

Search history

Search 1: FT=(ARTIFICIAL~ LIFT~ AND PUMP~ AND PETROLEUM~ WELL~) (Results 69)
Search 2: FT=(ARTIFICIAL~ LIFT~ AND PUMP~) (Results 2519)
Search 3: FT=(ARTIFICIAL~ LIFT~ AND PUMP~) AND IC =(E21B) (Results 2169)
Search 4: FT=(ARTIFICIAL~ LIFT~ AND PUMP~ AND WELL~) AND IC =(E21B) (Results 2146)
Search 5: FT=(ARTIFICIAL~ LIFT~) AND IC =(E21B) (Results 2455)

Title: METHOD AND APPARATUS FOR CONTROLLING PUMP OPERATIONS IN **ARTIFICIAL LIFT** PRODUCTION

Abstract: A method and apparatus for controlling an **artificial lift** system is described and claimed. Preferably, the control system includes at least one sensor for detecting at least one mechanical attribute during pumping operations, and a controller for receiving the electrical signal as an input, and analyzing it to determine if a pumped-off condition is occurring. Additionally, the controller member provides command signals to control the prime mover and to suspend operation of the prime mover if it is determined that a pumped-off condition is occurring. The controller maintains the suspension of the prime mover for an idle interval having a duration which is calculated by the controller from (1) at least one preceding pumping interval, and (2) a predefined pump cycle duration. Preferably, the controller operates to maintain a substantially constant and predetermined pumping cycle duration by continuously adjusting the idle interval duration.

Classifications:

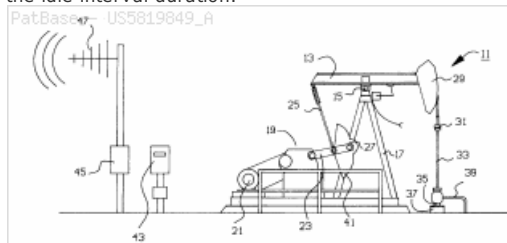
International (IPC 8-9): E21B47/00 (Advanced/Invention);
E21B47/00 (Core/Invention)

International (IPC 1-7): E21B43/00

CPC: E21B47/0008

European: E21B47/00P2

US: 166/252.1 166/53



Family:

Publication number	Publication date	Application number	Application date
US5819849 A	19981013	US19940346962	19941130

Priority:

US19940346962 19941130

Probable Assignee: WEATHERFORD TECHNOLOGY HOLDINGS LLC

Assignee(s): (std): THERMO INSTR CONTROLS INC

Assignee(s): THERMO INSTRUMENT CONTROLS INC ; WEATHERFORD LAMB INC ; WEATHERFORD TECHNOLOGY HOLDINGS LLC

Inventor(s): (std): BOOTH KENNETH G

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
US5819849 A	19981013	LSGT	+	granted / extensions (spc, cpc, pte)	
US5819849 A	19950306	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : THERMO INSTRUMENT CONTROLS INCORPORATED, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:BOOTH, KENNETH G.; REEL/FRAME:007738/0057 EFFECTIVE DATE : 19950223
US5819849 A	19981008	LSGT	PAT1	Patented Case	
US5819849 A	19981008	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US5819849 A	20020321	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5819849 A	20050413	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEATHERFORD/LAMB, INC., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:CAC INC.; REEL/FRAME:015908/0065 EFFECTIVE DATE : 20050412
US5819849 A	20060317	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US5819849 A	20100408	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US5819849 A	20141204	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEATHERFORD TECHNOLOGY HOLDINGS, LLC, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:WEATHERFORD/LAMB, INC.; REEL/FRAME:034526/0272 EFFECTIVE DATE : 20140901
US5819849 A	20151013	PEXP		Calculated Patent Term	

Title: METHOD AND APPARATUS FOR CLEARING A WELL BORE

Abstract: Methods and apparatuses are provided for clearing a wellbore using a means for milling and a means for suctioning within a wellbore. Obstructions such as ball frac seats, bridge plugs, or formation material can be milled within a wellbore. As a result, larger, unrestricted, diameters can be obtained within the liner/wellbore. The cleared wellbore can allow for various remedial tools to be run into the liner/wellbore. In addition, the milled particles can be suctioned/vacuumed up and can be pumped/pushed to surface in an underbalanced fashion. In some embodiments, this can be achieved by incorporating a bottom-hole pump or a venturi component into the bottomhole assembly. The system can be deployed using a spoolable single or multi-conduit coiled tubing system and can be configured as a well intervention or work-over technology. In some embodiments, the clearing equipment can be temporary or mobile.

Classifications:**International (IPC 8-9):** E21B21/00 E21B21/06 E21B27/00

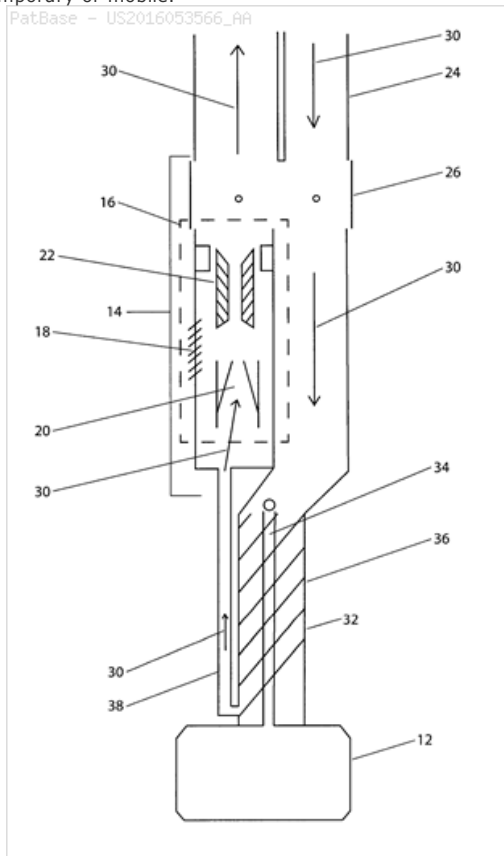
E21B29/00 E21B31/00 E21B31/16 E21B37/00

E21B47/06 (Advanced/Invention);

