling~) and IC =(F16L) (Results 3797)

1) Family number: 10999144 (US5176409 A)

Title: HIGH PRESSURE **PIPE** **COUPLING**

Abstract: A **coupling** device for metal tubular members subjected to pressure where abutting **coupling** members define a V shaped **groove**. A metal **annular** V shaped sealing member constructed from resilient metal is disposed in the V shaped **groove** and arranged so that the sealing member has sealing edge portions which can expand longitudinally and radially to maintain a seal if the **coupling** members tend to separate or contract in response to pressure.

Classifications:
International (IPC 8-9): F16L17/00 F16L17/08 F16L27/00 F16L27/08
International (IPC 1-7): F16L7/00
CPC: F16L17/08 F16L27/0812 Y10S285/917
US: 285/334.4 285/341 285/351 285/353 285/354 285/388 285/90 285/917 285/94



Family:

Publication number	Publication date	Application number	Application date
US5176409 A	19930105	US19910669983	19910315

Priority:
US19890635568 19891111 US19910669983 19910315

Probable Assignee: DIXIE IRON WORKS

Assignee(s): (std): DIXIE IRON WORKS

Assignee(s): DIXON IRON WORKS INC ; DIXON IRON WORKS INC A TEXAS CORP ; MANIFOLD SYSTEMS INC ; MANIFOLD SYSTEMS INC A OF TX CORP

Inventor(s): (std): BROOKS ROBERT T

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
US5176409 A	19910603	LSAS	AS	ASSIGNMENT	Effective date: 19910525 PartyType: owner OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNOR:BROOKS, ROBERT T.;REEL/FRAME:005717/0834 Owner: MANIFOLD SYSTEMS, INC. A CORPORATION OF TX, TEXAS
US5176409 A	19921109	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF ASSIGNORS INTEREST EFFECTIVE AS OF JANUARY 1, 1992;ASSIGNOR:MANIFOLD SYSTEMS, INC.;REEL/FRAME:006290/0714 Owner: DIXON IRON WORKS, INC., A TEXAS CORP., TEXAS Effective date: 19920612 PartyType: owner
US5176409 A	19921223	LSGT	PAT1	Patented Case	
US5176409 A	19921223	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US5176409 A	19930105	LSGT	+	granted /	

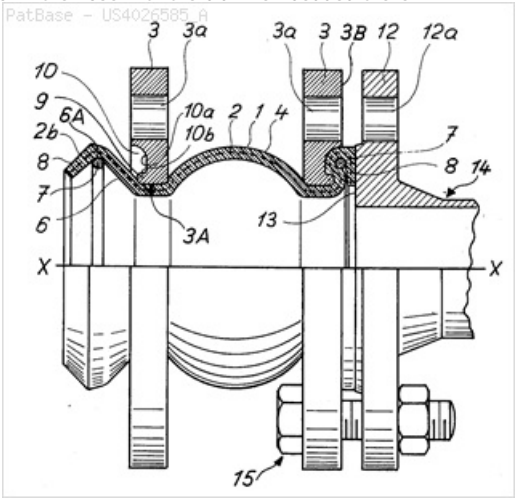
				extensions (spc, cpc, pte)	
US5176409 A	19960610	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US5176409 A	20000801		REMI	MAINTENANCE FEE REMINDER MAILED	
US5176409 A	20001214	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US5176409 A	20001214		+SULP	SURCHARGE FOR LATE PAYMENT	Year of fee payment: 7
US5176409 A	20040721		REMI	MAINTENANCE FEE REMINDER MAILED	
US5176409 A	20040830	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US5176409 A	20040830		+SULP	SURCHARGE FOR LATE PAYMENT	Year of fee payment: 11
US5176409 A	20110315	PEXP		Calculated Patent Term Expiry	

2) Family number: 18702301 (US4026585 A)

Title: Flexible **pipe** **coupling**

Abstract: A flexible **pipe** **coupling** wherein the median section of an elastic hose constitutes a bellows and the conical outer sections of the hose taper outwardly from the respective ends of the bellows and have inwardly extending **annular** collars remote from the bellows. The outer sections have internal sockets for sealing **rings** which extend into **annular** **grooves** machined into the outer end faces of connecting **rings** serving to secure the outer sections to the flanges of two spaced-apart **pipes**. When the connecting **rings** are bolted to the respective flanges, the collars are deformed between the respective connecting **rings** and flanges, and the sealing **rings** penetrate into the adjacent **grooves** and impart to the corresponding outer sections an S-shaped cross-sectional outline. The hose is reinforced by an insert consisting of several layers of steel cords and being embedded into the elastic material of the hose so that it extends into the collars, into the remaining portions of the outer sections as well as into the bellows. The insert is made from a web of metallic filaments which is profiled, coiled and severed to yield blanks conforming in shape to that of the hose. A blank is thereupon placed between inner and outer shells consisting of elastomeric material and the shells are bonded to each other under the action of heat and pressure to form the hose with the blank embedded therein.

Classifications:
International (IPC 8-9): F16L23/00 F16L23/02 F16L27/00 F16L27/10 F16L27/108 F16L51/00 F16L51/02
International (IPC 1-7): F16L23/02 F16L25/00 F16L27/00 F16L27/10 F16L51/02
CPC: F16L23/02 F16L27/108 F16L51/024 F16L27/10
US: 285/229 285/405
JP F-Term: 3H104 3H104/EA01 3H104/EA08 3H104/EB01 3H104/JA07 3H104/JA08 3H104/JB01 3H104/JC04 3H104/JC06 3H104/LB29 3H104/LB36 3H104/LB37 3H104/LG03 3H104/LG30 3H104/MA01
JP F-Index: F16L27/10 F16L27/10@B



Family:

Publication number	Publication date	Application number	Application date
AU197583608 A1	19770203	AU19750083608	19750801
BE831840 A	19751117	BE19750158703	19750729
BR7504842 A	19760803	BR19750004842	19750729
CA1030999 A1	19780509	CA19750232748	19750801
DD119076 C	19760405	DD19750187567	19750730
DE2437240 A1	19760122	DE19742437240	19740802
DE2437240 B1	19760122	DE19742437240	19740802
DE2437240 C2	19760902	DE19742437240	19740802
DE2531349 A1	19770120	DE19752531349	19750714
DE2531349 C2	19821216	DE19752531349	19750714
ES214389 U	19760701	ES19750214389U	19750801
ES214389 Y	19770516	ES19750214389U	19750801
FR2280853 A1	19760227	FR19750023512	19750728
FR2280853 B1	19810724	FR19750023512	19750728
GB1513187 A	19780607	GB19750032314	19750801
IT1041121 A	19800110	IT19750050792	19750801
JP1171212 C3	19831017	JP19750094669	19750801
JP51040615 A2	19760405	JP19750094669	19750801
JP57058557 B4	19821210	JP19750094669	19750801
SU757127 D	19800815	SU19752162163	19750730
US4026585 A	19770531	US19750601164	19750801

Priority:

DE19742437240 19740802 DE19752531349 19750714 AU19750083608 19750801

Probable Assignee: BERGHOEFER HANS DIPL KFM 2000 HAMBURG

Assignee(s): (std): BERGHII HANS ; BERGHOEFER HANS ; BERGHOEFER HANS DIPL KFM ; BERGHOEFER HANS DIPL KFM 2000 HAMBURG ; BERGHOFER H ; BERGHOFER HANS ; GANS BERGKHEFER ; GANS BERGKHEFER DT ; HANSU BERUKUHEEEFUERU

Assignee(s): BERGHOEFER HANS DIPL KFM 2000 HAMBURG DE

Inventor(s): (std): BERGHOEFER HANS ; BERGHOEFER HANS DIPL KFM ; BERGHOFER H ; BERGHOFER HANS ; BERGKHEFER GANS ; HANSU BERUKUHEEEFUERU

Inventor(s): GANS BERGKHEFER DT ; HANS BERGHOFER

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details

AU197583608 A1	19770203	LSPB	+	published / reissued	
BE831840 A	19751117	LSPB	+	published / reissued	
BE831840 A	19870131	LSLE	-RE	PATENT LAPSED	Owner: BEGHOFER HANS PartyType: owner Effective date: 19860731
BR7504842 A	19760803	LSPB	+	published / reissued	
CA1030999 A1					
DD119076 C	19760405	LSGT	+	granted / extensions (spc, cpc, pte)	
DD119076 C	19930730	PEXP		Calculated Patent Term Expiry	
DE2437240 A1	19760122	LSPB	+	published / reissued	
DE2437240 B1	19760122	LSPB	+	published / reissued	
DE2437240 C2	19760902	LSGT	+	granted / extensions (spc, cpc, pte)	
DE2437240 C2	19771231		+E77	VALID PATENT AS TO THE HEYMANNS-INDEX 1977	
DE2437240 C2	19820701		Q161	HAS ADDITIONAL APPLICATION NO.	Ref document number: 2531349 Country of Ref document: DE
DE2437240 C2	19821216		AG	HAS ADDITION NO.	Ref document number: 2531349 Country of Ref document: DE
DE2437240 C2	19880811	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
DE2531349 A1	19770120	LSPB	+	published / reissued	
DE2531349 A1	19820701		8161	APPLICATION OF ADDITION TO:	Ref document number: 2437240 Country of Ref document: DE
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DE2531349 C2	19821216		AF	IS ADDITION TO NO.	Ref document number: 2437240 Country of Ref document: DE
DE2531349 C2	19821216	LSGT	+D2	GRANT AFTER EXAMINATION	
DE2531349 C2	19830505	LSOP	-8363	OPPOSITION AGAINST THE PATENT	
DE2531349 C2	19860306	LSGT	+8365	FULLY VALID AFTER OPPOSITION PROCEEDINGS	
DE2531349 C2	19880908	LSLE	-8340	PATENT OF ADDITION CEASED/NON-PAYMENT OF FEE OF MAIN PATENT	
ES214389 U	19760701	LSPB	+	published / reissued	
ES214389 Y	19770516	LSGT	+	granted / extensions (spc, cpc, pte)	
ES214389 Y	19850801	PEXP		Calculated Patent Term Expiry	
FR2280853 A1	19760227	LSPB	+	published / reissued	
FR2280853 B1	19810724	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2280853 B1	19870522	LSLE	-ST	NOTIFICATION OF LAPSE	
FR2280853 B1	19950728	PEXP		Calculated Patent Term Expiry	
GB1513187 A	19780607	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1513187 A	19781011	LSGT	+PS	PATENT SEALED	
GB1513187 A	19880323	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	
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IT1041121 A	19800110	LSGT	+	granted / extensions (spc, cpc, pte)	
IT1041121 A	19950801	PEXP		Calculated Patent Term Expiry	
JP1171212 C3	19831017	LSGT	+	granted / extensions (spc, cpc, pte)	
JP51040615 A2	19760405	LSPB	+	published / reissued	
JP57058557 B4	19821210	LSPB	+	published / reissued	
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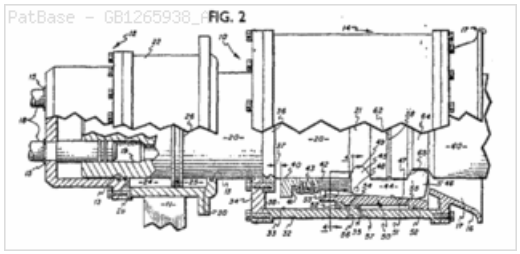
US4026585 A	19770531	LSGT	+	granted / extensions (spc, cpc, pte)

3) Family number: 737091 (GB1265938 A)

Title: **Pipe couplings**.

Abstract: 1,265,938. **Pipe couplings**. NORTH AMERICAN ROCKWELL CORP. 29 Dec., 1970, No. 61645/70. Heading F2G. An axially movable piston 50 within a **connector** 10 moves in one direction to lock a plurality of latches 44, pivoted about their lobes 45 in a **groove** 21 of a cylindrical part 20 of the **connector**, in a **groove** 64 of a mating **pipe** end 60, and in the other direction to move a **ring** 40 away from the latches to tension springs 42, attached to the **ring** and the latches, to rock the latches radially outwardly. The piston 50 is hydraulically operated. The cylinder 20 is axially movable inside a casing 22, fixed, e.g. to the sea bed or an oil well frame, so that the cylinder, under hydraulic actuation, is displaced towards the mating **pipe** end 60 prior to latching. The **pipe** end 60 and **connector** 10 are aligned by a bell-mouth 16. The **connector** and mating **pipe** end 60 may have provision for a plurality of **pipes** 18, and (18^1) respectively.

Classifications:
International (IPC 8-9): E21B43/00 E21B43/01 F16L37/00 F16L37/56
International (IPC 1-7): F16L37/12
CPC: E21B43/0107 F16L37/002 F16L37/56



Family:

Publication number	Publication date	Application number	Application date
GB1265938 A	19720308	GB19700061645	19701229

Priority:

GB19700061645 19701229

Legal status (INPADOC)

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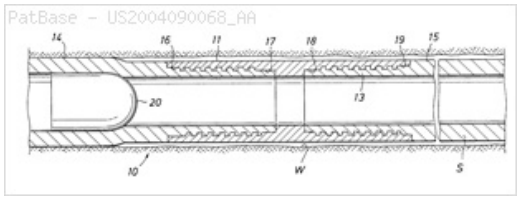
Patent	Date recorded	Event group	Code	Event	Details
GB1265938 A	19720308	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1265938 A	19901229	PEXP		Calculated Patent Term Expiry	

4) Family number: 30568638 (US2004090068 AA)

Title: METHOD AND APPARATUS FOR SEALING RADIALLY EXPANDED JOINTS

Abstract: **Connectors** and connections that enhance mechanical and sealing engagement between the ends of tubular bodies that are radially expanded by a forging tool. The **connectors** are designed to maintain or restore mechanical and sealing engagement following expansion. The connections are made by joining components that exhibit different spring back characteristics following mechanical deformation. Dissimilar material may be used for the **connectors** or the connected components can be made of the same materials but dimensioned and configured to exert an interfering force between engaged components following expansion. In operation, a material or component with a high spring back characteristic is positioned adjacent a material or component having a lower spring back characteristic. Following passage of a forging tool, the expanded components spring back differently toward their original unexpanded dimensions to produce the enhanced seal or mechanical engagement. The materials of the end **connectors** are selected and positioned such that a compressive or locking force is exerted between the different component of the **connectors** due to the difference in the spring back of the materials or components.

Classifications:
International (IPC 8-9): E21B17/02 E21B17/042 E21B43/02 E21B43/10 F16J15/08 F16L13/14 F16L13/16 F16L15/00 F16L15/04 F16L25/00
International (IPC 1-7): F16L15/04 F16L17/00 F16L25/00
CPC: E21B17/042 E21B43/103 E21B43/106 F16J15/0887 F16L13/168 F16L15/003
US: 277/602 277/602P 285/333 285/334 285/382 285/382.2 285/39 285/390



Family:

Publication number	Publication date	Application number	Application date
AR048734 AA	20060517	AR2005P101847	20050506
CA2565021 AA	20061101	CA20052565021	20050503
DE602005043238 D1	20140522	DE200560043238T	20050503
EP1745233 A1	20070124	EP20050744644	20050503
EP1745233 A4	20110316	EP20050744644	20050503
EP1745233 B1	20140409	EP20050744644	20050503
PL1745233 T3	20141031	PL20050744644T	20050503
US2004090068 AA	20040513	US20020290003	20021107
US7086669 BB	20060808	US20020290003	20021107
US2005012278 AA	20050120	US20040840996	20040507
US2006061099 AA	20060323	US20050264850	20051102
WO05114029 A1	20051201	WO2005US15146	20050503

Priority:

US20020290003 20021107 US20040840996 20040507 WO2005US15146 20050503
EP20050744644 20050503 US20050264850 20051102

Probable Assignee: VAM USA LLC

Assignee(s): (std): COSTA D S ; COSTA D SCOTT ; DELANGE RICHARD W ; EVANS M E ; EVANS M EDWARD ; GRANT PRIDECO L P ; VAM USA LLC

Assignee(s): V AND M ATLAS BRADFORD LLC ; V AND M ATLAS BRADFORD LP ; V AND M TCA LP ; VAM USA LLC HOUSTON

Inventor(s): (std): COSTA D S ; COSTA D SCOTT ; DELANGE RICHARD W ; EVANS M E ; EVANS M EDWARD

Inventor(s): COSTA D ; D SCOTT COSTA ; DELANGE RICHARD ; DELANGE RICHARD W KINGWOOD ; EVANS M ; M EDWARD EVANS ; RICHARD W DELANGE

Agent(s): BROWNING BUSHMAN PC; C JAMES; CARLOS A TORRES BROWNING BUSHMAN PC; FINLAYSON AND SINGLEHURST; MUELLER SCHUPFNER AND PARTNER; MUELLER SCHUPFNER AND PARTNER PATENT U RECHTSANWALTSPARTNERSCHAFT MBB

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KM KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AR048734 AA	20060517	LSPB	+	published / reissued	
AR048734 AA	20070531	LSGT	+FG	GRANT, REGISTRATION	
CA2565021 AA	20061101	LSPB	+	published / reissued	
CA2565021 AA	20100503	LSES	+EEER	EXAMINATION REQUEST	
CA2565021 AA	20140629	LSLE	-FZDE	DEAD	Effective date: 20140502
DE602005043238 D1	20130627		R079	AMENDMENT OF IPC MAIN CLASS	ClassificationScheme: IPC ClassificationSymbol: F16L0015000000 Text: PREVIOUS MAIN CLASS: F16L0025000000

DE602005043238 D1	20140411	LSAS	R081	CHANGE OF APPLICANT/PATENTEE	OldParty: Grant Prideco LP, Houston, Tex., US PartyType: Owner
EP1745233 A1	20070124	LSPB	+	published / reissued	
EP1745233 A1	20070124	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20061123
EP1745233 A1	20070124		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR
EP1745233 A1	20070815		DAX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT (DELETED)	
EP1745233 A1	20100728	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	Owner: VAM USA, LLC PartyType: owner
EP1745233 A1	20160729	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160520 Year of fee payment: 12 Country of Ref document: GB
EP1745233 A1	20160729	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160520 Year of fee payment: 12 Country of Ref document: DE
EP1745233 A1	20160729	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160502 Year of fee payment: 12 Country of Ref document: CZ
EP1745233 A1	20160831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160520 Year of fee payment: 12 Country of Ref document: FR
EP1745233 A1	20160831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160502 Year of fee payment: 12 Country of Ref document: PL
EP1745233 A1	20160831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160520 Year of fee payment: 12 Country of Ref document: AT
EP1745233 A1	20160831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160524 Year of fee payment: 12 Country of Ref document: IT
EP1745233 A1	20160831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160426 Year of fee payment: 12 Country of Ref document: RO
EP1745233 A4	20110316	LSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	Effective date: 20110216
EP1745233 A4	20110316		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 25/00 20060101AFI20051206BHEP
EP1745233 A4	20110316		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16J 15/08 20060101ALI20110210BHEP
EP1745233 A4	20110720	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20110620
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				BEFORE GRANT	
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EP1745233 A4	20140122	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	Effective date: 20140103
EP1745233 B1	20140409	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1745233 B1	20140409		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR
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EP1745233 B1	20140415	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: EP
EP1745233 B1	20140415	LSNP	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20140415 Kind code of Ref document: T Ref country code: AT Ref document number: 661540 Ref legal event code: REF Country of Ref document: AT
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EP1745233 B1	20140522	LSPB	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20140522 Ref country code: DE Ref document number: 602005043238 Ref legal event code: R096 Country of Ref document: DE
EP1745233 B1	20140709	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: RO Ref legal event code: EPE
EP1745233 B1	20140827	LSRV	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20140409 Ref country code: NL Ref legal event code: VDEP
EP1745233 B1	20140912		REG	REFERENCE TO A NATIONAL CODE	Effective date: 20140814 Ref country code: FR Ref legal event code: CA
EP1745233 B1	20140925	LSRV	REG	REFERENCE TO A NATIONAL CODE	Ref country code: LT Ref legal event code: MG4D
EP1745233 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140409 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: FI
EP1745233 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140409 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: LT
EP1745233 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140709 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: BG
EP1745233 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO	Lapsed date: 20140409 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT

				EPO]	Country of Ref document: NL
EP1745233 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140809 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: IS
EP1745233 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140710 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: GR
EP1745233 B1	20141031		REG	REFERENCE TO A NATIONAL CODE	Ref country code: PL Ref legal event code: T3
EP1745233 B1	20141128	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140409 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SE
EP1745233 B1	20141128	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140409 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: ES
EP1745233 B1	20141231	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140811 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: PT
EP1745233 B1	20141231	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: PL
EP1745233 B1	20150112	LSRE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: DE Ref document number: 602005043238 Ref legal event code: R097 Country of Ref document: DE
EP1745233 B1	20150130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140409 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: MC
EP1745233 B1	20150130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140409 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: DK
EP1745233 B1	20150130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140531 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: CH
EP1745233 B1	20150130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140409 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: EE
EP1745233 B1	20150130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140409 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SK
EP1745233 B1	20150130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140409 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: BE
EP1745233 B1	20150130	LSLE	-PG25	LAPSED IN A	Lapsed date: 20140531

				CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: LI
EP1745233 B1	20150225	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: MM4A
EP1745233 B1	20150318	LSGT	+26N	NO OPPOSITION FILED	Effective date: 20150112
EP1745233 B1	20150423	LSRE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20150112 Ref country code: DE Ref document number: 602005043238 Ref legal event code: R097 Country of Ref document: DE
EP1745233 B1	20150430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140503 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: IE
EP1745233 B1	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140409 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SI
EP1745233 B1	20160520	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: FR Ref legal event code: PLFP Year of fee payment: 12
EP1745233 B1	20160630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140409 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: CY
EP1745233 B1	20160729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140409 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: TR
EP1745233 B1	20160729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20050503 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT; INVALID AB INITIO Country of Ref document: HU
EP1745233 B1	20160729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140503 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: LU
EP1745233 B1	20170421	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: FR Ref legal event code: PLFP Year of fee payment: 13
EP1745233 B1	20170731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170424 Year of fee payment: 13 Country of Ref document: CZ
EP1745233 B1	20170731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170420 Year of fee payment: 13 Country of Ref document: DE
EP1745233 B1	20170731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170421 Year of fee payment: 13 Country of Ref document: FR
EP1745233 B1	20170731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170426 Year of fee payment: 13 Country of Ref document: GB
EP1745233 B1	20170731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE	Payment date: 20170503 Year of fee payment: 13

				[ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Country of Ref document: RO
EP1745233 B1	20170831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170421 Year of fee payment: 13 Country of Ref document: IT
EP1745233 B1	20170831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170421 Year of fee payment: 13 Country of Ref document: AT
EP1745233 B1	20180228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170424 Year of fee payment: 13 Country of Ref document: PL
EP1745233 B1	20180423	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: FR Ref legal event code: PLFP Year of fee payment: 14
EP1745233 B1	20180731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180424 Year of fee payment: 14 Country of Ref document: CZ
EP1745233 B1	20180731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180419 Year of fee payment: 14 Country of Ref document: DE
EP1745233 B1	20180831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180420 Year of fee payment: 14 Country of Ref document: IT
EP1745233 B1	20180831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180423 Year of fee payment: 14 Country of Ref document: FR
EP1745233 B1	20180831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180503 Year of fee payment: 14 Country of Ref document: RO
EP1745233 B1	20180831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180430 Year of fee payment: 14 Country of Ref document: PL
EP1745233 B1	20180831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180424 Year of fee payment: 14 Country of Ref document: AT
EP1745233 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180419 Year of fee payment: 14 Country of Ref document: GB
EP1745233 B1	20190731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190424 Year of fee payment: 15 Country of Ref document: CZ
EP1745233 B1	20190731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190418 Year of fee payment: 15 Country of Ref document: IT
EP1745233 B1	20190731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190418 Year of fee payment: 15 Country of Ref document: DE
EP1745233 B1	20190731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190423 Year of fee payment: 15 Country of Ref document: PL
EP1745233 B1	20190830	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO	Payment date: 20190424 Year of fee payment: 15 Country of Ref document: RO

				EPO]	
EP1745233 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190423 Year of fee payment: 15 Country of Ref document: AT
EP1745233 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190423 Year of fee payment: 15 Country of Ref document: GB
EP1745233 B1	20200630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20190531 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: FR
EP1745233 B1	20200731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200427 Year of fee payment: 16 Country of Ref document: RO
EP1745233 B1	20200731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200421 Year of fee payment: 16 Country of Ref document: DE
EP1745233 B1	20200731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200424 Year of fee payment: 16 Country of Ref document: CZ
EP1745233 B1	20200831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200423 Year of fee payment: 16 Country of Ref document: GB
EP1745233 B1	20200831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200421 Year of fee payment: 16 Country of Ref document: IT
EP1745233 B1	20200831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200424 Year of fee payment: 16 Country of Ref document: PL
EP1745233 B1	20200930	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200422 Year of fee payment: 16 Country of Ref document: AT
EP1745233 B1	20250503	PEXP		Calculated Patent Term Expiry	
PL1745233 T3	20141031	LSGT	+	granted / extensions (spc, cpc, pte)	
US2004090068 AA	20040513	LSPB	+	published / reissued	
US2004090068 AA	20060618	LSAS	AS	ASSIGNMENT	OldParty: CORRECTIVE ASSIGNMENT TO CORRECT THE ASSIGNEE'S ADDRESS PREVIOUSLY RECORDED ON REEL 013803, FRAME 0082;ASSIGNORS:EVANS, M. EDWARD;COSTA, D. SCOTT;DELANGE, ROBERT W.;REEL/FRAME:018001/0156;SIGNING DATES FROM 20021210 TO 20030206 Owner: GRANT PRIDECO, L.P., TEXAS PartyType: owner
US2004090068 AA	20060719	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US2005012278 AA	20040607	LSAS	AS	ASSIGNMENT	Effective date: 20040525 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:DELANGE, RICHARD W.;REEL/FRAME:016147/0829 Owner: GRANT PRIDECO, L.P., TEXAS PartyType: owner
US2005012278 AA	20050120	LSPB	+	published / reissued	
US2005012278 AA	20071113	LSWD	ABD3	Abandoned -- Failure to Respond to an Office Action	

US2005012278 AA	20071113		-STCB	INFORMATION ON STATUS: APPLICATION DISCONTINUATION	Text: ABANDONED -- FAILURE TO RESPOND TO AN OFFICE ACTION
US2005012278 AA	20080516	LSAS	AS	ASSIGNMENT	Effective date: 20080516 OldParty: PATENT APPLICATION;ASSIGNORS:GRANT PRIDECO, INC.;GRANT PRIDECO, L.P.;REEL/FRAME:020961/0636 Owner: V&M TCA, LP, TEXAS PartyType: owner
US2005012278 AA	20080516	LSAS	AS	ASSIGNMENT	Effective date: 20080516 OldParty: PATENTS AND PATENT APPLICATIONS;ASSIGNORS:GRANT PRIDECO, INC.;GRANT PRIDECO, L.P.;REEL/FRAME:020951/0889 Owner: V&M ATLAS BRADFORD, LP, TEXAS PartyType: owner
US2005012278 AA	20080516	LSAS	AS	ASSIGNMENT	Effective date: 20080516 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:GRANT PRIDECO, INC.;GRANT PRIDECO, L.P.;REEL/FRAME:020951/0889 Owner: V&M ATLAS BRADFORD, LP, TEXAS PartyType: owner
US2006061099 AA	20051102	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:EVANS, M. EDWARD;COSTA, D. SCOTT;DELANGE, RICHARD W.;REEL/FRAME:017190/0036;SIGNING DATES FROM 20021210 TO 20030206 Owner: GRANT PRIDECO, L.P., TEXAS PartyType: owner
US2006061099 AA	20060322	LSAS	AS	ASSIGNMENT	Effective date: 20030206 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:EVANS, M. EDWARD;COSTA, D. SCOTT;DELANGE, RICHARD W.;REEL/FRAME:017348/0566 Owner: GRANT PRIDECO, L.P., TEXAS PartyType: owner
US2006061099 AA	20060323	LSPB	+	published / reissued	
US2006061099 AA	20071220	LSAS	AS	ASSIGNMENT	Effective date: 20071206 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:GRANT PRIDECO, L.P.;REEL/FRAME:020270/0545 Owner: V&M ATLAS BRADFORD, LP, TEXAS PartyType: owner
US2006061099 AA	20080516	LSAS	AS	ASSIGNMENT	Effective date: 20080516 OldParty: PATENTS AND PATENT APPLICATIONS;ASSIGNORS:GRANT PRIDECO, INC.;GRANT PRIDECO, L.P.;REEL/FRAME:020951/0839 Owner: V&M TCA, LP, TEXAS PartyType: owner
US2006061099 AA	20080516	LSAS	AS	ASSIGNMENT	Effective date: 20080516 OldParty: PATENTS AND PATENT APPLICATIONS;ASSIGNORS:GRANT PRIDECO, INC.;GRANT PRIDECO, L.P.;REEL/FRAME:020951/0889 Owner: V&M ATLAS BRADFORD, LP, TEXAS PartyType: owner
US2006061099 AA	20080516	LSAS	AS	ASSIGNMENT	Effective date: 20080516 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:GRANT PRIDECO, INC.;GRANT PRIDECO, L.P.;REEL/FRAME:020951/0839 Owner: V&M TCA, LP, TEXAS PartyType: owner
US2006061099 AA	20080516	LSAS	AS	ASSIGNMENT	Effective date: 20080516 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:GRANT PRIDECO, INC.;GRANT PRIDECO, L.P.;REEL/FRAME:020951/0889 Owner: V&M ATLAS BRADFORD, LP, TEXAS PartyType: owner
US2006061099 AA	20080707	LSWD	ABD3	Abandoned -- Failure to Respond to an Office Action	
US2006061099 AA	20080707		-STCB	INFORMATION ON STATUS: APPLICATION DISCONTINUATION	Text: ABANDONED -- FAILURE TO RESPOND TO AN OFFICE ACTION

US7086669 BB	20030304	LSAS	AS	ASSIGNMENT	Effective date: 20030120 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:EVANS, EDWARD M.;COSTA, SCOTT D.;DELANGE, RICHARD W.;REEL/FRAME:013803/0082 Owner: GRANT PRIDECO, L.P., TEXAS PartyType: owner
US7086669 BB	20060719	LSGT	PAT1	Patented Case	
US7086669 BB	20060808	LSGT	+	granted / extensions (spc, cpc, pte)	
US7086669 BB	20060816	LSAS	AS	ASSIGNMENT	OldParty: CORRECTIVE ASSIGNMENT TO CORRECT THE ASSIGNEE'S NAME FROM ROBERT W. DELANGE TO RICHARD W. DELANGE AND ASSIGNEE'S ZIP CODE FROM 77090 TO 77060 PREVIOUSLY RECORDED ON REEL 018001 FRAME 0156;ASSIGNORS:EVANS, M. EDWARD;COSTA, D. SCOTT;DELANGE, RICHARD W.;REEL/FRAME:018120/0201;SIGNING DATES FROM 20021210 TO 20030206 Owner: GRANT PRIDECO, L.P., TEXAS PartyType: owner
US7086669 BB	20071220	LSAS	AS	ASSIGNMENT	Effective date: 20071206 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:GRANT PRIDECO, L.P.;REEL/FRAME:020270/0545 Owner: V&M ATLAS BRADFORD, LP, TEXAS PartyType: owner
US7086669 BB	20080516	LSAS	AS	ASSIGNMENT	Effective date: 20080516 OldParty: PATENTS AND PATENT APPLICATIONS;ASSIGNORS:GRANT PRIDECO, INC.;GRANT PRIDECO, L.P.;REEL/FRAME:020951/0839 Owner: V&M TCA, LP, TEXAS PartyType: owner
US7086669 BB	20080516	LSAS	AS	ASSIGNMENT	Effective date: 20080516 OldParty: PATENTS AND PATENT APPLICATIONS;ASSIGNORS:GRANT PRIDECO, INC.;GRANT PRIDECO, L.P.;REEL/FRAME:020951/0889 Owner: V&M ATLAS BRADFORD, LP, TEXAS PartyType: owner
US7086669 BB	20090223	LSAS	AS	ASSIGNMENT	Effective date: 20081231 OldParty: CHANGE OF NAME;ASSIGNOR:V&M ATLAS BRADFORD, LP;REEL/FRAME:022288/0955 Owner: V&M ATLAS BRADFORD, LLC, TEXAS PartyType: owner
US7086669 BB	20090227	LSAS	AS	ASSIGNMENT	Effective date: 20090227 OldParty: MERGER;ASSIGNOR:V&M ATLAS BRADFORD, LLC;REEL/FRAME:022320/0108 Owner: VAM USA, LLC, TEXAS PartyType: owner
US7086669 BB	20100204	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US7086669 BB	20140130	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US7086669 BB	20180124	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	Year of fee payment: 12
US7086669 BB	20230414	PEXP		Calculated Patent Term Expiry (PTA 158 days)	
WO05114029 A1	20051201	LSPB	+	published / reissued	
WO05114029 A1	20051201		+AK	DESIGNATED STATES	Kind code of Ref document: A1 Country of Ref document: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KM KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SM SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
WO05114029 A1	20051201		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: AM AT AZ BE BF BG BJ BW BY CF CG CH CI CM CY CZ DE DK EE ES FI FR GA GB GH GM GN GQ GR GW HU IE IS IT KE KG KZ LS LT LU MC MD ML MR MW MZ NA NE NL PL PT RO RU SD SE SI SK SL SN SZ TD TG TJ TM TR TZ UG ZM ZW
WO05114029 A1	20060125		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	

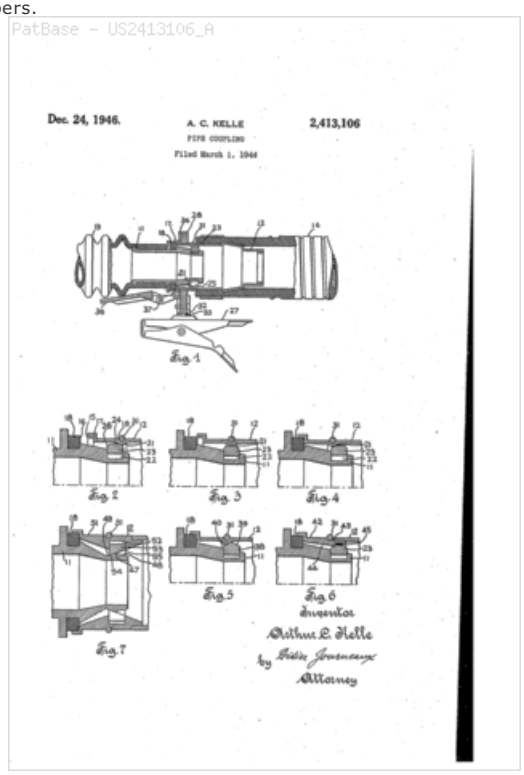
WO05114029 A1	20060601		DPEN	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED FROM 20040101)	
WO05114029 A1	20061101	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2565021 Country of Ref document: CA
WO05114029 A1	20061108	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: DE
WO05114029 A1	20061108	LSWD	-WWW	WIPO INFORMATION: WITHDRAWN IN NATIONAL OFFICE	Text: DE
WO05114029 A1	20061123	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2005744644 Country of Ref document: EP
WO05114029 A1	20070124	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 2005744644 Country of Ref document: EP

5) Family number: 22149563 (US2413106 A)

Title: PIPE COUPLING

Abstract: 1. A pipe coupling comprising a female member, ia male member for axial engagement with said female member, said members having complementary surfaces so disposed as to abut to limit the engagement of said members to a predetermined extent, said members having complementary annular walls so disposed as to fit one within the other, one of said walls denning an annular shoulder so disposed as to face the other one of said walls, said other one of said walls defining an annular groove so disposed as to face said shotdder, and means responsive to engagement of said members to substantially said predetermined extent for urging said members into further engagement comprising a resilient split ring disposed in said groove and having a snug fit against the sides of said groove and a loose at against the bottom of said groove, said shoulder and said ring having coasting surfaces so formed that engaging movement of said members nrst causes said ring to be gradually deformed by sliding of said ring over said shoulder until maximum deformation oi said ring is obtained and thereafter causes further sliding of said ring over said shoulder to cause said ring gradually to become less deformed and thereby exert an axial thrust on said shoulder in the direction of engagement of said members.

Classifications:
International (IPC 8-9): F16L37/00 F16L37/088
International (IPC 1-7): F16L37/08
CPC: F16L37/088
US: 248/75 285/304 285/321 285/347 285/415 285/61



Family:

Publication number	Publication date	Application number	Application date
US2413106 A	19461224	US19440524544	19440301

Priority:
US19440524544 19440301

Probable Assignee: ALLIS CHALMERS MFG CO
Assignee(s): (std): ALLIS CHALMERS MFG CO
Assignee(s): ALLIS CHALMERS MANUFACTURING COMPANY
Inventor(s): (std): KELLE ARTHUR C

Legal status (INPADOC)

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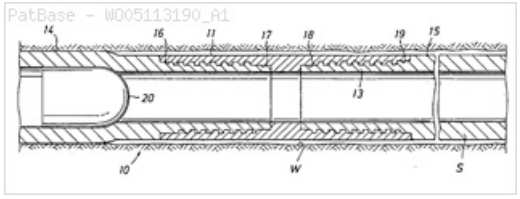
Patent	Date recorded	Event group	Code	Event	Details
US2413106 A	19461224	LSGT	+	granted / extensions (spc, cpc, pte)	
US2413106 A	19640301	PEXP		Calculated Patent Term Expiry	

6) Family number: 32453200 (WO05113190 A1)

Title: METHOD AND APPARATUS FOR SEALING RADIALLY EXPANDED JOINTS

Abstract: **Connectors** and connections that enhance mechanical and sealing engagement between the ends of tubular bodies that are radially expanded by a forging tool. The **connectors** are designed to maintain or restore mechanical and sealing engagement following expansion. The connections are made by joining components that exhibit different spring back characteristics following mechanical deformation. Dissimilar material may be used for the **connectors** or the connected components can be made of the same materials but dimensioned and configured to exert an interfering force between engaged components following expansion. In operation, a material or component with a high spring back characteristic is positioned adjacent a material or component having a lower spring back characteristic. Following passage of a forging tool, the expanded components spring back differently toward their original unexpanded dimensions to produce the enhanced seal or mechanical engagement. The materials of the end **connectors** are selected and positioned such that a compressive or locking force is exerted between the different component of the **connectors** due to the difference in the spring back of the materials or components.

Classifications:
International (IPC 8-9): B23P11/00 E21B43/02 E21B43/10 F16L13/00 F16L15/00 F16L15/04
International (IPC 1-7): B23P11/00
CPC: E21B43/106 F16L13/004 F16L15/003



Family:

Publication number	Publication date	Application number	Application date
AT532600 E	20111115	AT20040750398T	20040421
CA2563736 AA	20061018	CA20042563736	20040421
CA2563736 C	20121127	CA20042563736	20040421
DE602004035241 D1	20120105	DE200460035241T	20040421
EP1755821 A1	20070228	EP20040750398	20040421
EP1755821 A4	20080917	EP20040750398	20040421
EP1755821 B1	20111109	EP20040750398	20040421
PL1755821 T3	20120531	PL20040750398T	20040421
WO05113190 A1	20051201	WO2004US12241	20040421

Priority:
WO2004US12241 20040421 EP20040750398 20040421

Probable Assignee: VAM USA LLC

Assignee(s): (std): COSTA D SCOTT ; DELANGE RICHARD W ; EVANS M EDWARD ; GRANT PRIDECO L P ; VAM USA LLC

Assignee(s): COSTA D ; EVANS M ; V AND M ATLAS BRADFORD LLC ; V AND M ATLAS BRADFORD LP ; VAM USA LLC HOUSTON

Inventor(s): (std): COSTA D ; COSTA D SCOTT ; DELANGE RICHARD ; DELANGE RICHARD W ; EVANS M ; EVANS M EDWARD

Inventor(s): COSTA D SCOTT KINGWOOD ; DELANGE RICHARD W KINGWOOD ; EVANS M EDWARD SPRING

Agent(s): FINLAYSON AND SINGLEHURST; MUELLER SCHUPFNER AND PARTNER PATENT U RECHTSANWALTSPARTNERSCHAFT MBB; SCHUPFNER GEORG

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT532600 E	20111115	LSGT	+	granted / extensions (spc, cpc, pte)	
AT532600 E	20240421	PEXP		Calculated Patent Term Expiry	
CA2563736 AA	20061018	LSPB	+	published / reissued	
CA2563736 AA	20090119	LSES	+EEER	EXAMINATION REQUEST	
CA2563736 C	20121127	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2563736 C	20240421	PEXP		Calculated Patent Term Expiry	
DE602004035241 D1	20111110	LSAS	R081	CHANGE OF APPLICANT/PATENTEE	OldParty: Grant Prideco LP, Houston, Tex., US Owner: VAM USA, LLC, Houston, Tex., US PartyType: Owner
EP1755821 A1	20070228	LSPB	+	published / reissued	

EP1755821 A1	20070228	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20061120
EP1755821 A1	20070228		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR
EP1755821 A1	20070725		DAX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT (DELETED)	
EP1755821 A1	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160323 Year of fee payment: 13 Country of Ref document: PL
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EP1755821 A1	20160831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160421 Year of fee payment: 13 Country of Ref document: AT
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EP1755821 A4	20090701	LSES	+R17C	FIRST EXAMINATION REPORT DESPATCHED (CORRECTED)	Effective date: 20090529
EP1755821 A4	20100728	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	Owner: VAM USA, LLC PartyType: owner
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EP1755821 B1	20111115	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: EP
EP1755821 B1	20111207	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: FG4D
EP1755821 B1	20120105	LSPB	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20120105 Ref country code: DE Ref document number: 602004035241 Ref legal event code: R096 Country of Ref document: DE

EP1755821 B1	20120209	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: RO Ref legal event code: EPE
EP1755821 B1	20120222	LSRV	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20111109 Ref country code: NL Ref legal event code: VDEP
EP1755821 B1	20120306		REG	REFERENCE TO A NATIONAL CODE	PartyType: representative Ref country code: DE Ref document number: 602004035241 Ref legal event code: R082 Representative: MUELLER SCHUPFNER & PARTNER PATENT- UND RECHTS, DE Country of Ref document: DE
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EP1755821 B1	20120531		REG	REFERENCE TO A NATIONAL CODE	Ref country code: PL Ref legal event code: T3
EP1755821 B1	20120629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20111109 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: CY
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EP1755821 B1	20121130	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: PL
EP1755821 B1	20121206	LSRE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20120810 Ref country code: DE Ref document number: 602004035241 Ref legal event code: R097 Country of Ref document: DE
EP1755821 B1	20130116	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: MM4A
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EP1755821 B1	20140430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20111109 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: TR
EP1755821 B1	20140530	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20120421 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: LU
EP1755821 B1	20140731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE	Lapsed date: 20040421 NotificationOfLapse: LAPSE

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EP1755821 B1	20170322	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: FR Ref legal event code: PLFP Year of fee payment: 14 Country of Ref document: FR
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EP1755821 B1	20170831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170322 Year of fee payment: 14 Country of Ref document: AT
EP1755821 B1	20170831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170324 Year of fee payment: 14 Country of Ref document: PL
EP1755821 B1	20180322	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: FR Ref legal event code: PLFP Year of fee payment: 15
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EP1755821 B1	20191215	LSLE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20190421 Kind code of Ref document: T Ref country code: AT Ref document number: 532600 Ref legal event code: MM01 Country of Ref document: AT
EP1755821 B1	20191225	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	Effective date: 20190421 Ref country code: EP
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PL1755821 T3	20120531	LSGT	+	granted / extensions (spc, cpc, pte)	
WO05113190 A1	20051201	LSPB	+	published / reissued	
WO05113190 A1	20051201		+AK	DESIGNATED STATES	Kind code of Ref document: A1 Country of Ref document: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH

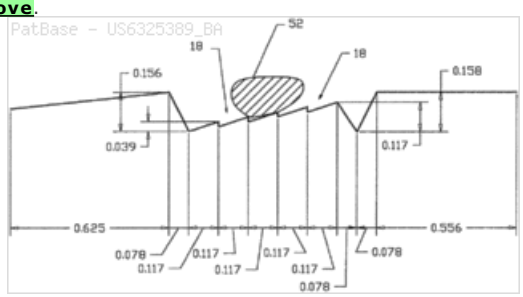
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WO05113190 A1	20060125		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	
WO05113190 A1	20060622		DPEN	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED FROM 20040101)	
WO05113190 A1	20061018	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2563736 Country of Ref document: CA
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WO05113190 A1	20061120	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2004750398 Country of Ref document: EP
WO05113190 A1	20070228	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 2004750398 Country of Ref document: EP

7) Family number: 15891536 (US6325389 BA)

Title: SELF SEALING FLUID DUCT/FITTING **CONNECTOR**

Abstract: A unique fluid **pipe**/duct **coupling**/fitting having flexible arcuate pliable and deformable gaskets such as an O-**ring** providing the seal between an OD **pipe** and the ID **coupling** or fitting and an uncouple retard structure for promoting the insertion of the tubular fluid **connector** from backing away or withdrawing from the fluid **pipe** into which the ID **coupling** is being inserted. The uncoupling retarder structure includes a first starting **groove** and a last or final resting **groove** both disposed on the tubular wall of the fluid **connector** **pipe**, the first beginning and last final resting **groove** being disposed and having a predetermined longitudinal distance along the length of the **pipe** wall between them. This longitudinal distance between the first or initial position **groove** and the last or final position **groove** has disposed on the predetermined distance between them a series of discreet ramps extending from the depth of the first or initial position starting **groove** and extending in ever increasing radial steps away from the axis of the **connector** **pipe** up to the radial position at the top of the final or resting position **groove**. Each of these ramps or steps has a predetermined length and radial rise so as to produce a stepped incline from the radial position of the first or initial **groove** up to the top of the final or resting position **groove**.

Classifications:
International (IPC 8-9): F16L21/02 F16L21/025
International (IPC 1-7): F16L2/1025 F16L21/025
CPC: F16L21/025 F24F13/0209 Y10S277/91
US: 277/604 277/606 277/616 277/910 285/344



Family:

Publication number	Publication date	Application number	Application date
US6325389 BA	20011204	US19990426575	19991025

Priority:
US19990426575 19991025

Probable Assignee:	SHARIFY AMIR
Assignee(s): (std):	SHARIFY AMIR
Inventor(s): (std):	SHARIFY AMIR
Inventor(s):	AMIR SHARIFY
Agent(s):	JAMES P HILLMAN

Legal status (INPADOC)

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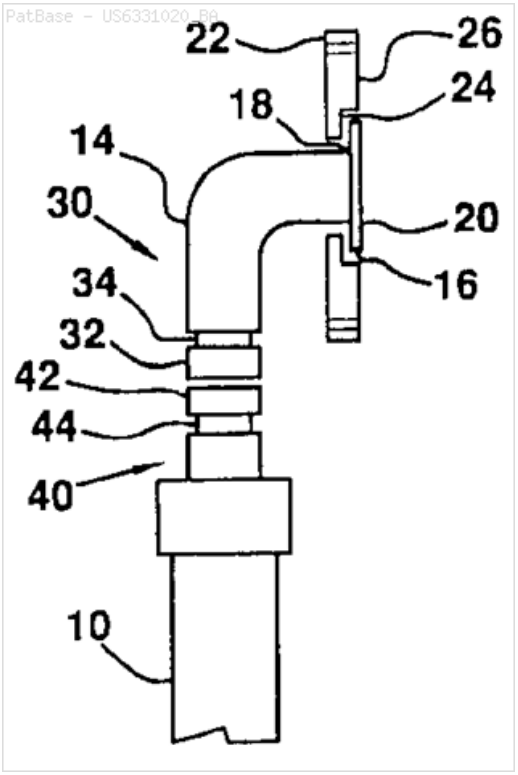
Patent	Date recorded	Event group	Code	Event	Details
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US6325389 BA	20011116	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US6325389 BA	20011204	LSGT	+	granted / extensions (spc, cpc, pte)	
US6325389 BA	20050524	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US6325389 BA	20090615		REMI	MAINTENANCE FEE REMINDER MAILED	
US6325389 BA	20090818	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US6325389 BA	20090818		+SULP	SURCHARGE FOR LATE PAYMENT	Year of fee payment: 7
US6325389 BA	20130527	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US6325389 BA	20191025	PEXP		Calculated Patent Term Expiry	

8) Family number: 15298051 (US6331020 BA)

Title: **COUPLING** FOR FLEX **PIPE**, RIGID **PIPE** AND FLEXIBLE HOSE

Abstract: The invention provides a one-piece flex **pipe** connection that has a bend, and any angle to a termination of a thread, **groove** or a 360 degrees swivel flange. Additionally the invention provides a flex **pipe** **coupling** with a bend and with one end having a **groove** clamp connection and the other having a thread, **groove** or the 360 degrees flange swivel. The last piece is a 360 degrees bend swivel to a thread, **groove** or a 360 degrees flange swivel. A preferred flex **pipe** **coupling** apparatus has a **connector** body with angularly related ends and with a central portion between the ends. At least one of the ends has a cylindrical recess. A shoulder at an axial end of the recess near the central portion cooperates with an end of a flex **pipe** inserted in the recess. An **annular** seal receiver in the cylindrical recess near the shoulder holds a resilient seal for sealing the end of the flex **pipe**. An **annular** **groove** in the recess cooperates with an **annular** **groove** in the flex **pipe** to receive and hold connecting elements for connecting the flex **pipe** to the **connector**.

Classifications:
International (IPC 8-9): A62C33/00 F16L21/06 F16L23/00 F16L23/024 F16L23/026 F16L23/028 F16L23/032 F16L23/18 F16L27/00 F16L27/08 F16L43/00 F16L43/02
International (IPC 1-7): A62C33/00 F16L2/700 F16L21/06 F16L23/024 F16L23/026 F16L23/028 F16L27/00 F16L27/08 F16L43/00 F16L43/02
CPC: F16L23/032 F16L23/18 F16L27/0828
US: 285/179 285/305 285/321 285/414 285/415
JP F-Term: 2E189 3H015 3H016 3H019 3H104 2E189/LA02 3H015/CA01 3H015/CA11 3H015/DA11 3H016/AB02 3H016/AB03 3H104/JA04 3H104/JB04
JP F-Index: A62C33/00@C F16L21/06 F16L23/02@B F16L23/028 F16L23/032 F16L27/08@Z F16L43/02



Family:

Publication number	Publication date	Application number	Application date
AU200066478 A1	20010319	AU20000066478	20000821
AU200066478 A5	20010319	AU20000066478D	20000821
EP1409913 A1	20040421	EP20000954143	20000821
JP2003526052 T2	20030902	JP20010518621T	20000821
US6331020 BA	20011218	US20000640756	20000818
WO0114781 A1	20010301	WO2000US22837	20000821

Priority:
US19990149908P 19990823 US20000640756 20000818 WO2000US22837 20000821

Probable Assignee: PACIFIC FLO RITE INC
Assignee(s): (std): BRUNELLA ALFRED J ; CHEN RAY ; PACIFIC FLO RITE INC
Assignee(s): PACIFIC FLO RITE INC 1040 WALLACE AVENUECITY OF IN
Inventor(s): (std): BRUNELLA ALFRED J
Inventor(s): ALFRED J BRUNELLA
Agent(s): JAMES CREIGHTON WRAY; MEERA P NARASIMHAN
Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CR CU CY CZ DE DK DM DZ EE ES FI FR GA GB GD GE GH GM GN GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU200066478 A1	20010319	LSPB	+	published / reissued	
AU200066478 A5	20020502	LSLE	-MK6	APPLICATION LAPSED	

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EP1409913 A1	20040421	LSPB	+	published / reissued	
EP1409913 A1	20040421	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20020814
EP1409913 A1	20040421		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
EP1409913 A1	20050914	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	Effective date: 20050301
JP2003526052 T2	20030902	LSPB	+	published / reissued	
JP2003526052 T2	20070417	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	Effective date: 20070416 Text: JAPANESE INTERMEDIATE CODE: A621
JP2003526052 T2	20070418		A871	EXPLANATION OF CIRCUMSTANCES CONCERNING ACCELERATED EXAMINATION	Effective date: 20070417 Text: JAPANESE INTERMEDIATE CODE: A871
JP2003526052 T2	20070518		A975	REPORT ON ACCELERATED EXAMINATION	Text: JAPANESE INTERMEDIATE CODE: A971005 Effective date: 20070515
JP2003526052 T2	20070530	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	Text: JAPANESE INTERMEDIATE CODE: A131 Effective date: 20070529
JP2003526052 T2	20071024	LSRV	-A02	DECISION OF REFUSAL	Text: JAPANESE INTERMEDIATE CODE: A02 Effective date: 20071023
US6331020 BA	20000818	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:BRUNELLA, ALFRED J.;REEL/FRAME:011031/0397 Owner: PACIFIC FLO-RITE, INC., CALIFORNIA Effective date: 20000817 PartyType: owner
US6331020 BA	20011218	LSGT	+	granted / extensions (spc, cpc, pte)	
US6331020 BA	20050706		REMI	MAINTENANCE FEE REMINDER MAILED	
US6331020 BA	20051219	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US6331020 BA	20060118	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US6331020 BA	20060118	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US6331020 BA	20060214	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective date: 20051218
US6331020 BA	20200818	PEXP		Calculated Patent Term Expiry	
WO0114781 A1	20010301	LSPB	+	published / reissued	
WO0114781 A1	20010301		+AK	DESIGNATED STATES	Kind code of Ref document: A1 Country of Ref document: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
WO0114781 A1	20010301		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: AM AT AZ BE BF BJ BY CF CG CH CI CM CY DE DK ES FI FR GA GB GH GM GN GR GW IE IT KE KG KZ LS LU MC MD ML MR MW MZ NE NL PT RU SD SE SL SN SZ TD TG TJ TM TZ UG ZW
WO0114781 A1	20010425		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	
WO0114781 A1	20010531		DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION	

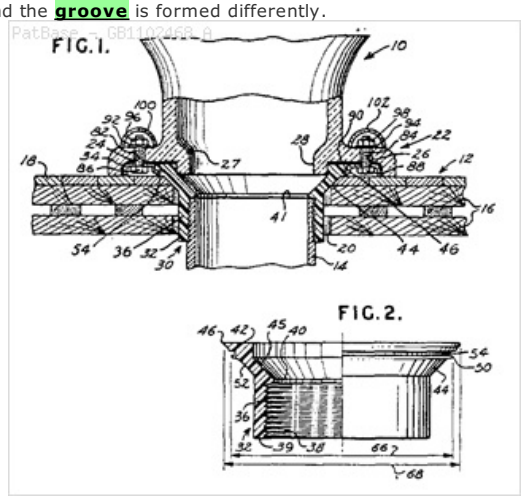
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WO0114781 A1	20020801	LSWD	REG	REFERENCE TO NATIONAL CODE	Ref country code: DE Ref legal event code: 8642
WO0114781 A1	20040421	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 2000954143 Country of Ref document: EP
WO0114781 A1	20050301	LSWD	-WWW	WIPO INFORMATION: WITHDRAWN IN NATIONAL OFFICE	Ref document number: 2000954143 Country of Ref document: EP

9) Family number: 23075321 (GB1102468 A)

Title: Water-closet **coupling**

Abstract: 1,102,468. **Pipe** joints. ATLANTIC RESEARCH CORPORATION. 15 March, 1966 [18 March, 1965], No. 11222/66. Heading F2G. [Also in Division E1] A water-closet **coupling** 30 for connecting a water closet 10 to a floor 12 and to a soil **pipe** 14 is made up of a synthetic plastics **annular** **connector** 32 joined at its outlet 36 with the soil **pipe** 14 and with the closet 10 at its inlet 44, which includes a flange 46 spaced from the floor 12 to form an **annular** **groove** 54, and an **annular** **ring** 34 with a lip 62 received in the **groove** 54 and angularly spaced slots 70, 72 for bolts 82, 84 with nuts 96, 98 to fasten the water closet 10 to it. The inside diameter of the lip 62 is less than the outside diameter of the **groove** 54 but large enough to permit rotation of the **ring** 34, the **groove** having a projection to further define it. The **ring** 34 has apertures 78, 79 to receive members to fasten it to the floor 12. The **connector** outlet 36 is internally threaded so that it is slightly tapered upward. In a modified **connector** the internal diameter is constant from top to bottom, the interior is smooth and the **groove** is formed differently.

Classifications:
International (IPC 8-9)**:** E03D11/00 E03D11/16 F16L5/02
International (IPC 1-7)**:** E03D11/13 F16L5/02
CPC: E03D11/16 F16L5/02
US: 285/58 4/252.4



Family:

Publication number	Publication date	Application number	Application date
GB1102468 A	19680207	GB19660011222	19660315
US3319268 A	19670516	US19650440865	19650318

Priority:

US19650440865 19650318

Probable Assignee:	ATLANTIC RES CORP
Assignee(s): (std)**:**	ATLANTIC RES CORP
Assignee(s):	ATLANTIC RESEARCH CORP
Inventor(s): (std)**:**	BLUMENKRANZ JAMES J

Legal status (INPADOC)

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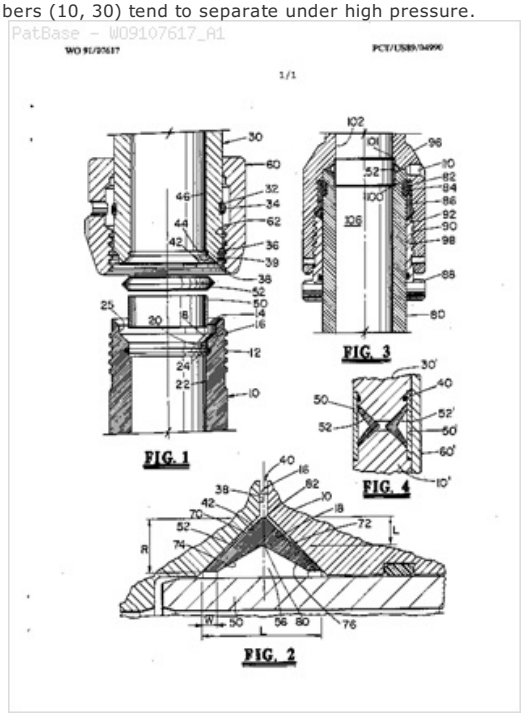
Patent	Date recorded	Event group	Code	Event	Details
GB1102468 A	19680207	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1102468 A	19860315	PEXP		Calculated Patent Term Expiry	
US3319268 A	19670516	LSGT	+	granted / extensions (spc, cpc, pte)	

10) Family number: 2896105 (WO9107617 A1)

Title: HIGH PRESSURE **PIPE** **COUPLING**

Abstract: A **coupling** device for metal tubular members subjected to pressure where abutting **coupling** members (10, 30) define a V shaped **groove** (18, 42). A metal **annular** V shaped sealing member (52) constructed from resilient metal is disposed in the V shaped **groove** (18, 42) and arranged so that the sealing member (52) can expand radially to maintain a seal and can expand longitudinally and radially to maintain a seal if the **coupling** members (10, 30) tend to separate under high pressure.

Classifications:
International (IPC 8-9): F16L19/02 F16L27/00 F16L27/08
International (IPC 1-7): F16L17/08 F16L19/02 F16L25/00 F16L27/08
CPC: F16L19/0206 F16L19/0218 F16L27/0812



Family:

Publication number	Publication date	Application number	Application date
DE68922865 D1	19950629	DE19896022865T	19891108
EP0452357 A1	19911023	EP19900901140	19891108
EP0452357 A4	19920422	EP19900901140	19891108
EP0452357 B1	19950524	EP19900901140	19891108
NO912614 A	19910821	NO19910002614	19910703
NO912614 A0	19910703	NO19910002614	19910703
NO912614 L	19910821	NO19910002614	19910703
WO9107617 A1	19910530	WO1989US04990	19891108

Priority:
WO1989US04990 19891108

Probable Assignee: MANIFOLD SYSTEMS INC
Assignee(s): (std): MANIFOLD SYSTEMS INC
Assignee(s): MANIFOLD SYSTEMS INC ALICE TEX US
Inventor(s): (std): BROOKS ROBERT ; BROOKS ROBERT T
Designated states: DE FR GB IT NL NO US

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE68922865 D1	19951116	LSWD	-8332	NO LEGAL EFFECT FOR DE	
DE68922865 D1	19951116	LSWD	-8332	NO LEGAL EFFECT FOR DE	
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EP0452357 A1	19911023		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: DE FR GB IT NL
EP0452357 A1	19920122	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 19911125

EP0452357 A4	19920422	LSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	Effective date: 19920304
EP0452357 A4	19920422		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A4 Country of Ref document: DE FR GB IT NL
EP0452357 A4	19920923	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 19920812
EP0452357 B1	19950524	LSGT	+	granted / extensions (spc, cpc, pte)	
EP0452357 B1	19950524		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: DE FR GB IT NL
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EP0452357 B1	19950524	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Lapsed date: 19950524 Country of Ref document: NL
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EP0452357 B1	19950825	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19950825 Country of Ref document: DE
EP0452357 B1	19951020		-EN	FR: TRANSLATION NOT FILED	
EP0452357 B1	19951101	LSLE	-NLV1	NL: LAPSED OR ANNULLED DUE TO FAILURE TO FULFILL THE REQUIREMENTS OF ART. 29P AND 29M OF THE PATENTS ACT	Ref country code: EP
EP0452357 B1	19960313		REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: 732E Ref country code: GB
EP0452357 B1	19960515	LSGT	+26N	NO OPPOSITION FILED	
EP0452357 B1	20020101		REG	REFERENCE TO A NATIONAL	Ref legal event code: IF02 Ref country code: GB

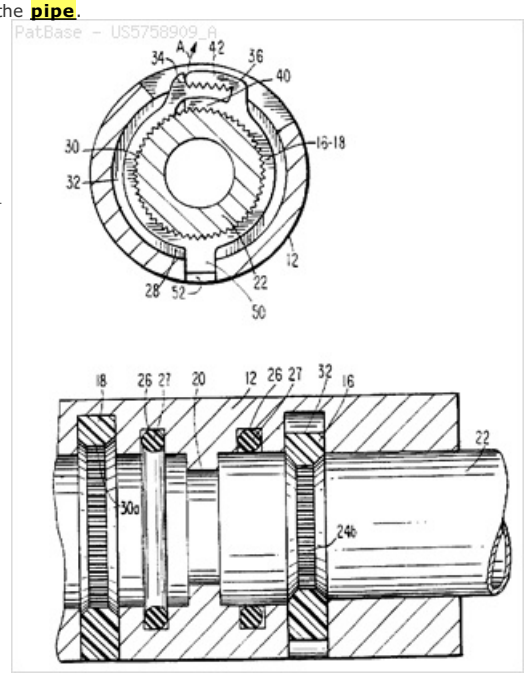
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EP0452357 B1	20051108	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20051108 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: GB
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EP0452357 B1	20091108	PEXP		Calculated Patent Term Expiry	
NO912614 A	19910821	LSPB	+	published / reissued	
WO9107617 A1	19910530	LSPB	+	published / reissued	
WO9107617 A1	19910530		+AK	DESIGNATED STATES	Kind code of Ref document: A1 Country of Ref document: NO US
WO9107617 A1	19910530		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: DE FR GB IT NL
WO9107617 A1	19910626	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 1990901140 Country of Ref document: EP
WO9107617 A1	19911023	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 1990901140 Country of Ref document: EP
WO9107617 A1	19950524	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	Ref document number: 1990901140 Country of Ref document: EP

11) Family number: 10838753 (US5758909 A)

Title: ROTATION INHIBITING QUICK CONNECT **CONNECTOR** FOR **GROOVED** **PIPE**

Abstract: A quick **connector** for joining **pipes** having **grooved** ends has a circlip which is contracted circumferentially and locked in the contracted condition, the inner diameter of the circlip, when in the contracted condition, being less than the outer diameter of the **pipe**, the inner diameter of circlip and the bottom wall of the **pipe** **groove** including surface configurations that are interfitted in the contracted condition of the circlip, and which inhibit relative rotation between the quick **connector** and the **pipe** in addition to locking the **connector** against axial removable from the **pipe**.

Classifications:
International (IPC 8-9): F16B7/00 F16B7/20 F16L37/00 F16L37/08 F16L37/12 F16L37/14 F16L37/22
International (IPC 1-7): F16B7/20 F16L F16L33/00 F16L37/00 F16L37/08 F16L37/12
CPC: F16L37/12 Y10T24/1406
US: 24/17A 285/305 285/328 285/330 285/369 411/353 411/517
JP F-Term: 3J039 3J106 3J039/AA03 3J039/BB01 3J039/FA01 3J039/JA06 3J039/JA17 3J106/AA01 3J106/AA04 3J106/AA06 3J106/AB01 3J106/BA01 3J106/BA02 3J106/BB01 3J106/BB03 3J106/BB04 3J106/BB07 3J106/BC04 3J106/BD01 3J106/BE23 3J106/BE29 3J106/BE40 3J106/CA02 3J106/EA03 3J106/EB02 3J106/EC01 3J106/EC07 3J106/ED14 3J106/EE11 3J106/EF04
JP F-Index: F16B7/20@A F16L37/08 F16L37/12



Family:

Publication number	Publication date	Application number	Application date
AR007412 AA	19991027	AR1997P102667	19970618
AU199734097 A1	19980107	AU19970034097	19970609
AU729683 B2	20010208	AU19970034097	19970609
BRPI9709848 A	20000111	BR1997PI09848	19970609
CA2258486 AA	19981215	CA19972258486	19970609
CL1997001174 A1	19980525	CL19970001174	19970617
CN1227627 A	19990901	CN19971097168	19970609
CZ414298 A3	19990616	CZ19980004142	19970609
CZ9804142 A3	19990616	CZ19980004142	19970609
EP0904508 A1	19990331	EP19970930214	19970609
EP0904508 A4	19990915	EP19970930214	19970609
ID17357 A	19971224	ID19970002061	19970616
IL127478 A0	19991028	IL19970127478	19970609
IN01594DE1997 A	20160831	IN1997DE01594	19970613
JP2002512669 T2	20020423	JP19980503472T	19970609
KR20000016764 A	20000325	KR19980710372	19970609
PE79398 A1	19981119	PE19970000515	19970618
PL330783 A1	19990607	PL19970330783	19970609
TH33937 A	19990716	TH19971002352	19970616
TR9802662 T2	19990322	TR19980002662T	19970609
US5758909 A	19980602	US19960665480	19960618
WO9748938 A1	19971224	WO1997US10954	19970609
ZA9705251 A	19980105	ZA19970005251	19970613

Priority:
US19960665480 19960618 WO1997US10954 19970609

Probable Assignee: VICTAULIC CO OF AMERICA

Assignee(s): (std): VICTAULIC CO OF AMERICA

Assignee(s): DOLE DOUGLAS R ; DOMAGALA ANDREJ ; VICTAULIC CO ; VICTAULIC CO OF AMERICA SOC ORGANIZADA BAJO LAS LEYES DEL ESTADO DE NEW JERSEY ; VICTAULIC COMPANY OF AMERICA

Inventor(s): (std): DOLE D R ; DOLE DOUGLAS ; DOLE DOUGLAS R ; DOMAGALA A ; DOMAGALA ANDREJ ; DOMAGALA ANDRZEJ W

Inventor(s): A DOMAGALA ; ANDREJ DOMAGALA ; ANDRZEJ W DOMAGALA ; D R DOLE ; DOUGLAS DOLE ; DOUGLAS R DOLE

Agent(s): KIRBY EADES GALE BAKER; MAXWELLS PATENT AND TRADE MARK ATTORNEYS PTY LTD; PETER MAXWELL AND ASSOCIATES; VILLASECA

Designated states: AT AU BE BR CA CH CN CZ DE DK ES FI FR GB GR IE IL IT JP KP KR LU MC MX NL PL PT SE TR VN

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AR007412 AA	19991027	LSPB	+	published / reissued	
AU199734097 A1	19980107	LSPB	+	published / reissued	
AU729683 B2	20010208	LSGT	+	granted / extensions (spc, cpc, pte)	
AU729683 B2	20010607	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU729683 B2	20030123	LSLE	-MK14	PATENT CEASED SECTION 143(A) (ANNUAL FEES NOT PAID) OR EXPIRED	
AU729683 B2	20170609	PEXP		Calculated Patent Term Expiry	
BRPI9709848 A	20000111	LSPB	+	published / reissued	
BRPI9709848 A	20030311	LSRV	-FA10	DISMISSAL: DISMISSAL - ARTICLE 33 OF INDUSTRIAL PROPERTY LAW	
CA2258486 AA	19981215	LSPB	+	published / reissued	
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CA2258486 AA	20010611	LSLE	-FZDE	DEAD	
CL1997001174 A1	19980525	LSPB	+	published / reissued	
CN1227627 A	19990901	LSPB	+	published / reissued	
CN1227627 A	19990901	LSPB	+C06	PUBLICATION	
CN1227627 A	19990908		C10	ENTRY INTO SUBSTANTIVE EXAMINATION	
CN1227627 A	20001004	LSDW	-C01	DEEMED WITHDRAWAL OF PATENT APPLICATION (PATENT LAW 1993)	
CZ414298 A3	19990616	LSPB	+	published / reissued	
CZ9804142 A3	19990616	LSPB	+	published / reissued	
EP0904508 A1	19990331	LSPB	+	published / reissued	
EP0904508 A1	19990331	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 19990105
EP0904508 A1	19990331		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: BE DE ES FR GB IT NL
EP0904508 A4	19990915	LSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	Effective date: 19990804
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EP0904508 A4	19990922		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	Text: 6F 16L 37/12 A, 6F 16L 21/08 B
EP0904508 A4	20000419	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	Effective date: 19991021
ID17357 A	19971224	LSPB	+	published / reissued	
IN01594DE1997 A	20160831	LSPB	+	published / reissued	
JP2002512669 T2	20020423	LSPB	+	published / reissued	
KR20000016764 A	20000325	LSPB	+	published / reissued	
KR20000016764 A	20030319	LSDW	-WITN	WITHDRAWAL DUE TO NO REQUEST FOR EXAMINATION	
PE79398 A1	19981119	LSPB	+	published / reissued	
PE79398 A1	20010125	LSWD	-FD	APPLICATION DECLARED VOID OR LAPSED	
PL330783 A1	19990607	LSPB	+	published / reissued	

TH33937 A	19990716	LSPB	+	published / reissued	
TR9802662 T2	19990322	LSPB	+	published / reissued	
US5758909 A	19960618	LSAS	AS	ASSIGNMENT	Effective date: 19960617 PartyType: owner Owner: VICTAULIC COMPANY OF AMERICA, PENNSYLVANIA OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:DOLE, DOUGLAS R.;DOMAGALA, ANDRZEJ W.;REEL/FRAME:008039/0148
US5758909 A	19980602	LSGT	+	granted / extensions (spc, cpc, pte)	
US5758909 A	20011226		REMI	MAINTENANCE FEE REMINDER MAILED	
US5758909 A	20020603	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US5758909 A	20020702	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
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WO9748938 A1	19971224		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
WO9748938 A1	19980402		DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101)	
WO9748938 A1	19980415		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	
WO9748938 A1	19981215	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Ref document number: 2258486 Country of Ref document: CA
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WO9748938 A1	19981218	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 1998/02662 Country of Ref document: TR
WO9748938 A1	19990105	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 1997930214 Country of Ref document: EP
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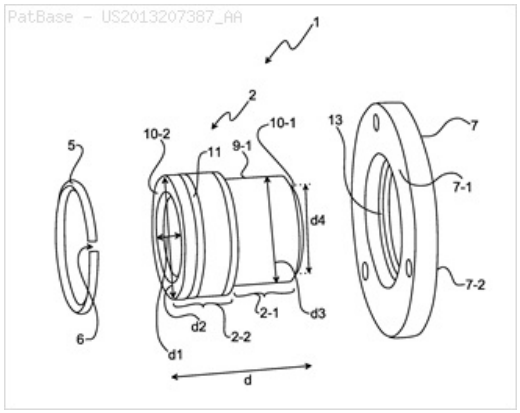
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ZA9705251 A	20170612	PEXP		Calculated Patent Term Expiry	

12) Family number: 50473936 (US2013207387 AA)

Title: **PIPE** **CONNECTOR**

Abstract: It is presented a **pipe** **connector** (1) comprising a tubular part (2) having a first portion (2-1) with a first outer diameter and second portion (2-2) with a second outer diameter which is larger than the first outer diameter, which second portion has a circumferential **groove** (11), a removable stop **ring** (5), which, when arranged in the **groove** (11), protrudes radially from the tubular part (2), and a flange part (7) having a central through opening for receiving the tubular part (2), wherein the flange part (7) has a shoulder (13) for abutting against the stop **ring** (5) when the flange part (7) is arranged around the stop **ring** (5), wherein the first portion (2-1) has a plastic external peripheral surface, and the second portion (2-2) of the tubular part (2) has a metal external peripheral surface.

Classifications:
International (IPC 8-9): F16L23/00 F16L23/028 F16L25/00 F16L25/01 F16L47/03 F16L47/14 F16L47/24
CPC: F16L23/006 F16L23/028 F16L23/0286 F16L25/0072 F16L25/01 F16L33/04 F16L33/2071 F16L47/03 F16L47/14 F16L47/24
US: 1/1 285/363



Family:

Publication number	Publication date	Application number	Application date
CN102985739 A	20130320	CN201180033844	20110707
CN102985739 B	20141210	CN201180033844	20110707
EP2591262 A1	20130515	EP20110803908	20110707
EP2591262 A4	20170607	EP20110803908	20110707
EP2591262 B1	20190828	EP20110803908	20110707
SE201050769 A1	20120110	SE20100050769	20100709
SE535387 C2	20120717	SE20100050769	20100709
US2013207387 AA	20130815	US20110808916	20110707
US9261210 BB	20160216	US20110808916	20110707
WO12005679 A1	20120112	WO2011SE50924	20110707

Priority:
SE20100050769 20100709 WO2011SE50924 20110707

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Assignee(s): KUNGSORS PLAST AB
Inventor(s): (std): ANDERSSON THOMAS ; SELLING LARS
Inventor(s): LARS SELLING ; THOMAS ANDERSSON
Agent(s): KRANSELL AND WENNBORG KB; MEZOEFI ROLAND BJOERN GERGELY; MEZOEFI ROLAND ET AL; MYERS BIGEL SIBLEY AND SAJOVEC PA
Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN102985739 A	20130320	LSPB	+	published / reissued	
CN102985739 A	20130320	LSPB	+C06	PUBLICATION	
CN102985739 A	20130417		C10	ENTRY INTO SUBSTANTIVE EXAMINATION	
CN102985739 B	20141210	LSGT	+	granted / extensions (spc, cpc, pte)	
CN102985739 B	20141210	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN102985739 B	20310707	PEXP		Calculated Patent Term Expiry	

EP2591262 A1	20130515	LSPB	+	published / reissued	
EP2591262 A1	20130515	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20130123
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EP2591262 A4	20170607	LSES	+RA4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED (CORRECTED)	Effective date: 20170511
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EP2591262 B1	20190830	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: EP
EP2591262 B1	20190915	LSNP	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20190915 Kind code of Ref document: T Ref country code: AT Ref document number: 1172834 Ref legal event code: REF Country of Ref document: AT
EP2591262 B1	20190918	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: FG4D
EP2591262 B1	20190919	LSPB	REG	REFERENCE TO A NATIONAL CODE	Ref country code: DE Ref document number: 602011061655 Ref legal event code: R096

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EP2591262 B1	20200110	LSRV	REG	REFERENCE TO A NATIONAL CODE	Ref country code: LT Ref legal event code: MG4D
EP2591262 B1	20200131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20191128 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: BG
EP2591262 B1	20200131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20190828 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: NL
EP2591262 B1	20200131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20190828 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SE
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EP2591262 B1	20200131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20190828 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: FI
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EP2591262 B1	20200315	LSRV	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20190828 Kind code of Ref document: T Ref country code: AT Ref document number: 1172834 Ref legal event code: MK05 Country of Ref document: AT
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EP2591262 B1	20200812	LSGT	+26N	NO OPPOSITION FILED	Effective date: 20200603
EP2591262 B1	20200831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20190828 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SI
EP2591262 B1	20310707	PEXP		Calculated Patent Term Expiry	
SE201050769 A1	20120110	LSPB	+	published / reissued	
SE535387 C2	20120717	LSGT	+	granted / extensions (spc, cpc, pte)	
SE535387 C2	20300709	PEXP		Calculated Patent Term Expiry	
US2013207387 AA	20130815	LSPB	+	published / reissued	
US2013207387 AA	20151216	LSAS	AS	ASSIGNMENT	Owner: OPW SWEDEN AB, SWEDEN Effective date: 20140502 OldParty: CHANGE OF NAME;ASSIGNOR:KUNGSORS PLAST AB;REEL/FRAME:037304/0096 PartyType: owner
US2013207387 AA	20160127	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US9261210 BB	20130214	LSAS	AS	ASSIGNMENT	Effective date: 20130131 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:ANDERSSON, THOMAS;SELLING, LARS;REEL/FRAME:029811/0762 Owner: KUNGSORS PLAST AB, SWEDEN PartyType: owner
US9261210 BB	20151015	LSES	NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US9261210 BB	20160127	LSGT	PAT1	Patented Case	
US9261210 BB	20160216	LSGT	+	granted / extensions (spc, cpc, pte)	
US9261210 BB	20170919	LSRE	CC	CERTIFICATE OF CORRECTION	
US9261210 BB	20190802	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	Year of fee payment: 4
US9261210 BB	20310919	PEXP		Calculated Patent	

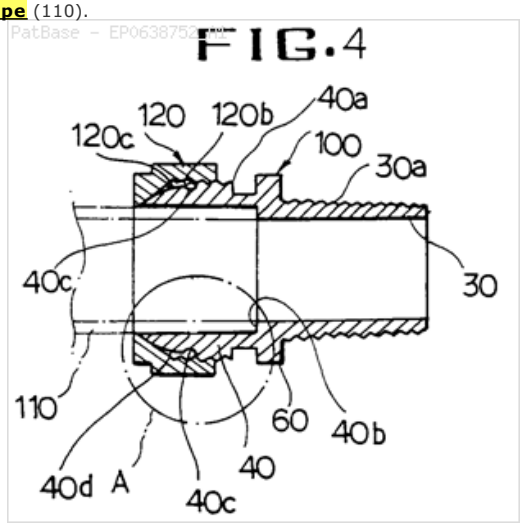
				Term Expiry (PTA 74 days)	
WO12005679 A1	20110707	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 201180033844.0 Country of Ref document: CN
WO12005679 A1	20120112	LSPB	+	published / reissued	
WO12005679 A1	20120229		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	Ref document number: 11803908 Kind code of Ref document: A1 Country of Ref document: EP
WO12005679 A1	20130109	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: DE
WO12005679 A1	20130123	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2011803908 Country of Ref document: EP
WO12005679 A1	20130215	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 13808916 Country of Ref document: US

13) Family number: 16352594 (EP0638752 A1)

Title: PIPE CONNECTOR

Abstract: A **pipe** **connector** capable of tightly **coupling** **pipes** at opposite ends thereof. The **pipe** **connector** includes a nipple (100) including a first **pipe** member (30) and a second **pipe** member (40) adapted to receive one end of a **pipe** (110) to be **coupled** to the nipple (100), a clamp member (120) adapted to be threadedly **coupled** to the second **pipe** member (40), an inner **pipe** portion (40b) formed radially inwardly of the second **pipe** member (40) to extend in a longitudinal direction of the second **pipe** member (40), an **annular** space defined between the second **pipe** member (40) and the inner **pipe** portion and adapted to receive the one end of the **pipe** (110), a spacer (40d) extending from an outer end of the second **pipe** member (40) in a longitudinal direction of the second **pipe** member (40), the spacer (40d) being adapted to be pressed against an outer surface of the **pipe** (110) toward a center line of the **pipe** by the inclined surface (120c) of the clamp member (120) when the clamp member (120) is fastened under a condition that the one end of the **pipe** (110) has been received in the **annular** space, whereby the **pipe** is partially depressed by the spacer (40d), and an **annular** **groove** (40c) formed on an outer surface of the inner **pipe** portion and adapted to receive the depressed portion of the **pipe** (110).

Classifications:
International (IPC 8-9): F16L19/00 F16L19/065 F16L19/08 F16L33/22
International (IPC 1-7): F16L19/00 F16L19/03 F16L19/06 F16L19/065 F16L19/08 F16L33/22 F16L37/00
CPC: F16L19/0656
JP F-Term: 3H014 3H014/BA01 3H014/FA04 3H014/GA11 3H014/GA17
JP F-Index: F16L19/03 F16L19/06 F16L19/065 F16L19/08 F16L19/12



Family:

Publication number	Publication date	Application number	Application date
CA2112780 AA	19950212	CA19942112780	19940104
CN2209747 Y	19951011	CN19942004781U	19940106
EP0638752 A1	19950215	EP19930310636	19931231
JP3000037 U	19940726	JP19940000016U	19940106
KR950019705 U	19950724	KR19930026391U	19931202
KR960009115 Y1	19961015	KR19930026391U	19931202
KR950019706 U	19950724	KR19930026392U	19931202
KR960004611 Y1	19960603	KR19930026392U	19931202
TH20212 A	19960829	TH19941000008	19940105

Priority:

KR19930015545 19930811 KR19930026391U 19931202 KR19930026392U 19931202
KR19930026391 19931202 KR19930026392 19931202 CA19942112780 19940104

Probable Assignee: PARK SIL SANG
Assignee(s): (std): PARK SIL SANG ; PIAO SHIXIANG
Inventor(s): (std): PARK SIL SANG ; SHIXIANG PIAO
Inventor(s): PIAO SHIXIANG
Agent(s): KIRBY EADES GALE BAKER
Designated states: DE FR GB IT SE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA2112780 AA	19940104	LSES	+EEER	EXAMINATION REQUEST	
CA2112780 AA	19950212	LSPB	+	published / reissued	
CA2112780 AA	19980105	LSLE	-FZDE	DEAD	
CN2209747 Y	19951011	LSGT	+	granted / extensions (spc, cpc, pte)	
CN2209747 Y	19951011	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN2209747 Y	19980225	LSLE	-C19	LAPSE OF PATENT RIGHT DUE TO NON-PAYMENT OF THE ANNUAL FEE	
CN2209747 Y	20040106	PEXP		Calculated Patent Term Expiry	

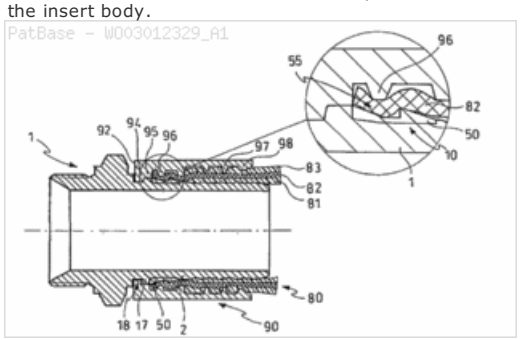
EP0638752 A1	19950215	LSPB	+	published / reissued	
EP0638752 A1	19950215		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: DE FR GB IT SE
EP0638752 A1	19950927	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 19950727
EP0638752 A1	19961204	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 19961022
EP0638752 A1	19970903	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	Effective date: 19970304
JP3000037 U	19940726	LSGT	+	granted / extensions (spc, cpc, pte)	
JP3000037 U	20040106	PEXP		Calculated Patent Term Expiry	
KR950019705 U	19950724	LSPB	+	published / reissued	
KR950019706 U	19950724	LSPB	+	published / reissued	
KR960004611 Y1	19931204	LSES	A201	REQUEST FOR EXAMINATION	
KR960004611 Y1	19960315	LSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
KR960004611 Y1	19960603	LSGT	+	granted / extensions (spc, cpc, pte)	
KR960004611 Y1	19960826	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	
KR960004611 Y1	19961122		+REGI	REGISTRATION OF ESTABLISHMENT	
KR960004611 Y1	20031202	PEXP		Calculated Patent Term Expiry	
KR960004611 Y1	20060603	LSFE	FPAY	ANNUAL FEE PAYMENT	Year of fee payment: 11 Payment date: 20060605
KR960004611 Y1	20070604	LSLE	-LAPS	LAPSE DUE TO UNPAID ANNUAL FEE	
KR960009115 Y1	19931204	LSES	A201	REQUEST FOR EXAMINATION	
KR960009115 Y1	19960315	LSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
KR960009115 Y1	19960704	LSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
KR960009115 Y1	19961015	LSGT	+	granted / extensions (spc, cpc, pte)	
KR960009115 Y1	19970106	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	
KR960009115 Y1	19970128		+REGI	REGISTRATION OF ESTABLISHMENT	
KR960009115 Y1	20031202	PEXP		Calculated Patent Term Expiry	
KR960009115 Y1	20061016	LSFE	FPAY	ANNUAL FEE PAYMENT	Payment date: 20061017 Year of fee payment: 11
KR960009115 Y1	20071016	LSLE	-LAPS	LAPSE DUE TO UNPAID ANNUAL FEE	
TH20212 A	19960829	LSPB	+	published / reissued	

14) Family number: 28066883 (WO03012329 A1)

Title: INSERT FOR HYDRAULIC **CONNECTOR** AND HYDRAULIC **CONNECTOR** COMPRISING SUCH INSERT

Abstract: An insert for an hydraulic **connector** for the connection of **pipes** (90) comprising an inner rubber layer (81), a metal reinforcing core (82), and a rubber covering (83), comprises an internally hollow body (1) having a first portion (2) to be fitted in the free end of the **pipe** (80), and a **ring** (50) which is separate from the body (1) but can be associated releasably therewith. The **ring** comprises an outer **annular** **groove** (55) suitable for co-operating with a locking sleeve (90) of the **connector** in order to restrain the metal reinforcing core (82) of the **pipe** and to achieve an "interlock" connection. The first portion (2) of the body (1) has an **annular** channel (10) suitable for housing the **ring** completely in order to restrain it in a defined axial position relative to the insert body (1), ensuring quick and precise mounting of the **ring** on the insert body.

