

1) Family number: 34109386 (US2008197624A)

© PatBase

Title: CONNECTION STRUCTURE FOR DIFFERENT KINDS OF METAL TUBES

Abstract: A connection structure for connecting dissimilar metal tubes includes a metal bellows tube (A) having a reinforcement portion (3) disposed on the outer surface of the bellows (5), and a metal tube (B) composed of a material different from that of the bellows tube, the metal bellows tube (A) being integrally connected to the metal tube (B). A connection section on the bellows tube side includes a straight tube portion (1) of the bellows tube (A), a nipple (2), the reinforcement portion (3), and a crimp collar (4), being fitted and secured to each other in that order from the inside of the tube. The nipple (2) has a base (2 - 1) joined to the reinforcement portion (3) and a connection end (2 - 2) extending to the metal tube (B) side farther than an end face of the crimp collar (4). The crimp collar (4) has a small-diameter portion (4 - 1) located on the metal tube (B) side and a large-diameter portion (4 - 2) located on the bellows side of the metal bellows tube, the small-diameter portion (4 - 1) being continuous with the large-diameter portion (4 - 2). A connection section on the metal tube (B) side includes a connection end (6) of the metal tube (B) and a sleeve (7) secured to the outer side of the connection end (6). The sleeve (7) has a base (7 - 1) joined to the connection end (6) and a fitting end (7 - 2) extending to the metal bellows tube (A) side. The fitting end (7 - 2) of the sleeve (7) on the metal tube (B) side is externally fitted on the small-diameter portion (4 - 1) of the crimp collar (4) on the metal bellows tube (A) side. The outer surface of the connection end (2 - 2) of the nipple (2) is bonded and fixed to the inner surface of the connection end (6) of the metal tube (B) with a thermosetting resin while an end face of the reinforcement portion (3) of the metal bellows tube (A) and the end face of the crimp collar (4) are in contact with or close to the end face of the connection end (6) of the metal tube (B).

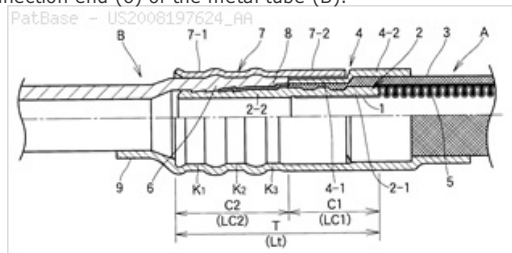
Classifications:

International (IPC 8-9): F16L13/10 F16L13/14 F16L21/00 F16L33/00 F16L33/20 F16L33/207 F16L33/26 F16L51/02 (Advanced/Invention); F16L13/10 F16L33/26 (Advanced/Non-invention); F16L13/00 F16L13/14 F16L21/00 F16L33/00 F16L33/20 F16L33/26 F16L51/00 (Core/Invention)

CPC: F16L13/103 F16L25/0072 F16L33/34 F16L47/24

European: F16L13/10B F16L25/00P F16L33/34 F16L47/24

US: 285/226 285/242 285/256 285/382.7

**Family:**

Publication number	Publication date	Application number	Application date
AT525604 E	20111015	AT20060781290T	20060713
CN101213395 A	20080702	CN200680024360	20060713
CN101213395 B	20100414	CN200680024360	20060713
DE602006024585 D1	20111124	DE200660024585T	20060713
EP1903269 A1	20080326	EP20060781290	20060713
EP1903269 A4	20100707	EP20060781290	20060713
EP1903269 B1	20110921	EP20060781290	20060713
JP2007024141 A2	20070201	JP20050205731	20050714
JP4062325 B2	20080319	JP20050205731	20050714
KR20080021806 A	20080307	KR20087001814	20060713
US2008197624 AA	20080821	US20060995271	20060713
US7661720 BB	20100216	US20060995271	20060713
WO07007917 A1	20070118	WO2006JP314323	20060713

Priority:

JP20050205731 20050714 EP20060781290 20060713 WO2006JP14323 20060713
 WO2006JP314323 20060713

Probable Assignee: NICHIRIN CO LTD

Assignee(s): (std): KATAYAMA TOSHIYUKI ; MATSUI MASAMICHI ; NAKANO YOSHIO ; NICHIRIN CO LTD ; YAGI TAKASHI

Assignee(s): NICHIRIN CO LTD KOBE ; NICHIRIN CO

Inventor(s): (std): KATAYAMA T ; KATAYAMA TOSHIYUKI ; MATSUI M ; MATSUI MASAMICHI ; NAKANO YOSHIO ; TAKASHI YAGI ; YAGI TAKASHI ; YOSHIO NAKANO ; YAGI KOJI

Inventor(s): YAGI TAKASHI C O HIMEJI KOJO IN NICHIRIN CO LTD ; NAKANO YOSHIO C O HIMEJI KOJO IN NICHIRIN CO LTD ; MATSUI M C O HIMEJI KOJO IN NICHIRIN CO LTD ; KATAYAMA T C O HIMEJI KOJO IN NICHIRIN CO LTD ; YAGI TAKASHI C O HIMEJI KOJO IN NICHIRIN CO LTD HIMEJI SHI HYOGO ; NAKANO YOSHIO C O HIMEJI KOJO IN NICHIRIN CO LTD HIMEJI SHI HYOGO ; MATSUI M C O HIMEJI KOJO IN NICHIRIN CO LTD HIMEJI SHI HYOGO ; KATAYAMA T C O HIMEJI KOJO IN NICHIRIN CO LTD HIMEJI SHI HYOGO

Agent(s): TBK; TBK-PATENT; OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT PC; OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT 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 HN HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LA 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 RS 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 ZA ZM ZW

2) Family number: 62231623 (US2017328498A)

© PatBase

Title: FITTING FOR CONNECTING TO A TUBULAR ELEMENT, TUBING CONNECTION AND A METHOD FOR CONNECTING A FITTING TO A TUBULAR ELEMENT

Abstract: A fitting (3, 3') for connecting to a tubular element (5, 5') having a first end section (9, 9') comprising at least

one first connection element (**21, 21'**), wherein the diameter of at least a part of the first connection element (**21, 21'**) can be reduced in a radial direction in order to produce a connection, wherein the first connection element (**21, 21'**) comprises at least one first hook element (**21, 21'**) and/or at least one first crimp (**237, 437**) configured to be connected in force-fit and/or form-fit manner to at least one second crimp (**7, 7'**) and/or at least one second hook element (**235**) formed on the outer surface of the tubular element, when the diameter of at least a part of the first connection element (**21, 21'**) is reduced, as well as a tubing connection and a method for connecting a fitting to a tubular element.

Classifications:

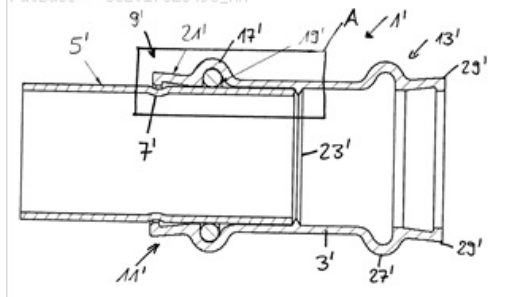
International (ipc 8-9): B21D39/04 B21D51/16 F16L F16L13/14 F16L19/00 F16L25/01 F16L33/207 F16L47/00 (Advanced/Invention); F16L (Subclass/Invention)

International (ipc 1-7): F16L13/14

CPC: F16L2201/10 F16L13/142 F16L13/146 F16L13/147 F16L25/01 F16L33/2073

US: 1/1 285/382.5

PatBase - US2017328498_AA



Family:

Publication number	Publication date	Application number	Application date
AU2015338696 AA	20170608	AU20150338696	20151029
AU2015338696 AA	20160506	AU20150338696	20151029
AU2020204127 AA	20200709	AU20200204127	20200619
BR112017008622 A2	20171226	BR20171108622	20151029
CA2965907 AA	20170426	CA20152965907	20151029
CL2017001028 A1	20171103	CL20170001028	20170426
CN107110406 A	20170829	CN201580071578	20151029
CO20170005037 A2	20170810	CO20170005037	20170522
DE202015009132 U1	20161229	DE201520009132U	20151029
DE602014015632 D1	20171116	DE201460015632T	20141031
DK3015751 T3	20180108	DK20140191353T	20141031
EP3015751 A1	20160504	EP20140191353	20141031
EP3015751 B1	20171011	EP20140191353	20141031
EP3015751 B8	20171213	EP20140191353	20141031
EP3290769 A1	20180307	EP20170194244	20141031
ES2654091 T3	20180212	ES20140191353T	20141031
HK1223145 A1	20170721	HK20160111331	20160927
HK1223145 B	20190426	HK20160111331	20160927
HK1252108 A1	20190517	HK20180111428	20180905
ID201803186 A	20180329	ID2017P0003182	20151029
IN201747017699 A	20170707	IN201747017699	20170519
JP2017534823 T2	20171124	JP20170542497T	20151029
KR20170082543 A	20170714	KR20177013716	20151029
MA40307 A1	20171229	MA20150040307	20151029
MA40307 B1	20180831	MA20150040307	20151029
MX2017005471 A1	20180125	MX20170005471	20151029
NO3015751 T3	20180310	NO14190001353	20141031
PH2017500777 A	20171009	PH20170500777	20170426
PL3015751 T3	20180629	PL20140191353T	20141031
PT3015751 T	20180109	PT20140191353T	20141031
RU2017117594 A	20181130	RU20170117594	20151029
RU2017117594 A3	20190523	RU20170117594	20151029
SG11201703461S A1	20170530	SG20171103461	20151029
TR201720934 T4	20180122	TR20170020934T	20141031
US2017328498 AA	20171116	US20150522272	20151029
WO16067231 A1	20160506	WO2015158341	20151029

Priority:

EP20140191353 20141031 ES20140191353T 20141031 EP20170194244 20141031
AU20150338696 20151029 WO2015158341 20151029 RU20170117594 20151029
HK20180111428 20180905 AU20200204127 20200619

Probable Assignee: CONEX IPR LTD

Assignee(s): (std): APEX GOLD INT LTD ; CONEX IPR LTD ; KING IND LTD

Assignee(s): KING INDUSTRIAL LTD ; SALEHI BAKHTIARI MANOUCHEHR ; KONEKS AJPIAR LTD ; INT PATENT CLASSIFICATION

Inventor(s): (std): MANO BAKHTIARI ; MANOUCHEHR SALEHI BAKHTIARI ; SALEHI BAKHTIARI MANOUCHEHR ; BAKHTIARI MANO

Inventor(s): BAKHTIARI MANO M ; SALEKHI BAKHTIARI MANUCHEKHR

Agent(s): MADDERNS PATENT AND TRADE MARK ATTORNEYS; MADDERNS PTY LTD; BERESKIN AND PARR LLP SENCRL SRL; JOHANSSON AND LANGLOIS LTDA; JOSE ANDRES RINCON USCATEGUI; HOLZWARTH ROCHFORD ANDREAS; JONES DAY; MAULITTA PRAMULASARI; YURIDICHESKAYA GORODISSKIY I PARTNERY OOO FA; UGUR GUERSAD YALCINER; AFD CHINA INTELLECTUAL PROPERTY LAW OFFICE

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

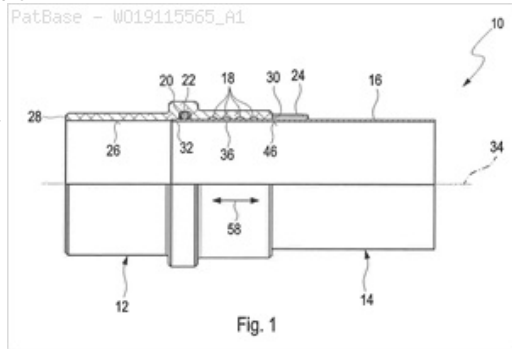
Title: HYBRID COMPONENT AND METHOD FOR PRODUCING A HYBRID COMPONENT AND USE THEREOF