E21B47/06 (Advanced/Non-invention)

CPC: E21B27/00 E21B29/00 E21B31/002 E21B47/06 E21B47/065

E21B31/16 E21B17/003

US: 166/250.01 166/376 166/66.5 166/99**Family:**

Publication number	Publication date	Application number	Application date
CA2892880 AA	20150525	CA20142892880	20140401
CA2892880 C	20151208	CA20142892880	20140401
CA2910727 AA	20141009	CA20142910727	20140401
US2016053566 AA	20160225	US20140780703	20140401
US2020040685 AA	20200206	US20190653484	20191015
US10480269 BB	20191119	US20140780703	20140401
WO14161073 A1	20141009	WO2014CA00309	20140401

Priority:

US20130807584P	20130402	CA20142892880	20140401	US20140780703	20140401
WO2014CA00309	20140401	US20150780703	20150928	CA20152892880	20151105
US20190653484	20191015				

Probable Assignee: QUANTUM DOWNHOLE SYSTEMS INC**Assignee(s):** (std): QUANTUM DOWNHOLE SYSTEMS INC**Assignee(s):** WINKLER STEVEN**Inventor(s):** (std): WINKLER STEVEN**Agent(s):** PARLEE MCLAWS LLP; NORTH AND CO LLP; BOOKOFF MCANDREWS PLLC

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 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
CA2892880 AA	20150525	LSPB	+	published / reissued	
CA2892880 AA	20150615	LSSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20150525

CA2892880 C	20151208	LSGT	+	granted / extensions (spc, cpc, pte)		
CA2892880 C	20340401	PEXP		Calculated Patent Term Expiry		
CA2910727 AA	20141009	LSPB	+	published / reissued		
CA2910727 AA	20190515	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20190403	
US10480269 BB	20191119	LSGT	+	granted / extensions (spc, cpc, pte)		
US10480269 BB	20340601	PEXP		Calculated Patent Term Expiry (PTA 61 days)		
US2016053566 AA	20160225	LSPB	+	published / reissued		
US2016053566 AA	20160317	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : QUANTUM DOWNHOLE SYSTEMS INC., CANADA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:WINKLER, STEVEN; REEL/FRAME:038012/0526 EFFECTIVE DATE : 20160315	
US2016053566 AA	20170620	LSES	NFA1	Non Final Action Mailed		
US2016053566 AA	20180629	LSES	-NFA2	Non Final Action Counted, Not Yet Mailed		
US2016053566 AA	20180703	LSES	NFA1	Non Final Action Mailed		
US2016053566 AA	20190711	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications		
US2016053566 AA	20191030	LSGT	PAT1	Patented Case		
US2016053566 AA	20191030	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE	
US2020040685 AA	20200206	LSPB	+	published / reissued		
US2020040685 AA	20191029	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : QUANTUM DOWNHOLE SYSTEMS INC., CANADA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:WINKLER, STEVEN; REEL/FRAME:050857/0273 EFFECTIVE DATE : 20160315	
WO14161073 A1	20141009	LSPB	+	published / reissued		
WO14161073 A1	20150525	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2892880 COUNTRY OF REF DOCUMENT : CA	
WO14161073 A1	20150928	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 14780703 COUNTRY OF REF DOCUMENT : US	
WO14161073 A1	20151002	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE	
WO14161073 A1	20160427	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 14779870 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :	

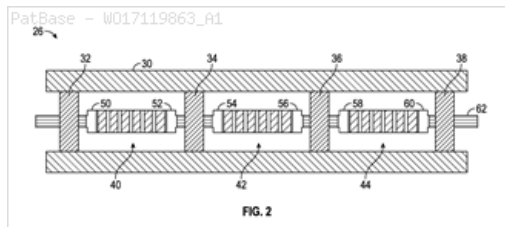
Title: ELECTRIC SUBMERSIBLE PUMP TEMPERATURE AND FLOW RATE

Abstract: Methods and systems for estimating temperature and/or fluid flow rate of an electric submersible pump (ESP) are provided. Positive and negative voltage and current sequences are generated based on the motor terminal voltage estimates and measured surface currents. Temperature can then be estimated for example by computing an estimate of rotor resistance from the extracted positive sequence voltage and current and then computing an estimate of temperature based on the estimated rotor resistance. Flow rate can be estimated by estimating the direct current (DC) torque of the positive and negative voltage and current sequences, subtracting out a viscosity drag force estimate to estimate the total DC torque, computing output power of the motor based on the estimated total DC torque, and using power and motor speed as inputs to a flow rate determination operation. The operation of the ESP is adjustable based on the estimated temperature and/or fluid flow rate.