Classifications:
International (IPC 8-9): F16L33/207
International (IPC 1-7): F16L33/207
CPC: F16L13/141 F16L33/2075



Family:

Publication number	Publication date	Application number	Application date
AU2001282498 AA	20030217	AU20010282498	20010727
WO03012329 A1	20030213	WO2001IT00410	20010725

Priority:

WO2001IT00410 20010725 WO2001IT00410 20010727

Probable Assignee: ITR S P A

Assignee(s): (std): CARBONINI FRANCO ; ITR S P A ; TAGLIARO WALTER

Inventor(s): (std): CARBONINI FRANCO ; TAGLIARO WALTER

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2001282498 AA	20030217	LSPB	+	published / reissued	
WO03012329 A1	20030213	LSPB	+	published / reissued	
WO03012329 A1	20030213		+AK	DESIGNATED STATES	Kind code of Ref document: A1 Country of Ref document: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
WO03012329 A1	20030213		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: AM AT AZ BE BF BJ BY CF CG CH CI CM CY DE DK ES FI FR GA GB GH GM GN GQ GR GW IE IT KE KG KZ LS LU MC MD ML MR MW MZ NE NL PT RU SD SE SL SN SZ TD TG TJ TM TR TZ UG ZW
WO03012329 A1	20030228	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 10362374 Country of Ref document: US
WO03012329 A1	20030313		DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101)	
WO03012329 A1	20030402		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	
WO03012329 A1	20040609	LSWD	REG	REFERENCE TO NATIONAL CODE	Ref legal event code: 8642 Ref country code: DE

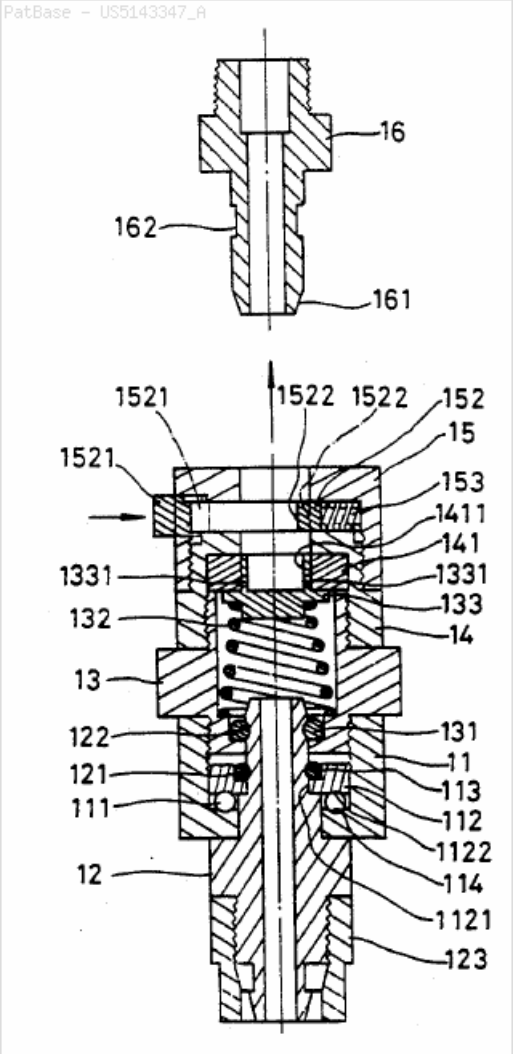
WO03012329 A1	20040818		-32PN	EP: PUBLIC NOTIFICATION IN THE EP BULLETIN AS ADDRESS OF THE ADRESSEE CANNOT BE ESTABLISHED	Text: NOTING OF LOSS OF RIGHTS PURSUANT TO RULE 69(1)EPC (EPO FORM 1205A DATED 21.05.04)
WO03012329 A1	20050223	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	Ref country code: WO
WO03012329 A1	20050606	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: JP

15) Family number: 5129117 (US5143347 A)

Title: Revolvable quick **coupling**

Abstract: For connecting an air compressor to a pneumatic tool, a revolvable quick **coupling** comprising a first air **pipe** **connector** revolvably secured to an intermediate connecting member by a ball bearing means and connected to an air output **pipe** of an air compressor, a second air **pipe** **connector** secured to said intermediate connecting member by a front socket, a retainer, an inner socket, a seal **ring**, a stepped metal element and a spring means for connecting to an air input **pipe** of a pneumatic tool. Pressing on the retainer causes the second air **pipe** **connector** to disconnect from the front socket and simultaneously causes said seal **ring** to seal the air passage inside the **coupling**. Rotating the pneumatic tool causes the second air **pipe** **connector** to rotate on the first air **pipe** **connector** without twisting the air output **pipe** of the air compressor.

Classifications:
International (IPC 8-9): F16L37/00 F16L37/084 F16L37/28 F16L37/42 F16L37/53
International (IPC 1-7): F16L37/28
CPC: F16L37/0841 F16L37/42 F16L37/53
US: 251/149.6 285/276 285/317



Family:

Publication number	Publication date	Application number	Application date
US5143347 A	19920901	US19920820387	19920114

Priority:
US19920820387 19920114

Probable Assignee: LEE YEONG D
Assignee(s): (std): LEE YEONG D ; LEE YEONG H
Inventor(s): (std): LEE YEONG D ; LEE YEONG H

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
US5143347 A	19920820	LSGT	PAT1	Patented Case	
US5143347 A	19920901	LSGT	+	granted / extensions (spc, cpc, pte)	
US5143347 A	19960409		REMI	MAINTENANCE FEE REMINDER MAILED	

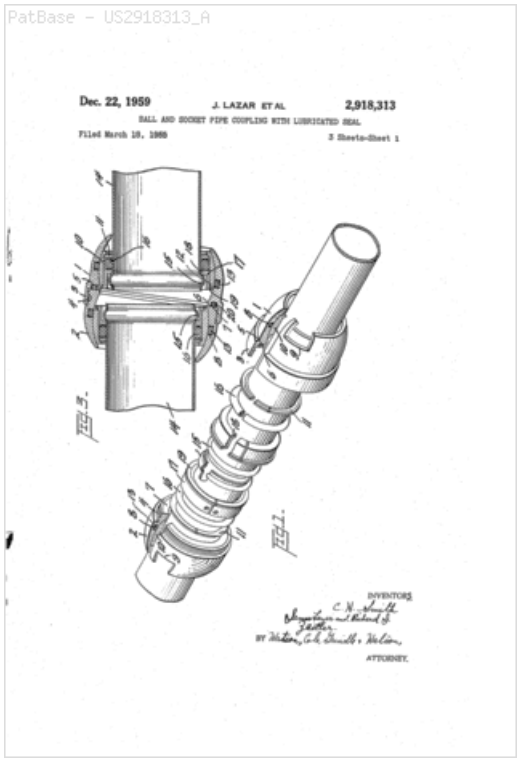
US5143347 A	19960901	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US5143347 A	19961112	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective date: 19960904
US5143347 A	20120114	PEXP		Calculated Patent Term Expiry	
US5143347 A	20180127	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US5143347 A	20180127	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362

16) Family number: 22216065 (US2918313 A)

Title: BALL AND SOCKET **PIPE** **COUPLING** WITH LUBRICATED SEAL

Abstract: (Claim 1) 1. A **pipe** **connector** for **coupling** the terminal end of a first **pipe** to a second **pipe** having a projecting **annular** end bulge, comprising a tubular section, means connecting said tubular section to said first **pipe** in iiuid sealing relationship, said section having a pair of diametrically opposite slots in thc section wall extending to the U11- **coupled** end of the section and at right angles to the section diameter and having a socket with an inner sphericaI surface, a lubricated sealing **ring** positioned in a continuous **annular** **groove** substantially in the diametrical 2,a1s,s1s plane of the inner spherical surface of said section, said plane being transverse to the axis of said section, a tubular ball segment having a spherical outer surface closely mating with the inside surface of the tubular section, said ball segment being operatively positioned within the section by insertion through thc slots to the full depth of the slots at which point the respective inner and outer surfaces of the socket and ball segment are concentric and coincide with each other wherein the ball segment is capable of being revolved within the socket, said ball segment having a cylindrical inner surface and inwardly extending Range means adjacent the outer edge of said ball segment, said ilange means slidably engaging the outer surface of said Second **pipe** outwardly of said **annular** end bulge, a tubular split bead retainer positioned within said ball and being formed with a substantially continuous circular outer lug mating with a shoulder formed on the inside diameter of said ball segment and along the inner edge, and means maintaining said split retainer in iixed relation inysaid ball segment, said retainer also including an inwardly directed circular axial load resisting shoulder slidably engaging the outer surface of said second **pipe** and adapted to abut the outcr side of the projecting **annular** end bulge of said second **pipe** thereby holding said second **pipe** to the **connector**, said Range means and said load resisting shoulder being axially spaced and sealing means positioned therebetween and engaging said second **pipe** and said cylindrical inner surface of said ball segment.

Classifications:
International (IPC 8-9): F16L19/02 F16L19/028 F16L27/02 F16L27/04 F16L27/06
International (IPC 1-7): F16L27/04
CPC: F16L19/028 F16L27/04 F16L27/06
US: 285/179 285/233 285/261 285/347 285/349 285/353 285/94



Family:

Publication number	Publication date	Application number	Application date
US2918313 A	19591222	US19550495162	19550318

Priority:
US19550495162 19550318

Probable Assignee: FLIGHT REFUELING INC
Assignee(s): (std): FLIGHT REFUELING INC
Assignee(s): FLIGHT REFUELING INCORPORATED
Inventor(s): (std): HARRY SMITH CHARLES ; JAMES LAZAR ; JOHN ZEITLER RICHARD
Inventor(s): LAZAR JAMES ; SMITH CHARLES HARRY ; ZEITLER RICHARD JOHN

Legal status (INPADOC)

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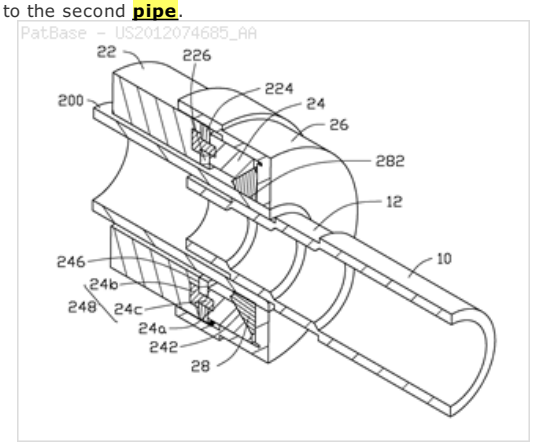
Patent	Date recorded	Event group	Code	Event	Details
US2918313 A	19591222	LSGT	+	granted / extensions (spc, cpc, pte)	

17) Family number: 50830505 (US2012074685 AA)

Title: **PIPE** **CONNECTOR**

Abstract: A **pipe** **connector** for connecting to a first **pipe** includes a second **pipe** and a fastener. The second **pipe** has a number of connection sections of difference outer diameters, one of which is fittingly **coupled** to the first **pipe**. The fastener sleeves on the first **pipe** and the second **pipe** and fastens the first **pipe** to the second **pipe**.

Classifications:
International (IPC 8-9): F16L21/06 F16L25/08 F16L33/22 F16L35/00
CPC: F16L33/222
US: 285/148.22 285/15 285/18 285/18P 285/243 285/322 285/323



Family:

Publication number	Publication date	Application number	Application date
TW201213688 A	20120401	TW20100132952	20100929
US2012074685 AA	20120329	US20100977083	20101223
US8353539 BB	20130115	US20100977083	20101223

Priority:
TW20100132952 20100929

Probable Assignee: HON HAI PRECISION IND CO LTD
Assignee(s): (std): HON HAI PREC IND CO LTD ; HUANG CHIEN FENG ; WANG ZIH WEI
Assignee(s): HON HAI PRECISION IND CO ; HON HAI PRECISION IND CO LTD ; HON HAI PRECISION INDUSTRY CO ; HON HAI PRECISION INDUSTRY CO LTD
Inventor(s): (std): HUANG CHIEN FENG ; WANG ZIH WEI
Agent(s): ALTIS LAW GROUP INC

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
TW201213688 A	20120401	LSPB	+	published / reissued	
US2012074685 AA	20120329	LSPB	+	published / reissued	
US8353539 BB	20101223	LSAS	AS	ASSIGNMENT	PartyType: owner OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:HUANG, CHIEN-FENG;WANG, ZIH-WEI;REEL/FRAME:025562/0752 Effective date: 20101221 Owner: HON HAI PRECISION INDUSTRY CO., LTD., TAIWAN
US8353539 BB	20121222	LSGT	PAT1	Patented Case	
US8353539 BB	20130115	LSGT	+	granted / extensions (spc, cpc, pte)	
US8353539 BB	20160826		REMI	MAINTENANCE FEE REMINDER MAILED	
US8353539 BB	20170115	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US8353539 BB	20170213	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US8353539 BB	20170213	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US8353539 BB	20170307	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY	Effective date: 20170115

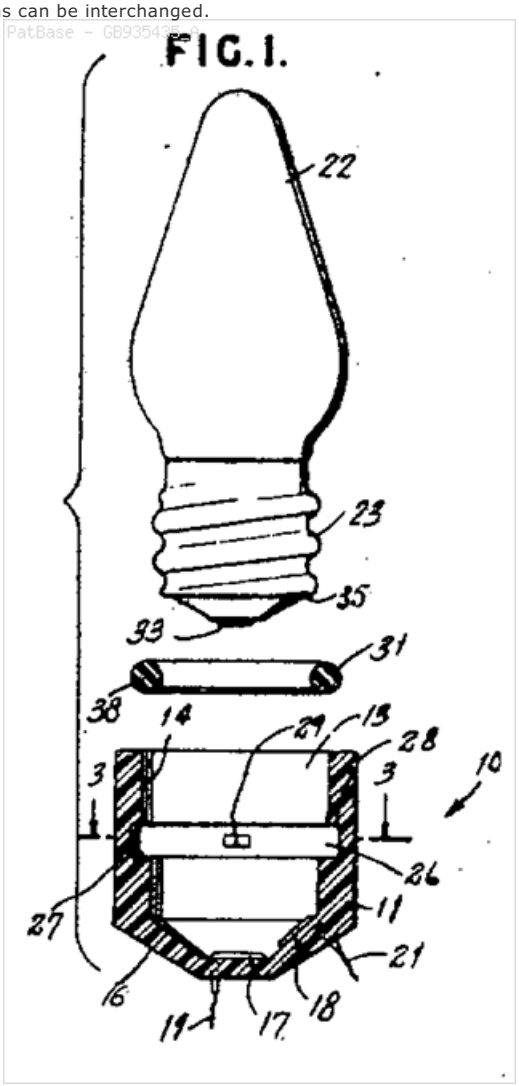
			MAINTENANCE FEE
US8353539 BB	20310301	PEXP	Calculated Patent Term Expiry (PTA 68 days)

18) Family number: 29944656 (GB935435 A)

Title: IMPROVEMENTS IN PUSH TOGETHER SCREW APART **CONNECTOR**

Abstract: 935,435. Electric **connectors**. GILBERT MANUFACTURING CO. Inc. March 28, 1960 [April 7, 1959], No. 10895/60. Class 38 (1). [Also in Groups XVII and XXVIII] A **connector** for detachably joining a mating threaded member comprises a body portion 13 having a cylindrical surface which can slide relative to the threaded member, flexible resilient means 31 mounted circumferentially on the cylindrical surface and being deformed by, and engaging the threads of, the threaded member on mating, the resilient means allowing straight - forward longitudinal movement in the assembling direction only, and ready separation only occurring upon unscrewing the threaded member from the **connector**. The side wall 28 on the open side of the **connector** is narrower than that 27 on the opposite side of the **groove** 26 housing the resilient means 31 so that the cavity bore on the open side is wider than that on the blind side, and on pulling the threaded member outwardly the resilient means will roll up on the inner wall of the cavity, thereby gripping the threads more firmly. Projections in the **groove** 26 prevent rotation of the means 31 which also provided a moisture-proof seal. The threads and resilient means can be interchanged.

Classifications:
International (IPC 8-9): B65D39/00 F16L37/00 F16L37/04 H01R13/02 H01R13/20 H01R33/05 H01R33/22
CPC: B65D2539/006 B65D39/0023 F16L37/04 H01R13/20 H01R33/22 Y10S277/91 Y10S285/906 Y10S285/911 Y10S285/918 Y10T29/49872
US: 220/304 277/625 277/910 285/906 285/911 285/918 29/451 411/512 439/253 439/271



Family:

Publication number	Publication date	Application number	Application date
GB935435 A	19630828	GB19600001085	19600328
US3101984 A	19630827	US19590804630	19590407

Priority:
US19590804630 19590407

Probable Assignee: GILBERT MFG CO INC
Assignee(s) (std)**:** GILBERT MFG CO INC ; GILBERT MFG COMPANY INC
Assignee(s): GILBERT MANUFACTURING CO INC ; GILBERT MANUFACTURING COMPANY INC
Inventor(s) (std)**:** GERHARD WIECKMANN
Inventor(s): WIECKMANN GERHARD

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details

GB935435 A	19630828	LSGT	+	granted / extensions (spc, cpc, pte)
GB935435 A	19800328	PEXP		Calculated Patent Term Expiry
US3101984 A	19630827	LSGT	+	granted / extensions (spc, cpc, pte)

19) Family number: 14066657 (IL116702 A1)

Title: QUICK CONNECT **CONNECTOR** FOR GROOVEDPIPE

Abstract: 1. A quick **connector** for a circular **pipe** of a constant single outer diameter having a circumferential **groove** in an outer surface of said **pipe**, positioned adjacent an axial end of said **pipe** and spaced from said axial end, said **connector** including: r - a body having a circular bore, said body having an axial length sufficient to engage said **pipe** opposite sides of said **groove** in said **pipe**, said bore having a diameter slightly exceeding that of said outer diameter of said **pipe**: a first **annular groove** in said body encircling said bore and communicating directly with said bore at a position aligned with a said **groove** of a said **grooved pipe** when said **grooved pipe** is inserted into said bore of said body; . an abutment within said bore for limiting the extent of axial insertion of said **pipe** into said bore and for axially aligning said **groove** in said **pipe** exterior with said first **groove** in said bore: a circlip positioned within said first **annular groove** in said body, said circlip engaging opposite sides of said **groove**, and bas ing an inner diameter at least equal to the diameter of said bore, and having an outer diameter substantially greater than the diameter of said bore; and means for contracting and locking said circlip to an inner diameter less than said outer diameter of said **pipe** and an outer diameter greater than said diameter of said bore; whereby, said circlip provides a stop member prohibiting removal of said **pipe** from said **connector** when said circlip is in said contracted and locked condition; > further including a second **annular groove** in said body encircling said bore at a position aligned with said outer surface of said **pipe** at a position remote from said circumferential **groove** in said outer surface; and an O-**ring** positioned in said second **annular groove** and engageable with said **pipe** outer surface and said second **annular groove** in scaling engagement therewith when said **pipe** is inserted into said bore of said body.

Classifications:
International (IPC 8-9): F16L F16L25/00
International (IPC 1-7): F16L F16L25/00

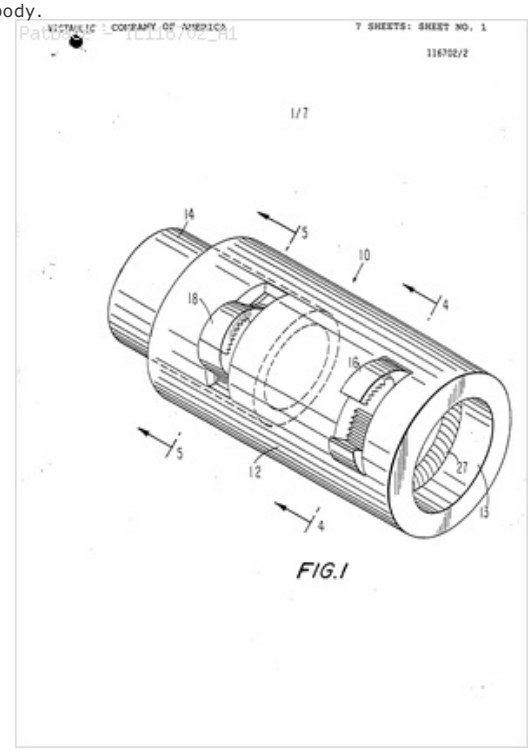


FIG.1

Family:

Publication number	Publication date	Application number	Application date
IL116702 A0	19960514	IL19960116702	19960108
IL116702 A1	19990817	IL19960116702	19960108

Priority:
IL19960116702 19960108

Probable Assignee: VICTAULIC COMPANY OF AMERICA
Assignee(s): (std): VICTAULIC CO OF AMERICA ; VICTAULIC COMPANY OF AMERICA
Assignee(s): VICTAULIC CO ; VICTAULIC COMPANY OF AMERICA
Agent(s): SANFORD TCOLB AND CO

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
IL116702 A1	19990817	LSPB	+	published / reissued	
IL116702 A1	19991222	LSGT	+FF	PATENT GRANTED	

20) Family number: 10616657 (EP0678695 A2)

Title: BRAZELESS END **CONNECTOR** FOR **PIPES** FOR FLUID AND A HEAT EXCHANGER WHICH USES THIS **CONNECTOR**

Abstract: A brazeless end **connector** for **pipes** for fluid (15, 26, 45, 39) made from malleable material, such as copper or stainless steel, including a **pipe** end (14, 25, 40) cold-worked to form a first cylindrical **coupling** surface for **coupling** with a corresponding second surface of an element (16, 28) to be **coupled**, a resilient **ring** (23, 32) interposed between the surfaces to ensure that the **coupling** is fluid-tight and means (33, 27, 43, 48, 20) for preventing the element to be **coupled** from slipping axially out of the first cylindrical **coupling** surface.

Classifications:
International (IPC 8-9): F16L13/14 F28D F28F9/26
International (IPC 1-7): F16L13/14 F28F9/04
CPC: F16L13/143 F28F9/26

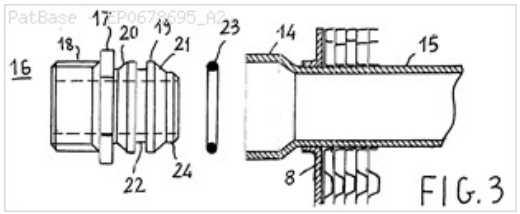


FIG.3

Family:

Publication number	Publication date	Application number	Application date
EP0678695 A2	19951025	EP19950200552	19950307
EP0678695 A3	19960717	EP19950200552	19950307
IT1270045 B	19970428	IT1994MI00766	19940420
ITMI940766 A0	19940420	IT1994MI00766	19940420
ITMI940766 A1	19951021	IT1994MI00766	19940420

Priority:
IT1994MI00766 19940420

Probable Assignee: GIANNONI SRL
Assignee(s): (std): GIANNONI SRL
Inventor(s): (std): GIANNONI ROCCO ; QUAINI CARLO
Designated states: BE CH DE ES FR GB IT LI NL SE

Legal status (INPADOC)

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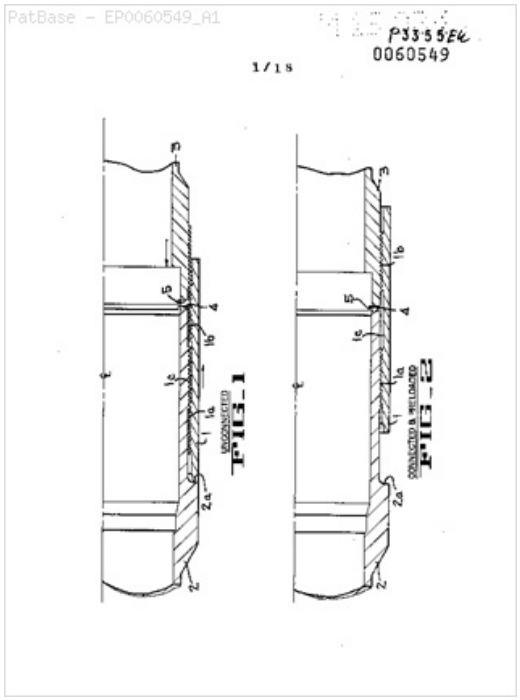
Patent	Date recorded	Event group	Code	Event	Details
EP0678695 A2	19951025	LSPB	+	published / reissued	
EP0678695 A2	19951025		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A2 Country of Ref document: BE CH DE ES FR GB IT LI NL SE
EP0678695 A3	19960717		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A3 Country of Ref document: BE CH DE ES FR GB IT LI NL SE
EP0678695 A3	19971022	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	Effective date: 19970118
IT1270045 B	19970428	LSGT	+	granted / extensions (spc, cpc, pte)	
IT1270045 B	19970428	LSGT	0001	GRANTED	
IT1270045 B	19991027	LSFE	TA	FEE PAYMENT DATE (SITUATION AS OF EVENT DATE), DATA COLLECTED SINCE 19931001	Effective date: 19990226
IT1270045 B	20140420	PEXP		Calculated Patent Term Expiry	
ITMI940766 A1	19951021	LSPB	+	published / reissued	

21) Family number: 2369332 (EP0060549 A1)

Title: THREAD-TYPE **PIPE** **CONNECTOR**

Abstract: An improved thread-type **pipe** **connector** especially suitable for releasably interconnecting sections of marine riser **pipe**, comprising a sleeve-type **coupling** element (1), a differential thread system (1a, 1b) for threaded engaging the **coupling** element (1) with two **pipe** sections (2, 3) in an end-to-end orientation, and a system of keys, fingers or lugs (4) and cooperating slots, **grooves** or pockets (5) that releasably interlock the two **pipe** sections in a manner that prevents their relative rotation in either a clockwise or counter-clockwise direction.

Classifications:
International (IPC 8-9): E21B17/00 E21B17/02 E21B17/043 E21B17/08 E21B17/18 E21B33/03 E21B33/038 F16L15/00
International (IPC 1-7): E21B17/08 F16L15/00
CPC: E21B17/043 E21B17/085 E21B17/18 E21B33/038 F16L15/003 F16L15/007 F16L15/008



Family:

Publication number	Publication date	Application number	Application date
BR8201390 A	19830201	BR19820001390	19820315
CA1173076 A1	19840821	CA19820398014	19820310
EP0060549 A1	19820922	EP19820102095	19820315

Priority:
US19810244176 19810316 CA19820398014 19820310

Probable Assignee: FMC CORP
Assignee(s): (std): FMC CORP
Assignee(s): AMES THOMAS J ; BERRY ROBERT F ; LEICHT FRED M ; MASCIOPINTO ANTHONY J ; MILBERGER LIONEL J ; TSE LARRY W ; WILLIAMS MICHAEL R
Inventor(s): (std): AMES THOMAS J ; AMES THOMAS JOSEPH ; BERRY ROBERT F ; BERRY ROBERT FRANK ; LEICHT FRED M ; LEICHT FRED MARION ; MASCIOPINTO ANTHONY J ; MASCIOPINTO ANTHONY JOHN ; MILBERGER LIONEL J ; MILBERGER LIONEL JOHN ; TSE LARRY W ; TSE LARRY WINGFAI ; WILLIAMS MICHAEL R ; WILLIAMS MICHAEL RAYE
Agent(s): FETHERSTONHAUGH AND CO
Designated states: AT DE FR GB IT NL

Legal status (INPADOC)

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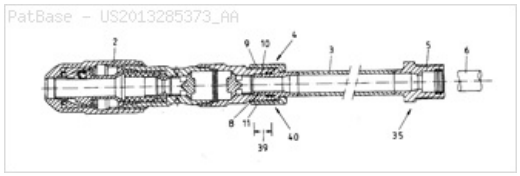
Patent	Date recorded	Event group	Code	Event	Details
BR8201390 A	19830201	LSPB	+	published / reissued	
CA1173076 A1					
CA1173076 A1	20010822	LSRE	+MKEC	EXPIRY (CORRECTION)	
CA1173076 A1	20020310	LSLE	-MKEX	EXPIRY	
EP0060549 A1	19820922	LSPB	+	published / reissued	
EP0060549 A1	19820922		+AK	DESIGNATED CONTRACTING STATES	Country of Ref document: AT DE FR GB IT NL
EP0060549 A1	19820922		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1

					Country of Ref document: AT DE FR GB IT NL
EP0060549 A1	19830511	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 19830302
EP0060549 A1	19860709	LSWD	-18W	APPLICATION WITHDRAWN	Date Application Withdrawn: 19860515
EP0060549 A1	20070808		RIN1	INFORMATION ON INVENTOR PROVIDED BEFORE GRANT (CORRECTED)	PartyType: inventor Inventor: LEICHT, FRED MARION
EP0060549 A1	20070808		RIN1	INFORMATION ON INVENTOR PROVIDED BEFORE GRANT (CORRECTED)	PartyType: inventor Inventor: WILLIAMS, MICHAEL RAYE
EP0060549 A1	20070808		RIN1	INFORMATION ON INVENTOR PROVIDED BEFORE GRANT (CORRECTED)	Inventor: TSE, LARRY WINGFAI PartyType: inventor
EP0060549 A1	20070808		RIN1	INFORMATION ON INVENTOR PROVIDED BEFORE GRANT (CORRECTED)	Inventor: MASCIOPINTO, ANTHONY JOHN PartyType: inventor
EP0060549 A1	20070808		RIN1	INFORMATION ON INVENTOR PROVIDED BEFORE GRANT (CORRECTED)	PartyType: inventor Inventor: AMES, THOMAS JOSEPH
EP0060549 A1	20070808		RIN1	INFORMATION ON INVENTOR PROVIDED BEFORE GRANT (CORRECTED)	Inventor: BERRY, ROBERT FRANK PartyType: inventor
EP0060549 A1	20070808		RIN1	INFORMATION ON INVENTOR PROVIDED BEFORE GRANT (CORRECTED)	Inventor: MILBERGER, LIONEL JOHN PartyType: inventor

22) Family number: 51369922 (US2013285373 AA)

Title: MULTIPLE SECURED **COUPLING** DEVICE FOR OXYGEN LANCES

Abstract: A multiple secured **coupling** device for oxygen lances 1 is achieved in that both the male **connector** 8 of the safety **pipe** 3, the connection part 18 of the lance holder 2 and also the cap nut 9 have an extending safety piece 10, 11. In this way, the male **connector** 8 can be inserted very far into the female part 19 or the connection part 18 and then located in position using the cap nut 9. A total of five sealing zones are created that in particular effectively prevent the escape of highly flammable gases, in particular oxygen.



Classifications:
International (IPC 8-9): C21C5/46 F16B7/18 F16L17/00 F16L19/00 F16L19/02 F16L19/03 G01N1/10
International (IPC 1-7): C21C5/46
CPC: C21C5/462 F16L19/02 F16L19/025
US: 285/386 1/1
JP F-Term: 3H014 3J039 4K070 3H014/BA01 3J039/AA03 3J039/BB01 3J039/GA01 3J039/GA03 4K070/CF10
JP F-Index: C21C5/46,102@Z F16B7/18@A F16L19/00 F16L19/03

Family:

Publication number	Publication date	Application number	Application date
BR112013016111 A2	20180710	BR20131116111	20111215
BR112013016111 B1	20190528	BR20131116111	20111215
CN103429763 A	20131204	CN201180063516	20111215
CN103429763 B	20160203	CN201180063516	20111215
DE102011014323 A1	20120628	DE201110014323	20110318
DE502011013838 D1	20180329	DE201150013838T	20111215
EP2659009 A2	20131106	EP20110817466	20111215
EP2659009 B1	20180228	EP20110817466	20111215
ES2663599 T3	20180416	ES20110817466T	20111215
IN01728KN2013 A	20140328	IN2013KN01728	20130531
JP2014509371 T2	20140417	JP20130546587T	20111215
JP6084166 B2	20170222	JP20130546587T	20111215
KR101805963 B1	20171206	KR20137016392	20111215
KR20130135874 A	20131211	KR20137016392	20111215
PL2659009 T3	20180831	PL20110817466T	20111215
PT2659009 T	20180403	PT20110817466T	20111215
TR201806980 T4	20180621	TR20180006980T	20111215
TW201226574 A	20120701	TW20110138193	20111021
TWI575073 B	20170321	TW20110138193	20111021
US2013285373 AA	20131031	US20110977085	20111215
US9500306 BB	20161122	US20110977085	20111215
WO12089188 A2	20120705	WO2011DE002127	20111215
WO12089188 A3	20121101	WO2011DE002127	20111215

Priority:

DE201010056153 20101228 DE201110014323 20110318 WO2011DE002127 20111215
WO2011DE02127 20111215 EP20110817466 20111215

Probable Assignee: BEDA OXYGENTECHNIK ARMATUREN GMBH

Assignee(s): (std): BAYER REINHARDT ; BEDA OXYGENTECH ARMATUR ; BEDA OXYGENTECHNIK ARMATUREN GMBH

Inventor(s): (std): BAYER REINHARDT ; REINHARDT BAYER

Agent(s): ISERN JORGE; JAMES CREIGHTON; MEERA P; PATENTANWAELTE SCHULTE AND SCHULTE; SCHULTE AND SCHULTE; SCHULTE JOERG; TUGBA GUENDEMIR

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
BR112013016111 A2	20190122	LSES	B07A	TECHNICAL EXAMINATION (OPINION): PUBLICATION OF TECHNICAL EXAMINATION (OPINION)	
BR112013016111 A2	20190416	LSGT	B09A	DECISION: INTENTION TO GRANT	
BR112013016111 A2	20190528	LSGT	+B16A	PATENT OR CERTIFICATE OF ADDITION OF	Text: PRAZO DE VALIDADE: 20 (VINTE) ANOS CONTADOS A PARTIR DE 15/12/2011, OBSERVADAS AS

				INVENTION GRANTED	CONDICOES LEGAIS. (CO) 20 (VINTE) ANOS CONTADOS A PARTIR DE 15/12/2011, OBSERVADAS AS CONDICOES LEGAIS
BR112013016111 B1	20311215	PEXP		Calculated Patent Term Expiry	
CN103429763 A	20131204	LSPB	+	published / reissued	
CN103429763 A	20131204	LSPB	+C06	PUBLICATION	
CN103429763 A	20131225		C10	ENTRY INTO SUBSTANTIVE EXAMINATION	
CN103429763 B	20160203	LSGT	+	granted / extensions (spc, cpc, pte)	
CN103429763 B	20160203	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN103429763 B	20311215	PEXP		Calculated Patent Term Expiry	
DE102011014323 A1	20120628	LSPB	+	published / reissued	
DE102011014323 A1	20171130	LSES	+R012	REQUEST FOR EXAMINATION VALIDLY FILED	
DE502011013838 D1	20170928		R079	AMENDMENT OF IPC MAIN CLASS	ClassificationSymbol: C21C0005460000 Text: PREVIOUS MAIN CLASS: C21C0005460000 ClassificationScheme: IPC
DE502011013838 D1	20180327	LSAS	R081	CHANGE OF APPLICANT/PATENTEE	PartyType: Owner OldParty: Beda Oxygentechnik Armaturen-GmbH, 40885 Ratingen, DE
EP2659009 A2	20131106	LSPB	+	published / reissued	
EP2659009 A2	20131106	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20130729
EP2659009 A2	20131106		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A2 Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
EP2659009 A2	20140409		DAX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT (DELETED)	
EP2659009 A2	20161207	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20161107
EP2659009 A2	20171101		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationSymbol: C21C 5/46 20060101AFI20170928BHEP ClassificationScheme: IPC
EP2659009 A2	20171101		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 19/02 20060101ALI20170928BHEP
EP2659009 A2	20171115	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	Effective date: 20171017
EP2659009 B1	20180228	LSGT	+	granted / extensions (spc, cpc, pte)	
EP2659009 B1	20180228		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
EP2659009 B1	20180228	LSGT	REG	REFERENCE TO A NATIONAL CODE	Text: NOT ENGLISH Ref country code: GB Ref legal event code: FG4D
EP2659009 B1	20180228	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: EP
EP2659009 B1	20180315	LSNP	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20180315 Kind code of Ref document: T Ref country code: AT Ref legal event code: REF Ref document number: 974194 Country of Ref document: AT
EP2659009 B1	20180321	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Text: LANGUAGE OF EP DOCUMENT: GERMAN Ref legal event code: FG4D
EP2659009 B1	20180329		REG	REFERENCE TO A	PartyType: representative

				NATIONAL CODE	Ref country code: CH Representative: FELBER UND PARTNER AG, CH Ref legal event code: NV
EP2659009 B1	20180329	LSPB	REG	REFERENCE TO A NATIONAL CODE	Ref country code: DE Ref document number: 502011013838 Ref legal event code: R096 Country of Ref document: DE
EP2659009 B1	20180403		REG	REFERENCE TO A NATIONAL CODE	Date of Ref document: 20180403 Text: AVAILABILITY OF NATIONAL TRANSLATION Effective date: 20180327 Ref document number: 2659009 Ref legal event code: SC4A Ref country code: PT Kind code of Ref document: T Country of Ref document: PT
EP2659009 B1	20180416	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: ES Ref document number: 2663599 Kind code of Ref document: T3 Effective date: 20180416 Ref legal event code: FG2A Country of Ref document: ES
EP2659009 B1	20180416	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: RO Ref legal event code: EPE
EP2659009 B1	20180516		REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: FP Ref country code: NL
EP2659009 B1	20180619		REG	REFERENCE TO A NATIONAL CODE	Ref country code: SE Ref legal event code: TRGR
EP2659009 B1	20180709	LSNP	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20180228 Ref legal event code: T2 Ref country code: NO
EP2659009 B1	20180710	LSRV	REG	REFERENCE TO A NATIONAL CODE	Ref country code: LT Ref legal event code: MG4D
EP2659009 B1	20180731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180228 Country of Ref document: CY
EP2659009 B1	20180731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20180228 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: LT
EP2659009 B1	20180731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180228 Country of Ref document: HR
EP2659009 B1	20180831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180228 Country of Ref document: LV
EP2659009 B1	20180831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20180528 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: BG
EP2659009 B1	20180831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20180228 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: RS
EP2659009 B1	20180906	LSRE	REG	REFERENCE TO A NATIONAL CODE	Ref document number: 20180400954 Ref country code: GR Ref legal event code: EP Effective date: 20180829 Country of Ref document: GR
EP2659009 B1	20180928	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT	Lapsed date: 20180228 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION

				INFORMATION FROM NATIONAL OFFICE TO EPO]	OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: MT
EP2659009 B1	20181031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180228 Country of Ref document: AL
EP2659009 B1	20181031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20180228 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: EE
EP2659009 B1	20181129	LSRE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: DE Ref document number: 502011013838 Ref legal event code: R097 Country of Ref document: DE
EP2659009 B1	20181130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20180228 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SM
EP2659009 B1	20181130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180228 Country of Ref document: DK
EP2659009 B1	20190131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20181227 Year of fee payment: 8 Country of Ref document: AT
EP2659009 B1	20190131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20181212 Year of fee payment: 8 Country of Ref document: SK
EP2659009 B1	20190131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 8 Payment date: 20181206 Country of Ref document: RO
EP2659009 B1	20190131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 8 Payment date: 20181221 Country of Ref document: GR
EP2659009 B1	20190131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20181213 Year of fee payment: 8 Country of Ref document: CZ
EP2659009 B1	20190131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 8 Payment date: 20181220 Country of Ref document: NO
EP2659009 B1	20190131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20181129 Year of fee payment: 8 Country of Ref document: PL
EP2659009 B1	20190131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20181221 Year of fee payment: 8 Country of Ref document: LU
EP2659009 B1	20190131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 8 Payment date: 20181219 Country of Ref document: FI
EP2659009 B1	20190131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20181204 Year of fee payment: 8 Country of Ref document: PT

EP2659009 B1	20190206	LSGT	+26N	NO OPPOSITION FILED	Effective date: 20181129
EP2659009 B1	20190228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20180228 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SI
EP2659009 B1	20190228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 8 Payment date: 20181221 Country of Ref document: BE
EP2659009 B1	20190228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 8 Payment date: 20181227 Country of Ref document: CH
EP2659009 B1	20190228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20181221 Year of fee payment: 8 Country of Ref document: GB
EP2659009 B1	20190228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20181227 Year of fee payment: 8 Country of Ref document: FR
EP2659009 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190131 Year of fee payment: 8 Country of Ref document: ES
EP2659009 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20181220 Year of fee payment: 8 Country of Ref document: IT
EP2659009 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20181221 Year of fee payment: 8 Country of Ref document: NL
EP2659009 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20181220 Year of fee payment: 8 Country of Ref document: DE
EP2659009 B1	20190531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 8 Payment date: 20181228 Country of Ref document: SE
EP2659009 B1	20190830	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20180228 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: MC
EP2659009 B1	20190918	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: MM4A Ref country code: IE
EP2659009 B1	20191031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Lapsed date: 20181215 Country of Ref document: IE
EP2659009 B1	20200131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20191220 Year of fee payment: 9 Country of Ref document: FI
EP2659009 B1	20200131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 9 Payment date: 20191209 Country of Ref document: RO
EP2659009 B1	20200131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20191213 Year of fee payment: 9 Country of Ref document: CZ

EP2659009 B1	20200131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20191223 Year of fee payment: 9 Country of Ref document: NL
EP2659009 B1	20200131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20191202 Year of fee payment: 9 Country of Ref document: PT
EP2659009 B1	20200131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20191223 Year of fee payment: 9 Country of Ref document: SE
EP2659009 B1	20200131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 9 Payment date: 20191127 Country of Ref document: SK
EP2659009 B1	20200228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20191223 Year of fee payment: 9 Country of Ref document: BE
EP2659009 B1	20200228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20191230 Year of fee payment: 9 Country of Ref document: FR
EP2659009 B1	20200228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20191227 Year of fee payment: 9 Country of Ref document: GR
EP2659009 B1	20200228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20191223 Year of fee payment: 9 Country of Ref document: LU
EP2659009 B1	20200228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 9 Payment date: 20191127 Country of Ref document: PL
EP2659009 B1	20200331	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20191220 Year of fee payment: 9 Country of Ref document: AT
EP2659009 B1	20200501	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20191218 Year of fee payment: 9 Country of Ref document: DE
EP2659009 B1	20200501	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 9 Payment date: 20191226 Country of Ref document: GB
EP2659009 B1	20200501	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 9 Payment date: 20200123 Country of Ref document: ES
EP2659009 B1	20200501	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20191223 Year of fee payment: 9 Country of Ref document: IT
EP2659009 B1	20200501	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20191227 Year of fee payment: 9 Country of Ref document: NO
EP2659009 B1	20200529	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200113 Year of fee payment: 9 Country of Ref document: CH
EP2659009 B1	20200630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT	Lapsed date: 20180228 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: MK

				INFORMATION FROM NATIONAL OFFICE TO EPO]	
EP2659009 B1	20200630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT; INVALID AB INITIO Lapsed date: 20111215 Country of Ref document: HU
EP2659009 B1	20200731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180628 Country of Ref document: IS
EP2659009 B1	20311215	PEXP		Calculated Patent Term Expiry	
ES2663599 T3	20180416	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2663599 T3	20311215	PEXP		Calculated Patent Term Expiry	
IN01728KN2013 A	20140328	LSPB	+	published / reissued	
JP2014509371 T2	20140417	LSPB	+	published / reissued	
JP2014509371 T2	20140917	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	Effective date: 20140916 Text: JAPANESE INTERMEDIATE CODE: A621
JP2014509371 T2	20150807		A977	REPORT ON RETRIEVAL	Effective date: 20150807 Text: JAPANESE INTERMEDIATE CODE: A971007
JP2014509371 T2	20150917	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	Text: JAPANESE INTERMEDIATE CODE: A131 Effective date: 20150916
JP2014509371 T2	20151202	LSRE	A524	WRITTEN SUBMISSION OF COPY OF AMENDMENT UNDER SECTION 19 (PCT)	Text: JAPANESE INTERMEDIATE CODE: A524 Effective date: 20151202
JP2014509371 T2	20151203	LSRE	A521	WRITTEN AMENDMENT	Text: JAPANESE INTERMEDIATE CODE: A523 Effective date: 20151203
JP2014509371 T2	20160601	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	Effective date: 20160601 Text: JAPANESE INTERMEDIATE CODE: A131
JP2014509371 T2	20160816	LSRE	A521	WRITTEN AMENDMENT	Text: JAPANESE INTERMEDIATE CODE: A523 Effective date: 20160816
JP2014509371 T2	20160831	LSRE	A521	WRITTEN AMENDMENT	Text: JAPANESE INTERMEDIATE CODE: A523 Effective date: 20160831
JP2014509371 T2	20160915	LSRE	A521	WRITTEN AMENDMENT	Effective date: 20160831 Text: JAPANESE INTERMEDIATE CODE: A821
JP2014509371 T2	20170110	LSGT	+TRDD	DECISION OF GRANT OR REJECTION WRITTEN	
JP2014509371 T2	20170118	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	Text: JAPANESE INTERMEDIATE CODE: A01 Effective date: 20170118
JP2014509371 T2	20170202	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	Effective date: 20170124 Text: JAPANESE INTERMEDIATE CODE: A61
JP6084166 B2	20170126	LSGT	+A01	特許査定書	
JP6084166 B2	20170131	LSFE	R100	特許料納付書	
JP6084166 B2	20170203	LSGT	+R150	特許証	
JP6084166 B2	20170222	LSGT	+	granted / extensions (spc, cpc, pte)	
JP6084166 B2	20200117	LSFE	R20	特許料納付書	Effective date: 20200116
JP6084166 B2	20200120	LSFE	+R250	RECEIPT OF ANNUAL FEES	Text: JAPANESE INTERMEDIATE CODE: R250
JP6084166 B2	20200120	LSFE	+R250	年金領収書, 年金領収書 (分納)	Effective date: 20200207

JP6084166 B2	20311215	PEXP		Calculated Patent Term Expiry	
KR101805963 B1	20171206	LSGT	+	granted / extensions (spc, cpc, pte)	
KR101805963 B1	20311215	PEXP		Calculated Patent Term Expiry	
KR20130135874 A	20131211	LSPB	+	published / reissued	
KR20130135874 A	20170414	LSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
KR20130135874 A	20171020	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	
PL2659009 T3	20180831	LSGT	+	granted / extensions (spc, cpc, pte)	
PT2659009 T	20180403	LSGT	+	granted / extensions (spc, cpc, pte)	
PT2659009 T	20311215	PEXP		Calculated Patent Term Expiry	
TR201806980 T4	20180621	LSGT	+	granted / extensions (spc, cpc, pte)	
TR201806980 T4	20311215	PEXP		Calculated Patent Term Expiry	
TW201226574 A	20120701	LSPB	+	published / reissued	
TWI575073 B	20170321	LSGT	+	granted / extensions (spc, cpc, pte)	
TWI575073 B	20311021	PEXP		Calculated Patent Term Expiry	
US2013285373 AA	20131031	LSPB	+	published / reissued	
US2013285373 AA	20161102	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US9500306 BB	20130628	LSAS	AS	ASSIGNMENT	Effective date: 20130612 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:BAYER, REINHARDT;REEL/FRAME:030706/0348 Owner: BEDA OXYGENTECHNIK ARMATUREN GMBH, GERMANY PartyType: owner
US9500306 BB	20151104		FRM1	Final Rejection Mailed	
US9500306 BB	20161102	LSGT	PAT1	Patented Case	
US9500306 BB	20161122	LSGT	+	granted / extensions (spc, cpc, pte)	
US9500306 BB	20200521	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	Year of fee payment: 4
US9500306 BB	20320202	PEXP		Calculated Patent Term Expiry (PTA 49 days)	
WO12089188 A2	20120705	LSPB	+	published / reissued	
WO12089188 A2	20120822		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	Kind code of Ref document: A2 Ref document number: 11817466 Country of Ref document: EP
WO12089188 A3	20130524	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2011817466 Country of Ref document: EP
WO12089188 A3	20130624	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Kind code of Ref document: A Ref document number: 20137016392 Country of Ref document: KR
WO12089188 A3	20130626	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Ref document number: 2013546587 Kind code of Ref document: A Country of Ref document: JP
WO12089188 A3	20130628	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 13977085 Country of Ref document: US
WO12089188 A3	20180403		REG	REFERENCE TO NATIONAL CODE	Ref country code: BR Ref legal event code: B01A Ref document number: 112013016111 Country of Ref document: BR

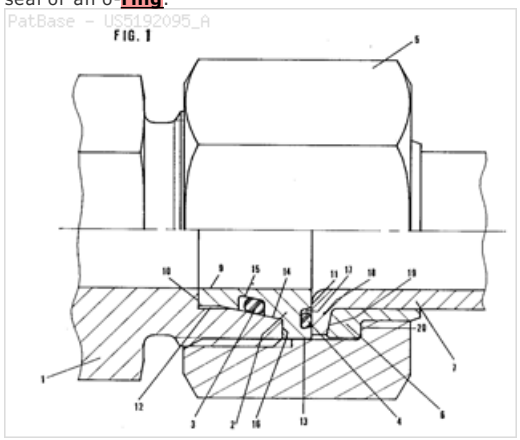
WO12089188 A3	20180710	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Effective date: 20130624 Ref document number: 112013016111 Kind code of Ref document: A2 Country of Ref document: BR

23) Family number: 18954202 (US5192095 A)

Title: **COUPLING** DEVICE

Abstract: The invention provides a **coupling** device for high pressure threaded **pipe** connection to a **coupling** body with a standard 24 degree **connector**, a **coupling** nut to establish a pressure tight connection and a shaped **pipe** or a connection stub for connection to other system components. An adapter **ring** is proposed with a cylindrical internal bore and radially progressing and/or domed end **ring** faces of different sizes, at least one of which is formed as a sealing face fitted with a **ring** seal, to each of which an axially directed cylinder outer face is juxtaposed, between which a 24 DEG outer bevel is arranged to adapt to the **coupling** body. The **ring** face of the adapter **ring** which when fitted is directed towards the connection stub or the flared flange of the shaped **pipe** is provided with an **annular** **groove** to accept a **ring** seal or an o-**ring**.

Classifications:
International (IPC 8-9): F16L19/00 F16L19/02 F16L19/025 F16L19/03 F16L19/04
International (IPC 1-7): F16L19/02 F16L19/03 F16L19/04 F16L25/00
CPC: F16L19/0212 F16L19/025
US: 285/332.1 285/334.1
JP F-Term: 3H014 3H014/DA01 3H014/EA01
JP F-Index: F16L19/03 F16L19/04



Family:

Publication number	Publication date	Application number	Application date
AT103685 E	19940415	AT19910118406T	19911029
DE9015457 U1	19910606	DE19900015457U	19901110
DE4034803 A1	19920507	DE19904034803	19901102
DE4034803 C2	19921210	DE19904034803	19901102
DK0483751 T3	19940711	DK19910118406T	19911029
EP0483751 A1	19920506	EP19910118406	19911029
EP0483751 B1	19940330	EP19910118406	19911029
ES2055954 T3	19940901	ES19910118406T	19911029
JP2106168 C3	19961106	JP19910321568	19911031
JP5118479 A2	19930514	JP19910321568	19911031
JP8006848 B4	19960129	JP19910321568	19911031
US5192095 A	19930309	US19910786446	19911101

Priority:
DE19904034803 19901102 DE19900015457U 19901110

Probable Assignee: PARKER HANNIFIN GMBH GESCHAEFTSBEREICH ERMETO
Assignee(s): (std): PARKER ERMETO GMBH ; PARKER ERUMETO GMBH
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Inventor(s): (std): BEERENSU GUNTAA ; BEHRENS GUENTER ; BEHRENS GUNTER
Inventor(s): BEHRENS GUENTER DIPL ING ; VERZICHT DES ERFINDERS AUF NENNUNG
Designated states: AT BE CH DK ES FR GB GR IT LI LU NL SE

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
AT103685 E	19940415	LSGT	+	granted / extensions (spc, cpc, pte)	
AT103685 E	20111029	PEXP		Calculated Patent Term Expiry	
DE4034803 A1	19920507	LSPB	+	published / reissued	
DE4034803 A1	19920507	LSES	+OP8	REQUEST FOR EXAMINATION AS TO PARAGRAPH 44 PATENT LAW	
DE4034803 A1	19920813		8181	INVENTOR (NEW SITUATION)	Text: BEHRENS, GUENTER, DIPL.-ING., 4815 SCHLOSS-HOLTE, DE
DE4034803 C2	19921210	LSGT	+	granted / extensions (spc, cpc, pte)	

DE4034803 C2	19921210	LSGT	+D2	GRANT AFTER EXAMINATION	
DE4034803 C2	19930513	LSOP	-8363	OPPOSITION AGAINST THE PATENT	
DE4034803 C2	19960411	LSRV	-8331	COMPLETE REVOCATION	
DE4034803 C2	20101102	PEXP		Calculated Patent Term Expiry	
DE9015457 U1	19910606	LSGT	+	granted / extensions (spc, cpc, pte)	
DE9015457 U1	20001110	PEXP		Calculated Patent Term Expiry	
DK0483751 T3	19940711	LSGT	+	granted / extensions (spc, cpc, pte)	
DK0483751 T3	20111029	PEXP		Calculated Patent Term Expiry	
EP0483751 A1	19920506	LSPB	+	published / reissued	
EP0483751 A1	19920506		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE CH DK ES FR GB GR IT LI LU NL SE
EP0483751 A1	19920527	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 19920328
EP0483751 A1	19921111	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 19921001
EP0483751 B1	19940330	LSGT	+	granted / extensions (spc, cpc, pte)	
EP0483751 B1	19940330		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: AT BE CH DK ES FR GB GR IT LI LU NL SE
EP0483751 B1	19940330		REF	CORRESPONDS TO:	Date of Ref document: 19940415 Ref document number: 103685 Kind code of Ref document: T Country of Ref document: AT
EP0483751 B1	19940518		+GBT	GB: TRANSLATION OF EP PATENT FILED (GB SECTION 77(6)(A)/1977)	Effective date: 19940415
EP0483751 B1	19940616		+ITF	IT: TRANSLATION FOR A EP PATENT FILED	PartyType: owner Owner: UFFICIO TECNICO ING. A. MANNUCCI
EP0483751 B1	19940701		+ET	FR: TRANSLATION FILED	
EP0483751 B1	19940711		REG	REFERENCE TO A NATIONAL CODE	Ref country code: DK Ref legal event code: T3
EP0483751 B1	19940729		REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: FG4A Ref country code: GR Text: 3011712
EP0483751 B1	19940803	LSAS	RAP2	RIGHTS OF A PATENT TRANSFERRED	PartyType: owner Owner: PARKER HANNIFIN GMBH, GESCHAEFTSBEREICH ERMETO
EP0483751 B1	19940901	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: ES Ref document number: 2055954 Ref legal event code: FG2A Kind code of Ref document: T3 Country of Ref document: ES
EP0483751 B1	19941003		NLT2	NL: MODIFICATIONS (OF NAMES), TAKEN FROM THE EUROPEAN PATENT PATENT BULLETIN	Owner: PARKER HANNIFIN GMBH, GESCHAEFTSBEREICH ERMETO TE PartyType: owner
EP0483751 B1	19941212	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 19941212 Year of fee payment: 4 Country of Ref document: CH
EP0483751 B1	19941216	LSAS	REG	REFERENCE TO A NATIONAL CODE	Ref country code: FR Ref legal event code: CD
EP0483751 B1	19941216	LSAS	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: TP Ref country code: FR
EP0483751 B1	19950131	LSGT	+EAL	SE: EUROPEAN PATENT IN FORCE IN SWEDEN	Ref country code: EP Text: 91118406.7
EP0483751 B1	19950301	LSAS	NLS	NL: ASSIGNMENTS OF EP-PATENTS	Owner: PARKER HANNIFIN GMBH, GESCHAEFTSBEREICH ERMETO TE Ref country code: EP PartyType: owner
EP0483751 B1	19950322	LSGT	+26N	NO OPPOSITION FILED	
EP0483751 B1	19950908	LSFE	+PGFP	ANNUAL FEE PAID TO	Payment date: 19950908

				NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 5 Country of Ref document: GR
EP0483751 B1	19951001	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 19951001 Year of fee payment: 5 Country of Ref document: LU
EP0483751 B1	19951005	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 5 Payment date: 19951005 Country of Ref document: BE
EP0483751 B1	19951016	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 19951016 Year of fee payment: 5 Country of Ref document: AT
EP0483751 B1	19951016	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 19951016 Year of fee payment: 5 Country of Ref document: ES
EP0483751 B1	19951017	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 19951017 Year of fee payment: 5 Country of Ref document: SE
EP0483751 B1	19951020	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 19951020 Year of fee payment: 5 Country of Ref document: NL
EP0483751 B1	19951026	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 5 Payment date: 19951026 Country of Ref document: DK
EP0483751 B1	19951031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19951031 Country of Ref document: CH
EP0483751 B1	19951031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19951031 Country of Ref document: LI
EP0483751 B1	19960614	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: PL
EP0483751 B1	19961029	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19961029 Country of Ref document: AT
EP0483751 B1	19961029	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19961029 Country of Ref document: DK
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EP0483751 B1	19961029	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: DK Ref legal event code: EBP
EP0483751 B1	19961030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19961030 Country of Ref document: SE

EP0483751 B1	19961030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF EXPIRATION OF PROTECTION Lapsed date: 19961030 Country of Ref document: ES
EP0483751 B1	19961031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19961031 Country of Ref document: BE
EP0483751 B1	19970430	LSLE	-BERE	BE: LAPSED	Effective date: 19961031 PartyType: owner Ref country code: EP Owner: PARKER-ERMETO G.M.B.H.
EP0483751 B1	19970430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: THE PATENT HAS BEEN ANNULLED BY A DECISION OF A NATIONAL AUTHORITY Lapsed date: 19970430 Country of Ref document: GR
EP0483751 B1	19970501	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19970501 Country of Ref document: NL
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EP0483751 B1	19970707	LSLE	-EUG	SE: EUROPEAN PATENT HAS LAPSED	Ref country code: EP Text: 91118406.7
EP0483751 B1	20010301	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: ES Effective date: 20010201 Ref legal event code: FD2A
EP0483751 B1	20020101		REG	REFERENCE TO A NATIONAL CODE	Ref country code: GB Ref legal event code: IF02
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EP0483751 B1	20110331	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20101021 Year of fee payment: 20 Country of Ref document: GB
EP0483751 B1	20110331	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20101027 Year of fee payment: 20 Country of Ref document: IT
EP0483751 B1	20111028	PEXP		Calculated Patent Term Expiry	
EP0483751 B1	20111029	PEXP		Calculated Patent Term Expiry	
EP0483751 B1	20111123	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: GB Expiry date: 20111028 Ref legal event code: PE20
EP0483751 B1	20120229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20111028 NotificationOfLapse: LAPSE BECAUSE OF EXPIRATION OF PROTECTION Country of Ref document: GB
ES2055954 T3	19940901	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2055954 T3	19940901	LSGT	+FG2A	DEFINITIVE PROTECTION	Ref document number: 483751 Country of Ref document: ES
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JP2106168 C3	19961106	LSGT	+	granted / extensions (spc, cpc, pte)	

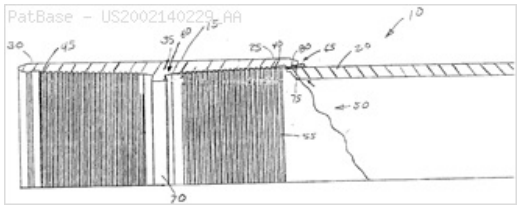
JP2106168 C3	20111031	PEXP		Calculated Patent Term Expiry	
JP5118479 A2	19930514	LSPB	+	published / reissued	
JP8006848 B4	19960129	LSPB	+	published / reissued	
US5192095 A	19920106	LSAS	AS	ASSIGNMENT	Owner: PARKER ERMETO GMBH Effective date: 19911213 PartyType: owner OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNOR:BEHRENS, GUNTER;REEL/FRAME:005962/0337
US5192095 A	19930224	LSGT	PAT1	Patented Case	
US5192095 A	19930224	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US5192095 A	19930309	LSGT	+	granted / extensions (spc, cpc, pte)	
US5192095 A	19960819	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US5192095 A	20000811	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US5192095 A	20040810	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US5192095 A	20111101	PEXP		Calculated Patent Term Expiry	

24) Family number: 30384985 (US2002140229 AA)

Title: REPLACEABLE CORROSION SEAL FOR THREADED CONNECTIONS

Abstract: The threaded connection between the pin and the box ends of two **pipes** is sealed externally and internally to protect the threads in the connection from exposure to corrosive fluids. Seals are provided at each axial end of the threads. External seals are formed by metal-to-metal engagement between the pin and box and a third metal body secured circumferentially about the pin. The metal body may be fashioned into a desired **annular** pin seal surface to mate with and seal with the box at full makeup of the connection. The metal body can be removed and replaced as required to repair or reconstructed the pin seal surface.

Classifications:
International (IPC 8-9): F16L15/00 F16L15/04 F16L25/00 F16L35/00 F16L58/00 F16L58/18
International (IPC 1-7): F16J F16L2/500 F16L25/00 F16L35/00
CPC: F16L15/008 F16L15/009 Y10S285/918 F16L58/182 F16L15/003 F16L15/004
US: 285/332.1 285/332.3 285/333 285/333P 285/334 285/355 285/89 285/918



Family:

Publication number	Publication date	Application number	Application date
AU200196541 A1	20020415	AU20010096541	20011003
AU200196541 A5	20020415	AU20010096541	20011003
AU2001296541 AA	20020415	AU20010296541	20011003
AU2002241914 AA	20020912	AU20020241914	20020118
CA2432926 AA	20030617	CA20022432926	20020118
EP1377772 A1	20040107	EP20020707511	20020118
EP1377772 A4	20041013	EP20020707511	20020118
MXPA03005476 A1	20050715	MX2003PA05476	20020118
US6811189 BA	20041102	US20000679470	20001004
US2002140229 AA	20021003	US20020051428	20020118
US6857668 BB	20050222	US20020051428	20020118
WO0229290 A2	20020411	WO2001US30947	20011003
WO0229290 A3	20020620	WO2001US30947	20011003
WO02068854 A1	20020906	WO2002US01380	20020118

Priority:

US20000679470 20001004 US20010262809P 20010120 WO2001US30947 20011003
WO2002US01380 20020118 US20020051428 20020118

Probable Assignee: V AND M TUBE ALLOY LLC

Assignee(s): (std): GRANT PRIDECO L P ; GRIFFIN RICHARD C ; OTTEN GREGORY ; OTTEN GREGORY K

Assignee(s): DEUTSCHE BANK TRUST CO ; DEUTSCHE BANK TRUST CO AMERICAS ; GRAND PRIDECO LP ; V AND M TUBE ALLOY LLC ; V AND M TUBE ALLOY LP ; VAM USA LLC ; WELLS FARGO BANK

Inventor(s): (std): ANDERSON DONNA S ; DELANGE RICHARD ; DELANGE RICHARD W ; EVANS EDWARD MERLE ; EVANS MERLE E ; GRIFFIN RICHARD C ; OTTEN GREGORY K ; RICHARD C GRIFFIN ; STARODUB WILLIAM W

Inventor(s): DONNA S ANDERSON ; EDWARD MERLE EVANS ; GREGORY K OTTEN ; MERLE E EVANS ; RICHARD DELANGE ; RICHARD W DELANGE ; WILLIAM W STARODUB

Agent(s): BROWNING BUSHMAN; BROWNING BUSHMAN PC; C JAMES; CARLOS TORRES; JEFFERY E DALY; VERMETTE AND CO

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG UZ VN YU ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2001296541 AA	20020415	LSPB	+	published / reissued	
AU200196541 A1	20020415	LSPB	+	published / reissued	
AU2002241914 AA	20020912	LSPB	+	published / reissued	
CA2432926 AA	20030617	LSPB	+	published / reissued	
CA2432926 AA	20060118	LSLE	-FZDE	DEAD	
EP1377772 A1	20040107	LSPB	+	published / reissued	
EP1377772 A1	20040107	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20030612

EP1377772 A1	20040107		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR
EP1377772 A1	20040107		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Country of Ref document: AL LT LV MK RO SI
EP1377772 A4	20041013	LSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	Effective date: 20040830
EP1377772 A4	20060208	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	Effective date: 20050802
EP1377772 A4	20100903	LSWD	REG	REFERENCE TO A NATIONAL CODE	Ref country code: HK Ref document number: 1057247 Ref legal event code: WD Country of Ref document: HK
MXPA03005476 A1	20041231	LSAS	GB	TRANSFER OR RIGHTS	
MXPA03005476 A1	20050715	LSPB	+	published / reissued	
US2002140229 AA	20021003	LSPB	+	published / reissued	
US2002140229 AA	20030103	LSAS	AS	ASSIGNMENT	Effective date: 20021219 OldParty: GRANT OF PATENT;ASSIGNOR:GRANT PRIDECO, L.P.;REEL/FRAME:013333/0021 Owner: DEUTSCHE BANK TRUST COMPANY AMERICAS, NEW YORK PartyType: owner
US2002140229 AA	20050202	LSGT	PAT1	Patented Case	
US2002140229 AA	20050202	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US6811189 BA	20010108	LSAS	AS	ASSIGNMENT	Owner: GRANT PRIDECO, L.P., TEXAS PartyType: owner OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:DELANGE, RICHARD W.;EVANS, MERLE E.;GRIFFIN, RICHARD C.;AND OTHERS;REEL/FRAME:011413/0817;SIGNING DATES FROM 20010102 TO 20010103
US6811189 BA	20030103	LSAS	AS	ASSIGNMENT	OldParty: GRANT OF PATENT;ASSIGNOR:GRANT PRIDECO, L.P.;REEL/FRAME:013333/0021 Owner: DEUTSCHE BANK TRUST COMPANY AMERICAS, NEW YORK Effective date: 20021219 PartyType: owner
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US6811189 BA	20041014	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US6811189 BA	20041102	LSGT	+	granted / extensions (spc, cpc, pte)	
US6811189 BA	20050601	LSAS	AS	ASSIGNMENT	PartyType: owner OldParty: RELEASE OF GRANT OF PATENT SECURITY AGREEMENT;ASSIGNOR:DEUTSCHE BANK TRUST COMPANY AMERICAS;REEL/FRAME:016079/0694 Effective date: 20050512 Owner: GRANT PRIDECO, L.P., TEXAS
US6811189 BA	20050603	LSAS	AS	ASSIGNMENT	OldParty: SECURITY AGREEMENT;ASSIGNOR:GRANT PRIDECO, L.P.;REEL/FRAME:016087/0629 PartyType: owner Effective date: 20050512 Owner: WELLS FARGO BANK, TEXAS
US6811189 BA	20060918	LSAS	AS	ASSIGNMENT	OldParty: RELEASE OF PATENT SECURITY AGREEMENT;ASSIGNOR:WELLS FARGO BANK;REEL/FRAME:018268/0796 Effective date: 20060831 PartyType: owner Owner: GRANT PRIDECO, L.P., TEXAS
US6811189 BA	20060918	LSAS	AS	ASSIGNMENT	OldParty: RELEASE OF PATENT SECURITY AGREEMENT;ASSIGNOR:WELLS FARGO BANK;REEL/FRAME:018279/0119 Owner: GRANT PRIDECO, L.P., TEXAS

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US6811189 BA	20071220	LSAS	AS	ASSIGNMENT	Owner: V&M TUBE-ALLOY, LP, TEXAS PartyType: owner Effective date: 20071206 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:GRANT PRIDECO, L.P.;REEL/FRAME:020270/0580
US6811189 BA	20080418	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US6811189 BA	20081013	LSAS	AS	ASSIGNMENT	PartyType: owner Owner: V&M TUBE-ALLOY, LP, TEXAS Effective date: 20071206 OldParty: DECLARATION;ASSIGNOR:V&M TUBE-ALLOY, LP;REEL/FRAME:021669/0290
US6811189 BA	20081013	LSAS	AS	ASSIGNMENT	Effective date: 20071206 OldParty: CORRECTION BY DECLARATION OF ERRONEOUSLY RECORDED PATENT NO. 6,811,189 RECORDED AT REEL 020951 FRAME 0839.;ASSIGNOR:V&M TUBE-ALLOY, LP;REEL/FRAME:021701/0315 Owner: V&M TUBE-ALLOY, LP, TEXAS PartyType: owner
US6811189 BA	20110718	LSAS	AS	ASSIGNMENT	Effective date: 20081231 PartyType: owner OldParty: CHANGE OF NAME;ASSIGNOR:V&M TUBE-ALLOY, LP;REEL/FRAME:026604/0100 Owner: V&M TUBE-ALLOY, LLC, TEXAS
US6811189 BA	20110718	LSAS	AS	ASSIGNMENT	OldParty: NUNC PRO TUNC ASSIGNMENT;ASSIGNOR:V&M TUBE-ALLOY, LLC;REEL/FRAME:026605/0589 Owner: VAM USA, LLC, TEXAS PartyType: owner Effective date: 20110620
US6811189 BA	20120426	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US6811189 BA	20160425	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US6811189 BA	20201004	PEXP		Calculated Patent Term Expiry	
US6857668 BB	20020415	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:OTTEN, GREGORY K.;GRIFFIN, RICHARD C.;REEL/FRAME:012817/0694;SIGNING DATES FROM 20020205 TO 20020211 Owner: GRAND PRIDECO, L.P., TEXAS PartyType: owner
US6857668 BB	20050222	LSGT	+	granted / extensions (spc, cpc, pte)	
US6857668 BB	20050601	LSAS	AS	ASSIGNMENT	Effective date: 20050512 OldParty: RELEASE OF GRANT OF PATENT SECURITY AGREEMENT;ASSIGNOR:DEUTSCHE BANK TRUST COMPANY AMERICAS;REEL/FRAME:016079/0694 Owner: GRANT PRIDECO, L.P., TEXAS PartyType: owner
US6857668 BB	20071220	LSAS	AS	ASSIGNMENT	Effective date: 20071206 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:GRANT PRIDECO, L.P.;REEL/FRAME:020270/0580 Owner: V&M TUBE-ALLOY, LP, TEXAS PartyType: owner
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US6857668 BB	20081013	LSAS	AS	ASSIGNMENT	Effective date: 20071206 OldParty: DECLARATION;ASSIGNOR:V&M TUBE-ALLOY, LP;REEL/FRAME:021669/0287 Owner: V&M TUBE-ALLOY, LP, TEXAS PartyType: owner
US6857668 BB	20110718	LSAS	AS	ASSIGNMENT	Effective date: 20081231 OldParty: CHANGE OF NAME;ASSIGNOR:V&M TUBE-ALLOY, LP;REEL/FRAME:026604/0100 Owner: V&M TUBE-ALLOY, LLC, TEXAS PartyType: owner
US6857668 BB	20110718	LSAS	AS	ASSIGNMENT	Effective date: 20110620 OldParty: NUNC PRO TUNC ASSIGNMENT;ASSIGNOR:V&M TUBE-ALLOY, LLC;REEL/FRAME:026605/0589 Owner: VAM USA, LLC, TEXAS PartyType: owner
US6857668 BB	20120816	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US6857668 BB	20160816	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US6857668 BB	20201121	PEXP		Calculated	

				Patent Term Expiry (PTA 48 days)	
WO02068854 A1	20020906	LSPB	+	published / reissued	
WO02068854 A1	20021010		DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101)	
WO02068854 A1	20030611	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2002707511 Country of Ref document: EP
WO02068854 A1	20030617	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2432926 Country of Ref document: CA
WO02068854 A1	20030618	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: PA/a/2003/005476 Country of Ref document: MX
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WO02068854 A1	20040107	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 2002707511 Country of Ref document: EP
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WO0229290 A3	20020620		+AK	DESIGNATED STATES	Kind code of Ref document: A3 Country of Ref document: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
WO0229290 A3	20020620		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A3 Country of Ref document: AM AT AZ BE BF BJ BY CF CG CH CI CM CY DE DK ES FI FR GA GB GH GM GN GQ GR GW IE IT KE KG KZ LS LU MC MD ML MR MW MZ NE NL PT RU SD SE SL SN SZ TD TG TJ TM TR TZ UG ZW
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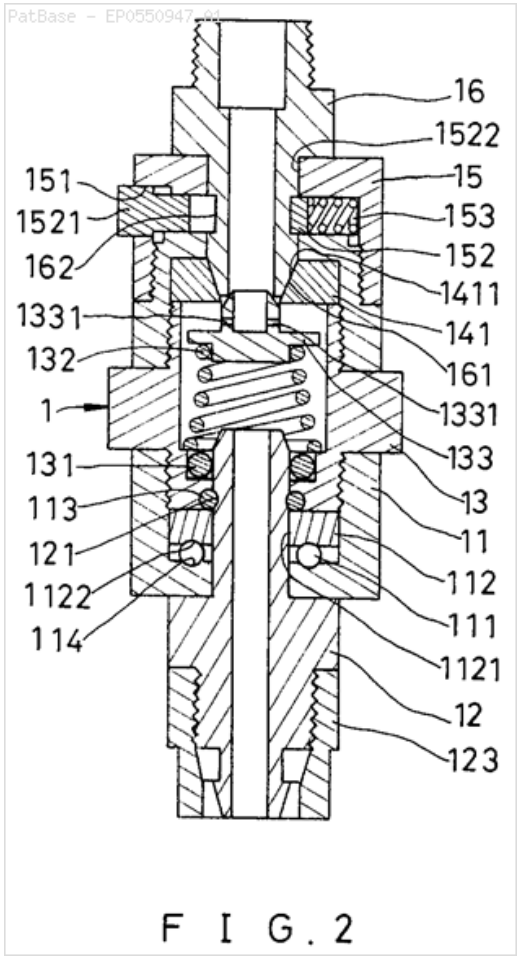
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WO0229290 A3	20031119	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	Ref country code: WO
WO0229290 A3	20050914	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: JP

25) Family number: 7180229 (EP0550947 A1)

Title: REVOLVABLE QUICK **COUPLING**

Abstract: For connecting an air compressor to a pneumatic tool, a revolvable quick **coupling** comprising a first air **pipe** **connector** (12) revolvably secured to an intermediate connecting member (13) by a ball bearing means (111) and connected to an air output **pipe** of an air compressor, a second air **pipe** **connector** (16) secured to said intermediate connecting member by a front socket (15), a retainer (152), an inner socket (14), a seal **ring** (141), a stepped metal element (133) and a spring means for connecting to an air input **pipe** of a pneumatic tool. Pressing on the retainer causes the second air **pipe** **connector** to disconnect from the front socket and simultaneously causes said seal **ring** to seal the air passage inside the **coupling**. Rotating the pneumatic tool causes the second air **pipe** **connector** to rotate on the first air **pipe** **connector** without twisting the air output **pipe** of the air compressor.

Classifications:
International (IPC 8-9): B05B15/00 B05B15/06 F16L37/00 F16L37/084 F16L37/28 F16L37/42
International (IPC 1-7): F16L37/50
CPC: B05B15/652 B05B7/2416 F16L37/0841 F16L37/42



F I G. 2

Family:

Publication number	Publication date	Application number	Application date
EP0550947 A1	19930714	EP19920304049	19920506
GB2263322 A1	19930721	GB19920000398	19920109
GB9200398 A0	19920226	GB19920000398	19920109

Priority:
GB19920000398 19920109

Probable Assignee: LEE YEONG D
Assignee(s): (std): LEE YEONG D ; LEE YEONG DUH ; LEE YEONG H ; LEE YEONG HSIUNG
Assignee(s): YEONG DUH LEE ; YEONG HSIUNG LEE
Inventor(s): (std): LEE YEONG DUH ; LEE YEONG HSIUNG
Inventor(s): YEONG DUH LEE ; YEONG HSIUNG LEE
Designated states: AT BE CH DE DK ES FR GB GR IT LI LU MC NL PT SE

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
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EP0550947 A1	19930714		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1

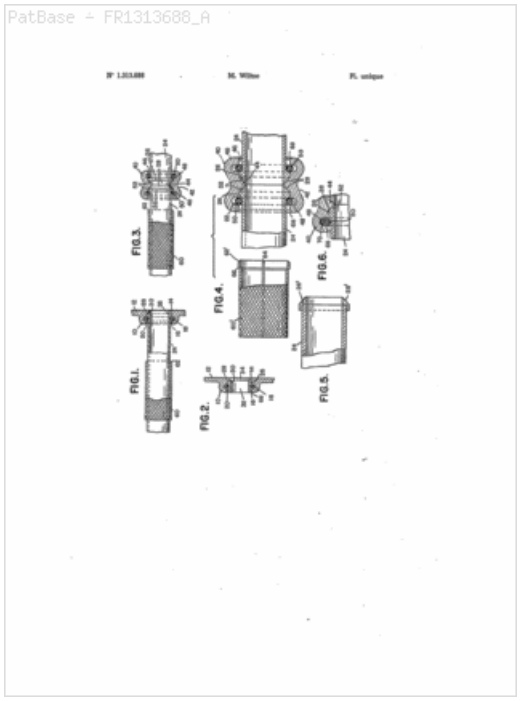
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EP0550947 A1	19930908		+RBV	DESIGNATED CONTRACTING STATES (CORRECTED)	Country of Ref document: AT BE CH DE DK ES FR GR IT LI LU NL SE
EP0550947 A1	19941102	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	Effective date: 19940115
GB2263322 A1	19930721	LSPB	+	published / reissued	
GB2263322 A1	19940511	LSWD	-WAP	APPLICATION WITHDRAWN, TAKEN TO BE WITHDRAWN OR REFUSED ** AFTER PUBLICATION UNDER SECTION 16(1)	

26) Family number: 23054180 (FR1313688 A)

Title: **PIPE** FITTING A COMBINED DEVICES SEALING AND RESTRAINT (Machine translation)

Abstract: Source: FR1313688 A **Machine translation:** (Claim 1) SUMMARY a **pipe** **coupling**, characterized by the following, separately or in combinations I. It comprises, in combination, did you tubular element presenting,. At one end, an outer flange annul-iaire, has tilted toward the outer face ar career, an **annular** **connector** in one piece around the one end of the tubular element,. and an **annular** first inner feeling, and an inner **groove**, the **annular** projection forming abutment laughed gide tilted to the side of bride.annulaire the tubular element, the **ring** being said gprge placed between said **annular** flange and the outer end of the fitting, the inner side wall of the **connector** presenting a surface perpendicular to the axis of the **connector** and in substantial alignment with the radially inner surface of the flange CANC's Republic of the tubular element, a single device to achieve a watertight seal to fluids between the tubular element and the connection and to prevent accidental removal of the tubular element out of the fitting device comprising a **ring** of circular cross section, elastic, expandable et.sensiblement non-compressible in the axial direction, resistant to shear, disposed between the opposite faces on the **connector** and the tubular member, the inclined surface of the **annular** flange of the tubular member being capable, during the manual insertion in said end in the Fitting, causing the expansion of the **ring** in his **ring** **groove** to provide the game has the necessary: **annular** flange of the tubular element, the **ring** of contracting itself on the tubular element at the surface of sloping the **annular** flange of the tubular member comes into contact with the inclined surface of the **annular** flange of the fitting faces on the restricting the movement of the **ring** has only the direction perpendicular to the longitudinal axis of the **coupling**, and the inner surface of the **coupling**, between its outer end and throat are being CAEE the surface of the tubular element of a dis tance lower than the radius of the cross section of the sealing device;

Classifications:
International (IPC 8-9): F16L37/00 F16L37/084
International (IPC 1-7): F16J15/06 F16L21/08
CPC: F16L37/084



Family:

Publication number	Publication date	Application number	Application date
FR1313688 A	19621228	FR19620887178	19620206

Priority:
FR19620887178 19620206

Inventor(s): (std): WILTSE SUMNER DANIEL

Legal status (INPADOC)

View legal status timeline

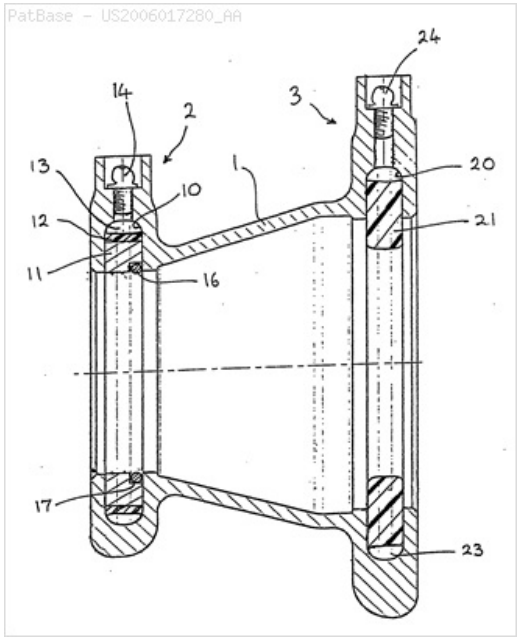
Patent	Date recorded	Event group	Code	Event	Details
FR1313688 A	19621228	LSGT	+	granted / extensions (spc, cpc, pte)	
FR1313688 A	19820206	PEXP		Calculated Patent Term Expiry	

27) Family number: 23377569 (US2006017280 AA)

Title: **PIPE** REPAIR SYSTEM AND DEVICE

Abstract: The invention provides a **coupling** member for use in the repair of **pipes** and pipelines of from 90 mm to 250 mm in diameter, such as those used for the pipeline transportation and delivery of domestic and industrial liquids such as water, gas, oil and other petrochemicals. Two **coupling** members are used for each repair. Each has a first collar portion for surrounding the new **pipe** section and a second collar portion for surrounding a cut end portion of the old **pipe** section, and the two **pipe connectors** are located with their respective first collar portions adjacent to one another and their respective second collar portions facing mutually outwardly towards the opposite ends of the new **pipe** section. Pressure chambers are formed between the **annular** **grooves** and the seal members of the first collar portions and between the **annular** **grooves** and the nitrile rubber sealing **rings** of the second collar portions.

Classifications:
International (IPC 8-9): F16L17/00 F16L17/03 F16L17/10 F16L37/00 F16L55/18
International (IPC 1-7): F16L17/03 F16L17/10 F16L37/00 F16L55/18
CPC: F16L17/10 F16L25/14 F16L37/62
US: 285/15
JP F-Term: 3H014 3H025 3H014/AA08
JP F-Index: F16L17/02 F16L17/03 F16L55/18@Z



Family:

Publication number	Publication date	Application number	Application date
AU2003226535 AA	20031027	AU20030226535	20030408
CA2482377 AA	20041008	CA20032482377	20030408
CN1659399 A	20050824	CN20038013380	20030408
EG23517 A	20060316	EG20030040323	20030407
EP1492976 A1	20050105	EP20030746364	20030408
GB200208098 A0	20020522	GB20020008098	20020409
IN01597KN2004 A	20060602	IN2004KN01597	20041025
JP2005522653 T2	20050728	JP20030584560T	20030408
KR20050065454 A	20050629	KR20047016134	20030408
PL373448 A1	20050822	PL20030373448	20030408
US2006017280 AA	20060126	US20030511066	20030408
WO03087646 A1	20031023	WO2003GB01509	20030408

Priority:
GB20020008098 20020409 WO2003GB01509 20030408

Probable Assignee: GLOWAY INT INC

Assignee(s): (std): BALL JEAN M ; BALL JEAN MAUREEN LF ; GLOWAY INT INC ; GLOWAY INTERNAT INC ; GLOWAY INTERNATIONAL INC

Assignee(s): AGRIPPA N V ; BALL DANIEL GRAHAM DECEASED

Inventor(s): (std): BALL DANIEL GRAHAM ; BALL DANIEL GRAHAM DI ; BALL JEAN M ; BALL JEAN MAUREEN ; GRAHAM BALL DANIEL

Inventor(s): BALL DANIEL GRAHAM DECEASED ; BALL JEAN ; DANIEL GRAHAM BALL

Agent(s): FB RICE; FB RICE PTY LTD; GREENSFELDER HEMKER AND GALE PC; KATO ASAMICHI; MCCARTHY TETRAULT LLP; MIYAKE TOSHIO; UCHIDA KIYOHITO

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ OM PH PL PT RO RU SC SD SE SG SI SK SL SN SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details

AU2003226535 AA	20031027	LSPB	+	published / reissued	
AU2003226535 AA	20060720	LSLE	-MK1	APPLICATION LAPSED SECTION 142(2)(A) - NO REQUEST FOR EXAMINATION IN RELEVANT PERIOD	
CA2482377 AA	20041008	LSPB	+	published / reissued	
CA2482377 AA	20041008	LSES	+EEER	EXAMINATION REQUEST	
CA2482377 AA	20080408	LSLE	-FZDE	DEAD	
CN1659399 A	20050824	LSPB	+	published / reissued	
CN1659399 A	20050824	LSPB	+C06	PUBLICATION	
CN1659399 A	20051019		C10	ENTRY INTO SUBSTANTIVE EXAMINATION	
CN1659399 A	20070516	LSDW	-C02	DEEMED WITHDRAWAL OF PATENT APPLICATION AFTER PUBLICATION (PATENT LAW 2001)	
EG23517 A	20060316	LSGT	+	granted / extensions (spc, cpc, pte)	
EG23517 A	20230407	PEXP		Calculated Patent Term Expiry	
EP1492976 A1	20050105	LSPB	+	published / reissued	
EP1492976 A1	20050105	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20041019
EP1492976 A1	20050105		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR
EP1492976 A1	20050105		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Country of Ref document: AL LT LV MK
EP1492976 A1	20050316	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20050131
EP1492976 A1	20080430	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	Effective date: 20071101
GB200208098 A0	20030820	LSWD	-AT	APPLICATIONS TERMINATED BEFORE PUBLICATION UNDER SECTION 16(1)	
IN01597KN2004 A	20060602	LSPB	+	published / reissued	
JP2005522653 T2	20050728	LSPB	+	published / reissued	
JP2005522653 T2	20060411	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	Effective date: 20060410 Text: JAPANESE INTERMEDIATE CODE: A621
JP2005522653 T2	20061108		-A072	DISMISSAL OF PROCEDURE	Text: JAPANESE INTERMEDIATE CODE: A073 Effective date: 20061107
JP2005522653 T2	20061205	LSWD	-A300	WITHDRAWAL OF APPLICATION BECAUSE OF NO REQUEST FOR EXAMINATION	Text: JAPANESE INTERMEDIATE CODE: A300 Effective date: 20061205
KR20050065454 A	20041008	LSES	A201	REQUEST FOR EXAMINATION	
KR20050065454 A	20050629	LSPB	+	published / reissued	
KR20050065454 A	20060327	LSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
KR20050065454 A	20060727	LSRV	-E601	DECISION TO REFUSE APPLICATION	
PL373448 A1	20050822	LSPB	+	published / reissued	
PL373448 A1	20091030	LSWD	-DISC	DECISIONS ON DISCONTINUANCE OF THE PROCEEDINGS (TAKEN AFTER THE PUBLICATION OF THE PARTICULARS OF THE APPLICATIONS)	
US2006017280 AA	20060126	LSPB	+	published / reissued	

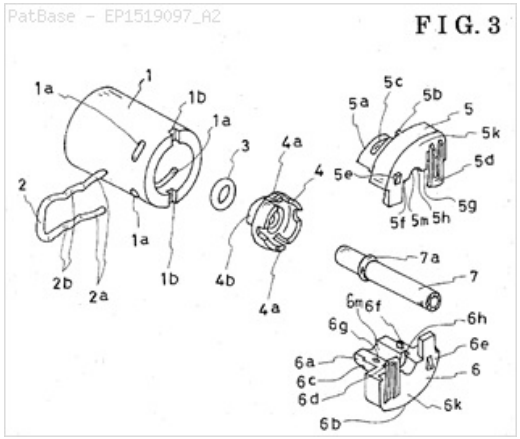
US2006017280 AA	20080128	LSWD	ABD3	Abandoned -- Failure to Respond to an Office Action	
US2006017280 AA	20080128		-STCB	INFORMATION ON STATUS: APPLICATION DISCONTINUATION	Text: ABANDONED -- FAILURE TO RESPOND TO AN OFFICE ACTION
WO03087646 A1	20031023	LSPB	+	published / reissued	
WO03087646 A1	20031023		+AK	DESIGNATED STATES	Kind code of Ref document: A1 Country of Ref document: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
WO03087646 A1	20031023		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: AM AT AZ BE BF BG BJ BY CF CG CH CI CM CY CZ DE DK EE ES FI FR GA GB GH GM GN GQ GR GW HU IE IT KE KG KZ LS LU MC MD ML MR MW MZ NE NL PT RO RU SD SE SI SK SL SN SZ TD TG TJ TM TR TZ UG ZM ZW
WO03087646 A1	20031217		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	
WO03087646 A1	20041008	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 1020047016134 Country of Ref document: KR
WO03087646 A1	20041008	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2482377 Country of Ref document: CA
WO03087646 A1	20041008	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 373448 Country of Ref document: PL
WO03087646 A1	20041012	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2003584560 Country of Ref document: JP
WO03087646 A1	20041019	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2003746364 Country of Ref document: EP
WO03087646 A1	20041020	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2003226535 Country of Ref document: AU
WO03087646 A1	20041025	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 1597/KOLNP/2004 Country of Ref document: IN
WO03087646 A1	20041209	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 20038133806 Country of Ref document: CN
WO03087646 A1	20050105	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 2003746364 Country of Ref document: EP
WO03087646 A1	20050601	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Ref document number: 2006017280 Kind code of Ref document: A1 Country of Ref document: US
WO03087646 A1	20050601	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 10511066 Country of Ref document: US
WO03087646 A1	20050629	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 1020047016134 Country of Ref document: KR
WO03087646 A1	20060126	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 10511066 Country of Ref document: US
WO03087646 A1	20071101	LSWD	-WWW	WIPO INFORMATION: WITHDRAWN IN NATIONAL OFFICE	Ref document number: 2003746364 Country of Ref document: EP

28) Family number: 31774497 (EP1519097 A2)

Title: PIPE COUPLING

Abstract: A pipe coupling includes a cylindrical coupling body (1) made of resin, an O-ring (3) provided between an inner surface (1B) of the coupling body and an outer surface of a pipe end (7) inserted into the coupling body, and a pipe supporting means (4,5,6) between the coupling body and the pipe end (7) for supporting and retaining the O-ring (3) and the pipe end (7) in the coupling body. Plural through-windows (1a) are formed through the outer cylindrical wall of the coupling body (1) at a predetermined distance from an opening end portion (1 D). An elastic retention member (2) passes through the through-windows (1a) and through outer grooves (5c,6c) in the pipe supporting means (4,5,6). The pipe supporting means (4,5,6) is made of reinforced resin. At least one inner annular groove (5h,6h) is formed at an inner surface of the pipe supporting means (4,5,6) for engaging with an annular outer projecting portion (7a) formed at the outer surface of the pipe end (7).