Abstract: The invention relates to a hybrid component (10), comprising an end fitting (12) and a tube part (14), which are electrically conductively connected to each other. The hybrid component (10) has a sealing region (62) and a friction connection region (60) spatially separated from the sealing region, within which connection region a tube wall (16) of the tube part (14) is expanded into an inner contour (18) of the end fitting (12). The invention further relates to a method for producing a hybrid component (10) and to the use thereof in an aircraft.

Classifications:

International (IPC 8-9): B21D26/033 B21D39/04 B21D39/20
B29C65/00 B29C65/64 B64D37/32 F16L13/007 F16L13/14 F16L25/01
F16L47/00 F16L47/06 F16L47/24 F16L9/12 H01R4/60
H01R4/64 (Advanced/Invention)

CPC: B21D26/033 B21D39/046 B21D39/203 B29C65/565 B29C65/64
B29C66/30325 B29C66/5344 B29C66/612 B29C66/71 B29C66/7212
B29C66/7392 B29C66/7422 B29C66/7428 B29C66/8266
B29K2305/00 B29K2309/02 B29K2505/00 B29K2509/02
B29L2031/3002 B64D37/32 F16L13/007 F16L13/147 F16L25/01
F16L47/24 H01R4/643 B64C3/34 B64D37/005 B64D45/02



Family:

Publication number	Publication date	Application number	Application date
DE102017222835 A1	20190619	DE201710222835	20171215
WO19115565 A1	20190620	WO2018EP84429	20181212

Priority:

DE201710222835 20171215

Probable Assignee: PFW AEROSPACE GMBH

Assignee(s): (std): PFW AEROSPACE GMBH

Inventor(s): (std): GELBRICH STEFAN ; KNEBL HEINZ JUERGEN

Agent(s): HOERSCHLER WOLFRAM

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

4) Family number: 31923237 (EP1533555A1)

Title: PRESSFITTING FOR ELECTRICALLY CONDUCTIVE PIPES

Abstract: The connector has an orifice (4) for insertion of an electrically conductive tube (3) and having a stopper (13). An electrically insulating ring (14), a sealing joint (18) and a protection ring are housed in the orifice to prevent direct contact between the tube and connector before crimping. The protection ring has a protection edge whose diameter is reduced till a value equal to an outer diameter of the tube. An independent claim is also included for a method of verification of a crimping of an electrically conductive tube.

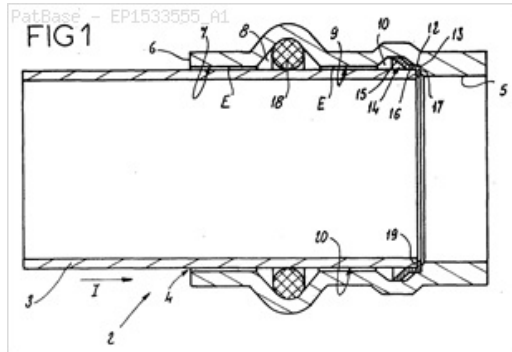
Classifications:

International (IPC 8-9): B21C51/00 B21D39/04 F16L13/14
F16L21/08 F16L25/01 G01M3/40 (Advanced/Invention);
B21C51/00 B21D39/04 F16L13/14 F16L21/08 F16L25/00
G01M3/00 (Core/Invention)

International (IPC 1-7): B21C51/00 B21D39/04 F16L13/14
F16L21/08 F16L25/01 G01M3/40

CPC: F16L13/142 F16L2201/10

European: F16L13/14 F16L13/14B3 R16L201/10



Family:

Publication number	Publication date	Application number	Application date
EP1533555 A1	20050525	EP20040356178	20041109
FR2862367 A1	20050520	FR20030013485	20031118
FR2862367 B1	20060121	FR20030013485	20031118