Classifications:

International (IPC 8-9): E21B43/12 F04D13/10 F04D27/00 G01F1/56 (Advanced/Invention)

CPC: F04D15/0066 F04D15/0088 F05D2270/303 F05D2270/335 F04D13/10 E21B43/128



Family:

Publication number	Publication date	Application number	Application date
WO17119863 A1	20170713	WO2016US12019	20160104

Priority:

WO2016US12019 20160104

Probable Assignee: SERVICES PETROLIERS SCHLUMBERGER

Assignee(s): (std): SCHLUMBERGER CA LTD ; SCHLUMBERGER TECHNOLOGY BV ; SCHLUMBERGER TECHNOLOGY CORP ; SERVICES PETROLIERS SCHLUMBERGER

Assignee(s): SCHLUMBERGER CANADA LTD

Inventor(s): (std): DASGUPTA SOUVIK ; KANDASAMY SAKTHIVEL ; RENDUSARA DUDI

Agent(s): STONEBROOK MICHAEL 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 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
WO17119863 A1	20170713	LSPB	+	published / reissued	
WO17119863 A1	20180705	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO17119863 A1	20190206	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 16884081 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

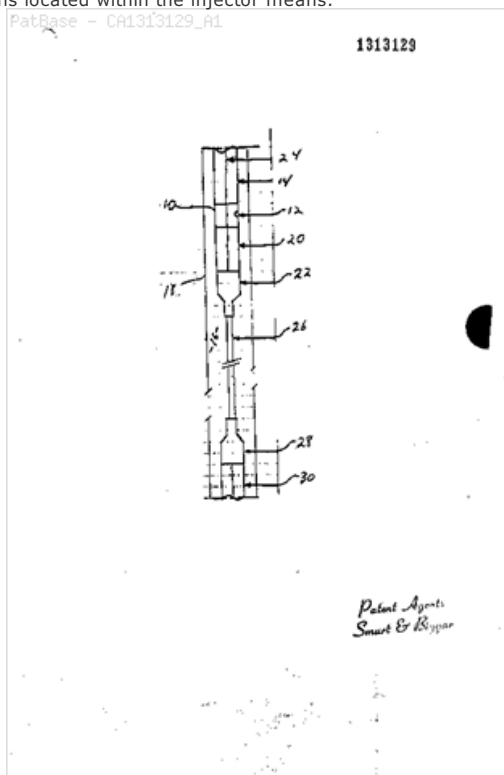
Title: LOGGING OF SUBTERRANEAN WELLS USING COILED TUBING

Abstract: PATENT C-56175 IMPROVED LOGGING OF SUBTERRANEAN WELLS USING COILED TUBING An apparatus for production logging of a well utilizing **artificial lift** in a wellbore comprises coiled tubing extending into the wellbore, the coiled tubing having gas injector means provided on its remote end and including means for electrical communication from the surface to the injector means; production logging tool means located within the wellbore at a distance so as to separate the logging tool from the injector means and connector means interconnecting the logging tool and the injector means for maintaining a fixed separation between the logging tool and the injector means and for effecting electrical communication from the production logging tool to the electrical communication means located within the injector means.

Classifications:

International (IPC 8-9): E21B43/00 E21B47/00 (Advanced/Invention);
E21B43/00 E21B47/00 (Core/Invention)

International (IPC 1-7): E21B43/00 E21B47/00



Family:

Publication number	Publication date	Application number	Application date
CA1313129 A1	19930126	CA19890614303	19890928

Priority:

CA19890614303 19890928

Probable Assignee:

PILLA JACQUES

Assignee(s): (std):

PILLA JACQUES

Assignee(s):

DOWELL SCHLUMBERGER INC

Inventor(s): (std):

PILLA JACQUES

Agent(s):

SMART AND BIGGAR

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA1313129 A1	19930126	LSGT	+	granted / extensions (spc, cpc, pte)	
CA1313129 A1	20010126	LSLE	-MKLA	LAPSED	
CA1313129 A1	20100126	PEXP		Calculated Patent Term Expiry	

Title: HANGER FOR AN UMBILICALLY DEPLOYED ELECTRICAL SUBMERSIBLE PUMPING SYSTEM

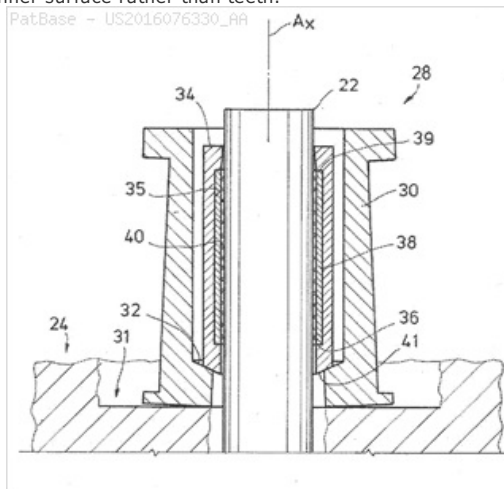
Abstract: A tubing hanger assembly for use in a wellhead assembly that includes tubing hanger member, a retainer that lands in the hanger member, and slip assembly landed in the retainer that supports a string of composite tubing and an electrical submersible pump assembly (ESP). The tubing and ESP are disposed in a wellbore formed beneath the wellhead assembly. The slip assembly is non-marking and includes grit on its inner surface rather than teeth.