Classifications:
International (IPC 8-9): F16L37/00 F16L37/12 F16L37/14
International (IPC 1-7): F16L37/12 F16L37/14
CPC: F16D2025/081 F16D2048/0224 F16D25/088 F16L37/144
JP F-Term: 3J106 3J106/BC04 3J106/EB06 3J106/EC01 3J106/ED33 3J106/EE02
JP F-Index: F16L37/08 F16L37/12



Family:

Publication number	Publication date	Application number	Application date
CN2755395 Y	20060201	CN200420096211U	20040929
EP1519097 A2	20050330	EP20040077619	20040921
EP1519097 A3	20060607	EP20040077619	20040921
JP2005106133 A2	20050421	JP20030338336	20030929

Priority:
JP20030338336 20030929

Probable Assignee: AISIN GROUP
Assignee(s): (std): AISIN GROUP ; AISIN SEIKI ; AISIN TAKAOKA CO LTD
Assignee(s): AISIN SEIKI CO LTD ; AISIN SEIKI K K ; AISIN SEIKI KABUSHIKI KAISHA
Inventor(s): (std): HATTORI YASUAKI ; KYOAKI HATTORI ; NAKAMURA TOSHIYUKI ; TOSHIYUKI NAKAMURA
Inventor(s): HATTORI KYOAKI
Designated states: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN2755395 Y	20060201	LSGT	+	granted / extensions (spc, cpc, pte)	
CN2755395 Y	20060201	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN2755395 Y	20110112	LSLE	-C17	CESSATION OF PATENT RIGHT	
CN2755395 Y	20140929	PEXP		Calculated Patent Term Expiry	
EP1519097 A2	20050330	LSPB	+	published / reissued	
EP1519097 A2	20050330		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A2 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR
EP1519097 A2	20050330		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Country of Ref document: AL HR LT LV MK
EP1519097 A3	20060607		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A3 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR
EP1519097 A3	20060607		+AX	REQUEST FOR	Country of Ref document: AL HR LT LV

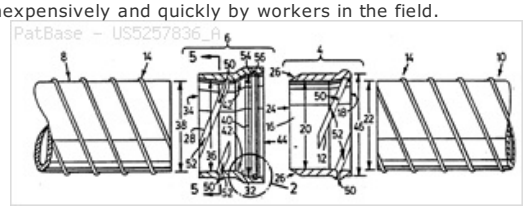
				EXTENSION OF THE EUROPEAN PATENT	MK
EP1519097 A3	20070117	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20061204
EP1519097 A3	20070214	LSFE	+AKX	DESIGNATION FEES PAID	Country of Ref document: DE FR GB
EP1519097 A3	20071226	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20071120
EP1519097 A3	20081126	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	Effective date: 20080531
JP2005106133 A2	20050421	LSPB	+	published / reissued	
JP2005106133 A2	20060826	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	Effective date: 20060825 Text: JAPANESE INTERMEDIATE CODE: A621
JP2005106133 A2	20091020		A977	REPORT ON RETRIEVAL	Effective date: 20091020 Text: JAPANESE INTERMEDIATE CODE: A971007
JP2005106133 A2	20091111	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	Effective date: 20091110 Text: JAPANESE INTERMEDIATE CODE: A131
JP2005106133 A2	20100407	LSRV	-A02	DECISION OF REFUSAL	Effective date: 20100406 Text: JAPANESE INTERMEDIATE CODE: A02

29) Family number: 9024797 (US5257836 A)

Title: STAB JOINT COUPLER

Abstract: A stab joint **coupling**, for joining corrugated **pipes**, has a male **connector** and a female **connector** both having means for attachment to a first and second piece of **pipe** by engaging the corrugation of the **pipe**. A circumferential elastomeric sealing means is positioned between the joined **coupling** **connectors** to effect a substantial liquid seal for the joint. The **coupling** permits two pieces of corrugated **pipe** to be joined relatively inexpensively and quickly by workers in the field.

Classifications:
International (IPC 8-9): F16L15/06 F16L21/02 F16L21/03 F16L21/08 F16L25/00
International (IPC 1-7): F16L15/06 F16L17/02 F16L21/08
CPC: F16L21/03 F16L25/0036 Y10S285/903
US: 285/374 285/392 285/404 285/903



Family:

Publication number	Publication date	Application number	Application date
CA2092728 AA	19930928	CA19932092728	19930326
CA2092728 C	19970506	CA19932092728	19930326
US5257836 A	19931102	US19920858708	19920327

Priority:
US19920858708 19920327 CA19932092728 19930326

Probable Assignee: JENISYS ENGINEERED PRODUCTS
Assignee(s): (std): ARMTEC INC ; JENISYS ENGINEERED PRODUCTS
Assignee(s): ARMTEC DIVISION OF JANNOCK STEEL FAB ; ARMTEC DIVISION OF JANNOCK STEEL FABRICATING CO ; ARMTEC LTD ; JANNOCK LTD ; JENISYS ENGINEERED PRODUCTS SUITE ; SMITH PETER JOHN
Inventor(s): (std): SMITH PETER J ; SMITH PETER JOHN
Agent(s): RIDOUT AND MAYBEE LLP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA2092728 AA	19930326	LSES	+EEER	EXAMINATION REQUEST	
CA2092728 AA	19930928	LSPB	+	published / reissued	
CA2092728 C	19970506	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2092728 C	20040326	LSLE	-MKLA	LAPSED	
CA2092728 C	20130326	PEXP		Calculated Patent Term Expiry	
US5257836 A	19920327	LSAS	AS	ASSIGNMENT	Effective date: 19920324 Owner: ARMTEC INC., CANADA PartyType: owner OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNOR:SMITH, PETER J.;REEL/FRAME:006077/0921
US5257836 A	19931102	LSGT	+	granted / extensions (spc, cpc, pte)	
US5257836 A	19950905	LSAS	AS	ASSIGNMENT	Owner: ARMTEC DIVISION OF JANNOCK STEEL FABRICATING COMPA PartyType: owner Effective date: 19950818 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:ARMTEC INC.;REEL/FRAME:007613/0657
US5257836 A	19960930	LSAS	AS	ASSIGNMENT	OldParty: CHANGE OF NAME;ASSIGNOR:JANNOCK STEEL FABRICATING COMPANY;REEL/FRAME:008162/0764 Owner: JENISYS ENGINEERED PRODUCTS, CANADA PartyType: owner Effective date: 19960402
US5257836 A	19970501	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US5257836 A	20010529		REMI	MAINTENANCE FEE REMINDER MAILED	
US5257836 A	20011102	LSLE	-LAPS	LAPSE FOR FAILURE TO	

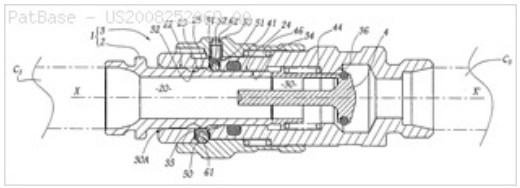
				PAY MAINTENANCE FEES	
US5257836 A	20011211	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US5257836 A	20011211	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US5257836 A	20020108	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective date: 20011102
US5257836 A	20120327	PEXP		Calculated Patent Term Expiry	

30) Family number: 42280306 (US2008252069 AA)

Title: FEMALE ELEMENT FOR A **CONNECTOR** AND **CONNECTOR** COMPRISING SUCH A FEMALE ELEMENT

Abstract: Female element (103) for a **connector** (101), having an axial (X-X') channel (130) intended to accommodate an end piece (102), the female element having an **annular** element (139) and at least one locking ball (150 A- 150 C) for locking the end piece (102) that can move axially (X-X') relative to the **annular** element (139) and radially between an unlocked position (FIG. 3) and a locked position in which it is capable of axially blocking (X-X') the end piece (102). This female element (103) further includes: at least one device forming an obstacle to the axial displacement (X-X') of the **annular** element (139) relative to the ball (150 A- 150 C) in the unlocked position, said device being radially retractable; at least one resilient element (152) for returning the device (152) to the unlocked position; and at least one detection member (151 A- 151 D) for detecting the end piece (102), that is capable, in the unlocked position, of being moved away radially by the end piece (102) so as to retract said device (152). In addition, this device and this resilient element consist of a stop clip (152) in the form of a resilient **ring** consisting of a wire of circular cross section.

Classifications:
International (IPC 8-9): F16L37/00 F16L37/08 F16L37/084 F16L37/086 F16L37/22 F16L37/23 F16L37/42
International (IPC 1-7): F16L37/084 F16L37/42
CPC: F16L37/0841 F16L37/23 F16L37/42
US: 285/81



Family:

Publication number	Publication date	Application number	Application date
CN101294649 A	20081029	CN200810125885	20080410
CN101294649 B	20120111	CN200810125885	20080410
DE602008029922 D1	20140306	DE200860029922T	20080409
DK1980782 T3	20140127	DK20080356059T	20080409
EP1980782 A1	20081015	EP20080356059	20080409
EP1980782 B1	20140115	EP20080356059	20080409
ES2449142 T3	20140318	ES20080356059T	20080409
FR2914980 A1	20081017	FR20070002594	20070410
FR2914980 B1	20120511	FR20070002594	20070410
IN00688KO2008 A	20090605	IN2008KO00688	20080408
IN295159 B	20180406	IN2008KO00688	20080408
TW200900618 A	20090101	TW20080112855	20080409
TWI427231 B	20140221	TW20080112855	20080409
US2008252069 AA	20081016	US20080078877	20080407

Priority:
FR20070002594 20070410 EP20080356059 20080409

Probable Assignee: STAUBLI FAVERGES

Assignee(s): (std): STAEUBLI FAVERGES GMBH ; STAUBLI ETS SA ; STAUBLI FAVERGES SCA ; STAUBLI FAVERGES SOC EN COMMAN ; STAUBLI SA ETS

Assignee(s): STAUBLI FAVERGES ; STAUBLI FAVERGES SOCIETE EN COMMANDITE PAR ACTIONS

Inventor(s): (std): ALAIN CHRISTOPHE TIBERGHIEN ; OLIVIER PASTORE ; PASTORE OLIVIER ; TIBERGHIEN ALAIN CHRISTOPHE

Agent(s): CABINET LAVOIX LYON; CURELL MIREIA; MYON GERARD JEAN PIERRE; RALPH A DOWELL OF DOWELL AND DOWELL PC

Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK TR

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
CN101294649 A	20081029	LSPB	+	published / reissued	
CN101294649 A	20081029	LSPB	+C06	PUBLICATION	
CN101294649 A	20100505		C10	ENTRY INTO SUBSTANTIVE EXAMINATION	
CN101294649 B	20120111	LSGT	+	granted / extensions (spc, cpc, pte)	
CN101294649 B	20120111	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN101294649 B	20280410	PEXP		Calculated Patent Term Expiry	
DK1980782 T3	20140127	LSGT	+	granted / extensions (spc, cpc, pte)	
DK1980782 T3	20280409	PEXP		Calculated Patent Term Expiry	

EP1980782 A1	20081015	LSPB	+	published / reissued	
EP1980782 A1	20081015		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR
EP1980782 A1	20081015		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Country of Ref document: AL BA MK RS
EP1980782 A1	20090527	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20090414
EP1980782 A1	20090624	LSFE	+AKX	DESIGNATION FEES PAID	Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR
EP1980782 A1	20110615	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20110511
EP1980782 A1	20131002	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	Effective date: 20130904
EP1980782 A1	20140829	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140515 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: IS
EP1980782 A1	20140829	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140415 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: NO
EP1980782 A1	20140829	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140115 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: LT
EP1980782 A1	20160429	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 9 Payment date: 20160324 Country of Ref document: TR
EP1980782 A1	20160630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160426 Year of fee payment: 9 Country of Ref document: NL
EP1980782 A1	20160729	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160427 Year of fee payment: 9 Country of Ref document: DE
EP1980782 A1	20160729	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 9 Payment date: 20160427 Country of Ref document: CH
EP1980782 A1	20160729	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 9 Payment date: 20160427 Country of Ref document: GB
EP1980782 A1	20160729	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 9 Payment date: 20160426 Country of Ref document: ES
EP1980782 A1	20160831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160425 Year of fee payment: 9 Country of Ref document: FR
EP1980782 A1	20160831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 9 Payment date: 20160427 Country of Ref document: SE
EP1980782 A1	20160831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE	Payment date: 20160425 Year of fee payment: 9

				[ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Country of Ref document: DK
EP1980782 B1	20140115	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1980782 B1	20140115		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR
EP1980782 B1	20140115	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: FG4D Text: NOT ENGLISH Ref country code: GB
EP1980782 B1	20140115	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: EP Ref country code: CH
EP1980782 B1	20140127		REG	REFERENCE TO A NATIONAL CODE	Effective date: 20140126 Ref country code: DK Ref legal event code: T3
EP1980782 B1	20140215	LSNP	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20140215 Ref country code: AT Kind code of Ref document: T Ref document number: 650001 Ref legal event code: REF Country of Ref document: AT
EP1980782 B1	20140218		REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: TRGR Ref country code: SE
EP1980782 B1	20140226	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: FG4D Ref country code: IE Text: LANGUAGE OF EP DOCUMENT: FRENCH
EP1980782 B1	20140306	LSPB	REG	REFERENCE TO A NATIONAL CODE	Ref document number: 602008029922 Effective date: 20140306 Ref country code: DE Ref legal event code: R096 Country of Ref document: DE
EP1980782 B1	20140318	LSGT	REG	REFERENCE TO A NATIONAL CODE	Kind code of Ref document: T3 Ref legal event code: FG2A Effective date: 20140318 Ref document number: 2449142 Ref country code: ES Country of Ref document: ES
EP1980782 B1	20140416	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: NL Ref legal event code: T3
EP1980782 B1	20140615	LSRV	REG	REFERENCE TO A NATIONAL CODE	Kind code of Ref document: T Ref document number: 650001 Ref legal event code: MK05 Effective date: 20140115 Ref country code: AT Country of Ref document: AT
EP1980782 B1	20140625	LSRV	REG	REFERENCE TO A NATIONAL CODE	Ref country code: LT Ref legal event code: MG4D
EP1980782 B1	20140731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140515 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: IS
EP1980782 B1	20140731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20140415 Country of Ref document: NO
EP1980782 B1	20140731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140115 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: LT
EP1980782 B1	20140829	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140115 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: CY
EP1980782 B1	20140829	LSLE	-PG25	LAPSED IN A	NotificationOfLapse: LAPSE

				CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20140115 Country of Ref document: FI
EP1980782 B1	20140829	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140115 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: AT
EP1980782 B1	20140829	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140515 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: PT
EP1980782 B1	20140930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20140115 Country of Ref document: HR
EP1980782 B1	20140930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140115 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: LV
EP1980782 B1	20141016	LSRE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: DE Ref document number: 602008029922 Ref legal event code: R097 Country of Ref document: DE
EP1980782 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140115 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: CZ
EP1980782 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20140115 Country of Ref document: RO
EP1980782 B1	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140115 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: EE
EP1980782 B1	20141128	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140115 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SK
EP1980782 B1	20141128	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140115 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: PL
EP1980782 B1	20141128	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20140409

					Country of Ref document: LU
EP1980782 B1	20141128	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20140115 Country of Ref document: MC
EP1980782 B1	20141224	LSGT	+26N	NO OPPOSITION FILED	Effective date: 20141016
EP1980782 B1	20150128	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: MM4A
EP1980782 B1	20150212	LSRE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: DE Ref legal event code: R097 Effective date: 20141016 Ref document number: 602008029922 Country of Ref document: DE
EP1980782 B1	20150430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140409 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: IE
EP1980782 B1	20150529	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140115 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SI
EP1980782 B1	20160331	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140115 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: MT
EP1980782 B1	20160425	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: PLFP Year of fee payment: 9 Ref country code: FR
EP1980782 B1	20160531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20140115 Country of Ref document: BG
EP1980782 B1	20160630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140115 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: IT
EP1980782 B1	20160630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20140416 Country of Ref document: GR
EP1980782 B1	20160729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20080409 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT; INVALID AB INITIO Country of Ref document: HU
EP1980782 B1	20160729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20140430 Country of Ref document: BE
EP1980782 B1	20170426	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: PLFP Year of fee payment: 10 Ref country code: FR

EP1980782 B1	20170630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170426 Year of fee payment: 10 Country of Ref document: NL
EP1980782 B1	20170630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 10 Payment date: 20170327 Country of Ref document: TR
EP1980782 B1	20170731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170426 Year of fee payment: 10 Country of Ref document: FR
EP1980782 B1	20170731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170427 Year of fee payment: 10 Country of Ref document: CH
EP1980782 B1	20170731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170425 Year of fee payment: 10 Country of Ref document: DK
EP1980782 B1	20170731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170427 Year of fee payment: 10 Country of Ref document: GB
EP1980782 B1	20170731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170427 Year of fee payment: 10 Country of Ref document: DE
EP1980782 B1	20170831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 10 Payment date: 20170427 Country of Ref document: SE
EP1980782 B1	20170831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170503 Year of fee payment: 10 Country of Ref document: ES
EP1980782 B1	20180425	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: PLFP Year of fee payment: 11 Ref country code: FR
EP1980782 B1	20180531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 11 Payment date: 20180323 Country of Ref document: TR
EP1980782 B1	20180629	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180426 Year of fee payment: 11 Country of Ref document: NL
EP1980782 B1	20180731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 11 Payment date: 20180426 Country of Ref document: DK
EP1980782 B1	20180731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180503 Year of fee payment: 11 Country of Ref document: ES
EP1980782 B1	20180731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180502 Year of fee payment: 11 Country of Ref document: CH
EP1980782 B1	20180731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180427 Year of fee payment: 11 Country of Ref document: DE
EP1980782 B1	20180831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180425 Year of fee payment: 11 Country of Ref document: FR

EP1980782 B1	20180928	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180427 Year of fee payment: 11 Country of Ref document: SE
EP1980782 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180427 Year of fee payment: 11 Country of Ref document: GB
EP1980782 B1	20190628	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190426 Year of fee payment: 12 Country of Ref document: NL
EP1980782 B1	20190731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190429 Year of fee payment: 12 Country of Ref document: DE
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EP1980782 B1	20190731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 12 Payment date: 20190429 Country of Ref document: DK
EP1980782 B1	20190830	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 12 Payment date: 20190429 Country of Ref document: SE
EP1980782 B1	20190830	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 12 Payment date: 20190401 Country of Ref document: TR
EP1980782 B1	20190830	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190425 Year of fee payment: 12 Country of Ref document: FR
EP1980782 B1	20190930	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190501 Year of fee payment: 12 Country of Ref document: CH
EP1980782 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190429 Year of fee payment: 12 Country of Ref document: GB
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EP1980782 B1	20200731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200504 Year of fee payment: 13 Country of Ref document: ES
EP1980782 B1	20200731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 13 Payment date: 20200504 Country of Ref document: CH
EP1980782 B1	20200731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200429 Year of fee payment: 13 Country of Ref document: DE
EP1980782 B1	20200731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200430 Year of fee payment: 13 Country of Ref document: DK
EP1980782 B1	20200731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 13 Payment date: 20200426 Country of Ref document: NL

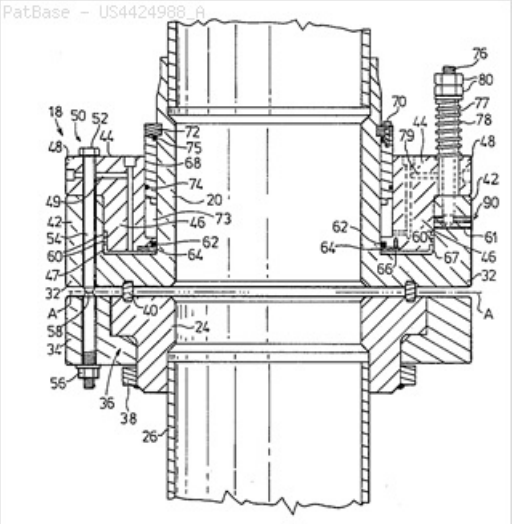
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EP1980782 B1	20200831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 13 Payment date: 20200429 Country of Ref document: SE
EP1980782 B1	20280409	PEXP		Calculated Patent Term Expiry	
ES2449142 T3	20140318	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2449142 T3	20280409	PEXP		Calculated Patent Term Expiry	
FR2914980 A1	20081017	LSPB	+	published / reissued	
FR2914980 A1	20081017		SC	SEARCH COMPLETED	BOPI Date: 2008-42
FR2914980 A1	20150417	LSFE	+PLFP	FEE PAYMENT	Year of fee payment: 9
FR2914980 A1	20170127	LSLE	-ST	NOTIFICATION OF LAPSE	Effective date: 20161230
FR2914980 B1	20120511	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2914980 B1	20150417	LSFE	+PLFP	Fee Payement	Payment date: 20150417 Year of fee payment: 9
FR2914980 B1	20160502	LSLE	-ST	NOTIFICATION OF LAPSE	
FR2914980 B1	20270410	PEXP		Calculated Patent Term Expiry	
IN00688KO2008 A	20090605	LSPB	+	published / reissued	
IN295159 B	20180406	LSGT	+	granted / extensions (spc, cpc, pte)	
IN295159 B	20280408	PEXP		Calculated Patent Term Expiry	
TW200900618 A	20090101	LSPB	+	published / reissued	
TWI427231 B	20140221	LSGT	+	granted / extensions (spc, cpc, pte)	
TWI427231 B	20280409	PEXP		Calculated Patent Term Expiry	
US2008252069 AA	20080521	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:TIBERGHIEN, ALAIN-CHRISTOPHE;PASTORE, OLIVIER;REEL/FRAME:020980/0269 Owner: STAUBLI FAVERGES, FRANCE Effective date: 20080408 PartyType: owner
US2008252069 AA	20081016	LSPB	+	published / reissued	
US2008252069 AA	20110617	LSWD	ABD3	Abandoned -- Failure to Respond to an Office Action	
US2008252069 AA	20110617		-STCB	INFORMATION ON STATUS: APPLICATION DISCONTINUATION	Text: ABANDONED -- FAILURE TO RESPOND TO AN OFFICE ACTION

31) Family number: 2412098 (US4424988 A)

Title: Frangible **pipe** **coupling**

Abstract: A frangible **pipe** **coupling** includes a pair of **pipes** with a plurality of frangible **connectors** extending between the **pipes** and normally holding the **pipes** in sealed engagement with one another. An **annular** member surrounds one of the **pipes** and is slidably mounted thereon for longitudinal sliding movement relative thereto, the **annular** member cooperating with the **pipe** to form a chamber therebetween. Fluid is supplied under pressure into the chamber to effect longitudinal sliding movement of the **annular** member relative to the **pipe**, the **annular** member being connected to the frangible **connectors** to cause the relative movement between the **annular** member and the **pipe** to break the frangible **connectors** and thereby separate the **pipes** from one another.

Classifications:
International (IPC 8-9): E21B17/02 E21B17/08 E21B33/03 E21B33/038 F16L25/00 F16L55/00
International (IPC 1-7): F16L17/00 F16L35/00 F16L37/00 F16L55/00
CPC: E21B17/085 E21B33/038 F16L25/00
US: 285/18 285/2 285/368 285/4



Family:

Publication number	Publication date	Application number	Application date
CA1191173 A1	19850730	CA19820416303	19821124
US4424988 A	19840110	US19810334717	19811228

Priority:

US19810334717 19811228 CA19820416303 19821124

Probable Assignee: CONSUMERS GAS CO LTD

Assignee(s): (std): CONSUMERS GAS CO

Assignee(s): CONSUMERS GAS CO 500 CONSUMERS ROAD WILLOWDALE ONT ; CONSUMERS GAS CO LTD ; CONSUMERS GAS COMPANY LIMITED ; COWX DOUGLAS B

Inventor(s): (std): COWX DOUGLAS B

Agent(s): GOWLING LAFLEUR HENDERSON LLP

Legal status (INPADOC)

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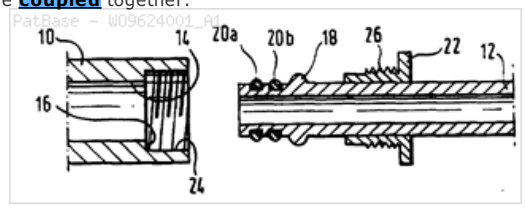
Patent	Date recorded	Event group	Code	Event	Details
CA1191173 A1					
CA1191173 A1	20020731	LSRE	+MKEC	EXPIRY (CORRECTION)	
CA1191173 A1	20021124	LSLE	-MKEX	EXPIRY	
US4424988 A	19831017	LSAS	AS	ASSIGNMENT	Owner: CONSUMERS' GAS COMPANY LIMITED, 500 CONSUMERS ROAD PartyType: owner OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNOR:COWX, DOUGLAS B.;REEL/FRAME:004177/0902 Effective date: 19831007
US4424988 A	19831017	LSAS	AS	ASSIGNMENT	Owner: CONSUMERS' GAS COMPANY LIMITED,, CANADA PartyType: owner Effective date: 19831007 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:COWX, DOUGLAS B.;REEL/FRAME:004177/0902
US4424988 A	19831109	LSGT	PAT1	Patented Case	
US4424988 A	19840110	LSGT	+	granted / extensions	

				(spc, cpc, pte)	
US4424988 A	19870427	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US4424988 A	19910703	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US4424988 A	19950815		REMI	MAINTENANCE FEE REMINDER MAILED	
US4424988 A	19960107	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US4424988 A	19960326	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective date: 19960110
US4424988 A	20180122	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US4424988 A	20180122	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362

32) Family number: 29366692 (WO9624001 A1)

Title: **CONNECTOR**

Abstract: A **connector** for tubular members is described. The **connector** includes a first tubular member (10) which has a cylindrical internal wall terminating at its outer end with an outwardly directed **annular** abutment (16). A second tubular member (12) is adapted for sliding engagement into the first tubular member and has an outwardly directed **annular** flange (18) that, in use, engages the abutment (16). One or more O-**rings** (20a, 20b) provide a seal between the first and second tubular member. Securing means in the form of a threaded nut (22) hold the flange (18) against the abutment (16). The second tubular member (12) is rotatable relative to the first tubular member (10) when the two are **coupled** together.



Classifications:
International (IPC 8-9): F16L19/02 F16L37/00 F16L37/084 F16L37/088 F16L37/098 F16L37/14 F24D19/00 F24D19/02 F24H9/12
International (IPC 1-7): F16L27/08 F16L37/08 F16L37/084 F24D19/02
CPC: F16L19/02 F16L37/084 F16L37/088 F16L37/0987 F16L37/14 F24D19/0002 F24D19/0075 F24D19/02 F24D19/0209 F24D19/0236 F24D19/0283 F24D19/0293 F24D2220/2054 F24D19/0216 F24D19/023

Family:

Publication number	Publication date	Application number	Application date
AU199647178 A1	19960821	AU19960047178	19960202
AU199647865 A1	19960821	AU19960047865	19960202
AU199647866 A1	19960821	AU19960047866	19960202
AU199647868 A1	19960821	AU19960047868	19960202
GB9502176 A0	19950322	GB19950002176	19950203
GB9502177 A0	19950322	GB19950002177	19950203
GB9504310 A0	19950419	GB19950004310	19950303
GB9506012 A0	19950510	GB19950006012	19950324
GB9509955 A0	19950712	GB19950009955	19950517
GB9511416 A0	19950802	GB19950011416	19950606
GB9514539 A0	19950913	GB19950014539	19950715
GB9519811 A0	19951129	GB19950019811	19950929
GB2313641 A1	19971203	GB19970016308	19960202
GB9716308 A0	19971008	GB19970016308	19960202
GB2313905 A1	19971210	GB19970016311	19960202
GB9716311 A0	19971008	GB19970016311	19960202
GB2313890 A1	19971210	GB19970016314	19960202
GB9716314 A0	19971008	GB19970016314	19960202
GB2313891 A1	19971210	GB19970016315	19960202
GB9716315 A0	19971008	GB19970016315	19960202
WO9624001 A1	19960808	WO1996EP00448	19960202
WO9624010 A1	19960808	WO1996EP00449	19960202
WO9624003 A1	19960808	WO1996EP00450	19960202
WO9624002 A1	19960808	WO1996EP00452	19960202

Priority:

GB19950002177 19950203 GB19950002176 19950203 GB19950004310 19950303
GB19950006012 19950324 GB19950009955 19950517 GB19950011416 19950606
GB19950014539 19950715 GB19950019811 19950929 WO1996EP00448 19960202
WO1996EP00449 19960202 WO1996EP00450 19960202 WO1996EP00452 19960202

Probable Assignee: ARTFORM INT LTD

Assignee(s): (std): ARTFORM INT LTD ; DAVIDSON PAUL ANTHONY

Assignee(s): ARTFORM INTERNATIONAL LIMITED

Inventor(s): (std): DAVIDSON PAUL ANTHONY

Inventor(s): PAUL ANTHONY DAVIDSON

Designated states: AL AM AT AU AZ BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CZ DE DK EE ES FI FR GA GB GE GN GR HU IE IS IT JP KE KG KP KR KZ LK LR LS LT LU LV MC MD MG MK ML MN MR MW MX NE NL NO NZ PL PT RO RU SD SE SG SI SK SZ TJ TM TR TT UA UG US UZ VN

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU199647178 A1	19960821	LSPB	+	published / reissued	
AU199647865 A1	19960821	LSPB	+	published / reissued	
AU199647866 A1	19960821	LSPB	+	published / reissued	
AU199647868 A1	19960821	LSPB	+	published / reissued	
GB2313641 A1	19971203	LSPB	+	published / reissued	
GB2313641 A1	19991027	LSWD	-WAP	APPLICATION WITHDRAWN, TAKEN TO BE WITHDRAWN OR	

				REFUSED ** AFTER PUBLICATION UNDER SECTION 16(1)	
GB2313890 A1	19971210	LSPB	+	published / reissued	
GB2313890 A1	19991027	LSWD	-WAP	APPLICATION WITHDRAWN, TAKEN TO BE WITHDRAWN OR REFUSED ** AFTER PUBLICATION UNDER SECTION 16(1)	
GB2313891 A1	19971210	LSPB	+	published / reissued	
GB2313891 A1	19991027	LSWD	-WAP	APPLICATION WITHDRAWN, TAKEN TO BE WITHDRAWN OR REFUSED ** AFTER PUBLICATION UNDER SECTION 16(1)	
GB2313905 A1	19971210	LSPB	+	published / reissued	
GB2313905 A1	20000322	LSWD	-WAP	APPLICATION WITHDRAWN, TAKEN TO BE WITHDRAWN OR REFUSED ** AFTER PUBLICATION UNDER SECTION 16(1)	
WO9624001 A1	19960808	LSPB	+	published / reissued	
WO9624001 A1	19960808		+AK	DESIGNATED STATES	Kind code of Ref document: A1 Country of Ref document: AL AM AT AU AZ BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN
WO9624001 A1	19960808		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: AT BE BF BJ CF CG CH CI CM DE DK ES FR GA GB GN GR IE IT KE LS LU MC ML MR MW NE NL PT SD SE SZ UG
WO9624001 A1	19961017		DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101)	
WO9624001 A1	19961106		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	
WO9624001 A1	19971204	LSWD	REG	REFERENCE TO NATIONAL CODE	Ref country code: DE Ref legal event code: 8642
WO9624001 A1	19980729	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	Ref country code: WO
WO9624002 A1	19960808	LSPB	+	published / reissued	
WO9624002 A1	19960808		+AK	DESIGNATED STATES	Kind code of Ref document: A1 Country of Ref document: AL AM AT AU AZ BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN
WO9624002 A1	19960808		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: AT BE BF BJ CF CG CH CI CM DE DK ES FR GA GB GN GR IE IT KE LS LU MC ML MR MW NE NL PT SD SE SZ UG
WO9624002 A1	19961010		DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101)	
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WO9624002 A1	19971204	LSWD	REG	REFERENCE TO NATIONAL CODE	Ref legal event code: 8642 Ref country code: DE
WO9624002 A1	19980729	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	Ref country code: WO
WO9624003 A1	19960808	LSPB	+	published / reissued	
WO9624003 A1	19960808		+AK	DESIGNATED STATES	Kind code of Ref document: A1 Country of Ref document: AL AM AT AU AZ BB BG BR BY CA CH CN CZ DE

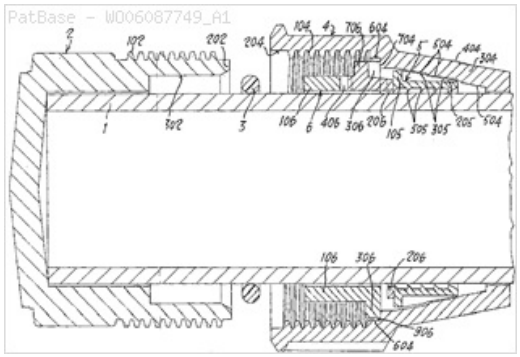
					DK EE ES FI GB GE HU IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN
WO9624003 A1	19960808		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: AT BE BF BJ CF CG CH CI CM DE DK ES FR GA GB GN GR IE IT KE LS LU MC ML MR MW NE NL PT SD SE SZ UG
WO9624003 A1	19961010		DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101)	
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WO9624003 A1	19971204	LSWD	REG	REFERENCE TO NATIONAL CODE	Ref legal event code: 8642 Ref country code: DE
WO9624003 A1	19980729	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	Ref country code: WO
WO9624010 A1	19960808	LSPB	+	published / reissued	
WO9624010 A1	19960808		+AK	DESIGNATED STATES	Kind code of Ref document: A1 Country of Ref document: AL AM AT AU AZ BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN
WO9624010 A1	19960808		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: AT BE BF BJ CF CG CH CI CM DE DK ES FR GA GB GN GR IE IT KE LS LU MC ML MR MW NE NL PT SD SE SZ UG
WO9624010 A1	19961010		DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101)	
WO9624010 A1	19961106		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	
WO9624010 A1	19971204	LSWD	REG	REFERENCE TO NATIONAL CODE	Ref legal event code: 8642 Ref country code: DE
WO9624010 A1	19980701	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	Ref country code: WO
WO9624010 A1	20000301	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Text: 19960202 A 9716311 Ref country code: GB

33) Family number: 33276156 (WO06087749 A1)

Title: FLUID TRANSPORT TUBE **CONNECTOR** FITTINGS

Abstract: The invention relates to a **connector** fitting for fluid transport tubes, comprising a **coupling** (2) made to connect up to a **ring** nut (4) and provided at the front with an opening (202) for inserting a tube (1), said **ring** nut (4) having positioned inside it at least one first **ring** (5) provided internally with teeth (505) to grip the external surface of said tube (1), characterised by the fact that said **ring** nut (4) comprises a first internally threaded part (104) and a second part (304) provided with means (504) for tightening said first **ring** (5), around said tube (1), there being a second **ring** (6) provided with a first **annular** component (106) to push at least one seal (3) into the cylindrical housing (302) provided which starts from the opening (202) of said **coupling** (2) inside said **ring** nut (4) and a second **ring** (6) fitted around tube (1) and a second **annular** component (206, 706) in contact with the border of said opening (202) of said **coupling** (2); the first **annular** component (106) and the second **annular** component-(2betagXare- provided with devices (406, 506, 606, 706) so as to allow a certain longitudinal movement of one with respect to the other.

Classifications:
International (IPC 8-9): F16L F16L19/00 F16L19/06 F16L19/08
CPC: F16L19/061 F16L19/086



Family:

Publication number	Publication date	Application number	Application date
AT438059 E	20090815	AT20060711408T	20060202
CN100580299 C	20100113	CN200680005113	20060202
CN101120197 A	20080206	CN200680005113	20060202
CY1109501 T1	20140813	CY20091101091T	20091021
DE602006008110 D1	20090910	DE200660008110T	20060202
EP1848912 A1	20071031	EP20060711408	20060202
EP1848912 B1	20090729	EP20060711408	20060202
ES2330563 T3	20091211	ES20060711408T	20060202
IL185231 A1	20101130	IL20060185231	20060202
IL185231 A0	20080209	IL20070185231	20070813
ITGE20050015 A1	20060817	IT2005GE00015	20050216
MY140775 A	20100115	MY20060000533	20060208
PL1848912 T3	20100129	PL20060711408T	20060202
PT1848912 T	20091019	PT20060711408T	20060202
WO06087749 A1	20060824	WO2006IT00054	20060202

Priority:
IT2005GE00015 20050216 WO2006IT00054 20060202 EP20060711408 20060202

Probable Assignee: UNIDELTA S P A

Assignee(s): (std): FREDDI MAURILIO ; UNIDELTA S P A

Assignee(s): MAURILIO FREDDI

Inventor(s): (std): FREDDI MAURILIO ; MAURILIO FREDDI

Inventor(s): FREDDI MAURILIO C O UNIDELTA SPA

Agent(s): EITAN MEHULAL AND SADOT; SANGIACOMO FULVIA

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LC LI LK LR LS LT LU LV LY MA MC MD MG MK ML MN MR MW MX MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT438059 E	20090815	LSGT	+	granted / extensions (spc, cpc, pte)	
AT438059 E	20100215	LSPB	+UEP	PUBLICATION OF TRANSLATION OF EUROPEAN PATENT SPECIFICATION	Ref document number: 1848912 Country of Ref document: EP
AT438059 E	20260202	PEXP		Calculated Patent Term Expiry	

CN100580299 C	20100113	LSGT	+	granted / extensions (spc, cpc, pte)	
CN100580299 C	20100113	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN100580299 C	20160323	LSWD	-EXPY	TERMINATION OF PATENT RIGHT OR UTILITY MODEL	
CN100580299 C	20260202	PEXP		Calculated Patent Term Expiry	
CN101120197 A	20080206	LSPB	+	published / reissued	
CN101120197 A	20080206	LSPB	+C06	PUBLICATION	
CN101120197 A	20080416		C10	ENTRY INTO SUBSTANTIVE EXAMINATION	
CY1109501 T1	20140813	LSGT	+	granted / extensions (spc, cpc, pte)	
CY1109501 T1	20291021	PEXP		Calculated Patent Term Expiry	
DE602006008110 D1	20100819	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
EP1848912 A1	20071031	LSPB	+	published / reissued	
EP1848912 A1	20071031	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20070824
EP1848912 A1	20071031		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
EP1848912 A1	20080109	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20071217
EP1848912 A1	20080521		DAX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT (DELETED)	
EP1848912 A1	20160429	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160226 Year of fee payment: 11 Country of Ref document: IT
EP1848912 A1	20160429	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160121 Year of fee payment: 11 Country of Ref document: TR
EP1848912 A1	20160429	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160204 Year of fee payment: 11 Country of Ref document: ES
EP1848912 A1	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160114 Year of fee payment: 11 Country of Ref document: PL
EP1848912 A1	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160125 Year of fee payment: 11 Country of Ref document: HU
EP1848912 A1	20170630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170216 Year of fee payment: 12 Country of Ref document: ES
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EP1848912 B1	20090729		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
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EP1848912 B1	20090731	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: EP
EP1848912 B1	20090819	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: FG4D

EP1848912 B1	20090910		REF	CORRESPONDS TO:	Date of Ref document: 20090910 Kind code of Ref document: P Ref document number: 602006008110 Country of Ref document: DE
EP1848912 B1	20091019		REG	REFERENCE TO A NATIONAL CODE	Effective date: 20091009 Ref country code: PT Ref legal event code: SC4A Text: AVAILABILITY OF NATIONAL TRANSLATION
EP1848912 B1	20091027	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: RO Ref legal event code: EPE
EP1848912 B1	20091119	LSRE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: GR Ref document number: 20090402535 Ref legal event code: EP Country of Ref document: GR
EP1848912 B1	20091211	LSGT	REG	REFERENCE TO A NATIONAL CODE	Kind code of Ref document: T3 Ref country code: ES Ref document number: 2330563 Ref legal event code: FG2A Country of Ref document: ES
EP1848912 B1	20100129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20090729 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: FI
EP1848912 B1	20100129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20091129 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: IS
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EP1848912 B1	20100129		REG	REFERENCE TO A NATIONAL CODE	Ref country code: PL Ref legal event code: T3
EP1848912 B1	20100226	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20090729 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SI
EP1848912 B1	20100226	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20090729 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: LV
EP1848912 B1	20100301	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: HU Ref document number: E006724 Ref legal event code: AG4A Country of Ref document: HU
EP1848912 B1	20100430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20090729 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: CZ
EP1848912 B1	20100430	LSLE	-PG25	LAPSED IN A	Lapsed date: 20090729

				CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: DK
EP1848912 B1	20100430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20090729 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: EE
EP1848912 B1	20100531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20090729 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: BE
EP1848912 B1	20100531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20090729 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SK
EP1848912 B1	20100707	LSGT	+26N	NO OPPOSITION FILED	Effective date: 20100503
EP1848912 B1	20100930	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: PL
EP1848912 B1	20101029	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20100228 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: CH
EP1848912 B1	20101029	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20100228 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: LI
EP1848912 B1	20101029	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20100301 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: MC
EP1848912 B1	20110131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20100202 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: IE
EP1848912 B1	20110228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20101221 Year of fee payment: 6 Country of Ref document: PT
EP1848912 B1	20110531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20110104 Year of fee payment: 6 Country of Ref document: BG
EP1848912 B1	20110531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20101229 Year of fee payment: 6 Country of Ref document: AT
EP1848912 B1	20110531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20110216 Year of fee payment: 6 Country of Ref document: NL
EP1848912 B1	20110531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20110202 Year of fee payment: 6 Country of Ref document: RO

EP1848912 B1	20110831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20110107 Year of fee payment: 6 Country of Ref document: CY
EP1848912 B1	20120810	LSLE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20120802 Ref country code: PT Ref legal event code: MM4A Text: LAPSE DUE TO NON-PAYMENT OF FEES
EP1848912 B1	20120912	LSLE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20120901 Ref country code: NL Ref legal event code: V1
EP1848912 B1	20120928	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20100202 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: LU
EP1848912 B1	20121031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20120202 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: CY
EP1848912 B1	20121130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20120203 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: HU
EP1848912 B1	20121130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20120802 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: PT
EP1848912 B1	20121215	LSLE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20120202 Kind code of Ref document: T Ref country code: AT Ref document number: 438059 Ref legal event code: MM01 Country of Ref document: AT
EP1848912 B1	20130131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20120202 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: AT
EP1848912 B1	20130131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20120901 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: NL
EP1848912 B1	20130430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20120202 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: RO
EP1848912 B1	20130430	LSRE	+PGRI	PATENT REINSTATED IN CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Reinstated date: 20130108 Country of Ref document: HU
EP1848912 B1	20130731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20121231 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: BG
EP1848912 B1	20140430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20140228 Year of fee payment: 9 Country of Ref document: DE
EP1848912 B1	20140530	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE	Payment date: 20140128 Year of fee payment: 9

				[ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Country of Ref document: FR
EP1848912 B1	20140630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20140128 Year of fee payment: 9 Country of Ref document: GB
EP1848912 B1	20150901	LSDW	REG	REFERENCE TO A NATIONAL CODE	Ref country code: DE Ref document number: 602006008110 Ref legal event code: R119 Country of Ref document: DE
EP1848912 B1	20151028	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	Effective date: 20150202 Ref country code: EP
EP1848912 B1	20151127	LSLE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20151030 Ref country code: FR Ref legal event code: ST
EP1848912 B1	20160129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20150202 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: GB
EP1848912 B1	20160129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20150901 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: DE
EP1848912 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20150302 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: FR
EP1848912 B1	20170428	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170125 Year of fee payment: 12 Country of Ref document: GR
EP1848912 B1	20170531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170117 Year of fee payment: 12 Country of Ref document: PL
EP1848912 B1	20170531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170126 Year of fee payment: 12 Country of Ref document: HU
EP1848912 B1	20170630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170127 Year of fee payment: 12 Country of Ref document: TR
EP1848912 B1	20170630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170216 Year of fee payment: 12 Country of Ref document: IT
EP1848912 B1	20180430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180302 Year of fee payment: 13 Country of Ref document: ES
EP1848912 B1	20180531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180122 Year of fee payment: 13 Country of Ref document: TR
EP1848912 B1	20180531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180126 Year of fee payment: 13 Country of Ref document: GR
EP1848912 B1	20180531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO	Payment date: 20180116 Year of fee payment: 13 Country of Ref document: PL

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EP1848912 B1	20180531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180125 Year of fee payment: 13 Country of Ref document: HU
EP1848912 B1	20180531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180226 Year of fee payment: 13 Country of Ref document: IT
EP1848912 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190218 Year of fee payment: 14 Country of Ref document: IT
EP1848912 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190116 Year of fee payment: 14 Country of Ref document: PL
EP1848912 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190301 Year of fee payment: 14 Country of Ref document: ES
EP1848912 B1	20190531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190125 Year of fee payment: 14 Country of Ref document: TR
EP1848912 B1	20190531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190125 Year of fee payment: 14 Country of Ref document: HU
EP1848912 B1	20191129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20190904 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: GR
EP1848912 B1	20200501	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200117 Year of fee payment: 15 Country of Ref document: PL
EP1848912 B1	20200501	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200217 Year of fee payment: 15 Country of Ref document: IT
EP1848912 B1	20200501	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200131 Year of fee payment: 15 Country of Ref document: HU
EP1848912 B1	20200501	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200302 Year of fee payment: 15 Country of Ref document: ES
EP1848912 B1	20200630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200116 Year of fee payment: 15 Country of Ref document: TR
EP1848912 B1	20260202	PEXP		Calculated Patent Term Expiry	
ES2330563 T3	20091211	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2330563 T3	20260202	PEXP		Calculated Patent Term Expiry	
IL185231 A1	20101130	LSPB	+	published / reissued	
IL185231 A1	20110331	LSGT	+FF	PATENT GRANTED	
IL185231 A1	20110428	LSFE	+KB	PATENT RENEWED	
IL185231 A1	20120229	LSFE	+KB	PATENT RENEWED	
IL185231 A1	20160229	LSFE	+KB	PATENT RENEWED	
IL185231 A1	20200130	LSFE	+KB	PATENT RENEWED	

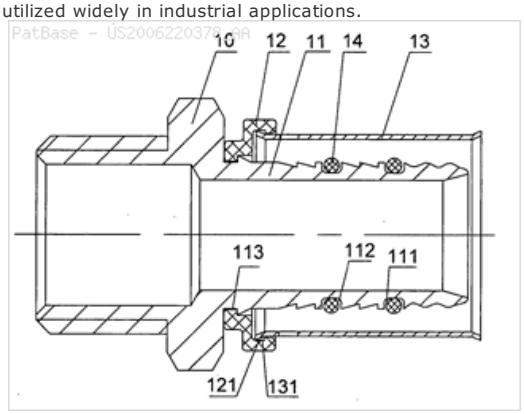
ITGE20050015 A1	20060817	LSPB	+	published / reissued	
MY140775 A	20100115	LSGT	+	granted / extensions (spc, cpc, pte)	
MY140775 A	20260208	PEXP		Calculated Patent Term Expiry	
PL1848912 T3	20100129	LSGT	+	granted / extensions (spc, cpc, pte)	
PT1848912 T	20091019	LSGT	+	granted / extensions (spc, cpc, pte)	
PT1848912 T	20260202	PEXP		Calculated Patent Term Expiry	
WO06087749 A1	20060824	LSPB	+	published / reissued	
WO06087749 A1	20061004		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	
WO06087749 A1	20070724	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2006711408 Country of Ref document: EP
WO06087749 A1	20070813	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 185231 Country of Ref document: IL
WO06087749 A1	20070816	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 200680005113.4 Country of Ref document: CN
WO06087749 A1	20070817	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: DE
WO06087749 A1	20071031	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 2006711408 Country of Ref document: EP

34) Family number: 32197566 (US2006220378 AA)

Title: PRESS FITTING

Abstract: The present utility model discloses a press fitting, comprising a **pipe** **connector**, a nipple, a check **ring**, a sealing **ring**, a pressure sleeve, etc. Said check **ring** is sleeved into the end **groove** at the end section of said nipple of said **pipe** **connector**. Said sealing **ring** is fit to the sealing **groove** of said nipple. The pressure sleeve is locked within said check **ring**, which has an inlet **groove**, a positioning **annular** **groove** connected with said inlet **groove**, and said positioning **annular** **groove** has larger internal diameter than that of said inlet **groove**. Said pressure sleeve has an extension section on its end, and the dimension of the external diameter of the larger-diameter end of said extension section is between the dimension of the internal diameter of said inlet **groove** (124) of said check **ring** (12) and that of the internal diameter of said positioning **annular** **groove** (123) of said check **ring** (12). This utility model manifests good coaxiality between said pressure sleeve and said check **ring**, good fixity of said pressure sleeve, and can be operated easily and utilized widely in industrial applications.

Classifications:
International (IPC 8-9): F16L33/00 F16L33/18 F16L47/00 F16L47/08 F16L47/30
International (IPC 1-7): F16L47/30
CPC: F16L13/143 F16L33/2078
US: 285/242 285/242P 285/256 285/259 285/259S 285/351 285/351S



Family:

Publication number	Publication date	Application number	Application date
CN2814090 Y	20060906	CN200520056332U	20050331
DE202005008109 U1	20050804	DE200520008109U	20050524
US2006220378 AA	20061005	US20050136921	20050525
US7293804 BB	20071113	US20050136921	20050525

Priority:
CN200520056332U 20050331

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Inventor(s): (std): FENG XIAOBIN ; LI YONG ; LIANG HUI
Inventor(s): HUI LIANG ; XIAOBIN FENG ; YONG LI
Agent(s): CHARLES E BAXLEY ESQ

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN2814090 Y	20060906	LSGT	+	granted / extensions (spc, cpc, pte)	
CN2814090 Y	20060906	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN2814090 Y	20150331	PEXP		Calculated Patent Term Expiry	
CN2814090 Y	20150506	LSLE	-C17	CESSATION OF PATENT RIGHT	
DE202005008109 U1	20050804	LSGT	+	granted / extensions (spc, cpc, pte)	
DE202005008109 U1	20050908	LSGT	R207	UTILITY MODEL SPECIFICATION	Effective date: 20050908
DE202005008109 U1	20080821	LSGT	+R150	UTILITY MODEL MAINTAINED AFTER PAYMENT OF FIRST MAINTENANCE FEE AFTER THREE YEARS	Effective date: 20080618
DE202005008109 U1	20111112	LSGT	+R151	UTILITY MODEL	

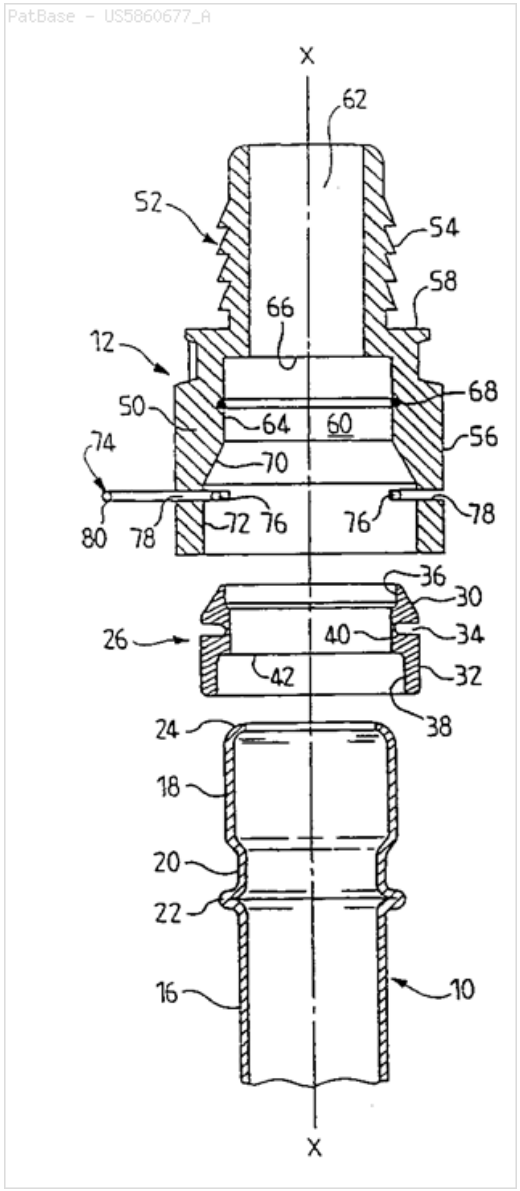
				MAINTAINED AFTER PAYMENT OF SECOND MAINTENANCE FEE AFTER SIX YEARS	
DE202005008109 U1	20120105	LSGT	+R151	UTILITY MODEL MAINTAINED AFTER PAYMENT OF SECOND MAINTENANCE FEE AFTER SIX YEARS	Effective date: 20111112
DE202005008109 U1	20130808	LSGT	+R152	UTILITY MODEL MAINTAINED AFTER PAYMENT OF THIRD MAINTENANCE FEE AFTER EIGHT YEARS	Effective date: 20130613
DE202005008109 U1	20150524	PEXP		Calculated Patent Term Expiry	
DE202005008109 U1	20150601	LSLE	-R071	EXPIRY OF RIGHT	
US2006220378 AA	20061005	LSPB	+	published / reissued	
US2006220378 AA	20071024	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US7293804 BB	20050525	LSAS	AS	ASSIGNMENT	Effective date: 20050519 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:LI, YONG;LIANG, HUI;FENG, XIAOBIN;REEL/FRAME:016607/0329 Owner: FOSHAN RIFENG ENTERPRISE CO., LTD., CHINA PartyType: owner
US7293804 BB	20071024	LSGT	PAT1	Patented Case	
US7293804 BB	20071113	LSGT	+	granted / extensions (spc, cpc, pte)	
US7293804 BB	20110119	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US7293804 BB	20150429	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US7293804 BB	20190510	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	Year of fee payment: 12
US7293804 BB	20250828	PEXP		Calculated Patent Term Expiry (PTA 95 days)	

35) Family number: 10733326 (US5860677 A)

Title: RAPID CONNECTION DEVICE FOR CONNECTING A TUBE MEMBER WITH A **PIPE** **CONNECTOR**, ESPECIALLY FOR A HEAT EXCHANGER; AND A HEAT EXCHANGER EQUIPPED WITH SUCH A DEVICE

Abstract: In a rapid connecting device for **coupling** a tube member with a **connector** such as a terminal **connector** on the end of a **pipe**, the tube member is of the type having an **annular** **groove**. The connecting device comprises a collar piece which is adapted to be mated with the tube member, around the latter, the collar piece having a locking means for engaging in the **annular** **groove** of the tube member so as to immobilise the collar piece with respect to the latter. The **connector** has a socket arranged to receive the end portion of the tube member and the collar piece, with a seal being interposed between the collar piece and the tube member. The collar piece has a further locking means for immobilising the **connector** with respect to the collar piece. The invention is especially applicable to the **coupling** of heat transfer fluid inlet and outlet tube connections of a heat exchanger, with external **pipes**.

Classifications:
International (IPC 8-9): F16L37/00 F16L37/088 F16L37/56 F28F9/04
International (IPC 1-7): F16L37/00 F16L37/088 F16L37/56 F28F9/26
CPC: F16L37/0885 F16L37/56 F28F9/0246 F28F9/0258 Y10S285/914
US: 285/26 285/305 285/321 285/914



Family:

Publication number	Publication date	Application number	Application date
EP0753697 A1	19970115	EP19960401406	19960625
FR2736135 A1	19970103	FR19950007784	19950628
FR2736135 B1	19970829	FR19950007784	19950628
US5860677 A	19990119	US19960670366	19960625

Priority:
FR19950007784 19950628

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Inventor(s): (std): MARTINS CARLOS ; WURMSER MARTIN
Inventor(s): CARLOS MARTINS ; MARTIN WURMSER
Agent(s): CABINET NETTER

Designated states: DE ES GB IT

Legal status (INPADOC)

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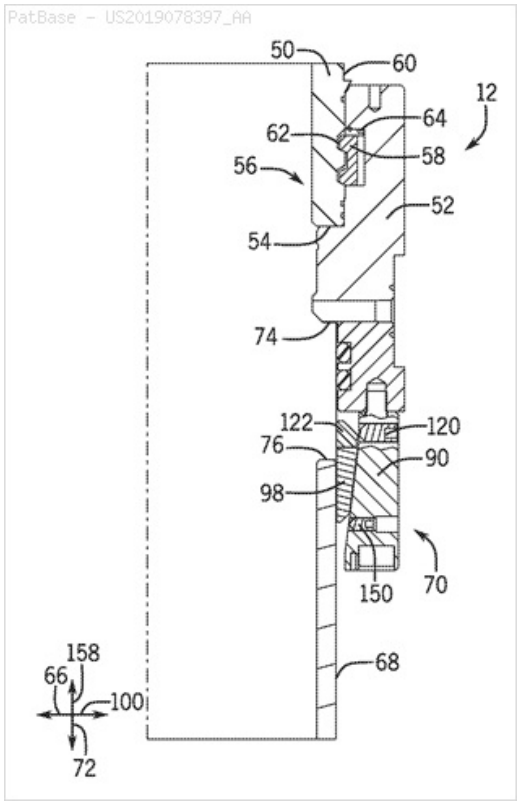
Patent	Date recorded	Event group	Code	Event	Details
EP0753697 A1	19970115	LSPB	+	published / reissued	
EP0753697 A1	19970115		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: DE ES GB IT
EP0753697 A1	19970122		RIN1	INFORMATION ON INVENTOR PROVIDED BEFORE GRANT (CORRECTED)	Inventor: MARTINS, CARLOS PartyType: inventor
EP0753697 A1	19970122		RIN1	INFORMATION ON INVENTOR PROVIDED BEFORE GRANT (CORRECTED)	Inventor: WURMSER, MARTIN PartyType: inventor
EP0753697 A1	19970827	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 19970626
EP0753697 A1	19990901	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 19990719
EP0753697 A1	20000726	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	Effective date: 20000201
FR2736135 A1	19970103	LSPB	+	published / reissued	
FR2736135 B1	19970829	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2736135 B1	20100326	LSLE	-ST	NOTIFICATION OF LAPSE	Effective date: 20100226
FR2736135 B1	20150628	PEXP		Calculated Patent Term Expiry	
US5860677 A	19960930	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:MARTINS, CARLOS;WURMSER, MARTIN;REEL/FRAME:008298/0394;SIGNING DATES FROM 19960730 TO 19960825 Owner: VALEO CLIMATISATION, FRANCE PartyType: owner
US5860677 A	19990119	LSGT	+	granted / extensions (spc, cpc, pte)	
US5860677 A	20020806		REMI	MAINTENANCE FEE REMINDER MAILED	
US5860677 A	20030121	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US5860677 A	20030219	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US5860677 A	20030219	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US5860677 A	20030318	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective date: 20030119
US5860677 A	20160625	PEXP		Calculated Patent Term Expiry	

36) Family number: 73499970 (US2019078397 AA)

Title: SLIP LOCK **CONNECTOR** SYSTEM

Abstract: A slip lock **connector** system with a slip lock **connector** that **couples** a first **annular** body to a second **annular** body. The slip lock **connector** includes a first tapered surface and a second tapered surface. The first tapered surface and the second tapered surface slide over each other to drive the first and second tapered surfaces in radially opposite directions. The movement of the first and second tapered surfaces in radially opposite directions **couples** the slip lock **connector** to the second **annular** body.

Classifications:
International (IPC 8-9)**:** E21B17/02 F16L37/26
CPC: E21B17/02 E21B33/038 E21B43/0107 F16L21/08 F16L25/065 F16L37/26
US: 1/1



Family:

Publication number	Publication date	Application number	Application date
US2019078397 AA	20190314	US20170699561	20170908

Priority:
US20170699561 20170908

Probable Assignee: CAMERON INT CORP
Assignee(s): (std)**:** CAMERON INT CORP
Inventor(s): (std)**:** NGUYEN DENNIS P

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
US2019078397 AA	20180215		RFE1	Docketed New Case - Ready for Examination	
US2019078397 AA	20180215		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: DOCKETED NEW CASE - READY FOR EXAMINATION
US2019078397 AA	20190314	LSPB	+	published / reissued	
US2019078397 AA	20200625	LSES	NFA1	Non Final Action Mailed	
US2019078397 AA	20200625		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: NON FINAL ACTION MAILED
US2019078397 AA	20200911		RSP4	Response to Non-Final Office Action Entered and Forwarded to Examiner	
US2019078397 AA	20200911		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND	Text: RESPONSE TO NON-FINAL OFFICE ACTION

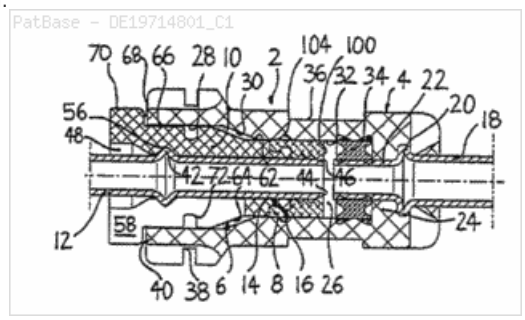
	GRANTING PROCEDURE IN GENERAL	ENTERED AND FORWARDED TO EXAMINER

37) Family number: 22774532 (DE19714801 C1)

Title: ELASTIC SEALING COMPONENT FOR HYDRAULIC INSERT CONNECTION

Abstract: The insert connection (2) in the fitted state is outwardly sealed. The sealing component (8) has a form profile (14) on the inner peripheral surface, which serves for the positive engagement with a form profile (16) formed on the outer peripheral surface of the socket, in order to fix the sealing component on the socket (10). On the outer peripheral surface axially in the area of the form profile at least one outer sealing lip (104) is formed, which in the fitted state of the insert connection locates on an inner peripheral surface (32) of the **coupling** (4) with elastic deformation.

Classifications:
International (IPC 8-9): F16L21/02 F16L21/03 F16L37/00 F16L37/084
International (IPC 1-7): F16L37/14
CPC: F16L21/03 F16L37/084 F16L37/0885 F16L37/144



Family:

Publication number	Publication date	Application number	Application date
DE19714801 C1	19980102	DE19971014801	19970410

Priority:
DE19961028312 19960713 DE19971014801 19970410

Probable Assignee: EBERN FAHRZEUGTECH GMBH
Assignee(s): (std): EBERN FAHRZEUGTECH GMBH
Assignee(s): FAHRZEUGTECHNIK EBERN GMBH ; FAHRZEUGTECHNIK EBERN GMBH 96106 EBERN DE
Inventor(s): (std): CAPAN ISO DIPL ING ; HERZ PAUL ; MUCKELBAUER ROBERT DIPL ING ; SCHRAMM ERWIN DIPL ING
Inventor(s): CAPAN ISO DIPL ING FH 96450 COBURG DE ; HERZ PAUL 96106 EBERN DE ; MUCKELBAUER ROBERT DIPL ING FH 96166 KIRCHLAUTER DE ; SCHRAMM ERWIN DIPL ING FH 97522 SAND DE

Legal status (INPADOC)

View legal status timeline

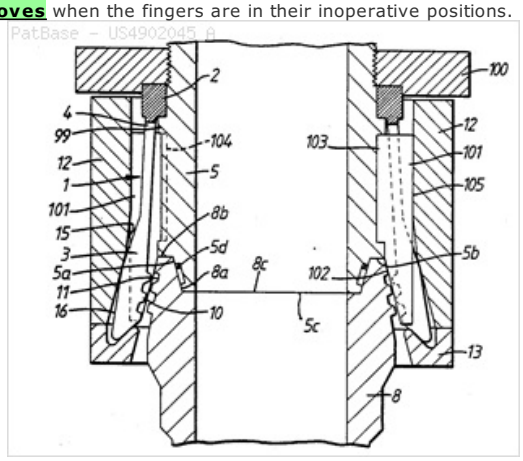
Patent	Date recorded	Event group	Code	Event	Details
DE19714801 C1	19980102	LSGT	+	granted / extensions (spc, cpc, pte)	
DE19714801 C1	19980102	LSPB	+8100	PUBLICATION OF THE EXAMINED APPLICATION WITHOUT PUBLICATION OF UNEXAMINED APPLICATION	
DE19714801 C1	19980102	LSGT	+D1	GRANT (NO UNEXAMINED APPLICATION PUBLISHED) PATENT LAW 81	
DE19714801 C1	19980416	LSAS	8327	CHANGE IN THE PERSON/NAME/ADDRESS OF THE PATENT OWNER	PartyType: owner Owner: FTE AUTOMATIVE GMBH, 96106 EBERN, DE
DE19714801 C1	19980625	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE19714801 C1	20040325	LSAS	8327	CHANGE IN THE PERSON/NAME/ADDRESS OF THE PATENT OWNER	PartyType: owner Owner: FTE AUTOMOTIVE GMBH & CO. KG, 96106 EBERN, DE
DE19714801 C1	20051208	LSAS	8327	CHANGE IN THE PERSON/NAME/ADDRESS OF THE PATENT OWNER	Owner: FTE AUTOMOTIVE GMBH, 96106 EBERN, DE PartyType: owner
DE19714801 C1	20170410	PEXP		Calculated Patent Term Expiry	
DE19714801 C1	20170410	LSLE	-R071	EXPIRY OF RIGHT	

38) Family number: 15326464 (US4902045 A)

Title: **CONNECTORS**

Abstract: A **connector** comprises a first **coupling** assembly comprising a first **coupling** member associated with an **annular** body from which extend a plurality of radially flexible fingers provided at their ends with engagement ribs engageable in **grooves** in a second **coupling** member to be abutted against the first **coupling** member. The fingers are held in their radially inner engaged position by a locking **ring** axially movable relative to the **annular** body between a locking position and an inoperative position. The locking **ring** may be associated a disengagement portion which, as the locking **ring** moves to its inoperative position, engages the ends of the fingers to move them radially outwardly to disengage the ribs from the **grooves**. The **annular** body may be axially movable relative to the first **coupling** member or fixed relative thereto. When fixed, guide vanes may be provided between the fingers to define a guide surface in the region of the ribs which lies between the operative and inoperative positions of the fingers to prevent inadvertent contact of the ribs and **grooves** when the fingers are in their inoperative positions.

Classifications:
International (IPC 8-9): E21B33/03 E21B33/038 F16L37/00 F16L37/098
International (IPC 1-7): E21B F16D1/10 F16L21/06 F16L21/08 F16L37/00 F16L37/12
CPC: E21B33/038 F16L1/26 F16L37/002 F16L37/0985 Y10T279/17427 Y10T279/26 Y10T403/1616 Y10T403/53
US: 103/13 103/289 279/133 279/1L 279/46.3 285/24 285/322 285/82 403/13 403/289



Family:

Publication number	Publication date	Application number	Application date
GB8630239 A0	19870128	GB19860030239	19861218
GB8722395 A0	19871028	GB19870022395	19870923
GB2199102 A1	19880629	GB19870027779	19871127
GB2199102 B2	19900214	GB19870027779	19871127
GB8727779 A0	19871231	GB19870027779	19871127
NO175019 B	19940509	NO19870005280	19871217
NO175019 C	19940817	NO19870005280	19871217
NO875280 A	19880620	NO19870005280	19871217
NO875280 A0	19871217	NO19870005280	19871217
NO875280 L	19880620	NO19870005280	19871217
US4902045 A	19900220	US19870128104	19871203

Priority:

GB19860030239 19861218 GB19870022395 19870923

Probable Assignee: HUNTING OILFIELD SERVICES LTD

Assignee(s): (std): HUNTING OILFIELD EQUIPMENT HOL ; HUNTING OILFIELD SERVICES LTD

Assignee(s): CREDIT SUISSE FIRST BOSTON AS US COLLATERAL AGENT ; CREDIT SUISSE FIRST BOSTON US COLLATERAL AGENT AS ; HUNTING OILFIELD EQUIPMENT HOLDINGS LIMITED ; HUNTING OILFIELD EQUIPMENT HOLDINGS LTD ; HUNTING OILFIELD SERVICES LIMITED ; HUNTING OILFILED SERVICES LTD

Inventor(s): (std): BUCKLEY NORMAN ; MACKIE MICHAEL J ; MACKIE MICHAEL JOHN ; MCGUGAN JOHN D ; MCGUGAN JOHN DRUMMOND

Inventor(s): JOHN DRUMMOND MCGUGAN ; MICHAEL JOHN MACKIE ; NORMAN BUCKLEY

Legal status (INPADOC)

View legal status timeline

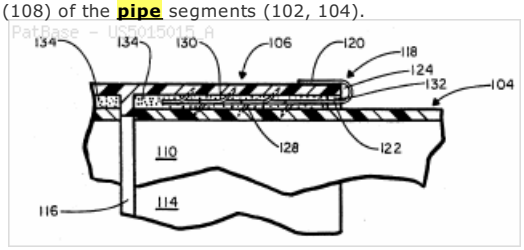
Patent	Date recorded	Event group	Code	Event	Details
GB2199102 A1	19880629	LSPB	+	published / reissued	
GB2199102 B2	19900214	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2199102 B2	19920909		732	REGISTRATION OF TRANSACTIONS, INSTRUMENTS OR EVENTS IN THE REGISTER (SECT. 32/1977)	
GB2199102 B2	19980325		732E	AMENDMENTS TO THE REGISTER IN RESPECT OF CHANGES OF NAME OR CHANGES AFFECTING RIGHTS (SECT. 32/1977)	

GB2199102 B2	20071127	PEXP		Calculated Patent Term Expiry	
GB2199102 B2	20071219	LSLE	-PE20	PATENT EXPIRED AFTER TERMINATION OF 20 YEARS	Effective date: 20071126
NO175019 B	19940509	LSPB	+	published / reissued	
NO175019 C	19940817	LSGT	+	granted / extensions (spc, cpc, pte)	
NO175019 C	20071217	PEXP		Calculated Patent Term Expiry	
NO175019 C	20080128	LSLE	-MK1K	PATENT EXPIRED	
NO875280 A	19880620	LSPB	+	published / reissued	
US4902045 A	19890602	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNORS:MC GUGAN, JOHN D.;MACKIE, MICHAEL J.;BUCKLEY, NORMAN;REEL/FRAME:005094/0086 PartyType: owner Effective date: 19871202 Owner: HUNTING OILFIELD SERVICES LIMITED
US4902045 A	19891215	LSGT	PAT1	Patented Case	
US4902045 A	19891215	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US4902045 A	19900220	LSGT	+	granted / extensions (spc, cpc, pte)	
US4902045 A	19910326	LSRE	CC	CERTIFICATE OF CORRECTION	
US4902045 A	19920819	LSAS	AS	ASSIGNMENT	Effective date: 19920327 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNOR:HUNTING OILFIELD SERVICES LIMITED;REEL/FRAME:006236/0594 Owner: HUNTING OILFIELD EQUIPMENT HOLDINGS LIMITED, ENGLA PartyType: owner
US4902045 A	19930804	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US4902045 A	19970807	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US4902045 A	20010314	LSAS	AS	ASSIGNMENT	Effective date: 20010214 OldParty: SECURITY AGREEMENT;ASSIGNORS:OIL STATES;A-Z TERMINAL CORPORATION;CAPSTAR DRILLING, INC.;AND OTHERS;REEL/FRAME:011566/0720 Owner: CREDIT SUISSE FIRST BOSTON, AS U.S. COLLATERAL AGE PartyType: owner
US4902045 A	20010802	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US4902045 A	20071203	PEXP		Calculated Patent Term Expiry	

39) Family number: 4584900 (US5015015 A)

Title: CLIP SECURING ARRANGEMENT FOR VENTILATION SYSTEMS

Abstract: An interconnection arrangement (100) is disclosed for structurally interconnecting together **pipe** segments (102, 104) with a **coupling** device (106). In one embodiment, the **coupling** device is a sleeve **coupling** (106) having an inner diameter larger than the outer diameters of the **pipe** segments (102, 104). A set of four clips (118) are employed, with each clip (118) having a lip (120) and a series of tines (126). The clips (118) are engaged with longitudinal edge surfaces of the sleeve **coupling** (106), and the **pipe** segments (102, 104) are telescoped into the **coupling** (106). The tines (126) of the clips (118) "bite" into the inner surface (114) of the sleeve **coupling** (106), and the outer surfaces (108) of the **pipe** segments (102, 104).



Classifications:
International (IPC 8-9): F16L21/00 F16L21/08
International (IPC 1-7): F16L13/04
CPC: B29C65/483 B29C65/562 B29C65/564 B29C65/72 B29C66/1222 B29C66/1224 B29C66/30341 B29C66/5221 B29C66/52231 B29C66/52292 F16L21/002 F16L21/08 F24F13/0209 Y10S285/915
US: 285/114 285/179 285/305 285/915

Family:

Publication number	Publication date	Application number	Application date
US5015015 A	19910514	US19900530610	19900530

Priority:

US19900530610 19900530

Probable Assignee: HART AND COOLEY INC

Assignee(s): (std): HART AND COOLEY INC

Assignee(s): CHASE MANHATTAN BANK ADMINISTRATIVE AGENT AS ; CHASE MANHATTAN BANK AS ADMINISTRATIVE AGENT ; HART AND COOLEY INC A CORP OF DE ; HELLER FINANCIAL INC

Inventor(s): (std): FETTERS DAVID M

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US5015015 A	19900530	LSAS	AS	ASSIGNMENT	Owner: HART & COOLEY, INC., A CORP. OF DE, MICHIGAN PartyType: owner Effective date: 19900529 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNOR:FETTERS, DAVID M.;REEL/FRAME:005322/0271
US5015015 A	19910313	LSGT	PAT1	Patented Case	
US5015015 A	19910514	LSGT	+	granted / extensions (spc, cpc, pte)	
US5015015 A	19920229	LSAS	AS	ASSIGNMENT	OldParty: SECURITY INTEREST;ASSIGNOR:O.D.E. MANUFACTURING, INC., A CORP. OF DE;REEL/FRAME:006034/0231 Owner: HELLER FINANCIAL, INC. Effective date: 19900220 PartyType: owner
US5015015 A	19930803	LSRE	CC	CERTIFICATE OF CORRECTION	
US5015015 A	19941101	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US5015015 A	19971215	LSAS	AS	ASSIGNMENT	Effective date: 19970617 PartyType: owner OldParty: SECURITY AGREEMENT;ASSIGNORS:FALCON BUILDING PRODUCTS, INC., A CORP. OF DELAWARE;FALCON MANUFACTURING, INC., A CORP. OF DELAWARE;DEVILBISS AIR POWER COMPANY, A CORP. OF DELAWARE;AND OTHERS;REEL/FRAME:008855/0130 Owner: CHASE MANHATTAN BANK, THE, AS ADMINISTRATIVE AGENT
US5015015 A	19981208		REMI	MAINTENANCE FEE REMINDER MAILED	
US5015015 A	19990516	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US5015015 A	19990713	LSLE	-FP	EXPIRED DUE TO	Effective date: 19990514

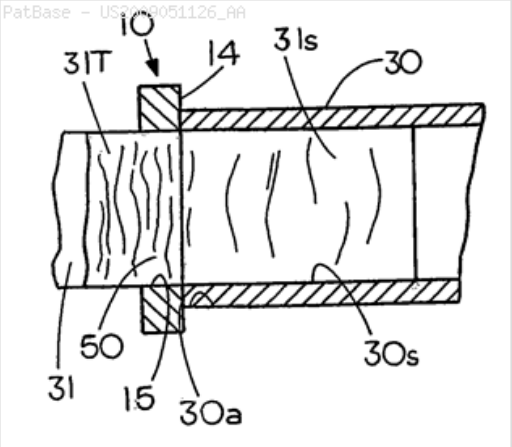
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US5015015 A	20000217	LSAS	AS	ASSIGNMENT	OldParty: RELEASE OF SECURITY INTEREST;ASSIGNOR:CHASE MANHATTAN BANK, AS ADMINISTRATIVE AGENT, THE;REEL/FRAME:010602/0285 PartyType: owner Effective date: 19991229 Owner: HART & COOLEY, INC., MICHIGAN
US5015015 A	20100530	PEXP		Calculated Patent Term Expiry	
US5015015 A	20180128	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US5015015 A	20180128	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362

40) Family number: 42970697 (US2009051126 AA)

Title: LEAK PROOF **PIPE** CONNECTIONS AND LEAK PROOFING **PIPE** CONNECTIONS

Abstract: A sealing **ring** and a method of preventing or stopping a joint leak between a **pipe** and a **pipe** fitting to minimize property damage as well as clean up costs occurring from property damage due to joint leaks by securing a sealing **ring** to the **pipe** and the **pipe** fitting to form a secondary joint that inhibits or prevent leakage between the primary joint between the **pipe** and the **pipe** fitting.

Classifications:
International (IPC 8-9): B29C65/18 B29C65/20 B29C65/48 F16J15/02 F16J15/04 F16L13/00 F16L13/02 F16L13/10 F16L17/00 F16L17/04 F16L19/00 F16L21/02 F16L21/025
CPC: B29C65/4895 F16L13/103 F16L25/10 F16J15/04 F16L17/04 F16L3/1075 F16L3/1083
US: 156/294 156/73.1 277/314 277/602 277/609 277/626 277/627 277/631 277/631P 285/21.1 285/21.100S 285/294.1 285/3 285/337 285/347 285/915 403/270 403/270S



Family:

Publication number	Publication date	Application number	Application date
US2009051126 AA	20090226	US20080228962	20080818
US8371622 BB	20130212	US20080228962	20080818
US2009230627 AA	20090917	US20090384700	20090408
US8579296 BB	20131112	US20090384700	20090408
US2013068372 AA	20130321	US20120694199	20121106
US8608179 BB	20131217	US20120694199	20121106
US2013307264 AA	20131121	US20130987416	20130723
WO09025796 A2	20090226	WO2008US09868	20080818
WO09025796 A3	20090528	WO2008US09868	20080818

Priority:
US20070965612P 20070821 US20080228962 20080818 US20090384700 20090408
US20120694199 20121106 US20130987416 20130723

Probable Assignee: PATENT STORE LLC

Assignee(s): (std): KEEVEN JAMES C ; KING JR LLOYD HERBER ; KING JR LLOYD HERBERT ; KING LLOYD HERBERT ; KING LLOYD HERBERT JR ; KREUTZ DAVID ; KREUTZ DAVID C ; PATENT STORE LLC ; RHEA STEVEN ; WALTERS MATHEW

Assignee(s): ANTARES CAPITAL LP AGENT AS ; JPMORGAN CHASE BANK NA ; KING JR ; ROYAL BANK OF CANADA ADMINISTRATIVE AGENT AS ; THE PATENT STORE LLC ; WILMINGTON TRUST NATIONAL ASSOCIATION ADMINISTRATIVE AGENT AS

Inventor(s): (std): KEEVEN JAMES C ; KING JR LLOYD HERBER ; KING JR LLOYD HERBERT ; KING LLOYD HERBERT ; KING LLOYD HERBERT JR ; KREUTZ DAVID ; KREUTZ DAVID C ; RHEA STEVEN ; WALTERS MATHEW

Agent(s): CARL L JOHNSON JACOBSON AND JOHNSON; CARL LJOHNSON JACOBSON AND JOHNSON; JACOBSON AND JOHNSON LLC; JOHNSON CARL L

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2009051126 AA	20090226	LSPB	+	published / reissued	
US2009051126 AA	20100426	LSAS	AS	ASSIGNMENT	Effective date: 20100422 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:KING, JR., LLOYD HERBERT;REEL/FRAME:024291/0995 Owner: PATENT STORE LLC, THE,MISSOURI PartyType: owner
US2009051126 AA	20100426	LSAS	AS	ASSIGNMENT	Effective date: 20100422 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:KING, JR., LLOYD HERBERT;REEL/FRAME:024291/0995

					Owner: PATENT STORE LLC, THE, MISSOURI PartyType: owner
US2009051126 AA	20130123	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US2009230627 AA	20090917	LSPB	+	published / reissued	
US2009230627 AA	20100119	LSAS	AS	ASSIGNMENT	Owner: KING, LLOYD HERBERT JR., MISSOURI PartyType: owner OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:KEEVEN, JAMES C.;RHEA, STEVEN;KREUTZ, DAVID;AND OTHERS;REEL/FRAME:023816/0536;SIGNING DATES FROM 20090309 TO 20090407
US2009230627 AA	20100119	LSAS	AS	ASSIGNMENT	Owner: KING, LLOYD HERBERT JR., MISSOURI OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:KEEVEN, JAMES C.;RHEA, STEVEN;KREUTZ, DAVID;AND OTHERS;SIGNING DATES FROM 20090309 TO 20090407;REEL/FRAME:023816/0536 PartyType: owner
US2009230627 AA	20100426	LSAS	AS	ASSIGNMENT	Effective date: 20100422 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:LLOYD HERBERT KING, JR.;REEL/FRAME:024291/0935 Owner: PATENT STORE LLC, THE,MISSOURI PartyType: owner
US2009230627 AA	20100426	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:LLOYD HERBERT KING, JR.;REEL/FRAME:024291/0935 Owner: PATENT STORE LLC, THE, MISSOURI Effective date: 20100422 PartyType: owner
US2009230627 AA	20131023	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US2013068372 AA	20130321	LSPB	+	published / reissued	
US2013068372 AA	20131126	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US2013307264 AA	20131121	LSPB	+	published / reissued	
US2013307264 AA	20150903	LSWD	ABD3	Abandoned -- Failure to Respond to an Office Action	
US2013307264 AA	20150903		-STCB	INFORMATION ON STATUS: APPLICATION DISCONTINUATION	Text: ABANDONED -- FAILURE TO RESPOND TO AN OFFICE ACTION
US8371622 BB	20080915	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:WALTERS, MATHEW;KREUTZ, DAVID;KING JR., LLOYD HERBERT;AND OTHERS;REEL/FRAME:021545/0197;SIGNING DATES FROM 20080816 TO 20080829 Owner: KING, JR., LLOYD HERBERT, MISSOURI PartyType: owner
US8371622 BB	20080915	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:WALTERS, MATHEW;KREUTZ, DAVID;KING JR., LLOYD HERBERT;AND OTHERS;SIGNING DATES FROM 20080816 TO 20080829;REEL/FRAME:021545/0197 Owner: KING, JR., LLOYD HERBERT, MISSOURI PartyType: owner
US8371622 BB	20130123	LSGT	PAT1	Patented Case	
US8371622 BB	20130212	LSGT	+	granted / extensions (spc, cpc, pte)	
US8371622 BB	20160328	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US8371622 BB	20180518	LSAS	AS	ASSIGNMENT	Effective date: 20100422 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:KING, LLOYD HERBERT, JR.;REEL/FRAME:045846/0287 Owner: THE PATENT STORE LLC, MISSOURI PartyType: owner
US8371622 BB	20180522	LSAS	AS	ASSIGNMENT	Effective date: 20180522 OldParty: FIRST LIEN INTELLECTUAL

					PROPERTY SECURITY AGREEMENT;ASSIGNOR:THE PATENT STORE, LLC;REEL/FRAME:046216/0331 Owner: ROYAL BANK OF CANADA, AS ADMINISTRATIVE AGENT, CAN PartyType: owner
US8371622 BB	20180524	LSAS	AS	ASSIGNMENT	Effective date: 20180522 OldParty: SECURITY INTEREST;ASSIGNOR:THE PATENT STORE, LLC;REEL/FRAME:046239/0272 Owner: WILMINGTON TRUST, NATIONAL ASSOCIATION, AS ADMINIS PartyType: owner
US8371622 BB	20180810	LSAS	AS	ASSIGNMENT	Effective date: 20180809 OldParty: TERMINATION AND RELEASE OF SECURITY INTEREST IN SECOND LIEN INTELLECTUAL PROPERTY COLLATERAL;ASSIGNOR:WILMINGTON TRUST, NATIONAL ASSOCIATION, AS ADMINISTRATIVE AGENT;REEL/FRAME:046762/0682 Owner: PATENT STORE, LLC, MISSOURI PartyType: owner
US8371622 BB	20180810	LSAS	AS	ASSIGNMENT	Effective date: 20180809 OldParty: TERMINATION AND RELEASE OF SECURITY INTEREST IN INTELLECTUAL PROPERTY;ASSIGNOR:ROYAL BANK OF CANADA;REEL/FRAME:047294/0682 Owner: THE PATENT STORE, LLC, MISSOURI PartyType: owner
US8371622 BB	20190125	LSAS	AS	ASSIGNMENT	Effective date: 20190123 OldParty: SECURITY INTEREST;ASSIGNOR:THE PATENT STORE, LLC;REEL/FRAME:048141/0202 Owner: JPMORGAN CHASE BANK, N.A., ILLINOIS PartyType: owner
US8371622 BB	20190820	LSAS	AS	ASSIGNMENT	Effective date: 20100422 OldParty: CORRECTIVE ASSIGNMENT TO CORRECT THE NAME OF THE ASSIGNEE PREVIOUSLY RECORDED ON REEL 024291 FRAME 0995. ASSIGNOR(S) HEREBY CONFIRMS THE NAME OF THE ASSIGNEE SHOULD BE CHANGED FROM "PATENT STORE LLC, THE" TO "THE PATENT STORE, LLC";ASSIGNOR:KING, LLOYD HERBERT, JR.;REEL/FRAME:050123/0620 Owner: THE PATENT STORE, LLC, MISSOURI PartyType: owner
US8371622 BB	20191223	LSAS	AS	ASSIGNMENT	Effective date: 20191223 OldParty: SECURITY INTEREST;ASSIGNORS:ECM INDUSTRIES, LLC;KING TECHNOLOGY OF MISSOURI, LLC;THE PATENT STORE, LLC;REEL/FRAME:051404/0833 Owner: ANTARES CAPITAL LP, AS AGENT, ILLINOIS PartyType: owner
US8371622 BB	20191230	LSAS	AS	ASSIGNMENT	Effective date: 20191223 OldParty: RELEASE OF SECURITY INTEREST IN PATENTS;ASSIGNOR:JPMORGAN CHASE BANK, N.A.;REEL/FRAME:051446/0840 Owner: THE PATENT STORE, LLC, MISSOURI PartyType: owner
US8371622 BB	20200618	LSFE	FEPP	FEE PAYMENT PROCEDURE	Text: ENTITY STATUS SET TO UNDISCOUNTED (ORIGINAL EVENT CODE: BIG.); ENTITY STATUS OF PATENT OWNER: LARGE ENTITY
US8371622 BB	20200812	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	Year of fee payment: 8
US8371622 BB	20311116	PEXP		Calculated Patent Term Expiry (PTA 1185 days)	
US8579296 BB	20131023	LSGT	PAT1	Patented Case	
US8579296 BB	20131112	LSGT	+	granted / extensions (spc, cpc, pte)	
US8579296 BB	20161229	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US8579296 BB	20180522	LSAS	AS	ASSIGNMENT	Effective date: 20180522 OldParty: FIRST LIEN INTELLECTUAL PROPERTY SECURITY AGREEMENT;ASSIGNOR:THE PATENT STORE, LLC;REEL/FRAME:046216/0331 Owner: ROYAL BANK OF CANADA, AS ADMINISTRATIVE AGENT, CAN PartyType: owner

US8579296 BB	20180524	LSAS	AS	ASSIGNMENT	Effective date: 20180522 OldParty: SECURITY INTEREST;ASSIGNOR:THE PATENT STORE, LLC;REEL/FRAME:046239/0272 Owner: WILMINGTON TRUST, NATIONAL ASSOCIATION, AS ADMINIS PartyType: owner
US8579296 BB	20180810	LSAS	AS	ASSIGNMENT	Effective date: 20180809 OldParty: TERMINATION AND RELEASE OF SECURITY INTEREST IN SECOND LIEN INTELLECTUAL PROPERTY COLLATERAL;ASSIGNOR:WILMINGTON TRUST, NATIONAL ASSOCIATION, AS ADMINISTRATIVE AGENT;REEL/FRAME:046762/0682 Owner: PATENT STORE, LLC, MISSOURI PartyType: owner
US8579296 BB	20180810	LSAS	AS	ASSIGNMENT	Effective date: 20180809 OldParty: TERMINATION AND RELEASE OF SECURITY INTEREST IN INTELLECTUAL PROPERTY;ASSIGNOR:ROYAL BANK OF CANADA;REEL/FRAME:047294/0682 Owner: THE PATENT STORE, LLC, MISSOURI PartyType: owner
US8579296 BB	20190125	LSAS	AS	ASSIGNMENT	Effective date: 20190123 OldParty: SECURITY INTEREST;ASSIGNOR:THE PATENT STORE, LLC;REEL/FRAME:048141/0202 Owner: JPMORGAN CHASE BANK, N.A., ILLINOIS PartyType: owner
US8579296 BB	20191223	LSAS	AS	ASSIGNMENT	Effective date: 20191223 OldParty: SECURITY INTEREST;ASSIGNORS:ECM INDUSTRIES, LLC;KING TECHNOLOGY OF MISSOURI, LLC;THE PATENT STORE, LLC;REEL/FRAME:051404/0833 Owner: ANTARES CAPITAL LP, AS AGENT, ILLINOIS PartyType: owner
US8579296 BB	20191230	LSAS	AS	ASSIGNMENT	Effective date: 20191223 OldParty: RELEASE OF SECURITY INTEREST IN PATENTS;ASSIGNOR:JPMORGAN CHASE BANK, N.A.;REEL/FRAME:051446/0840 Owner: THE PATENT STORE, LLC, MISSOURI PartyType: owner
US8579296 BB	20200618	LSFE	FEPP	FEE PAYMENT PROCEDURE	Text: ENTITY STATUS SET TO UNDISCOUNTED (ORIGINAL EVENT CODE: BIG.); ENTITY STATUS OF PATENT OWNER: LARGE ENTITY
US8579296 BB	20300326	PEXP		Calculated Patent Term Expiry (PTA 585 days)	
US8608179 BB	20131126	LSGT	PAT1	Patented Case	
US8608179 BB	20131217	LSGT	+	granted / extensions (spc, cpc, pte)	
US8608179 BB	20161229	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US8608179 BB	20180518	LSAS	AS	ASSIGNMENT	Owner: THE PATENT STORE LLC, MISSOURI OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:KING, LLOYD HERBERT, JR.;KEEVEN, JAMES;RHEA, STEVEN;AND OTHERS;SIGNING DATES FROM 20080816 TO 20100422;REEL/FRAME:045848/0411 PartyType: owner
US8608179 BB	20180522	LSAS	AS	ASSIGNMENT	Owner: ROYAL BANK OF CANADA, AS ADMINISTRATIVE AGENT, CAN PartyType: owner OldParty: FIRST LIEN INTELLECTUAL PROPERTY SECURITY AGREEMENT;ASSIGNOR:THE PATENT STORE, LLC;REEL/FRAME:046216/0331 Effective date: 20180522
US8608179 BB	20180524	LSAS	AS	ASSIGNMENT	OldParty: SECURITY INTEREST;ASSIGNOR:THE PATENT STORE, LLC;REEL/FRAME:046239/0272 Owner: WILMINGTON TRUST, NATIONAL ASSOCIATION, AS ADMINIS PartyType: owner Effective date: 20180522
US8608179 BB	20180810	LSAS	AS	ASSIGNMENT	PartyType: owner Effective date: 20180809 Owner: PATENT STORE, LLC, MISSOURI OldParty: TERMINATION AND RELEASE OF SECURITY INTEREST IN SECOND LIEN INTELLECTUAL PROPERTY

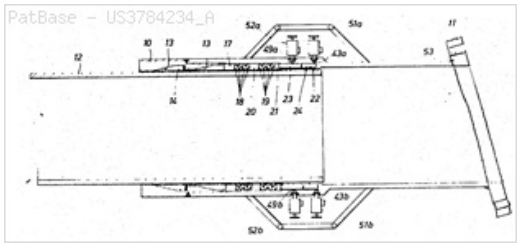
					COLLATERAL;ASSIGNOR:WILMINGTON TRUST, NATIONAL ASSOCIATION, AS ADMINISTRATIVE AGENT;REEL/FRAME:046762/0682
US8608179 BB	20180810	LSAS	AS	ASSIGNMENT	OldParty: TERMINATION AND RELEASE OF SECURITY INTEREST IN INTELLECTUAL PROPERTY;ASSIGNOR:ROYAL BANK OF CANADA;REEL/FRAME:047294/0682 Effective date: 20180809 PartyType: owner Owner: THE PATENT STORE, LLC, MISSOURI
US8608179 BB	20190125	LSAS	AS	ASSIGNMENT	PartyType: owner Effective date: 20190123 OldParty: SECURITY INTEREST;ASSIGNOR:THE PATENT STORE, LLC;REEL/FRAME:048141/0202 Owner: JPMORGAN CHASE BANK, N.A., ILLINOIS
US8608179 BB	20191223	LSAS	AS	ASSIGNMENT	Effective date: 20191223 OldParty: SECURITY INTEREST;ASSIGNORS:ECM INDUSTRIES, LLC;KING TECHNOLOGY OF MISSOURI, LLC;THE PATENT STORE, LLC;REEL/FRAME:051404/0833 PartyType: owner Owner: ANTARES CAPITAL LP, AS AGENT, ILLINOIS
US8608179 BB	20191230	LSAS	AS	ASSIGNMENT	Owner: THE PATENT STORE, LLC, MISSOURI Effective date: 20191223 OldParty: RELEASE OF SECURITY INTEREST IN PATENTS;ASSIGNOR:JPMORGAN CHASE BANK, N.A.;REEL/FRAME:051446/0840 PartyType: owner
US8608179 BB	20280818	PEXP		Calculated Patent Term Expiry	
WO09025796 A2	20090226	LSPB	+	published / reissued	
WO09025796 A2	20090415		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	Kind code of Ref document: A2 Ref document number: 08795439 Country of Ref document: EP
WO09025796 A3	20100223	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: DE
WO09025796 A3	20100915	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	Kind code of Ref document: A2 Ref document number: 08795439 Country of Ref document: EP

41) Family number: 1319209 (US3784234 A)

Title: HYDRAULIC **CONNECTOR** ACTUATING APPARATUS

Abstract: A hydraulically actuatable **connector** having a housing adapted for positioning about a tubular member, means carried by the housing for gripping the tubular member, and a plurality of longitudinally aligned cylinders circumferentially spaced about within the housing is provided with a plurality of coaxially aligned pistons slidably positioned in each cylinder arranged to actuate the gripping means in response to a hydraulic pressure. Means are included for selectively applying a hydraulic pressure to selected ends of the pistons in each cylinder after they have actuated the gripping means into gripping engagement with the tubular member. The method includes selectively applying hydraulic fluid and hardenable hydraulic fluid to the pistons to clamp and lock the **connector** to the tubular member.