Priority:

FR20030013485 20031118

Probable Assignee: COMAP

Assignee(s): (std): COMAP

Inventor(s): (std): TUFFE STEPHANE

Inventor(s): STEPHANE TUFFE

Agent(s): CABINET GERMAIN ET MAUREAU

Designated states: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LU MC NL PL PT RO SE SI SK TR

Title: CRIMP EVIDENT SEAL

Abstract: An O-ring has a flange which includes a plurality of slots, such that, when inserted into an annular groove of a pipe fitting before crimping, the slots allow the flow of fluid therethrough, such that an installation would not pass pressure tests until such time as a proper crimp has been made. Such a design allows the use of conventional push-on pipe connections by utilizing a unique O-ring seal which works in conjunction with standard push-on crimp-type pipe fittings and conventional crimping tools for subsequently sealing the connection. The O-ring is either circular or elliptical in cross section and the slots define equally spaced annular segments.

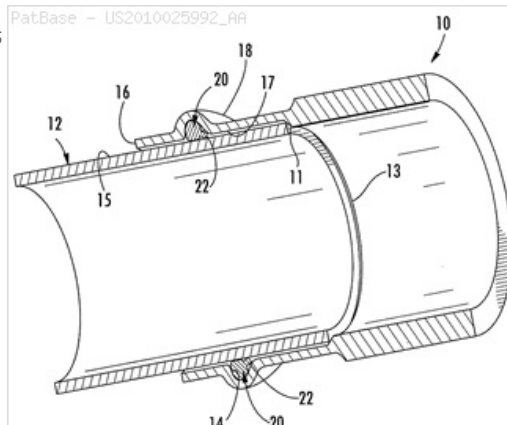
Classifications:

International (IPC 8-9): F16J15/04 F16K15/10 F16L13/14 F16L17/025 F16L21/03 F16L47/08 (Advanced/Invention); F16J15/02 F16K15/02 F16L13/14 F16L17/00 F16L21/02 F16L47/00 (Core/Invention)

CPC: F16L13/148 F16L13/142 F16L2201/10

European: F16L13/14B3 F16L13/14H R16L201/10

US: 1/1 277/625 285/379



Family:

Publication number	Publication date	Application number	Application date
CA2674166 AA	20100201	CA20092674166	20090731
CA2674166 C	20141007	CA20092674166	20090731
EP2151616 A2	20100210	EP20090251924	20090803
EP2151616 A3	20100721	EP20090251924	20090803
US2010025992 AA	20100204	US20090512320	20090730
US9188260 BB	20151117	US20090512320	20090730

Priority:

US20080085560P 20080801 US20090512320 20090730

Probable Assignee: NIBCO INC

Assignee(s): (std): SPENCE SCOTT LEE ; NIBCO

Assignee(s): NIBCO INC ; NIBCO INC1516 MIDDLEBURY STREETPOST OFFICE BOX 1167ELKHARTIN46515-1167US

Inventor(s): (std): SPENCE SCOTT LEE

Inventor(s): SPENCE SCOTT LEEUS

Agent(s): BORDEN LADNER GERVAIS LLP; MILLER JAMES LIONEL WOOLVERTON; PRICE HENEVELD COOPER DEWITT AND LITTON LLP; PRICE HENEVELD LLP

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 SM TR

Title: Pipe connection

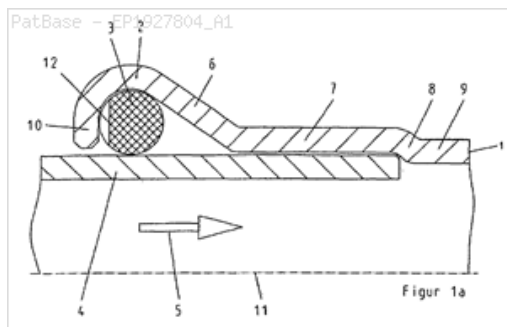
Abstract: The fitting has a ring bead (2) with a front sided area (10), which faces a sealing element (3). The front sided area and/or a surface of the sealing element, which faces the front sided area of the ring bead is provided with a discontinuity (12), which permits a passage of a medium to be conveyed, in an installed, un pressed condition. The discontinuity of the sealing element is sealably closed after pressing.