Classifications:

International (IPC 8-9): E21B19/02 E21B19/12 E21B33/04 E21B43/12 (Advanced/Invention)

CPC: E21B19/02 E21B19/12 E21B33/0422 E21B43/128

US: 166/65.1 166/75.14



Family:

Publication number	Publication date	Application number	Application date
CA2959182 AA	20170223	CA20152959182	20150916
CN107075931 A	20170818	CN201580048760	20150916
CN107075931 B	20190917	CN201580048760	20150916
MX2017003576 A1	20170714	MX20170003576	20150916
US2016076330 AA	20160317	US20150856086	20150916
US10100596 BB	20181016	US20150856086	20150916
WO16044468 A1	20160324	WO2015US50502	20150916

Priority:

US20140051431P 20140917 US20150856086 20150916 WO2015US50502 20150916

Probable Assignee: SAUDI ARABIAN OIL CO

Assignee(s): (std): ARAMCO SERVICES CO ; SAUDI ARABIAN OIL CO

Assignee(s): XIAO JINJIANG ; LASTRA RAFAEL ; ROTH BRIAN A

Inventor(s): (std): XIAO JINJIANG ; LASTRA RAFAEL ; ROTH BRIAN A ; RAFAEL LASTRA ; JINJIANG XIAO ; BRIAN A ROTH

Agent(s): FINLAYSON AND SINGLEHURST; BRACEWELL LLP; RHEBERGEN CONSTANCE G; DERRINGTON KEITH RON; RHEBERGEN CONSTANCE GALL

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 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
CA2959182 AA	20170223	LSPB	+	published / reissued	
CA2959182 AA	20181030	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20180918
CN107075931 A	20170818	LSPB	+	published / reissued	
CN107075931 A	20170818	LSPB	PB01	PUBLICATION	
CN107075931 B	20190917	LSGT	+	granted / extensions (spc, cpc, pte)	
CN107075931 B	20190917	LSGT	+GR01	PATENT GRANT	
CN107075931 B	20350916	PEXP		Calculated Patent Term Expiry	
MX2017003576 A1	20170714	LSPB	+	published / reissued	
US10100596 BB	20181016	LSGT	+	granted / extensions (spc, cpc, pte)	

US10100596 BB	20151012	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SAUDI ARABIAN OIL COMPANY, SAUDI ARABIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: ROTH, BRIAN A.; XIAO, JINJIANG; LASTRA, RAFAEL; SIGNING DATES FROM 20150928 TO 20150930; REEL/FRAE:036773/0975	
US10100596 BB	20180926	LSGT	PAT1	Patented Case		
US10100596 BB	20360722	PEXP		Calculated Patent Term Expiry (PTA 310 days)		
US2016076330 AA	20160317	LSPB	+	published / reissued		
US2016076330 AA	20170821	LSES	NFA1	Non Final Action Mailed		
US2016076330 AA	20171025	LSES	NFA1	Non Final Action Mailed		
US2016076330 AA	20180620	LSES	+ALW2	Allowed -- Notice of Allowance Not Yet Mailed		
US2016076330 AA	20180621	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications		
US2016076330 AA	20180926	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE	
WO16044468 A1	20160324	LSPB	+	published / reissued		
WO16044468 A1	20170223	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2959182 COUNTRY OF REF DOCUMENT : CA	
WO16044468 A1	20170316	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : MX/A/2017/003576 COUNTRY OF REF DOCUMENT : MX	
WO16044468 A1	20170317	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE	
WO16044468 A1	20180418	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 15781177 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :	

Title: HIGHLY REINFORCED ELASTOMETRIC STATOR

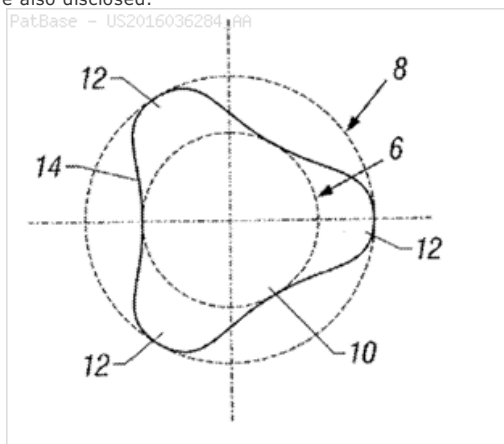
Abstract: Elastomeric compositions containing a combination of selected carbon blacks. The resultant elastomers have improved durability and/or power generation. Such elastomers may be used in oilfield products, for example, as seals or stator liners. Methods of producing these elastomeric compositions are also disclosed.

Classifications:

International (IPC 8-9): B29C70/02 B29C70/62 C08J3/20 C08K3/04 E21B4/02 F04C13/00 F04C2/107 H02K1/12 H02K15/02 H02K5/08 (Advanced/Invention)

CPC: H02K5/08 H02K15/02 H02K1/12 C08K3/04 C08K2201/006 C08K2201/014 C08L21/00 C08L15/005 E21B4/02 F04C2/1075 F04C13/008 F04C2230/20

US: 29/596 310/216.001 524/404 524/496



Family:

Publication number	Publication date	Application number	Application date
CA2903472 AA	20150901	CA20142903472	20140310
EP2973958 A1	20160120	EP20140780246	20140310
EP2973958 A4	20160921	EP20140780246	20140310
US2016036284 AA	20160204	US20140775284	20140310
US10355552 BB	20190716	US20140775284	20140310
WO14164485 A1	20141009	WO2014US22561	20140310

Priority:

US20130779442P 20130313 US20140775284 20140310 WO2014US22561 20140310

Probable Assignee: SMITH INT INC

Assignee(s): (std): PRAD RES AND DEV LTD ; SCHLUMBERGER TECHNOLOGY BV ; SERVICES PETROLIERS SCHLUMBERGER ; SCHLUMBERGER CA LTD ; SCHLUMBERGER HOLDINGS ; SCHLUMBERGER SERVICES PETROL ; SMITH INT