Classifications:
International (IPC 8-9): F16L21/02 F16L21/04 F16L21/08 F16L35/00 F16L37/00
International (IPC 1-7): E03B F16J15/46 F16L13/00 F16L19/06 F16L21/04 F16L21/08 F16L35/00 F16L37/00
CPC: F16L37/002
US: 285/104 285/18 285/93 285/96 285/1.8



Family:

Publication number	Publication date	Application number	Application date
CA952938 A1	19740813	CA19720150547	19720830
FR2157335 A5	19730601	FR19720033997	19720926
GB1362099 A	19740730	GB19720044896	19720928
IT966346 A	19740211	IT19720053387	19721016
JP48050311 A2	19730716	JP19720103690	19721018
JP53003484 B4	19780207	JP19720103690	19721018
US3784234 A	19740108	US19710189982	19711018

Priority:
US19710189982 19711018

Probable Assignee: HYDROTECH HUGHES INC

Assignee(s): (std): HYDROTECH INT INC ; HYDROTECH SERVICES

Assignee(s): BAKER HUGHES INC ; BAKER HUGHES INC A CORP OF DE ; CAL DRIVE INT ; CAL DRIVE INT INC 115 INDUSTRIAL PARKWAY LAFAYETTE ; HSI ACQUISITIONS INC ; HUGHES TOOL CO ; HUGHES UNDERSEA COUOPLINGS INC ; HUGHES UNDERSEA COUOPLINGS INC A CORP OF DE ; HYDROTECH HUGHES INC ; HYDROTECH INT ; HYDROTECH INT INC 11800 CHARLES ST HOUSTON TX A CO ; HYDROTECH INT INC US ; HYDROTECH INTERNATIONAL INC ; HYDROTECH SERVICES INC ; HYDROTECH SYSTEMS INC ; HYDROTECH SYSTEMS INC A MN CORP ; MOHR HARVEY O

Inventor(s): (std): MOHR H ; MOHR HARVEY O

Inventor(s): MOHR H US

Legal status (INPADOC)

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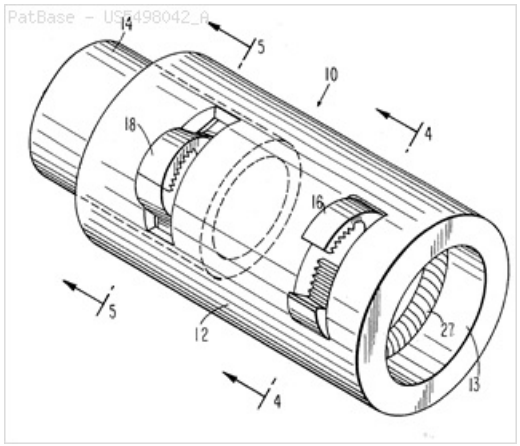
Patent	Date recorded	Event group	Code	Event	Details
CA952938 A1					
FR2157335 A5	19730601	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2157335 A5	19820730	LSLE	-ST	NOTIFICATION OF LAPSE	
FR2157335 A5	19920926	PEXP		Calculated Patent Term Expiry	
GB1362099 A	19740730	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1362099 A	19741211	LSGT	+PS	PATENT SEALED	
GB1362099 A	19870520	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	
GB1362099 A	19920928	PEXP		Calculated Patent Term Expiry	
IT966346 A	19740211	LSGT	+	granted / extensions (spc, cpc, pte)	
IT966346 A	19921016	PEXP		Calculated Patent Term Expiry	
JP48050311 A2	19730716	LSPB	+	published / reissued	
JP53003484 B4	19780207	LSPB	+	published / reissued	
US3784234 A	19740108	LSGT	+	granted / extensions (spc, cpc, pte)	

42) Family number: 10857217 (US5498042 A)

Title: QUICK CONNECT **CONNECTOR** FOR **GROOVED** **PIPE**

Abstract: The quick **connector** for joining **pipes** having **grooved** ends has a circlip which normally is of a diameter greater than that of the associated **pipe**, and which is contracted and locked in the contracted condition, the inner diameter of the circlip at that time being less than the diameter of the **pipe**, and the outer diameter of the circlip at that time being greater than the diameter of the bore of the **connector**, the circlip when in a contracted position, locking the **connector** against removal from the **pipe**.

Classifications:
International (IPC 8-9): F16L37/00 F16L37/088 F16L37/10 F16L37/14 F16L37/22
International (IPC 1-7): F16B21/18 F16B7/08 F16L25/00 F16L37/08 F16L37/088 F16L37/10 F16L37/14 F16L37/22
CPC: F16L37/148 Y10S285/906 Y10S285/921
US: 285/148.27 285/177 285/305 285/321 285/369 285/383 285/906 285/921
JP F-Term: 3J018 3J106 3J106/AA01 3J106/AA04 3J106/AA06 3J106/AB01 3J106/BA01 3J106/BB01 3J106/BB04 3J106/BB07 3J106/BC04 3J106/BD01 3J106/BE29 3J106/BE33 3J106/CA02 3J106/CA03 3J106/EA03 3J106/EB05 3J106/EC01 3J106/EC07 3J106/ED14 3J106/EE02 3J106/EF04



Family:

Publication number	Publication date	Application number	Application date
AU199640871 A1	19970717	AU19960040871	19960109
CA2166760 AA	19970709	CA19962166760	19960108
CL1996000078 A1	19961113	CL19960000078	19960117
EP0784183 A1	19970716	EP19960300165	19960109
JP9196272 A2	19970729	JP19960018237	19960110
SG43714 A1	19971114	SG19960000110	19960109
US5498042 A	19960312	US19940262583	19940620

Priority:

US19940262583 19940620 CA19962166760 19960108 AU19960040871 19960109
SG19960000110 19960109 EP19960300165 19960109 EP19960300195 19960110
JP19960018237 19960110

Probable Assignee: VICTAULIC CO OF AMERICA

Assignee(s): (std): VICTAULIC CO OF AMERICA

Assignee(s): BITARITSUKU CO OF AMERICA ; DOLE DOUGLAS R ; VICTAULI CO OF AMERICA ; VICTAULI COMPANY OF AMERICA ; VICTAULIC CO ; VICTAULIC CO OF AMERICA CORPORACION DEL ESTADO DE NUEVA JERSEY ; VICTAULIC COMPANY OF AMERICA

Inventor(s): (std): DOLE DOUGLAS R

Inventor(s): DAGURASU AARU DOORU ; DOUGLAS R DOLE

Agent(s): BKP GP; MAXWELLS PATENT AND TRADE MARK ATTORNEYS PTY LTD; PETER MAXWELL AND ASSOCIATES; VILLASECA

Designated states: BE DE ES FR GB IT NL

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU199640871 A1	19970717	LSPB	+	published / reissued	
AU199640871 A1	20001130	LSLE	-MK5	APPLICATION LAPSED SECTION 142(2)(E) - PATENT REQUEST AND COMPL. SPECIFICATION NOT ACCEPTED	
CA2166760 AA	19960214	LSES	+EEER	EXAMINATION REQUEST	
CA2166760 AA	19970709	LSPB	+	published / reissued	
CA2166760 AA	20010108	LSLE	-FZDE	DEAD	
CL1996000078 A1	19961113	LSPB	+	published / reissued	
EP0784183 A1	19970716	LSPB	+	published / reissued	
EP0784183 A1	19970716		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: BE

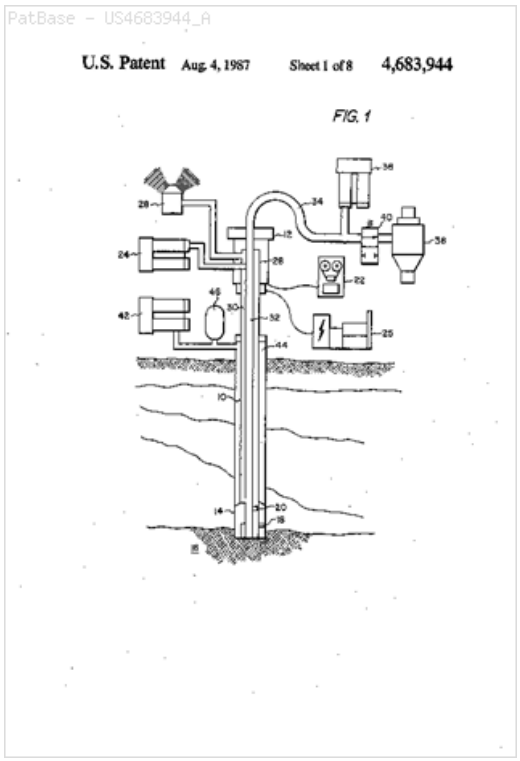
					DE ES FR GB IT NL
EP0784183 A1	19980311	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 19980106
EP0784183 A1	19991124	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 19991012
EP0784183 A1	20000809	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	Effective date: 20000223
JP9196272 A2	19970729	LSPB	+	published / reissued	
JP9196272 A2	19990602	LSRV	-A02	DECISION OF REFUSAL	Effective date: 19990601 Text: JAPANESE INTERMEDIATE CODE: A02
SG43714 A1	19971114	LSPB	+	published / reissued	
US5498042 A	19940620	LSAS	AS	ASSIGNMENT	Effective date: 19940617 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:DOLE, DOUGLAS R.;REEL/FRAME:007548/0507 Owner: VICTAULIC COMPANY OF AMERICA, PENNSYLVANIA PartyType: owner
US5498042 A	19960229	LSGT	PAT1	Patented Case	
US5498042 A	19960312	LSGT	+	granted / extensions (spc, cpc, pte)	
US5498042 A	19961105	LSRE	CC	CERTIFICATE OF CORRECTION	
US5498042 A	19990713	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US5498042 A	20031002		REMI	MAINTENANCE FEE REMINDER MAILED	
US5498042 A	20040312	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US5498042 A	20040511	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective date: 20040312
US5498042 A	20140620	PEXP		Calculated Patent Term Expiry	
US5498042 A	20180125	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US5498042 A	20180125	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362

43) Family number: 22926592 (US4683944 A)

Title: DRILL **PIPES** AND CASINGS UTILIZING MULTI-CONDUIT TUBULARS

Abstract: A multi-conduit tubular having fluid conduits (30) and electrical conduits (108), with associated surface fluid (182) and electrical (186) commutators, and downhole sensors (18, 20, 290) for providing surface monitors (22) with instantaneous formation data. Each tubular (50) includes a plurality of uniform linear conduits (30) therethrough, with a gasketed seal plate (86) interposed between joined tubulars for assuring a high pressure seal between joined conduits. The seal plate (86) includes an intermediate electrical **connector** (126) for connecting electrical conduit **connectors** (116) of one tubular to another. A **coupling** collar (84) with uniform diameter internal coarse and fine threads (92, 94) joins the tubular ends having similar threads by differential thread action without respective tubular rotation. Each tubular end further includes an interengaging index recess and index lug (106, 104), and drive recesses and lugs (102, 100) for maintaining angular registry of the tubular string and for driving one drill tubular with another. A fluid commutator (182) includes a rotating shaft with passages (204, 206) connected to the tubular conduits, and rotating in a manifold (198) having **annular** **grooves** (234, 236) in communication with the shaft passages (204, 206) and external fluid sources. An adaptor (184) **couples** each commutator shaft passage (204, 206) to one or more tubular conduits. Slip **rings** (264-270) on a quill shaft (178) and stationary brush means (272-278) provide electrical continuity from the electrical conduit wires (110) to surface equipment. A cross-over sub (286) includes formation parameter sensors (18, 20, 290) and telemetry equipment (292) in a blocked off portion of a fluid conduit. An **annular** accumulator (46) connected with the wellbore annulus (44) applies a pressure thereto in response to downhole sensors to change the effective density of the drill mud. The multi-conduit tubular (366) is further adapted for use as a well casing to provide downhole access of a plurality of fluids and electrical parameter sensors (424).

Classifications:
International (IPC 8-9): E21B E21B17/00 E21B17/02 E21B17/04 E21B17/18 E21B21/00 E21B21/02 E21B21/08 E21B21/12 E21B47/12 F16L39/04 F16L39/06
International (IPC 1-7): E21B17/00 E21B17/02 E21B17/04 E21B17/08 E21B17/18 E21B21/02 E21B21/08 E21B21/12 E21B33/10 E21B44/00 E21B47/12 F16L39/00 F16L39/04 F16L9/19
CPC: E21B17/003 E21B17/18 E21B21/02 E21B21/08 E21B21/12 F16L39/04 F16L39/06
US: 166/242 166/65.1 174/47 175/206 175/215 175/25 175/320 175/48 277/215 277/336 277/608 439/191
JP F-Term: 2D027 2D028 2D029 2D129 2D129/AA04 2D129/AB01 2D129/AB02 2D129/BA18 2D129/BA25 2D129/DB01 2D129/EA21 2D129/EA23 2D129/EA26 2D129/EB04 2D129/EB32 2D129/EC06 2D129/EC14 2D129/EC23 2D129/EC25 2D129/EC37 2D129/FA02 2D129/FA03 2D129/FA07 2D129/HB07
JP F-Index: E21B17/04 E21B17/18 E21B47/12



Family:

Publication number	Publication date	Application number	Application date
AT91171 E	19930715	AT19870304041T	19870506
AU198772600 A1	19881110	AU19870072600	19870507
AU591558 B2	19891207	AU19870072600	19870507
AU198820085 A1	19890202	AU19880020085	19880727
AU600214 B2	19900802	AU19880020085	19880727
BRPI8803784 A	19890307	BR1988PI03784	19880729
CA1319361 A1	19930622	CA19870536490	19870506
CA1328254 A1	19940405	CA19880573104	19880727
CA1335811 A2	19950606	CA19880616726	19880727
CA1335811 A1	19950606	CA19930616726	19930720
CN1018076 B	19920902	CN19881004748	19880730
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DE3786398 D1	19930805	DE19873786398	19870506
DE3786398 T2	19931202	DE19873786398T	19870506
EP0289673 A1	19881109	EP19870304041	19870506
EP0289673 B1	19930630	EP19870304041	19870506
EP0302632 A1	19890208	EP19880306714	19880721
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IL83373 A0	19871231	IL19870083373	19870729
IL83373 A1	19920115	IL19870083373	19870729
IL99045 A1	19931020	IL19870099045	19870729
IL87155 A0	19881230	IL19880087155	19880719
IL87155 A1	19920216	IL19880087155	19880719

IL99045 A0	19920715	IL19910099045	19910801
JP1111988 A2	19890428	JP19880188504	19880729
KR19890002518 A	19890410	KR19880009517	19880727
KR960004274 B1	19960330	KR19880009517	19880727
MX166436 B	19930108	MX19880012462	19880729
NO178902 B	19960318	NO19880003202	19880719
NO178902 C	19960626	NO19880003202	19880719
NO883202 A	19890131	NO19880003202	19880719
NO883202 A0	19880719	NO19880003202	19880719
NO883202 L	19890131	NO19880003202	19880719
OA08893 A	19891031	OA19880059396	19880729
US4683944 A	19870804	US19850730831	19850506
US4799544 A	19890124	US19870072053	19870710
US4836305 A	19890606	US19870079461	19870730
US4924949 A	19900515	US19880238626	19880831
ZA8805419 A	19890426	ZA19880005419	19880725

Priority:

US19850730831 19850506 EP19870304041 19870506 CA19870536490 19870506
AU19870072600 19870507 US19870072053 19870710 IL19870083373 19870729
US19870079461 19870730 IL19880087155 19880719 CA19880573104 19880727
CA19880616726 19880727 US19880238626 19880831 IL19910099045 19910801

Probable Assignee: PANGAEA ENTERPRISES INC

Assignee(s): (std): INNOTECH ENERGY CORP ; PANGAEA ENTERPRISES INC ; PANGAEA ENTERPRISES LTD ; PANGAEA ENTREPRISES INC ; PANJIIA ENTAPURAIZESU INC

Assignee(s): CURLETT HARRY BAILEY ; INNOTECH ENERGY 500 MAIN STREET SUITE 1010 FORT WO ; INNOTECH ENERGY A CORP OF TEXAS CORP ; INNOTECH ENERGY CORPORATON ; PANGAEA ENTERPRISES INC FORT WORTH TEX US

Inventor(s): (std): CURLETT HARRY B ; CURLETT HARRY BAILEY ; CURLETT HARRY BAILLEY ; HARI BEIRI KAARETSUTO ; HARRY BAILEY CURLETT

Inventor(s): CURLETT HARRY BAILEY DALLAS COUNTY TEXAS 75234 US ; HARRY BAILLEY CURLETT

Agent(s): AE MULFORD; FB RICE; FB RICE PTY LTD; GE EHRLICH 1995 LTD; KIRBY EADES GALE BAKER

Designated states: AT BE CH DE ES FR GB GR IT LI LU NL SE

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
AT91171 E	19930715	LSGT	+	granted / extensions (spc, cpc, pte)	
AT91171 E	19940115	LSPB	+UEP	PUBLICATION OF TRANSLATION OF EUROPEAN PATENT SPECIFICATION	
AT91171 E	20030215	LSLE	-REN	CEASED DUE TO NON-PAYMENT OF THE ANNUAL FEE	
AT91171 E	20070506	PEXP		Calculated Patent Term Expiry	
AU198772600 A1	19881110	LSPB	+	published / reissued	
AU198820085 A1	19890202	LSPB	+	published / reissued	
AU591558 B2	19891207	LSGT	+	granted / extensions (spc, cpc, pte)	
AU591558 B2	20021212	LSLE	-MK14	PATENT CEASED SECTION 143(A) (ANNUAL FEES NOT PAID) OR EXPIRED	
AU591558 B2	20070507	PEXP		Calculated Patent Term Expiry	
AU600214 B2	19900802	LSGT	+	granted / extensions (spc, cpc, pte)	
AU600214 B2	20030227	LSLE	-MK14	PATENT CEASED SECTION 143(A) (ANNUAL FEES NOT PAID) OR EXPIRED	
AU600214 B2	20080727	PEXP		Calculated Patent Term Expiry	
BRPI8803784 A	19890307	LSPB	+	published / reissued	
BRPI8803784 A	20080902	LSLE	-B21A	EXPIRY ACC. ART. 78, ITEM I OF IPL- EXPIRY OF THE TERM OF PROTECTION	Text: PATENTE EXTINTA EM 29/07/2003
CA1319361 A1	19930622	LSGT	+	granted / extensions	

				(spc, cpc, pte)	
CA1319361 A1	20030623	LSLE	-MKLA	LAPSED	
CA1319361 A1	20100622	PEXP		Calculated Patent Term Expiry	
CA1328254 A1	19940405	LSGT	+	granted / extensions (spc, cpc, pte)	
CA1328254 A1	20030407	LSLE	-MKLA	LAPSED	
CA1328254 A1	20110405	PEXP		Calculated Patent Term Expiry	
CA1335811 A1	19950606	LSGT	+	granted / extensions (spc, cpc, pte)	
CA1335811 A1	20030606	LSLE	-MKLA	LAPSED	
CA1335811 A1	20130720	PEXP		Calculated Patent Term Expiry	
CA1335811 A2	19950606	LSGT	+	granted / extensions (spc, cpc, pte)	
CN1018076 B	19920902	LSPB	+	published / reissued	
CN1018076 B	19920902		C13	DECISION	
CN1018076 B	19920902	LSES	GR02	审定	Text: 审定 (Approval)
CN1018076 B	19930602	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN1018076 B	19930602	LSGT	+GR01	授权	Text: 授权 (Authorization)
CN1018076 B	20020424		+C15	EXTENSION OF PATENT RIGHT DURATION FROM 15 TO 20 YEARS FOR APPL. WITH DATE BEFORE 31.12.1992 AND STILL VALID ON 11.12.2001 (PATENT LAW CHANGE 1993)	
CN1018076 B	20020424		OR01	其他有关事项	Text: 其他有关事项 (Other Relevant Matters)
CN1018076 B	20030924	LSLE	-C19	LAPSE OF PATENT RIGHT DUE TO NON-PAYMENT OF THE ANNUAL FEE	
CN1018076 B	20030924	LSLE	-CF01	未缴年费专利权终止	Text: 专利权的终止未缴年费专利权终止 (Any cessation termination of patent right due to failure to pay annual fee)
CN1031123 A	19890215	LSPB	+	published / reissued	
CN1031123 A	19890215	LSPB	+C06	PUBLICATION	
CN1031123 A	19890215	LSPB	PB01	公开	Text: 公开 (Disclosure)
CN1031123 A	19900822		C10	ENTRY INTO SUBSTANTIVE EXAMINATION	
CN1031123 A	19900822		SE01	实质审查请求的生效	Text: 实质审查请求 (The Request for Substantive Examination)
DE3786398 D1	19940728	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE3786398 D1	20030313	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
DE3786398 T2	19931202	LSGT	+	granted / extensions (spc, cpc, pte)	
DE3786398 T2	19940728	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE3786398 T2	20030313	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
EP0289673 A1	19881109	LSPB	+	published / reissued	
EP0289673 A1	19881109		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE CH DE ES FR GB GR IT LI LU NL SE
EP0289673 A1	19881207	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	Owner: PANGAEA ENTERPRISES, INC. PartyType: owner

EP0289673 A1	19890628	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 19890419
EP0289673 A1	19900509	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 19900322
EP0289673 B1	19930630	LSGT	+	granted / extensions (spc, cpc, pte)	
EP0289673 B1	19930630		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: AT BE CH DE ES FR GB GR IT LI LU NL SE
EP0289673 B1	19930630		REF	CORRESPONDS TO:	Ref document number: 91171 Kind code of Ref document: T Date of Ref document: 19930715 Country of Ref document: AT
EP0289673 B1	19930805		REF	CORRESPONDS TO:	Ref document number: 3786398 Date of Ref document: 19930805 Country of Ref document: DE
EP0289673 B1	19930806		+ET	FR: TRANSLATION FILED	
EP0289673 B1	19930927		+ITF	IT: TRANSLATION FOR A EP PATENT FILED	PartyType: owner Owner: MODIANO & ASSOCIATI S.R
EP0289673 B1	19930930		REG	REFERENCE TO A NATIONAL CODE	Ref country code: GR Text: 3008381 Ref legal event code: FG4A
EP0289673 B1	19931216	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: FG2A Ref country code: ES Ref document number: 2042560 Kind code of Ref document: T3 Country of Ref document: ES
EP0289673 B1	19940621	LSFE	+EPTA	LU: LAST PAID ANNUAL FEE	Ref country code: EP
EP0289673 B1	19940622	LSGT	+26N	NO OPPOSITION FILED	
EP0289673 B1	19950131	LSGT	+EAL	SE: EUROPEAN PATENT IN FORCE IN SWEDEN	Text: 87304041.4 Ref country code: EP
EP0289673 B1	20010418	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20010418 Year of fee payment: 15 Country of Ref document: FR
EP0289673 B1	20010419	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 15 Payment date: 20010419 Country of Ref document: DE
EP0289673 B1	20010419	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 15 Payment date: 20010419 Country of Ref document: NL
EP0289673 B1	20010420	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 15 Payment date: 20010420 Country of Ref document: AT
EP0289673 B1	20010420	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 15 Payment date: 20010420 Country of Ref document: CH
EP0289673 B1	20010420	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 15 Payment date: 20010420 Country of Ref document: GB
EP0289673 B1	20010420	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 15 Payment date: 20010420 Country of Ref document: SE
EP0289673 B1	20010425	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 15 Payment date: 20010425 Country of Ref document: LU
EP0289673 B1	20010430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO	Payment date: 20010430 Year of fee payment: 15 Country of Ref document: GR

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EP0289673 B1	20010511	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 15 Payment date: 20010511 Country of Ref document: BE
EP0289673 B1	20010608	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 15 Payment date: 20010608 Country of Ref document: ES
EP0289673 B1	20020101		REG	REFERENCE TO A NATIONAL CODE	Ref country code: GB Ref legal event code: IF02
EP0289673 B1	20020506	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20020506 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: AT
EP0289673 B1	20020506	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Lapsed date: 20020506 Country of Ref document: GB
EP0289673 B1	20020506	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Lapsed date: 20020506 Country of Ref document: LU
EP0289673 B1	20020507	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20020507 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: ES
EP0289673 B1	20020507	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Lapsed date: 20020507 Country of Ref document: SE
EP0289673 B1	20020531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20020531 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: BE
EP0289673 B1	20020531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20020531 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: CH
EP0289673 B1	20020531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Lapsed date: 20020531 Country of Ref document: LI
EP0289673 B1	20021201	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20021201 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: NL
EP0289673 B1	20021203	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20021203 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: DE
EP0289673 B1	20021206	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT	Lapsed date: 20021206 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: GR

				INFORMATION FROM NATIONAL OFFICE TO EPO]	
EP0289673 B1	20021224	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	Ref country code: EP Effective date: 20020506
EP0289673 B1	20030107	LSLE	-EUG	SE: EUROPEAN PATENT HAS LAPSED	Ref country code: EP
EP0289673 B1	20030115	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: PL Ref country code: CH
EP0289673 B1	20030131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20030131 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: FR
EP0289673 B1	20030203	LSLE	-NLV4	NL: LAPSED OR ANULLED DUE TO NON-PAYMENT OF THE ANNUAL FEE	Effective date: 20021201 Ref country code: EP
EP0289673 B1	20030228	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: FR Ref legal event code: ST
EP0289673 B1	20040316	LSLE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20030611 Ref country code: ES Ref legal event code: FD2A
EP0289673 B1	20050506	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Lapsed date: 20050506 Country of Ref document: IT
EP0289673 B1	20050506	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20050506 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES;WARNING: LAPSES OF ITALIAN PATENTS WITH EFFECTIVE DATE BEFORE 2007 MAY HAVE OCCURRED AT ANY TIME BEFORE 2007. THE CORRECT EFFECTIVE DATE MAY BE DIFFERENT FROM THE ONE RECORDED. Country of Ref document: IT
EP0289673 B1	20070506	PEXP		Calculated Patent Term Expiry	
EP0302632 A1	19890208	LSPB	+	published / reissued	
EP0302632 A1	19890208		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE CH DE ES FR GB GR IT LI LU NL SE
EP0302632 A1	19890920	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 19890720
EP0302632 A1	19901107	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 19900921
EP0302632 A1	19920902	LSRV	-18R	APPLICATION REFUSED	Effective date: 19920417
ES2042560 T3	19931216	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2042560 T3	19931216	LSGT	+FG2A	DEFINITIVE PROTECTION	Ref document number: 289673 Country of Ref document: ES
ES2042560 T3	20070506	PEXP		Calculated Patent Term Expiry	
IL83373 A1	19920115	LSPB	+	published / reissued	
IL83373 A1	19980208	LSFE	+KB	PATENT RENEWED	
IL83373 A1	20060410	LSLE	-MM9K	PATENT NOT IN FORCE DUE TO NON-PAYMENT OF RENEWAL FEES	
IL87155 A1	19920216	LSPB	+	published / reissued	
IL87155 A1	20050725	LSLE	-MM9K	PATENT NOT IN FORCE DUE TO NON-PAYMENT OF RENEWAL FEES	
IL87155 A1	20060410	LSLE	-MM9K	PATENT NOT IN FORCE DUE TO NON-	

				PAYMENT OF RENEWAL FEES	
IL99045 A0	19980104	LSFE	+KB	PATENT RENEWED	
IL99045 A0	20060410	LSLE	-MM9K	PATENT NOT IN FORCE DUE TO NON-PAYMENT OF RENEWAL FEES	
IL99045 A1	19931020	LSPB	+	published / reissued	
JP1111988 A2	19890428	LSPB	+	published / reissued	
KR19890002518 A	19890410	LSPB	+	published / reissued	
KR960004274 B1	19930616	LSES	A201	REQUEST FOR EXAMINATION	
KR960004274 B1	19951125	LSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
KR960004274 B1	19960307	LSPB	G160	DECISION TO PUBLISH PATENT APPLICATION	
KR960004274 B1	19960330	LSGT	+	granted / extensions (spc, cpc, pte)	
KR960004274 B1	19960624	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	
KR960004274 B1	19960805	LSGT	+GRNT	WRITTEN DECISION TO GRANT	
KR960004274 B1	20010322	LSFE	FPAY	ANNUAL FEE PAYMENT	Year of fee payment: 6 Payment date: 20010323
KR960004274 B1	20020331	LSLE	-LAPS	LAPSE DUE TO UNPAID ANNUAL FEE	
KR960004274 B1	20110330	PEXP		Calculated Patent Term Expiry	
MX166436 B	19930108	LSGT	+	granted / extensions (spc, cpc, pte)	
MX166436 B	20070108	PEXP		Calculated Patent Term Expiry	
NO178902 B	19960318	LSPB	+	published / reissued	
NO178902 C	19960626	LSGT	+	granted / extensions (spc, cpc, pte)	
NO178902 C	20030310	LSLE	-MM1K	LAPSED BY NOT PAYING THE ANNUAL FEES	Text: LAPSED IN JANUARY 2003
NO178902 C	20080719	PEXP		Calculated Patent Term Expiry	
NO883202 A	19890131	LSPB	+	published / reissued	
OA08893 A	19891031	LSGT	+	granted / extensions (spc, cpc, pte)	
OA08893 A	20080729	PEXP		Calculated Patent Term Expiry	
US4683944 A	19850506	LSAS	AS	ASSIGNMENT	PartyType: owner Effective date: 19850429 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNOR:CURLETT, HARRY B.;REEL/FRAME:004436/0316 Owner: INNOTECH ENERGY CORPORATION, 12330 VERONICA ROAD,
US4683944 A	19870603	LSGT	PAT1	Patented Case	
US4683944 A	19870603	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US4683944 A	19870804	LSGT	+	granted / extensions (spc, cpc, pte)	
US4683944 A	19870916	LSAS	AS	ASSIGNMENT	Owner: INNOTECH ENERGY CORPORATION, 500 MAIN STREET SUITE PartyType: owner OldParty: SECURITY INTEREST;ASSIGNOR:PANGAEA ENTERPRISES, INC.,;REEL/FRAME:004765/0148
US4683944 A	19870916	LSAS	AS	ASSIGNMENT	Effective date: 19870911

					Owner: PANGAEA ENTERPRISES, INC., 1200 THOMAS PLACE, FORT PartyType: owner OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNOR:INNOTECH ENERGY CORPORATION, (A TX. CORP.);REEL/FRAME:004765/0143
US4683944 A	19870916	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:INNOTECH ENERGY CORPORATION, (A TX. CORP.);REEL/FRAME:004765/0143 PartyType: owner Owner: PANGAEA ENTERPRISES, INC.,TEXAS Effective date: 19870911
US4683944 A	19910128	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US4683944 A	19950119	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US4683944 A	19990202	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US4683944 A	20050506	PEXP		Calculated Patent Term Expiry	
US4799544 A	19870916	LSAS	AS	ASSIGNMENT	OldParty: SECURITY INTEREST;ASSIGNOR:PANGAEA ENTERPRISES, INC.,;REEL/FRAME:004765/0148 PartyType: owner Owner: INNOTECH ENERGY CORPORATION, 500 MAIN STREET SUITE
US4799544 A	19870916	LSAS	AS	ASSIGNMENT	PartyType: owner OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNOR:INNOTECH ENERGY CORPORATION, (A TX. CORP.);REEL/FRAME:004765/0143 Owner: PANGAEA ENTERPRISES, INC., 1200 THOMAS PLACE, FORT Effective date: 19870911
US4799544 A	19870916	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:INNOTECH ENERGY CORPORATION, (A TX. CORP.);REEL/FRAME:004765/0143 PartyType: owner Effective date: 19870911 Owner: PANGAEA ENTERPRISES, INC.,TEXAS
US4799544 A	19881121	LSGT	PAT1	Patented Case	
US4799544 A	19881121	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US4799544 A	19890124	LSGT	+	granted / extensions (spc, cpc, pte)	
US4799544 A	19920625	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US4799544 A	19960621	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US4799544 A	20000721	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US4799544 A	20070710	PEXP		Calculated Patent Term Expiry	
US4836305 A	19870730	LSAS	AS	ASSIGNMENT	PartyType: owner OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNOR:CURLETT, HARRY B.;REEL/FRAME:004748/0651 Effective date: 19870728 Owner: INNOTECH ENERGY CORPORATON, 500 MAIN ST., STE. 100
US4836305 A	19870730	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:CURLETT, HARRY B.;REEL/FRAME:004748/0651 PartyType: owner Effective date: 19870728 Owner: INNOTECH ENERGY CORPORATON, TEXAS
US4836305 A	19870916	LSAS	AS	ASSIGNMENT	Owner: INNOTECH ENERGY CORPORATION, 500 MAIN STREET SUITE OldParty: SECURITY INTEREST;ASSIGNOR:PANGAEA

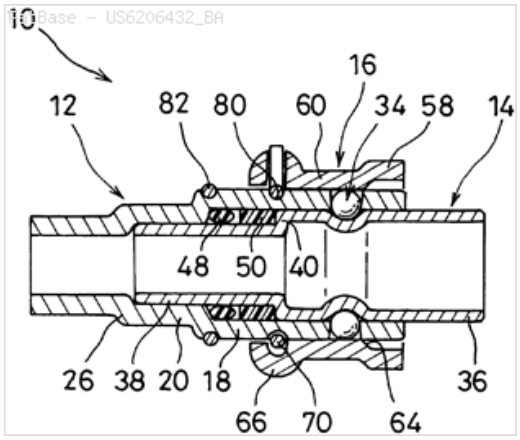
					ENTERPRISES, INC.,;REEL/FRAME:004765/0148 PartyType: owner
US4836305 A	19870916	LSAS	AS	ASSIGNMENT	Effective date: 19870911 Owner: PANGAEA ENTERPRISES, INC., 1200 THOMAS PLACE, FORT PartyType: owner OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNOR:INNOTECH ENERGY CORPORATION, (A TX. CORP.);REEL/FRAME:004765/0143
US4836305 A	19870916	LSAS	AS	ASSIGNMENT	PartyType: owner Effective date: 19870911 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:INNOTECH ENERGY CORPORATION, (A TX. CORP.);REEL/FRAME:004765/0143 Owner: PANGAEA ENTERPRISES, INC.,TEXAS
US4836305 A	19890411	LSGT	PAT1	Patented Case	
US4836305 A	19890411	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US4836305 A	19890606	LSGT	+	granted / extensions (spc, cpc, pte)	
US4836305 A	19920928	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US4836305 A	19960927	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US4836305 A	20001205	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US4836305 A	20070730	PEXP		Calculated Patent Term Expiry	
US4924949 A	19900313	LSGT	PAT1	Patented Case	
US4924949 A	19900313	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US4924949 A	19900515	LSGT	+	granted / extensions (spc, cpc, pte)	
US4924949 A	19931022	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US4924949 A	19970929	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US4924949 A	20011114	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US4924949 A	20011204		REMI	MAINTENANCE FEE REMINDER MAILED	
US4924949 A	20080831	PEXP		Calculated Patent Term Expiry	
ZA8805419 A	19890426	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA8805419 A	20080724	PEXP		Calculated Patent Term Expiry	

44) Family number: 14998326 (US6206432 BA)

Title: BALL-LOCK-TYPE QUICK-ACTING **CONNECTOR**

Abstract: A quick **connector** of the ball-lock type includes a socket member, a plug member and a slidable sleeve which are specifically designed to permit manufacture by deep drawing of a sheet metal. The socket member and the plug member are each shaped in the form of a stepped tube and the plug member is inserted into the socket member in a telescoping fashion to form an **annular** chamber therebetween. An O-**ring** and a backup **ring** are mounted within the **annular** chamber by inserting them into the bore of the socket member.

Classifications:
International (IPC 8-9): F16L37/00 F16L37/084 F16L37/22 F16L37/23
International (IPC 1-7): F16L3/500 F16L35/00 F16L37/22 F16L37/23
CPC: B21D51/10 F16L37/23 Y10S285/906
US: 285/315 285/348 285/382 285/424 285/81 285/906
JP F-Term: 3J106 3J106/AB01 3J106/BA01 3J106/BB01 3J106/BC04 3J106/BD01 3J106/BE40 3J106/EA03 3J106/EB07 3J106/EC02 3J106/EC07 3J106/ED32 3J106/EE13 3J106/EF05 3J106/BE12 3J106/BE18 3J106/BE32 3J106/BE33 3J106/CA05 3J106/CA08 3J106/CA13 3J106/EE12 3J106/EF07 3J106/EF08 3J106/BE27 3J106/BE22 3J106/BE23 3J106/BE29
JP F-Index: F16L37/22@A F16L37/23 F16L37/22



Family:

Publication number	Publication date	Application number	Application date
JP11210969 A2	19990806	JP19980026347	19980126
JP11218283 A2	19990810	JP19980032322	19980130
JP2000097383 A2	20000404	JP19980267643	19980922
JP4120726 B2	20080716	JP19980267643	19980922
JP2000097384 A2	20000404	JP19980267644	19980922
JP4120727 B2	20080716	JP19980267644	19980922
JP2000097382 A2	20000404	JP19980267645	19980922
JP4120728 B2	20080716	JP19980267645	19980922
US6206432 BA	20010327	US19990236641	19990126

Priority:

JP19980026347 19980126 JP19980032322 19980130 JP19980267645 19980922
JP19980267643 19980922 JP19980267644 19980922

Probable Assignee: NOK CORP
Assignee(s): (std): NOK CORP
Inventor(s): (std): KAMIYAMA KUNIHIRO
Inventor(s): KUNIHIRO KAMIYAMA
Agent(s): JACOBSON PRICE HOLMAN AND STERN PLLC; NOMOTO YOICHI

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
JP11210969 A2	19990806	LSPB	+	published / reissued	
JP11210969 A2	20050405	LSWD	-A300	WITHDRAWAL OF APPLICATION BECAUSE OF NO REQUEST FOR EXAMINATION	Text: JAPANESE INTERMEDIATE CODE: A300 Effective date: 20050405
JP11218283 A2	19990810	LSPB	+	published / reissued	
JP11218283 A2	20021031	LSRV	-A02	DECISION OF REFUSAL	Effective date: 20021030 Text: JAPANESE INTERMEDIATE CODE: A02
JP2000097382 A2	20000404	LSPB	+	published / reissued	
JP2000097382 A2	20050204	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	Text: JAPANESE INTERMEDIATE CODE: A621 Effective date: 20050203
JP2000097382 A2	20070827		A977	REPORT ON RETRIEVAL	Effective date: 20070827 Text: JAPANESE INTERMEDIATE CODE: A971007

JP2000097382 A2	20070913	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	Effective date: 20070912 Text: JAPANESE INTERMEDIATE CODE: A131
JP2000097382 A2	20071020	LSRE	A521	WRITTEN AMENDMENT	Text: JAPANESE INTERMEDIATE CODE: A523 Effective date: 20071019
JP2000097382 A2	20080321	LSGT	+TRDD	DECISION OF GRANT OR REJECTION WRITTEN	
JP2000097382 A2	20080403	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	Effective date: 20080402 Text: JAPANESE INTERMEDIATE CODE: A01
JP2000097382 A2	20080502	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	Text: JAPANESE INTERMEDIATE CODE: A61 Effective date: 20080415
JP2000097382 A2	20080509	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	Year of fee payment: 3
JP2000097383 A2	20000404	LSPB	+	published / reissued	
JP2000097383 A2	20050204	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	Effective date: 20050203 Text: JAPANESE INTERMEDIATE CODE: A621
JP2000097383 A2	20070817		A977	REPORT ON RETRIEVAL	Effective date: 20070817 Text: JAPANESE INTERMEDIATE CODE: A971007
JP2000097383 A2	20070830	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	Text: JAPANESE INTERMEDIATE CODE: A131 Effective date: 20070829
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JP2000097383 A2	20080502	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	Text: JAPANESE INTERMEDIATE CODE: A61 Effective date: 20080415
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JP2000097384 A2	20050204	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	Text: JAPANESE INTERMEDIATE CODE: A621 Effective date: 20050203
JP2000097384 A2	20070817		A977	REPORT ON RETRIEVAL	Effective date: 20070817 Text: JAPANESE INTERMEDIATE CODE: A971007
JP2000097384 A2	20070830	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	Effective date: 20070829 Text: JAPANESE INTERMEDIATE CODE: A131
JP2000097384 A2	20071020	LSRE	A521	WRITTEN AMENDMENT	Text: JAPANESE INTERMEDIATE CODE: A523 Effective date: 20071019
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JP2000097384 A2	20080502	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	Text: JAPANESE INTERMEDIATE CODE: A61 Effective date: 20080415
JP2000097384 A2	20080509	LSFE	+FPAY	RENEWAL FEE	Year of fee payment: 3

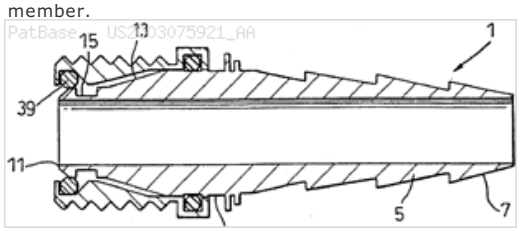
				PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	
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JP4120726 B2	20110426	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	Year of fee payment: 4
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JP4120726 B2	20180922	PEXP		Calculated Patent Term Expiry	
JP4120727 B2	20080716	LSGT	+	granted / extensions (spc, cpc, pte)	
JP4120727 B2	20110414	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	Year of fee payment: 3
JP4120727 B2	20110426	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	Year of fee payment: 4
JP4120727 B2	20120509	LSLE	-LAPS	CANCELLATION BECAUSE OF NO PAYMENT OF ANNUAL FEES	
JP4120727 B2	20180922	PEXP		Calculated Patent Term Expiry	
JP4120728 B2	20080716	LSGT	+	granted / extensions (spc, cpc, pte)	
JP4120728 B2	20110414	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	Year of fee payment: 3
JP4120728 B2	20110426	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	Year of fee payment: 4
JP4120728 B2	20120509	LSLE	-LAPS	CANCELLATION BECAUSE OF NO PAYMENT OF ANNUAL FEES	
JP4120728 B2	20180922	PEXP		Calculated Patent Term Expiry	
US6206432 BA	19990330	LSAS	AS	ASSIGNMENT	Effective date: 19990217 PartyType: owner OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:KAMIYAMA, KUNIHIRO;REEL/FRAME:011133/0997 Owner: NOK CORPORATION, JAPAN
US6206432 BA	20010327	LSGT	+	granted / extensions (spc, cpc, pte)	
US6206432 BA	20040825	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US6206432 BA	20081006		REMI	MAINTENANCE FEE REMINDER MAILED	
US6206432 BA	20090327	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US6206432 BA	20090427	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US6206432 BA	20090427	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US6206432 BA	20090519	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective date: 20090327
US6206432 BA	20190126	PEXP		Calculated Patent Term Expiry	

45) Family number: 20751064 (US2003075921 AA)

Title: HYDRAULIC **CONNECTORS**

Abstract: A **connector** for forming a connection between the tubular end of a first fluid conveying member and a threaded end of a second fluid conveying member as a threaded portion (19, 117) for engagement with a threaded end (112) of a second fluid conveying member. The **connector** is provided with means (39, 141) for engaging an external circumferentially extending **groove** (31, 137) located on the tubular end of said first fluid conveying member. Means (23, 133) are provided for effecting sealing engagement with said threaded end of said second fluid conveying member.

Classifications:
International (IPC 8-9): F16L F16L19/02 F16L19/03 F16L19/075
International (IPC 1-7): F16L19/02 F16L19/075 F16L27/00 F16L33/16
CPC: F16L19/0206 F16L19/0231 F16L19/075 F16L37/088
US: 285/272 285/272P 285/272S 285/276 285/276P 285/276S
JP F-Term: 3H014 3H014/CA05



Family:

Publication number	Publication date	Application number	Application date
AT262138 E	20040415	AT20000985576T	20001215
AU200121986 A1	20010625	AU20010021986	20001215
AU200121986 A5	20010625	AU20010021986D	20001215
BRPI0016175 A	20020820	BR2000PI16175	20001215
CA2391093 AA	20020510	CA20002391093	20001215
CN1408058 A	20030402	CN20008016697	20001215
CZ20022034 A3	20030115	CZ20020002034	20001215
DE60009139 D1	20040422	DE20006009139T	20001215
DE60009139 T2	20041111	DE20006009139T	20001215
EA003502 B1	20030626	EA20020000672	20001215
EA200200672 A1	20021226	EA20020000672	20001215
EP1238223 A1	20020911	EP20000985576	20001215
EP1238223 B1	20040317	EP20000985576	20001215
GB9929575 A0	20000209	GB19990029575	19991215
GB200022062 A0	20001025	GB20000022062	20000908
HK1045360 A1	20021122	HK20020106709	20020913
HU0204103 AB	20030328	HU20020004103	20001215
IL150188 A0	20021201	IL20000150188	20001215
JP2003517552 T2	20030527	JP20010545764T	20001215
KR20020084071 A	20021104	KR20027007540	20001215
MXPA02004929 A1	20031014	MX2002PA04929	20001215
NO20022824 A	20020613	NO20020002824	20020613
NO20022824 A0	20020613	NO20020002824	20020613
NO20022824 L	20020613	NO20020002824	20020613
SK200200842 A5	20021203	SK20020000842	20001215
US2003075921 AA	20030424	US20020149456	20020927
US2005067835 AA	20050331	US20040992415	20041118
WO0144707 A1	20010621	WO2000GB04820	20001215
YU43502 A	20030707	YU20020000435	20001215
ZA200204095 A	20021022	ZA20020004095	20020523

Priority:

GB19990029575 19991215 GB19999929575 19991215 GB20000022062 20000908
WO2000GB04820 20001215 US20020149456 20020927 US20040992415 20041118

Probable Assignee: OYSTERTEC PLC

Assignee(s): (std): AUESTECH CO ; DAVIDSON PAUL ; LINKINDEX LTD ; MOVERS AND SHAPERS PLC ; OYSTERTEC PLC ; OYSTERTEC PLC YORK

Assignee(s): DAVIDSON PAUL ANTHONY ; LINKINDEX LIMITED ; PAUL DAVIDSON

Inventor(s): (std): DAVIDSON P ; DAVIDSON PAUL ; PAUL DAVIDSON

Inventor(s): P DAVIDSON

Agent(s): DAVIES COLLISON CAVE; DAVIES COLLISON CAVE PTY LTD; HOWARD AND HOWARD ATTORNEYS PC; LONG AND CAMERON

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CR CU CY CZ DE DK DM DZ EE ES FI FR GA GB GD GE GH GM GN GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
AT262138 E	20040415	LSGT	+	granted / extensions (spc, cpc, pte)	

AT262138 E	20040915	LSLE	-RER	CEASED AS TO PARAGRAPH 5 LIT. 3 LAW INTRODUCING PATENT TREATIES	
AT262138 E	20201215	PEXP		Calculated Patent Term Expiry	
AU200121986 A1	20010625	LSPB	+	published / reissued	
BRPI0016175 A	20020820	LSPB	+	published / reissued	
BRPI0016175 A	20071226	LSFE	-B08F	APPLICATION FEES: DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW	Text: REFERENTE A 4A, 5A, 6A E 7A ANUIDADES.
BRPI0016175 A	20111213	LSLE	-B08K	LAPSE AS NO EVIDENCE OF PAYMENT OF THE ANNUAL FEE HAS BEEN FURNISHED TO INPI (ACC. ART. 87)	Text: REFERENTE AO DESPACHO 8.6 PUBLICADO NA RPI 1929 DE 26/12/2007.
CA2391093 AA	20020510	LSPB	+	published / reissued	
CA2391093 AA	20041215	LSLE	-FZDE	DEAD	
CN1408058 A	20030402	LSPB	+	published / reissued	
CN1408058 A	20030402	LSPB	+C06	PUBLICATION	
CN1408058 A	20030611		C10	ENTRY INTO SUBSTANTIVE EXAMINATION	
CN1408058 A	20050810	LSDW	-C02	DEEMED WITHDRAWAL OF PATENT APPLICATION AFTER PUBLICATION (PATENT LAW 2001)	
CZ20022034 A3	20030115	LSPB	+	published / reissued	
DE60009139 D1	20050414	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE60009139 D1	20071018	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
DE60009139 T2	20041111	LSGT	+	granted / extensions (spc, cpc, pte)	
DE60009139 T2	20050414	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
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EA003502 B1	20030626	LSGT	+	granted / extensions (spc, cpc, pte)	
EA003502 B1	20041028	LSLE	-MM4A	LAPSE OF A EURASIAN PATENT DUE TO NON-PAYMENT OF RENEWAL FEES WITHIN THE TIME LIMIT IN THE FOLLOWING DESIGNATED STATE(S)	Country of Ref document: AM AZ KG KZ MD TJ TM
EA003502 B1	20051027	LSLE	-MM4A	LAPSE OF A EURASIAN PATENT DUE TO NON-PAYMENT OF RENEWAL FEES WITHIN THE TIME LIMIT IN THE FOLLOWING DESIGNATED STATE(S)	Country of Ref document: BY RU
EA003502 B1	20201215	PEXP		Calculated Patent Term Expiry	
EA200200672 A1	20021226	LSPB	+	published / reissued	
EP1238223 A1	20020911	LSPB	+	published / reissued	
EP1238223 A1	20020911	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20020621
EP1238223 A1	20020911		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR
EP1238223 A1	20020911		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Text: AL;LT;LV;MK;RO;SI
EP1238223 A1	20021002	LSAS	RAP1	RIGHTS OF AN	Owner: OYSTERTEC PLC

				APPLICATION TRANSFERRED	PartyType: owner
EP1238223 A1	20040128	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	Owner: OYSTERTEC PLC PartyType: owner
EP1238223 A1	20040317		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR
EP1238223 A1	20040317	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20040317 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: AT
EP1238223 A1	20040317	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20040317 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: BE
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EP1238223 A1	20040331	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: EP
EP1238223 A1	20040421	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: FG4D
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EP1238223 A1	20040825	LSRV	-LTIE	LT: INVALIDATION OF EUROPEAN PATENT OR PATENT EXTENSION	Effective date: 20040317 Ref country code: EP
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EP1238223 A1	20040930	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: PL
EP1238223 A1	20041215	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20041215 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: IE
EP1238223 A1	20041215	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20041215 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: LU
EP1238223 A1	20041224		+ET	FR: TRANSLATION FILED	
EP1238223 A1	20041231	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20041231 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: MC
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EP1238223 A1	20050921	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: MM4A
EP1238223 A1	20051018	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20051018 Year of fee payment: 6 Country of Ref document: GB
EP1238223 A1	20051110	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20051110 Year of fee payment: 6 Country of Ref document: FR
EP1238223 A1	20051117	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20051117 Year of fee payment: 6 Country of Ref document: DE
EP1238223 A1	20061231	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO	Payment date: 20061231 Year of fee payment: 7 Country of Ref document: IT

				EPO]	
EP1238223 A1	20070703	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20070703 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: DE
EP1238223 A1	20070829	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	Effective date: 20061215 Ref country code: EP
EP1238223 A1	20071005	LSLE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20070831 Ref country code: FR Ref legal event code: ST
EP1238223 A1	20071124	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20061215 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: GB
EP1238223 A1	20080102	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20040817 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: PT
EP1238223 A1	20080430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20070102 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: FR
EP1238223 A1	20080725	LSWD	REG	REFERENCE TO A NATIONAL CODE	Ref country code: HK Ref document number: 1045360 Ref legal event code: WD Country of Ref document: HK
EP1238223 A1	20090831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20071215 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: IT
EP1238223 B1	20040317	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1238223 B1	20201215	PEXP		Calculated Patent Term Expiry	
GB200022062 A0	20011212	LSWD	-AT	APPLICATIONS TERMINATED BEFORE PUBLICATION UNDER SECTION 16(1)	
HK1045360 A1	20021122	LSPB	+	published / reissued	
HU0204103 AB	20030328	LSPB	+	published / reissued	
JP2003517552 T2	20030527	LSPB	+	published / reissued	
KR20020084071 A	20020816	LSAS	N231	NOTIFICATION OF CHANGE OF APPLICANT	
KR20020084071 A	20021104	LSPB	+	published / reissued	
KR20020084071 A	20051216	LSDW	-WITN	WITHDRAWAL DUE TO NO REQUEST FOR EXAMINATION	
MXPA02004929 A1	20031014	LSPB	+	published / reissued	
NO20022824 A	20020613	LSPB	+	published / reissued	
NO20022824 A	20041129	LSRV	-FC2A	WITHDRAWAL, REJECTION OR DISMISSAL OF LAID OPEN PATENT APPLICATION	
SK200200842 A5	20021203	LSPB	+	published / reissued	
US2003075921 AA	20020927	LSAS	AS	ASSIGNMENT	Effective date: 20020911 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:DAVIDSON, PAUL;REEL/FRAME:013344/0042 Owner: OYSTERTEC PLC, GREAT BRITAIN PartyType: owner

US2003075921 AA	20030424	LSPB	+	published / reissued	
US2003075921 AA	20041120	LSWD	ABD3	Abandoned -- Failure to Respond to an Office Action	
US2003075921 AA	20041120		-STCB	INFORMATION ON STATUS: APPLICATION DISCONTINUATION	Text: ABANDONED -- FAILURE TO RESPOND TO AN OFFICE ACTION
US2005067835 AA	20041118	LSAS	AS	ASSIGNMENT	Effective date: 20020911 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:DAVIDSON, PAUL;REEL/FRAME:016011/0738 Owner: OYSTERTEC PLC, GREAT BRITAIN PartyType: owner
US2005067835 AA	20050331	LSPB	+	published / reissued	
US2005067835 AA	20060814	LSWD	ABD3	Abandoned -- Failure to Respond to an Office Action	
US2005067835 AA	20060814		-STCB	INFORMATION ON STATUS: APPLICATION DISCONTINUATION	Text: ABANDONED -- FAILURE TO RESPOND TO AN OFFICE ACTION
WO0144707 A1	20001215	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: P-435/02 Country of Ref document: YU
WO0144707 A1	20010621	LSPB	+	published / reissued	
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WO0144707 A1	20010621		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: AM AT AZ BE BF BJ BY CF CG CH CI CM CY DE DK ES FI FR GA GB GH GM GN GR GW IE IT KE KG KZ LS LU MC MD ML MR MW MZ NE NL PT RU SD SE SL SN SZ TD TG TJ TM TR TZ UG ZW
WO0144707 A1	20010816		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	
WO0144707 A1	20011025		DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101)	
WO0144707 A1	20020508	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: IN/PCT/2002/627/KOL Country of Ref document: IN
WO0144707 A1	20020510	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2391093 Country of Ref document: CA
WO0144707 A1	20020513	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 518918 Country of Ref document: NZ
WO0144707 A1	20020516	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: PA/a/2002/004929 Country of Ref document: MX
WO0144707 A1	20020530	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 21986/01 Country of Ref document: AU
WO0144707 A1	20020604	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 008166978 Country of Ref document: CN
WO0144707 A1	20020611	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: PV2002-2034 Country of Ref document: CZ
WO0144707 A1	20020612	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 1020027007540 Country of Ref document: KR
WO0144707 A1	20020612	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 150188 Country of Ref document: IL
WO0144707 A1	20020612	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL	Ref document number: 8422002 Country of Ref document: SK

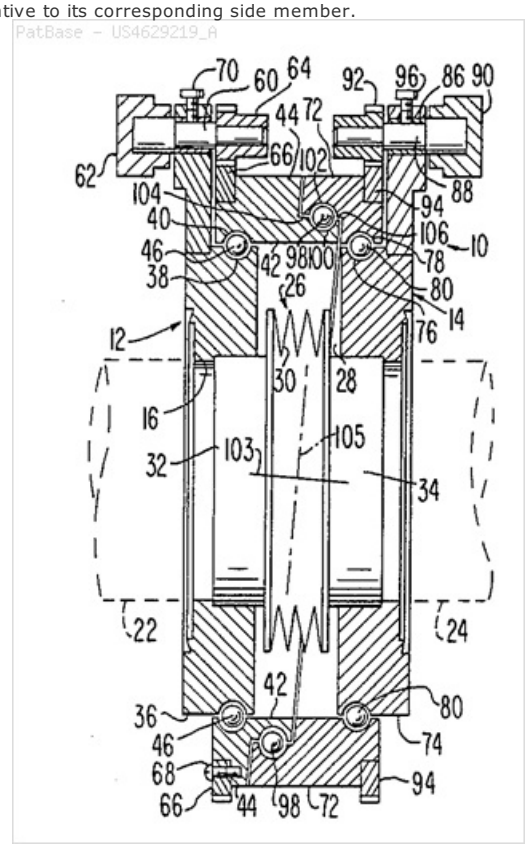
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WO0144707 A1	20020614	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Kind code of Ref document: A Ref document number: 2002 200200854 Country of Ref document: RO
WO0144707 A1	20020617	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Kind code of Ref document: A Ref document number: 2001 545764 Country of Ref document: JP
WO0144707 A1	20020621	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2000985576 Country of Ref document: EP
WO0144707 A1	20020712	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 200200672 Country of Ref document: EA
WO0144707 A1	20020911	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 2000985576 Country of Ref document: EP
WO0144707 A1	20020927	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 10149456 Country of Ref document: US
WO0144707 A1	20021104	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 1020027007540 Country of Ref document: KR
WO0144707 A1	20021121	LSWD	REG	REFERENCE TO NATIONAL CODE	Ref country code: DE Ref legal event code: 8642
WO0144707 A1	20030115	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: PV2002-2034 Country of Ref document: CZ
WO0144707 A1	20040207	LSRV	-WWR	WIPO INFORMATION: REFUSED IN NATIONAL OFFICE	Ref document number: PV2002-2034 Country of Ref document: CZ
WO0144707 A1	20040317	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	Ref document number: 2000985576 Country of Ref document: EP
YU43502 A	20030707	LSPB	+	published / reissued	
ZA200204095 A	20021022	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA200204095 A	20220522	PEXP		Calculated Patent Term Expiry	

46) Family number: 6563425 (US4629219 A)

Title: ADJUSTABLE **CONNECTOR** UNIT

Abstract: A **connector** unit for a number of different **coupling** applications such as for interconnecting a pair of **pipes** or other structural parts which must be mounted near each other and at an angle with respect to each other. The **connector** unit includes a pair of side members which are spaced apart and to which are mounted the structural parts to be interconnected. Each side member has a respective **ring** rotatably mounted thereon by a first set of balls, and the two **rings** are rotatably **coupled** to each other by a second set of balls. Each set of balls is in an **annular** race formed by a pair of mating **grooves**. The balls of each set are fed into a respective race through a hole in the respective **ring**, then the hole is plugged to keep the balls in place. The race between the two **rings** is inclined at an angle relative to the race between each side member and the respective **ring**. Thus, rotation of one **ring** relative to the other **ring** will cause a change in the angular orientation of the side members relative to each other without rotating the side members relative to each other and without allowing one side member to move toward or away from each other. A pair of gears can be provided to rotate each **ring** relative to its corresponding side member.

Classifications:
International (IPC 8-9): F16L27/00 F16L27/08
International (IPC 1-7): F16C11/04 F16L1/00 F16L27/00 F16L27/02 F16L3/16
CPC: F16L27/0849 Y10S285/912
US: 285/148.27 285/178 285/184 285/276 285/912



Family:

Publication number	Publication date	Application number	Application date
DE3642816 A1	19880616	DE19863642816	19861215
GB2198796 A1	19880622	GB19860029846	19861213
GB2198796 B2	19900711	GB19860029846	19861213
GB8629846 A0	19870121	GB19860029846	19861213
US4629219 A	19861216	US19850735021	19850517

Priority:
US19850735021 19850517

Probable Assignee: HUNTINGTON MECHANICAL LAB
Assignee(s): (std): HUNTINGTON MECHANICAL LAB ; HUNTINGTON MECHANICAL LAB INC
Assignee(s): HUNTINGTON MECHANICAL LABORATORIES INC
Inventor(s): (std): BALTER VALENTIN
Inventor(s): VALENTIN BALTER

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
DE3642816 A1	19880616	LSPB	+	published / reissued	
DE3642816 A1	19940310	LSLE	-8141	DISPOSAL/NO REQUEST FOR EXAMINATION	
GB2198796 A1	19880622	LSPB	+	published / reissued	

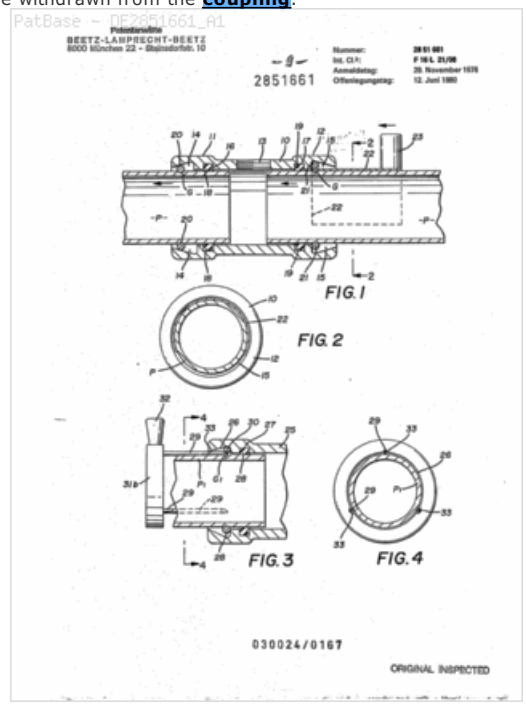
GB2198796 B2	19900711	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2198796 B2	19940810	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	Effective date: 19931213
GB2198796 B2	20061213	PEXP		Calculated Patent Term Expiry	
US4629219 A	19850517	LSAS	AS	ASSIGNMENT	Owner: HUNTINGTON MECHANICAL LABORATORIES, INC., 1040 L`A OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNOR:BALTER, VALENTIN;REEL/FRAME:004408/0116 Effective date: 19850422 PartyType: owner
US4629219 A	19861015	LSGT	PAT1	Patented Case	
US4629219 A	19861015	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US4629219 A	19861216	LSGT	+	granted / extensions (spc, cpc, pte)	
US4629219 A	19900123	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US4629219 A	19940411	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US4629219 A	19971219	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12

47) Family number: 1757593 (DE2851661 A1)

Title: **PIPE** **COUPLING** WITH WEDGING CONTRACTIBLE **RING** - IS DISENGAGED BY MOVING **PIPES** MANUALLY INWARD AND INSERTING THIN HALF CIRCULAR SLEEVE TOOL

Abstract: **Annular** **grooves** inwardly from the ends of the **coupling** define circumferentially tapered channels in which contractible **rings** are disposed and arranged. Forces tending to separate the **pipes** and the **couplings** will move the contractible **rings** axially along the tapered surface of the channels in the **coupling** into locking engagement with **grooves** around the **pipe** sections. Moving the **pipe** sections inwardly of the opposite ends of the **coupling** and inserting tools between the **pipe** sections and the **coupling** engaging the contractible **rings** in the areas of the circumferentially tapered channels causes the contractible **rings** to be expanded therein sufficiently to permit the **pipe** sections to be withdrawn from the **coupling**.

Classifications:
International (IPC 8-9): F16L37/00 F16L37/092
International (IPC 1-7): F16L21/08
CPC: F16L37/0927



Family:

Publication number	Publication date	Application number	Application date
DE2851661 A1	19800612	DE19782851661	19781129

Priority:
DE19782851661 19781129

Probable Assignee:	MICHIGAN HANGER CO
Assignee(s): (std):	MICHIGAN HANGER CO
Assignee(s):	MICHIGAN HANGER CO INC
Inventor(s): (std):	RUMBLE EDGAR BERT
Inventor(s):	BERT RUMBLE EDGAR

Legal status (INPADOC)

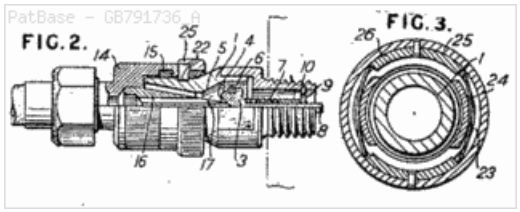
View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
DE2851661 A1	19800612	LSPB	+	published / reissued	
DE2851661 A1	19851107	LSLE	-8139	DISPOSAL/NON-PAYMENT OF THE ANNUAL FEE	

48) Family number: 19653859 (GB791736 A)

Title: Improvements in or relating to **pipe** **couplings**

Abstract: 791,736. **Pipe** **couplings**. HIGH PRESSURE COMPONENTS, Ltd. Feb. 13, 1956 [March 17, 1955], No. 7846/55. Class 99(1). In a two-part **coupling** wherein one part 1 incorporates a spring-urged non-return valve 3 and the other part 14 carries a probe 16 for engaging and moving the valve off the seat 5 thereof, the part 14 is provided with an internal **annular** recess in which is housed an " O " **ring** 15 for making sealing engagement with the peripheral surface of the part 1. As shown, the **coupling** part 1 is formed with a conical seating 5, and an external **annular** **groove** 22, the valve 3 being axially movable on to the seating by a helical spring 7 encircling the valve stem 8 which is slidable in a ported bearing 9 secured in the part by a circlip 10; the conical head 4 of the valve has an **annular** **groove** in which is located a sealing **ring** 6, and the tapered probe 16 is provided with one or more passageways 17, e.g., an axial bore communicating with diametrical holes or slots. A rotatable cap 25 carries two strip springs 24 which project into diametrically-opposite recesses 23 formed in the part 14 and also into the **groove** 22 of the part 1 when the two parts are engaged; the springs are located in position by arcuate-shaped retainers 26 secured to the cap. By rotation of the cap 25 through 90 degrees, Fig. 3, the springs are lifted by the part-circular portions of the part 14 intermediate the recesses 23 to allow withdrawal of the part 1 from the part 14. In a modification, the part 14 also incorporates a valve with which the probe is associated, and, to lock the two parts together, a spring clip is provided in the **groove** 22 of the part 1 for cooperation with an **annular** **groove** in the part 14.



Classifications:
International (IPC 8-9): F16L37/00 F16L37/086 F16L37/28 F16L37/40
International (IPC 1-7): F16L37/10
CPC: F16L37/086 F16L37/40

Family:

Publication number	Publication date	Application number	Application date
GB791736 A	19580312	GB19550007846	19550317

Priority:
GB19550007846 19550317

Probable Assignee: HIGH PRESSURE COMPONENTS LTD
Assignee(s): (std): HIGH PRESSURE COMPONENTS LTD
Assignee(s): HIGH PRESSURE COMPONENTS LIMITED
Inventor(s): (std): WILLIAMS DERRICK JOHN

Legal status (INPADOC)

View legal status timeline

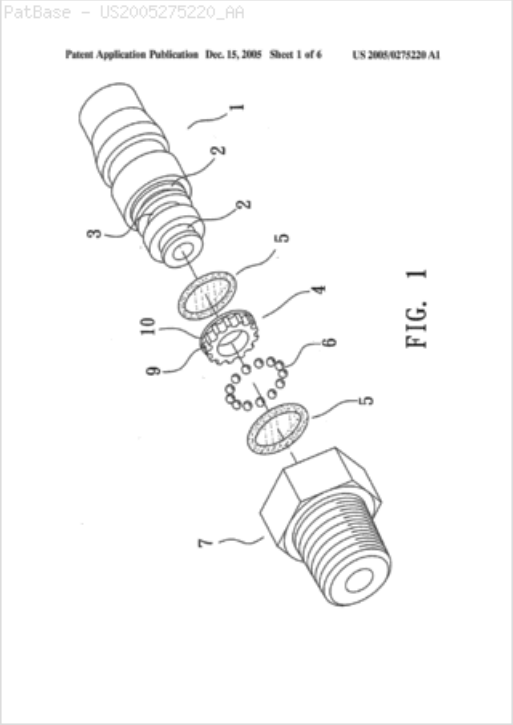
Patent	Date recorded	Event group	Code	Event	Details
GB791736 A	19580312	LSGT	+	granted / extensions (spc, cpc, pte)	
GB791736 A	19750317	PEXP		Calculated Patent Term Expiry	

49) Family number: 32484625 (US2005275220 AA)

Title: NON-PERMEABLE **PIPE** **CONNECTOR** STRUCTURE

Abstract: A non-permeable **pipe** **connector** structure, the design of which effectively prevents external material (such as vapor and miscellaneous substances, etc.) intrusion. To obstruct the intrusion of external matter into the **pipe** **connector**, a ball bearing holder is disposed at the **pipe** **connector**, enabling even greater ball bearing durability and, furthermore, free rotation. A protective flange is disposed as the bottom surface of the ball bearing holder such that when the **coupling** nipple and the **connector** base are fastened together, the protective flange effectively blocks external matter, thereby precluding entry to avert subsequent damage to the bearings. Furthermore, a rubber sealing **ring** sleeved onto the **annular** **groove** prevents vaporous or acid and alkaline substance intrusion into the bearings, and has safe defensive effectiveness.

Classifications:
International (IPC 8-9): F16C33/58 F16L27/00 F16L27/08 F16L5/00
International (IPC 1-7): F16L5/00
CPC: F16L27/0828
US: 285/276 384/515 384/516 384/523 384/531 285/276P



Family:

Publication number	Publication date	Application number	Application date
US2005275220 AA	20051215	US20040862329	20040608
US7025391 BB	20060411	US20040862329	20040608

Priority:
US20040862329 20040608

Probable Assignee: SHU WEN CHIN
Assignee(s): (std): SHU WEN CHIN
Inventor(s): (std): SHU WEN CHIN
Agent(s): RABIN AND BERDO PC

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2005275220 AA	20051215	LSPB	+	published / reissued	
US7025391 BB	20060411	LSGT	+	granted / extensions (spc, cpc, pte)	
US7025391 BB	20090514	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US7025391 BB	20131122		REMI	MAINTENANCE FEE REMINDER MAILED	
US7025391 BB	20140411	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US7025391 BB	20140512	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US7025391 BB	20140512	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362

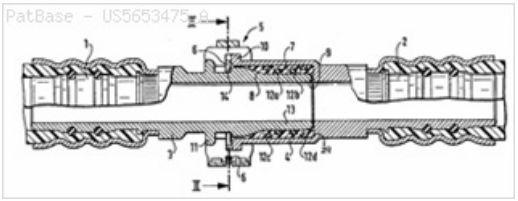
US7025391 BB	20140603	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective date: 20140411
US7025391 BB	20240727	PEXP		Calculated Patent Term Expiry (PTA 49 days)	

50) Family number: 29422819 (US5653475 A)

Title: COOLANT **COUPLING** FOR CONNECTING COOLANT LINES

Abstract: In prior art coolant **couplings**, multiple parts are provided for guiding and supporting a **connector** plug in a **connector** sleeve and for sealing off the connection between the plug and the sleeve. According to the invention, the support function, sealing function and centering function in a connection between a plug and a sleeve of a coolant **coupling** are integrated in a single component in the form of an **annular** combination element.

Classifications:
International (IPC 8-9): B60H1/00 F01P11/04 F16L37/00 F16L37/084 F16L37/086 F16L37/088 F16L37/098 F16L37/14 F25B41/00
International (IPC 1-7): B60H3/00 F16L21/08 F16L37/084 F16L37/12 F16L37/14 F16L37/26
CPC: B60H1/00571 F01P11/04 F16L37/086 F16L37/0885 F16L37/0982 F16L37/144 F25B41/003
US: 285/305 285/308 285/319 285/351 285/374 285/379 285/54



Family:

Publication number	Publication date	Application number	Application date
DE4318878 A1	19941215	DE19934318878	19930608
DE59404865 D1	19980205	DE19945004865T	19940520
EP0629806 A2	19941221	EP19940107810	19940520
EP0629806 A3	19950329	EP19940107810	19940520
EP0629806 B1	19971229	EP19940107810	19940520
ES2110652 T3	19980216	ES19940107810T	19940520
US5653475 A	19970805	US19960664259	19960607

Priority:

DE19934318878 19930608 DE19945004865T 19940520 EP19940107810 19940520
US19940255876 19940608 US19960664259 19960607

Probable Assignee: KUEHNER GMBH AND CIE

Assignee(s): (std): KUEHNER GMBH AND CIE

Assignee(s): KUEHNER GMBH AND CIE 71570 OPPENWEILER DE ; KUHNER GMBH AND CIE

Inventor(s): (std): BEHR MATHIAS ; HOLZER THOMAS ; HUNN HORST ; SCHEYHING ULRICH

Inventor(s): BEHR MATHIAS 71540 MURRHARDT DE ; BEHR MATHIAS D 97074 WUERZBURG DE ; HOLZER THOMAS 71522 BACKNANG DE ; HOLZER THOMAS D 71522 BACKNANG DE ; HUNN HORST D 75417 MUEHLACKER DUERRMENZ DE ; SCHEYHING ULRICH 71364 WINNENDEN DE ; SCHEYHING ULRICH D 71364 WINNENDEN DE

Designated states: DE ES FR GB IT

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
DE4318878 A1	19941215	LSPB	+	published / reissued	
DE4318878 A1	19941215	LSES	+OM8	SEARCH REPORT AVAILABLE AS TO PARAGRAPH 43 LIT. 1 SENTENCE 1 PATENT LAW	
DE4318878 A1	20000907	LSLE	-8141	DISPOSAL/NO REQUEST FOR EXAMINATION	
DE59404865 D1	19990204	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE59404865 D1	19990204	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
EP0629806 A2	19941221	LSPB	+	published / reissued	
EP0629806 A2	19941221		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A2 Country of Ref document: DE ES FR GB IT
EP0629806 A3	19950329		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A3 Country of Ref document: DE ES FR GB IT
EP0629806 A3	19950809	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 19950614
EP0629806 A3	19960501	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 19960318
EP0629806 A3	19970905		+ITF	IT: TRANSLATION FOR A EP PATENT FILED	Owner: DE DOMINICIS & MAYER S.R.L. PartyType: owner
EP0629806 B1	19971229	LSGT	+	granted / extensions (spc, cpc, pte)	

EP0629806 B1	19971229		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: DE ES FR GB IT
EP0629806 B1	19980204		+GBT	GB: TRANSLATION OF EP PATENT FILED (GB SECTION 77(6)(A)/1977)	Effective date: 19980113
EP0629806 B1	19980205		REF	CORRESPONDS TO:	Date of Ref document: 19980205 Ref document number: 59404865 Country of Ref document: DE
EP0629806 B1	19980216	LSGT	REG	REFERENCE TO A NATIONAL CODE	Kind code of Ref document: T3 Ref country code: ES Ref document number: 2110652 Ref legal event code: FG2A Country of Ref document: ES
EP0629806 B1	19980306		+ET	FR: TRANSLATION FILED	
EP0629806 B1	19981223	LSGT	+26N	NO OPPOSITION FILED	
EP0629806 B1	20020101		REG	REFERENCE TO A NATIONAL CODE	Ref country code: GB Ref legal event code: IF02
EP0629806 B1	20100730	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20100525 Year of fee payment: 17 Country of Ref document: ES
EP0629806 B1	20100730	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20100611 Year of fee payment: 17 Country of Ref document: FR
EP0629806 B1	20100831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20100522 Year of fee payment: 17 Country of Ref document: IT
EP0629806 B1	20101130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20100519 Year of fee payment: 17 Country of Ref document: GB
EP0629806 B1	20110930	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20110531 Year of fee payment: 18 Country of Ref document: DE
EP0629806 B1	20120125	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	Effective date: 20110520 Ref country code: EP
EP0629806 B1	20120217	LSLE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20120131 Ref country code: FR Ref legal event code: ST
EP0629806 B1	20120229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20110520 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: IT
EP0629806 B1	20120430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20110531 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: FR
EP0629806 B1	20120629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20110520 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE

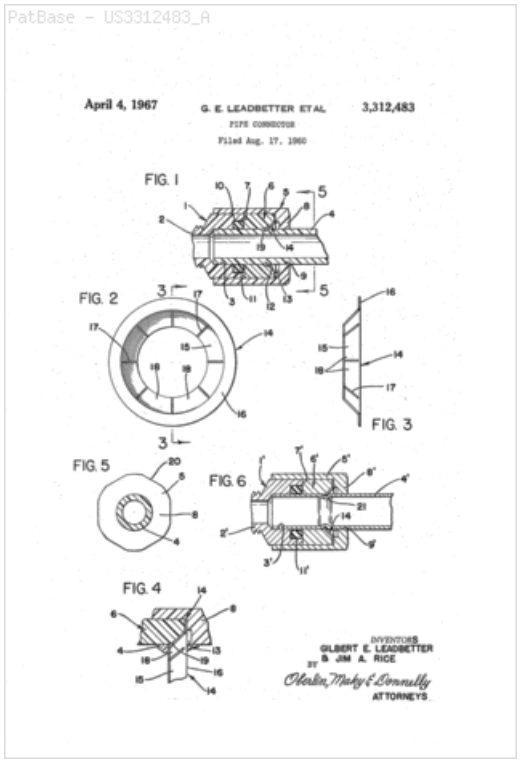
					FEES Country of Ref document: GB
EP0629806 B1	20120717	LSLE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20120717 Ref country code: ES Ref legal event code: FD2A
EP0629806 B1	20120731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20110521 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: ES
EP0629806 B1	20130321	LSDW	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20121201 Ref country code: DE Ref document number: 59404865 Ref legal event code: R119 Country of Ref document: DE
EP0629806 B1	20130628	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20121201 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: DE
EP0629806 B1	20140520	PEXP		Calculated Patent Term Expiry	
ES2110652 T3	19980216	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2110652 T3	19980216	LSGT	+FG2A	DEFINITIVE PROTECTION	Ref document number: 629806 Country of Ref document: ES
ES2110652 T3	20140520	PEXP		Calculated Patent Term Expiry	
US5653475 A	19970630	LSGT	PAT1	Patented Case	
US5653475 A	19970630	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US5653475 A	19970805	LSGT	+	granted / extensions (spc, cpc, pte)	
US5653475 A	19980210	LSRE	CC	CERTIFICATE OF CORRECTION	
US5653475 A	20010129	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US5653475 A	20050125	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US5653475 A	20090129	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US5653475 A	20160607	PEXP		Calculated Patent Term Expiry	

51) Family number: 22910790 (US3312483 A)

Title: PIPE CONNECTOR

Abstract: (Claim 1) 1.: In a **connector** of the character described, a hollow body section terminating in a socket, the inner surface of which is cylindrical, said socket being adapted to fit closely over the end of a **pipe** and the like to be joined with the **connector**, an **annular** sealing **ring groove** being 35 provided in the end face of such inner cylindrical surface of the socket at a région normally embracing such **pipe** end and the like, a clamping **ring** abutting such end face of the socket, the outer end of said clamping **ring** being formed with an inner bevel, a locking **ring** of frusto- 40 conical shape with a flange at its outer end directed out-wardly substantially at right angles to the axis of the **ring**, said locking **ring** being disposed against the outer beveled end of the clamping **ring**, and a cap fitted over the clamping **ring** and socket portion of the **connector** body section, 45 said cap having an apertured end wall contacting the flange of the locking **ring** to clamp the same, the smaller end of the **ring** being innermost and projecting beyond the inner periphery of the clamping **ring** tightly to grip a **pipe** end and the like inserted therethrough, the lock- 50 ing **ring** permitting forced passage of a **pipe** end but biting into the same upon any attempted withdrawal to preclude séparation thereof from the **connector**.

Classifications:
International (IPC 8-9): F16L19/00 F16L19/08
International (IPC 1-7): F16L21/08 F16L37/08
CPC: F16L19/086
US: 285/340 285/423



Family:

Publication number	Publication date	Application number	Application date
US3312483 A	19670404	US19600050274	19600817

Priority:
US19600050274 19600817

Probable Assignee: D AND G PLASTICS CO
Assignee(s): (std): D AND G PLASTICS CO
Inventor(s): (std): LEADBETTER GILBERT E ; RICE JIM A

Legal status (INPADOC)

View legal status timeline

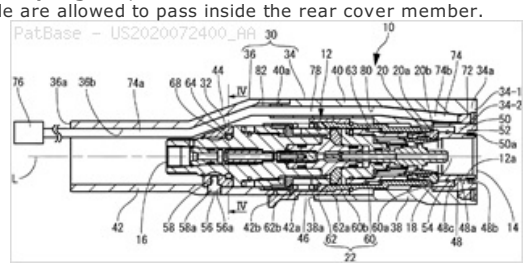
Patent	Date recorded	Event group	Code	Event	Details
US3312483 A	19670404	LSGT	+	granted / extensions (spc, cpc, pte)	

52) Family number: 71450545 (US2020072400 AA)

Title: FEMALE **PIPE** **COUPLING** MEMBER HAVING COMMUNICATION TERMINAL

Abstract: The **pipe** **coupling** member has a female **pipe** **coupling** body, and a cylindrical front and rear cover members fitted to the female **pipe** **coupling** body. The front cover member includes a communication assembly including a communication terminal, a communication cable extending rearward from the communication terminal inside the front cover member and further extending rearward from the rear end of the female **pipe** **coupling** body, and a **connector** terminal at the rear end of the communication cable. The rear cover member is configured to allow the **connector** terminal to be passed forward inside the rear cover member along a hose attached to the rear end of the female **pipe** **coupling** body when the rear cover member is displaced rearward in a state where the hose and the communication cable are allowed to pass inside the rear cover member.