Classifications:

International (IPC 8-9): F16L13/14 F16L47/00 (Advanced/Invention); F16L13/14 F16L47/00 (Core/Invention)

CPC: F16L13/142 F16L13/148 F16L2201/10

European: F16L13/14B3 F16L13/14H R16L201/10



Family:

Publication number	Publication date	Application number	Application date
DE102006057721 A1	20080605	DE200610057721	20061201
DE502007011138 D1	20130314	DE200750011138T	20071106
EP1927804 A1	20080604	EP20070075965	20071106
EP1927804 B1	20130102	EP20070075965	20071106

Priority:

DE200610057721 20061201 EP20070075965 20071106

Probable Assignee: GEBERIT INTERNATIONAL AG

Assignee(s): (std): GEBERIT TECHNIK AG ; GEBERIT INT AG

Assignee(s): GEBERIT INTERNATIONAL AG ; SEDLAK BERND ; SIMON UDO ; SPECKEMEYER JENS

Inventor(s): (std): SIMON UDO ; SPECKEMEYER JENS ; SEDLAK BERND

Agent(s): ANWALTSKANZLEI MEISSNER AND MEISSNER; MEISSNER PETER E ET AL; MEISSNER PETER E

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

7) Family number: 43733081 (US2010025982A)

© PatBase

Title: COUPLING, JOINT AND METHOD FOR FIXEDLY AND SEALINGLY SECURING COMPONENTS TO ONE ANOTHER

Abstract: A method for forming a joint. The method includes: providing a fitting having a body and a pair of axially spaced apart seals, the body having an insertion end; providing a structure; engaging the fitting and the structure to one another such that the seals sealingly engage the body and the structure; and after the fitting and the structure have been engaged to one another, installing an adhesive to a zone disposed between the body, the structure and the seals to retain the body to the structure. A fitting and an assembly are also provided.

Classifications:

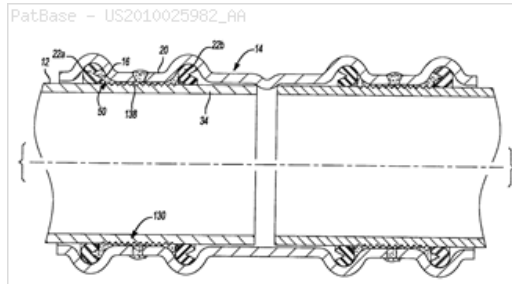
International (IPC 8-9): B23P19/00 E02D29/00 F16B11/00 F16B7/00 F16B7/04 F16B7/20 F16L F16L13/02 F16L13/10 F16L13/11 F16L13/14 F16L17/02 F16L17/025 F16L17/06 F16L21/00 F16L21/02 F16L21/025 F16L21/03 F16L21/06 F16L21/08 F16L25/12 F16L37/02 F16L37/084 F16L37/091 F16L37/10 F16L37/14 F16L47/00 F16L47/02 F16L51/00 (Advanced/Invention); B23P19/00 E02D29/00 F16B11/00 F16B7/00 F16B7/04 F16L13/00 F16L13/10 F16L17/00 F16L21/00 F16L21/02 F16L21/08 F16L47/00 F16L47/02 F16L51/00 (Core/Invention); F16L13/10 (Core/Non-invention)

International (IPC 1-7): F16L13/10 F16L21/02

IPC: F16L17/02 E02D29/16 E02D2600/20 F16L13/103 F16L17/06 F16L21/022 F16L21/08 F16L37/0845 F16L37/091 F16L13/142 F16L21/025 F16L37/02 F16L13/11 F16L13/116 Y10T29/53