Assignee(s): SCHLUMBERGER CANADA LTD ; SCHLUMBERGER HOLDINGS LTD ; SMITH INT INC ; PRAD RESEARCH AND DEVELOPMENT LTD ; CARIVEAU PETER T ; MENG SCOTT

Inventor(s): (std): CARIVEAU PETER ; CARIVEAU PETER T ; MENG SCOTT

Agent(s): SMART AND BIGGAR; LJUNGBERG ROBERT; SHELLEY II MARK D 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
CA2903472 AA	20150901	LSPB	+	published / reissued	
CA2903472 AA	20190423	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20190312
EP2973958 A1	20160120	LSPB	+	published / reissued	
EP2973958 A1	20160120	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20150831
EP2973958 A4	20160921	LSSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	EFFECTIVE DATE : 20160823
EP2973958 A4	20190227	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20181002
US10355552 BB	20190716	LSGT	+	granted / extensions (spc, cpc, pte)	
US10355552 BB	20190626	LSGT	PAT1	Patented Case	
US10355552 BB	20350915	PEXP		Calculated Patent Term	

					Expiry (PTA 554 days)
US2016036284 AA	20160204	LSPB	+	published / reissued	
US2016036284 AA	20171025	LSES	-NFA2	Non Final Action Counted, Not Yet Mailed	
US2016036284 AA	20171026	LSES	NFA1	Non Final Action Mailed	
US2016036284 AA	20180627	LSES	-NFA2	Non Final Action Counted, Not Yet Mailed	
US2016036284 AA	20180702	LSES	NFA1	Non Final Action Mailed	
US2016036284 AA	20190304	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2016036284 AA	20190521	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SMITH INTERNATIONAL, INC., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:MENG, SCOTT; CARIVEAU, PETER T.; SIGNING DATES FROM 20190307 TO 20190518; REEL/FRAME:049235/0978
US2016036284 AA	20190606	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
US2016036284 AA	20190626	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
WO14164485 A1	20141009	LSPB	+	published / reissued	
WO14164485 A1	20150831	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2014780246 COUNTRY OF REF DOCUMENT : EP
WO14164485 A1	20150901	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2903472 COUNTRY OF REF DOCUMENT : CA
WO14164485 A1	20150911	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 14775284 COUNTRY OF REF DOCUMENT : US
WO14164485 A1	20150914	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE

Title: SYSTEM AND METHOD FOR OPTIMIZING PRODUCTION FROM A ROD-PUMPING SYSTEM

Abstract: A method for optimizing production from a rod-pumping system includes the steps of providing a well having a rod-pumping system for pumping a fluid from a downhole location of the well to a surface location of the well; providing a mathematical model for determining a dynagraph relationship for the well from power consumption of the rod pumping system; measuring power consumption per cycle of the rod pumping system; determining a downhole dynagraph relationship from the power consumption per cycle and the model; measuring real time values of wellhead pressure and preferably wellhead temperature; and determining an optimum operating condition for the rod-pumping system from the downhole dynagraph relationship and the real time values.

Classifications:

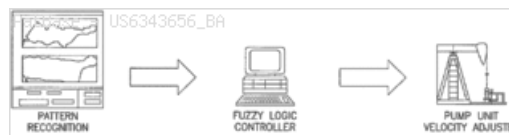
International (IPC 8-9): E21B47/00 F04B47/02
F04B49/06 (Advanced/Invention);
E21B41/00 (Advanced/Non-invention);
E21B47/00 F04B47/00 F04B49/06 (Core/Invention);
E21B41/00 (Core/Non-invention)

International (IPC 1-7): E21B3/406 E21B34/06

CPC: E21B47/0008 E21B2041/0028 F04B47/02 F04B49/065 F04B2203/0208

European: E21B47/00P2 F04B47/02 F04B49/06C P21B41/00F R04B203/0208

US: 166/373 166/53 166/54.1 166/541 166/64 346/33R 375/214 73/861.43



Family:

Publication number	Publication date	Application number	Application date
US6343656 BA	20020205	US20000534904	20000323

Priority:

US20000534904 20000323

Probable Assignee: VISIONTECH LTD

Assignee(s): (std): INTEVEP SA

Assignee(s): VISIONTECH LTD ; INTEVEP APARTADO SA ; INTEVEP S A

Inventor(s): (std): VAZQUEZ MANUEL ; FERNANDES JOSE

Inventor(s): MANUEL VAZQUEZ ; JOSE FERNANDES

Agent(s): BACHMAN AND LAPOINTE PC

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US6343656 BA	20020205	LSGT	+	granted / extensions (spc, cpc, pte)	
US6343656 BA	20000323	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : INTEVEP, S.A., VENEZUELA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:VAZQUEZ, MANUEL; FERNANDES, JOSE; REEL/FRAME:010645/0168; SIGNING DATES FROM 19991227 TO 20000112
US6343656 BA	20000712	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : VISIONTECH LTD., ISRAEL OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:YAVITS, LEONID; MORAD, AMIR; REEL/FRAME:010994/0449 EFFECTIVE DATE : 20000629
US6343656 BA	20020118	LSGT	PAT1	Patented Case	
US6343656 BA	20020118	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US6343656 BA	20050725	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6343656 BA	20090728	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6343656 BA	20130805	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6343656 BA	20200323	PEXP		Calculated Patent Term Expiry	

Abstract: In one aspect, wellbore apparatus is disclosed that includes a conduit that contains a non-circulating liquid therein and is configured to be placed in a well, and a transmitter that is configured to transmit pressure pulses through the liquid in the conduit. In another aspect, a method is disclosed that includes placing a conduit in the wellbore that is closed at one end and contains a liquid medium therein, and transmitting information in the form of pressure pulses through the liquid medium in the conduit.