Classifications:
International (IPC 8-9): F16L25/00 F16L37/22 F17C13/02 F17D5/02 H01R13/46
CPC: B60L3/0053 F16L2201/10 F16L25/00 F16L25/01 F16L37/22 F16L37/252 F17C13/02 F17C2205/0352 F17C2205/037 F17C2221/012 F17D5/02 H01R13/005 H01R13/506 Y02E60/32 Y02T90/40 Y02T90/34
JP F-Term: 3H016 3J106 5E087 3H016/EA01 3J106/BC04 3J106/ED22 3J106/EE12 5E087/FF12 5E087/GG24 5E087/GG35 5E087/MM08 5E087/MM15 5E087/PP09 5E087/QQ01 5E087/RR25 5E087/RR33
JP F-Index: F16L25/00@Z F16L37/22 H01R13/46,303@C



Family:

Publication number	Publication date	Application number	Application date
CN110494687 A	20191122	CN201880022553	20180328
EP3608574 A1	20200212	EP20180781537	20180328
JP2018186249 A1	20190411	JP20180537679T	20180328
JP6543422 B1	20190710	JP20180537679T	20180328
KR20190131064 A	20191125	KR20197030587	20180328
US2020072400 AA	20200305	US20190573921	20190917
WO18186249 A1	20181011	WO2018JP12653	20180328

Priority:
JP20170077050 20170407 WO2018JP12653 20180328 US20190573921 20190917

Probable Assignee: NITTO KOHKI CO
Assignee(s): (std): NITTO KOHKI CO
Assignee(s): NITTO KOHKI CO LTD
Inventor(s): (std): KAMIMURA YOSHITO
Agent(s): CARSTENS DIRK WILHELM; ITOH SHIGERU; ITOH SHIGERU ET AL
Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN110494687 A	20191122	LSPB	+	published / reissued	
CN110494687 A	20191122	LSPB	PB01	PUBLICATION	
CN110494687 A	20191122	LSPB	PB01	公开	Text: 公开 (Disclosure)
CN110494687 A	20191217		SE01	ENTRY INTO FORCE OF REQUEST FOR SUBSTANTIVE EXAMINATION	
CN110494687 A	20191217		SE01	实质审查请求的生效	Text: 实质审查的生效 (Force of substantive review)
EP3608574 A1	20200212	LSPB	+	published / reissued	
EP3608574 A1	20200212	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20191107
EP3608574 A1	20200212		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
EP3608574 A1	20200212		+AV	REQUEST FOR VALIDATION OF THE EUROPEAN PATENT	Country of Ref document: KH MA MD TN
EP3608574 A1	20200212		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Country of Ref document: BA ME

EP3608574 A1	20200715		DAV	REQUEST FOR VALIDATION OF THE EUROPEAN PATENT (DELETED)	
EP3608574 A1	20200715		DAX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT (DELETED)	
JP2018186249 A1	20190411	LSPB	+	published / reissued	
JP2018186249 A1	20190530	LSGT	+TRDD	DECISION OF GRANT OR REJECTION WRITTEN	
JP2018186249 A1	20190604	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	Text: JAPANESE INTERMEDIATE CODE: A01 Effective date: 20190604
JP2018186249 A1	20190620	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	Text: JAPANESE INTERMEDIATE CODE: A61 Effective date: 20190614
JP6543422 B1	20190606	LSGT	+A01	特許査定書	
JP6543422 B1	20190618	LSFE	R100	特許料納付書	
JP6543422 B1	20190621	LSGT	+R150	特許証	
JP6543422 B1	20190710	LSGT	+	granted / extensions (spc, cpc, pte)	
JP6543422 B1	20380328	PEXP		Calculated Patent Term Expiry	
KR20190131064 A	20191017	LSES	A201	REQUEST FOR EXAMINATION	
KR20190131064 A	20191125	LSPB	+	published / reissued	
US2020072400 AA	20190918	LSAS	AS	ASSIGNMENT	Effective date: 20190820 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:KAMIMURA, YOSHITO;REEL/FRAME:050409/0981 Owner: NITTO KOHKI CO., LTD., JAPAN PartyType: owner
US2020072400 AA	20191216		APP1	Application Dispatched from Preexam, Not Yet Docketed	
US2020072400 AA	20200305	LSPB	+	published / reissued	
US2020072400 AA	20200914		RFE1	Docketed New Case - Ready for Examination	
US2020072400 AA	20200914		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: DOCKETED NEW CASE - READY FOR EXAMINATION
WO18186249 A1	20180718	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Ref document number: 2018537679 Kind code of Ref document: A Country of Ref document: JP
WO18186249 A1	20181011	LSPB	+	published / reissued	
WO18186249 A1	20181121		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	Kind code of Ref document: A1 Ref document number: 18781537 Country of Ref document: EP
WO18186249 A1	20191008	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: DE
WO18186249 A1	20191017	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Ref document number: 20197030587 Kind code of Ref document: A Country of Ref document: KR
WO18186249 A1	20191115	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Effective date: 20191107 Ref document number: 2018781537 Country of Ref document: EP

53) Family number: 42929554 (EP2060840 A2)

Title: ORIENTABLE **PIPE** **CONNECTOR** FOR PLASTIC **PIPES**

Abstract: An orientable **pipe** **connector** for plastic **pipes** and the like. The **pipe** **connector** comprises a tubular body (10) of plastic material defining a flow path (11) between a first (12) and at least a second end (13) for connection to **pipes**, **pipe** **connectors** and the like; at least one of the ends (13) of the **pipe** **connector** is provided with a bell-shaped portion (17) onto which a rotating locking **ring** (18) is snap-fitted. In this way, the locking **ring** (18) is allowed to freely rotate, but prevented from axially disengaging.

Classifications:
International (IPC 8-9): F16L19/02 F16L27/08
CPC: F16L19/0231 F16L27/0845

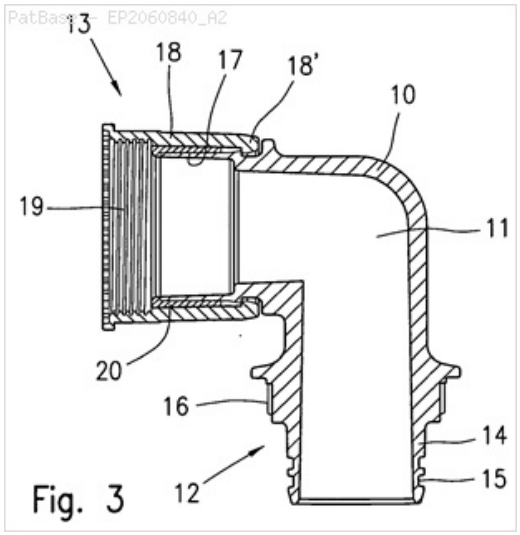


Fig. 3

Family:

Publication number	Publication date	Application number	Application date
EP2060840 A2	20090520	EP20080019740	20081112
EP2060840 A3	20130116	EP20080019740	20081112
ITMI20070382 U1	20090516	IT2007MI00382U	20071115

Priority:
IT2007MI00382U 20071115

Probable Assignee: AQUATECHNIK GROUP S.P.A.
Assignee(s): (std): AQUATECHNIK GROUP S P A ; AQUATECHNIK S P A
Inventor(s): (std): PETENA LINO
Agent(s): COLOBERTI LUIGI
Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK TR

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
EP2060840 A2	20090520	LSPB	+	published / reissued	
EP2060840 A2	20090520		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A2 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR
EP2060840 A2	20090520		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Country of Ref document: AL BA MK RS
EP2060840 A2	20091230	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	Owner: AQUATECHNIK GROUP S.P.A. PartyType: owner
EP2060840 A2	20130109		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 19/02 20060101AFI20121206BHEP
EP2060840 A2	20130109		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 27/08 20060101ALI20121206BHEP
EP2060840 A3	20130116		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A3 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

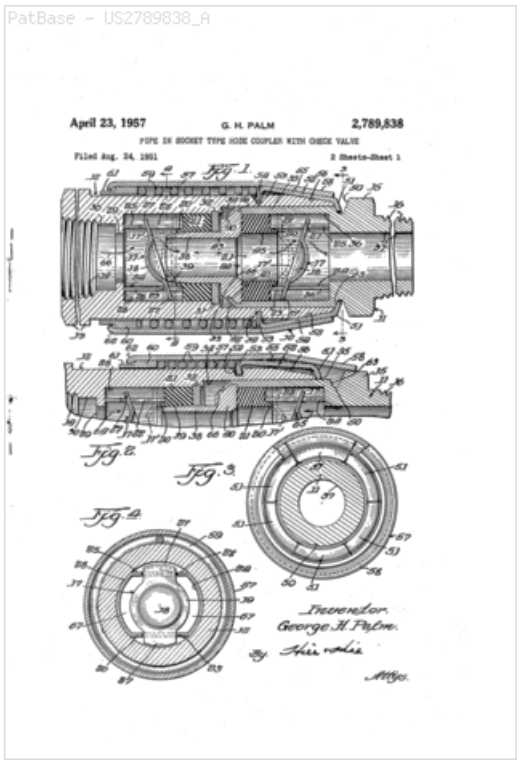
EP2060840 A3	20130116		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Country of Ref document: AL BA MK RS
EP2060840 A3	20130116		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 19/02 20060101AFI20121207BHEP
EP2060840 A3	20130116		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 27/08 20060101ALI20121207BHEP
EP2060840 A3	20130918	LSFE	-AKY	NO DESIGNATION FEES PAID	
EP2060840 A3	20130918		REG	REFERENCE TO A NATIONAL CODE	Ref country code: DE Ref legal event code: R108
EP2060840 A3	20131107		REG	REFERENCE TO A NATIONAL CODE	Effective date: 20130918 Ref country code: DE Ref legal event code: R108
EP2060840 A3	20140115	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	Effective date: 20130717
ITMI20070382 U1	20090516	LSPB	+	published / reissued	

54) Family number: 22876136 (US2789838 A)

Title: **PIPE** IN SOCKET TYPE HOSE COUPLER WITH CHECK VALVE

Abstract: (Claim 1) 1. A **coupling** comprising tubular male and female **connectors** complcnientally formed and adapted to be **coupled** and uncoupled, the outer end surface of the female **connector** terminating in a conical taper, latching means including an **annular** **groove** formed in the exterior of said female member rearwardly of said conical taper, a pluraiity of separate latching fingers having their medial portions overlying said conical taper and when in latching position completely encompassing said taper, the inner cud of each of said lingers having a portion extending radially inwardly and pivotally mounted in the **groove** in said female member, an **annular** **groove** formed in the exterior of the male rnemijer forwardly of said conical taper of said female **connector** when ceupled, a radially inwardly extending leg on the outer end of each of said latching lingers, the pivotal mounting of said Hngers in the **annular** **groove** of said female member serving to nermit the outer cnds of said lingers to move radially inwardly and outwardiy with respect to the **groove** of said male member as the **connectors** are **coupled** and unconpled: said latch means further including sleeve means mounted for atrial sliding movement with relation to the outer surface of the fenvale **connector** and formed in its body part coinpleinentally to said female **connector** and at its outer end coinpicmentally to the conicaily tapering portion of said latching Hngers and concentric therewith, said sleeve having radially inwardly extending abutment means formed azliscent to its inner end, a helically coiled spring encircling said female member and encompassed by said sleeve member, said spring operatively disposed between and ciireetiy engaging said abutment moans and the said radially inwardly extending portions of soid latching fingers, whereby said sleeve is urged in position IHGEDS to force said"latchi_ng lingers against said female conical taper and-the outer ends of said latching fingers into latching position with the **groove** of said male member.

Classifications:
International (IPC 8-9): F16L37/00 F16L37/096 F16L37/28 F16L37/30
International (IPC 1-7): F16L29/00
CPC: F16L37/096 F16L37/30 Y10T137/87965
US: 137/614.05 251/149.2 251/89.5 285/277 285/315 285/379



Family:

Publication number	Publication date	Application number	Application date
US2789838 A	19570423	US19510243502	19510824

Priority:
US19510243502 19510824

Probable Assignee: PALM GEORGE H
Assignee(s): (std): PALM GEORGE H
Inventor(s): (std): PALM GEORGE H

Legal status (INPADOC)

View legal status timeline

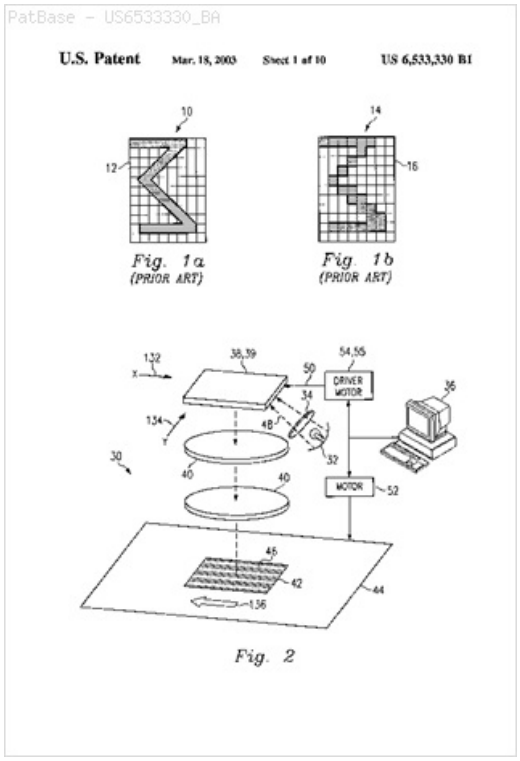
Patent	Date recorded	Event group	Code	Event	Details
US2789838 A	19570423	LSGT	+	granted / extensions (spc, cpc, pte)	

55) Family number: 11269865 (US6533330 BA)

Title: CONNETION TOGETHER OF TUBULAR MEMBERS

Abstract: A **connector** (1) for connecting together at least two tubular members (3) includes a body (7) having tubular mouth portions, each receiving one of said tubular members. At least one of the mouth portions is provided with means for connecting the body to a tubular member, the connection means comprising sealing means (17) for sealing the body against the tubular member and securing means for preventing relative longitudinal movement between said body and said tubular member. The securing means comprise a first securing member (25) for engagement with the tubular member and being deformable between a tubular member engaging position and a position allowing said first member to be readily moved along the tubular member, and a second securing member (31) being for holding the first securing ember in its tubular member engaging position. The body and first and second securing members are adapted to coact to prevent, in use, relative longitudinal movement between said first securing member and said body. A connection assembly, which includes a plurality of **connectors** of the invention, is also described.

Classifications:
International (IPC 8-9): F16L21/06 F16L37/00 F16L37/08 F16L37/084 F16L37/12 F16L37/138 F16L39/00
International (IPC 1-7): F16L F16L2/108 F16L21/06 F16L21/08 F16L37/084 F16L37/12 F16L39/00
CPC: F16L37/138 Y10S285/921
US: 285/124.1 285/124.2 285/305 285/81 285/84 285/921
JP F-Term: 3H015 3J106 3H015/DA03 3H015/DA08 3J106/AA01 3J106/AA04 3J106/AA06 3J106/AB01 3J106/AB06 3J106/BA01 3J106/BB01 3J106/BB04 3J106/BB07 3J106/BC04 3J106/BD01 3J106/BE18 3J106/BE19 3J106/BE26 3J106/BE29 3J106/BE32 3J106/EA03 3J106/EB02 3J106/EC01 3J106/EC07 3J106/ED14 3J106/EE12
JP F-Index: F16L21/06 F16L37/098 F16L37/12



Family:

Publication number	Publication date	Application number	Application date
AT223012 E	20020915	AT19980924433T	19980601
AU199876637 A1	19981230	AU19980076637	19980601
AU748618 B2	20020606	AU19980076637	19980601
BRPI9809710 A	20010911	BR1998PI09710	19980601
CA2292550 AA	19991129	CA19982292550	19980601
CN1103009 C	20030312	CN19988006973	19980601
CN1262730 A	20000809	CN19988006973	19980601
DE69807469 D1	20021002	DE19986007469T	19980601
DE69807469 T2	20030515	DE19986007469T	19980601
DK0983463 T3	20021216	DK19980924433T	19980601
EP0983463 A1	20000308	EP19980924433	19980601
EP0983463 B1	20020828	EP19980924433	19980601
ES2182316 T3	20030301	ES19980924433T	19980601
GB9711139 A0	19970723	GB19970011139	19970530
GB9713201 A0	19970827	GB19970013201	19970624
GB9807492 A0	19980610	GB19980007492	19980407
HK1029162 A1	20031031	HK20000107159	20001109
JP2002502483 T2	20020122	JP19980550770T	19980601
NZ502148 A	20011221	NZ19980502148	19980601
PT983463 T	20030131	PT19980924433T	19980601
RU2211988 C2	20030910	RU19990128061	19980601
RU99128061 A	20010827	RU19990128061	19980601
US6533330 BA	20030318	US20010424908	20011011
WO9854505 A1	19981203	WO1998GB01464	19980601

Priority:

GB19970011139 19970530 GB19970013201 19970624 GB19980007492 19980407 WO1998GB01464 19980601

Probable Assignee: OYSTERTEC PLC

Assignee(s): (std): AESTECH PLC ; BINNEY ADRIAN P ; DAVIDSON PAUL ; EASYRAD LIMITED ; EASYRAD LTD ; LANCASHIRE FITTINGS LTD ; LAURJAM LIMITED ; LAURJAM LTD ; OJSTERTEK PLS ; OYSTERTEC PIC ; OYSTERTEC PLC ; OYSTERTEC PLC MANCHESTER ; PAUL DAVIDSON ; WAKELIN RICHARD JOHN

Assignee(s): LANCASHIRE FITTINGS LIMITED

Inventor(s): (std): DAVIDSON PAUL ; DEHVIDSON POL ; VEJKLIN RICHARD DZHON ; WAKELIN JOHN ; WAKELIN RICHARD JOHN ; WAKELINM RICHARD JOHN

Inventor(s): PAUL DAVIDSON ; RICHARD JOHN WAKELIN ; RICHARD JOHN WAKELINM

Agent(s): DAVIES COLLISON CAVE; DAVIES COLLISON CAVE PTY LTD; LONG AND CAMERON; MYERS BIGEL SIBLEY AND SAJOVEC

Designated states: AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CU CY CZ DE DK EE ES FI FR GA GB GE GH GM GN GR GW HU ID IE IL IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MC MD MG MK ML MN MR MW MX NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT UA UG US UZ VN YU ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT223012 E	20020915	LSGT	+	granted / extensions (spc, cpc, pte)	
AT223012 E	20030215	LSPB	+UEP	PUBLICATION OF TRANSLATION OF EUROPEAN PATENT SPECIFICATION	Ref document number: 0983463 Country of Ref document: EP
AT223012 E	20070315	LSLE	-REN	CEASED DUE TO NON-PAYMENT OF THE ANNUAL FEE	
AT223012 E	20180601	PEXP		Calculated Patent Term Expiry	
AU199876637 A1	19981230	LSPB	+	published / reissued	
AU748618 B2	20020117	LSAS	PC1	ASSIGNMENT BEFORE GRANT (SECT. 113)	OldParty: THE FORMER OWNER WAS: PAUL DAVIDSON Owner: OYSTERTEC PLC PartyType: owner
AU748618 B2	20020606	LSGT	+	granted / extensions (spc, cpc, pte)	
AU748618 B2	20020801	LSPB	SREP	SPECIFICATION REPUBLISHED	
AU748618 B2	20020801		TH	CORRIGENDA	Text: IN VOL 16, NO 17, PAGE(S) 4318 UNDER THE HEADING APPLICATIONS ACCEPTED UNDER THE NAME OYSTERTEC PLC, SERIAL NO. 748618, INID (72), ADD INVENTOR DAVIDSON, P.
AU748618 B2	20021003	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU748618 B2	20180601	PEXP		Calculated Patent Term Expiry	
BRPI9809710 A	20010911	LSPB	+	published / reissued	
BRPI9809710 A	20031111	LSAS	PC	TRANSFER	Owner: OYSTERTEC PLC (GB) PartyType: owner
BRPI9809710 A	20040921	LSGT	B09A	DECISION: INTENTION TO GRANT	
BRPI9809710 A	20050215	LSGT	+B16A	PATENT OR CERTIFICATE OF ADDITION OF INVENTION GRANTED	
BRPI9809710 A	20100202	LSFE	B24C	PATENT ANNUAL FEE: REQUEST FOR FOR RESTORATION	Text: REFERENTE A 9A,10A E 11A ANUIDADES
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CA2292550 AA	19991129	LSPB	+	published / reissued	
CA2292550 AA	20021010	LSES	+EEER	EXAMINATION REQUEST	
CA2292550 AA	20070601	LSLE	-FZDE	DEAD	
CN1103009 C	20030312	LSGT	+	granted / extensions (spc, cpc, pte)	
CN1103009 C	20030312	LSGT	+C14	GRANT OF PATENT OR	

				UTILITY MODEL	
CN1103009 C	20070801	LSLE	-C19	LAPSE OF PATENT RIGHT DUE TO NON-PAYMENT OF THE ANNUAL FEE	
CN1103009 C	20180601	PEXP		Calculated Patent Term Expiry	
CN1262730 A	20000809	LSPB	+	published / reissued	
CN1262730 A	20000809	LSPB	+C06	PUBLICATION	
CN1262730 A	20000920		C10	ENTRY INTO SUBSTANTIVE EXAMINATION	
CN1262730 A	20020313	LSAS	ASS	SUCCESSION OR ASSIGNMENT OF PATENT RIGHT	Effective date: 20020109 OldParty: FORMER OWNER: P. DAVIDSON Owner: OYSTERTEC PLC PartyType: owner
CN1262730 A	20020313	LSAS	C41	TRANSFER OF PATENT APPLICATION OR PATENT RIGHT OR UTILITY MODEL	
DE69807469 D1	20070419	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
DE69807469 T2	20030515	LSGT	+	granted / extensions (spc, cpc, pte)	
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DE69807469 T2	20180601	PEXP		Calculated Patent Term Expiry	
DK0983463 T3	20021216	LSGT	+	granted / extensions (spc, cpc, pte)	
DK0983463 T3	20180601	PEXP		Calculated Patent Term Expiry	
EP0983463 A1	20000308	LSPB	+	published / reissued	
EP0983463 A1	20000308	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 19991230
EP0983463 A1	20000308		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
EP0983463 A1	20000329	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	Owner: DAVIDSON, PAUL PartyType: owner
EP0983463 A1	20010822	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20010704
EP0983463 A1	20020109	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	Owner: OYSTERTEC PLC PartyType: owner
EP0983463 A1	20020522	LSRE	RTI1	TITLE (CORRECTION)	Text: CONNECTOR FOR CONNECTING TOGETHER TUBULAR MEMBERS
EP0983463 B1	20020828	LSGT	+	granted / extensions (spc, cpc, pte)	
EP0983463 B1	20020828		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
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EP0983463 B1	20020828	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20020828 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: LI
EP0983463 B1	20020828		REF	CORRESPONDS TO:	Date of Ref document: 20020915 Kind code of Ref document: T Ref document number: 223012 Country of Ref document: AT
EP0983463 B1	20020828	LSGT	REG	REFERENCE TO A	Ref country code: GB

				NATIONAL CODE	Ref legal event code: FG4D
EP0983463 B1	20020830	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: EP
EP0983463 B1	20021002		REF	CORRESPONDS TO:	Date of Ref document: 20021002 Ref document number: 69807469 Country of Ref document: DE
EP0983463 B1	20021002	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: FG4D
EP0983463 B1	20021216		REG	REFERENCE TO A NATIONAL CODE	Ref country code: DK Ref legal event code: T3
EP0983463 B1	20021219	LSRE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: GR Ref document number: 20020403957 Ref legal event code: EP Country of Ref document: GR
EP0983463 B1	20030131		REG	REFERENCE TO A NATIONAL CODE	Effective date: 20021121 Ref country code: PT Ref legal event code: SC4A Text: AVAILABILITY OF NATIONAL TRANSLATION
EP0983463 B1	20030301	LSGT	REG	REFERENCE TO A NATIONAL CODE	Kind code of Ref document: T3 Ref country code: ES Ref document number: 2182316 Ref legal event code: FG2A Country of Ref document: ES
EP0983463 B1	20030314	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: PL
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EP0983463 B1	20030601	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20030601 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: LU
EP0983463 B1	20030601	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20030601 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: CY
EP0983463 B1	20030630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20030630 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: MC
EP0983463 B1	20030820	LSGT	+26N	NO OPPOSITION FILED	Effective date: 20030530
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EP0983463 B1	20050412	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20050412 Year of fee payment: 8 Country of Ref document: IE
EP0983463 B1	20050414	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20050414 Year of fee payment: 8 Country of Ref document: PT
EP0983463 B1	20050422	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20050422 Year of fee payment: 8 Country of Ref document: ES
EP0983463 B1	20050429	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20050429 Year of fee payment: 8 Country of Ref document: BE
EP0983463 B1	20050531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO	Payment date: 20050531 Year of fee payment: 8 Country of Ref document: FI

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EP0983463 B1	20050607	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20050607 Year of fee payment: 8 Country of Ref document: SE
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EP0983463 B1	20050617	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20050617 Year of fee payment: 8 Country of Ref document: FR
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EP0983463 B1	20050628	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20050628 Year of fee payment: 8 Country of Ref document: GR
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EP0983463 B1	20060601	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20060601 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: FI
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EP0983463 B1	20060602	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20060602 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: ES
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EP0983463 B1	20070101	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20070101 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: NL
EP0983463 B1	20070103	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20070103 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: DE
EP0983463 B1	20070129	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: DK Ref legal event code: EBP
EP0983463 B1	20070131	LSLE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20061204 Ref country code: PT Ref legal event code: MM4A Text: LAPSE DUE TO NON-PAYMENT OF FEES
EP0983463 B1	20070220	LSLE	-EUG	SE: EUROPEAN PATENT HAS LAPSED	Ref country code: EP
EP0983463 B1	20070228	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	Effective date: 20060601 Ref country code: EP
EP0983463 B1	20070301	LSLE	-NLV4	NL: LAPSED OR ANULLED DUE TO NON-PAYMENT OF THE ANNUAL FEE	Effective date: 20070101 Ref country code: EP
EP0983463 B1	20070321	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: MM4A
EP0983463 B1	20070427	LSLE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20070228 Ref country code: FR Ref legal event code: ST
EP0983463 B1	20070916	LSLE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20060602 Ref country code: ES Ref legal event code: FD2A
EP0983463 B1	20071231	LSLE	-BERE	BE: LAPSED	Effective date: 20060630 Owner: *OYSTERTEC P.L.C. PartyType: owner Ref country code: EP
EP0983463 B1	20080430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20060630 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: FR
EP0983463 B1	20081031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20070104 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: GR
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ES2182316 T3	20180601	PEXP		Calculated Patent Term Expiry	
GB9807492 A0	19990707	LSWD	-AT	APPLICATIONS TERMINATED BEFORE PUBLICATION UNDER SECTION 16(1)	
HK1029162 A1	20031031	LSPB	+	published / reissued	
HK1029162 A1	20041215	LSFE	+PF	PATENT IN FORCE	
HK1029162 A1	20080111	LSLE	-PC	PATENT CEASED (I.E. PATENT HAS LAPSED DUE TO THE FAILURE TO PAY THE RENEWAL FEE)	Effective date: 20070601
HK1029162 A1	20201109	PEXP		Calculated Patent Term Expiry	
JP2002502483 T2	20020122	LSPB	+	published / reissued	
JP2002502483 T2	20040129	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	Effective date: 20040107 Text: JAPANESE INTERMEDIATE CODE: A621
JP2002502483 T2	20060801	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	Effective date: 20060801 Text: JAPANESE INTERMEDIATE CODE: A131
JP2002502483 T2	20070111	LSRV	-A313	FINAL DECISION OF REJECTION WITHOUT A DISSENTING RESPONSE FROM THE APPLICANT	Effective date: 20061225 Text: JAPANESE INTERMEDIATE CODE: A313
JP2002502483 T2	20070130	LSRV	-A02	DECISION OF REFUSAL	Effective date: 20070130 Text: JAPANESE INTERMEDIATE CODE: A02
NZ502148 A	20011221	LSPB	+	published / reissued	
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NZ502148 A	20020426	LSGT	+PSEA	PATENT SEALED	
NZ502148 A	20020531	LSFE	+RENW	RENEWAL (RENEWAL FEES ACCEPTED)	
NZ502148 A	20050527	LSFE	+RENW	RENEWAL (RENEWAL FEES ACCEPTED)	
PT983463 T	20030131	LSGT	+	granted / extensions (spc, cpc, pte)	
PT983463 T	20180601	PEXP		Calculated Patent Term Expiry	
RU2211988 C2	20030910	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2211988 C2	20080110	LSLE	-MM4A	THE PATENT IS INVALID DUE TO NON-PAYMENT OF FEES	Effective date: 20060602
RU2211988 C2	20180601	PEXP		Calculated Patent Term Expiry	
RU99128061 A	20010827	LSPB	+	published / reissued	
US6533330 BA	20020325	LSAS	AS	ASSIGNMENT	Effective date: 20011121 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:DAVIDSON, PAUL;REEL/FRAME:012750/0443 Owner: OYSTERTEC PLC, UNITED KINGDOM PartyType: owner
US6533330 BA	20030318	LSGT	+	granted / extensions (spc, cpc, pte)	
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US6533330 BA	20040525	LSRE	CC	CERTIFICATE OF CORRECTION	
US6533330 BA	20050524	LSRE	CC	CERTIFICATE OF CORRECTION	
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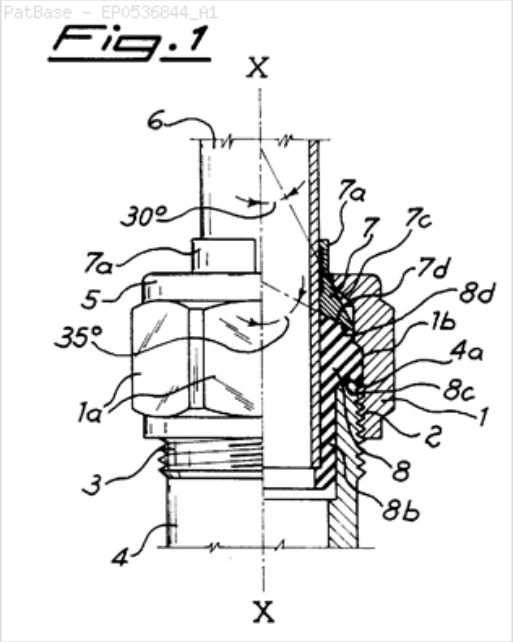
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US6533330 BA	20070318	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US6533330 BA	20070418	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US6533330 BA	20070418	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US6533330 BA	20070515	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective date: 20070318
US6533330 BA	20211011	PEXP		Calculated Patent Term Expiry	
WO9854505 A1	19980601	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 98806973.3 Country of Ref document: CN
WO9854505 A1	19981203	LSPB	+	published / reissued	
WO9854505 A1	19981203		+AK	DESIGNATED STATES	Kind code of Ref document: A1 Country of Ref document: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW
WO9854505 A1	19981203		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: AM AT AZ BE BF BJ BY CF CG CH CI CM CY DE DK ES FI FR GA GB GH GM GN GR IE IT KE KG KZ LS LU MC MD ML MR MW NE NL PT RU SD SE SN SZ TD TG TJ TM UG ZW
WO9854505 A1	19990414		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	
WO9854505 A1	19990527		DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101)	
WO9854505 A1	19991129	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Ref document number: 2292550 Country of Ref document: CA
WO9854505 A1	19991129	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Kind code of Ref document: A Ref document number: 2292550 Country of Ref document: CA
WO9854505 A1	19991130	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Kind code of Ref document: A Ref document number: 1998 550770 Country of Ref document: JP
WO9854505 A1	19991230	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 76637/98 Country of Ref document: AU
WO9854505 A1	19991230	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 1998924433 Country of Ref document: EP
WO9854505 A1	20000105	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 502148 Country of Ref document: NZ
WO9854505 A1	20000308	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 1998924433 Country of Ref document: EP
WO9854505 A1	20000330	LSWD	REG	REFERENCE TO NATIONAL CODE	Ref country code: DE Ref legal event code: 8642
WO9854505 A1	20011011	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 09424908 Country of Ref document: US
WO9854505 A1	20020828	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	Ref document number: 1998924433 Country of Ref document: EP
WO9854505 A1	20020919	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	Ref document number: 76637/98 Country of Ref document: AU

56) Family number: 17441053 (EP0536844 A1)

Title: **CONNECTOR** FOR THE FLUID-TIGHT LOCKING OF PLAIN **PIPES** TO THREADED **COUPLING** ELEMENTS.

Abstract: **Connector** for the axial fluid-tight locking of plain **pipes** to threaded **coupling** elements, comprising a **ring** (1) in which at the end of the said **ring** (1) opposite the threaded end there is a reduction in diameter forming a collar (5) internally shaped to give a conical surface, which collar is disposed in axial engagement with a corresponding conical surface (7c) of the said deformable mandrel (7) disposed to bear on the said sealing sleeve (8), the said sealing sleeve (8) having an external radial enlargement (8a) shaped in such a way that it is stably housed within a corresponding **annular** cavity (1b) formed internally in the said **ring**; as a result of the tightening of the said **ring**, the sealing sleeve (8) is deformed between the **pipe** to be connected, the mandrel, the internal surface of the **ring**, and the end of the **coupling** element, thus providing liquid-tightness and mechanical locking between the **pipe** (6) and the threaded **coupling** (4).

Classifications:
International (IPC 8-9): F16L F16L19/00 F16L19/08 F16L47/00 F16L47/04
International (IPC 1-7): F16L19/08 F16L19/8 F16L47/04 F16L47/4
CPC: F16L19/086 F16L47/04



Family:

Publication number	Publication date	Application number	Application date
AT162285 E	19980115	AT19920203061T	19921006
DE69224029 D1	19980219	DE19926024029T	19921006
DE69224029 T2	19980820	DE19926024029T	19921006
EP0536844 A1	19930414	EP19920203061	19921006
EP0536844 B1	19980114	EP19920203061	19921006
ES2113405 T3	19980501	ES19920203061T	19921006
GR3026476 T3	19980630	GR19980400661T	19980327
IT221938 U	19941229	IT1991MI00873U	19911008
ITMI910873 U0	19911008	IT1991MI00873U	19911008
ITMI910873 U1	19930409	IT1991MI00873U	19911008
IT226949 U	19970722	IT1992MI00874U	19921005
ITMI920874 U0	19921005	IT1992MI00874U	19921005
ITMI920874 U1	19940406	IT1992MI00874U	19921005

Priority:
IT1991MI00873U 19911008 IT1992MI00874U 19921005

Probable Assignee: BOSCO RENZA
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Inventor(s): (std): BOSCO RENZA
Inventor(s): BOSCO RENZA BOFFALORA TICINO MAILAND MILANO IT
Designated states: AT DE DK ES FR GR IT

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT162285 E	19980115	LSGT	+	granted / extensions (spc, cpc, pte)	
AT162285 E	20060715	LSLE	-REN	CEASED DUE TO NON-PAYMENT	

				OF THE ANNUAL FEE	
AT162285 E	20121006	PEXP		Calculated Patent Term Expiry	
DE69224029 D1	19990211	LSOP	-8363	OPPOSITION AGAINST THE PATENT	
DE69224029 D1	20010426	LSGT	+8365	FULLY VALID AFTER OPPOSITION PROCEEDINGS	
DE69224029 D1	20060817	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
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DE69224029 T2	20121006	PEXP		Calculated Patent Term Expiry	
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EP0536844 A1	19931215	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 19931005
EP0536844 A1	19950802	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 19950619
EP0536844 B1	19980114	LSGT	+	granted / extensions (spc, cpc, pte)	
EP0536844 B1	19980114		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: AT DE DK ES FR GR IT
EP0536844 B1	19980114		REF	CORRESPONDS TO:	Date of Ref document: 19980115 Kind code of Ref document: T Ref document number: 162285 Country of Ref document: AT
EP0536844 B1	19980219		REF	CORRESPONDS TO:	Date of Ref document: 19980219 Ref document number: 69224029 Country of Ref document: DE
EP0536844 B1	19980402		+ITF	IT: TRANSLATION FOR A EP PATENT FILED	Owner: STUDIO ING. ALFREDO RAIMONDI PartyType: owner
EP0536844 B1	19980414	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19980414 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: DK
EP0536844 B1	19980501	LSGT	REG	REFERENCE TO A NATIONAL CODE	Kind code of Ref document: T3 Ref country code: ES Ref document number: 2113405 Ref legal event code: FG2A Country of Ref document: ES
EP0536844 B1	19980522		+ET	FR: TRANSLATION FILED	
EP0536844 B1	19981230	LSOP	-26	OPPOSITION FILED	Effective date: 19981008 Opponent: MASTROMATTEO, CIRO PartyType: opponent

EP0536844 B1	20010321	LSRE	+27O	OPPOSITION REJECTED	Effective date: 20001103
EP0536844 B1	20041004	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20041004 Year of fee payment: 13 Country of Ref document: ES
EP0536844 B1	20041006	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20041006 Year of fee payment: 13 Country of Ref document: GR
EP0536844 B1	20041015	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20041015 Year of fee payment: 13 Country of Ref document: AT
EP0536844 B1	20041021	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20041021 Year of fee payment: 13 Country of Ref document: DE
EP0536844 B1	20041029	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20041029 Year of fee payment: 13 Country of Ref document: FR
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EP0536844 B1	20051007	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20051007 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: ES
EP0536844 B1	20060503	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20060503 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: DE
EP0536844 B1	20060630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20060630 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: FR
EP0536844 B1	20061020	LSLE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20060630 Ref country code: FR Ref legal event code: ST
EP0536844 B1	20070116	LSLE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20051007 Ref country code: ES Ref legal event code: FD2A

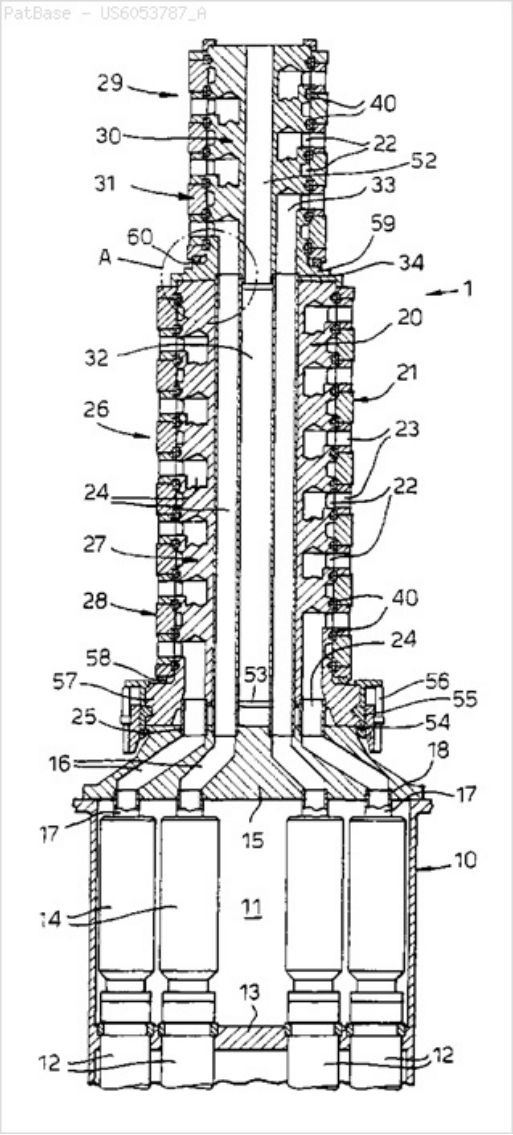
EP0536844 B1	20080430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19980114 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: GR
EP0536844 B1	20121006	PEXP		Calculated Patent Term Expiry	
ES2113405 T3	19980501	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2113405 T3	19980501	LSGT	+FG2A	DEFINITIVE PROTECTION	Ref document number: 536844 Country of Ref document: ES
ES2113405 T3	20121006	PEXP		Calculated Patent Term Expiry	
GR3026476 T3	19980630	LSGT	+	granted / extensions (spc, cpc, pte)	
GR3026476 T3	20180327	PEXP		Calculated Patent Term Expiry	
IT221938 U	19941229	LSGT	+	granted / extensions (spc, cpc, pte)	
IT221938 U	19941229	LSGT	0001	GRANTED	
IT221938 U	20011008	PEXP		Calculated Patent Term Expiry	
IT226949 U	19970722	LSGT	+	granted / extensions (spc, cpc, pte)	
IT226949 U	19970722	LSGT	0001	GRANTED	
IT226949 U	20021005	PEXP		Calculated Patent Term Expiry	
ITMI910873 U1	19930409	LSPB	+	published / reissued	
ITMI920874 U1	19940406	LSPB	+	published / reissued	

57) Family number: 8769080 (US6053787 A)

Title: Multi-course swivel

Abstract: PCT No. PCT/NO96/00198 Sec. 371 Date Jul. 1, 1998 Sec. 102(e) Date Jul. 1, 1998 PCT Filed Aug. 6, 1996 PCT Pub. No. WO97/06049 PCT Pub. Date Feb. 20, 1997A rotating **coupling** device or **connector** for interconnection between a number of risers (12) suspended from a submerged buoy and a **pipe** system on a floating vessel for the production of hydrocarbons, comprising a swivel unit consisting of a pair of concentric swivel members (20, 21) in the form of a male member (20) and a female member (21) defining mutually sealed annuluses (22) communicating with associated fluid paths (16) between the topical risers (12) and the **pipe** system on the vessel. The female member (21) is adapted for non-rotatable attachment to the vessel. The male member comprises a number of axially extending **pipes** (24) which, at their upper ends are connected to respective annuluses (22) and at their lower ends comprise a releasable connection (25) with fluid paths (16) leading to the respective risers (12). The fluid paths (16) are arranged in a thick-walled top plate (15) which is adapted to be fastened to the top of the buoy, and which, at the lower ends of the fluid paths (16), comprises a releasable interconnection (18) with the upper ends of **pipes** (17) leading to the risers (12).

Classifications:
International (IPC 8-9): B63B22/00 B63B22/02 B63B27/00 B63B27/34 F16L39/00 F16L39/06
International (IPC 1-7): B63B B63B21/50 B63B22/26 F16L17/00 F16L17/02 F16L27/00 F16L27/06 F16L27/08 F16L39/00
CPC: B63B2022/028 B63B22/026 F16L39/06
US: 405/224.2 441/5



Family:

Publication number	Publication date	Application number	Application date
AU199666722 A1	19970305	AU19960066722	19960806
AU708831 B2	19990812	AU19960066722	19960806
BRPI9609905 A	19990525	BR1996PI09905	19960806
CN1094864 C	20021127	CN19961096833	19960806
CN1196021 A	19981014	CN19961096833	19960806
DK174808 B1	20031201	DK19980000175	19980206
DK17598 A	19980218	DK19980000175	19980206
GB2319506 A1	19980527	GB19980002541	19960806
GB2319506 B2	19990331	GB19980002541	19960806
GB9802541 A0	19980401	GB19980002541	19960806
NO309933 B1	20010423	NO19950003095	19950807
NO953095 A	19970210	NO19950003095	19950807
NO953095 A0	19950807	NO19950003095	19950807

NO953095 L	19970210	NO19950003095	19950807
NO301789 B1	19971208	NO19960003311	19960808
NO963311 A	19970210	NO19960003311	19960808
NO963311 A0	19960808	NO19960003311	19960808
NO963311 L	19970210	NO19960003311	19960808
US6053787 A	20000425	US19980011548	19980701
WO9706049 A1	19970220	WO1996NO00198	19960806

Priority:

NO19950003095 19950807 WO1996NO00198 19960806

Probable Assignee: STATOIL PETROLEUM AS

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Inventor(s): (std): ERSTAD NILES JOSTEIN ; ERSTAD NILS JOSTEIN ; SYVERTSEN KAARE ; SYVERTSEN KARE ; SYVERTSEN KIRE ; SYVERTSEN KORE

Inventor(s): KARE SYVERTSEN ; KIRE SYVERTSEN ; NILS JOSTEIN ERSTAD

Agent(s): ACUMEN INTELLECTUAL PROPERTY

Designated states: AL AM AT AU AZ BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CZ DE DK EE ES FI FR GA GB GE GR HU IE IL IS IT JP KE KG KP KR KZ LK LR LS LT LU LV MC MD MG MK MN MW MX NL NO NZ PL PT RO RU SD SE SG SI SK SZ TJ TM TR TT UA UG US UZ VN

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
AU199666722 A1	19970305	LSPB	+	published / reissued	
AU708831 B2	19990812	LSGT	+	granted / extensions (spc, cpc, pte)	
AU708831 B2	20160806	PEXP		Calculated Patent Term Expiry	
BRPI9609905 A	19990525	LSPB	+	published / reissued	
BRPI9609905 A	20010213	LSGT	+FF	DECISION: INTENTION TO GRANT	
BRPI9609905 A	20010710	LSGT	+FG9A	PATENT OR CERTIFICATE OF ADDITION GRANTED	
BRPI9609905 A	20150331	LSAS	B25D	REQUESTED CHANGE OF NAME OF APPLICANT APPROVED	Owner: STATOIL ASA (NO) PartyType: owner
BRPI9609905 A	20150422	LSAS	B25D	REQUESTED CHANGE OF NAME OF APPLICANT APPROVED	Owner: STATOILHYDRO ASA (NO) PartyType: owner
BRPI9609905 A	20150505	LSAS	B25D	REQUESTED CHANGE OF NAME OF APPLICANT APPROVED	Owner: STATOIL ASA (NO) PartyType: owner
BRPI9609905 A	20150519	LSAS	B25A	REQUESTED TRANSFER OF RIGHTS APPROVED	Owner: STATOIL PETROLEUM AS (NO) PartyType: owner
BRPI9609905 A	20161101	LSLE	-B21A	EXPIRY ACC. ART. 78, ITEM I OF IPL- EXPIRY OF THE TERM OF PROTECTION	Text: PATENTE EXTINTA EM 06/08/2016
CN1094864 C	20021127	LSGT	+	granted / extensions (spc, cpc, pte)	
CN1094864 C	20021127	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN1094864 C	20131009	LSAS	ASS	SUCCESSION OR ASSIGNMENT OF PATENT RIGHT	Effective date: 20130912 OldParty: FORMER OWNER: STATOIL ASA Owner: STATOIL PETROLEUM AS PartyType: owner
CN1094864 C	20131009	LSAS	C41	TRANSFER OF PATENT APPLICATION OR PATENT RIGHT OR UTILITY MODEL	
CN1094864 C	20131009	LSAS	C56	CHANGE IN THE NAME OR ADDRESS OF THE PATENTEE	
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					PartyType: owner
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CN1094864 C	20131009	LSAS	C56	CHANGE IN THE NAME OR ADDRESS OF THE PATENTEE	OldParty: FORMER NAME: STATOIL ASA Owner: STATOILHYDRO ASA PartyType: owner
CN1094864 C	20160806	PEXP		Calculated Patent Term Expiry	
CN1094864 C	20160928	LSWD	-EXPY	TERMINATION OF PATENT RIGHT OR UTILITY MODEL	
CN1196021 A	19981014	LSPB	+	published / reissued	
CN1196021 A	19981014	LSPB	+C06	PUBLICATION	
CN1196021 A	19981028		C10	ENTRY INTO SUBSTANTIVE EXAMINATION	
DK174808 B1	20031201	LSGT	+	granted / extensions (spc, cpc, pte)	
DK174808 B1	20160815	LSLE	-PUP	PATENT EXPIRED	Expiry date: 20180206
DK174808 B1	20180206	PEXP		Calculated Patent Term Expiry	
DK17598 A	19980218	LSPB	+	published / reissued	
GB2319506 A1	19980527	LSPB	+	published / reissued	
GB2319506 B2	19990331	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2319506 B2	20131204		732E	AMENDMENTS TO THE REGISTER IN RESPECT OF CHANGES OF NAME OR CHANGES AFFECTING RIGHTS (SECT. 32/1977)	Text: REGISTERED BETWEEN 20131107 AND 20131113
GB2319506 B2	20160805	PEXP		Calculated Patent Term Expiry	
GB2319506 B2	20160831	LSLE	-PE20	PATENT EXPIRED AFTER TERMINATION OF 20 YEARS	Expiry date: 20160805
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NO301789 B1	20140602	LSAS	CHAD	CHANGE OF THE OWNER'S NAME OR ADDRESS (PAR. 44 PATENT LAW, PAR. PATENTFORSKRIFTEN)	Owner: STATOIL PETROLEUM AS, NO PartyType: owner
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NO301789 B1	20160808	PEXP		Calculated Patent Term Expiry	
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NO309933 B1	20140519	LSAS	CHAD	CHANGE OF THE OWNER'S NAME OR ADDRESS (PAR. 44 PATENT LAW, PAR. PATENTFORSKRIFTEN)	Owner: STATOIL ASA, NO PartyType: owner
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NO309933 B1	20150807	PEXP		Calculated Patent Term Expiry	
NO309933 B1	20150817	LSLE	-MK1K	PATENT EXPIRED	
NO953095 A	19970210	LSPB	+	published / reissued	
NO963311 A	19970210	LSPB	+	published / reissued	
US6053787 A	19980701	LSAS	AS	ASSIGNMENT	Effective date: 19980527 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:ERSTAD, NILS JOSTEIN;SYVERTSEN, KARE;REEL/FRAME:009353/0408 Owner: DEN NORSKE STATS

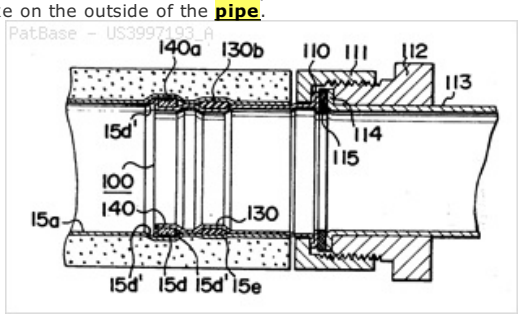
					OLJESELSKAP A.S., NORWAY PartyType: owner
US6053787 A	20000414	LSGT	PAT1	Patented Case	
US6053787 A	20000414	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US6053787 A	20000425	LSGT	+	granted / extensions (spc, cpc, pte)	
US6053787 A	20030929	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US6053787 A	20070926	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US6053787 A	20110922	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US6053787 A	20131021	LSAS	AS	ASSIGNMENT	Effective date: 20010511 OldParty: CHANGE OF NAME;ASSIGNOR:DEN NORSKE STATS OLJESELSKAP AS;REEL/FRAME:031447/0656 Owner: STATOIL ASA, NORWAY PartyType: owner
US6053787 A	20131025	LSAS	AS	ASSIGNMENT	Effective date: 20071001 OldParty: CHANGE OF NAME;ASSIGNOR:STATOIL ASA;REEL/FRAME:031495/0001 Owner: STATOILHYDRO ASA, NORWAY PartyType: owner
US6053787 A	20131031	LSAS	AS	ASSIGNMENT	Effective date: 20091102 OldParty: CHANGE OF NAME;ASSIGNOR:STATOILHYDRO ASA;REEL/FRAME:031528/0807 Owner: STATOIL ASA, NORWAY PartyType: owner
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WO9706049 A1	19970403		DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101)	
WO9706049 A1	19970611		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	
WO9706049 A1	19980205	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 9802541.4 Country of Ref document: GB
WO9706049 A1	19980206	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: PA 1998 00175 Country of Ref document: DK
WO9706049 A1	19980610	LSWD	REG	REFERENCE TO NATIONAL CODE	Ref country code: DE Ref legal event code: 8642
WO9706049 A1	19980701	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 09011548 Country of Ref document: US
WO9706049 A1	19981111	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	Ref country code: WO

WO9706049 A1	19990207	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: CA

58) Family number: 19201432 (US3997193 A)

Title: **CONNECTOR** FOR THE USE OF **PIPES**

Abstract: In connecting a **pipe** with another **pipe** or another **connector** element, a cylindrical member is provided which is inserted into the end of the **pipe**. The cylindrical member has **ring** means thereon which are radially expanded in situ by an expanding tool which is inserted into the cylindrical member. As the **ring** means expands, the adjacent walls of the **pipe** are plastically deformed to form circumscribing **grooves** whereby the **ring** means are accommodated in the circumscribing **grooves** to thereby sealingly secure said cylindrical member to said **pipe**. The aforementioned securement may be effected while maintaining the integrity of any covering layer such as insulation or the like on the outside of the **pipe**.



Classifications:
International (IPC 8-9): B21D39/04 F16L11/12 F16L13/00 F16L13/14 F16L13/16 F16L19/00 F16L19/02 F16L19/03 F16L21/02 F16L21/04 F16L23/00 F16L23/024 F16L23/026 F16L23/028 F16L25/00 F16L33/20 F16L58/00 F16L58/18
International (IPC 1-7): B21D39/04 B21D39/08 F16L11/12 F16L13/00 F16L13/14 F16L19/00 F16L19/02 F16L21/04 F16L23/00 F16L23/02 F16L25/00 F16L39/00 F16L58/18
CPC: F16L13/166 F16L19/0218 F16L58/181 Y10T29/4994
US: 285/148.19 285/226 285/353 285/382.4 285/47 29/523
JP F-Term: 3H013 3H016 4E055 3H014 3H017 3H015 3H013/FA02 3H013/FA03 3H013/FA05 3H016/AA03 3H013/FA06 3H014/DA01 3H014/DA04 3H017/GA11 3H015/CA02 3H015/CA13 3H016/AC01 3H016/AD01 3H016/AD04 3H016/AD05
JP F-Index: B21D39/04@D F16L13/14 F16L23/02@B F16L23/028 F16L25/00@Z F16L19/03 F16L33/20 F16L33/213 F16L21/04 F16L23/16

Family:

Publication number	Publication date	Application number	Application date
CA1017769 A1	19770920	CA19740215655	19741209
DE2458188 A1	19750626	DE19742458188	19741209
DE2458188 B2	19781019	DE19742458188	19741209
DE2458188 C3	19790613	DE19742458188	19741209
DK638174 A	19750811	DK19740006381	19741209
FR2253977 A1	19750704	FR19740040251	19741209
FR2253977 B1	19791019	FR19740040251	19741209
GB1488395 A	19771012	GB19740053479	19741210
JP50088619 A2	19750716	JP19730140130	19731210
JP53043690 B4	19781122	JP19730140130	19731210
JP959020 C3	19790614	JP19730140130	19731210
JP50128712 U1	19751022	JP19740036755U	19740329
JP53053927 Y2	19781223	JP19740036755U	19740329
JP50141720 A2	19751114	JP19740049163	19740430
JP50146926 A2	19751125	JP19740055955	19740517
JP1078769 C3	19811225	JP19740061555	19740530
JP51060011 A2	19760525	JP19740061555	19740530
JP56022290 B4	19810525	JP19740061555	19740530
JP50150825 U1	19751215	JP19740062798U	19740530
JP54010566 Y2	19790516	JP19740062798U	19740530
NL7416024 A	19750612	NL19740016024	19741210
SE407451 B	19790326	SE19740015369	19741209
SE407451 C	19790705	SE19740015369	19741209
SE7415369 L	19750611	SE19740015369	19741209
US3997193 A	19761214	US19740531004	19741209

Priority:

JP19730140130 19731210 JP19740036755U 19740329 JP19740049163 19740430
JP19740055955 19740517 JP19740061555 19740530 JP19740062798U 19740530

Probable Assignee: KUBOTA LTD

Assignee(s): (std): KUBOTA LTD ; KUBOTA LTD JA ; KUBOTA LTD TE OSAKA JAPAN

Assignee(s): KUBOTA LTD OSAKA JAPAN ; KUBOTA TETSUKO KK ; MIZOHATA YASUO ; MURAKAMI HIROSHI ; ONISHI OSAMU ; OTA RYOZO ; TSUDA YOSHIKUNI

Inventor(s): (std): MIZOBATA YASUO ; MIZOHATA Y ; MIZOHATA YASUO ; MURAKAMI H ; MURAKAMI HIROSHI ; OHTA R ; ONISHI O ; ONISHI OSAMU ; OONISHI OSAMU ; OTA R ; OTA RYOZO ; TSUDA Y ; TSUDA YOSHIKUNI

Inventor(s): H MURAKAMI ; O ONISHI ; R OHTA ; Y MIZOHATA ; Y TSUDA

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA1017769 A1					
DE2458188 A1	19750626	LSPB	+	published / reissued	
DE2458188 B2	19781019	LSPB	+	published / reissued	
DE2458188 C3	19790613	LSGT	+	granted / extensions (spc,	

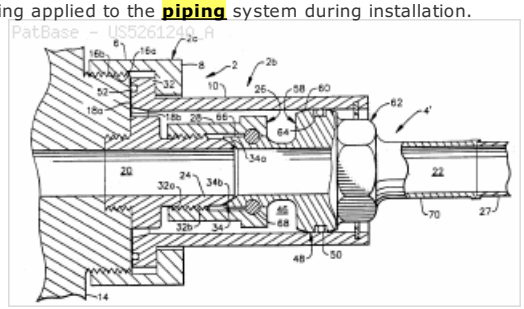
				cpc, pte)	
DE2458188 C3	19790613	LSGT	+C3	GRANT AFTER TWO PUBLICATION STEPS (3RD PUBLICATION)	
DE2458188 C3	19820909		8328	CHANGE IN THE PERSON/NAME/ADDRESS OF THE AGENT	Text: GESTHUYSEN, H., DIPL.-ING., PAT.-ANW., 4300 ESSEN
DE2458188 C3	19830303	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
DK638174 A	19750811	LSPB	+	published / reissued	
FR2253977 A1	19750704	LSPB	+	published / reissued	
FR2253977 B1	19791019	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2253977 B1	19821015	LSLE	-ST	NOTIFICATION OF LAPSE	
FR2253977 B1	19941209	PEXP		Calculated Patent Term Expiry	
GB1488395 A	19771012	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1488395 A	19780222	LSGT	+PS	PATENT SEALED	
GB1488395 A	19820714	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	
GB1488395 A	19941210	PEXP		Calculated Patent Term Expiry	
JP1078769 C3	19811225	LSGT	+	granted / extensions (spc, cpc, pte)	
JP50088619 A2	19750716	LSPB	+	published / reissued	
JP50128712 U1	19751022	LSPB	+	published / reissued	
JP50141720 A2	19751114	LSPB	+	published / reissued	
JP50146926 A2	19751125	LSPB	+	published / reissued	
JP50150825 U1	19751215	LSPB	+	published / reissued	
JP51060011 A2	19760525	LSPB	+	published / reissued	
JP53043690 B4	19781122	LSPB	+	published / reissued	
JP53053927 Y2	19781223	LSPB	+	published / reissued	
JP54010566 Y2	19790516	LSPB	+	published / reissued	
JP56022290 B4	19810525	LSPB	+	published / reissued	
JP959020 C3	19790614	LSGT	+	granted / extensions (spc, cpc, pte)	
NL7416024 A	19750612	LSPB	+	published / reissued	
NL7416024 A	19820201	LSLE	-BV	THE PATENT APPLICATION HAS LAPSED	
SE407451 B	19790326	LSPB	+	published / reissued	
SE407451 C	19790705	LSGT	+	granted / extensions (spc, cpc, pte)	
SE407451 C	19941209	PEXP		Calculated Patent Term Expiry	
US3997193 A	19761214	LSGT	+	granted / extensions (spc, cpc, pte)	

59) Family number: 11354258 (US5261240 A)

Title: Fuel shroud system with spherical ferrule/drain can interface

Abstract: A fuel shroud system has a chamber for draining leaked fuel. The chamber is partly defined by a drain can and a sealing ferrule having a spherical sealing ferrule/drain can interface. The spherical interface allows rotation of the drain can relative to the sealing ferrule about an axis perpendicular to the longitudinal axis of the ferrule, thereby facilitating installation of the drain can. The sealing ferrule also includes an anti-torquing nut to enable the sealing ferrule to be held rigid while the swivel nut is being torqued, thereby preventing torsional static preloads from being applied to the **piping** system during installation.

Classifications:
International (IPC 8-9): F16L19/02
International (IPC 1-7): F02C1/00
CPC: F05B2220/302 F05B2250/241 F16L19/0231
US: 285/80 60/39.094 60/734 607/340



Family:

Publication number	Publication date	Application number	Application date
US5261240 A	19931116	US19920948569	19920923

Priority:
US19920948569 19920923

Probable Assignee: GEN ELECTRIC
Assignee(s): (std): GEN ELECTRIC
Assignee(s): GENERAL ELECTRIC CO ; GENERAL ELECTRIC COMPANY
Inventor(s): (std): DIALS CARROLL P ; MERKLEY FRANKLIN W ; OYLER MAX D

Legal status (INPADOC)

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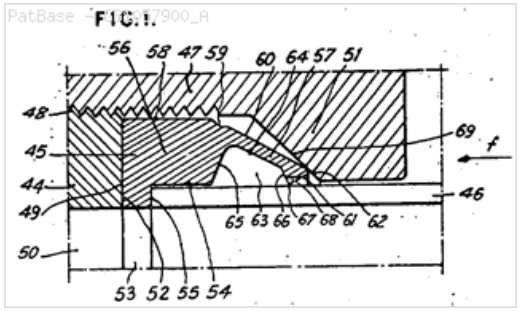
Patent	Date recorded	Event group	Code	Event	Details
US5261240 A	19920923	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNORS:OYLER, MAX D.;DIALS, CARROLL P.;MERKLEY, FRANKLIN W.;REEL/FRAME:006275/0360 Owner: GENERAL ELECTRIC COMPANY, OHIO Effective date: 19920918 PartyType: owner
US5261240 A	19931104	LSGT	PAT1	Patented Case	
US5261240 A	19931104	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US5261240 A	19931116	LSGT	+	granted / extensions (spc, cpc, pte)	
US5261240 A	19970326	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US5261240 A	20010321	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US5261240 A	20050325	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US5261240 A	20120923	PEXP		Calculated Patent Term Expiry	

60) Family number: 29592659 (GB1057900 A)

Title: Pipe connector

Abstract: 1,057,900. Pipe couplings. P. DESILLES. May 27, 1964 [May 27, 1963], No. 22010/64. Heading F2G. A connector for coupling a tube 46 to the nipple 44 of a screwed body comprises a deformable ring 45 provided internally with a sharp edge 67 adapted to penetrate the external surface of the tube, and a nut 47 for clamping the ring against the nipple, the ring comprising a forward part 56 for abutting against a face 49 of the nipple which is substantially plane and located in a plane at right angles to the axis, and is osufficiently substantial thickness to be practic ally undeformable, and a frusto-conical rear part 57 of relatively small thickness and consequently deformable which extends from the part 56 and is provided with the sharp edge 67. As shown, the part 57 is deformed by the conical surface 69 of the nut 47, and the sharp edge 67 is relieved by a conical bore 61 and has grooves 68 formed therein. In modifications, (a) the surface 69 of the nut is curved convexly, and (b) the rear part and face 52 of the ring 45 are convex.

Classifications:
International (IPC 8-9): F16L19/00 F16L19/10
International (IPC 1-7): F16L19/08
CPC: F16L19/106



Family:

Publication number	Publication date	Application number	Application date
BE648101 A	19640916		19640519
FR1370028 A	19640821	FR19630936062	19630527
GB1057900 A	19670208	GB19640022010	19640527
LU46104 A	19720101		19640519
NL6405931 A	19641130	NL19640005931	19640527

Priority:
FR19630936062 19630527

Probable Assignee: PIERRE DESILLES
Assignee(s): (std): PIERRE DESILLES
Inventor(s): (std): DESILLES PIERRE

Legal status (INPADOC)

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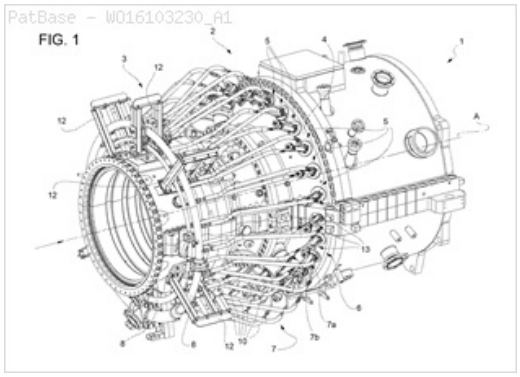
Patent	Date recorded	Event group	Code	Event	Details
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BE648101 A	19840519	PEXP		Calculated Patent Term Expiry	
FR1370028 A	19640821	LSGT	+	granted / extensions (spc, cpc, pte)	
FR1370028 A	19830527	PEXP		Calculated Patent Term Expiry	
GB1057900 A	19670208	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1057900 A	19840527	PEXP		Calculated Patent Term Expiry	
LU46104 A	19720101	LSGT	+	granted / extensions (spc, cpc, pte)	
LU46104 A	19840520	PEXP		Calculated Patent Term Expiry	
NL6405931 A	19641130	LSPB	+	published / reissued	

61) Family number: 62801716 (WO16103230 A1)

Title: FUEL SUPPLY SYSTEM WITH A QUICK SNAP-FIT FUEL FEED **COUPLING** FOR A GAS TURBINE COMBUSTION CHAMBER

Abstract: A fuel supply system (3) for supplying fuel to a combustion chamber (2) provided with at least a burner assembly (5) is provided with at least one feed line (7) comprising: a manifold (8) supplied with fuel; at least one connecting **pipe** (10), which connects the manifold (8) to the respective burner assembly (5); and a connecting element (13), which connects the connecting **pipe** (10) to the respective burner assembly (5) and/or the connecting **pipe** (10) to the respective manifold (8); the connecting element (13) being configured to define a quick snap-fit **coupling**.

Classifications:
International (IPC 8-9): F02C7/22 F16L37/22 F16L37/23 F23R3/28
CPC: F02C7/222 F16L2201/20 F16L37/23 F23R3/28



Family:

Publication number	Publication date	Application number	Application date
CN107208895 A	20170926	CN201580070854	20151224
CN107208895 B	20191112	CN201580070854	20151224
EP3237804 A1	20171101	EP20150830867	20151224
EP3237804 B1	20200422	EP20150830867	20151224
KR20170098242 A	20170829	KR20177019124	20151224
WO16103230 A1	20160630	WO2015IB59978	20151224

Priority:

IT2014MI02249 20141224 WO2015IB59978 20151224

Probable Assignee: EN ANSALDO SVILUPPO EN S R L AS

Assignee(s): (std): ANSALDO ENERGIA SPA ; EN ANSALDO SVILUPPO EN S R L AS

Assignee(s): ASEN ANSALDO SVILUPPO ENERGIA SRL

Inventor(s): (std): GALELLA ROCCO ; PASTORINO PIERPAOLO

Agent(s): ANDREOTTI ERIKA; ANDREOTTI ERIKA ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN107208895 A	20170926	LSPB	+	published / reissued	
CN107208895 A	20170926	LSPB	PB01	PUBLICATION	
CN107208895 A	20170926	LSPB	PB01	公开	Text: 公开 (Disclosure)
CN107208895 A	20171024		SE01	ENTRY INTO FORCE OF REQUEST FOR SUBSTANTIVE EXAMINATION	
CN107208895 A	20171024		SE01	实质审查请求的生效	Text: 实质审查的生效 (Force of substantive review)
CN107208895 B	20191112	LSGT	+	granted / extensions (spc, cpc, pte)	
CN107208895 B	20191112	LSGT	+GR01	PATENT GRANT	
CN107208895 B	20191112	LSGT	+GR01	授权	Text: 授权 (Authorization)
CN107208895 B	20351224	PEXP		Calculated Patent Term Expiry	
EP3237804 A1	20171101	LSPB	+	published / reissued	
EP3237804 A1	20171101	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20170612

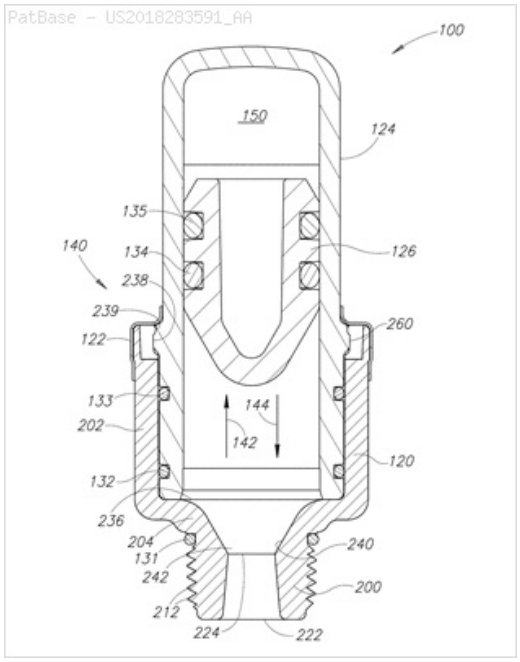
EP3237804 A1	20171101		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
EP3237804 A1	20171101		+AV	REQUEST FOR VALIDATION OF THE EUROPEAN PATENT	Country of Ref document: MA MD
EP3237804 A1	20171101		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Country of Ref document: BA ME
EP3237804 A1	20180404		DAV	REQUEST FOR VALIDATION OF THE EUROPEAN PATENT (DELETED)	
EP3237804 A1	20180404		DAX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT (DELETED)	
EP3237804 A1	20190327	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20190221
EP3237804 A1	20191127		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationSymbol: F23R 3/28 20060101AFI20191024BHEP ClassificationScheme: IPC
EP3237804 A1	20191127		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F02C 7/22 20060101ALI20191024BHEP
EP3237804 A1	20191127		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 37/23 20060101ALI20191024BHEP
EP3237804 A1	20191218	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	Effective date: 20191120
EP3237804 B1	20200422	LSGT	+	granted / extensions (spc, cpc, pte)	
EP3237804 B1	20200422		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
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EP3237804 B1	20200513	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: FG4D
EP3237804 B1	20200514	LSPB	REG	REFERENCE TO A NATIONAL CODE	Ref document number: 602015051336 Ref legal event code: R096 Ref country code: DE Country of Ref document: DE
EP3237804 B1	20200515	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref document number: 1260612 Kind code of Ref document: T Ref country code: AT Ref legal event code: REF Effective date: 20200515 Country of Ref document: AT
EP3237804 B1	20200925	LSRV	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: MG4D Ref country code: LT
EP3237804 B1	20351224	PEXP		Calculated Patent Term Expiry	
KR20170098242 A	20170829	LSPB	+	published / reissued	
WO16103230 A1	20160630	LSPB	+	published / reissued	
WO16103230 A1	20160810		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	Kind code of Ref document: A1 Ref document number: 15830867 Country of Ref document: EP
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WO16103230 A1	20170626	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: DE
WO16103230 A1	20170710	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Ref document number: 20177019124 Kind code of Ref document: A Country of Ref document: KR

62) Family number: 71412614 (US2018283591 AA)

Title: WATER HAMMER ARRESTOR

Abstract: A device for arresting a shock wave in a fluid in a **pipe** assembly. The device includes a base, body, and piston. The base has a **connector** portion with a first opening into an interior. The **connector** portion is configured to be **coupled** to the **pipe** assembly and allow the fluid to flow into the interior through the first opening. The body has an open end opposite a closed end and a channel that extends from the open end into the closed end. The open end is positioned inside a second opening into the interior of the base. Together the base and body form a housing in which the piston is positioned. The piston is slidable within the housing from a resting position to a compressing position when the shock wave travels through the **pipe** assembly. The piston compresses a gas inside the housing when in the compressing position.

Classifications:
International (IPC 8-9)**:** E03B7/07 F16L55/04 F16L55/053
CPC: E03B7/075 F16L37/091 F16L55/053
US: 1/1 138/31



Family:

Publication number	Publication date	Application number	Application date
US10557585 BB	20200211	US20170479131	20170404
US2018283591 AA	20181004	US20170479131	20170404
US2019301655 AA	20191003	US20190446347	20190619

Priority:
US20170479131 20170404 US20190446347 20190619

Probable Assignee: ACCOR TECH INC
Assignee(s): (std)**:** ACCOR TECH INC
Assignee(s): ACCOR TECHNOLOGY INC
Inventor(s): (std)**:** WHITNEY JR CHARLIE E
Inventor(s): WHITNEY JR
Agent(s): COLBURN HEATHER M; DAVIS WRIGHT TREMAINE LLP; RONDEAU JR GEORGE C

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US10557585 BB	20200211	LSGT	+	granted / extensions (spc, cpc, pte)	
US10557585 BB	20370910	PEXP		Calculated Patent Term Expiry (PTA 159 days)	
US2018283591 AA	20181004	LSPB	+	published / reissued	
US2018283591 AA	20190108	LSES	NFA1	Non Final Action Mailed	
US2018283591 AA	20190121		RSP4	Response to Non-Final Office Action Entered and Forwarded to Examiner	
US2018283591 AA	20190206	LSES	NFA1	Non Final Action Mailed	
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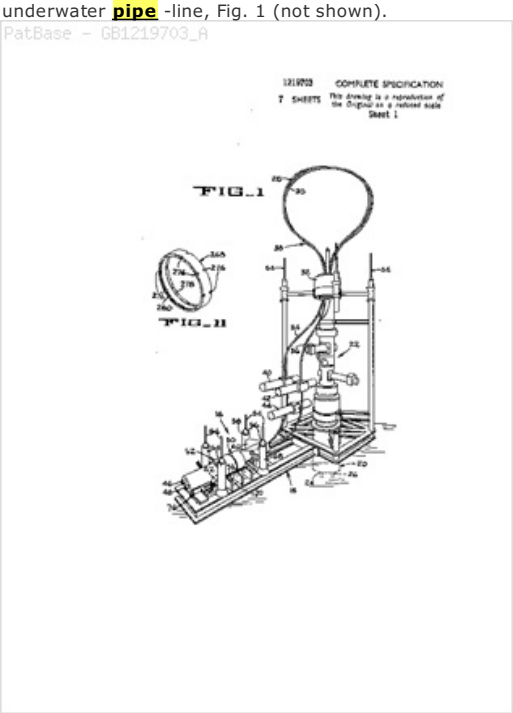
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US2018283591 AA	20191002	LSES	NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2018283591 AA	20191002		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: NOTICE OF ALLOWANCE MAILED -- APPLICATION RECEIVED IN OFFICE OF PUBLICATIONS
US2018283591 AA	20191010	LSAS	AS	ASSIGNMENT	Effective date: 20170509 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:WHITNEY, CHARLIE E., JR.;REEL/FRAME:050685/0319 Owner: ACCOR TECHNOLOGY, INC., WASHINGTON PartyType: owner
US2018283591 AA	20200103	LSFE	PPR1	Publications -- Issue Fee Payment Received	
US2018283591 AA	20200103		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: PUBLICATIONS -- ISSUE FEE PAYMENT RECEIVED
US2018283591 AA	20200122	LSGT	PAT1	Patented Case	
US2018283591 AA	20200122	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US2019301655 AA	20190626		APP1	Application Dispatched from Preexam, Not Yet Docketed	
US2019301655 AA	20190626		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: APPLICATION DISPATCHED FROM PREEXAM, NOT YET DOCKETED
US2019301655 AA	20191003	LSPB	+	published / reissued	
US2019301655 AA	20191010	LSAS	AS	ASSIGNMENT	Effective date: 20170509 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:WHITNEY, CHARLIE E., JR.;REEL/FRAME:050685/0319 Owner: ACCOR TECHNOLOGY, INC., WASHINGTON PartyType: owner
US2019301655 AA	20191211		RFE1	Docketed New Case - Ready for Examination	
US2019301655 AA	20191211		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: DOCKETED NEW CASE - READY FOR EXAMINATION

63) Family number: 651711 (GB1219703 A)

Title: FLOW LINE **CONNECTOR** SYSTEM

Abstract: 1,219,703. **Pipe** -line connections. FMC CORP. 5 May, 1969 [7 May, 1968], No. 22759/69. Heading F2G. Two sets of **pipe** -lines 34, 36 and 46, 48 are connected by an apparatus 16 whereby the sets are housed in **connector** units 50, 52 respectively, which are lowered into a V-trough 70 and are held by latches 80 in coaxial alignment; the unit 52 comprises a stationary sleeve 184 connected to the ends of **pipe** -lines 46, 48, and the unit 50 comprises a fixed sleeve 116 and an axially movable sleeve 110 connected to the ends of **pipe** -lines 34, 36, so that the sleeve 110 is moved toward sleeve 184 causing the **pipe** -line ends to abut and the sleeves to be clamped by latching dogs 114. The latch mechanisms (80), Fig. 4 (not shown), comprise hooks (82) depending from the units 50, 52 which, during downward movement of the units, force spring-loaded pins (84) pivoted at (90), over the hook faces (100), into engagement with the hooks at (102). The movable sleeve 110 is actuated by fluid pressure on a piston 136 until the sleeve engages sleeve 184, where a plug 256 is pushed to the right by the contact between the sleeves, opening a ball-valve 246 by a plunger 254, allowing fluid to pass from a chamber 140 to a chamber 168 causing a sleeve 112 to move to the left, which cams the latching dogs 114 into engagement with the ends of sleeves 110, 184, thereby locking the sleeves, Fig. 5. At the end of the operation, some fluid escapes from chamber 168 via a restricted flow **ring** 270, to indicate completion of the **coupling**. The sleeves 110, 184 are uncoupled by reversal of the above sequence, completion of which is indicated by minor fluid flow past a restricted flow **ring** 268. In the event of a failure of the above hydraulic system when the **pipe** -lines are **coupled**, a movable sleeve 186 is actuated by fluid pressure and pushes sleeve 112 to the right, thus releasing the dogs 114. The sleeve 186 is then retracted, allowing the **pipe** -lines to uncouple. Further sealing between the **pipe** -lines is effected by resilient seals 226 held by tapered sleeves 228 wedged between the **pipe** -lines during **coupling**. The connection of such **pipe** -lines may be utilized between a wellhead and an underwater **pipe** -line, Fig. 1 (not shown).

Classifications:
International (IPC 8-9): E21B43/00 E21B43/013 F16L39/00
International (IPC 1-7): E21B17/00 E21B43/00 F16L1/00 F16L3/08 F16L37/12 F16L39/00
CPC: E21B43/013 F16L1/26 F16L37/56 F16L39/00
US: 166/340 166/344 285/26 285/306 285/315 285/93



Family:

Publication number	Publication date	Application number	Application date
FR2007997 A1	19700116	FR19690014615	19690507
GB1219703 A	19710120	GB19690022759	19690505
US3591204 A	19710706	US19680727190	19680507

Priority:
US19680727190 19680507

Probable Assignee: FMC CORP
Assignee(s): (std): FMC CORP
Inventor(s): (std): SHIPES KELLY V ; SHIPES KELLY VERNER
Inventor(s): KELLY V SHIPES ; KELLY VERNER SHIPES

Legal status (INPADOC)

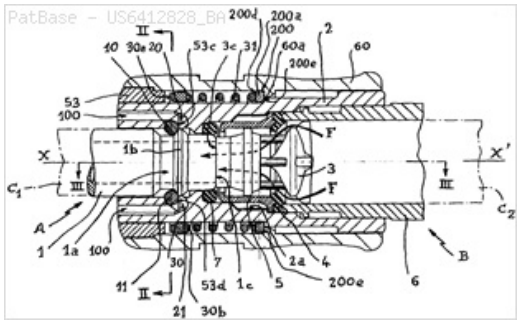
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Patent	Date recorded	Event group	Code	Event	Details
FR2007997 A1	19700116	LSPB	+	published / reissued	
FR2007997 A1	19800321	LSLE	-ST	NOTIFICATION OF LAPSE	
GB1219703 A	19710120	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1219703 A	19890505	PEXP		Calculated Patent Term Expiry	
US3591204 A	19710706	LSGT	+	granted / extensions (spc, cpc, pte)	

64) Family number: 11557412 (US6412828 BA)

Title: QUICK SAFETY CONNECTION FOR REMOVABLY JOINING **PIPES**

Abstract: A quick safety connection for the removable joining of **pipes**, comprising a male **connector** and a female element adapted to fit and to be locked inside one another. A controlled locking mechanism is adapted to immobilized the male **connector** axially in a position of connection, while at least one retention member is provided to immobilize the male **connector**, after release of the **connector** by said locking mechanism, in an intermediate position of discharge of the **pipe** connection. The locking mechanism and retention member are controlled by a sleeve sliding around the female element. Vents and safety stops are provided to limit the movement of the sleeve under the effect of the pressure prevailing due to the discharge of the connection in the intermediate position between the female element and the sleeve.



Classifications:
International (IPC 8-9): F16L37/00 F16L37/08 F16L37/22 F16L37/23 F16L37/26 F16L37/28 F16L37/38 F16L37/42 F16L55/07
International (IPC 1-7): F16L3/718 F16L37/00 F16L37/08 F16L37/086 F16L37/10 F16L37/18 F16L37/22 F16L37/23 F16L37/26 F16L37/38 F16L37/40 F16L37/42 F16L55/07
CPC: F16L37/22 F16L37/23 F16L37/42 Y10S285/90 Y10S285/924
US: 285/1 285/306 285/316 285/86 285/900 285/924
JP F-Term: 3J106 3J106/AB01 3J106/BA01 3J106/BB01 3J106/BC04 3J106/BC12 3J106/BD01 3J106/BE24 3J106/CA01 3J106/CA11 3J106/CA12 3J106/EA03 3J106/EB05 3J106/EB07 3J106/EC02 3J106/EC07 3J106/ED22 3J106/ED32 3J106/EE13 3J106/EF04 3J106/EF05 3J106/EF07 3J106/EF08 3J106/GA01 3J106/GA04 3J106/GA12 3J106/GA23
JP F-Index: F16L37/22@A F16L37/23

Family:

Publication number	Publication date	Application number	Application date
AU199959399 A1	20000608	AU19990059399	19991112
AU199959399 A5	20000608	AU19990059399	19991112
AU759654 B2	20030417	AU19990059399	19991112
CA2290804 AA	20000603	CA19992290804	19991130
CA2290804 C	20080108	CA19992290804	19991130
CN1138940 C	20040218	CN19991022823	19991202
CN1256379 A	20000614	CN19991022823	19991202
DE69902340 D1	20020905	DE19996002340T	19991202
DE69902340 T2	20030424	DE19996002340T	19991202
EP1006308 A1	20000607	EP19990420235	19991202
EP1006308 B1	20020731	EP19990420235	19991202
ES2178363 T3	20021216	ES19990420235T	19991202
FR2786849 A1	20000609	FR19980015455	19981203
FR2786849 B1	20010126	FR19980015455	19981203
JP2000170978 A2	20000623	JP19990342448	19991201
KR100596148 B1	20060703	KR19990054424	19991202
KR20000047858 A	20000725	KR19990054424	19991202
TW481746 B	20020401	TW19990120962	19991201
US6412828 BA	20020702	US19990441292	19991116

Priority:
FR19980015455 19981203 CA19992290804 19991130

Probable Assignee: STAUBLI FAVERGES

Assignee(s): (std): STAEUBLI FAVERGES ; STAUBILL FAVERI S A ; STAUBLI ETS SA ; STAUBLI FAVERGES FAVERGES ; STAUBLI SA ETS

Assignee(s): CHAMBAUD ANTOINE ; LACROIX JEAN JACQUES ; STAUBLI FAVERGES ; STAUBLI VERGES PLACE ROBERT STAUBLI VERGES FA

Inventor(s): (std): CHAMBAUD ANTOINE ; CHAMBOT ANTOINE ; LACROIR JEA JAC ; LACROIR JEAN JAC ; LACROIX JEAN JACQUES ; LACROIX JEAN JAQUES ; RACROWAJEAN JACK ; SHANBO ANTUAN

Inventor(s): ANTOINE CHAMBAUD ; ANTOINE CHAMBOT ; JEA JAC LACROIR ; JEAN JAC LACROIR ; JEAN JACQUES LACROIX

Agent(s): DOWELL AND DOWELL PC; ROBIC; SHELSTON IP; SHELSTON IP PTY LTD

Designated states: CH DE ES FR GB IT LI

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU199959399 A1	20000608	LSPB	+	published / reissued	
AU759654 B2	20030417	LSGT	+	granted / extensions (spc, cpc, pte)	
AU759654 B2	20030828	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU759654 B2	20191112	PEXP		Calculated Patent Term Expiry	

CA2290804 AA	20000603	LSPB	+	published / reissued	
CA2290804 AA	20040706	LSES	+EEER	EXAMINATION REQUEST	
CA2290804 C	20080108	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2290804 C	20180111	LSLE	-MKLA	LAPSED	Effective date: 20171130
CA2290804 C	20191130	PEXP		Calculated Patent Term Expiry	
CN1138940 C	20040218	LSGT	+	granted / extensions (spc, cpc, pte)	
CN1138940 C	20040218	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN1138940 C	20040218	LSGT	+GR01	授权	Text: 授权 (Authorization)
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CN1138940 C	20191115	LSLE	-CF01	未缴年费专利权终止	Effective date: 20181202 Text: 专利权的终止 (Termination of Patent Right)
CN1138940 C	20191202	PEXP		Calculated Patent Term Expiry	
CN1256379 A	20000614	LSPB	+	published / reissued	
CN1256379 A	20000614	LSPB	+C06	PUBLICATION	
CN1256379 A	20000614	LSPB	PB01	公开	Text: 公开 (Disclosure)
CN1256379 A	20010627		C10	ENTRY INTO SUBSTANTIVE EXAMINATION	
CN1256379 A	20010627		SE01	实质审查请求的生效	Text: 实质审查请求的生效 (Taking Effect of Request for Substantive Examination)
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DE69902340 T2	20030424	LSGT	+	granted / extensions (spc, cpc, pte)	
DE69902340 T2	20030828	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE69902340 T2	20191202	PEXP		Calculated Patent Term Expiry	
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EP1006308 A1	20000607		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: CH DE ES FR GB IT LI
EP1006308 A1	20000607		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Text: AL;LT;LV;MK;RO;SI
EP1006308 A1	20000913	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20000714
EP1006308 A1	20010221	LSFE	+AKX	DESIGNATION FEES PAID	Text: CH DE ES FR GB IT LI
EP1006308 A1	20020109	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20011122
EP1006308 A1	20150430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20141223 Year of fee payment: 16 Country of Ref document: IT
EP1006308 A1	20160229	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20151217 Year of fee payment: 17 Country of Ref document: FR
EP1006308 A1	20160429	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 17 Payment date: 20151229 Country of Ref document: DE
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EP1006308 B1	20020731	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: EP
EP1006308 B1	20020905		REF	CORRESPONDS TO:	Ref document number: 69902340 Date of Ref document: 20020905 Country of Ref document: DE
EP1006308 B1	20021127		+GBT	GB: TRANSLATION OF EP PATENT FILED (GB SECTION 77(6)(A)/1977)	Effective date: 20021106
EP1006308 B1	20021216	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: ES Ref document number: 2178363 Ref legal event code: FG2A Kind code of Ref document: T3 Country of Ref document: ES
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EP1006308 B1	20151217	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: FR Ref legal event code: PLFP Year of fee payment: 17 Country of Ref document: FR
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EP1006308 B1	20161227	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: PLFP Year of fee payment: 18 Ref country code: FR Country of Ref document: FR
EP1006308 B1	20161230	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20151202 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: IT
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EP1006308 B1	20170428	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20161229 Year of fee payment: 18 Country of Ref document: DE
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EP1006308 B1	20170823	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	Ref country code: EP Effective date: 20161202
EP1006308 B1	20170831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20151202 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: IT
EP1006308 B1	20170831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO	Payment date: 20161222 Year of fee payment: 18 Country of Ref document: IT

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EP1006308 B1	20180531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20020731 Country of Ref document: ES
EP1006308 B1	20180531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20171221 Year of fee payment: 19 Country of Ref document: IT
EP1006308 B1	20181116	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: ES Effective date: 20181116 Ref legal event code: FD2A
EP1006308 B1	20190213		RIC2	INFORMATION PROVIDED ON IPC CODE ASSIGNED AFTER GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 37/23 20060101ALI20000314BHEP
EP1006308 B1	20190213		RIC2	INFORMATION PROVIDED ON IPC CODE ASSIGNED AFTER GRANT	ClassificationSymbol: F16L 37/42 20060101AFI20000314BHEP ClassificationScheme: IPC
EP1006308 B1	20190213		RIC2	INFORMATION PROVIDED ON IPC CODE ASSIGNED AFTER GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 37/22 20060101ALI20000314BHEP
EP1006308 B1	20190228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20161203 Country of Ref document: ES
EP1006308 B1	20190702	LSDW	REG	REFERENCE TO A NATIONAL CODE	Ref document number: 69902340 Ref country code: DE Ref legal event code: R119 Country of Ref document: DE
EP1006308 B1	20191031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO	Lapsed date: 20190702 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: DE

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ES2178363 T3	20021216	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2178363 T3	20191202	PEXP		Calculated Patent Term Expiry	
FR2786849 A1	20000609	LSPB	+	published / reissued	
FR2786849 B1	20010126	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2786849 B1	20040924	LSLE	-ST	NOTIFICATION OF LAPSE	
FR2786849 B1	20181203	PEXP		Calculated Patent Term Expiry	
JP2000170978 A2	20000623	LSPB	+	published / reissued	
JP2000170978 A2	20061027	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	Text: JAPANESE INTERMEDIATE CODE: A621 Effective date: 20061026
JP2000170978 A2	20091215	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	Effective date: 20091215 Text: JAPANESE INTERMEDIATE CODE: A131
JP2000170978 A2	20100306		A601	WRITTEN REQUEST FOR EXTENSION OF TIME	Effective date: 20100305 Text: JAPANESE INTERMEDIATE CODE: A601
JP2000170978 A2	20100312		A602	WRITTEN PERMISSION OF EXTENSION OF TIME	Text: JAPANESE INTERMEDIATE CODE: A602 Effective date: 20100311
JP2000170978 A2	20100527		RD04	NOTIFICATION OF RESIGNATION OF POWER OF ATTORNEY	Text: JAPANESE INTERMEDIATE CODE: A7424 Effective date: 20100526
JP2000170978 A2	20100921	LSRV	-A02	DECISION OF REFUSAL	Effective date: 20100921 Text: JAPANESE INTERMEDIATE CODE: A02
KR100596148 B1	20060703	LSGT	+	granted / extensions (spc, cpc, pte)	
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KR100596148 B1	20150605	LSFE	FPAY	ANNUAL FEE PAYMENT	Payment date: 20150608 Year of fee payment: 10
KR100596148 B1	20160615	LSFE	FPAY	ANNUAL FEE PAYMENT	Payment date: 20160616 Year of fee payment: 11
KR100596148 B1	20170613	LSFE	FPAY	ANNUAL FEE PAYMENT	Payment date: 20170614 Year of fee payment: 12
KR100596148 B1	20180612	LSFE	FPAY	ANNUAL FEE PAYMENT	Payment date: 20180614 Year of fee payment: 13
KR100596148 B1	20191202	PEXP		Calculated Patent Term Expiry	
KR20000047858 A	20000725	LSPB	+	published / reissued	
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KR20000047858 A	20051215	LSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
KR20000047858 A	20060526	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	

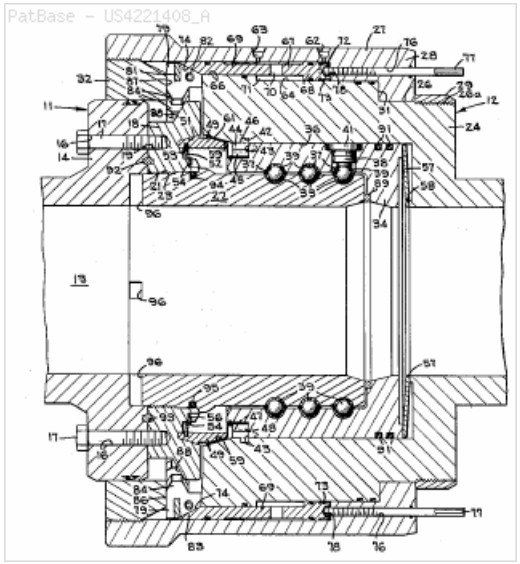
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TW481746 B	20191201	PEXP		Calculated Patent Term Expiry	
US6412828 BA	20020521	LSAS	AS	ASSIGNMENT	Owner: STAUBLI FAVERGES, FRANCE OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:LACROIX, JEAN-JACQUES;CHAMBAUD, ANTOINE;REEL/FRAME:012917/0587 Effective date: 19991026 PartyType: owner
US6412828 BA	20020613	LSGT	PAT1	Patented Case	
US6412828 BA	20020613	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US6412828 BA	20020702	LSGT	+	granted / extensions (spc, cpc, pte)	
US6412828 BA	20051218	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US6412828 BA	20091216	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US6412828 BA	20131222	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US6412828 BA	20191116	PEXP		Calculated Patent Term Expiry	

65) Family number: 7875830 (US4221408 A)

Title: **PIPE** SWIVEL JOINT WITH OPTIONAL STATIC SEAL

Abstract: A swivel joint for incorporation in a **pipe** network maintains flow path integrity at the joint for both swivel and rigid connection modes. A butt flange and a **connector** body having aligned flow paths therethrough are **coupled** together by a bearing which provides rotational movement between the butt flange and the **connector** body. A dynamic seal is disposed between the butt flange and the bearing. A retainer between the bearing and the **connector** body allows axial movement therebetween when the **connector** body is urged toward the butt flange, but restrains such axial movement when the **connector** body is urged away from the butt flange. A static seal carried by the butt flange and axially spaced from the **connector** body in the swivel mode is engaged by the **connector** body when the latter is moved axially toward the butt flange, thereby establishing the rigid connection mode. The apparatus includes diverse structure for moving the **connector** body axially and thereby obtaining engagement between the static seal and the **connector** body.