European: F16L13/11 F16L13/11C F16L21/02J F16L21/08

US: 1/1 285/295.1 285/296.1 285/31 285/346 285/374 285/382 285/382.2 29/700



Family:

Publication number	Publication date	Application number	Application date
AU2008101269 AD	20090903	AU20080101269	20081205
AU2009203089 AA	20100218	AU20090203089	20090730
CA2671012 AA	20100131	CA20092671012	20090707
CN101660638 A	20100303	CN200910165070	20090730
DE602014016154 D1	20171207	DE201460016154T	20140102
DE602016029372 D1	20200305	DE201660029372T	20160607
EP2159464 A2	20100303	EP20090166963	20090731
EP2677225 A2	20131225	EP20130172873	20130619
EP2677225 A3	20140723	EP20130172873	20130619
EP2752608 A1	20140709	EP20140150073	20140102
EP2752608 B1	20171025	EP20140150073	20140102
EP2881641 A1	20150610	EP20150151017	20130619
EP3121500 A1	20170125	EP20160173347	20160607
EP3121500 B1	20200212	EP20160173347	20160607
HK1141070 A1	20101029	HK20100107309	20100730
JP2010043737 A2	20100225	JP20090169727	20090721
KR101495659 B1	20150225	KR20130047243	20130429
KR20100014183 A	20100210	KR20090070703	20090731
KR20140000143 A	20140102	KR20130047243	20130429
KR20140088502 A	20140710	KR20140000246	20140102
MX2009007441 A1	20100301	MX20090007441	20090710
NZ578340 A	20110225	NZ20090578340	20090710
SG158815 A1	20100226	SG20090047671	20090714
TH105179 A	20101127	TH20091003420	20090729
TW201013079 A	20100401	TW20090125570	20090729
US2010025982 AA	20100204	US20080183761	20080731
US2010025988 AA	20100204	US20090357176	20090121
US2013119655 AA	20130516	US20130732715	20130102
US2013154260 AA	20130620	US20120531014	20120622
US2015285420 AA	20151008	US20150744170	20150619
US8925978 BB	20150106	US20130732715	20130102
US9851028 BB	20171226	US20150744170	20150619

Priority:

US20080183761 20080731	AU20080101269 20081205	US20090357176 20090121
AU20090203089 20090730	US20110500907P 20110624	US20120531014 20120622
US20130732715 20130102	EP20130172873 20130619	EP20140150073 20140102
US20150744170 20150619	EP20160173347 20160607	

Probable Assignee: MUELLER IND INC

Assignee(s): (std): ELMER MARCUS R ; ELMER MARCUS ROBERT ; JAMISON TOMMY L ; MCKENZIE ROBERT ; MUELLER IND INC ; STOUT CHARLES A ; THOMAS ADAM L ; YOUNG KEVIN NEIL

Assignee(s): MUELLER IND INC MEMPHIS ; MUELLER INDUSTRIES INC ; MUELLER INDUSTRIES INC US

Inventor(s): (std): JAMISON TOMMY ; JAMISON TOMMY L ; KEVIN NEIL YOUNG ; MARCUS ROBERT ELMER ; MCKENZIE ROBERT ; ELMER MARCUS R ; ELMER MARCUS ROBERT ; MUELLER CHRISTOPHER A ; THOMAS ADAM L ; TOMMY L JAMISON ; YOUNG KEVIN NEIL ; ROBERT MCKENZIE ; STOUT CHARLES A

Inventor(s): STOUT CHARLES A COLLIERVILLE ; YOUNG KEVIN NEIL ARLINGTON ; MUELLER CHRISTOPHER A COLLIERVILLE ; ELMER MARCUS ROBERT CORDOVA ; MCKENZIE ROBERT MUNFORD ; JAMISON TOMMY L HERNANDO

Agent(s): WRAYS; KRAUS AND WEISERT PATENTANWAELTE PARTGMBB; STUTTARD GARRY PHILIP; CHINA PATENT AGENT HK LTD; HARNESS DICKY AND PIERCE PLC

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