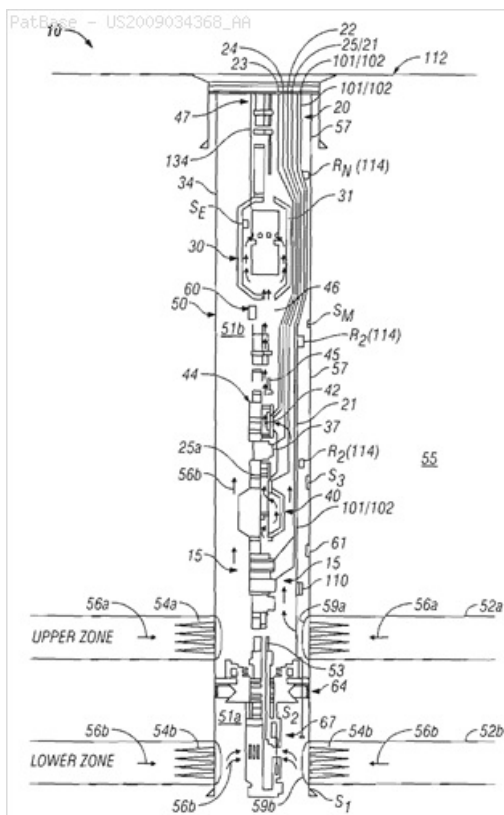
International (IPC 8-9): E21B47/12 E21B47/14 E21B47/18 G01V3/34 G01V8/10 (Advanced/Invention);

E21B47/12 (Core/Invention)

CPC: E21B47/14

European: E21B47/14

US: 367/83



Publication number	Publication date	Application number	Application date
CA2693485 AA	20100118	CA20082693485	20080731
US2009034368 AA	20090205	US20070833066	20070802
WO09018420 A2	20090205	WO2008US71720	20080731
WO09018420 A3	20110721	WO2008US71720	20080731

US20070833066 20070802 WO2008US71720 20080731

Assignee(s): (std): BAKER HUGHES INC ; JOHNSON MICHAEL H

Inventor(s): (std): JOHNSON MICHAEL H

Agent(s): SIM AND MCBURNEY; MADAN MOSSMAN AND SRIRAM PC; DUPHORNE DARIN H

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

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Patent	Date recorded	Event group	Code	Event	Details
CA2693485 AA	20100118	LSPB	+	published / reissued	
CA2693485 AA	20100118	LSSES	+EEER	EXAMINATION REQUEST	
CA2693485 AA	20120731	LSLE	-FZDE	DEAD	
US2009034368 AA	20090205	LSPB	+	published / reissued	
US2009034368 AA	20071206	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BAKER HUGHES INCORPORATED, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST;

US2009034368 AA	20110811	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
WO09018420 A2	20090205	LSPB	+	published / reissued	
WO09018420 A2	20100118	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2693485 COUNTRY OF REF DOCUMENT : CA
WO09018420 A2	20100203	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO09018420 A2	20101201	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 08796927 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) :

Title: ANCHOR LATCH ON OFF FOR SUCKER RODS

Abstract: A device and method to allow a sucker rod to be disconnected at a particular point in a sucker rod string. Typically the disconnect device is located just above the barrel pump where the disconnect device is able to provide tensile and compressive strength similar to the sucker rod string thereby eliminating at least one failure mode for the sucker rod string.

Classifications:

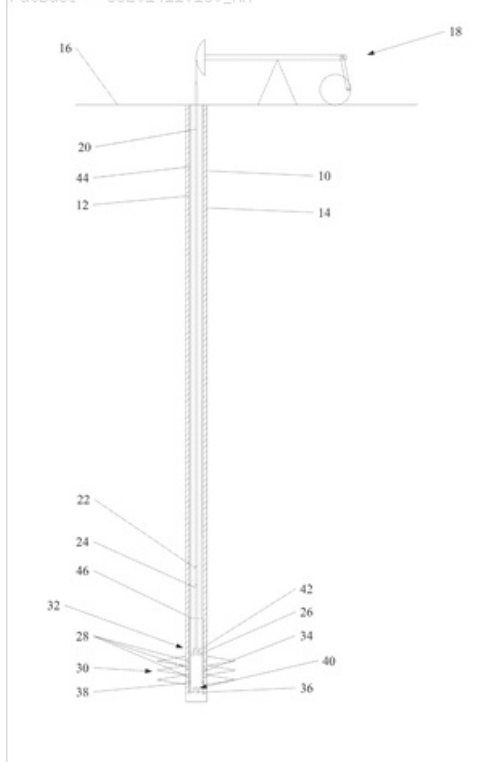
International (IPC 8-9): E21B17/02 E21B17/06 E21B23/00

E21B43/12 (Advanced/Invention)

CPC: E21B17/021 E21B17/06 E21B43/126

US: 166/378 166/72

PatBase - US2014110130_AH



Family:

Publication number	Publication date	Application number	Application date
US2014110130 AA	20140424	US20120659306	20121024
WO14066587 A2	20140501	WO2013US66530	20131024
WO14066587 A3	20140828	WO2013US66530	20131024

Priority:

US20120659306 20121024

Probable Assignee: WEATHERFORD TECHNOLOGY HOLDINGS LLC

Assignee(s): (std): WEATHERFORD LAMB

Assignee(s): WEATHERFORD LAMB INC ; WEATHERFORD TECHNOLOGY HOLDINGS LLC

Inventor(s): (std): LEMBCKE JEFFREY

Agent(s): MCDERMOTT SEAN P

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 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
US2014110130 AA	20140424	LSPB	+	published / reissued	
US2014110130 AA	20121121	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEATHERFORD/LAMB, INC., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:LEMBCKE, JEFFREY; REEL/FRAME:029334/0479 EFFECTIVE DATE : 20121102
US2014110130 AA	20141204	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEATHERFORD TECHNOLOGY HOLDINGS, LLC, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:WEATHERFORD/LAMB,

US2014110130 AA	20151109	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
WO14066587 A2	20140501	LSPB	+	published / reissued	
WO14066587 A3	20151118	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 13788830 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) :

Title: Standing valve

Abstract: A standing valve assembly providing a large cross-sectional flow area to reduce flow restrictions while in a production mode. A preferred embodiment of the valve is capable of movement in a valve alignment guide from a normally biased open position. The normally biased open position provides a large flow area. When removal of accumulated fluid in a wellbore is required, gas-lift gas closes the valve to isolate the producing formation allowing the fluid to be lifted from the wellbore. After removal of the fluid is completed and the gas-lift is stopped, the valve returns to its normal open position to allow flow through the valve assembly.

Classifications:

International (IPC 8-9): E21B34/06 E21B34/08

E21B43/12 (Advanced/Invention);

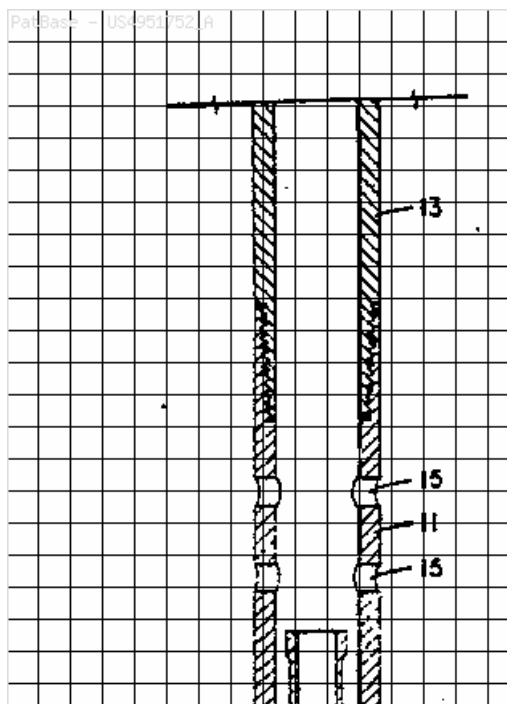
E21B34/00 E21B43/12 (Core/Invention)

International (IPC 1-7): E21B34/10

CPC: E21B34/06 E21B34/08 E21B43/122

European: E21B34/06 E21B34/08 E21B43/12B2

US: 166/325 166/332 166/373



Family:

Publication number	Publication date	Application number	Application date
US4951752 A	19900828	US19890340998	19890420

Priority:

US19890340998 19890420

Probable Assignee: EXXON MOBIL CORP

Assignee(s): (std): EXXON MOBIL CORP ; EXXON PRODUCTION RESEARCH CO

Assignee(s): EXXON PRODUCTION RESEARCH COMPANY

Inventor(s): (std): COLEMAN STEVEN B

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US4951752 A	19900828	LSGT	+	granted / extensions (spc, cpc, pte)	
US4951752 A	19890523	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : EXXON PRODUCTION RESEARCH COMPANY, DELAWARE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:COLEMAN, STEVEN B.; REEL/FRAME:005092/0885 EFFECTIVE DATE : 19890413
US4951752 A	19900702	LSGT	PAT1	Patented Case	
US4951752 A	19940828	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US4951752 A	19941108	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 19940831
US4951752 A	19981110	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 19980828
US4951752 A	20180129	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	

US4951752 A	20180129	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	TEXT : PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US4951752 A	20090420	PEXP		Calculated Patent Term Expiry	

Title: GAS LIFT VALVE

Abstract: A gas lift valve assembly includes a housing that includes a first passageway that is substantially concentric with the central passageway of a string to communicate well fluid and a second passageway that is eccentrically disposed with respect to the central passageway to communicate a second fluid to lift the well fluid. The gas lift valve assembly includes a valve that is disposed in the second passageway and includes a ball valve to regulate communication of the second fluid.

Classifications:

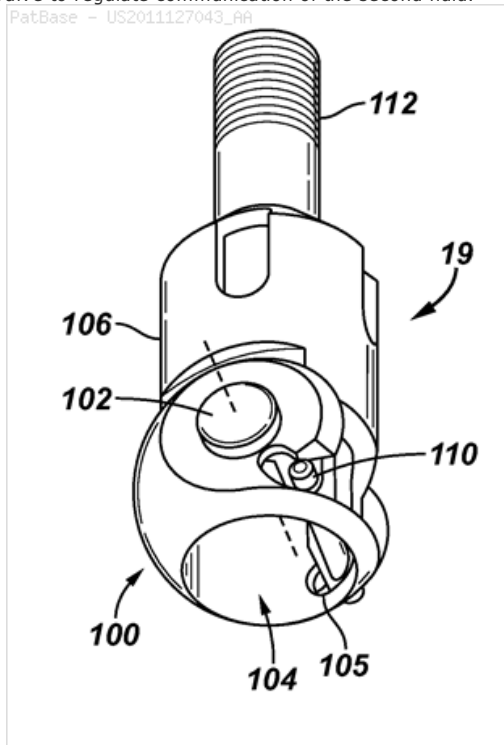
International (IPC 8-9): E21B23/03 E21B34/00 E21B34/06
E21B43/00 E21B43/12 (Advanced/Invention)