Classifications:
International (IPC 8-9)**:** F16L27/00 F16L27/08
International (IPC 1-7)**:** F16L27/00
CPC: F16L27/0828 Y10S285/906 Y10S285/92
US: 285/276 285/281 285/315 285/334.2 285/351 285/354 285/906 285/920



Family:

Publication number	Publication date	Application number	Application date
US4221408 A	19800909	US19780909236	19780524

Priority:

US19780909236 19780524

Probable Assignee: FMC CORP
Assignee(s): (std)**:** FMC CORP
Inventor(s): (std)**:** HORN CHARLES E ; LOCHTE GLEN E

Legal status (INPADOC)

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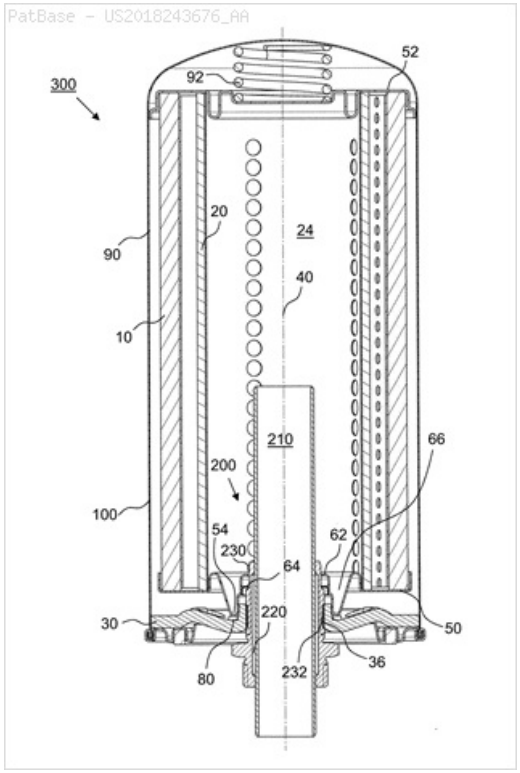
Patent	Date recorded	Event group	Code	Event	Details
US4221408 A	19800909	LSGT	+	granted / extensions (spc, cpc, pte)	
US4221408 A	19980524	PEXP		Calculated Patent Term Expiry	

66) Family number: 70935342 (US2018243676 AA)

Title: SEPARATING DEVICE FOR SEPARATING A FLUID FROM GAS AS WELL AS SEPARATING ELEMENT AND **COUPLING** ELEMENT FOR SUCH A SEPARATING DEVICE

Abstract: A separating device for separating a liquid from gas is provided with a separating element that has a housing with housing cover closing off an end face of the housing. A filter element is arranged in the housing. A **coupling** element is provided to **couple** the separating element to a **connector** device. The housing cover has a central first gas passage and a second gas passage arranged radially outwardly of the first gas passage. The housing cover has a housing cover thread correlated with the first gas passage. The housing cover thread is to be screwed to a **coupling** element thread of the **coupling** element. A fluid discharge channel is arranged within the **coupling** element for discharging separated liquid from the separating device. The housing cover thread and the **coupling** element thread, in a position of use of the separating device, are connected substantially seal-tightly to each other.

Classifications:
International (IPC 8-9): B01D27/08 B01D35/30 B01D45/00 B01D45/02 B01D46/00 B01D46/24 B01D50/00 B01D51/02 B04C3/00 F16L19/02
CPC: B01D45/02 B01D46/00 B01D46/0005 B01D46/001 B01D46/0015 B01D46/0021 B01D46/0031 B01D46/2411 B01D50/002 B01D51/02 F16L19/0206
US: 1/1 96/191



Family:

Publication number	Publication date	Application number	Application date
CN108499240 A	20180907	CN201810166776	20180228
DE102017011874 A1	20180830	DE201710011874	20171221
EP3366363 A1	20180829	EP20180154260	20180130
IN201824004843 A	20180831	IN201824004843	20180208
US2018243676 AA	20180830	US20180905296	20180226

Priority:

DE201710001854 20170228

Probable Assignee: MANN AND HUMMEL GMBH

Assignee(s): (std): MANN AND HUMMEL GMBH

Inventor(s): (std): BARTELT BERTRAM ; BERTRAM BARTELT ; DWORATZEK KLEMENS ; KLEMENS DWORATZEK

Agent(s): SEYBOTH MATTHIAS

Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
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CN108499240 A	20180907	LSPB	PB01	PUBLICATION	
CN108499240 A	20180907	LSPB	PB01	公开	Text: 公开 (Disclosure)
CN108499240 A	20200327		SE01	ENTRY INTO FORCE OF REQUEST FOR SUBSTANTIVE EXAMINATION	

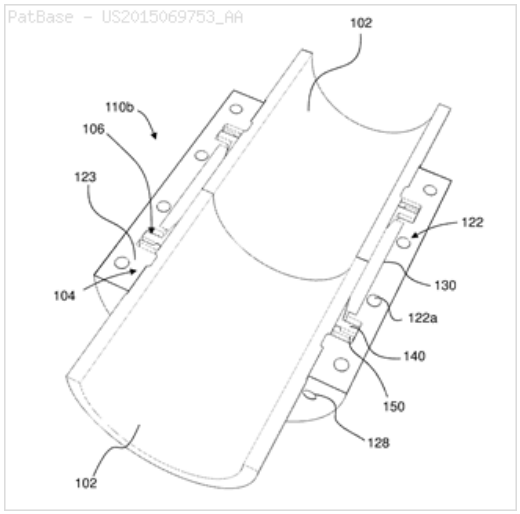
CN108499240 A	20200327		SE01	实质审查请求的生效	Text: 实质审查的生效 (Force of substantive review)
DE102017011874 A1	20180108		R079	AMENDMENT OF IPC MAIN CLASS	ClassificationScheme: IPC ClassificationSymbol: B01D0035300000 Text: PREVIOUS MAIN CLASS: B01D0046240000
DE102017011874 A1	20180712	LSAS	R081	CHANGE OF APPLICANT/PATENTEE	OldParty: MANN+HUMMEL GMBH, 71636 Ludwigsburg, DE Owner: MANN+HUMMEL GmbH, 71636 Ludwigsburg, DE PartyType: Owner
DE102017011874 A1	20180830	LSPB	+	published / reissued	
EP3366363 A1	20180829	LSPB	+	published / reissued	
EP3366363 A1	20180829		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
EP3366363 A1	20180829		+AV	REQUEST FOR VALIDATION OF THE EUROPEAN PATENT	Country of Ref document: MA MD TN
EP3366363 A1	20180829		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Country of Ref document: BA ME
EP3366363 A1	20190327	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20190213
EP3366363 A1	20190327		+RBV	DESIGNATED CONTRACTING STATES (CORRECTED)	Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
EP3366363 A1	20200311	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20200210
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US2018243676 AA	20180413		RFE1	Docketed New Case - Ready for Examination	
US2018243676 AA	20180413		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: DOCKETED NEW CASE - READY FOR EXAMINATION
US2018243676 AA	20180830	LSPB	+	published / reissued	
US2018243676 AA	20200717	LSES	NFA1	Non Final Action Mailed	
US2018243676 AA	20200717		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: NON FINAL ACTION MAILED

67) Family number: 55144778 (US2015069753 AA)

Title: ADVANCEMENTS IN MECHANICAL SEALING APPARATUS

Abstract: An apparatus for connecting two **pipes** in fluid communication is provided. The apparatus comprises a **connector** body configured to, in use, bridge a first and a second **pipe**, each **pipe** having a free end. It also comprises a mechanical interlock arrangement, for preventing or limiting axial movement of the **connector** body relative to the free ends of the first and second **pipes**. The apparatus also comprises a mechanical seal arrangement for providing a metal-to-metal seal between the **pipes** and the **connector** body.

Classifications:
International (IPC 8-9): F16J15/08 F16L F16L17/04 F16L19/00 F16L19/075 F16L21/00 F16L21/02 F16L21/035 F16L21/04 F16L21/08 F16L37/14
CPC: F16L19/075 F16L21/002 F16L21/035 F16L21/04 F16L21/08 F16L2201/00 F16L37/148 Y10T137/0447 Y10T137/9029
US: 137/15.09 137/798 285/337
JP F-Term: 3H014 3H015 3J106 3J040 3H014/BA06 3H015/KA00 3J106/AA01 3J106/AB01 3J106/BA01 3J106/BC04 3J106/EB05 3J106/EC07 3J106/ED34 3H015/BA04 3H015/BB05 3H015/BC05 3H015/BC07 3J040/AA01 3J040/AA11 3J040/AA17 3J040/BA01 3J040/CA02 3J040/EA01 3J040/EA18 3J040/EA22 3J040/FA01 3J040/HA03 3J040/HA15 3J106/BE13
JP F-Index: F16L19/00 F16L21/08@Z F16L37/14 F16J15/08@L F16L21/02@F



Family:

Publication number	Publication date	Application number	Application date
AU2014320147 AA	20160310	AU20140320147	20140910
AU2014320147 BB	20181213	AU20140320147	20140910
AU2019201581 AA	20190328	AU20190201581	20190307
AU2019201581 BB	20200326	AU20190201581	20190307
AU2020200986 AA	20200227	AU20200200986	20200211
BR112016005178 A2	20170801	BR20161105178	20140910
CA2923960 AA	20160310	CA20142923960	20140910
CN105637275 A	20160601	CN201480054254	20140910
CN105637275 B	20190430	CN201480054254	20140910
CN110159848 A	20190823	CN201910274914	20140910
DE602014009778 D1	20170622	DE201460009778T	20140910
DE602014055805 D1	20191121	DE201460055805T	20140910
EP2994683 A1	20160316	EP20140766785	20140910
EP2994683 B1	20170510	EP20140766785	20140910
EP3222899 A1	20170927	EP20170170260	20140910
EP3222899 B1	20191023	EP20170170260	20140910
EP3620703 A1	20200311	EP20190200177	20140910
ES2636984 T3	20171010	ES20140766785T	20140910
ES2765810 T3	20200611	ES20170170260T	20140910
GB201316077 A0	20131023	GB20130016077	20130910
GB201319292 A0	20131218	GB20130019292	20131031
GB201405658 A0	20140514	GB20140005658	20140328
GB201408085 A0	20140618	GB20140008085	20140507
HK1222695 A1	20170707	HK20160110842	20160913
HK1222695 B	20180810	HK20160110842	20160913
IN201617007570 A	20160708	IN201617007570	20160303
IN202018002204 A	20200214	IN202018002204	20200117
JP2016534303 T2	20161104	JP20160542368T	20140910
JP6517816 B2	20190522	JP20160542368T	20140910
JP2019163857 A2	20190926	JP20190075418	20190411
RU2016108966 A	20171017	RU20160108966	20140910
RU2016108966 A3	20180614	RU20160108966	20140910
RU2664908 C2	20180823	RU20160108966	20140910
RU2018129445 A	20190314	RU20180129445	20140910
US2015069753 AA	20150312	US20140303164	20140612
US10253908 BB	20190409	US20140432955	20140910
US2015260318 AA	20150917	US20140432955	20140910
US10753519 BB	20200825	US20190361633	20190322
US2019219201 AA	20190718	US20190361633	20190322
US2020284381 AA	20200910	US20200882920	20200526
WO15036757 A1	20150319	WO2014GB52748	20140910

Priority:

GB20130016077	20130910	GB20130019292	20131031	GB20140005658	20140328
GB20140008085	20140507	US20140303164	20140612	WO2014GB52748	20140910
AU20140320147	20140910	CN201480054254	20140910	EP20140766785	20140910
EP20170170260	20140910	JP20160542368T	20140910	RU20160108966	20140910
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AU20190201581	20190307	US20190361633	20190322	JP20190075418	20190411
AU20200200986	20200211	US20200882920	20200526		

Probable Assignee: MAROKO LTD

Assignee(s): (std): MAROKO LTD ; POULTON TECH LTD

Assignee(s): COPLESTONE RODNEY ; GOESS SAURAU KONRAD ; MAROKO LTD BRISTOL ; POLTON TEKNOLODZHIZ LTD ; POULTON TECHNOLOGIES BRISTOL LTD ; POULTON TECHNOLOGIES LTD

Inventor(s): (std): COPLESTONE RODNEY ; GESS SAURAU KONRAD ; GOESS SAURAU KONRAD ; KONRAD GOESS SAURAU ; KOPLSTOUN RODNI ; RODNEY COPLESTONE

Inventor(s): COPLESTONE RODNEY MARLBOROUGH ; GOESS SAURAU KONRAD MARLBOROUGH

Agent(s): ANDERSON NICOLA; AOKI ATSUSHI; ARS PATENT MV KHMARA; BRION RAFFOUL; DEACONS; DURAN CORRETJER SLP; DURAN CORRETJER SLP DURAN CORRETJER SLP; GRIFFITH HACK; MCWILLIAMS DAVID JOHN; MV KHMARA; NIXON AND VANDERHYE PC; SHIMADA TETSURO

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2014320147 AA	20160310	LSPB	+	published / reissued	
AU2014320147 AA	20180208	LSAS	HB	ALTERATION OF NAME IN REGISTER	OldParty: FORMER NAME(S): MAROKO LIMITED Owner: POULTON TECHNOLOGIES LIMITED PartyType: owner
AU2014320147 BB	20181213	LSGT	+	granted / extensions (spc, cpc, pte)	
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AU2019201581 AA	20190328	LSPB	+	published / reissued	
AU2019201581 BB	20200326	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2019201581 BB	20200723	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
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AU2020200986 AA	20200227	LSPB	+	published / reissued	
CA2923960 AA	20160310	LSPB	+	published / reissued	
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CN105637275 A	20160601	LSPB	+C06	PUBLICATION	
CN105637275 A	20160601	LSPB	PB01	公开	Text: 公开 (Disclosure)
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CN105637275 A	20160914		SE01	实质审查请求的生效	Text: 实质审查的生效 (Force of substantive review)
CN105637275 A	20170804	LSAS	CB02	CHANGE OF APPLICANT INFORMATION	
CN105637275 A	20170804	LSAS	CB02	申请人信息变更	Assignee After Change: 波尔顿技术有限公司 (Bolton Technology Co., Ltd.) Assignee Before Change: 马罗科有限公司 (Horse Luo Branch Co.) Text: 著录事项变更 (The bibliographic data)
CN105637275 B	20190430	LSGT	+	granted / extensions (spc, cpc, pte)	
CN105637275 B	20190430	LSGT	+GR01	PATENT GRANT	
CN105637275 B	20190430	LSGT	+GR01	授权	Text: 授权 (Authorization)

CN105637275 B	20340910	PEXP		Calculated Patent Term Expiry	
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CN110159848 A	20190823	LSPB	PB01	PUBLICATION	
CN110159848 A	20190823	LSPB	PB01	公开	Text: 公开 (Disclosure)
CN110159848 A	20190917		SE01	ENTRY INTO FORCE OF REQUEST FOR SUBSTANTIVE EXAMINATION	
CN110159848 A	20190917		SE01	实质审查请求的生效	Text: 实质审查的生效 (Force of substantive review)
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EP2994683 A1	20160316	LSPB	+	published / reissued	
EP2994683 A1	20160316	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20151029
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EP2994683 A1	20161228	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	Effective date: 20161128
EP2994683 A1	20161228		RIN1	INFORMATION ON INVENTOR PROVIDED BEFORE GRANT (CORRECTED)	Inventor: GOESS-SAURAU, KONRAD PartyType: inventor
EP2994683 A1	20161228		RIN1	INFORMATION ON INVENTOR PROVIDED BEFORE GRANT (CORRECTED)	Inventor: COPLESTONE, RODNEY PartyType: inventor
EP2994683 B1	20170510	LSGT	+	granted / extensions (spc, cpc, pte)	
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EP2994683 B1	20170707		REG	REFERENCE TO A NATIONAL CODE	Ref country code: HK Ref document number: 1222695 Ref legal event code: DE Country of Ref document: HK
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EP2994683 B1	20170928	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: FR Ref legal event code: PLFP Year of fee payment: 4
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EP2994683 B1	20171031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: AT
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EP2994683 B1	20171031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170930 Year of fee payment: 4 Country of Ref document: IT
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EP2994683 B1	20171130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: PL
EP2994683 B1	20171130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170910 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: IS
EP2994683 B1	20171130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: LV
EP2994683 B1	20171130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: RS
EP2994683 B1	20171130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170921 Year of fee payment: 4 Country of Ref document: NL
EP2994683 B1	20180131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: RO
EP2994683 B1	20180131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SK
EP2994683 B1	20180131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: EE
EP2994683 B1	20180131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: CZ
EP2994683 B1	20180131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: DK
EP2994683 B1	20180213	LSRE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: DE Ref document number: 602014009778 Ref legal event code: R097 Country of Ref document: DE
EP2994683 B1	20180228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A

				POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SM
EP2994683 B1	20180228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20171011 Year of fee payment: 4 Country of Ref document: ES
EP2994683 B1	20180418	LSGT	+26N	NO OPPOSITION FILED	Effective date: 20180213
EP2994683 B1	20180430	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: PL
EP2994683 B1	20180531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SI
EP2994683 B1	20180531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: MC
EP2994683 B1	20180627	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: MM4A
EP2994683 B1	20180628		REG	REFERENCE TO A NATIONAL CODE	Effective date: 20170930 Ref country code: BE Ref legal event code: MM
EP2994683 B1	20180629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170910 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: LU
EP2994683 B1	20180731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170930 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: LI
EP2994683 B1	20180731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170910 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: IE
EP2994683 B1	20180731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170930 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: CH
EP2994683 B1	20180810	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: HK Ref document number: 1222695 Ref legal event code: GR Country of Ref document: HK
EP2994683 B1	20180831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170930 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: BE
EP2994683 B1	20180925	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: FR Ref legal event code: PLFP Year of fee payment: 5
EP2994683 B1	20180928	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170910 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: MT
EP2994683 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180920 Year of fee payment: 5 Country of Ref document: DE

EP2994683 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180924 Year of fee payment: 5 Country of Ref document: IT
EP2994683 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180925 Year of fee payment: 5 Country of Ref document: NO
EP2994683 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180925 Year of fee payment: 5 Country of Ref document: FR
EP2994683 B1	20181130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180918 Year of fee payment: 5 Country of Ref document: GB
EP2994683 B1	20181130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180919 Year of fee payment: 5 Country of Ref document: NL
EP2994683 B1	20190228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20181001 Year of fee payment: 5 Country of Ref document: ES
EP2994683 B1	20190628	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20140910 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT; INVALID AB INITIO Country of Ref document: HU
EP2994683 B1	20191022	LSAS	REG	REFERENCE TO A NATIONAL CODE	OldParty: FORMER OWNER: MAROKO LTD., BRISTOL, SOMERSET, GB Owner: POULTON TECHNOLOGIES LIMITED, BRISTOL, GB PartyType: owner Ref country code: DE Ref document number: 602014009778 Ref legal event code: R081 Country of Ref document: DE
EP2994683 B1	20191031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: CY
EP2994683 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190927 Year of fee payment: 6 Country of Ref document: FR
EP2994683 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190918 Year of fee payment: 6 Country of Ref document: DE
EP2994683 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190923 Year of fee payment: 6 Country of Ref document: NO
EP2994683 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190918 Year of fee payment: 6 Country of Ref document: NL
EP2994683 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190925 Year of fee payment: 6 Country of Ref document: IT
EP2994683 B1	20191129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: MK

EP2994683 B1	20191231	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190913 Year of fee payment: 6 Country of Ref document: GB
EP2994683 B1	20200228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20191001 Year of fee payment: 6 Country of Ref document: ES
EP2994683 B1	20200331	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: TR
EP2994683 B1	20200529	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: PT
EP2994683 B1	20200731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20170510 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: AL
EP2994683 B1	20340910	PEXP		Calculated Patent Term Expiry	
EP3222899 A1	20170927	LSPB	+	published / reissued	
EP3222899 A1	20170927		AC	DIVISIONAL APPLICATION: REFERENCE TO EARLIER APPLICATION	Kind code of Ref document: P Ref document number: 2994683 Country of Ref document: EP
EP3222899 A1	20170927		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
EP3222899 A1	20180502	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20180327
EP3222899 A1	20180502		+RBV	DESIGNATED CONTRACTING STATES (CORRECTED)	Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
EP3222899 A1	20190501		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 21/04 20060101ALI20190322BHEP
EP3222899 A1	20190501		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 21/00 20060101ALI20190322BHEP
EP3222899 A1	20190501		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 37/14 20060101ALI20190322BHEP
EP3222899 A1	20190501		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 19/075 20060101AFI20190322BHEP
EP3222899 A1	20190515	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	Effective date: 20190418
EP3222899 B1	20191023	LSGT	+	granted / extensions (spc, cpc, pte)	
EP3222899 B1	20191023		AC	DIVISIONAL APPLICATION: REFERENCE TO EARLIER APPLICATION	Kind code of Ref document: P Ref document number: 2994683 Country of Ref document: EP
EP3222899 B1	20191023		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
EP3222899 B1	20191023	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: GB Ref legal event code: FG4D
EP3222899 B1	20191031	LSNP	REG	REFERENCE TO A	Ref country code: CH

				NATIONAL CODE	Ref legal event code: EP
EP3222899 B1	20191113	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: FG4D
EP3222899 B1	20191115	LSNP	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20191115 Kind code of Ref document: T Ref country code: AT Ref document number: 1194028 Ref legal event code: REF Country of Ref document: AT
EP3222899 B1	20191121	LSPB	REG	REFERENCE TO A NATIONAL CODE	Ref country code: DE Ref document number: 602014055805 Ref legal event code: R096 Country of Ref document: DE
EP3222899 B1	20200219		REG	REFERENCE TO A NATIONAL CODE	Ref country code: NL Ref legal event code: FP
EP3222899 B1	20200224	LSNP	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20191023 Ref country code: NO Ref legal event code: T2
EP3222899 B1	20200310	LSRV	REG	REFERENCE TO A NATIONAL CODE	Ref country code: LT Ref legal event code: MG4D
EP3222899 B1	20200501	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20200123 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: BG
EP3222899 B1	20200501	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20200124 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: GR
EP3222899 B1	20200501	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20191023 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: FI
EP3222899 B1	20200501	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20191023 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: LT
EP3222899 B1	20200501	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20200224 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: PT
EP3222899 B1	20200501	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20191023 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: PL
EP3222899 B1	20200501	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20191023 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SE
EP3222899 B1	20200501	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20191023 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: LV
EP3222899 B1	20200529	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20191023 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: HR
EP3222899 B1	20200529	LSLE	-PG25	LAPSED IN A CONTRACTING STATE	Lapsed date: 20191023 NotificationOfLapse: LAPSE BECAUSE

				[ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: RS
EP3222899 B1	20200529	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20200224 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: IS
EP3222899 B1	20200611	LSGT	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20200611 Kind code of Ref document: T3 Ref country code: ES Ref document number: 2765810 Ref legal event code: FG2A Country of Ref document: ES
EP3222899 B1	20200630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20191023 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: AL
EP3222899 B1	20200724	LSRE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: DE Ref document number: 602014055805 Ref legal event code: R097 Country of Ref document: DE
EP3222899 B1	20200730		PG2D	INFORMATION ON LAPSE IN CONTRACTING STATE DELETED	
EP3222899 B1	20200731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20191023 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: DK
EP3222899 B1	20200731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20191023 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: EE
EP3222899 B1	20200731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20191023 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: RO
EP3222899 B1	20200731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20191023 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: CZ
EP3222899 B1	20200731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20200223 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: IS
EP3222899 B1	20200815	LSRV	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20191023 Kind code of Ref document: T Ref country code: AT Ref document number: 1194028 Ref legal event code: MK05 Country of Ref document: AT
EP3222899 B1	20200831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20191023 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SM
EP3222899 B1	20200831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20191023 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SK

EP3222899 B1	20200930	LSGT	+26N	NO OPPOSITION FILED	Effective date: 20200724
EP3222899 B1	20340910	PEXP		Calculated Patent Term Expiry	
EP3620703 A1	20200311	LSPB	+	published / reissued	
EP3620703 A1	20200311		AC	DIVISIONAL APPLICATION: REFERENCE TO EARLIER APPLICATION	Kind code of Ref document: P Ref document number: 3222899 Country of Ref document: EP
EP3620703 A1	20200311		AC	DIVISIONAL APPLICATION: REFERENCE TO EARLIER APPLICATION	Kind code of Ref document: P Ref document number: 2994683 Country of Ref document: EP
EP3620703 A1	20200311		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
EP3620703 A1	20200506	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20200331
EP3620703 A1	20200506		+RBV	DESIGNATED CONTRACTING STATES (CORRECTED)	Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
ES2636984 T3	20171010	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2636984 T3	20340910	PEXP		Calculated Patent Term Expiry	
ES2765810 T3	20200611	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2765810 T3	20200611	LSGT	+FG2A	DEFINITIVE PROTECTION	Effective date: 20200611 Filing date: 20200611
ES2765810 T3	20340910	PEXP		Calculated Patent Term Expiry	
GB201316077 A0	20200415	LSWD	-AT	APPLICATIONS TERMINATED BEFORE PUBLICATION UNDER SECTION 16(1)	
GB201319292 A0	20150624	LSWD	-AT	APPLICATIONS TERMINATED BEFORE PUBLICATION UNDER SECTION 16(1)	
GB201405658 A0	20151125	LSWD	-AT	APPLICATIONS TERMINATED BEFORE PUBLICATION UNDER SECTION 16(1)	
GB201408085 A0	20151104	LSWD	-AT	APPLICATIONS TERMINATED BEFORE PUBLICATION UNDER SECTION 16(1)	
HK1222695 A1	20170707	LSPB	+	published / reissued	
HK1222695 A1	20360913	PEXP		Calculated Patent Term Expiry	
HK1222695 B	20180810	LSGT	+	granted / extensions (spc, cpc, pte)	
HK1222695 B	20360913	PEXP		Calculated Patent Term Expiry	
IN201617007570 A	20160708	LSPB	+	published / reissued	
IN202018002204 A	20200214	LSPB	+	published / reissued	
JP2016534303 T2	20161104	LSPB	+	published / reissued	
JP2016534303 T2	20170908	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	Effective date: 20170908 Text: JAPANESE INTERMEDIATE CODE: A621
JP2016534303 T2	20180718		A977	REPORT ON RETRIEVAL	Effective date: 20180713 Text: JAPANESE INTERMEDIATE CODE: A971007
JP2016534303 T2	20180807	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	Effective date: 20180807 Text: JAPANESE INTERMEDIATE CODE: A131
JP2016534303 T2	20181106	LSRE	A521	WRITTEN AMENDMENT	Effective date: 20181106 Text: JAPANESE INTERMEDIATE CODE: A523

JP2016534303 T2	20190315	LSGT	+TRDD	DECISION OF GRANT OR REJECTION WRITTEN	
JP2016534303 T2	20190319	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	Effective date: 20190319 Text: JAPANESE INTERMEDIATE CODE: A01
JP2016534303 T2	20190425	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	Effective date: 20190418 Text: JAPANESE INTERMEDIATE CODE: A61
JP2019163857 A2	20190411		A63	特許願	Effective date: 20190411
JP2019163857 A2	20190418	LSRE	A521	WRITTEN AMENDMENT	Effective date: 20190418 Text: JAPANESE INTERMEDIATE CODE: A523
JP2019163857 A2	20190418		A523	手続補正書	Effective date: 20190418
JP2019163857 A2	20190418	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	Effective date: 20190418 Text: JAPANESE INTERMEDIATE CODE: A621
JP2019163857 A2	20190418	LSES	+A621	出願審査請求書	Effective date: 20190418
JP2019163857 A2	20190418		A781	上申書	Effective date: 20190418
JP2019163857 A2	20190813		A972001	要約不備職権訂正	Effective date: 20190813
JP2019163857 A2	20190926	LSPB	+	published / reissued	
JP2019163857 A2	20200218	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	Effective date: 20200218 Text: JAPANESE INTERMEDIATE CODE: A131
JP2019163857 A2	20200218	LSES	-A131	拒絶理由通知書	Effective date: 20200218
JP2019163857 A2	20200515	LSRE	A521	WRITTEN AMENDMENT	Effective date: 20200515 Text: JAPANESE INTERMEDIATE CODE: A523
JP2019163857 A2	20200515		A523	手続補正書	Effective date: 20200515
JP2019163857 A2	20200515		A53	意見書	Effective date: 20200515
JP2019163857 A2	20200901	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	Effective date: 20200901 Text: JAPANESE INTERMEDIATE CODE: A131
JP2019163857 A2	20200901	LSES	-A131	拒絶理由通知書	Effective date: 20200901
JP6517816 B2	20190322	LSGT	+A01	特許査定書	
JP6517816 B2	20190423	LSFE	R100	特許料納付書	
JP6517816 B2	20190426	LSGT	+R150	特許証	
JP6517816 B2	20190522	LSGT	+	granted / extensions (spc, cpc, pte)	
JP6517816 B2	20340910	PEXP		Calculated Patent Term Expiry	
RU2016108966 A	20171017	LSPB	+	published / reissued	
RU2016108966 A	20180327	LSAS	HZ9A	CHANGING ADDRESS FOR CORRESPONDENCE WITH AN APPLICANT	
RU2018129445 A	20190314	LSPB	+	published / reissued	
RU2664908 C2	20180823	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2664908 C2	20340910	PEXP		Calculated Patent Term Expiry	
US10253908 BB	20150610	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:GOESS-SAURAU, KONRAD;COPLESTONE, RODNEY;SIGNING DATES FROM 20150601 TO 20150602;REEL/FRAME:035818/0078 Owner: MAROKO LIMITED, UNITED KINGDOM PartyType: owner
US10253908 BB	20190320	LSGT	PAT1	Patented Case	
US10253908 BB	20190409	LSGT	+	granted / extensions (spc, cpc, pte)	
US10253908 BB	20340910	PEXP		Calculated Patent Term Expiry	
US10753519 BB	20190322	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF

					ASSIGNORS INTEREST;ASSIGNORS:GOESS-SAURAU, KONRAD;COPLESTONE, RODNEY;SIGNING DATES FROM 20150601 TO 20150602;REEL/FRAME:048670/0934 Owner: MAROKO LIMITED, UNITED KINGDOM PartyType: owner
US10753519 BB	20190322	LSAS	AS	ASSIGNMENT	Effective date: 20170331 OldParty: CHANGE OF NAME;ASSIGNOR:MAROKO LIMITED;REEL/FRAME:048678/0484 Owner: POULTON TECHNOLOGIES LIMITED, UNITED KINGDOM PartyType: owner
US10753519 BB	20190322	LSFE	FEPP	FEE PAYMENT PROCEDURE	Text: ENTITY STATUS SET TO UNDISCOUNTED (ORIGINAL EVENT CODE: BIG.); ENTITY STATUS OF PATENT OWNER: SMALL ENTITY
US10753519 BB	20190405	LSFE	FEPP	FEE PAYMENT PROCEDURE	Text: ENTITY STATUS SET TO SMALL (ORIGINAL EVENT CODE: SMAL); ENTITY STATUS OF PATENT OWNER: SMALL ENTITY
US10753519 BB	20190716		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: DOCKETED NEW CASE - READY FOR EXAMINATION
US10753519 BB	20200805	LSGT	PAT1	Patented Case	
US10753519 BB	20200825	LSGT	+	granted / extensions (spc, cpc, pte)	
US10753519 BB	20340910	PEXP		Calculated Patent Term Expiry (a terminal disclaimer has been filed)	
US2015069753 AA	20140701	LSAS	AS	ASSIGNMENT	Effective date: 20140624 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:GOESS-SAURAU, KONRAD;COPLESTONE, RODNEY;REEL/FRAME:033219/0832 Owner: MAROKO LIMITED, UNITED KINGDOM PartyType: owner
US2015069753 AA	20141231		RFE1	Docketed New Case - Ready for Examination	
US2015069753 AA	20150312	LSPB	+	published / reissued	
US2015069753 AA	20170119	LSWD	ABD3	Abandoned -- Failure to Respond to an Office Action	
US2015069753 AA	20170119		-STCB	INFORMATION ON STATUS: APPLICATION DISCONTINUATION	Text: ABANDONED -- FAILURE TO RESPOND TO AN OFFICE ACTION
US2015260318 AA	20150915		RFE1	Docketed New Case - Ready for Examination	
US2015260318 AA	20150917	LSPB	+	published / reissued	
US2015260318 AA	20170412	LSES	NFA1	Non Final Action Mailed	
US2015260318 AA	20170615	LSAS	AS	ASSIGNMENT	Effective date: 20170331 OldParty: CHANGE OF NAME;ASSIGNOR:MAROKO LIMITED;REEL/FRAME:042815/0178 Owner: POULTON TECHNOLOGIES LIMITED, UNITED KINGDOM PartyType: owner
US2015260318 AA	20170713		RSP4	Response to Non-Final Office Action Entered and Forwarded to Examiner	
US2015260318 AA	20170718	LSES	NFA1	Non Final Action Mailed	
US2015260318 AA	20170815		RSP4	Response to Non-Final Office Action Entered and Forwarded to Examiner	

US2015260318 AA	20170823	LSES	NFA2	Non Final Action Counted, Not Yet Mailed	
US2015260318 AA	20170828	LSES	NFA1	Non Final Action Mailed	
US2015260318 AA	20171222		FRM2	Final Rejection Counted, Not Yet Mailed	
US2015260318 AA	20171226		FRM1	Final Rejection Mailed	
US2015260318 AA	20180509	LSES	NFA1	Non Final Action Mailed	
US2015260318 AA	20181218	LSES	NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2015260318 AA	20190131	LSES	NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2015260318 AA	20190225	LSFE	PPR1	Publications -- Issue Fee Payment Received	
US2015260318 AA	20190226	LSFE	PPV1	Publications -- Issue Fee Payment Verified	
US2015260318 AA	20190320	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US2019219201 AA	20190716		RFE1	Docketed New Case - Ready for Examination	
US2019219201 AA	20190718	LSPB	+	published / reissued	
US2019219201 AA	20190729	LSES	NFA1	Non Final Action Mailed	
US2019219201 AA	20190729		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: NON FINAL ACTION MAILED
US2019219201 AA	20191023		RSP4	Response to Non-Final Office Action Entered and Forwarded to Examiner	
US2019219201 AA	20191023		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: RESPONSE TO NON-FINAL OFFICE ACTION ENTERED AND FORWARDED TO EXAMINER
US2019219201 AA	20191218	LSES	NFA1	Non Final Action Mailed	
US2019219201 AA	20191218		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: NON FINAL ACTION MAILED
US2019219201 AA	20200420		FRM1	Final Rejection Mailed	
US2019219201 AA	20200420		-STCB	INFORMATION ON STATUS: APPLICATION DISCONTINUATION	Text: FINAL REJECTION MAILED
US2019219201 AA	20200526	LSES	NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2019219201 AA	20200721	LSFE	PPR1	Publications -- Issue Fee Payment Received	
US2019219201 AA	20200721		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: PUBLICATIONS -- ISSUE FEE PAYMENT RECEIVED
US2020284381 AA	20200526	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF

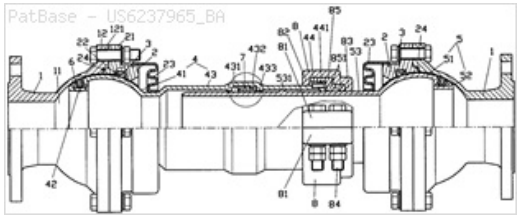
					ASSIGNORS INTEREST;ASSIGNORS:GOESS-SAURAU, KONRAD;COPLESTONE, RODNEY;SIGNING DATES FROM 20150601 TO 20150602;REEL/FRAME:052747/0444 Owner: MAROKO LIMITED, UNITED KINGDOM PartyType: owner
US2020284381 AA	20200526	LSAS	AS	ASSIGNMENT	Effective date: 20170331 OldParty: CHANGE OF NAME;ASSIGNOR:MAROKO LIMITED;REEL/FRAME:052747/0989 Owner: POULTON TECHNOLOGIES LIMITED, UNITED KINGDOM PartyType: owner
US2020284381 AA	20200604		APP1	Application Dispatched from Preexam, Not Yet Docketed	
US2020284381 AA	20200910	LSPB	+	published / reissued	
WO15036757 A1	20150319	LSPB	+	published / reissued	
WO15036757 A1	20150401	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 14432955 Country of Ref document: US
WO15036757 A1	20150429		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	Kind code of Ref document: A1 Ref document number: 14766785 Country of Ref document: EP
WO15036757 A1	20150521		DPE2	REQUEST FOR PRELIMINARY EXAMINATION FILED BEFORE EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED FROM 20040101)	
WO15036757 A1	20151029		+REEP	REQUEST FOR ENTRY INTO THE EUROPEAN PHASE	Ref document number: 2014766785 Country of Ref document: EP
WO15036757 A1	20151029	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2014766785 Country of Ref document: EP
WO15036757 A1	20160309	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Kind code of Ref document: A Ref document number: 2016542368 Country of Ref document: JP
WO15036757 A1	20160310	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Date of Ref document: 20140910 Kind code of Ref document: A Ref document number: 2014320147 Country of Ref document: AU
WO15036757 A1	20160310	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Ref document number: 2923960 Country of Ref document: CA
WO15036757 A1	20160310	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: DE
WO15036757 A1	20160322		REG	REFERENCE TO NATIONAL CODE	Ref country code: BR Ref document number: 112016005178 Ref legal event code: B01A Country of Ref document: BR
WO15036757 A1	20160411	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Kind code of Ref document: A Ref document number: 2016108966 Country of Ref document: RU
WO15036757 A1	20170801	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Effective date: 20160309 Kind code of Ref document: A2 Ref document number: 112016005178 Country of Ref document: BR

68) Family number: 17007522 (US6237965 BA)

Title: LEAK-FREE FLEXIBLE CONDUIT

Abstract: A leakage free flexible conduit has made several improvements against the conventional, a **groove** formed on the inner rim of the **connector** for receiving a packing, and outside of a seat extending from an outer sliding **pipe** having a engaging trough for receiving a leak-free unit, the leak-free unit is formed by a harden plastic **ring** with a harden padding seating therein to prevent from leakage; the **connector** has an inner packing and the leakage free **ring** of the outer sliding **pipe** are both formed with a recess; the outer sliding **pipe** has a flange to secure a pair half circular plate forming a fixture, the fixture has extending a flange from one side corresponding to the flange of the outer sliding **pipe**, the other side of the fixture has a confine flange corresponding to the inner sliding **pipe**, inside of the flange, there is a leakage prevention **ring** against the outer wall of the inner sliding **pipe**.

Classifications:
International (IPC 8-9): F16L27/00 F16L27/08
International (IPC 1-7): F16L2/700 F16L21/02 F16L21/04 F16L27/00
CPC: F16L27/026 F16L27/053 F16L27/0861 Y10S285/906
US: 285/111 285/145.3 285/261 285/906



Family:

Publication number	Publication date	Application number	Application date
DE29913902 U1	20000525	DE19992013902U	19990810
US6237965 BA	20010529	US19990361163	19990727

Priority:

US19990361163 19990727 DE19992013902U 19990810

Probable Assignee: KUO HSIEN WEN
Assignee(s): (std): KUO HSIEN WEN
Inventor(s): (std): KUO HSIEN WEN
Inventor(s): HSIEN WEN KUO
Agent(s): ROSENBERG KLEIN AND LEE

Legal status (INPADOC)

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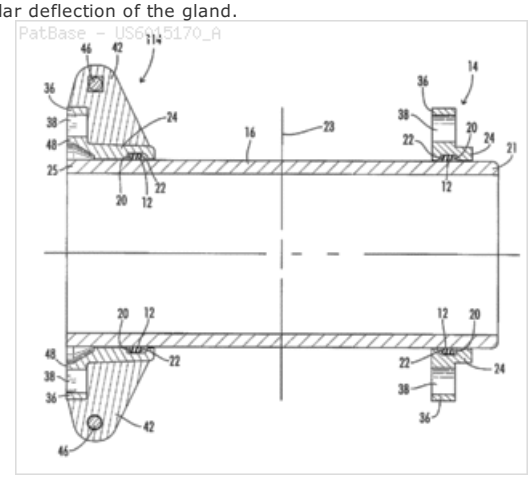
Patent	Date recorded	Event group	Code	Event	Details
DE29913902 U1	20000525	LSGT	+	granted / extensions (spc, cpc, pte)	
DE29913902 U1	20000525	LSGT	R207	UTILITY MODEL SPECIFICATION	Effective date: 20000525
DE29913902 U1	20030213	LSGT	+R150	UTILITY MODEL MAINTAINED AFTER PAYMENT OF FIRST MAINTENANCE FEE AFTER THREE YEARS	Effective date: 20021204
DE29913902 U1	20060614	LSLE	-R157	LAPSE OF IP RIGHT AFTER 6 YEARS	Effective date: 20060301
DE29913902 U1	20090810	PEXP		Calculated Patent Term Expiry	
US6237965 BA	20010529	LSGT	+	granted / extensions (spc, cpc, pte)	
US6237965 BA	20041215		REMI	MAINTENANCE FEE REMINDER MAILED	
US6237965 BA	20050531	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US6237965 BA	20050629	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US6237965 BA	20050629	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US6237965 BA	20050726	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective date: 20050529
US6237965 BA	20190727	PEXP		Calculated Patent Term Expiry	

69) Family number: 11995974 (US6015170 A)

Title: **COUPLING** ASSEMBLY

Abstract: A **coupling** assembly for connecting components in a **piping** system comprising a conduit, an **annular** **ring** and a gland. The gland comprises a body and a flange portion extending radially therefrom. A circumferential **groove** is formed along an inner surface of the body, and the flange portion includes a plurality of spaced bores for enabling attachment of the gland to a mating component in the **piping** system. The gland preferably comprises two arcuate segments, each segment having bores formed in spaced apart ends thereof to enable the segments to be attached to one another. The **annular** **ring** includes a shoulder and an arcuate surface configured to be received in the cooperatively configured **groove** formed in the gland. The configuration of the **ring** and the **groove** enable axial rotation and angular deflection of the gland.

Classifications:
International (IPC 8-9): F16L23/00
International (IPC 1-7): F16L27/10
CPC: F16L23/00 F16L23/024 F16L23/032
US: 285/223 285/415



Family:

Publication number	Publication date	Application number	Application date
US6015170 A	20000118	US19970977444	19971126

Priority:
US19970977444 19971126

Probable Assignee: CARPENTER ROLLOW M
Assignee(s): (std): CARPENTER ROLLOW M
Inventor(s): (std): CARPENTER ROLLOW M

Legal status (INPADOC)

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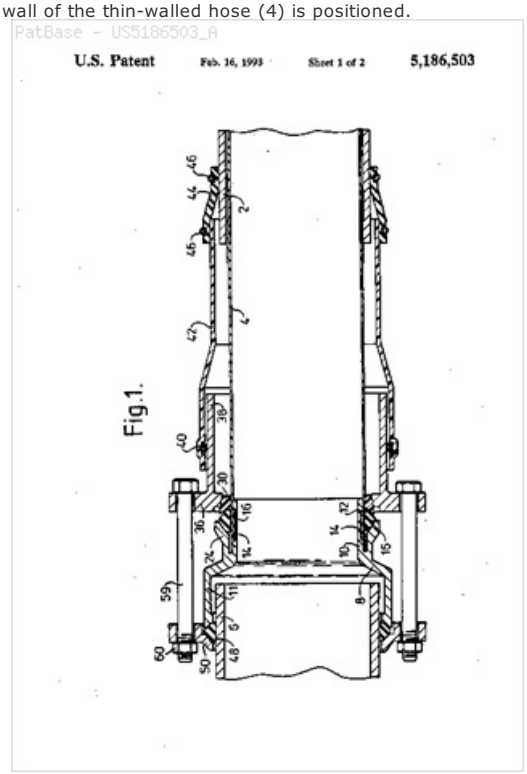
Patent	Date recorded	Event group	Code	Event	Details
US6015170 A	20000107	LSGT	PAT1	Patented Case	
US6015170 A	20000107	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US6015170 A	20000118	LSGT	+	granted / extensions (spc, cpc, pte)	
US6015170 A	20030204	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US6015170 A	20070730		REMI	MAINTENANCE FEE REMINDER MAILED	
US6015170 A	20070831	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US6015170 A	20070831		+SULP	SURCHARGE FOR LATE PAYMENT	Year of fee payment: 7
US6015170 A	20110210	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US6015170 A	20171126	PEXP		Calculated Patent Term Expiry	

70) Family number: 2998727 (US5186503 A)

Title: DEVICE FOR CONNECTING A THIN-WALLED HOSE WITH A TUBULAR ELEMENT

Abstract: A device for connecting a thin-walled hose (4) pulled into a **pipe** (2) with a tubular element (6) comprises a sleeve-shaped **connector** element (8). At one end portion the sleeve-shaped **connector** element (8) is connectable with the tubular element (6) while the other end portion of the **connector** element is sealingly connected with the thin-walled hose (4). The sleeve-shaped **connector** element (8) is connected with the thin-walled hose (4) by means of two **annular**, concentric sealing elements (14; 16) consisting of highly elastic material between which the wall of the thin-walled hose (4) is positioned.

Classifications:
International (IPC 8-9): F16L21/00 F16L21/02 F16L21/04 F16L25/00 F16L58/00 F16L58/18
International (IPC 1-7): F16L19/06 F16L21/00 F16L21/02 F16L21/04 F16L25/00 F16L33/00 F16L33/22 F16L39/02
CPC: F16L58/185 F16L58/187
US: 285/148.17 285/174 285/249 285/255 285/341
JP F-Term: 3H015 3H015/AE00 3H015/CA02 3H015/CA14
JP F-Index: F16L21/00@E F16L21/04



Family:

Publication number	Publication date	Application number	Application date
AT98759 E	19940115	AT19910200787T	19910404
DE69100779 D1	19940127	DE19916000779T	19910404
DE69100779 T2	19940407	DE19916000779T	19910404
EP0459542 A2	19911204	EP19910200787	19910404
EP0459542 A3	19920226	EP19910200787	19910404
EP0459542 B1	19931215	EP19910200787	19910404
FI912534 A	19911201	FI19910002534	19910527
FI912534 A0	19910527	FI19910002534	19910527
FI93898 B	19950228	FI19910002534	19910527
FI93898 C	19950612	FI19910002534	19910527
JP5099380 A2	19930420	JP19910107835	19910514
NO300863 B1	19970804	NO19910002019	19910527
NO912019 A	19911202	NO19910002019	19910527
NO912019 A0	19910527	NO19910002019	19910527
NO912019 L	19911202	NO19910002019	19910527
SE466566 B	19920302	SE19900001981	19900531
SE466566 C	19920702	SE19900001981	19900531
SE9001981 A0	19900531	SE19900001981	19900531
SE9001981 L	19911201	SE19900001981	19900531
US5186503 A	19930216	US19910684644	19910412

Priority:
SE19900001981 19900531 EP19910200787 19910404

Probable Assignee: FORSHEDA AB
Assignee(s): (std): FORSHEDA AB
Assignee(s): FORSHEDA AB FORSHEDA SE ; FORSHEDA ABS ; FUUSUHEDA AB
Inventor(s): (std): FEILITZEN J VON ; FEILITZEN JOHAN VON ; JOSEFSSON K ; VON FEILITZEN JOHAN ; YOHAN FUON FUEIRITSUEN
Inventor(s): J VON FEILITZEN ; K JOSEFSSON ; VON FEILITZEN JOHAN S 330 15 BOR SE
Designated states: AT BE CH DE DK ES FR GB GR IT LI NL SE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT98759 E	19940115	LSGT	+	granted / extensions (spc, cpc, pte)	
AT98759 E	19940615	LSLE	-RER	CEASED AS TO PARAGRAPH 5 LIT. 3 LAW INTRODUCING PATENT TREATIES	
AT98759 E	20110404	PEXP		Calculated Patent Term Expiry	
DE69100779 D1	19950119	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE69100779 D1	20030213	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
DE69100779 T2	19940407	LSGT	+	granted / extensions (spc, cpc, pte)	
DE69100779 T2	19950119	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE69100779 T2	20030213	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
DE69100779 T2	20110404	PEXP		Calculated Patent Term Expiry	
EP0459542 A2	19911204	LSPB	+	published / reissued	
EP0459542 A2	19911204		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A2 Country of Ref document: AT BE CH DE DK ES FR GB GR IT LI NL SE
EP0459542 A3	19920226		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A3 Country of Ref document: AT BE CH DE DK ES FR GB GR IT LI NL SE
EP0459542 A3	19921028	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 19920821
EP0459542 A3	19930203	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 19921216
EP0459542 B1	19931215	LSGT	+	granted / extensions (spc, cpc, pte)	
EP0459542 B1	19931215		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: AT BE CH DE DK ES FR GB GR IT LI NL SE
EP0459542 B1	19931215	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19931215 Country of Ref document: AT
EP0459542 B1	19931215	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19931215 Country of Ref document: BE
EP0459542 B1	19931215	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19931215 Country of Ref document: CH
EP0459542 B1	19931215	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19931215 Country of Ref document: DK

EP0459542 B1	19931215	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19931215 Country of Ref document: FR
EP0459542 B1	19931215	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19931215 Country of Ref document: LI
EP0459542 B1	19931215	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19931215 Country of Ref document: NL
EP0459542 B1	19931215	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19931215 Country of Ref document: SE
EP0459542 B1	19931215	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19931215 NotificationOfLapse: THE PATENT HAS BEEN ANNULLED BY A DECISION OF A NATIONAL AUTHORITY Country of Ref document: ES
EP0459542 B1	19931215	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19931215 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: GR
EP0459542 B1	19931215	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19931215 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: IT
EP0459542 B1	19931215	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 19931215 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRE;WARNING: LAPSES OF ITALIAN PATENTS WITH EFFECTIVE DATE BEFORE 2007 MAY HAVE OCCURRED AT ANY TIME BEFORE 2007. THE CORRECT EFFECTIVE DATE MAY BE DIFFERENT FROM THE ONE RECORDED.SCRIBED TIME-LIMIT Country of Ref document: IT
EP0459542 B1	19931215		REF	CORRESPONDS TO:	Date of Ref document: 19940115 Kind code of Ref document: T Ref document number: 98759 Country of Ref document: AT
EP0459542 B1	19940127		REF	CORRESPONDS TO:	Date of Ref document: 19940127 Ref document number: 69100779 Country of Ref document: DE
EP0459542 B1	19940331	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: PL
EP0459542 B1	19940506		-EN	FR: TRANSLATION NOT FILED	
EP0459542 B1	19940516	LSLE	-NLV1	NL: LAPSED OR ANNULLED DUE TO FAILURE TO FULFILL THE REQUIREMENTS OF ART. 29P AND 29M OF THE PATENTS ACT	Ref country code: EP
EP0459542 B1	19941207	LSGT	+26N	NO OPPOSITION FILED	
EP0459542 B1	20010403	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20010403 Year of fee payment: 11 Country of Ref document: DE

EP0459542 B1	20010404	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20010404 Year of fee payment: 11 Country of Ref document: GB
EP0459542 B1	20020101		REG	REFERENCE TO A NATIONAL CODE	Ref country code: GB Ref legal event code: IF02
EP0459542 B1	20020404	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20020404 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: GB
EP0459542 B1	20021101	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20021101 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: DE
EP0459542 B1	20021127	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	Effective date: 20020404 Ref country code: EP
EP0459542 B1	20110404	PEXP		Calculated Patent Term Expiry	
FI912534 A	19911201	LSPB	+	published / reissued	
FI912534 A	19950201	LSPB	BB	PUBLICATION OF EXAMINED APPLICATION	
FI93898 B	19950228	LSPB	+	published / reissued	
FI93898 B	20110527	PEXP		Calculated Patent Term Expiry	
FI93898 C	19950612	LSGT	+	granted / extensions (spc, cpc, pte)	
FI93898 C	20110527	PEXP		Calculated Patent Term Expiry	
JP5099380 A2	19930420	LSPB	+	published / reissued	
NO300863 B1	19970804	LSGT	+	granted / extensions (spc, cpc, pte)	
NO300863 B1	20021230	LSLE	-MM1K	LAPSED BY NOT PAYING THE ANNUAL FEES	Text: LAPSED IN NOVEMBER 2002
NO300863 B1	20110527	PEXP		Calculated Patent Term Expiry	
NO912019 A	19911202	LSPB	+	published / reissued	
SE466566 B	19920302	LSPB	+	published / reissued	
SE466566 B	19950131	LSFE	+NAL	PATENT IN FORCE	Text: 9001981-1
SE466566 B	20030204	LSLE	-NUG	PATENT HAS LAPSED	
SE466566 C	19920702	LSGT	+	granted / extensions (spc, cpc, pte)	
SE466566 C	20100531	PEXP		Calculated Patent Term Expiry	
US5186503 A	19921130	LSAS	AS	ASSIGNMENT	Effective date: 19920923 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNOR:VON FEILITZEN, JOHAN;REEL/FRAME:006335/0497 Owner: FORSHEDA AB, SWEDEN PartyType: owner
US5186503 A	19930203	LSGT	PAT1	Patented Case	
US5186503 A	19930216	LSGT	+	granted / extensions (spc, cpc, pte)	
US5186503 A	19931102	LSRE	CC	CERTIFICATE OF	

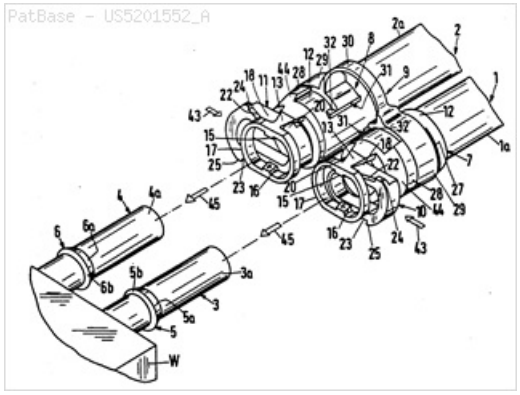
				CORRECTION	
US5186503 A	19960801	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US5186503 A	20000912		REMI	MAINTENANCE FEE REMINDER MAILED	
US5186503 A	20010218	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US5186503 A	20010424	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective date: 20010216
US5186503 A	20110412	PEXP		Calculated Patent Term Expiry	
US5186503 A	20180127	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US5186503 A	20180127	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362

71) Family number: 3851563 (US5201552 A)

Title: TWIN HOSE **COUPLING**

Abstract: A device for simultaneously **coupling** two **pipes** with two hoses has a discrete tubular **connector** for each hose, and each **connector** has flexible arms with pallets which can engage external retainers on the **pipes**. The **connectors** are more or less permanently secured to the respective hoses and are separably connected to each other by a flexible holder having C-shaped collars receivable in external **grooves** of the **connectors** and one or more flexible webs which connect the collars to each other. The flexible holder compensates for eventual departure of the distance between the **pipes** from an optimum distance and/or for absence of exact parallelism of the **pipes** with one another. When a **connector** is separated from the holder, it can be used as a constituent of a simple hose **coupling**, namely to connect the end portion of a hose to a nipple, to a **pipe** or another tubular component.

Classifications:
International (IPC 8-9): F16L F16L33/20 F16L33/213 F16L33/22 F16L37/00 F16L37/14 F16L37/56 F16L39/00
International (IPC 1-7): F16L F16L3/22 F16L33/00 F16L33/20 F16L33/22 F16L35/00 F16L37/133 F16L39/00 F16L39/02 F28F1/00
CPC: F16L33/213 F16L37/144 F16L37/56 F28F9/0246
US: 285/120.1 285/124.4 285/131 285/137.1 285/308
JP F-Term: 3H017 3J106 3H017/HA00 3H017/HA10 3J106/AA02 3J106/AB06 3J106/BA01 3J106/BB01 3J106/BC03 3J106/BD01 3J106/BE33 3J106/DA12 3J106/ED36
JP F-Index: F16L33/22 F16L39/00



Family:

Publication number	Publication date	Application number	Application date
CA2055348 AA	19920524	CA19912055348	19911112
DE4037308 C1	19920416	DE19904037308	19901123
FR2669711 A1	19920529	FR19910014417	19911122
FR2669711 B1	19930423	FR19910014417	19911122
GB2250078 A1	19920527	GB19910022395	19911022
GB9122395 A0	19911204	GB19910022395	19911022
IT1250212 B	19950403	IT1991TO00903	19911122
ITTO910903 A0	19911122	IT1991TO00903	19911122
ITTO910903 A1	19920524	IT1991TO00903	19911122
JP6341586 A2	19941213	JP19910332807	19911122
US5201552 A	19930413	US19910788830	19911107

Priority:
DE19904037308 19901123

Probable Assignee: RASMUSSEN GMBH
Assignee(s): (std): RASMUSSEN GMBH
Assignee(s): RASMUSSEN GESELLSCHAFT MIT BESCHRANKTER HAFTUNG ; RASMUSSEN GMBH 6457 MAINTAL DE ; RASMUSSEN GMBH A CO OF FED REP GERMANY
Inventor(s): (std): GERHARD WINTERSTEIN ; GERUHAATO BUINTERUSHIYUTAIN ; HOHMANN RALF ; RALF HOHMANN ; RALF SPORS ; RARUFU HOFUMAN ; RARUFU SUPORUSU ; SPORS RALF ; WINTERSTEIN GERHARD
Inventor(s): SPORS RALF 6454 BRUCHKOEBEL DE ; WINTERSTEIN GERHARD 6368 BAD VILBEL DE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA2055348 AA	19920402	LSES	+EEER	EXAMINATION REQUEST	
CA2055348 AA	19920524	LSPB	+	published / reissued	
CA2055348 AA	19940514	LSLE	-FZDE	DEAD	
DE4037308 C1	19920416	LSGT	+	granted / extensions (spc, cpc, pte)	
DE4037308 C1	19920416	LSPB	+8100	PUBLICATION OF THE EXAMINED APPLICATION WITHOUT PUBLICATION OF UNEXAMINED APPLICATION	
DE4037308 C1	19920416	LSGT	+D1	GRANT (NO UNEXAMINED APPLICATION PUBLISHED) PATENT	

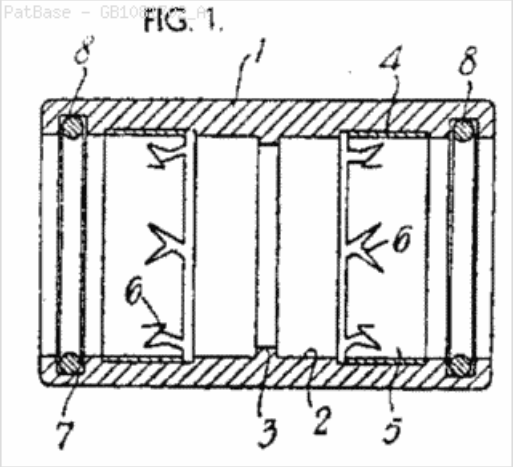
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DE4037308 C1	19921008	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE4037308 C1	19941110	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
DE4037308 C1	20101123	PEXP		Calculated Patent Term Expiry	
FR2669711 A1	19920529	LSPB	+	published / reissued	
FR2669711 B1	19930423	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2669711 B1	19940930	LSLE	-ST	NOTIFICATION OF LAPSE	
FR2669711 B1	20111122	PEXP		Calculated Patent Term Expiry	
GB2250078 A1	19920527	LSPB	+	published / reissued	
GB2250078 A1	19950823	LSWD	-WAP	APPLICATION WITHDRAWN, TAKEN TO BE WITHDRAWN OR REFUSED ** AFTER PUBLICATION UNDER SECTION 16(1)	
IT1250212 B	19950403	LSGT	+	granted / extensions (spc, cpc, pte)	
IT1250212 B	19950403	LSGT	0001	GRANTED	
IT1250212 B	20111122	PEXP		Calculated Patent Term Expiry	
ITTO910903 A1	19920524	LSPB	+	published / reissued	
JP6341586 A2	19941213	LSPB	+	published / reissued	
JP6341586 A2	19950905	LSRV	-A02	DECISION OF REFUSAL	Text: JAPANESE INTERMEDIATE CODE: A02 Effective date: 19950905
US5201552 A	19911107	LSAS	AS	ASSIGNMENT	Effective date: 19911009 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNORS:HOHMANN, RALF;SPORS, RALF;WINTERSTEIN, GERHARD;REEL/FRAME:005908/0548 Owner: RASMUSSEN GMBH, A COMPANY OF THE FED. REP. GERMANY PartyType: owner
US5201552 A	19930402	LSGT	PAT1	Patented Case	
US5201552 A	19930413	LSGT	+	granted / extensions (spc, cpc, pte)	
US5201552 A	19961119		REMI	MAINTENANCE FEE REMINDER MAILED	
US5201552 A	19970413	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US5201552 A	19970624	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective date: 19970416
US5201552 A	20111107	PEXP		Calculated Patent Term Expiry	
US5201552 A	20180127	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US5201552 A	20180127	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362

72) Family number: 23042025 (GB1081702 A)

Title: Improvements in or relating to **connector** members for **pipes**, tubes or the like

Abstract: 1,081,702. **Pipe** **coupling**. BRITISH ALUMINIUM CO. Ltd. Nov. 30, 1964 [Nov. 29, 1963], No. 47254/63. Heading F2G. A **connector** member 1 for a **pipe** **coupling** has at least one passage opening to the exterior thereof to receive the free end of a **pipe** and has a plurality of tooth-like projections of a resiliently deformable material angularly disposed about and extending into the path of insertion of the **pipe** end and at an inclination away from the open end of the **connector** and includes sealing means between the **connector** and the **pipe**. As described, the **connector** is preferably of aluminium and contains a spring steel part-cylindrical element 5 having the tooth-like projections 6 and fitting in a recess 4 in the **connector**, sealing of the **coupling** being provided by a sealing **ring** 8 seated in a **groove** 7 which may be internally or externally situated relative to the spring steel element 5. A rib 3 is provided to limit the depth of penetration of the **pipe**, which, in one embodiment may be replaced by a solid wall to blank-off the **pipe** end. The **connector** may have one opening when acting as a stopper, two, as shown in Fig. 1, or more.

Classifications:
International (IPC 8-9): F16L37/00 F16L37/088
International (IPC 1-7): F16L21/08 F16L37/14
CPC: F16L37/091



Family:

Publication number	Publication date	Application number	Application date
GB1081702 A	19670831	GB19630047254	19631129

Priority:
GB19630047254 19631129

Probable Assignee:	BRITISH ALUMINIUM CO LTD
Assignee(s): (std):	BRITISH ALUMINIUM CO LTD
Assignee(s):	THE BRITISH ALUMINIUM COMPANY LIMITED
Inventor(s): (std):	CLAYTON HERBERT ROY

Legal status (INPADOC)

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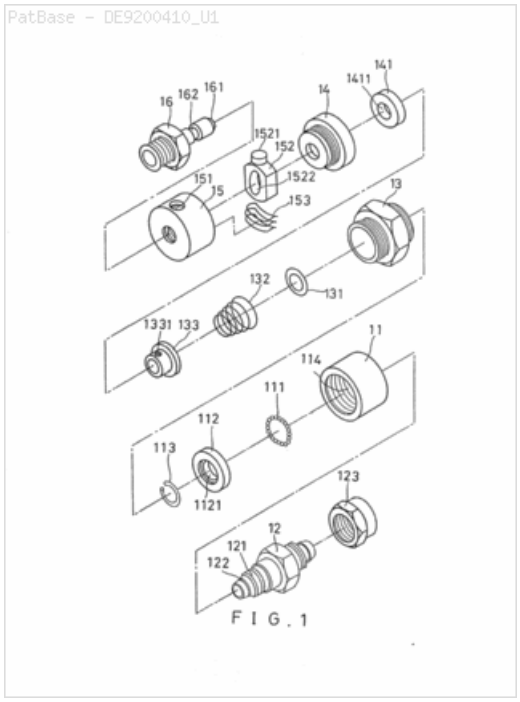
Patent	Date recorded	Event group	Code	Event	Details
GB1081702 A	19670831	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1081702 A	19831129	PEXP		Calculated Patent Term Expiry	

73) Family number: 17687423 (DE9200410 U1)

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Abstract: Source: DE9200410 U1 **Machine translation:** (Claim 1) protection claim first Rotating quick **coupling** for connecting two air line, characterized in that it comprises: an intermediate link (13), which has a through hole at its center axis, a rear on the intermediate link (13) fastening prior declaration sleeve (11), a variety of ball bearing balls (111) in an **annular** **groove** (114) in its interior exhibits, a rotary **ring** (112), which is rotatably inserted into the rear sleeve (11) and is supported by the ball bearing balls (111), a first air line **connectors** (12) that through an air line (2) connected to an air compressor and a step-like tube at one end has to be inserted through the rear sleeve (11) and the rotating **ring** (112), with the step-like tube, a first **annular** **groove** (121) exhibits, which is located behind a second **annular** **groove** (122) and at a C-shaped snap **ring** (113) locking attacks, a sealing **ring** (131), which is attached to the second **annular** **groove** (122) to the space seal between the first tubular **connector** (12) and the rear sleeve (11), a first spring means (132), which is included in the Durchgangsoeffnung within the intermediate connecting member (13) and is supported on the first air line **connectors** (12), a step-like metal element (133), which is in the through-hole within the intermediate connecting member (13 included) and on the first spring means (132) supported, with the stepped metal element (133), an air hole (1331) on its circumference change, an inner sleeve (14), the at the intermediate link (13) mounted at the opposite end, a rubber **ring** (141), which is within the inner sleeve (14) was added and the stepped metal element (1331) arranged to seal the air hole (1333), a front sleeve (15), which is mounted on the inner sleeve (14) and has a Betaetigungsloch (151) in a peripheral wall, a retaining element (152), which is within the front sleeve (15) arranged and a second spring means (153) supported wherein the retaining element (152) through its main part, an oval hole (1522) and a projection (1521) at one end has that runs through the Betaetigungsloch (151) of the front sleeve (15) extends, and a second air line **connectors** (16) for connecting the first air line **connector** (12) with a pneumatic tool (3), an **annular** **groove** (162) to a tapered end (161) which are realized through the front sleeve (15) is executed and (1522) through the oval hole is held firmly, with insertion of the second air line **connector** (16) into the front sleeve (15) one makes the air hole (1331) on the step-like metal element (133) of the sealing **ring** (141) removed, flow which compressed air can, with a Pushing the edge (1521) causes the second air **connector** (16) from the holding effect of the oval hole (1522) in the retaining element (152) resolved, are making the second air line **connectors** (16) of the front sleeve (15) removed can, with a rotation of the pneumatic tool (3), which is the second air line **connectors** (16), a turning of the second air line **connector** (16) with respect to the first air line **connectors** (12) causes.

Classifications:
International (IPC 8-9): F16L37/00 F16L37/086 F16L37/28 F16L37/42 F16L37/53
International (IPC 1-7): F16L37/42
CPC: F16L37/086 F16L37/42 F16L37/53



Family:

Publication number	Publication date	Application number	Application date
DE9200410 U1	19920416	DE19920000410U	19920115

Priority:
DE19920000410U 19920115

Probable Assignee: LEE YEONG HSIUNG

Assignee(s): LEE YEONG HSIUNG ; LEE YEONG LUAN PAN CHIAO CITY TAIPEH TW

Legal status (INPADOC)

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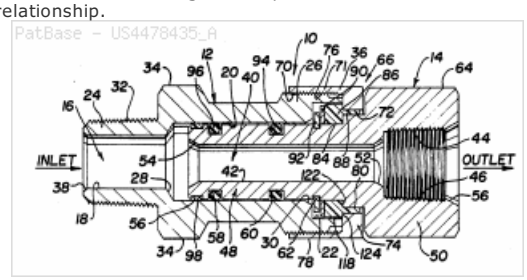
Patent	Date recorded	Event group	Code	Event	Details
DE9200410 U1	19920416	LSGT	+	granted / extensions (spc, cpc, pte)	
DE9200410 U1	20020115	PEXP		Calculated Patent Term Expiry	

74) Family number: 4531280 (US4478435 A)

Title: SWIVEL **CONNECTOR**

Abstract: Swivel **connector** apparatus for use in connecting lines together which carry a pressurized fluid and which require relative rotation therebetween is disclosed which includes an outer body having a bore formed axially therein which extends entirely therethrough. An inner body is configured for an interfitting relationship between a first portion thereof and the bore of the outer body which includes three bore portions. The inner body includes a bore formed axially therein which extends entirely therethrough. The first portion of the inner body is provided with a predetermined number of **annular** cavities on the outer surface at predetermined locations. Sealing means and radial bearing means are positioned in predetermined **annular** cavities of the first portion of the inner body and are in engagement with the first portion of the inner body and the bore of the outer body. A retaining nut and a one-piece combined radial and axial bearing are positioned on the first portion of the inner body at a predetermined location and are maintained at that location by retaining means. The combined radial and axial bearing is in engagement with the inner body, the outer body and the retaining nut. Threads in the retaining nut cooperate with threads on the outer body to maintain the inner and outer bodies in operative rotatable relationship.

Classifications:
International (IPC 8-9): F16L27/00 F16L27/08
International (IPC 1-7): F16L35/00
CPC: F16L27/0808 Y10S285/918
US: 285/147.1 285/168 285/281 285/351 285/39 285/918 285/98



Family:

Publication number	Publication date	Application number	Application date
US4478435 A	19841023	US19820439396	19821105

Priority:
US19820439396 19821105

Probable Assignee: CHESHIER PHYLLIS T
Assignee(s): (std): CHESHIER CHARLES L ; LEWIS DON W
Assignee(s): CHESHIER PHYLLIS T
Inventor(s): (std): CHESHIER CHARLES L ; LEWIS DON W

Legal status (INPADOC)

View legal status timeline

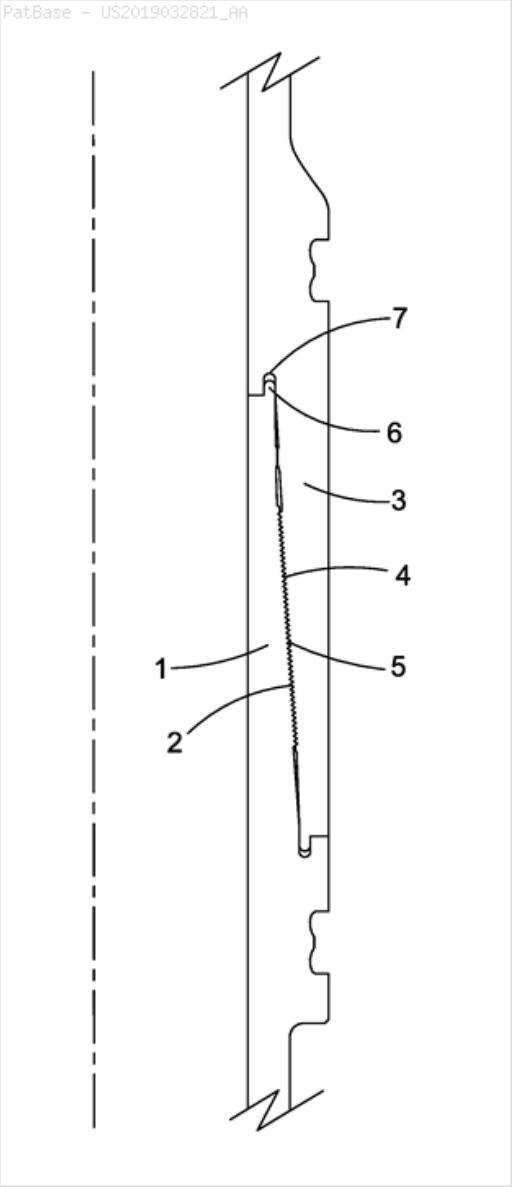
Patent	Date recorded	Event group	Code	Event	Details
US4478435 A	19840823	LSGT	PAT1	Patented Case	
US4478435 A	19841023	LSGT	+	granted / extensions (spc, cpc, pte)	
US4478435 A	19880411	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US4478435 A	19920528		REMI	MAINTENANCE FEE REMINDER MAILED	
US4478435 A	19921021	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US4478435 A	19921021		+SULP	SURCHARGE FOR LATE PAYMENT	
US4478435 A	19940627	LSAS	AS	ASSIGNMENT	PartyType: owner OldParty: INCIDENT TO DIVORCE;ASSIGNOR:CHESHIER, CHARLES L.;REEL/FRAME:007038/0496 Owner: CHESHIER, PHYLLIS T., TEXAS Effective date: 19930402
US4478435 A	19960528		REMI	MAINTENANCE FEE REMINDER MAILED	
US4478435 A	19961020	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US4478435 A	19961231	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective date: 19961023
US4478435 A	20180123	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US4478435 A	20180123	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362

75) Family number: 62528806 (US2019032821 AA)

Title: **PIPE** **COUPLING**

Abstract: A **pipe** **connector** comprising tubular pin member having an outer peripheral surface and a tubular box member having an inner peripheral surface corresponding to the outer peripheral surface of the pin member and which overlies the outer surface of the pin member when the members are fully engaged together, the members being provided with inter engaging projections and **grooves** on said peripheral surfaces for axially locking the members together when they are fully engaged together, the pin member further comprising an **annular** collar shrink fitted onto the pin member above of the peripheral outer surface, the collar comprising a shoulder at one end of the collar adjacent the outer peripheral surface of the pin member, the arrangement being such that when the members are fully engaged together, the tubular box member abuts the shoulder of the **annular** collar.

Classifications:
International (IPC 8-9): E21B17/042 E21B17/046 E21B17/08 F16L15/04 F16L15/08 F16L19/065 F16L21/00
International (IPC 1-7): E21B17/042 E21B17/08
CPC: E21B17/042 E21B17/046 E21B17/085 F16L15/04 F16L15/08 F16L19/065 F16L21/007
US: 1/1 285/355



Family:

Publication number	Publication date	Application number	Application date
AU2017236418 AA	20180830	AU20170236418	20170322
BR112018068413 A2	20190122	BR20181168413	20170322
DE602017015712 D1	20200520	DE201760015712T	20170322
EP3405644 A1	20181128	EP20170717818	20170322
EP3405644 B1	20200429	EP20170717818	20170322
GB201604872 A0	20160504	GB20160004872	20160322
GB201704540 A0	20170503	GB20170004540	20170322
GB2548717 A1	20170927	GB20170004540	20170322
GB2548717 B2	20200226	GB20170004540	20170322
SG11201806876T A1	20181030	SG20181106876	20170322
US2019032821 AA	20190131	US20170080899	20170322
WO17163067 A1	20170928	WO2017GB50809	20170322

Priority:

GB20160004872 20160322 WO2017GB50809 20170322 EP20170717818 20170322

Probable Assignee: OIL STATES IND UK LTD

Assignee(s): (std): OIL STATES IND UK LTD ; OIL STATES INT UK LTD

Assignee(s): OIL STATES IND ; OIL STATES IND UK LTD NIGG

Inventor(s): (std): DAVID MALCOLM SINCLAIR ; SINCLAIR DAVID MALCOLM

Agent(s): ALLENS PATENT AND TRADE MARK ATTORNEYS; MURGITROYD AND CO

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KH KM KN KP KR KW KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2017236418 AA	20180830	LSPB	+	published / reissued	
EP3405644 A1	20181128	LSPB	+	published / reissued	
EP3405644 A1	20181128	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20180717
EP3405644 A1	20181128		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
EP3405644 A1	20181128		+AV	REQUEST FOR VALIDATION OF THE EUROPEAN PATENT	Country of Ref document: MA MD
EP3405644 A1	20181128		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Country of Ref document: BA ME
EP3405644 A1	20190102	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	Owner: OIL STATES INDUSTRIES (UK) LIMITED PartyType: owner
EP3405644 A1	20190626		DAV	REQUEST FOR VALIDATION OF THE EUROPEAN PATENT (DELETED)	
EP3405644 A1	20190626		DAX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT (DELETED)	
EP3405644 A1	20191113	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	Effective date: 20191017
EP3405644 B1	20200429	LSGT	+	granted / extensions (spc, cpc, pte)	
EP3405644 B1	20200429		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
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EP3405644 B1	20200430	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: EP
EP3405644 B1	20200515	LSNP	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20200515 Kind code of Ref document: T Ref country code: AT Ref document number: 1263570 Ref legal event code: REF Country of Ref document: AT
EP3405644 B1	20200520	LSPB	REG	REFERENCE TO A NATIONAL CODE	Ref country code: DE Ref document number: 602017015712 Ref legal event code: R096 Country of Ref document: DE
EP3405644 B1	20200527	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: FG4D
EP3405644 B1	20200928	LSNP	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20200429 Ref country code: NO

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GB201604872 A0	20171220	LSWD	-AT	APPLICATIONS TERMINATED BEFORE PUBLICATION UNDER SECTION 16(1)	
GB2548717 A1	20170927	LSPB	+	published / reissued	
GB2548717 B2	20200226	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2548717 B2	20370322	PEXP		Calculated Patent Term Expiry	
SG11201806876T A1	20181030	LSPB	+	published / reissued	
US2019032821 AA	20180925	LSAS	AS	ASSIGNMENT	Effective date: 20180925 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:SINCLAIR, DAVID MALCOLM;REEL/FRAME:046967/0865 Owner: OIL STATES INDUSTRIES (UK) LTD., GREAT BRITAIN PartyType: owner
US2019032821 AA	20181031		APP1	Application Dispatched from Preexam, Not Yet Docketed	
US2019032821 AA	20181031		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: APPLICATION DISPATCHED FROM PREEXAM, NOT YET DOCKETED
US2019032821 AA	20190131	LSPB	+	published / reissued	
US2019032821 AA	20190808		RFE1	Docketed New Case - Ready for Examination	
US2019032821 AA	20190808		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: DOCKETED NEW CASE - READY FOR EXAMINATION
US2019032821 AA	20200624	LSES	NFA1	Non Final Action Mailed	
US2019032821 AA	20200624		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: NON FINAL ACTION MAILED
WO17163067 A1	20170928	LSPB	+	published / reissued	
WO17163067 A1	20180824	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2017717818 Country of Ref document: EP
WO17163067 A1	20180830	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Date of Ref document: 20170322 Kind code of Ref document: A Ref document number: 2017236418 Country of Ref document: AU
WO17163067 A1	20180907	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 11201806876T Country of Ref document: SG
WO17163067 A1	20180925	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: DE
WO17163067 A1	20181005	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Effective date: 20180824 Ref document number: 2017717818 Country of Ref document: EP
WO17163067 A1	20181016		REG	REFERENCE TO NATIONAL CODE	Ref country code: BR Ref document number: 112018068413 Ref legal event code: B01A Country of Ref document: BR

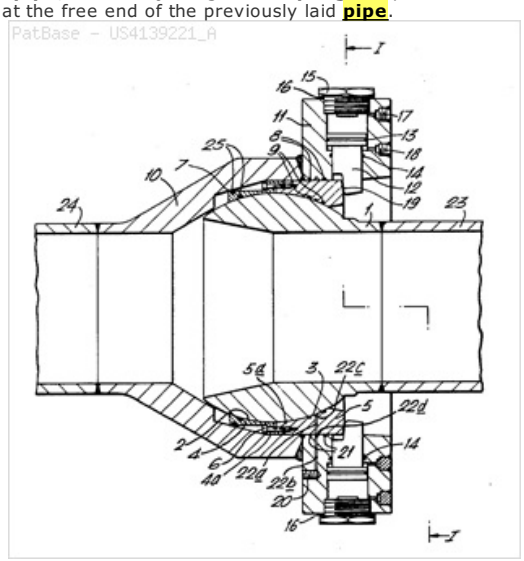
WO17163067 A1	20181128		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	Kind code of Ref document: A1 Ref document number: 17717818 Country of Ref document: EP
WO17163067 A1	20190122	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Effective date: 20180911 Kind code of Ref document: A2 Ref document number: 112018068413 Country of Ref document: BR

76) Family number: 3582545 (US4139221 A)

Title: BALL AND SOCKET JOINT

Abstract: A ball and socket joint comprising a member having forward facing and rear facing spherical surface portions, a collar engaged about the member and having internal surface portions mating with the spherical surface portions of the member, a socket into which is received the previously formed assembly comprising the member with the collar engaged thereabout, and securing means for securing the assembly in the socket. The ball and socket joint being constructible as a **pipe coupling**, particularly a **pipe coupling** for use in difficult working environments such as a deep subsea location, the securing means can be constructed for remote operation and can be constructed for applying to the assembly a continuous pre-load force tending to push the assembly into the socket. A pipeline laying method suited to laying underwater pipelines of length up to about 12,000 feet for which conventional methods such as by the use of a lay barge may be uneconomic, or for laying pipelines under ice floes, comprises using a relatively small surface or submarine vessel to lay **pipes** up to about 500 feet in length with the components of ball and socket **pipe couplings** previously assembled to the ends of each **pipe**, and then joining the **coupling** component at one end of each **pipe**, after the **pipe** has been laid, to the mating component at the free end of the previously laid **pipe**.

Classifications:
International (IPC 8-9): B23Q1/00 B23Q1/25 B23Q1/26 B23Q1/28 B23Q1/54 E21B43/00 E21B43/013 F16C11/06 F16L1/12 F16L1/16 F16L27/02 F16L27/04 F16L27/053 F16L27/06 F16L35/00 F16L37/00 F16L37/52
International (IPC 1-7): E21B43/01 F16C11/06 F16L1/04 F16L27/04 F16L35/00 F16L37/12
CPC: B23Q1/0027 B23Q1/28 B23Q1/545 F16L1/161 F16L27/053 F16L37/002 F16L37/52 Y10S285/92 E21B43/013 F16C11/0619 F16C2322/39 F16L27/06
US: 285/18 285/261 285/271 285/920
JP F-Term: 3H104 3H104/CA07 3H104/CA10 3H104/CB10 3H104/JA03 3H104/JB01 3H104/JC10 3H104/JD09 3H104/KA04 3H104/KB07 3H104/KB08 3H104/KC03 3H104/KC06 3H104/LA01 3H104/LA13 3H104/LA18 3H104/LA19 3H104/LF05 3H104/LF06 3H104/LG03 3H104/LG23 3H104/MA01 3H104/MA02 3H104/MA10
JP F-Index: F16L27/04 F16L27/06 F16L27/073



Family:

Publication number	Publication date	Application number	Application date
CA1080274 A1	19800624	CA19760261981	19760924
FR2365053 A1	19780414	FR19760029929	19761005
FR2365053 B3	19790615	FR19760029929	19761005
GB1558763 A	19800109	GB19750040755	19751006
IT1074147 A	19850417	IT19760051577	19761005
JP52048833 A2	19770419	JP19760120227	19761006
NL7610944 A	19770412	NL19760010944	19761004
NO155257 B	19861124	NO19760003189	19760917
NO155257 C	19870304	NO19760003189	19760917
NO763189 A	19770412	NO19760003189	19760917
NO763189 L	19770412	NO19760003189	19760917
US4139221 A	19790213	US19760725632	19760922

Priority:

GB19750040755 19751006 GB19750047754 19751120 GB19760004670 19760206
GB19760011218 19760319 GB19760028933 19760712 GB19760040755 19761001
JP19760120227 19761006

Probable Assignee: SHOTBOLT K
Assignee(s): (std): KEITH SHOTBOLT ; SHOTBOLT K ; SHOTBOLT KEITH
Assignee(s): KEISU SHIYOTSUTOBORUTO ; KEITH SHOTBOLT TE GERRADS CROSS GROOT BRITTANNIE
Inventor(s): (std): KEISU SHIYOTSUTOBORUTO ; SHOTBOLT KEITH

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA1080274 A1					
CA1080274 A1	19970624	LSLE	-MKEX	EXPIRY	
FR2365053 A1	19780414	LSPB	+	published / reissued	
FR2365053 B3	19790615	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2365053 B3	19800808	LSLE	-ST	NOTIFICATION OF LAPSE	
FR2365053 B3	19821005	PEXP		Calculated Patent Term Expiry	

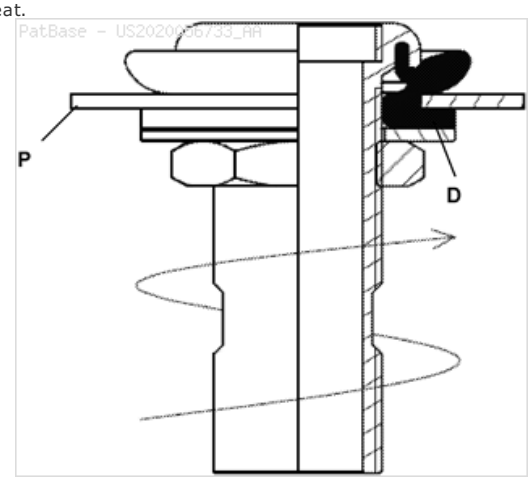
GB1558763 A	19800109	LSGT	+	granted / extensions (spc, cpc, pte)
GB1558763 A	19800326	LSGT	+PS	PATENT SEALED
GB1558763 A	19880511	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE
GB1558763 A	19951006	PEXP		Calculated Patent Term Expiry
IT1074147 A	19850417	LSGT	+	granted / extensions (spc, cpc, pte)
IT1074147 A	19961005	PEXP		Calculated Patent Term Expiry
JP52048833 A2	19770419	LSPB	+	published / reissued
NL7610944 A	19770412	LSPB	+	published / reissued
NL7610944 A	19790625	LSLE	-BV	THE PATENT APPLICATION HAS LAPSED
NO155257 B	19861124	LSPB	+	published / reissued
NO155257 C	19870304	LSGT	+	granted / extensions (spc, cpc, pte)
NO155257 C	19960917	PEXP		Calculated Patent Term Expiry
NO763189 A	19770412	LSPB	+	published / reissued
US4139221 A	19790213	LSGT	+	granted / extensions (spc, cpc, pte)
US4139221 A	19960922	PEXP		Calculated Patent Term Expiry

77) Family number: 69743420 (US2020056733 AA)

Title: DEFORMABLE GASKET FOR THE SEALED PASSAGE OF A FLUID THROUGH A WALL

Abstract: A gasket for use with a **connector** assembly apt to allow the sealed passage of a fluid through a wall (P) and suitable for installation realized from just one side of the wall, which gasket has a deformable region is provided. The gasket is configured to assume an installation configuration, in which the gasket can be introduced into a **connector** seat (D) formed in the wall (P), crossing it from side to side, and a sealing configuration, wherein the gasket is installed in the wall (P) and deformed, at the deformable region, to abut on an inside mouthpiece of the **connector** seat.

Classifications:
International (IPC 8-9)**:** F16J15/08 F16L41/14
CPC: F16J15/0818 F16L41/14



Family:

Publication number	Publication date	Application number	Application date
CA3041971 AA	20190426	CA20173041971	20171108
EP3538807 A1	20190918	EP20170809377	20171108
IT201600113022 A1	20180509	IT201610000113022	20161109
US2020056733 AA	20200220	US20170345962	20171108
WO18087673 A1	20180517	WO2017IB56986	20171108

Priority:

IT201610000113022 20161109 WO2017IB56986 20171108

Probable Assignee: TROMBATORE GIUSEPPE

Assignee(s): (std)**:** TROMBATORE GIOVANNI ; TROMBATORE GIUSEPPE

Inventor(s): (std)**:** TROMBATORE GIOVANNI ; TROMBATORE GIUSEPPE

Agent(s): BERESKIN AND PARR LLP SENCRL SRL; MANNA SARA; PAPA ELISABETTA ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
CA3041971 AA	20190426	LSPB	+	published / reissued	
EP3538807 A1	20190918	LSPB	+	published / reissued	
EP3538807 A1	20190918	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20190514
EP3538807 A1	20190918		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
EP3538807 A1	20190918		+AV	REQUEST FOR VALIDATION OF THE EUROPEAN PATENT	Country of Ref document: MA MD
EP3538807 A1	20190918		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Country of Ref document: BA ME
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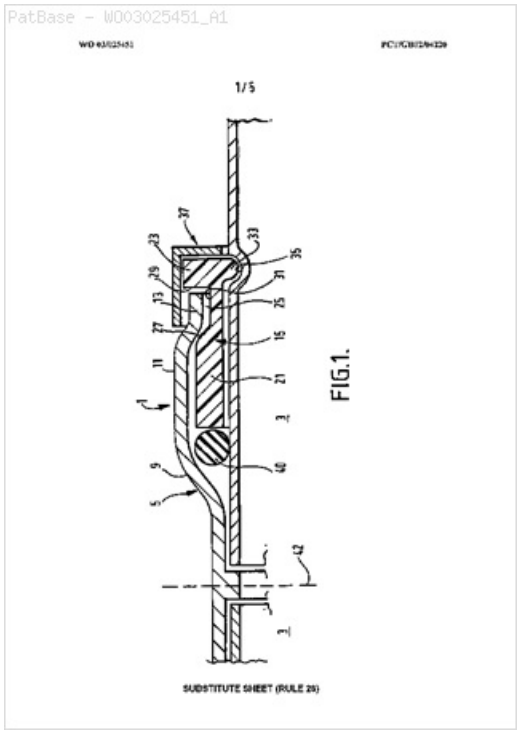
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EP3538807 A1	20200212		DAX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT (DELETED)	
EP3538807 A1	20200812	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	Effective date: 20200714
IT201600113022 A1	20180509	LSPB	+	published / reissued	
US2020056733 AA	20190429	LSAS	AS	ASSIGNMENT	Effective date: 20190429 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:TROMBATORE, GIOVANNI;REEL/FRAME:049026/0067 Owner: TROMBATORE, GIUSEPPE, ITALY PartyType: owner
US2020056733 AA	20191205		APP1	Application Dispatched from Preexam, Not Yet Docketed	
US2020056733 AA	20200220	LSPB	+	published / reissued	
WO18087673 A1	20180517	LSPB	+	published / reissued	
WO18087673 A1	20181011		DPE1	REQUEST FOR PRELIMINARY EXAMINATION FILED AFTER EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED FROM 20040101)	
WO18087673 A1	20181128		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	Kind code of Ref document: A1 Ref document number: 17809377 Country of Ref document: EP
WO18087673 A1	20190426	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Ref document number: 3041971 Country of Ref document: CA
WO18087673 A1	20190510	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: DE
WO18087673 A1	20190614	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Effective date: 20190611 Ref document number: 2017809377 Country of Ref document: EP

78) Family number: 15732784 (WO03025451 A1)

Title: **PIPE** **CONNECTORS**

Abstract: A **pipe** **connector** (1) for connecting a circular cylindrical end (3) of a **pipe** and/or fitting to another **pipe** or body is described, the **pipe** **connector** comprising a sleeve (5) for surrounding the cirular cylindrical end, means for locking (15) the sleeve (5) to said cylindrical end (3) and sealing means (40) for sealing the sleeve to the cylindrial end (3), the **pipe** **connector** (1) being characterised by the means for locking the sleeve to the cylindrical end including an **annular** **ring** (15) having a plurality of generally axially extending slots (20).

Classifications:
International (IPC 8-9): F16L37/00 F16L37/133
International (IPC 1-7): F16L37/133
CPC: F16L37/133



Family:

Publication number	Publication date	Application number	Application date
GB200122439 A0	20011107	GB20010022439	20010918
WO03025451 A1	20030327	WO2002GB04220	20020917

Priority:
GB20010022439 20010918

Probable Assignee: DAVIDSON PAUL A

Assignee(s): (std): DAVIDSON PAUL A ; DAVIDSON PAUL ANTHONY ; OYSTERTEC PLC

Inventor(s): (std): DAVIDSON PAUL ANTHONY

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ OM PH PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
GB200122439 A0	20030122	LSWD	-AT	APPLICATIONS TERMINATED BEFORE PUBLICATION UNDER SECTION 16(1)	
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WO03025451 A1	20030327		+AK	DESIGNATED STATES	Kind code of Ref document: A1 Country of Ref document: AE AG AL AM AT AU AZ BA BB BG BY BZ CA CH CN CO CR CU CZ DE DM DZ EC EE ES FI GB GD GE GH HR HU ID IL IN IS JP KE KG KP KR LC LK LR LS LT LU LV MA MD MG MN MW MX MZ NO NZ OM PH PL PT RU SD SE SG SI SK SL TJ TM TN TR TZ UA UG US UZ VC VN YU ZA ZM
WO03025451 A1	20030327		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: AM AT AZ BE BF BG BJ BY CF CG CH CI CY CZ DK EE ES FI FR GA GB GH GM GN GQ GR GW IE IT KE KG KZ LS LU MC ML MR MW MZ NE PT RU SD SE SK SL SN SZ TD TG TJ TM TR UG US ZM ZW

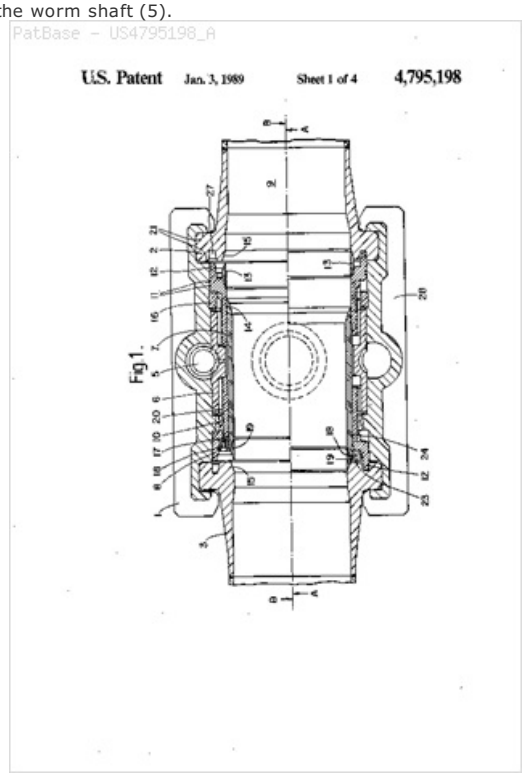
WO03025451 A1	20030521		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	
WO03025451 A1	20030717		DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101)	
WO03025451 A1	20041124	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	Ref country code: WO
WO03025451 A1	20060517	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: JP
WO03025451 A1	20060517	LSWD	-WWW	WIPO INFORMATION: WITHDRAWN IN NATIONAL OFFICE	Text: JP

79) Family number: 2807996 (US4795198 A)

Title: **CONNECTOR** DEVICE FOR AN UNDERWATER **PIPE** SYSTEM

Abstract: A **connector** device for an underwater **pipe** system which comprises one or m conduits, for connecting **pipe** sections together or to valves, well heads or similar, whereby such a **pipe** section comprises an end flange (2) which can be introduced into **grooves** extending in the transverse direction of a housing (1) by mutual movement of the **pipe** section and the housing transversely of their longitudinal direction, said housing containing an axially shiftable sleeve unit (7) having a through going duct for each conduit, and said device comprising means for biasing the end flange against surfaces in the **grooves**. In order to achieve sealing the sleeve unit or units (7) are equipped with at least one main sealing **ring** (13,19) for each duct, adapted to be pressed against a seat (15) on an end flange, and the sleeve unit or units are locked against rotation and have external threads which cooperate with internal threads in a socket (6) which partly surrounds the sleeve unit or units (7). The socket is locked against axial movement in the housing and is **coupled** to a worm shaft (5) in order to be rotated, for shifting of the sleeve unit or units, said worm shaft being journaled in the housing and can be controlled from the outside. A sealing bushing (24) may be provided inside of the sleeve unit or units, integral with or fastened to a sleeve unit, adapted to provide sealing for preventing that a medium in a conduit may come into contact with the socket (6) and/or the worm shaft (5).

Classifications:
International (IPC 8-9): E21B33/03 E21B33/038 F16L37/00
International (IPC 1-7): F16L17/00 F16L21/04 F16L27/12 F16L37/26
CPC: E21B33/038 F16L37/002 Y10S285/912 Y10S285/92
US: 285/32 285/325 285/912 285/920 285/93



Family:

Publication number	Publication date	Application number	Application date
EP0260237 A1	19880316	EP19870850257	19870826
NO167600 B	19910812	NO19860003431	19860827
NO167600 C	19911120	NO19860003431	19860827
NO863431 A	19880229	NO19860003431	19860827
NO863431 A0	19860827	NO19860003431	19860827
NO863431 L	19880229	NO19860003431	19860827
US4795198 A	19890103	US19870089412	19870826

Priority:

NO19860003431 19860827

Probable Assignee: DEN NORSKE STATS OLJESELSKAP A S

Assignee(s): (std): LIAAEN ENG AS ; NORSKE STATS OLJESELSKAP

Assignee(s): DEN NORSKE STATS OLJESELSKAP A S ; DEN NORSKE STATS OLJESELSKAP A S AND LIAAEN ENGINEERING A S ; DEN NORSKE STATS OLJESELSKAP A S PO BOX ; LIAAEN ENGINEERING A S ; LIAAEN ENGINEERING A S N ; NORSKE STATS OLJESELSKAP A S DEN ; NORSKE STATS OLJESELSKAP DEN AS

Inventor(s): (std): HJELSET KURT J

Designated states: DE FR GB IT NL

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
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EP0260237 A1	19880316	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 19870902

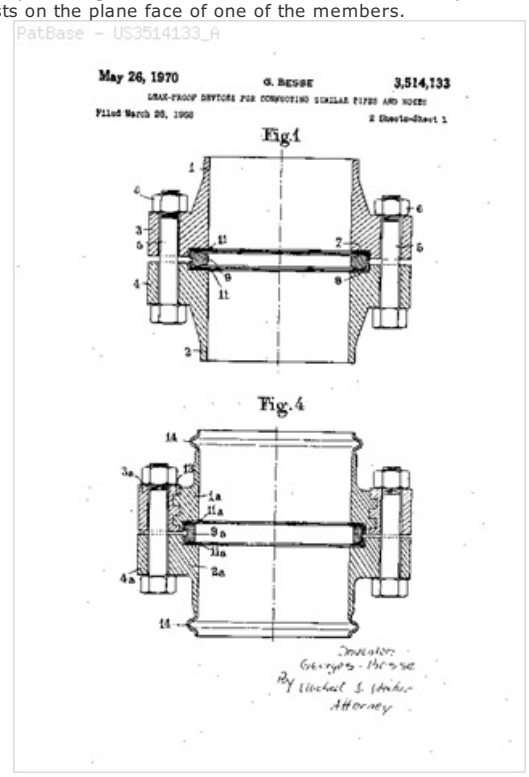
EP0260237 A1	19880316		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: DE FR GB IT NL
EP0260237 A1	19890308	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	Effective date: 19880917
EP0260237 A1	19890308	LSES	D17P	REQUEST FOR EXAMINATION FILED (DELETED)	
EP0260237 A1	20070808		RIN1	INFORMATION ON INVENTOR PROVIDED BEFORE GRANT (CORRECTED)	Inventor: HJELSET, KURT J. PartyType: inventor
NO167600 B	19910812	LSPB	+	published / reissued	
NO167600 C	19911120	LSGT	+	granted / extensions (spc, cpc, pte)	
NO167600 C	20060827	PEXP		Calculated Patent Term Expiry	
NO863431 A	19880229	LSPB	+	published / reissued	
US4795198 A	19880201	LSAS	AS	ASSIGNMENT	Effective date: 19880118 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNOR:HJELSET, KURT J.;REEL/FRAME:004828/0648 Owner: DEN NORSKE STATS OLJESELSKAP A/S, P.O. BOX 300, N- PartyType: owner
US4795198 A	19880201	LSAS	AS	ASSIGNMENT	Effective date: 19880118 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST.;ASSIGNOR:HJELSET, KURT J.;REEL/FRAME:004828/0648 Owner: LIAAEN ENGINEERING A/S, N-6025 ALESUND, NORWAY PartyType: owner
US4795198 A	19880201	LSAS	AS	ASSIGNMENT	Effective date: 19880118 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:HJELSET, KURT J.;REEL/FRAME:004828/0648 Owner: DEN NORSKE STATS OLJESELSKAP A/S,NORWAY PartyType: owner
US4795198 A	19880201	LSAS	AS	ASSIGNMENT	Effective date: 19880118 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:HJELSET, KURT J.;REEL/FRAME:004828/0648 Owner: LIAAEN ENGINEERING A/S,NORWAY PartyType: owner
US4795198 A	19881027	LSGT	PAT1	Patented Case	
US4795198 A	19890103	LSGT	+	granted / extensions (spc, cpc, pte)	
US4795198 A	19920701	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US4795198 A	19960628	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US4795198 A	20000725		REMI	MAINTENANCE FEE REMINDER MAILED	
US4795198 A	20001231	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US4795198 A	20010306	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective date: 20010103
US4795198 A	20070826	PEXP		Calculated Patent Term Expiry	
US4795198 A	20180130	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US4795198 A	20180130	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362

80) Family number: 42152892 (US3514133 A)

Title: LEAK-PROOF DEVICES FOR CONNECTING SIMILAR **PIPES** AND HOSES

Abstract: ABSTRACT OF THE DISCLOSURE
A fluid-tight joint for a pair of tubular members in which at least one washer of ductile material and an intermediate **ring** of a hardness substaniially equal to that of the tubular members are sandwiched between substan-tially parallel plane faces of the tubular members extend- 20 ing transverse to the aligned axes thereof with at least one convex face of the **ring** engaging the washer and in which means cooperate with the tubular members for forcibly drawing the same toward each other so as to press the convex face of the **ring** into the ductile washer while the 25 latter rests on the plane face of one of the members.

Classifications:
International (IPC 8-9): F16L19/02 F16L23/00 F16L23/16 F16L23/20
International (IPC 1-7): F16L17/0
CPC: F16L19/0218 F16L23/18 F16L23/20
US: 285/336 285/363 285/379



Family:

Publication number	Publication date	Application number	Application date
FR1524311 A	19680510	FR19670100743	19670330
FR95486 E	19710115	FR19680140609	19680221
GB1212767 A	19701118	GB19680014592	19680326
US3514133 A	19700526		00000000

Priority:
FR19670100743 19670330 FR19680140609 19680221

Probable Assignee: DEV DES IND MODERNES SOC ET

Assignee(s): (std): DEV DES IND MODERNES S E D I M ; DEV DES IND MODERNES SOC ET

Assignee(s): D ETUDES ET DE DEV DES IND MODERNES S E D I M SOC ; D ETUDES ET DE DEVELOPPEMENT DES IND MODERNES SOC ; SOCIETE D ETUDES ET DE DEVELOPMENT DES INDUSTRIESMODERNES S E D I M ; SOCIETE D ETUDES ET DE DEVELOPPEMENT DES INDUSTRIES MODERNES ; SOCIETE D ETUDES ET DE DEVELOPPEMENT DES INDUSTRIES MODERNES S E D I M

Inventor(s): (std): BESSE GEORGES

Inventor(s): GEORGES BESSE

Legal status (INPADOC)

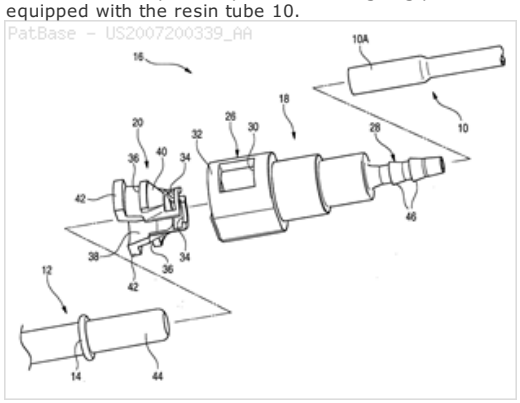
View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
FR1524311 A	19680510	LSGT	+	granted / extensions (spc, cpc, pte)	
FR1524311 A	19870330	PEXP		Calculated Patent Term Expiry	
GB1212767 A	19701118	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1212767 A	19710519	LSGT	+PS	PATENT SEALED	
GB1212767 A	19880326	PEXP		Calculated Patent Term Expiry	
GB1212767 A	19880505	LSLE	-PE20	PATENT EXPIRED AFTER TERMINATION OF 20 YEARS	
US3514133 A	19700526	LSGT	+	granted / extensions (spc, cpc, pte)	

81) Family number: 33340648 (US2007200339 AA)

Title: RESIN TUBE-EQUIPPED QUICK **CONNECTOR**

Abstract: There is provided a resin tube-equipped quick **connector** capable of connecting a fuel-transporting resin tube to a mating **pipe** without hindrance even if the resin tube has a small diameter. The quick **connector** 16 is constructed such that it includes a **connector** body 18 having a press-fitting portion 28, and a retainer 20. On the other hand, a press-fit undergoing portion 10 A of the resin tube 10 into which the press-fitting portion 28 is to be press-fitted is beforehand expanded in tube diameter prior to the press-fitting, and the press-fitting portion 28 is press-fitted into the expanded press-fit undergoing portion 10 A in a withdrawal-preventing condition to provide the quick **connector** 16 equipped with the resin tube 10.



Classifications:
International (IPC 8-9): F02M37/00 F16L13/14 F16L33/20 F16L33/207 F16L33/22 F16L33/30 F16L37/00 F16L37/08 F16L37/098 F16L37/12
International (IPC 1-7): F02M37/00 F16L33/22 F16L37/00 F16L37/08 F16L37/12
CPC: F16L33/207 F16L33/30 F16L37/0987
US: 285/305 285/319 285/33 285/33P
JP F-Term: 3H017 3J106 3H017/HA15 3J106/AA06 3J106/AB01 3J106/BA01 3J106/BB01 3J106/BC04 3J106/BD01 3J106/CA07 3J106/EA03 3J106/EC01 3J106/EC07 3J106/ED02 3J106/ED05 3J106/EE02
JP F-Index: F16L33/22 F16L37/088 F16L37/098 F16L37/12

Family:

Publication number	Publication date	Application number	Application date
BRPI0418039 A	20070417	BR2004PI18039	20041220
BRPI0418039 B1	20161206	BR2004PI18039	20041220
CA2550946 AA	20060621	CA20042550946	20041220
CA2550946 C	20120131	CA20042550946	20041220
CN1898494 A	20070117	CN200480038579	20041220
EP1701079 A1	20060913	EP20040807835	20041220
EP1701079 A4	20091202	EP20040807835	20041220
EP1701079 B1	20131009	EP20040807835	20041220
IN02253CN2006 A	20070608	IN2006CN02253	20060621
IN229059 B	20090320	IN2006CN02253	20060621
JP2005180662 A2	20050707	JP20030425960	20031222
KR100771974 B1	20071101	KR20067014625	20041220
KR20060133554 A	20061226	KR20067014625	20041220
TH34607 B	20121220	TH20041005103	20041221
TH70976 A	20051006	TH20041005103	20041221
TW200532132 A	20051001	TW20040140120	20041222
TWI352176 B	20111111	TW20040140120	20041222
US2007200339 AA	20070830	US20040583966	20041220
US8167339 BB	20120501	US20040583966	20041220
VN10591 A1	20120925	VN20060000980	20041220
WO05061941 A1	20050707	WO2004JP19480	20041220

Priority:

JP20030425960 20031222 JP20030000425 20031222 WO2004JP19480 20041220 WO2004JP19480 20060720

Probable Assignee: SUMITOMO RIKO CO LTD

Assignee(s): (std): HONDA MOTOR CO LTD ; KATO KAZUHIRO ; KITAMURA HIROKAZU ; NAGAI YASUAKI ; SUMITOMO RIKO CO LTD ; TOKAI RUBBER IND LTD ; YAGISAWA KATSUICHI

Assignee(s): HONDA MOTOR CO ; HONDA MOTOR CO LTD1-1, MINAMI-AOYAMA 2-CHOMEMINATO-KUTOKYOJP ; HONDA MOTOR COMPANY LTD ; SUMITOMO RIKO CO LTD1, HIGASHI 3-CHOMEKOMAKIAICHIJP ; TOKAI RUBBER IND ; TOKAI RUBBER IND LTD1 HIGASHI 3 CHOMEKOMAKI-SHI485-8550AICHI-KENJP ; TOKAI RUBBER INDUSTRIES LTD

Inventor(s): (std): HIROKAZU YAGISAWA KATSUICHI NA ; KATO KAZUHIRO ; KITAMURA HIROKAZU ; KITAMURA KOICHI ; NAGAI YASUAKI ; YAGISAWA KATSUICHI

Inventor(s): HIROKAZU KITAMURA ; KATO KAZUHIRO C O TOKAI RUBBER IND LTD ; KATO KAZUHIROJP ; KATSUICHI YAGISAWA ; KAZUHIRO KATO ; KITAMURA HIROKAZU C O TOKAI RUBBER IND LT ; KITAMURA HIROKAZUJP ; NAGAI YASUAKI C O HONDA R AND D CO LTD ; NAGAI YASUAKIJP ; YAGISAWA KATSUICHI C O HONDA R AND D CO LTD ; YAGISAWA KATSUICHI NAGAI YASUAKI KATO KAZUHIRO KITAMURA HIROKAZU ; YAGISAWA KATSUICHIJP ; YASUAKI NAGAI

Agent(s): BIRCH STEWART KOLASCH AND BIRCH; BIRCH STEWART KOLASCH AND BIRCH LLP; BUZZI FRANCO; SMART AND BIGGAR

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
BRPI0418039 A	20070417	LSPB	+	published / reissued	
BRPI0418039 A	20151020	LSAS	B25D	REQUESTED CHANGE OF NAME OF APPLICANT APPROVED	Owner: HONDA MOTOR CO., LTD. (JP) , SUMITOMO RIKO COMPANY PartyType: owner
BRPI0418039 A	20161018	LSGT	B09A	DECISION: INTENTION TO GRANT	
BRPI0418039 A	20161206	LSGT	+B16A	PATENT OR CERTIFICATE OF ADDITION OF INVENTION GRANTED	Text: PRAZO DE VALIDADE: 10 (DEZ) ANOS CONTADOS A PARTIR DE 06/12/2016, OBSERVADAS AS CONDICOES LEGAIS.
BRPI0418039 B1	20241220	PEXP		Calculated Patent Term Expiry	
CA2550946 AA	20060621	LSPB	+	published / reissued	
CA2550946 AA	20071130	LSES	+EEER	EXAMINATION REQUEST	
CA2550946 C	20120131	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2550946 C	20190131	LSLE	-MKLA	LAPSED	Effective date: 20181220
CA2550946 C	20241220	PEXP		Calculated Patent Term Expiry	
CN1898494 A	20070117	LSPB	+	published / reissued	
CN1898494 A	20070117	LSPB	+C06	PUBLICATION	
CN1898494 A	20070314		C10	ENTRY INTO SUBSTANTIVE EXAMINATION	
CN1898494 A	20120620	LSRV	-C12	REJECTION OF A PATENT APPLICATION AFTER ITS PUBLICATION	
EP1701079 A1	20060913	LSPB	+	published / reissued	
EP1701079 A1	20060913	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20060713
EP1701079 A1	20060913		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR
EP1701079 A1	20070207		+RBV	DESIGNATED CONTRACTING STATES (CORRECTED)	Country of Ref document: IT
EP1701079 A1	20070322		REG	REFERENCE TO A NATIONAL CODE	Ref country code: DE Ref legal event code: 8566
EP1701079 A1	20070328		DAX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT (DELETED)	
EP1701079 A4	20091202	LSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	Effective date: 20091029
EP1701079 A4	20100602	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20100429
EP1701079 A4	20130605	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	Effective date: 20130507
EP1701079 B1	20131009	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1701079 B1	20131009		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: IT

EP1701079 B1	20140917	LSGT	+26N	NO OPPOSITION FILED	Effective date: 20140710
EP1701079 B1	20170228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20161221 Year of fee payment: 13 Country of Ref document: IT
EP1701079 B1	20181031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20171220 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: IT
EP1701079 B1	20241220	PEXP		Calculated Patent Term Expiry	
IN02253CN2006 A	20070608	LSPB	+	published / reissued	
IN229059 B	20090320	LSGT	+	granted / extensions (spc, cpc, pte)	
IN229059 B	20260621	PEXP		Calculated Patent Term Expiry	
JP2005180662 A2	20050707	LSPB	+	published / reissued	
JP2005180662 A2	20061011	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	Effective date: 20061010 Text: JAPANESE INTERMEDIATE CODE: A621
JP2005180662 A2	20091013	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	Effective date: 20091013 Text: JAPANESE INTERMEDIATE CODE: A131
JP2005180662 A2	20091208	LSRE	A521	WRITTEN AMENDMENT	Effective date: 20091207 Text: JAPANESE INTERMEDIATE CODE: A523
JP2005180662 A2	20100413	LSRV	-A02	DECISION OF REFUSAL	Effective date: 20100413 Text: JAPANESE INTERMEDIATE CODE: A02
JP2005180662 A2	20100707	LSRE	A521	WRITTEN AMENDMENT	Effective date: 20100706 Text: JAPANESE INTERMEDIATE CODE: A523
JP2005180662 A2	20100811	LSRE	A521	WRITTEN AMENDMENT	Effective date: 20100723 Text: JAPANESE INTERMEDIATE CODE: A523
JP2005180662 A2	20100823	LSAL	A911	TRANSFER OF RECONSIDERATION BY EXAMINER BEFORE APPEAL (ZENCHI)	Effective date: 20100820 Text: JAPANESE INTERMEDIATE CODE: A911
JP2005180662 A2	20101101	LSAL	-A912	REMOVAL OF RECONSIDERATION BY EXAMINER BEFORE APPEAL (ZENCHI)	Effective date: 20101029 Text: JAPANESE INTERMEDIATE CODE: A912
KR100771974 B1	20060725	LSES	A201	REQUEST FOR EXAMINATION	
KR100771974 B1	20071101	LSGT	+	granted / extensions (spc, cpc, pte)	
KR100771974 B1	20080421	LSRE	G170	PUBLICATION OF CORRECTION	
KR100771974 B1	20121002	LSFE	FPAY	ANNUAL FEE PAYMENT	Payment date: 20121002 Year of fee payment: 6
KR100771974 B1	20131001	LSFE	FPAY	ANNUAL FEE PAYMENT	Payment date: 20131001 Year of fee payment: 7
KR100771974 B1	20141007	LSFE	FPAY	ANNUAL FEE PAYMENT	Payment date: 20141007 Year of fee payment: 8
KR100771974 B1	20151002	LSFE	FPAY	ANNUAL FEE PAYMENT	Payment date: 20151002 Year of fee payment: 9
KR100771974 B1	20160929	LSFE	FPAY	ANNUAL FEE PAYMENT	Payment date: 20160929 Year of fee payment: 10
KR100771974 B1	20171026	LSLE	-LAPS	LAPSE DUE TO UNPAID ANNUAL FEE	
KR100771974 B1	20241220	PEXP		Calculated Patent	

				Term Expiry	
KR20060133554 A	20061226	LSPB	+	published / reissued	
KR20060133554 A	20070419	LSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
KR20060133554 A	20070807	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	
KR20060133554 A	20071025	LSGT	+GRNT	WRITTEN DECISION TO GRANT	
TH34607 B	20121220	LSGT	+	granted / extensions (spc, cpc, pte)	
TH34607 B	20241221	PEXP		Calculated Patent Term Expiry	
TH70976 A	20051006	LSPB	+	published / reissued	
TW200532132 A	20051001	LSPB	+	published / reissued	
TWI352176 B	20111111	LSGT	+	granted / extensions (spc, cpc, pte)	
TWI352176 B	20180811	LSLE	-MM4A	ANNULMENT OR LAPSE OF PATENT DUE TO NON-PAYMENT OF FEES	
TWI352176 B	20241222	PEXP		Calculated Patent Term Expiry	
US2007200339 AA	20070830	LSPB	+	published / reissued	
US2007200339 AA	20120411	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US8167339 BB	20070420	LSAS	AS	ASSIGNMENT	Effective date: 20070326 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:YAGISAWA, KATSUICHI;NAGAI, YASUAKI;KATO, KAZUHIRO;AND OTHERS;REEL/FRAME:019187/0238 Owner: TOKAI RUBBER INDUSTRIES, LTD., JAPAN PartyType: owner
US8167339 BB	20070420	LSAS	AS	ASSIGNMENT	Effective date: 20070326 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:YAGISAWA, KATSUICHI;NAGAI, YASUAKI;KATO, KAZUHIRO;AND OTHERS;REEL/FRAME:019187/0238 Owner: HONDA MOTOR CO., LTD., JAPAN PartyType: owner
US8167339 BB	20120411	LSGT	PAT1	Patented Case	
US8167339 BB	20120501	LSGT	+	granted / extensions (spc, cpc, pte)	
US8167339 BB	20141020	LSAS	AS	ASSIGNMENT	Effective date: 20141001 OldParty: CHANGE OF NAME;ASSIGNOR:TOKAI RUBBER INDUSTRIES, LTD.;REEL/FRAME:034016/0613 Owner: SUMITOMO RIKO COMPANY LIMITED, JAPAN PartyType: owner
US8167339 BB	20151014	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US8167339 BB	20191017	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	Year of fee payment: 8
US8167339 BB	20241220	PEXP		Calculated Patent Term Expiry	
VN10591 A1	20120925	LSGT	+	granted / extensions (spc, cpc, pte)	
WO05061941 A1	20041220	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 200480038579.5 Country of Ref document: CN

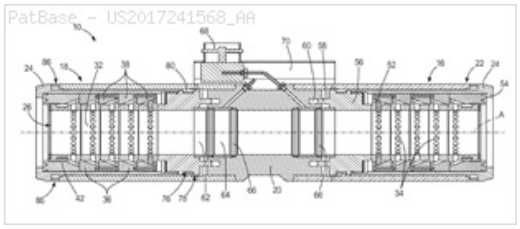
WO05061941 A1	20050707	LSPB	+	published / reissued	
WO05061941 A1	20050707		+AK	DESIGNATED STATES	Kind code of Ref document: A1 Country of Ref document: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
WO05061941 A1	20050707		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: AM AT AZ BE BF BG BJ BW BY CF CG CH CI CM CY CZ DE DK EE ES FI FR GA GB GH GM GN GQ GR GW HU IE IS IT KE KG KZ LS LT LU MC MD ML MR MW MZ NA NE NL PL PT RO RU SD SE SI SK SL SN SZ TD TG TJ TM TR TZ UG ZM ZW
WO05061941 A1	20050831		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	
WO05061941 A1	20060621	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2550946 Country of Ref document: CA
WO05061941 A1	20060621	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2004807835 Country of Ref document: EP
WO05061941 A1	20060621	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2253/CHENP/2006 Country of Ref document: IN
WO05061941 A1	20060621	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 1200600980 Country of Ref document: VN
WO05061941 A1	20060623	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: DE
WO05061941 A1	20060623	LSWD	-WWW	WIPO INFORMATION: WITHDRAWN IN NATIONAL OFFICE	Text: DE
WO05061941 A1	20060720	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 1020067014625 Country of Ref document: KR
WO05061941 A1	20060913	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 2004807835 Country of Ref document: EP
WO05061941 A1	20061226	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 1020067014625 Country of Ref document: KR
WO05061941 A1	20070417	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Ref document number: PI0418039 Country of Ref document: BR
WO05061941 A1	20070420	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 10583966 Country of Ref document: US
WO05061941 A1	20070420	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2007200339 Country of Ref document: US
WO05061941 A1	20070830	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 10583966 Country of Ref document: US

82) Family number: 62006689 (US2017241568 AA)

Title: **PIPE** REPAIR APPARATUS AND METHOD

Abstract: An activation frame for use by a remotely operated vehicle (ROV) to activate a subsea pipeline compression activated repair **connector** having no independent means of activation. The activation frame includes hydraulics and a control for the ROV to actuate the hydraulics. During installation, the hydraulics on the frame activate the **pipe** repair **connector** and form a seal between the **connector** and the **pipe**. The hydraulics, along with the frame, are separated from the **connector** after activation and returned to the surface.

Classifications:
International (IPC 8-9): F16L1/26 F16L55/18
CPC: F16L1/26 F16L1/265 F16L55/18
US: 1/1 405/184.1



Family:

Publication number	Publication date	Application number	Application date
EP3198184 A1	20170802	EP20150845186	20150928
EP3198184 A4	20180411	EP20150845186	20150928
US2017241568 AA	20170824	US20150504932	20150928
WO16049646 A1	20160331	WO2015US52695	20150928

Priority:

US20140055892P 20140926 WO2015US52695 20150928 US20150504932 20150928

Probable Assignee: ACTUANT CORP

Assignee(s): (std): ACTUANT CORP

Inventor(s): (std): BARKER DAVID

Agent(s): LAWSON JR EDWARD R; VINSOME REX MARTIN

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
EP3198184 A1	20170802	LSPB	+	published / reissued	
EP3198184 A1	20170802	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20170120
EP3198184 A1	20170802		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
EP3198184 A1	20170802		+AV	REQUEST FOR VALIDATION OF THE EUROPEAN PATENT	Country of Ref document: MA
EP3198184 A1	20170802		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Country of Ref document: BA ME
EP3198184 A1	20180103		DAV	REQUEST FOR VALIDATION OF THE EUROPEAN PATENT (DELETED)	
EP3198184 A1	20180103		DAX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT (DELETED)	
EP3198184 A4	20180411	LSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	Effective date: 20180314
EP3198184 A4	20180411		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 1/26 20060101ALI20180308BHEP
EP3198184 A4	20180411		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE	ClassificationScheme: IPC ClassificationSymbol: F16L 55/18 20060101AFI20180308BHEP

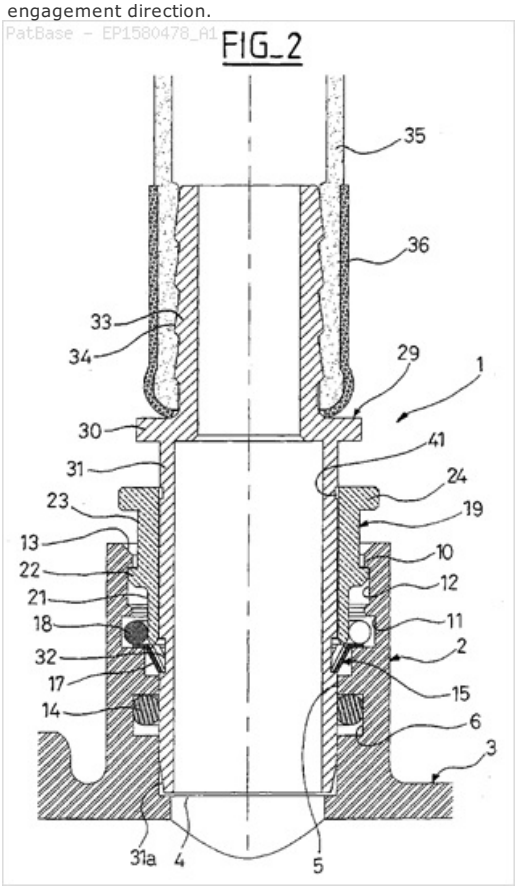
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EP3198184 A4	20190410	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	Effective date: 20181016
US2017241568 AA	20170217	LSAS	AS	ASSIGNMENT	Effective date: 20150930 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:BARKER, DAVID;REEL/FRAME:041288/0284 Owner: ACTUANT CORPORATION, WISCONSIN PartyType: owner
US2017241568 AA	20170703		RFE1	Docketed New Case - Ready for Examination	
US2017241568 AA	20170824	LSPB	+	published / reissued	
US2017241568 AA	20180808	LSES	NFA1	Non Final Action Mailed	
US2017241568 AA	20180808		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: NON FINAL ACTION MAILED
US2017241568 AA	20190418	LSWD	ABD3	Abandoned -- Failure to Respond to an Office Action	
US2017241568 AA	20190418		-STCB	INFORMATION ON STATUS: APPLICATION DISCONTINUATION	Text: ABANDONED -- FAILURE TO RESPOND TO AN OFFICE ACTION
WO16049646 A1	20160331	LSPB	+	published / reissued	
WO16049646 A1	20160518		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	Kind code of Ref document: A1 Ref document number: 15845186 Country of Ref document: EP
WO16049646 A1	20170120		+REEP	REQUEST FOR ENTRY INTO THE EUROPEAN PHASE	Ref document number: 2015845186 Country of Ref document: EP
WO16049646 A1	20170217	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 15504932 Country of Ref document: US
WO16049646 A1	20170327	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: DE

83) Family number: 32271473 (EP1580478 A1)

Title: LOCK/UNLOCK **PIPE** **COUPLING**

Abstract: The fitting has a male **connector** (29) having two end parts fixed with a **pipe** (35) and engaged in a female **connector** (2), respectively. The female **connector** has a sliding unlocking **ring** (19) across which the male **connector** is engaged. The **ring** acts on elastically deformable teeth of a retaining washer (15) for removing the **ring** from a peripheral retention **groove** of the male **connector**, when the **ring** is stressed in an engagement direction.

Classifications:
International (IPC 8-9): B25B27/02 B25B27/10 F16L37/00 F16L37/091 F16L37/098
International (IPC 1-7): F16L37/091 F16L37/098
CPC: B25B27/10 F16L37/0915 F16L37/0982



Family:

Publication number	Publication date	Application number	Application date
EP1580478 A1	20050928	EP20050290563	20050315
FR2867830 A1	20050923	FR20040002926	20040322
FR2867830 B1	20090710	FR20040002926	20040322

Priority:
FR20040002926 20040322

Probable Assignee: GRIPP
Assignee(s): (std): GRIPP
Inventor(s): (std): MENET GEORGES
Inventor(s): GEORGES MENET
Agent(s): BUREAU DA CASALONGA AND JOSSE; CASALONGA
Designated states: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
EP1580478 A1	20050928	LSPB	+	published / reissued	
EP1580478 A1	20050928		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR
EP1580478 A1	20050928		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Country of Ref document: AL BA HR LV MK YU
EP1580478 A1	20060517	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20060322

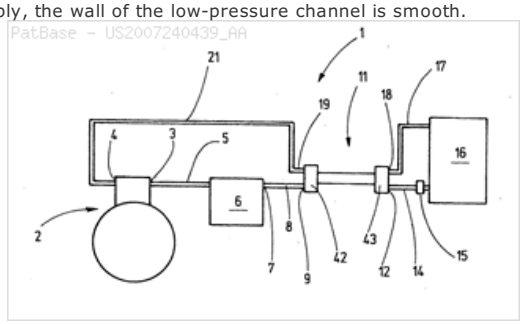
EP1580478 A1	20060614	LSFE	+AKX	DESIGNATION FEES PAID	Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR
EP1580478 A1	20060726	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20060626
EP1580478 A1	20110323	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	Effective date: 20101001
FR2867830 A1	20050923	LSPB	+	published / reissued	
FR2867830 A1	20050923		SC	SEARCH COMPLETED	
FR2867830 A1	20050923		SC	SEARCH COMPLETED	BOPI Date: 2005-38
FR2867830 B1	20090710	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2867830 B1	20120719		TO	Transmission totale de propriété	
FR2867830 B1	20120719		TO	Transmission totale de propriété	BOPI Date: 2012-33 Registered Number: 0190697
FR2867830 B1	20120719		TO	Transmission totale de propriété	BOPI Date: 2012-33 Registered Number: 0190698
FR2867830 B1	20120817	LSAS	TP	TRANSMISSION OF PROPERTY	Effective date: 20120719 Owner: WATTS INDUSTRIES FRANCE, FR PartyType: owner
FR2867830 B1	20160113	LSFE	+PLFP	FEE PAYMENT	Year of fee payment: 13
FR2867830 B1	20170920	LSFE	+PLFP	FEE PAYMENT	Year of fee payment: 14
FR2867830 B1	20180124	LSFE	+PLFP	FEE PAYMENT	Year of fee payment: 15
FR2867830 B1	20181219	LSFE	+PLFP	Fee Payement	Payment date: 20181219 Year of fee payment: 16
FR2867830 B1	20191218	LSFE	+PLFP	Fee Payement	Payment date: 20191218 Year of fee payment: 17
FR2867830 B1	20191218	LSFE	+PLFP	FEE PAYMENT	Year of fee payment: 17
FR2867830 B1	20240322	PEXP		Calculated Patent Term Expiry	

84) Family number: 34278086 (US2007240439 AA)

Title: INTERNAL REFRIGERATING MACHINE HEAT EXCHANGER

Abstract: An internal refrigerating machine heat exchanger (11) which increases the efficiency of the refrigerating machine (10) comprises a **pipe** having an internally arranged low-pressure channel and having a substantially larger cross-section than all of the high-pressure channels provided on the outside of the **pipe**. In addition, the inside width of the low-pressure channel is at least as large as the inside width of the connecting lines (17, 21). Preferably, the wall of the low-pressure channel is smooth.

Classifications:
International (IPC 8-9): F16L37/00 F16L37/088 F16L37/098 F24F5/00 F25B F25B1/00 F25B39/00 F25B39/02 F25B40/00 F25B40/02 F25B40/06 F28D F28D7/00 F28D7/08 F28D7/10 F28D7/14 F28F9/00 F28F9/04
CPC: F16L37/00 F16L37/088 F16L37/0982 F25B2309/061 F25B40/00 F25B40/02 F28D7/14 F28F2255/143 F28F2255/16 F28F2275/085 F28F9/0246 F25B2500/01 F28D7/106 F28F7/02
US: 62/216 62/216P
JP F-Term: 3L054 3L090 3L103 3L054/BC05 3L103/BB38 3L103/DD06 3L103/DD38
JP F-Index: F24F1/00,521 F24F1/00,544 F24F1/14 F24F1/32 F24F5/00@N F25B1/00,331@Z F25B1/00,396@D F28D7/10@A



Family:

Publication number	Publication date	Application number	Application date
BRPI0714178 A2	20090602	BR2007PI14178	20070413
CN101055139 A	20071017	CN200710109713	20070413
CN101055139 B	20101208	CN200710109713	20070413
DE102006017816 A1	20071018	DE200610017816	20060413
DE102006017816 B4	20080424	DE200610017816	20060413
DE202006017038 U1	20070208	DE200620017038U	20060413
DE502007014072 D1	20150827	DE200750014072T	20070411
EP1845326 A2	20071017	EP20070007398	20070411
EP1845326 A3	20120328	EP20070007398	20070411
EP1845326 B1	20150722	EP20070007398	20070411
ES2550584 T3	20151110	ES20070007398T	20070411
HU025770 T2	20160530	HU20070007398T	20070411
JP2007285693 A2	20071101	JP20070106058	20070413
JP5637422 B2	20141210	JP20070106058	20070413
MX2007004419 A1	20081201	MX20070004419	20070413
PL1845326 T3	20151231	PL20070007398T	20070411
SI1845326 T1	20160331	SI20070031696T	20070411
US2007240439 AA	20071018	US20060637594	20061212
ZA200703026 A	20080827	ZA20070003026	20070412

Priority:
DE200610017816 20060413 DE200620017038U 20060413 EP20070007398 20070411

Probable Assignee: EATON FLUID POWER GMBH
Assignee(s): (std): EATON FLUID POWER GMBH ; EATON IND IP GMBH AND CO KG ; KLUG PETER
Assignee(s): EATON CORP ; EATON INDUSTRIAL IP GMBH AND CO KG
Inventor(s): (std): BUCHMILER D ; BUCHMUELLER DANIEL ; BUCHMULLER DANIEL ; KLUG PETER ; KRUGER P ; KRUGER P BUCHMILER D WELLER S ; WELLE STEFAN ; WELLER S
Inventor(s): DANIEL BUCHMUELLER ; DANIEL BUCHMULLER ; PETER KLUG ; STEFAN WELLE
Agent(s): ABEL THOMAS MARIO; DE ELZABURU ALBERTO; EATON IP GROUP EMEA; RADER FISHMAN AND GRAUER PLLC
Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL PL PT RO RS SE SI SK TR

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
BRPI0714178 A2	20090602	LSPB	B03A	PUBLICATION OF AN APPLICATION: PUBLICATION OF A PATENT APPLICATION OR OF A CERTIFICATE OF ADDITION OF INVENTION	
BRPI0714178 A2	20140429	LSFE	-B08F	APPLICATION FEES: DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW	Text: REFERENTE A 5A ANUIDADE.
BRPI0714178 A2	20140520	LSFE	B08H	APPLICATION FEES: DECISION	Text: REFERENTE AO DESPACHO PUBLICADO NA RPI 2260 DE

				CANCELLED	29/04/2014.
BRPI0714178 A2	20180925		B06T	FORMAL REQUIREMENTS BEFORE EXAMINATION	
BRPI0714178 A2	20190219		B15K	OTHERS CONCERNING APPLICATIONS: ALTERATION OF CLASSIFICATION	ClassificationSymbol: F16L 37/00 (1968.09), F16L 37/088 (1990.01), F25B Text: A CLASSIFICACAO ANTERIOR ERA: F28D 7/08 ClassificationScheme: IPC
BRPI0714178 A2	20190416		B06A	NOTIFICATION TO APPLICANT TO REPLY TO THE REPORT FOR NON-PATENTABILITY OR INADEQUACY OF THE APPLICATION ACCORDING ART. 36 INDUSTRIAL PATENT LAW	
BRPI0714178 A2	20200623	LSGT	B09A	DECISION: INTENTION TO GRANT	
CN101055139 A	20071017	LSPB	+	published / reissued	
CN101055139 A	20071017	LSPB	+C06	PUBLICATION	
CN101055139 A	20090603		C10	ENTRY INTO SUBSTANTIVE EXAMINATION	
CN101055139 B	20101208	LSGT	+	granted / extensions (spc, cpc, pte)	
CN101055139 B	20101208	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN101055139 B	20270413	PEXP		Calculated Patent Term Expiry	
DE102006017816 A1	20071018	LSPB	+	published / reissued	
DE102006017816 A1	20071018	LSES	+OP8	REQUEST FOR EXAMINATION AS TO PARAGRAPH 44 PATENT LAW	
DE102006017816 B4	20080424	LSGT	+	granted / extensions (spc, cpc, pte)	
DE102006017816 B4	20081002	LSOP	-8363	OPPOSITION AGAINST THE PATENT	
DE102006017816 B4	20100415		-8330	COMPLETE DISCLAIMER	
DE102006017816 B4	20260413	PEXP		Calculated Patent Term Expiry	
DE202006017038 U1	20070208	LSGT	+	granted / extensions (spc, cpc, pte)	
DE202006017038 U1	20070315	LSGT	R207	UTILITY MODEL SPECIFICATION	Effective date: 20070315
DE202006017038 U1	20090813	LSGT	+R150	UTILITY MODEL MAINTAINED AFTER PAYMENT OF FIRST MAINTENANCE FEE AFTER THREE YEARS	Effective date: 20090605
DE202006017038 U1	20111128	LSGT	+R151	UTILITY MODEL MAINTAINED AFTER PAYMENT OF SECOND MAINTENANCE FEE AFTER SIX YEARS	
DE202006017038 U1	20120119	LSGT	+R151	UTILITY MODEL MAINTAINED AFTER PAYMENT OF SECOND MAINTENANCE FEE AFTER SIX YEARS	Effective date: 20111128
DE202006017038 U1	20140513	LSGT	+R152	UTILITY MODEL MAINTAINED AFTER PAYMENT OF THIRD MAINTENANCE FEE AFTER EIGHT YEARS	
DE202006017038 U1	20140618	LSGT	+R152	UTILITY MODEL MAINTAINED AFTER PAYMENT OF THIRD MAINTENANCE FEE AFTER EIGHT YEARS	Effective date: 20140513
DE202006017038 U1	20160413	PEXP		Calculated Patent Term Expiry	

DE202006017038 U1	20160430	LSLE	-R071	EXPIRY OF RIGHT	
DE502007014072 D1	20120222		R079	AMENDMENT OF IPC MAIN CLASS	ClassificationScheme: IPC ClassificationSymbol: F28D0007140000 Text: PREVIOUS MAIN CLASS: F28D0007140000
DE502007014072 D1	20150722	LSAS	R081	CHANGE OF APPLICANT/PATENTEE	PartyType: Owner OldParty: Eaton Fluid Power GmbH, 76461 Muggensturm, DE
DE502007014072 D1	20190109	LSAS	R081	CHANGE OF APPLICANT/PATENTEE	OldParty: Eaton Industrial IP GmbH & Co. KG, 12529 Schönefeld, DE Owner: Eaton Intelligent Power Limited, Dublin, IE PartyType: Owner
EP1845326 A2	20071017	LSPB	+	published / reissued	
EP1845326 A2	20071017		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A2 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
EP1845326 A2	20071017		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Country of Ref document: AL BA HR MK YU
EP1845326 A2	20111207		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationSymbol: F28D 7/14 20060101AFI20111028BHEP ClassificationScheme: IPC
EP1845326 A2	20111207		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F28F 9/04 20060101ALI20111028BHEP
EP1845326 A2	20111207		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 37/00 20060101ALI20111028BHEP
EP1845326 A2	20111207		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationSymbol: F25B 40/02 20060101ALI20111028BHEP ClassificationScheme: IPC
EP1845326 A2	20160429	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160329 Year of fee payment: 10 Country of Ref document: CZ
EP1845326 A2	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 10 Payment date: 20160317 Country of Ref document: PL
EP1845326 A2	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160330 Year of fee payment: 10 Country of Ref document: RO
EP1845326 A2	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 10 Payment date: 20160329 Country of Ref document: GB
EP1845326 A2	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160331 Year of fee payment: 10 Country of Ref document: FR
EP1845326 A2	20160729	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160414 Year of fee payment: 10 Country of Ref document: DE
EP1845326 A2	20160729	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 10 Payment date: 20160405 Country of Ref document: ES
EP1845326 A2	20160831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160325 Year of fee payment: 10 Country of Ref document: HU
EP1845326 A2	20160831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM	Year of fee payment: 10 Payment date: 20160331 Country of Ref document: SI

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EP1845326 A2	20160831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 10 Payment date: 20160418 Country of Ref document: IT
EP1845326 A2	20160831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160407 Year of fee payment: 10 Country of Ref document: SE
EP1845326 A3	20120328		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A3 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
EP1845326 A3	20120328		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Country of Ref document: AL BA HR MK RS
EP1845326 A3	20120328		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F28D 7/14 20060101AFI20120222BHEP
EP1845326 A3	20120328		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationSymbol: F28F 9/04 20060101ALI20120222BHEP ClassificationScheme: IPC
EP1845326 A3	20120328		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationSymbol: F16L 37/00 20060101ALI20120222BHEP ClassificationScheme: IPC
EP1845326 A3	20120328		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F25B 40/02 20060101ALI20120222BHEP
EP1845326 A3	20120328		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationSymbol: F16L 37/088 20060101ALI20120222BHEP ClassificationScheme: IPC
EP1845326 A3	20120328		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 37/098 20060101ALI20120222BHEP
EP1845326 A3	20121107	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20120928
EP1845326 A3	20121205	LSFE	+AKX	DESIGNATION FEES PAID	Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
EP1845326 A3	20130410	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20130313
EP1845326 A3	20130828	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PartyType: owner Owner: EATON INDUSTRIAL IP GMBH & CO. KG
EP1845326 A3	20150311	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	Effective date: 20150210
EP1845326 A3	20150318	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	Effective date: 20150218
EP1845326 B1	20150722	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1845326 B1	20150722		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
EP1845326 B1	20150722	LSGT	REG	REFERENCE TO A NATIONAL CODE	Text: NOT ENGLISH Ref legal event code: FG4D Ref country code: GB
EP1845326 B1	20150731	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: EP
EP1845326 B1	20150812	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: FG4D Ref country code: IE Text: LANGUAGE OF EP DOCUMENT: GERMAN
EP1845326 B1	20150815	LSNP	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20150815 Ref country code: AT Kind code of Ref document: T Ref document number: 738152 Ref legal event code: REF Country of Ref document: AT

EP1845326 B1	20150827	LSPB	REG	REFERENCE TO A NATIONAL CODE	Ref country code: DE Ref document number: 502007014072 Ref legal event code: R096 Country of Ref document: DE
EP1845326 B1	20151020	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: RO Ref legal event code: EPE
EP1845326 B1	20151110		REG	REFERENCE TO A NATIONAL CODE	Ref country code: SE Ref legal event code: TRGR
EP1845326 B1	20151110	LSGT	REG	REFERENCE TO A NATIONAL CODE	Kind code of Ref document: T3 Ref country code: ES Ref document number: 2550584 Ref legal event code: FG2A Effective date: 20151110 Country of Ref document: ES
EP1845326 B1	20151228	LSRV	REG	REFERENCE TO A NATIONAL CODE	Ref country code: LT Ref legal event code: MG4D
EP1845326 B1	20151230		REG	REFERENCE TO A NATIONAL CODE	Effective date: 20150722 Ref country code: NL Ref legal event code: MP
EP1845326 B1	20151231		REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: T3 Ref country code: PL
EP1845326 B1	20160129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20150722 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: LT
EP1845326 B1	20160129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20150722 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: LV
EP1845326 B1	20160129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20150722 Country of Ref document: FI
EP1845326 B1	20160129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20151023 Country of Ref document: GR
EP1845326 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20151123 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: PT
EP1845326 B1	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20151122 Country of Ref document: IS
EP1845326 B1	20160331	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: PLFP Ref country code: FR Year of fee payment: 10 Country of Ref document: FR
EP1845326 B1	20160425	LSRE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: DE Ref legal event code: R097 Ref document number: 502007014072 Country of Ref document: DE
EP1845326 B1	20160429	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20150722 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: EE

EP1845326 B1	20160429	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20150722 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SK
EP1845326 B1	20160429	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20150722 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: DK
EP1845326 B1	20160530	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: HU Ref document number: E025770 Ref legal event code: AG4A Country of Ref document: HU
EP1845326 B1	20160629	LSGT	+26N	NO OPPOSITION FILED	Effective date: 20160425
EP1845326 B1	20160831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Lapsed date: 20160430 Country of Ref document: BE
EP1845326 B1	20161130	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: PL Ref country code: CH
EP1845326 B1	20161230	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20160411 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: LU
EP1845326 B1	20170125	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: MM4A Ref country code: IE
EP1845326 B1	20170131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20160430 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: CH
EP1845326 B1	20170131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20160430 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: LI
EP1845326 B1	20170322	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: FR Year of fee payment: 11 Ref legal event code: PLFP Country of Ref document: FR
EP1845326 B1	20170428	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 11 Payment date: 20170322 Country of Ref document: FR
EP1845326 B1	20170428	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170329 Year of fee payment: 11 Country of Ref document: RO
EP1845326 B1	20170531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20160411 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: IE
EP1845326 B1	20170531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170320 Year of fee payment: 11 Country of Ref document: PL
EP1845326 B1	20170531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO	Payment date: 20170330 Year of fee payment: 11 Country of Ref document: CZ

				EPO]	
EP1845326 B1	20170531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170328 Year of fee payment: 11 Country of Ref document: GB
EP1845326 B1	20170615	LSLE	REG	REFERENCE TO A NATIONAL CODE	Kind code of Ref document: T Ref legal event code: MM01 Effective date: 20160411 Ref country code: AT Ref document number: 738152 Country of Ref document: AT
EP1845326 B1	20170630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20150722 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: NL
EP1845326 B1	20170731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170428 Year of fee payment: 11 Country of Ref document: DE
EP1845326 B1	20170831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20160411 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: AT
EP1845326 B1	20170831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170418 Year of fee payment: 11 Country of Ref document: IT
EP1845326 B1	20170831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170410 Year of fee payment: 11 Country of Ref document: SE
EP1845326 B1	20170831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 11 Payment date: 20170330 Country of Ref document: ES
EP1845326 B1	20170831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 11 Payment date: 20170328 Country of Ref document: SI
EP1845326 B1	20170929	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170327 Year of fee payment: 11 Country of Ref document: HU
EP1845326 B1	20180322	LSFE	REG	REFERENCE TO A NATIONAL CODE	Year of fee payment: 12 Ref legal event code: PLFP Ref country code: FR
EP1845326 B1	20180430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180321 Year of fee payment: 12 Country of Ref document: GB
EP1845326 B1	20180430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 12 Payment date: 20180326 Country of Ref document: CZ
EP1845326 B1	20180531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20150722 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: CY
EP1845326 B1	20180531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180326 Year of fee payment: 12 Country of Ref document: SE
EP1845326 B1	20180531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM	Payment date: 20180322 Year of fee payment: 12 Country of Ref document: PL

				NATIONAL OFFICE TO EPO]	
EP1845326 B1	20180531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 12 Payment date: 20180326 Country of Ref document: IT
EP1845326 B1	20180531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 12 Payment date: 20180322 Country of Ref document: FR
EP1845326 B1	20180629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20150722 Country of Ref document: TR
EP1845326 B1	20180629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20150722 Country of Ref document: MT
EP1845326 B1	20180629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20150722 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: MC
EP1845326 B1	20180731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20150722 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: BG
EP1845326 B1	20180731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180320 Year of fee payment: 12 Country of Ref document: DE
EP1845326 B1	20180731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 12 Payment date: 20180504 Country of Ref document: ES
EP1845326 B1	20180831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180411 Year of fee payment: 12 Country of Ref document: RO
EP1845326 B1	20180831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 12 Payment date: 20180321 Country of Ref document: SI
EP1845326 B1	20180928	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 12 Payment date: 20180411 Country of Ref document: HU
EP1845326 B1	20190109	LSAS	REG	REFERENCE TO A NATIONAL CODE	Owner: EATON INTELLIGENT POWER LIMITED, IE OldParty: FORMER OWNER: EATON INDUSTRIAL IP GMBH & CO. KG, 12529 SCHOENEFELD, DE Ref document number: 502007014072 Ref country code: DE Ref legal event code: R081 PartyType: owner Country of Ref document: DE
EP1845326 B1	20190429		REG	REFERENCE TO A NATIONAL CODE	PartyType: representative Ref country code: HU OldParty: FORMER REPRESENTATIVE(S): MESZAROSNE DONUSZ KATALIN, SBGK SZABADALMI UEGYVIVOEI IRODA, HU Ref legal event code: FH1C Representative: SBGK

					SZABADALMI UEGYVIVOEI IRODA, HU
EP1845326 B1	20190429		REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: GB9C Owner: EATON INTELLIGENT POWER LIMITED, IE PartyType: owner OldParty: FORMER OWNER(S): EATON INDUSTRIAL IP GMBH & CO. KG, DE Ref country code: HU
EP1845326 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 13 Payment date: 20190325 Country of Ref document: FR
EP1845326 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 13 Payment date: 20190321 Country of Ref document: IT
EP1845326 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190325 Year of fee payment: 13 Country of Ref document: GB
EP1845326 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 13 Payment date: 20190325 Country of Ref document: CZ
EP1845326 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 13 Payment date: 20190321 Country of Ref document: PL
EP1845326 B1	20190508		REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: 732E Text: REGISTERED BETWEEN 20190411 AND 20190417 Ref country code: GB
EP1845326 B1	20190531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 13 Payment date: 20190327 Country of Ref document: SE
EP1845326 B1	20190731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190502 Year of fee payment: 13 Country of Ref document: ES
EP1845326 B1	20190731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190220 Year of fee payment: 13 Country of Ref document: DE
EP1845326 B1	20190830	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190426 Year of fee payment: 13 Country of Ref document: HU
EP1845326 B1	20190830	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190401 Year of fee payment: 13 Country of Ref document: SI
EP1845326 B1	20190830	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 13 Payment date: 20190401 Country of Ref document: RO
EP1845326 B1	20200501	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200320 Year of fee payment: 14 Country of Ref document: SE
EP1845326 B1	20200501	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 14 Payment date: 20200323 Country of Ref document: GB
EP1845326 B1	20200501	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200318 Year of fee payment: 14 Country of Ref document: PL
EP1845326 B1	20200529	LSFE	+PGFP	ANNUAL FEE PAID TO	Year of fee payment: 14

				NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200324 Country of Ref document: CZ
EP1845326 B1	20200630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 14 Payment date: 20200319 Country of Ref document: FR
EP1845326 B1	20200731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200504 Year of fee payment: 14 Country of Ref document: ES
EP1845326 B1	20200731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200319 Year of fee payment: 14 Country of Ref document: DE
EP1845326 B1	20200731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200406 Year of fee payment: 14 Country of Ref document: RO
EP1845326 B1	20200831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 14 Payment date: 20200318 Country of Ref document: IT
EP1845326 B1	20200831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 14 Payment date: 20200321 Country of Ref document: SI
EP1845326 B1	20200831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 14 Payment date: 20200425 Country of Ref document: HU
EP1845326 B1	20270411	PEXP		Calculated Patent Term Expiry	
ES2550584 T3	20151110	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2550584 T3	20270411	PEXP		Calculated Patent Term Expiry	
HU025770 T2	20160530	LSPB	+	published / reissued	
JP2007285693 A2	20071101	LSPB	+	published / reissued	
JP2007285693 A2	20100324	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	Effective date: 20100323 Text: JAPANESE INTERMEDIATE CODE: A621
JP2007285693 A2	20120214		A977	REPORT ON RETRIEVAL	Text: JAPANESE INTERMEDIATE CODE: A971007 Effective date: 20120214
JP2007285693 A2	20120223	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	Effective date: 20120222 Text: JAPANESE INTERMEDIATE CODE: A131
JP2007285693 A2	20120522		A601	WRITTEN REQUEST FOR EXTENSION OF TIME	Effective date: 20120521 Text: JAPANESE INTERMEDIATE CODE: A601
JP2007285693 A2	20120525		A602	WRITTEN PERMISSION OF EXTENSION OF TIME	Text: JAPANESE INTERMEDIATE CODE: A602 Effective date: 20120524
JP2007285693 A2	20120622		A601	WRITTEN REQUEST FOR EXTENSION OF TIME	Effective date: 20120621 Text: JAPANESE INTERMEDIATE CODE: A601
JP2007285693 A2	20120627		A602	WRITTEN PERMISSION OF EXTENSION OF TIME	Effective date: 20120626 Text: JAPANESE INTERMEDIATE CODE: A602
JP2007285693 A2	20120724		A601	WRITTEN REQUEST FOR EXTENSION OF TIME	Text: JAPANESE INTERMEDIATE CODE: A601 Effective date: 20120723
JP2007285693 A2	20120727		A602	WRITTEN PERMISSION OF EXTENSION OF TIME	Effective date: 20120726 Text: JAPANESE INTERMEDIATE CODE: A602
JP2007285693 A2	20120816	LSRE	A521	WRITTEN AMENDMENT	Effective date: 20120815 Text: JAPANESE INTERMEDIATE CODE: A523
JP2007285693 A2	20121115	LSRV	-A02	DECISION OF REFUSAL	Text: JAPANESE INTERMEDIATE CODE: A02

					Effective date: 20121114
JP2007285693 A2	20130314	LSRE	A521	WRITTEN AMENDMENT	Effective date: 20130313 Text: JAPANESE INTERMEDIATE CODE: A523
JP2007285693 A2	20130501	LSRE	A521	WRITTEN AMENDMENT	Effective date: 20130411 Text: JAPANESE INTERMEDIATE CODE: A523
JP2007285693 A2	20130509	LSAL	A911	TRANSFER OF RECONSIDERATION BY EXAMINER BEFORE APPEAL (ZENCHI)	Effective date: 20130508 Text: JAPANESE INTERMEDIATE CODE: A911
JP2007285693 A2	20130708	LSAL	-A912	REMOVAL OF RECONSIDERATION BY EXAMINER BEFORE APPEAL (ZENCHI)	Text: JAPANESE INTERMEDIATE CODE: A912 Effective date: 20130705
JP2007285693 A2	20131023		A601	WRITTEN REQUEST FOR EXTENSION OF TIME	Text: JAPANESE INTERMEDIATE CODE: A601 Effective date: 20131022
JP2007285693 A2	20131029		A602	WRITTEN PERMISSION OF EXTENSION OF TIME	Text: JAPANESE INTERMEDIATE CODE: A602 Effective date: 20131028
JP2007285693 A2	20131123		A601	WRITTEN REQUEST FOR EXTENSION OF TIME	Text: JAPANESE INTERMEDIATE CODE: A601 Effective date: 20131122
JP2007285693 A2	20131129		A602	WRITTEN PERMISSION OF EXTENSION OF TIME	Effective date: 20131128 Text: JAPANESE INTERMEDIATE CODE: A602
JP2007285693 A2	20131225		A601	WRITTEN REQUEST FOR EXTENSION OF TIME	Text: JAPANESE INTERMEDIATE CODE: A601 Effective date: 20131224
JP2007285693 A2	20140106		A602	WRITTEN PERMISSION OF EXTENSION OF TIME	Effective date: 20131227 Text: JAPANESE INTERMEDIATE CODE: A602
JP2007285693 A2	20140716		A601	WRITTEN REQUEST FOR EXTENSION OF TIME	Text: JAPANESE INTERMEDIATE CODE: A601 Effective date: 20140715
JP2007285693 A2	20140722		A602	WRITTEN PERMISSION OF EXTENSION OF TIME	Effective date: 20140718 Text: JAPANESE INTERMEDIATE CODE: A602
JP2007285693 A2	20140823	LSRE	A521	WRITTEN AMENDMENT	Text: JAPANESE INTERMEDIATE CODE: A523 Effective date: 20140822
JP2007285693 A2	20141030	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	Text: JAPANESE INTERMEDIATE CODE: A61 Effective date: 20141009
JP5637422 B2	20141002	LSGT	+A01	特許査定書	
JP5637422 B2	20141002	LSGT	+A01	特許査定書	Effective date: 20141001
JP5637422 B2	20141028	LSFE	R100	特許料納付書	
JP5637422 B2	20141028	LSFE	R100	特許料納付書	Text: 21404710081 Effective date: 20141009
JP5637422 B2	20141031	LSGT	+R150	特許証	
JP5637422 B2	20141031	LSGT	+R150	特許証	Effective date: 20141111
JP5637422 B2	20141210	LSGT	+	granted / extensions (spc, cpc, pte)	
JP5637422 B2	20171005	LSFE	R20	特許料納付書	
JP5637422 B2	20171005	LSFE	R20	特許料納付書	Effective date: 20170929 Text: 51702060018
JP5637422 B2	20171010	LSFE	+R250	RECEIPT OF ANNUAL FEES	Text: JAPANESE INTERMEDIATE CODE: R250
JP5637422 B2	20171010	LSFE	+R250	年金領収書, 年金領収書 (分納)	
JP5637422 B2	20171010	LSFE	+R250	年金領収書, 年金領収書 (分納)	Effective date: 20171017
JP5637422 B2	20180927	LSFE	R20	特許料納付書	
JP5637422 B2	20180927	LSFE	R20	特許料納付書	Effective date: 20180926 Text: 51801974420
JP5637422 B2	20181002	LSFE	+R250	RECEIPT OF ANNUAL FEES	Text: JAPANESE INTERMEDIATE CODE: R250
JP5637422 B2	20181002	LSFE	+R250	年金領収書, 年金領収書 (分納)	

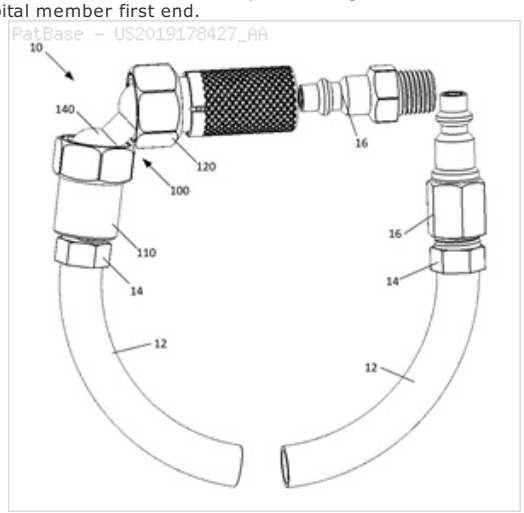
JP5637422 B2	20181002	LSFE	+R250	年金領収書, 年金領収書(分納)	Effective date: 20181009
JP5637422 B2	20191003	LSFE	R20	特許料納付書	Effective date: 20190930
JP5637422 B2	20191003	LSFE	R20	特許料納付書	Effective date: 20190930 Text: 51902072124
JP5637422 B2	20191008	LSFE	+R250	RECEIPT OF ANNUAL FEES	Text: JAPANESE INTERMEDIATE CODE: R250
JP5637422 B2	20191008	LSFE	+R250	年金領収書, 年金領収書(分納)	Effective date: 20191018
JP5637422 B2	20200929	LSFE	R20	特許料納付書	Text: 52001971663 Effective date: 20200926
JP5637422 B2	20270413	PEXP		Calculated Patent Term Expiry	
MX2007004419 A1	20081201	LSPB	+	published / reissued	
MX2007004419 A1	20130626	LSGT	+FG	GRANT OR REGISTRATION	
PL1845326 T3	20151231	LSGT	+	granted / extensions (spc, cpc, pte)	
SI1845326 T1	20160331	LSGT	+	granted / extensions (spc, cpc, pte)	
SI1845326 T1	20270411	PEXP		Calculated Patent Term Expiry	
US2007240439 AA	20070403	LSAS	AS	ASSIGNMENT	PartyType: owner Effective date: 20070109 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:KLUG, PETER;REEL/FRAME:019109/0348 Owner: EATON CORPORATION, OHIO
US2007240439 AA	20070814	LSAS	AS	ASSIGNMENT	Owner: EATON FLUID POWER GMBH, GERMANY OldParty: CORRECTIVE ASSIGNMENT TO CORRECT THE ASSIGNEE STATE OF INCORPORATION AND TITLE AS LISTED IN ASSIGNMENT DOCUMENT PREVIOUSLY RECORDED ON REEL 019109 FRAME 0348;ASSIGNOR:KLUG, PETER;REEL/FRAME:019689/0523 PartyType: owner Effective date: 20070109
US2007240439 AA	20071018	LSPB	+	published / reissued	
US2007240439 AA	20071108	LSAS	AS	ASSIGNMENT	Effective date: 20070910 PartyType: owner OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:KLUG, PETER;BUCHMULLER, DANIEL;WELLE, STEFAN;REEL/FRAME:020087/0179 Owner: EATON FLUID POWER GMBH, GERMANY
US2007240439 AA	20120315	LSWD	ABD3	Abandoned -- Failure to Respond to an Office Action	
US2007240439 AA	20120315		-STCB	INFORMATION ON STATUS: APPLICATION DISCONTINUATION	Text: ABANDONED -- FAILURE TO RESPOND TO AN OFFICE ACTION
ZA200703026 A	20080827	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA200703026 A	20270411	PEXP		Calculated Patent Term Expiry	

85) Family number: 74696787 (US2019178427 AA)

Title: ORBITAL **COUPLING** ARRANGEMENT

Abstract: An orbital **coupling** arrangement is disclosed. In one example, the orbital **coupling** arrangement includes a first **connector** part, an orbital member, and a seal member. The first **connector** part can define a central passageway and can include a first connection arrangement at a first end. The orbital member can define a spherical segment and an adjacent tubular segment that together define a central passageway extending between a first end proximate the spherical segment and a second end proximate the tubular segment. The seal member is in sealing contact with the orbital member spherical segment at a location between a geometric center of the spherical segment and the orbital member first end.

Classifications:
International (IPC 8-9): F16L15/04 F16L27/047 F16L27/06 F16L37/10 F16L37/244
CPC: F16L27/047 F16L15/04 F16L37/105 F16L37/2445
US: 1/1



Family:

Publication number	Publication date	Application number	Application date
US10323780 BA	20190618	US20180958670	20180420
US2019178427 AA	20190613	US20180958670	20180420
WO19113436 A1	20190613	WO2018US64461	20181207

Priority:
US20170596281P 20171208 US20180958670 20180420

Probable Assignee: STEDLIN MFG INC
Assignee(s): (std): STEDLIN MFG INC
Assignee(s): STEDLIN MFG
Inventor(s): (std): STEARNS FRANK ; STEARNS FRANK ARTHUR
Agent(s): BRUESS STEVEN C; MERCHANT AND GOULD PC
Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US10323780 BA	20180420	LSFE	FEPP	FEE PAYMENT PROCEDURE	Text: ENTITY STATUS SET TO UNDISCOUNTED (ORIGINAL EVENT CODE: BIG.); ENTITY STATUS OF PATENT OWNER: SMALL ENTITY
US10323780 BA	20180514	LSFE	FEPP	FEE PAYMENT PROCEDURE	Text: ENTITY STATUS SET TO SMALL (ORIGINAL EVENT CODE: SMAL); ENTITY STATUS OF PATENT OWNER: SMALL ENTITY
US10323780 BA	20180514	LSFE	FEPP	FEE PAYMENT PROCEDURE	Text: ENTITY STATUS SET TO MICRO (ORIGINAL EVENT CODE: MICR); ENTITY STATUS OF PATENT OWNER: SMALL ENTITY
US10323780 BA	20190502	LSFE	FEPP	FEE PAYMENT PROCEDURE	Text: ENTITY STATUS SET TO SMALL (ORIGINAL EVENT CODE: SMAL); ENTITY STATUS OF PATENT OWNER: SMALL ENTITY
US10323780 BA	20190529	LSGT	PAT1	Patented Case	
US10323780 BA	20190529	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE

US10323780 BA	20190618	LSGT	+	granted / extensions (spc, cpc, pte)	
US10323780 BA	20380420	PEXP		Calculated Patent Term Expiry	
US2019178427 AA	20190613	LSPB	+	published / reissued	
WO19113436 A1	20190613	LSPB	+	published / reissued	
WO19113436 A1	20190724		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	Kind code of Ref document: A1 Ref document number: 18886406 Country of Ref document: EP
WO19113436 A1	20200609	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: DE

86) Family number: 61503023 (IN02309MU2014 A)

Title: RETAINING **RING** LOCK ASSEMBLY FOR THREADED **PIPE** JOINT **COUPLING**

Abstract: The present invention discloses a retaining **ring** lock assembly for a threaded **pipe** joint **coupling** that includes a threaded **pipe** and a coupler. The threaded **pipe** includes at least one threaded portion defined along on an outer surface thereof. The threaded **pipe** includes at least one **groove** defined adjacent to said threaded portion adapted for mounting a retaining **ring** thereon. The threaded **pipe** includes a retaining **ring** lock nut that removably positions over said threaded **pipe** and rests on said retaining **ring**. The threaded **pipe** threadably positions within an interior of the coupler thereby having the retaining **ring** and the retaining lock nut positioned therein. The threaded **pipe** and the retaining lock nut threadably engage with respective threaded portions defined within the interior of the coupler to define a threaded connection of the retaining **ring** lock assembly.

Classifications:

International (IPC 8-9): F16B41/00 F16L27/053

Family:

Publication number	Publication date	Application number	Application date
IN02309MU2014 A	20160122	IN2014MU02309	20140715

Priority:

IN2014MU02309 20140715

Probable Assignee: KOTHARI PRIMA PVT LTD

Assignee(s): KOTHARI PRIMA PVT LTD

Inventor(s): ARVIND SHIVLAL KOTHARI

Legal status (INPADOC)

View legal status timeline

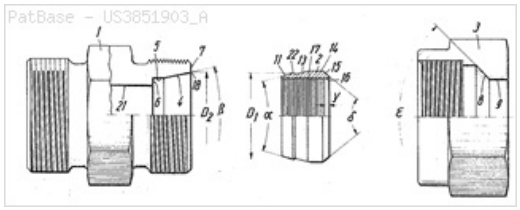
Patent	Date recorded	Event group	Code	Event	Details
IN02309MU2014 A	20160122	LSPB	+	published / reissued	

87) Family number: 1040034 (US3851903 A)

Title: COUPLER FOR CONNECTING TUBULAR MEMBERS

Abstract: A threaded **coupling** comprises a nut which is threaded onto an element to define a space therebetween and a clamping **ring** having conical surfaces is wedged by corresponding conical surfaces on the element and nut into clamping relationship with the outer surface of a tubular member. The several interacting conical surfaces are provided with particular angular relationships and the bore of the clamping **ring** has **annular** **grooves** therein so as to grip the outer surface of the tubular member.

Classifications:
International (IPC 8-9): F16L19/00 F16L19/08 F16L19/10
International (IPC 1-7): F16B2/08 F16B21/18 F16B7/00 F16B7/04 F16L15/00 F16L15/02 F16L17/02 F16L19/06 F16L19/08
CPC: F16L19/08 F16L19/10 F16L19/065
US: 285/341 285/378 285/421 285/34.1
JP F-Term: 3H014 3H014/GA16
JP F-Index: F16L19/08 F16L19/12



Family:

Publication number	Publication date	Application number	Application date
AT160573 A	19750115	AT19730001605	19730223
AT325906 B	19751110	AT19730001605	19730223
AU197354060 A1	19740606	AU19730054060	19730404
AU449082 B2	19740606	AU19730054060	19730404
CH563546 A	19750630	CH19730002690	19730223
CS163709 B2	19751107	CS19730006323	19730912
DE2244862 A1	19731206	DE19722244862	19720913
DE2244862 B1	19731206	DE19722244862	19720913
DE2244862 C2	19740627	DE19722244862	19720913
DK131744 B	19750825	DK19730004912	19730906
DK131744 C	19760126	DK19730004912	19730906
ES412903 A1	19760101	ES19730412903	19730322
FI57834 B	19800630	FI19730000588	19730227
FI57834 C	19801010	FI19730000588	19730227
FR2217624 A1	19740906	FR19730011638	19730330
FR2217624 B1	19751226	FR19730011638	19730330
GB1387518 A	19750319	GB19730035757	19730726
HU170358 P	19770528	HU1973WA00272	19730302
IT997194 A	19751230	IT19730005170	19730726
JP1136428 C3	19830228	JP19730070369	19730621
JP49064917 A2	19740624	JP19730070369	19730621
JP57018073 B4	19820414	JP19730070369	19730621
NL159176 B	19790115	NL19730012125	19730903
NL7312125 A	19740315	NL19730012125	19730903
NO135042 B	19761018	NO19730001986	19730514
NO135042 C	19770126	NO19730001986	19730514
PL87156 P	19760630	PL19730164035	19730712
SE419262 B	19810720	SE19730005553	19730418
SE419262 C	19811029	SE19730005553	19730418
US3851903 A	19741203	US19730396690	19730913

Priority:

DE19722244862 19720913

Probable Assignee: JEAN WALTERSCHEID GMBH 5204 LOHMAR

Assignee(s): (std): JEAN WALTERCHEID GMBH ; WALTERSCHEID GMBH JEAN ; WALTERSCHEID J GMBH

Assignee(s): JEAN WALTERSCHEID G M B H ; JEAN WALTERSCHEID G M B H LOHMAR BONDSREPUBLIEK DUITSLAND ; JEAN WALTERSCHEID GMBH 5204 LOHMAR ; WALTERSCHEID GMBH DT ; WALTERSCHEID J ; WALTERSCHEID J GMBH DT ; WALTERSCHEID JEAN GMBH

Inventor(s): (std): EICKENBUSCH H ; EICKENBUSCH HUBERT ; EIDKENBUSCH HUBERT ; EIKENBUSCH H ; NIENHAUS C ; NIENHAUS CLEMENS ; NIENHAUS CLEMENS ING ; PIEPER R ; PIEPER RUDOLF ; PIEPER RUDOLF ING

Inventor(s): C NIENHAUS ; CLEMENS NIENHAUS ; EICKENBUSCH HUBERT 5205 ST AUGUSTIN ; EIKENBUSCH H DT ; H EICKENBUSCH ; HUBERT EICKENBUSCH ; HUBERT EIDKENBUSCH ; NIENHAUS C DT ; NIENHAUS CLEMENS 5204 LOHMAR ; PIEPER R DT ; PIEPER RUDOLF 5330 KOENIGSWINTER ; R PIEPER ; RUDOLF PIEPER

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT160573 A	19750115	LSPB	+	published / reissued	
AT325906 B	19751110	LSGT	+	granted / extensions (spc, cpc, pte)	
AT325906 B	19911015	LSLE	-ELJ	CEASED DUE TO NON-PAYMENT OF THE ANNUAL FEE	

AT325906 B	19930223	PEXP		Calculated Patent Term Expiry	
AT325906 B	19980715	LSPB	+UEP	PUBLICATION OF TRANSLATION OF EUROPEAN PATENT SPECIFICATION	
AU197354060 A1	19740606	LSPB	+	published / reissued	
AU449082 B2	19740606	LSGT	+	granted / extensions (spc, cpc, pte)	
CH563546 A	19750630	LSGT	+	granted / extensions (spc, cpc, pte)	
CH563546 A	19911031	LSLE	-PL	PATENT CEASED	
CH563546 A	19930223	PEXP		Calculated Patent Term Expiry	
CS163709 B2	19751107	LSGT	+	granted / extensions (spc, cpc, pte)	
CS163709 B2	19880912	PEXP		Calculated Patent Term Expiry	
DE2244862 A1	19731206	LSPB	+	published / reissued	
DE2244862 B1	19731206	LSPB	+	published / reissued	
DE2244862 C2	19740627	LSGT	+	granted / extensions (spc, cpc, pte)	
DE2244862 C2	19771231		+E77	VALID PATENT AS TO THE HEYMANNS-INDEX 1977	
DE2244862 C2	19900906	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
DK131744 B	19750825	LSPB	+	published / reissued	
DK131744 C	19760126	LSGT	+	granted / extensions (spc, cpc, pte)	
DK131744 C	19920525	LSLE	-PBP	PATENT LAPSED	
DK131744 C	19930906	PEXP		Calculated Patent Term Expiry	
ES412903 A1	19760101	LSGT	+	granted / extensions (spc, cpc, pte)	
ES412903 A1	19960101	PEXP		Calculated Patent Term Expiry	
FI57834 B	19800630	LSPB	+	published / reissued	
FI57834 C	19801010	LSGT	+	granted / extensions (spc, cpc, pte)	
FI57834 C	19930227	PEXP		Calculated Patent Term Expiry	
FR2217624 A1	19740906	LSPB	+	published / reissued	
FR2217624 B1	19751226	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2217624 B1	19920124	LSLE	-ST	NOTIFICATION OF LAPSE	
FR2217624 B1	19930330	PEXP		Calculated Patent Term Expiry	
GB1387518 A	19750319	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1387518 A	19750730	LSGT	+PS	PATENT SEALED	
GB1387518 A	19920325	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	
GB1387518 A	19930726	PEXP		Calculated Patent Term Expiry	
HU170358 P	19770528	LSGT	+	granted / extensions (spc, cpc, pte)	
HU170358 P	19930302	PEXP		Calculated Patent Term Expiry	
IT997194 A	19751230	LSGT	+	granted / extensions (spc, cpc, pte)	
IT997194 A	19930726	PEXP		Calculated Patent Term Expiry	
JP1136428 C3	19830228	LSGT	+	granted / extensions (spc, cpc, pte)	
JP49064917 A2	19740624	LSPB	+	published / reissued	
JP57018073 B4	19820414	LSPB	+	published / reissued	
NL159176 B	19790115	LSPB	+	published / reissued	
NL159176 B	19920518	LSLE	-V1	LAPSED BECAUSE OF NON-PAYMENT OF THE ANNUAL FEE	
NL159176 B	19930902		NL80	ABBREVIATED NAME OF PATENT OWNER MENTIONED OF ALREADY NULLIFIED PATENT	Owner: WALTERSCHEID PartyType: owner
NL159176 B	19930903	PEXP		Calculated Patent Term Expiry	
NL7312125 A	19740315	LSPB	+	published / reissued	
NO135042 B	19761018	LSPB	+	published / reissued	
NO135042 C	19770126	LSGT	+	granted / extensions (spc, cpc, pte)	
NO135042 C	19930514	PEXP		Calculated Patent Term Expiry	
PL87156 P	19760630	LSGT	+	granted / extensions (spc, cpc, pte)	

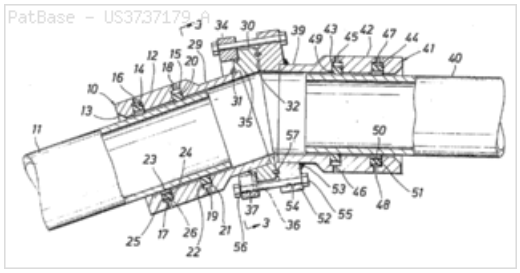
SE419262 B	19810720	LSPB	+	published / reissued
SE419262 C	19811029	LSGT	+	granted / extensions (spc, cpc, pte)
SE419262 C	19930418	PEXP		Calculated Patent Term Expiry
US3851903 A	19741203	LSGT	+	granted / extensions (spc, cpc, pte)

88) Family number: 7340967 (US3737179 A)

Title: SUBMARINE CONNECTION FOR MISALIGNED **PIPES**

Abstract: Apparatus for connecting together two **pipes** which are misaligned and which may be in a hostile environment, as for example, underwater. A pair of housings, each of which is arranged for slidable mounting over the adjacent **pipe** ends to be **coupled**, are each provided with a fluid actuatable, **annular**, radially movable resilient seal and gripping means arranged to engage the surface of the **pipes**. Adjacent ends of the housings carry bias flanges arranged for mating contact through a plurality of relative **connector** angular positions.

Classifications:
International (IPC 8-9): F16L1/26 F16L17/00 F16L17/10 F16L21/08 F16L23/00
International (IPC 1-7): F16L13/02 F16L17/00 F16L17/02 F16L23/00
CPC: F16L1/26 F16L17/10 F16L21/08 F16L23/006
US: 285/105 285/184 285/367 285/368 285/96



Family:

Publication number	Publication date	Application number	Application date
US3737179 A	19730605	US19720219413	19720120

Priority:
US19720219413 19720120

Probable Assignee: HYDROTECH HUGHES INC
Assignee(s): (std): HYDROTECH SERVICES
Assignee(s): BAKER HUGHES INC ; BAKER HUGHES INC A CORP OF DE ; CAL DRIVE INT ; CAL DRIVE INT INC 115 INDUSTRIAL PARKWAY LAFAYETTE ; HSI ACQUISITIONS INC ; HUGHES TOOL CO ; HUGHES UNDERSEA COUOPLINGS INC ; HUGHES UNDERSEA COUOPLINGS INC A CORP OF DE ; HYDROTECH HUGHES INC ; HYDROTECH INT ; HYDROTECH INT INC ; HYDROTECH INT INC 11800 CHARLES ST HOUSTON TX A CO ; HYDROTECH SERVICES INC US ; HYDROTECH SYSTEMS INC ; HYDROTECH SYSTEMS INC A MN CORP
Inventor(s): (std): WHITE W
Inventor(s): WHITE W US

Legal status (INPADOC)

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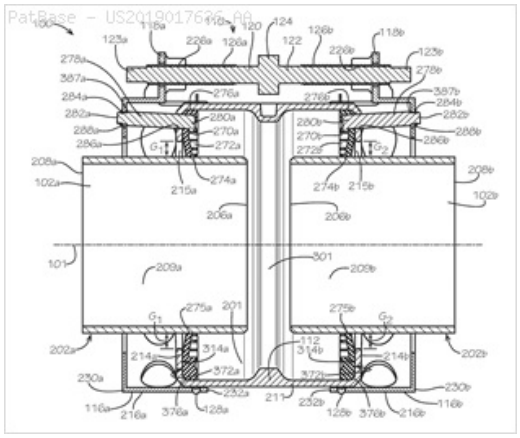
Patent	Date recorded	Event group	Code	Event	Details
US3737179 A	19730605	LSGT	+	granted / extensions (spc, cpc, pte)	

89) Family number: 72871629 (US2019017636 AA)

Title: WIDE RANGE **COUPLING**

Abstract: A wide range **coupling** includes a body, the body defining a first body end and a second body end, the body defining a body bore extending through the body from the first body end to the second body end, the body bore defining an axis, the body defining a body shoulder disposed at the first body end, the body shoulder extending radially inward into the body bore; and an end **ring**, the end **ring** positioned over the first body end, the end **ring** defining a **ring** shoulder extending radially inward towards the body; and a gasket connected to the end **ring**, the gasket disposed within the body bore, the end **ring** and the gasket configured to axially travel along the axis relative to the body, the end **ring** and the gasket selectively positionable about and between an engaged position and a disengaged position.

Classifications:
International (IPC 8-9)**:** F16L21/02 F16L21/03
CPC: F16L21/022 F16L21/03 F16L21/08
US: 1/1 285/372



Family:

Publication number	Publication date	Application number	Application date
US2019017636 AA	20190117	US20170649022	20170713

Priority:
US20170649022 20170713

Probable Assignee: MUELLER INT LLC
Assignee(s): (std)**:** MUELLER INT LLC
Inventor(s): (std)**:** FURCOIU AURELIAN IOAN

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2019017636 AA	20170721	LSAS	AS	ASSIGNMENT	Effective date: 20170711 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:FURCOIU, AURELIAN IOAN;REEL/FRAME:043065/0296 Owner: MUELLER INTERNATIONAL, LLC, GEORGIA PartyType: owner
US2019017636 AA	20180215		RFE1	Docketed New Case - Ready for Examination	
US2019017636 AA	20180215		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: DOCKETED NEW CASE - READY FOR EXAMINATION
US2019017636 AA	20190117	LSPB	+	published / reissued	
US2019017636 AA	20200515	LSES	NFA1	Non Final Action Mailed	
US2019017636 AA	20200515		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: NON FINAL ACTION MAILED
US2019017636 AA	20200604		RSP4	Response to Non-Final Office Action Entered and Forwarded to Examiner	
US2019017636 AA	20200604		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: RESPONSE TO NON-FINAL OFFICE ACTION ENTERED AND FORWARDED TO EXAMINER

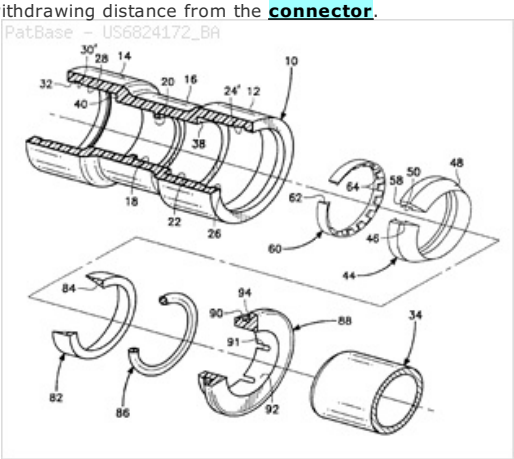
US2019017636 AA	20200623	LSES	NFA1	Non Final Action Mailed	
US2019017636 AA	20200623		STPP	INFORMATION ON STATUS: PATENT APPLICATION AND GRANTING PROCEDURE IN GENERAL	Text: NON FINAL ACTION MAILED

90) Family number: 31373624 (US6824172 BA)

Title: PUSH-PULL **PIPE** **COUPLING**

Abstract: A **pipe** coupler for joining a pair of **pipe** sections in a fluid tight manner. A hollow **connector** has an internal chamber within which is to be located a **pipe** section. Surrounding the **pipe** section and mounted in conjunction with the **connector** is a coupler. The coupler includes a grab **ring** housing. Formed within the grab **ring** housing is an **annular** concavity. Mounted within this concavity is a grab **ring** which includes a plurality of pivotable biting members which are arranged to dig in the wall surface of the **pipe** section when the **pipe** section is longitudinally moved a limited withdrawing distance from the **connector**.

Classifications:
International (IPC 8-9): F16L37/00 F16L37/092
International (IPC 1-7): F16L3/700 F16L3/900 F16L37/00 F16L39/00
CPC: F16L37/0925
US: 285/105 285/340



Family:

Publication number	Publication date	Application number	Application date
US6824172 BA	20041130	US20030685360	20031014

Priority:
US20030685360 20031014

Probable Assignee:	KOMOLROCHANAPORN NARIS
Assignee(s): (std):	KOMOLROCHANAPORN NARIS
Inventor(s): (std):	KOMOLROCHANAPORN NARIS
Inventor(s):	NARIS KOMOLROCHANAPORN
Agent(s):	JACK C MUNRO

Legal status (INPADOC)

View legal status timeline

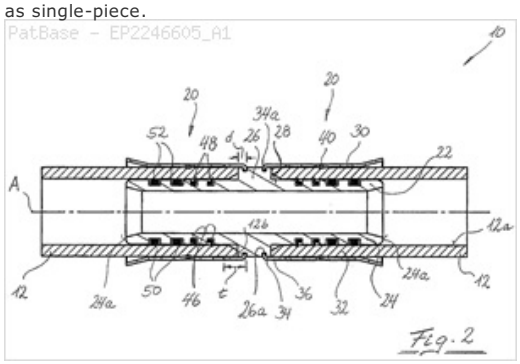
Patent	Date recorded	Event group	Code	Event	Details
US6824172 BA	20041111	LSGT	PAT1	Patented Case	
US6824172 BA	20041111	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US6824172 BA	20041130	LSGT	+	granted / extensions (spc, cpc, pte)	
US6824172 BA	20080107	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US6824172 BA	20111201	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US6824172 BA	20151201	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US6824172 BA	20231014	PEXP		Calculated Patent Term Expiry	

91) Family number: 47478430 (EP2246605 A1)

Title: **COUPLING** FOR **PIPES** AND **COUPLING** DEVICE WITH AT LEAST TWO SUCH **COUPLINGS**

Abstract: The **coupling** (20) has a **pipe** socket (24) introduced in end sections of **pipes** (12), which are introduced into a receiving chamber (32). A sleeve (30) is partially arranged around a base body (22), and an **annular** shoulder (28) is provided at an end of the **pipe** socket. A retaining element (40) outwardly engages the **pipes**, and resists movement of the **pipes** out of the receiving chamber. An inner retaining unit is arranged in an **annular** **groove** (48) of the **pipe** socket and is formed by a meander-like **ring** (46). The sleeve and the retaining element are formed as single-piece.

Classifications:
International (IPC 8-9): F16L33/22 F16L37/091
CPC: F16L33/227 F16L37/091 F16L37/0925 F16L37/0926



Family:

Publication number	Publication date	Application number	Application date
DE502009006712 D1	20130529	DE200950006712T	20090430
EP2246605 A1	20101103	EP20090159240	20090430
EP2246605 B1	20130403	EP20090159240	20090430

Priority:

EP20090159240 20090430

Probable Assignee: KIRCHNER FRAENK ROHR

Assignee(s): (std): KIRCHNER FRAENK ROHR

Assignee(s): FRAENKISCHE ROHRWERKE GEB KIRCHNER GMBH AND CO KG ; FRAENKISCHE ROHRWERKE GEBR KIRCHNER GMBH AND CO KG

Inventor(s): (std): WELSCH THOMAS

Agent(s): HERZOG MARKUS; WEICKMANN AND WEICKMANN PATENTANWAELTE RECHTSANWALT PARTMBB

Designated states: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
EP2246605 A1	20101103	LSPB	+	published / reissued	
EP2246605 A1	20101103		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR
EP2246605 A1	20110615	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20110503
EP2246605 A1	20111005	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20110901
EP2246605 A1	20131129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: FI
EP2246605 A1	20131129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130704 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: GR
EP2246605 A1	20131129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SE

EP2246605 A1	20140228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SK
EP2246605 A1	20140228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: CZ
EP2246605 A1	20160729	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160215 Year of fee payment: 8 Country of Ref document: DE
EP2246605 A1	20160729	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160421 Year of fee payment: 8 Country of Ref document: GB
EP2246605 A1	20160831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160421 Year of fee payment: 8 Country of Ref document: AT
EP2246605 A1	20160831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20160421 Year of fee payment: 8 Country of Ref document: FR
EP2246605 B1	20130403	LSGT	+	granted / extensions (spc, cpc, pte)	
EP2246605 B1	20130403		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR
EP2246605 B1	20130403	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: GB Ref legal event code: FG4D Text: NOT ENGLISH
EP2246605 B1	20130415	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: EP
EP2246605 B1	20130415	LSNP	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20130415 Kind code of Ref document: T Ref country code: AT Ref document number: 604968 Ref legal event code: REF Country of Ref document: AT
EP2246605 B1	20130508	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: FG4D Text: LANGUAGE OF EP DOCUMENT: GERMAN
EP2246605 B1	20130529	LSPB	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20130529 Ref country code: DE Ref document number: 502009006712 Ref legal event code: R096 Country of Ref document: DE
EP2246605 B1	20130830	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SI
EP2246605 B1	20130918	LSRV	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20130403 Ref country code: NL Ref legal event code: VDEP
EP2246605 B1	20130925	LSRV	REG	REFERENCE TO A NATIONAL CODE	Ref country code: LT Ref legal event code: MG4D
EP2246605 B1	20131031	LSLE	-BERE	BE: LAPSED	Effective date: 20130430 Owner: FRANKISCHE ROHRWERKE GEBR. KIRCHNER G.M.B.H. + CO PartyType: owner Ref country code: EP
EP2246605 B1	20131031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: FI

EP2246605 B1	20131031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130703 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: NO
EP2246605 B1	20131031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130805 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: PT
EP2246605 B1	20131031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: LT
EP2246605 B1	20131031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130803 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: IS
EP2246605 B1	20131031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130714 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: ES
EP2246605 B1	20131031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: NL
EP2246605 B1	20131031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130704 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: GR
EP2246605 B1	20131031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SE
EP2246605 B1	20131129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: HR
EP2246605 B1	20131129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: LV
EP2246605 B1	20131129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: PL
EP2246605 B1	20131129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: CY
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EP2246605 B1	20131129	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: PL
EP2246605 B1	20140129	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: MM4A
EP2246605 B1	20140131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: MC
EP2246605 B1	20140131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: CZ
EP2246605 B1	20140131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: EE
EP2246605 B1	20140131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: DK
EP2246605 B1	20140131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130430 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: LI
EP2246605 B1	20140131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SK
EP2246605 B1	20140131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130430 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: CH
EP2246605 B1	20140131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130430 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: BE
EP2246605 B1	20140228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: IT
EP2246605 B1	20140228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: RO
EP2246605 B1	20140312	LSGT	+26N	NO OPPOSITION FILED	Effective date: 20140106
EP2246605 B1	20140417	LSRE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20140106 Ref country code: DE Ref document number: 502009006712 Ref legal event code: R097 Country of Ref document: DE
EP2246605 B1	20140430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA	Lapsed date: 20130430 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES

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EP2246605 B1	20150227	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: MT
EP2246605 B1	20150630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: TR
EP2246605 B1	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20090430 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT; INVALID AB INITIO Country of Ref document: HU
EP2246605 B1	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130430 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: LU
EP2246605 B1	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20130403 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: MK
EP2246605 B1	20160421	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: FR Ref legal event code: PLFP Year of fee payment: 8
EP2246605 B1	20170419	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: FR Ref legal event code: PLFP Year of fee payment: 9
EP2246605 B1	20170731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170315 Year of fee payment: 9 Country of Ref document: DE
EP2246605 B1	20170731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170419 Year of fee payment: 9 Country of Ref document: FR
EP2246605 B1	20170731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170419 Year of fee payment: 9 Country of Ref document: GB
EP2246605 B1	20170831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170420 Year of fee payment: 9 Country of Ref document: AT
EP2246605 B1	20180420	LSFE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: FR Ref legal event code: PLFP Year of fee payment: 10
EP2246605 B1	20180731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180131 Year of fee payment: 10 Country of Ref document: DE
EP2246605 B1	20180831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180419 Year of fee payment: 10 Country of Ref document: AT
EP2246605 B1	20180831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180420 Year of fee payment: 10 Country of Ref document: FR
EP2246605 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE	Payment date: 20180418 Year of fee payment: 10

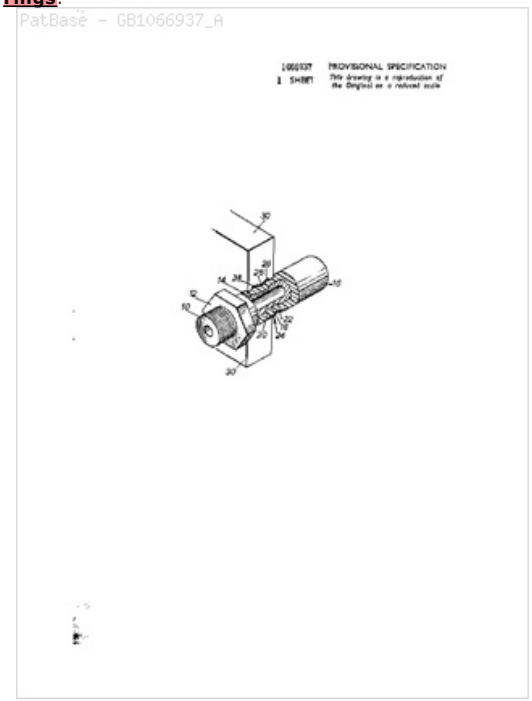
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EP2246605 B1	20190731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190215 Year of fee payment: 11 Country of Ref document: DE
EP2246605 B1	20191215	LSLE	REG	REFERENCE TO A NATIONAL CODE	Effective date: 20190430 Kind code of Ref document: T Ref country code: AT Ref document number: 604968 Ref legal event code: MM01 Country of Ref document: AT
EP2246605 B1	20191225	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	Effective date: 20190430 Ref country code: EP
EP2246605 B1	20200131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20190430 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: GB
EP2246605 B1	20200131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20190430 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: AT
EP2246605 B1	20200228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20190430 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: FR
EP2246605 B1	20290430	PEXP		Calculated Patent Term Expiry	

92) Family number: 29671220 (GB1066937 A)

Title: Improvements in and relating to **pipe** **couplings**

Abstract: 1,066,937. **Pipe** **couplings**. MASTABAR MINING EQUIPMENT CO. Ltd. April 6, 1966 [April 10, 1965], No. 15342/65. Heading F2G. A **coupling** for a flexible **pipe** 16 comprises an end **connector** portion 10 separated from a spigot portion 14 by a radial abutment 12 (in the form of an hexagonal nut on the **connector** screw), the spigot having a **groove** 18, of which at least the end wall 22 remote from the **connector** is radial, the **groove** 18 being beneath a compressible, ductile **ring** 24 with an inwardly directed circumferential depression 26 which overlies the **groove** and has cylindrical margins 28 overlying the **groove** end-walls so that when the **ring** 24 is fitted around the **pipe** 16 and compressed, material is displaced to form **annular** sealing **ring** of **pipe** material between the **groove** end-walls 18 and 20 and the margins of the **ring** 24. The Figure shows the **ring** 24 being compressed by a tool 30. Alternatively, there may be several such **grooves** on the spigot with which co-operate a single **ring** with several **grooves** or a corresponding number of singlegrooved **rings**.

Classifications:
International (IPC 8-9): F16L33/20 F16L33/207 F16L5/02
International (IPC 1-7): F16L33/20
CPC: F16L33/2071 F16L5/022



Family:

Publication number	Publication date	Application number	Application date
BE679379 A	19660916		19660412
GB1066937 A	19670426	GB19650015342	19650410

Priority:
GB19650015342 19650410

Probable Assignee: MASTABAR MINING EQUIP CO LTD
Assignee(s): (std): MASTABAR MINING EQUIP CO LTD ; MASTABAR MINING EQUIPMENT COMP
Assignee(s): MASTABAR MINING EQUIPMENT COMPANY LIMITED
Inventor(s): (std): SHUTTLEWORTH PETER

Legal status (INPADOC)

View legal status timeline

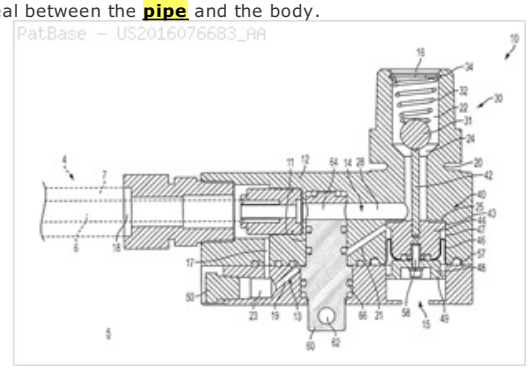
Patent	Date recorded	Event group	Code	Event	Details
BE679379 A	19660916	LSPB	+	published / reissued	
BE679379 A	19860412	PEXP		Calculated Patent Term Expiry	
GB1066937 A	19670426	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1066937 A	19850410	PEXP		Calculated Patent Term Expiry	

93) Family number: 61862146 (US2016076683 AA)

Title: **COUPLING** ASSEMBLY FOR A **PIPE** AND VALVE ASSEMBLY COMPRISING THE SAME

Abstract: A valve assembly comprising: a body having a threaded tubular **connector** sized and shaped to receive a **pipe** having a first fluid line; a primary passageway defined through the body and the tubular **connector** for connection to the first fluid line; a valve disposed in the primary passageway; and a **coupling** assembly for sealingly connecting the **pipe** to the body, the **coupling** assembly including: an **annular** compression member adapted to be disposed around the **pipe**, the **annular** compression member threadingly engaging the tubular **connector** such that rotation of the compression member selectively moves the **annular** compression member axially towards and away from the body; and an O-**ring** seal adapted to be disposed concentrically around the **pipe** between the **annular** compression member and the body, the O-**ring** being compressed when the **annular** compression member is moved towards the body to create a seal between the **pipe** and the body.

Classifications:
International (IPC 8-9)**:** F16K15/18 F16K17/04 F16L15/08 F16L29/00
CPC: F16K15/183 F16K15/188 F16K17/383 F16K17/40 F16L15/08 F16L25/0036 F16L29/007
US: 137/511 251/148 285/355



Family:

Publication number	Publication date	Application number	Application date
US2016076683 AA	20160317	US20150949487	20151123

Priority:
US20120713286P 20121012 US20140371781 20140711 US20150949487 20151123

Probable Assignee: LORAX SYSTEMS INC
Assignee(s): (std)**:** LORAX SYSTEMS INC
Inventor(s): (std)**:** BISHOFF GUY ; BISHOFF MARK

Legal status (INPADOC)

View legal status timeline

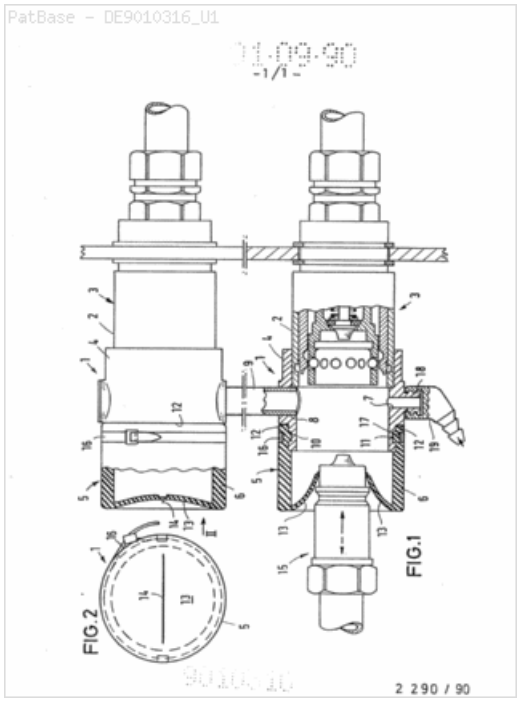
Patent	Date recorded	Event group	Code	Event	Details
US2016076683 AA	20160218		RFE1	Docketed New Case - Ready for Examination	
US2016076683 AA	20160317	LSPB	+	published / reissued	
US2016076683 AA	20170823	LSES	NFA1	Non Final Action Mailed	
US2016076683 AA	20180302	LSWD	ABD3	Abandoned -- Failure to Respond to an Office Action	
US2016076683 AA	20180302		-STCB	INFORMATION ON STATUS: APPLICATION DISCONTINUATION	Text: ABANDONED -- FAILURE TO RESPOND TO AN OFFICE ACTION

94) Family number: 17650834 (DE9010316 U1)

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Abstract: Source: DE9010316 U1 **Machine translation:** (Claim 1) Schutzansprueche l. dust protection device for plug-in or screw-on **pipe** -line **couplings** for hydraulic systems with a protective cap made of a flexible material such as rubber or plastic, which is on the sleeve of the clutch arranged and to the passage of the clutch plug the **pipe** **coupling** elastically or flexibly widening Einfuehrungsoeffnung in the cap base and a radially outward outgoing drain **pipe** for Leckfluessigkeit, dadurchgeken n designates that the dust guard (l) in two parts, with one on the sleeve part (2) of the **pipe** **coupling** (3) fortified **ring** -shaped SPACER (4) from a deformation resistant, tough and impact resistant synthetic plastic, which at diametrically opposite circumferential sides of each radial Ablaufoeffnung (7) and one to coaxial by a cap or a plug-sealable one-steckoeffnung (8) for one connecting line between the two, in a group of parallel stacked **pipe** **couplings** (3) and is an end annularly shaped circumferential **groove** (10) for the engagement of an **annular** bead (11), the completely from one to the SPACER (4) attachable rubber protective cap (5) with a closed **annular** outer casing (6) protrudes inward.

Classifications:
International (IPC 8-9): F16L57/00
International (IPC 1-7): F16L15/00 F16L35/00 F16L37/00
CPC: F16L57/005



Family:

Publication number	Publication date	Application number	Application date
DE9010316 U1	19901115	DE19900010316U	19900707

Priority:
DE19900010316U 19900707

Probable Assignee: FASTER SRL

Assignee(s): FASTER S R L MELZO MAILAND MILANO IT ; FASTER SRL

Legal status (INPADOC)

View legal status timeline

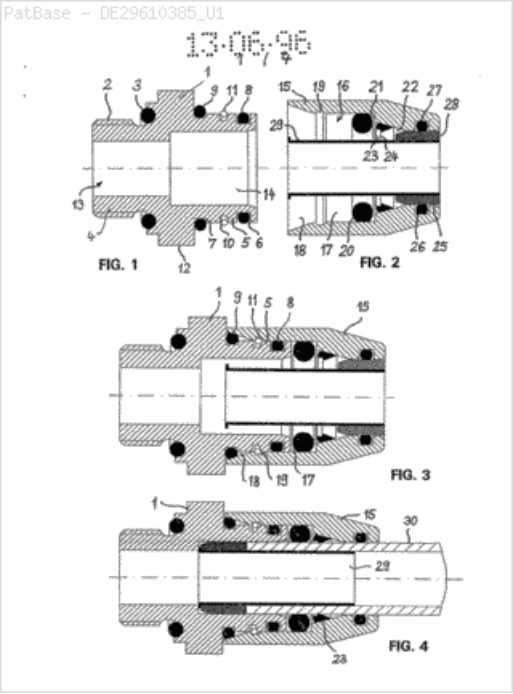
Patent	Date recorded	Event group	Code	Event	Details
DE9010316 U1	19901115	LSGT	+	granted / extensions (spc, cpc, pte)	
DE9010316 U1	20000707	PEXP		Calculated Patent Term Expiry	

95) Family number: 16920556 (DE29610385 U1)

Title: Quick-connect coupler for **pipes**

Abstract: Source: DE29610385 U1 **Machine translation:** (Claim 1) 1 Plug-in **coupling** for **pipes**, especially for plastics f tube e, with a SOCKET, the apfen sz from a connectable with a **connector** component **coupling** anda connectable apfen sz with the clutch Kupplungshuelse exists and has a receiving bore in dieein end of the **pipe** until it contacts a stop in the I Men of the **coupling** sg ousing is externally inserted, with Einsteckrichtungangeordnet in one formed by the Kupplungshuelse section of the bore, a sealing **ring** and compressing the retaining **ring** with a cutting edge or teeth to hold the R o onlineused contrary to, are characterized in that the **coupling** pin (1) and Kupplungshuelse (15, 31) by a selbsttaetig lockable **connectors** are connected together such that the apfen sz of the **coupling** (1) formed section (14) of Au fn ahmebohrung a diameter-has that corresponds to the largest possible tube outside diameter and for connecting a small **pipe** outside diameter, a in the section (14) of the bore of the **coupling** sz ap fe ns einsetzbareReduzierhuelse (43) is provided and that the copper pl UNG sza pf s (1) a first Kupplungshuelse (15) or a second Kupplungshuelse (31) is connectable, with the first Kupplungshuelse (15) with sealing **ring** (27) undHaltering (23) to the largest **pipe** diameter and the second Kupplungshuelse (31) with sealing **ring** (39) undHaltering (36) on the smaller **pipe** diameter is adjusted.

Classifications:
International (IPC 8-9): F16L37/00 F16L37/088 F16L37/092
International (IPC 1-7): F16L47/04
CPC: F16L37/088 F16L37/0925 F16L37/0926



Family:

Publication number	Publication date	Application number	Application date
DE29610385 U1	19961002	DE19962010385U	19960613

Priority:

DE19962010385U 19960613

Probable Assignee: SCHAEFER STETTINER SCHRAUBEN

Assignee(s): (std): SCHAEFER STETTINER SCHRAUBEN

Assignee(s): JOHANNES SCHAEFER VORM STETTINER SCHRAUBENWERKE GM ; JOHANNES SCHAEFER VORM STETTINER SCHRAUBENWERKE GMBH AND CO 35410 HUNGEN DE KG ; JOHANNES SCHAEFER VORM STETTINER SCHRAUBENWERKE GMBH AND CO KG 35410 HUNGEN DE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE29610385 U1	19961002	LSGT	+	granted / extensions (spc, cpc, pte)	
DE29610385 U1	19961002	LSGT	R207	UTILITY MODEL SPECIFICATION	Effective date: 19961002
DE29610385 U1	20000127	LSGT	+R150	UTILITY MODEL MAINTAINED AFTER PAYMENT OF FIRST MAINTENANCE FEE AFTER THREE YEARS	Effective date: 19991124
DE29610385 U1	20030206	LSGT	+R151	UTILITY MODEL MAINTAINED AFTER PAYMENT OF SECOND MAINTENANCE FEE AFTER SIX YEARS	Effective date: 20021128
DE29610385 U1	20050105	LSGT	+R152	UTILITY MODEL MAINTAINED AFTER PAYMENT OF THIRD MAINTENANCE FEE AFTER EIGHT	Effective date:

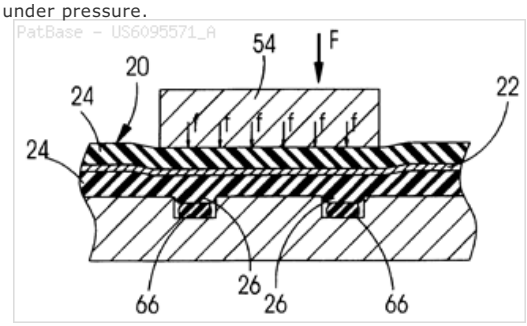
				YEARS	20041104
DE29610385 U1	20060613	PEXP		Calculated Patent Term Expiry	
DE29610385 U1	20060630	LSLE	-R071	EXPIRY OF RIGHT	

96) Family number: 12416678 (US6095571 A)

Title: TUBING **CONNECTOR**

Abstract: A tubing **connector** for sealingly engaging an end portion of a tubing to serve as a conduit for pressurized fluids is described. The tubing **connector** is particularly intended for use with a composite tubing having inner and outer plastic layers with an intermediate aluminium layer. An elastic seal **ring** is provided in each of two **annular** spaced apart **grooves** in an external periphery of a **connector** portion of the tubing **connector**. Each of the **grooves** has a depth that approximates a thickness of the seal **ring** and a width greater than a width of the seal **ring**. When the **connector** portion is inserted in the tubing and a radial pressure is exerted on the tubing by a crimp **ring**, the plastic inner periphery of the tubing intrudes into each **annular groove** and further compresses the seal **ring** inwardly in the **groove**. The remainder of the tubing overlapped by the crimp **ring** is compressed tightly around the external periphery of the **connector** portion. Therefore, a fluid tight seal is achieved. The advantage is a reliable **connector** for composite tubing that is quickly and easily installed and is adapted to provide a fluid-tight seal even when subjected to high temperature fluids under pressure.

Classifications:
International (IPC 8-9): F16L33/00 F16L33/18 F16L33/20 F16L33/207
International (IPC 1-7): F16L33/00 F16L33/18 F16L33/207
CPC: F16L13/143 F16L33/2071 Y10T29/49435 Y10T29/49927
US: 285/256 285/347 29/516 29/890.144



Family:

Publication number	Publication date	Application number	Application date
CA2282814 AA	20000321	CA19992282814	19990921
CA2282814 C	20090505	CA19992282814	19990921
US6095571 A	20000801	US19980157491	19980921

Priority:
US19980157491 19980921 CA19992282814 19990921

Probable Assignee: MACDUFF JAMES
Assignee(s): (std): MACDUFF JAMES
Inventor(s): (std): MACDUFF JAMES
Agent(s): GOWLING LAFLEUR HENDERSON LLP

Legal status (INPADOC)

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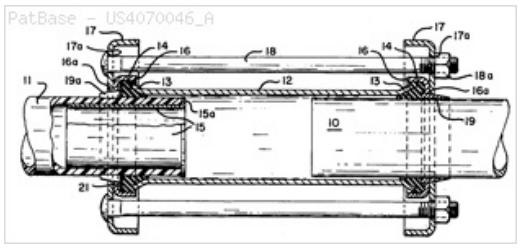
Patent	Date recorded	Event group	Code	Event	Details
CA2282814 AA	20000321	LSPB	+	published / reissued	
CA2282814 AA	20040715	LSES	+EEER	EXAMINATION REQUEST	
CA2282814 C	20090505	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2282814 C	20110921	LSLE	-MKLA	LAPSED	
CA2282814 C	20190921	PEXP		Calculated Patent Term Expiry	
US6095571 A	20000801	LSGT	+	granted / extensions (spc, cpc, pte)	
US6095571 A	20040115	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US6095571 A	20080124	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US6095571 A	20120312		REMI	MAINTENANCE FEE REMINDER MAILED	
US6095571 A	20120801	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US6095571 A	20120827	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US6095571 A	20120827	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	Text: PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US6095571 A	20120918	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective date: 20120801
US6095571 A	20180921	PEXP		Calculated Patent Term Expiry	

97) Family number: 1329872 (US4070046 A)

Title: **Pipe** and tubing connecting sleeve

Abstract: A **pipe** **coupling** is provided having a sleeve with frusto conical ends, elastomer gaskets fitting in said frusto conical ends, a follower at each end of the sleeve having a frusto conical opening, a plurality of generally triangular jaws fitting in said opening and tightening means acting on each follower.

Classifications:
International (IPC 8-9): F16L17/00 F16L21/02 F16L21/04 F16L21/08 F16L47/00 F16L47/12
International (IPC 1-7): F16L17/00 F16L21/00 F16L21/02 F16L21/06 F16L21/08 F16L23/02
CPC: F16L21/04 F16L21/08 F16L47/12 F16L21/022
US: 285/249 285/323 285/337 285/348 285/368 285/371 285/415 285/421



Family:

Publication number	Publication date	Application number	Application date
AU197730115 A1	19790503	AU19770030115	19771027
AU197945731 A1	19790809	AU19790045731	19790402
AU513748 B2	19801218	AU19790045731	19790402
CA1069959 A1	19800115	CA19770288631	19771013
CA1078427 A1	19800527	CA19790337807	19791017
CA1078427 A2	19800527	CA19790337807	19791017
DE2748429 A1	19780503	DE19772748429	19771028
FR2369495 A1	19780526	FR19770032823	19771028
FR2369495 B1	19841012	FR19770032823	19771028
GB1591743 A	19810624	GB19770044700	19771027
US4070046 A	19780124	US19760737700	19761101
US4119335 A	19781010	US19770814435	19770711

Priority:

US19760814435 19760711 US19760737700 19761101 US19770814435 19770711
CA19770288631 19771013 AU19790045731 19790402 CA19790337807 19791017

Probable Assignee: SMITH BLAIR INC

Assignee(s): (std): COUPLING SYST

Assignee(s): COUPLING SYSTEMS ; COUPLING SYSTEMS INC ; FELKER CHARLES E ; RIEFFLE PAUL F ; SMITH BLAIR INC

Inventor(s): (std): FELKER C E ; FELKER CHARLES E ; RIEFFLE P F ; RIEFFLE PAUL F

Inventor(s): C E FELKER ; CHARLES E FELKER ; E FELKER CHARLES ; F RIEFFLE PAUL ; FELKER C E AND KIENLE P F ; P F RIEFFLE ; PAUL F RIEFFLE

Agent(s): EDWD WATERS AND SONS; GRIFFITH HACK; WATERMARK INTELLECTUAL PROPERTY PTY LTD; WM

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU197730115 A1	19790503	LSPB	+	published / reissued	
AU197945731 A1	19790809	LSPB	+	published / reissued	
AU513748 B2	19801218	LSGT	+	granted / extensions (spc, cpc, pte)	
CA1069959 A1					
CA1069959 A1	19970115	LSLE	-MKEX	EXPIRY	
CA1078427 A1					
CA1078427 A1	19970527	LSLE	-MKEX	EXPIRY	
CA1078427 A2	19800527	LSGT	+	granted / extensions (spc, cpc, pte)	
DE2748429 A1	19780503	LSPB	+	published / reissued	
DE2748429 A1	19780503	LSES	+OAP	REQUEST FOR EXAMINATION FILED	
DE2748429 A1	19780615	LSES	+OD	REQUEST FOR EXAMINATION	

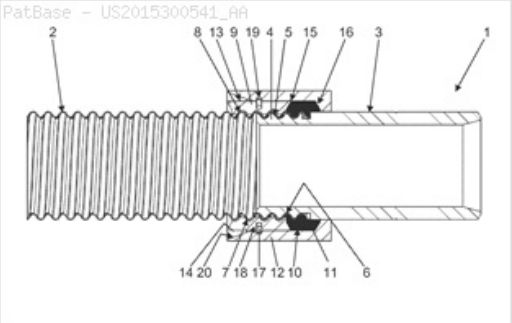
DE2748429 A1	19861009	LSLE	-8139	DISPOSAL/NON-PAYMENT OF THE ANNUAL FEE	
FR2369495 A1	19780526	LSPB	+	published / reissued	
FR2369495 B1	19841012	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2369495 B1	19860822	LSLE	-ST	NOTIFICATION OF LAPSE	
FR2369495 B1	19971028	PEXP		Calculated Patent Term Expiry	
GB1591743 A	19810624	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1591743 A	19810909	LSGT	+PS	PATENT SEALED	
GB1591743 A	19960626	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	Effective date: 19951027
GB1591743 A	19971027	PEXP		Calculated Patent Term Expiry	
US4070046 A	19780124	LSGT	+	granted / extensions (spc, cpc, pte)	
US4070046 A	19970721	LSAS	AS	ASSIGNMENT	Effective date: 19970502 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:COUPLING SYSTEMS, INC.;REEL/FRAME:008613/0352 Owner: SMITH-BLAIR, INC., TEXAS PartyType: owner
US4119335 A	19781010	LSGT	+	granted / extensions (spc, cpc, pte)	
US4119335 A	19970721	LSAS	AS	ASSIGNMENT	Effective date: 19970502 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:COUPLING SYSTEMS, INC.;REEL/FRAME:008613/0352 Owner: SMITH-BLAIR, INC., TEXAS PartyType: owner

98) Family number: 60599341 (US2015300541 AA)

Title: **COUPLING** CONNECTION FOR CORRUGATED **PIPES**

Abstract: A **coupling** connection for corrugated **pipes** includes a **coupling** element, a support **ring** which is attachable in a positive fit against an inner wall face of the corrugated **pipe**, a first **annular** element which is axially fixable on a circumferential face of the corrugated **pipe**, a portion of the corrugated **pipe** being enclosed between the support **ring** and the first **annular** element and being fixable axially immovably, and an **annular** sealing chamber, enclosed circumferentially in a transition region between the support **ring** and the corrugated **pipe**, receiving a sealing element, on which a deformation force acts in a functional position which is fixable using a fixing element, including a second **annular** element, which circumferentially encloses the **coupling** element and is circumferentially attachable and movable in translation with respect thereto, the first **annular** element and the second **annular** element being arranged mutually coaxially.

Classifications:
International (IPC 8-9)**:** F16L11/15 F16L15/04 F16L15/08 F16L19/00 F16L19/03 F16L21/03 F16L21/04 F16L25/00 F16L33/26 F16L9/06
CPC: F16L15/04 F16L15/08 F16L21/03 F16L21/04 F16L25/0036 F16L33/26
US: 285/349 285/66 1/1



Family:

Publication number	Publication date	Application number	Application date
CA2888031 AA	20151017	CA20152888031	20150414
CA2888031 C	20171031	CA20152888031	20150414
DE102014105555 A1	20151022	DE201410105555	20140417
DE502015004269 D1	20180614	DE201550004269T	20150304
DK2933542 T3	20180827	DK20150401015T	20150304
EP2933542 A1	20151021	EP20150401015	20150304
EP2933542 A8	20151202	EP20150401015	20150304
EP2933542 B1	20180516	EP20150401015	20150304
PL2933542 T3	20181130	PL20150401015T	20150304
RS57671 B1	20181130	RS20180000968	20150304
US2015300541 AA	20151022	US20150689132	20150417
US9651177 BB	20170516	US20150689132	20150417

Priority:
DE201410105555 20140417 EP20150401015 20150304

Probable Assignee: BRUGG ROHR HOLDING AG
Assignee(s): (std)**:** BRUGG ROHR HOLDING AG
Assignee(s): HOMANN JOERN ; NIELINGER HELGA ; POST MARC ; POST MARE
Inventor(s): (std)**:** HOMANN JOERN ; NIELINGER HELGA ; POST MARC ; POST MARE
Agent(s): LEYDIG VOIT AND MAYER LTD; MCMILLAN LLP; SCHEFFLER JOERG
Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA2888031 AA	20151017	LSPB	+	published / reissued	
CA2888031 C	20171031	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2888031 C	20350414	PEXP		Calculated Patent Term Expiry	
DE102014105555 A1	20140417	LSES	+R012	REQUEST FOR EXAMINATION VALIDLY FILED	
DE102014105555 A1	20141218		R082	CHANGE OF REPRESENTATIVE	PartyType: representative Representative: SCHEFFLER, JOERG, DIPL.-ING., DE
DE102014105555 A1	20150123		R079	AMENDMENT OF IPC MAIN CLASS	ClassificationScheme: IPC ClassificationSymbol: F16L0019030000 Text: PREVIOUS MAIN CLASS: F16L0019000000

DE102014105555 A1	20150304	LSES	R016	RESPONSE TO EXAMINATION COMMUNICATION	
DE102014105555 A1	20150305	LSES	R016	RESPONSE TO EXAMINATION COMMUNICATION	
DE102014105555 A1	20151022	LSPB	+	published / reissued	
DE502015004269 D1	20180131		R079	AMENDMENT OF IPC MAIN CLASS	ClassificationScheme: IPC ClassificationSymbol: F16L0025000000 Text: PREVIOUS MAIN CLASS: F16L0033260000
DK2933542 T3	20180827	LSGT	+	granted / extensions (spc, cpc, pte)	
DK2933542 T3	20350304	PEXP		Calculated Patent Term Expiry	
EP2933542 A1	20151021	LSPB	+	published / reissued	
EP2933542 A1	20151021		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
EP2933542 A1	20151021		+AV	REQUEST FOR VALIDATION OF THE EUROPEAN PATENT	Country of Ref document: MA
EP2933542 A1	20151021		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Country of Ref document: BA ME
EP2933542 A8	20151202		RIN1	INFORMATION ON INVENTOR PROVIDED BEFORE GRANT (CORRECTED)	Inventor: POST, MARC PartyType: inventor
EP2933542 A8	20151202		RIN1	INFORMATION ON INVENTOR PROVIDED BEFORE GRANT (CORRECTED)	Inventor: NIELINGER, HELGA PartyType: inventor
EP2933542 A8	20151202		RIN1	INFORMATION ON INVENTOR PROVIDED BEFORE GRANT (CORRECTED)	Inventor: HOMANN, JOERN PartyType: inventor
EP2933542 A8	20160511	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20160330
EP2933542 A8	20160511		+RBV	DESIGNATED CONTRACTING STATES (CORRECTED)	Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
EP2933542 A8	20161012	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20160907
EP2933542 A8	20180131		REG	REFERENCE TO A NATIONAL CODE	ClassificationScheme: IPC ClassificationSymbol: F16L0025000000 Ref country code: DE Ref document number: 502015004269 Ref legal event code: R079 Text: PREVIOUS MAIN CLASS: F16L0033260000 Country of Ref document: DE
EP2933542 A8	20180307		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 33/26 20060101ALI20180131BHEP
EP2933542 A8	20180307		RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	ClassificationScheme: IPC ClassificationSymbol: F16L 25/00 20060101AFI20180131BHEP
EP2933542 A8	20180314	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	Effective date: 20180216
EP2933542 B1	20180516	LSGT	+	granted / extensions (spc, cpc, pte)	

EP2933542 B1	20180516		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: B1 Country of Ref document: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
EP2933542 B1	20180516	LSGT	REG	REFERENCE TO A NATIONAL CODE	Text: NOT ENGLISH Ref country code: GB Ref legal event code: FG4D
EP2933542 B1	20180531	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: EP
EP2933542 B1	20180613	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: FG4D Text: LANGUAGE OF EP DOCUMENT: GERMAN Ref country code: IE
EP2933542 B1	20180614	LSPB	REG	REFERENCE TO A NATIONAL CODE	Ref document number: 502015004269 Ref country code: DE Ref legal event code: R096 Country of Ref document: DE
EP2933542 B1	20180615	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: AT Ref document number: 999910 Kind code of Ref document: T Effective date: 20180615 Ref legal event code: REF Country of Ref document: AT
EP2933542 B1	20180827		REG	REFERENCE TO A NATIONAL CODE	Ref country code: DK Ref legal event code: T3 Effective date: 20180820
EP2933542 B1	20180829		REG	REFERENCE TO A NATIONAL CODE	Ref country code: NL Ref legal event code: FP
EP2933542 B1	20181010	LSRV	REG	REFERENCE TO A NATIONAL CODE	Ref country code: LT Ref legal event code: MG4D
EP2933542 B1	20181031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180516 Country of Ref document: SE
EP2933542 B1	20181031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180516 Country of Ref document: ES
EP2933542 B1	20181031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180516 Country of Ref document: LT
EP2933542 B1	20181031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20180816 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: BG
EP2933542 B1	20181031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20180816 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: NO
EP2933542 B1	20181031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180516 Country of Ref document: FI
EP2933542 B1	20181130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180516 Country of Ref document: HR

				OFFICE TO EPO]	
EP2933542 B1	20181130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180516 Country of Ref document: LV
EP2933542 B1	20181130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180817 Country of Ref document: GR
EP2933542 B1	20190131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20180516 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SK
EP2933542 B1	20190131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180516 Country of Ref document: CZ
EP2933542 B1	20190131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180516 Country of Ref document: RO
EP2933542 B1	20190131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180516 Country of Ref document: EE
EP2933542 B1	20190219	LSRE	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: R097 Ref document number: 502015004269 Ref country code: DE Country of Ref document: DE
EP2933542 B1	20190228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180516 Country of Ref document: SM
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EP2933542 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190322 Year of fee payment: 5 Country of Ref document: FR
EP2933542 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190322 Year of fee payment: 5 Country of Ref document: CH
EP2933542 B1	20190531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180516 Country of Ref document: SI

				OFFICE TO EPO]	
EP2933542 B1	20190531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 5 Payment date: 20190322 Country of Ref document: NL
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EP2933542 B1	20190731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190404 Year of fee payment: 5 Country of Ref document: DE
EP2933542 B1	20190731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190329 Year of fee payment: 5 Country of Ref document: IT
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EP2933542 B1	20191127	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	Ref country code: EP Effective date: 20190304
EP2933542 B1	20191129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20190304 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: LU
EP2933542 B1	20191129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20180516 Country of Ref document: AL
EP2933542 B1	20191213		REG	REFERENCE TO A NATIONAL CODE	Ref country code: BE Ref legal event code: MM Effective date: 20190331
EP2933542 B1	20200131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20190304 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: IE
EP2933542 B1	20200131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20190304 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: GB
EP2933542 B1	20200228	LSLE	-PG25	LAPSED IN A CONTRACTING	Lapsed date: 20190331 NotificationOfLapse: LAPSE BECAUSE

				STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	OF NON-PAYMENT OF DUE FEES Country of Ref document: BE
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EP2933542 B1	20200501	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200325 Year of fee payment: 6 Country of Ref document: NL
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EP2933542 B1	20200501	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 6 Payment date: 20200323 Country of Ref document: AT
EP2933542 B1	20200529	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200320 Year of fee payment: 6 Country of Ref document: CH
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EP2933542 B1	20200731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20200401 Year of fee payment: 6 Country of Ref document: FR
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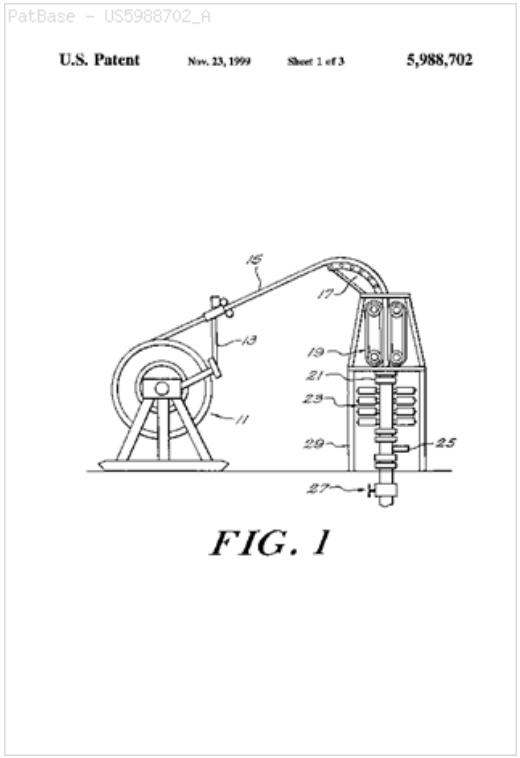
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EP2933542 B1	20350304	PEXP		Calculated Patent Term Expiry	
PL2933542 T3	20181130	LSGT	+	granted / extensions (spc, cpc, pte)	
RS57671 B1	20181130	LSGT	+	granted / extensions (spc, cpc, pte)	
RS57671 B1	20350304	PEXP		Calculated Patent Term Expiry	
US2015300541 AA	20151022	LSPB	+	published / reissued	
US2015300541 AA	20170216	LSAS	AS	ASSIGNMENT	OldParty: CORRECTIVE ASSIGNMENT TO CORRECT THE RECEIVING PARTY STATE/COUNTRY PREVIOUSLY RECORDED ON REEL 035453 FRAME 0001. ASSIGNOR(S) HEREBY CONFIRMS THE ASSIGNMENT;ASSIGNORS:NIELINGER, HELGA;POST, MARC;HOMANN, JOERN;SIGNING DATES FROM 20150407 TO 20150420;REEL/FRAME:041731/0358 PartyType: owner Owner: BRUGG ROHR AG HOLDING, SWITZERLAND
US2015300541 AA	20170426	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US9651177 BB	20150421	LSAS	AS	ASSIGNMENT	Owner: BRUGG ROHR AG HOLDING, GERMANY OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:NIELINGER, HELGA;POST, MARC;HOMANN, JOERN;SIGNING DATES FROM 20150407 TO 20150420;REEL/FRAME:035453/0001 PartyType: owner
US9651177 BB	20150601		APP1	Application Dispatched from Preexam, Not Yet Docketed	
US9651177 BB	20170426	LSGT	PAT1	Patented Case	
US9651177 BB	20170516	LSGT	+	granted / extensions (spc, cpc, pte)	
US9651177 BB	20350803	PEXP		Calculated Patent Term Expiry (PTA 108 days)	

99) Family number: 30424745 (US5988702 A)

Title: COMPOSITE COILED TUBING END **CONNECTOR**

Abstract: A **connector** is disclosed for use with composite spoolable **pipe** such as for use in well logging and workover operations in oil wells. The **pipe** which is spoolable is comprised of an outer composite structure containing several plies of high strength and stiffness fibers embedded in a resin material such as epoxy. The fibers are oriented to resist internal and external pressure and provide low bending stiffness. Fibers of high strength and modulus are embedded and bonded into a matrix that keeps the fibers in position, acts as a load transfer medium and protects the fibers from environmental damage. The plastic binder in which the fibers are embedded to form the matrix will have a modulus of elasticity (hereinafter modulus) that exceeds 100,000 psi. Typically, a liner may be employed in the **pipe** to serve as a structural member, one function of which is pressure containment to resist leakage of internal fluids within the tubing. A wear surface is employed as an outer layer and may be comprised of a binder containing particles of a tough material.

Classifications:
International (IPC 8-9): E21B17/00 E21B17/02 E21B17/04 E21B17/20 F16L19/00 F16L19/08 F16L21/00 F16L25/01 F16L33/20 F16L33/22 F16L47/00 F16L47/04 F16L49/02 F16L49/06 H02G15/24
International (IPC 1-7): E21B17/04 E21B17/20 F16L F16L19/08 F16L33/00 F16L33/18 F16L47/04 H02G15/24
CPC: E21B17/04 F16L19/086 F16L47/04 E21B17/02 E21B17/20 F16L33/223 F16L19/083 F16L33/22
US: 174/21.00R 174/21R 281/222.1 281/259 285/222.1 285/249 285/249P 285/259



Family:

Publication number	Publication date	Application number	Application date
AT301796 E	20050815	AT20000967179T	20000929
AU200077419 A1	20010510	AU20000077419	20000929
AU200077419 A5	20010510	AU20000077419D	20000929
AU200116313 A1	20010510	AU20010016313	20001004
AU200116313 A5	20010510	AU20010016313D	20001004
CA2233345 AA	19980327	CA19962233345	19960926
CA2233345 C	20041214	CA19962233345	19960926
CA2385237 AA	20020318	CA20002385237	20001004
CA2385724 AA	20020325	CA20002385724	20000929
CA2385724 C	20090818	CA20002385724	20000929
CA2666070 AA	20010412	CA20002666070	20000929
CA2666070 C	20120221	CA20002666070	20000929
CA2759974 AA	20010412	CA20002759974	20000929
CA2759974 C	20141118	CA20002759974	20000929
CA2857859 AA	20010412	CA20002857859	20000929
CA2525958 AA	20051115	CA20042525958	20040521
CA2525958 C	20140722	CA20042525958	20040521
DE60021906 D1	20050915	DE20006021906T	20000929
EP1224417 A1	20020724	EP20000967179	20000929
EP1224417 B1	20050810	EP20000967179	20000929
EP1226384 A1	20020731	EP20000978904	20001004
GB2321288 A1	19980722	GB19980006845	19960926
GB2321288 B2	19991201	GB19980006845	19960926
GB9806845 A0	19980527	GB19980006845	19960926
GB2337569 A1	19991124	GB19990018661	19960926
GB2337569 B2	20000322	GB19990018661	19960926
GB9918661 A0	19991013	GB19990018661	19960926
GB200526048 A0	20060201	GB20050026048	20040521
GB2418240 A1	20060322	GB20050026048	20040521
GB2418240 B2	20061011	GB20050026048	20040521

NO981411 A	19980526	NO19980001411	19980327
NO981411 A0	19980327	NO19980001411	19980327
NO981411 L	19980526	NO19980001411	19980327
NO20021496 A	20020522	NO20020001496	20020326
NO20021496 A0	20020326	NO20020001496	20020326
NO20021496 L	20020522	NO20020001496	20020326
NO20021570 A	20020531	NO20020001570	20020403
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NO20021570 L	20020531	NO20020001570	20020403
US5988702 A	19991123	US19960721135	19960926
US2004012198 AA	20040122	US20030442680	20030521
US7498509 BB	20090303	US20030442680	20030521
US2009278348 AA	20091112	US20090356278	20090120
US8110741 BB	20120207	US20090356278	20090120
WO9712115 A2	19970403	WO1996US15427	19960926
WO9712115 A3	19970522	WO1996US15427	19960926
WO0125667 A1	20010412	WO2000US26977	20000929
WO0125667 C2	20020926	WO2000US26977	20000929
WO0125674 A1	20010412	WO2000US41073	20001004
WO04104465 A2	20041202	WO2004US16093	20040521
WO04104465 A3	20051229	WO2004US16093	20040521

Priority:

US19950005377P 19950928	WO1996US15427 19960926	GB19980006845 19960926
US19960721135 19960926	US19990368333 19990803	US19990410605 19991001
US19990157614P 19991004	WO2000US26977 20000929	CA20002385724 20000929
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US20090356278 20090120	CA20112666070 20111213	CA20142759974 20140812

Probable Assignee: FIBERSPAR CORP

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Inventor(s): ALEX SAS JAWORSKY ; ALEXANDER SAS JAWORSKY ; ARTHUR D BROTZELL ; BROTZELL ARTHUR D1329 7A STREET N.W.CALGARYA1T2M 3J7CA ; CHANTHOL THO ; FOWLER STEWART HUS ; SAS JAWORSKY ALEXUS ; STEWART H FOWLER ; THO CHANTHOLUS

Agent(s): GOODWIN PROCTER LLP; GOODWIN PROCTER LLP PATENT ADMINISTRATOR; GOODWIN PROCTER LLP,PATENT ADMINISTRATOR; RICHES MCKENZIE AND HERBERT LLP

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT301796 E	20050815	LSGT	+	granted / extensions (spc, cpc, pte)	
AT301796 E	20060215	LSLE	-RER	CEASED AS TO PARAGRAPH 5 LIT. 3 LAW INTRODUCING PATENT TREATIES	
AT301796 E	20200929	PEXP		Calculated Patent Term Expiry	
AU200077419 A1	20010510	LSPB	+	published / reissued	
AU200077419 A5	20020606	LSLE	-MK6	APPLICATION LAPSED SECTION 142(2)(F)/REG. 8.3(3) - PCT APPLIC. NOT ENTERING NATIONAL PHASE	

AU200116313 A1	20010510	LSPB	+	published / reissued	
AU200116313 A5	20020606	LSLE	-MK6	APPLICATION LAPSED SECTION 142(2)(F)/REG. 8.3(3) - PCT APPLIC. NOT ENTERING NATIONAL PHASE	
CA2233345 AA	19980327	LSPB	+	published / reissued	
CA2233345 AA	19980327	LSES	+EEER	EXAMINATION REQUEST	
CA2233345 AA	20161128	LSLE	-MKEX	EXPIRY	Effective date: 20160926
CA2233345 C	20041214	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2233345 C	20160926	PEXP		Calculated Patent Term Expiry	
CA2385237 AA	20020318	LSPB	+	published / reissued	
CA2385237 AA	20050912	LSES	+EEER	EXAMINATION REQUEST	
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CA2385724 AA	20020325	LSPB	+	published / reissued	
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EP1224417 A1	20020724	LSPB	+	published / reissued	
EP1224417 A1	20020724	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20020502
EP1224417 A1	20020724		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
EP1224417 A1	20020724		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Text: AL;LT;LV;MK;RO;SI
EP1224417 A1	20030827	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20030710
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EP1224417 B1	20050810	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20050810 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: BE
EP1224417 B1	20050810	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20050810 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: CH
EP1224417 B1	20050810	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20050810 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: FI
EP1224417 B1	20050810	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20050810 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: IT
EP1224417 B1	20050810	LSLE	-PG25	LAPSED IN A CONTRACTING STATE	Lapsed date: 20050810 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE

				[ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: LI
EP1224417 B1	20050810	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20050810 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: NL
EP1224417 B1	20050810	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20050810 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT;WARNING: LAPSES OF ITALIAN PATENTS WITH EFFECTIVE DATE BEFORE 2007 MAY HAVE OCCURRED AT ANY TIME BEFORE 2007. THE CORRECT EFFECTIVE DATE MAY BE DIFFERENT FROM THE ONE RECORDED. Country of Ref document: IT
EP1224417 B1	20050810	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: GB Ref legal event code: FG4D
EP1224417 B1	20050815	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: EP
EP1224417 B1	20050907	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: FG4D
EP1224417 B1	20050915		REF	CORRESPONDS TO:	Date of Ref document: 20050915 Kind code of Ref document: P Ref document number: 60021906 Country of Ref document: DE
EP1224417 B1	20050929	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20050929 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: CY
EP1224417 B1	20050929	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20050929 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: IE
EP1224417 B1	20050930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20050930 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: MC
EP1224417 B1	20051010	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20051010 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: LU
EP1224417 B1	20051110	LSLE	-PG25	LAPSED IN A CONTRACTING STATE	Lapsed date: 20051110 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE

				[ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: DK
EP1224417 B1	20051110	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20051110 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: GR
EP1224417 B1	20051110	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20051110 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: SE
EP1224417 B1	20051121	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20051121 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: ES
EP1224417 B1	20060110	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20060110 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: PT
EP1224417 B1	20060201	LSLE	-NLV1	NL: LAPSED OR ANNULLED DUE TO FAILURE TO FULFILL THE REQUIREMENTS OF ART. 29P AND 29M OF THE PATENTS ACT	Ref country code: EP
EP1224417 B1	20060215	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: PL
EP1224417 B1	20060308		REG	REFERENCE TO A NATIONAL CODE	Ref country code: GB Ref legal event code: 732E
EP1224417 B1	20060401	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20060401 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: DE
EP1224417 B1	20060628	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: IE Ref legal event code: MM4A
EP1224417 B1	20060719	LSGT	+26N	NO OPPOSITION FILED	Effective date: 20060511
EP1224417 B1	20060811	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION	Lapsed date: 20060811 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: FR

				FROM NATIONAL OFFICE TO EPO]	
EP1224417 B1	20061006		-EN	FR: TRANSLATION NOT FILED	
EP1224417 B1	20080829	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20050930 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: FR
EP1224417 B1	20081128	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20050810 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: FR
EP1224417 B1	20171031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20170927 Year of fee payment: 18 Country of Ref document: GB
EP1224417 B1	20181130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20180926 Year of fee payment: 19 Country of Ref document: GB
EP1224417 B1	20191231	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20190926 Year of fee payment: 20 Country of Ref document: GB
EP1224417 B1	20200929	PEXP		Calculated Patent Term Expiry	
EP1226384 A1	20020731	LSPB	+	published / reissued	
EP1226384 A1	20020731	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20020506
EP1226384 A1	20020731		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
EP1226384 A1	20020731		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Text: AL;LT;LV;MK;RO;SI
EP1226384 A1	20080618	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20080519
EP1226384 A1	20090527	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	Effective date: 20081202
GB2321288 A1	19980722	LSPB	+	published / reissued	
GB2321288 B2	19991201	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2321288 B2	20030709	LSRE	711B	APPLICATION MADE FOR	

				CORRECTION OF ERROR (SECT. 117/77)	
GB2321288 B2	20031224	LSRE	711G	CORRECTION ALLOWED (SECT. 117/1977)	
GB2321288 B2	20060308		732E	AMENDMENTS TO THE REGISTER IN RESPECT OF CHANGES OF NAME OR CHANGES AFFECTING RIGHTS (SECT. 32/1977)	
GB2321288 B2	20160925	PEXP		Calculated Patent Term Expiry	
GB2321288 B2	20161019	LSLE	-PE20	PATENT EXPIRED AFTER TERMINATION OF 20 YEARS	Expiry date: 20160925
GB2337569 A1	19991124	LSPB	+	published / reissued	
GB2337569 B2	20000322	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2337569 B2	20030709	LSRE	711B	APPLICATION MADE FOR CORRECTION OF ERROR (SECT. 117/77)	
GB2337569 B2	20060308		732E	AMENDMENTS TO THE REGISTER IN RESPECT OF CHANGES OF NAME OR CHANGES AFFECTING RIGHTS (SECT. 32/1977)	
GB2337569 B2	20160925	PEXP		Calculated Patent Term Expiry	
GB2337569 B2	20161019	LSLE	-PE20	PATENT EXPIRED AFTER TERMINATION OF 20 YEARS	Expiry date: 20160925
GB2418240 A1	20060322	LSPB	+	published / reissued	
GB2418240 B2	20061011	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2418240 B2	20240521	PEXP		Calculated Patent Term Expiry	
NO20021496 A	20020522	LSPB	+	published / reissued	
NO20021570 A	20020531	LSPB	+	published / reissued	
NO20021570 A	20090525	LSRV	-FC2A	WITHDRAWAL, REJECTION OR DISMISSAL OF LAID OPEN PATENT APPLICATION	
NO981411 A	19980526	LSPB	+	published / reissued	
NO981411 A	20051017	LSRV	-FC2A	WITHDRAWAL, REJECTION OR DISMISSAL OF LAID OPEN PATENT APPLICATION	
US2004012198 AA	20040122	LSPB	+	published / reissued	
US2004012198 AA	20050802	LSAS	AS	ASSIGNMENT	Effective date: 20050713

					OldParty: SECURITY AGREEMENT;ASSIGNOR:FIBERSPAR LINEPIPE LLC;REEL/FRAME:016334/0295 Owner: WEATHERFORD ARTIFICIAL LIFT SYSTEMS, INC., TEXAS PartyType: owner
US2004012198 AA	20050802	LSAS	AS	ASSIGNMENT	Effective date: 20050713 OldParty: SECURITY AGREEMENT;ASSIGNOR:FIBERSPAR LINEPIPE LLC;REEL/FRAME:016334/0295 Owner: FIBERSPAR LINEPIPE LLC, MASSACHUSETTS PartyType: owner
US2004012198 AA	20061116	LSAS	AS	ASSIGNMENT	Effective date: 20060928 OldParty: RELEASE BY SECURED PARTY;ASSIGNOR:WEATHERFORD ARTIFICIAL LIFT SYSTEMS, INC.;REEL/FRAME:018524/0353 Owner: FIBERSPAR LINEPIPE LLC, MASSACHUSETTS PartyType: owner
US2004012198 AA	20061116	LSAS	AS	ASSIGNMENT	Effective date: 20061020 OldParty: SECURITY AGREEMENT;ASSIGNORS:FIBERSPAR LINEPIPE LLC;FIBERSPAR LINEPIPE CANADA LTD.;REEL/FRAME:018524/0318 Owner: CITIZENS BANK OF MASSACHUSETTS, MASSACHUSETTS PartyType: owner
US2004012198 AA	20070410	LSAS	AS	ASSIGNMENT	Effective date: 20070327 OldParty: SECURITY AGREEMENT;ASSIGNOR:FIBERSPAR CORPORATION;REEL/FRAME:019140/0618 Owner: CITIZENS BANK OF MASSACHUSETTS, MASSACHUSETTS PartyType: owner
US2004012198 AA	20090211	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US2009278348 AA	20091112	LSPB	+	published / reissued	
US2009278348 AA	20100927	LSAS	AS	ASSIGNMENT	Effective date: 20100927 OldParty: SECURITY AGREEMENT;ASSIGNOR:FIBERSPAR CORPORATION;REEL/FRAME:025039/0705 Owner: RBS CITIZENS, NATIONAL ASSOCIATION, AS ADMINISTRAT PartyType: owner
US2009278348 AA	20120118	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US5988702 A	19970127	LSAS	AS	ASSIGNMENT	Effective date: 19970115 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:CONOCO INC.;REEL/FRAME:008326/0768 Owner: FIBER SPAR AND TUBE CORPORATION, MASSACHUSETTS PartyType: owner
US5988702 A	19970127	LSAS	AS	ASSIGNMENT	Effective date: 19961125 OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:SAS-JAWORSKY, ALEXANDER;REEL/FRAME:008326/0779 Owner: CONOCO INC., TEXAS PartyType: owner
US5988702 A	19991112	LSGT	PAT1	Patented Case	
US5988702 A	19991112	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	Text: PATENTED CASE
US5988702 A	19991123	LSGT	+	granted / extensions (spc, cpc, pte)	
US5988702 A	20010507	LSAS	AS	ASSIGNMENT	Effective date: 20010103 OldParty: CHANGE OF NAME;ASSIGNOR:FIBER SPAR & TUBE CORPORATION;REEL/FRAME:011763/0691 Owner: FIBERSPAR CORPORATION, MASSACHUSETTS PartyType: owner
US5988702 A	20030522	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US5988702 A	20050802	LSAS	AS	ASSIGNMENT	Effective date: 20050713 OldParty: SECURITY AGREEMENT;ASSIGNOR:FIBERSPAR LINEPIPE LLC;REEL/FRAME:016334/0295 Owner: WEATHERFORD ARTIFICIAL LIFT SYSTEMS, INC., TEXAS PartyType: owner

US5988702 A	20050802	LSAS	AS	ASSIGNMENT	Effective date: 20050713 OldParty: SECURITY AGREEMENT;ASSIGNOR:FIBERSPAR LINEPIPE LLC;REEL/FRAME:016334/0295 Owner: FIBERSPAR LINEPIPE LLC, MASSACHUSETTS PartyType: owner
US5988702 A	20061116	LSAS	AS	ASSIGNMENT	Effective date: 20060928 OldParty: RELEASE BY SECURED PARTY;ASSIGNOR:WEATHERFORD ARTIFICIAL LIFT SYSTEMS, INC.;REEL/FRAME:018524/0353 Owner: FIBERSPAR LINEPIPE LLC, MASSACHUSETTS PartyType: owner
US5988702 A	20061116	LSAS	AS	ASSIGNMENT	Effective date: 20061020 OldParty: SECURITY AGREEMENT;ASSIGNORS:FIBERSPAR LINEPIPE LLC;FIBERSPAR LINEPIPE CANADA LTD.;REEL/FRAME:018524/0318 Owner: CITIZENS BANK OF MASSACHUSETTS, MASSACHUSETTS PartyType: owner
US5988702 A	20070410	LSAS	AS	ASSIGNMENT	Effective date: 20070327 OldParty: SECURITY AGREEMENT;ASSIGNOR:FIBERSPAR CORPORATION;REEL/FRAME:019140/0618 Owner: CITIZENS BANK OF MASSACHUSETTS, MASSACHUSETTS PartyType: owner
US5988702 A	20070523	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US5988702 A	20100927	LSAS	AS	ASSIGNMENT	Effective date: 20100927 OldParty: SECURITY AGREEMENT;ASSIGNOR:FIBERSPAR CORPORATION;REEL/FRAME:025039/0705 Owner: RBS CITIZENS, NATIONAL ASSOCIATION, AS ADMINISTRAT PartyType: owner
US5988702 A	20110523	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 12
US5988702 A	20160926	PEXP		Calculated Patent Term Expiry	
US7498509 BB	20030923	LSAS	AS	ASSIGNMENT	OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNORS:BROTZELL, ARTHUR D.;FOWLER, STEWART H. JR.;THO, CHANTHOL;REEL/FRAME:013997/0798;SIGNING DATES FROM 20030805 TO 20030813 Owner: FIBERSPAR CORPORATION, MASSACHUSETTS PartyType: owner
US7498509 BB	20090211	LSGT	PAT1	Patented Case	
US7498509 BB	20090303	LSGT	+	granted / extensions (spc, cpc, pte)	
US7498509 BB	20100927	LSAS	AS	ASSIGNMENT	Effective date: 20100927 OldParty: SECURITY AGREEMENT;ASSIGNOR:FIBERSPAR CORPORATION;REEL/FRAME:025039/0705 Owner: RBS CITIZENS, NATIONAL ASSOCIATION, AS ADMINISTRAT PartyType: owner
US7498509 BB	20120904	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US7498509 BB	20160818	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 8
US7498509 BB	20180803	PEXP		Calculated Patent Term Expiry (PTA 676 days)	
US8110741 BB	20120118	LSGT	PAT1	Patented Case	
US8110741 BB	20120207	LSGT	+	granted / extensions (spc, cpc, pte)	
US8110741 BB	20150807	LSFE	+FPAY	FEE PAYMENT	Year of fee payment: 4
US8110741 BB	20160926	PEXP		Calculated Patent Term Expiry (a terminal disclaimer has been filed)	
US8110741 BB	20190725	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	Year of fee payment: 8
WO0125667 A1	20010412	LSPB	+	published /	

				reissued	
WO0125667 A1	20010412		+AK	DESIGNATED STATES	Kind code of Ref document: A1 Country of Ref document: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
WO0125667 A1	20010412		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: AM AT AZ BE BF BJ BY CF CG CH CI CM CY DE DK ES FI FR GA GB GH GM GN GR GW IE IT KE KG KZ LS LU MC MD ML MR MW MZ NE NL PT RU SD SE SL SN SZ TD TG TJ TM TZ UG ZW
WO0125667 A1	20010606		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	
WO0125667 A1	20010927		DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101)	
WO0125667 A1	20020325	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2385724 Country of Ref document: CA
WO0125667 A1	20020412	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2000967179 Country of Ref document: EP
WO0125667 A1	20020724	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 2000967179 Country of Ref document: EP
WO0125667 A1	20020912	LSWD	REG	REFERENCE TO NATIONAL CODE	Ref country code: DE Ref legal event code: 8642
WO0125667 C2	20020926		+AK	DESIGNATED STATES	Kind code of Ref document: C2 Country of Ref document: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
WO0125667 C2	20020926		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: C2 Country of Ref document: AM AT AZ BE BF BJ BY CF CG CH CI CM CY DE DK ES FI FR GA GB GH GM GN GR GW IE IT KE KG KZ LS LU MC MD ML MR MW MZ NE NL PT RU SD SE SL SN SZ TD TG TJ TM TZ UG ZW
WO0125667 C2	20020926		COP	CORRECTED VERSION OF PAMPHLET	Text: PAGES 1/13-13/13, DRAWINGS, REPLACED BY NEW PAGES 1/12-12/12; DUE TO LATE TRANSMITTAL BY THE RECEIVING OFFICE
WO0125667 C2	20040702	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: JP
WO0125667 C2	20050810	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	Ref document number: 2000967179 Country of Ref document: EP
WO0125674 A1	20010412	LSPB	+	published / reissued	
WO0125674 A1	20010412		+AK	DESIGNATED STATES	Kind code of Ref document: A1 Country of Ref document: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
WO0125674 A1	20010412		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: AM AT AZ BE BF BJ BY CF CG CH CI CM CY DE DK ES FI FR GA GB GH GM GN GR GW IE IT KE KG KZ LS LU MC MD ML MR MW MZ NE NL PT RU SD SE SL SN SZ TD TG TJ TM TZ UG ZW
WO0125674 A1	20010606		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP	

				WAS DESIGNATED IN THIS APPLICATION	
WO0125674 A1	20010927		DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101)	
WO0125674 A1	20020318	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2385237 Country of Ref document: CA
WO0125674 A1	20020423	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2000978904 Country of Ref document: EP
WO0125674 A1	20020731	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 2000978904 Country of Ref document: EP
WO0125674 A1	20020912	LSWD	REG	REFERENCE TO NATIONAL CODE	Ref country code: DE Ref legal event code: 8642
WO0125674 A1	20040707	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE	Ref country code: JP
WO04104465 A2	20041202	LSPB	+	published / reissued	
WO04104465 A2	20041202		+AK	DESIGNATED STATES	Kind code of Ref document: A2 Country of Ref document: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
WO04104465 A2	20041202		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A2 Country of Ref document: AM AT AZ BE BF BG BJ BY CF CG CH CI CM CY CZ DE DK EE ES FI FR GA GB GM GN GQ GR GW HU IE IT KE KG KZ LS LU MC MD ML MR MW MZ NA NE NL PL PT RO RU SD SE SI SK SL SN SZ TD TG TJ TM TR TZ UG ZM ZW
WO04104465 A2	20050126		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	
WO04104465 A2	20051115	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 2525958 Country of Ref document: CA
WO04104465 A2	20051221	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Kind code of Ref document: A Ref document number: 0526048 Text: PCT FILING DATE = 20040521 Country of Ref document: GB
WO04104465 A3	20060628	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	Ref country code: WO
WO9712115 A2	19970403	LSPB	+	published / reissued	
WO9712115 A2	19970403		+AK	DESIGNATED STATES	Kind code of Ref document: A2 Country of Ref document: CA GB NO
WO9712115 A2	19970403		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A2 Country of Ref document: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
WO9712115 A2	19970522		+AK	DESIGNATED STATES	Kind code of Ref document: A3 Country of Ref document: CA GB NO
WO9712115 A2	19970522		+AL	DESIGNATED COUNTRIES	Kind code of Ref document: A3 Country of Ref document: AT BE CH DE DK ES FI FR GB GR

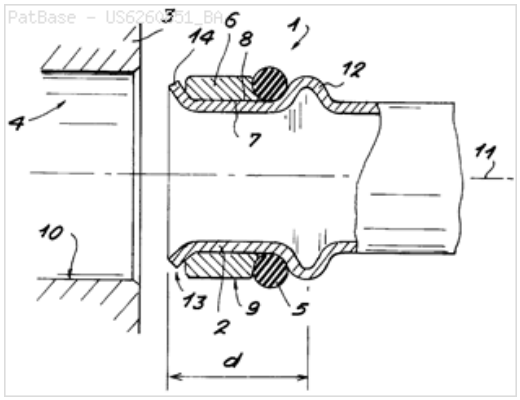
				FOR REGIONAL PATENTS	IE IT LU MC NL PT SE
WO9712115 A2	19970626		DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101)	
WO9712115 A2	19970723		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	
WO9712115 A2	19980327	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE	Kind code of Ref document: A Ref document number: 2233345 Country of Ref document: CA
WO9712115 A2	19980330	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 9806845.5 Country of Ref document: GB
WO9712115 A2	19990107	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	Ref country code: WO

100) Family number: 17941530 (US6260851 BA)

Title: COMPOSITE GASKET AND ASSEMBLY COMPRISING SUCH A GASKET

Abstract: A composite gasket (1) arranged to be frictionally fitted around a rigid tube end (2) is designed for insertion into a part (3) provided with an aperture (4) in the form of a cylindrical bore for **coupling** with the tube end. The gasket includes at least one **ring** (5) made of an elastomeric material and at least one collar (6) made of a rigid material in the shape of a cylindrical sleeve parallel to and coaxial with the **ring** axis. The collar is adjacent to the **ring** and has an outer surface (9) suitable for mild frictional engagement with the inner surface (10) of the **coupling** aperture, while the shape of the **ring** - engaging end surface of the collar matches that of the **ring**.

Classifications:
International (IPC 8-9): F16L17/00 F16L21/02 F16L37/02 F16L41/08
International (IPC 1-7): F16J15/02 F16J15/06 F16L17/00 F16L19/02 F16L2/105 F16L21/02 F16L21/035 F16L21/05 F16L27/08 F16L37/02 F16L41/08 F16L41/14
CPC: B60H1/00571 F16L37/025 F16L41/086 Y10S285/918
US: 277/603 277/607 285/351 285/918
JP F-Term: 3H014 3H015 3H014/AA08 3H014/AA09 3H015/BA04 3H015/BB03 3H015/BC02 3H015/BC05
JP F-Index: F16L17/00 F16L17/02 F16L21/02@F



Family:

Publication number	Publication date	Application number	Application date
AT221171 E	20020815	AT19960937366T	19961030
BRPI9611301 A	19991228	BR1996PI11301	19961030
DE29680972 U1	19981217	DE19962080972U	19961030
DE69622573 D1	20020829	DE19966022573T	19961030
DE69622573 T2	20030327	DE19966022573T	19961030
EP0854997 A1	19980729	EP19960937366	19961030
EP0854997 B1	20020724	EP19960937366	19961030
EP0997679 A1	20000503	EP19990125962	19961030
FR2740526 A1	19970430	FR19950012797	19951030
FR2740526 B1	19980116	FR19950012797	19951030
JP2000509465 T2	20000725	JP19970517116T	19961030
US6260851 BA	20010717	US19980066455	19980430
WO9716670 A1	19970509	WO1996FR01705	19961030

Priority:
FR19950012797 19951030 WO1996FR01705 19961030 EP19960937366 19961030

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Inventor(s): (std): BARON DANIEL
Inventor(s): DANIEL BARON
Agent(s): LARSON AND TAYLOR PLC
Designated states: AT BE BR CH CN DE DK ES FI FR GB GR IE IT JP KR LI LU MC NL PT SE US

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
AT221171 E	20020815	LSGT	+	granted / extensions (spc, cpc, pte)	
AT221171 E	20030115	LSLE	-RER	CEASED AS TO PARAGRAPH 5 LIT. 3 LAW INTRODUCING PATENT TREATIES	
AT221171 E	20161030	PEXP		Calculated Patent Term Expiry	
BRPI9611301 A	19991228	LSPB	+	published / reissued	
BRPI9611301 A	20010417	LSGT	+FF	DECISION: INTENTION TO GRANT	
BRPI9611301 A	20010904	LSGT	+FG9A	PATENT OR CERTIFICATE OF	

				ADDITION GRANTED	
BRPI9611301 A	20161108	LSLE	-B21A	EXPIRY ACC. ART. 78, ITEM I OF IPL- EXPIRY OF THE TERM OF PROTECTION	Text: PATENTE EXTINTA EM 30/10/2016
DE29680972 U1	19970509		+R163	IDENTIFIED PUBLICATIONS NOTIFIED	
DE29680972 U1	19981217	LSGT	+	granted / extensions (spc, cpc, pte)	
DE29680972 U1	19981217	LSGT	R207	UTILITY MODEL SPECIFICATION	Effective date: 19981217
DE29680972 U1	20000127	LSGT	+R150	UTILITY MODEL MAINTAINED AFTER PAYMENT OF FIRST MAINTENANCE FEE AFTER THREE YEARS	Effective date: 19991122
DE29680972 U1	20030130	LSGT	+R151	UTILITY MODEL MAINTAINED AFTER PAYMENT OF SECOND MAINTENANCE FEE AFTER SIX YEARS	Effective date: 20021121
DE29680972 U1	20050224	LSGT	+R152	UTILITY MODEL MAINTAINED AFTER PAYMENT OF THIRD MAINTENANCE FEE AFTER EIGHT YEARS	Effective date: 20041220
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DE69622573 D1	20161030	LSLE	-R071	EXPIRY OF RIGHT	
DE69622573 T2	20030327	LSGT	+	granted / extensions (spc, cpc, pte)	
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EP0854997 A1	20000927	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	Effective date: 20000809
EP0854997 B1	20020724	LSGT	+	granted / extensions (spc, cpc, pte)	
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EP0854997 B1	20020731	LSNP	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: EP Ref country code: CH
EP0854997 B1	20020821	LSGT	REG	REFERENCE TO A NATIONAL CODE	Ref legal event code: FG4D Ref country code: IE Text: FRENCH
EP0854997 B1	20020829		REF	CORRESPONDS TO:	Ref document number: 69622573 Date of Ref document: 20020829 Country of Ref document: DE
EP0854997 B1	20021024	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20021024 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: DK
EP0854997 B1	20021024	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20021024 Country of Ref document: PT
EP0854997 B1	20021024	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Lapsed date: 20021024 Country of Ref document: SE
EP0854997 B1	20021030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20021030 NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Country of Ref document: LU
EP0854997 B1	20021031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Lapsed date: 20021031 Country of Ref document: BE
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EP0854997 B1	20021031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA	NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES

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EP0854997 B1	20030106	LSLE	-NLV1	NL: LAPSED OR ANNULLED DUE TO FAILURE TO FULFILL THE REQUIREMENTS OF ART. 29P AND 29M OF THE PATENTS ACT	Ref country code: EP
EP0854997 B1	20030122	LSWD	-GBV	GB: EP PATENT (UK) TREATED AS ALWAYS HAVING BEEN VOID IN ACCORDANCE WITH GB SECTION 77(7)/1977	Effective date: 20020724 Ref country code: EP
EP0854997 B1	20030130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	Lapsed date: 20030130 NotificationOfLapse: LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT Country of Ref document: ES
EP0854997 B1	20030319	LSWD	REG	REFERENCE TO A NATIONAL CODE	Ref document number: 0854997E Ref legal event code: FD4D Ref country code: IE Country of Ref document: IE
EP0854997 B1	20030430	LSLE	-BERE	BE: LAPSED	Ref country code: EP Owner: *MANULI AUTO FRANCE PartyType: owner Effective date: 20021031
EP0854997 B1	20030501	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Lapsed date: 20030501 Country of Ref document: MC
EP0854997 B1	20030613	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref country code: CH Ref legal event code: PL
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EP0854997 B1	20051030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	NotificationOfLapse: LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES Lapsed date: 20051030 Country of Ref document: IT
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EP0854997 B1	20151013	LSFE	REG	REFERENCE TO A NATIONAL CODE	Year of fee payment: 20 Ref country code: FR Ref legal event code: PLFP Country of Ref document: FR
EP0854997 B1	20160129	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Year of fee payment: 20 Payment date: 20151026 Country of Ref document: DE
EP0854997 B1	20160129	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20151021 Year of fee payment: 20 Country of Ref document: IT
EP0854997 B1	20160229	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	Payment date: 20151013 Year of fee payment: 20 Country of Ref document: FR
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EP0854997 B1	20161030	LSLE	REG	REFERENCE TO A NATIONAL CODE	Ref document number: 69622573 Ref legal event code: R071 Ref country code: DE Country of Ref document: DE
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EP0997679 A1	20000503		AC	DIVISIONAL APPLICATION: REFERENCE TO EARLIER APPLICATION	Ref document number: 854997 Country of Ref document: EP

EP0997679 A1	20000503		+AK	DESIGNATED CONTRACTING STATES	Kind code of Ref document: A1 Country of Ref document: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
EP0997679 A1	20000503		+AX	REQUEST FOR EXTENSION OF THE EUROPEAN PATENT	Text: AL;LT;LV;RO;SI
EP0997679 A1	20000614	LSES	+17P	REQUEST FOR EXAMINATION FILED	Effective date: 20000407
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FR2740526 B1	20151030	PEXP		Calculated Patent Term Expiry	
JP2000509465 T2	20000725	LSPB	+	published / reissued	
US6260851 BA	19980430	LSAS	AS	ASSIGNMENT	Owner: MANULI AUTO FRANCE, FRANCE Effective date: 19980415 PartyType: owner OldParty: ASSIGNMENT OF ASSIGNORS INTEREST;ASSIGNOR:BARON, DANIEL;REEL/FRAME:009326/0777
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US6260851 BA	20130717	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US6260851 BA	20130812	LSLE	PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
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US6260851 BA	20130903	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	Effective date: 20130717
US6260851 BA	20180430	PEXP		Calculated Patent Term Expiry	
WO9716670 A1	19970509	LSPB	+	published / reissued	
WO9716670 A1	19970509		+AK	DESIGNATED STATES	Kind code of Ref document: A1 Country of Ref document: BR CN DE JP KR US
WO9716670 A1	19970509		+AL	DESIGNATED COUNTRIES FOR REGIONAL PATENTS	Kind code of Ref document: A1 Country of Ref document: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
WO9716670 A1	19970710		DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101)	
WO9716670 A1	19970827		121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION	

WO9716670 A1	19980430	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 09066455 Country of Ref document: US
WO9716670 A1	19980526	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	Ref document number: 1996937366 Country of Ref document: EP
WO9716670 A1	19980729	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	Ref document number: 1996937366 Country of Ref document: EP
WO9716670 A1	20020724	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	Ref document number: 1996937366 Country of Ref document: EP