CPC: E21B43/123

European: E21B43/12B2C

US: 166/319 166/319S 166/334.2 166/372 166/373

PatBase - US2011127043_AA



Family:

Publication number	Publication date	Application number	Application date
BR112012013101 A2	20170301	BR20121113101	20101118
GB201209578 A0	20120711	GB20120009578	20101118
GB2488931 A1	20120912	GB20120009578	20101118
GB2488931 B2	20151216	GB20120009578	20101118
NO20120658 A	20120629	NO20120000658	20120605
US2011127043 AA	20110602	US20090628689	20091201
US8381821 BB	20130226	US20090628689	20091201
WO11068690 A2	20110609	WO2010US57223	20101118
WO11068690 A3	20110818	WO2010US57223	20101118

Priority:

US20090628689 20091201 WO2010US57223 20101118

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Assignee(s): (std): HAHN JACOB ; KAMPHAUS JASON ; PRAD RES AND DEV LTD ; SCHLUMBERGER CA LTD ; SCHLUMBERGER HOLDINGS ; SCHLUMBERGER SERVICES PETROL ; SCHLUMBERGER TECHNOLOGY CORP ; SCHLUMBERGER TECHNOLOGY BV ; SCARSDALE KEVIN T

Assignee(s): SERVICES PETROLIERS SCHLUMBERGER ; PRAD RESEARCH AND DEVELOPMENT LTD ; SCHLUMBERGER CANADA LTD ; SCHLUMBERGER HOLDINGS LTD

Inventor(s): (std): KEVIN T SCARSDALE ; JACOB HAHN ; JASON KAMPHAUS ; SCARSDALE KEVIN T ; KAMPHAUS JASON ; HAHN JACOB

Agent(s): JIM; MCGOFF KEVIN B ET AL

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 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
BR112012013101 A2	20181023	LSFE	-B08F	APPLICATION FEES: DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW	TEXT : REFERENTE A 8A ANUIDADE.
BR112012013101 A2	20190212	LSLE	-B08K	LAPSE AS NO	TEXT : EM VIRTUDE DO

					EVIDENCE OF PAYMENT OF THE ANNUAL FEE HAS BEEN FURNISHED TO INPI (ACC. ART. 87)	ARQUIVAMENTO PUBLICADO NA RPI 2494 DE 23-10-2018 E CONSIDERANDO AUSENCIA DE MANIFESTACAO DENTRO DOS PRAZOS LEGAIS, INFORMO QUE CABE SER MANTIDO O ARQUIVAMENTO DO PEDIDO DE PATENTE, CONFORME O DISPOSTO NO ARTIGO 12, DA RESOLUCAO 113/2013.
GB2488931 A1	20120912	LSPB	+	published / reissued		
GB2488931 B2	20151216	LSGT	+	granted / extensions (spc, cpc, pte)		
GB2488931 B2	20180725	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	EFFECTIVE DATE : 20171118	
GB2488931 B2	20301118	PEXP		Calculated Patent Term Expiry		
NO20120658 A	20120629	LSPB	+	published / reissued		
NO20120658 A	20180625	LSRV	-FC2A	WITHDRAWAL, REJECTION OR DISMISSAL OF LAID OPEN PATENT APPLICATION		
US2011127043 AA	20110602	LSPB	+	published / reissued		
US2011127043 AA	20130206	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE	
US8381821 BB	20130226	LSGT	+	granted / extensions (spc, cpc, pte)		
US8381821 BB	20100414	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:HAHN, JACOB; KAMPHAU, JASON; SCARSDALE, KEVIN T.; SIGNING DATES FROM 20091230 TO 20100318; REEL/FRAME:024232/0921	
US8381821 BB	20130206	LSGT	PAT1	Patented Case		
US8381821 BB	20160811	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4	
US8381821 BB	20301210	PEXP		Calculated Patent Term Expiry (PTA 374 days)		
WO11068690 A2	20110609	LSPB	+	published / reissued		
WO11068690 A2	20120530	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	TEXT : PCT FILING DATE = 20101118 REF DOCUMENT NUMBER : 1209578 COUNTRY OF REF DOCUMENT : GB KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :	
WO11068690 A2	20120530	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 1209578.2 COUNTRY OF REF DOCUMENT : GB	
WO11068690 A2	20120601	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE	
WO11068690 A2	20121226	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 10834946 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) :	
WO11068690 A2	20170301	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112012013101 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2	

Title: GAS SEPARATOR ASSEMBLY FOR GENERATING ARTIFICIAL SUMP INSIDE WELL CASING

Abstract: A gas separator assembly generates an artificial sump in a production casing receiving a production tubing string with a downhole pump at the bottom end thereof. The assembly includes an inner casing in series with the production casing of the well and an outer casing supported externally of the inner casing. First and second ports at opposing top and bottom ends of the outer casing communicate from a primary passage in the inner casing to a secondary passage between the inner and outer casings. A barrier supported in the primary passage between the first and second ports diverts flow through the secondary passage and effectively defines the sump area in the primary passage between an inlet of the downhole pump adjacent the barrier and the first port thereabove.

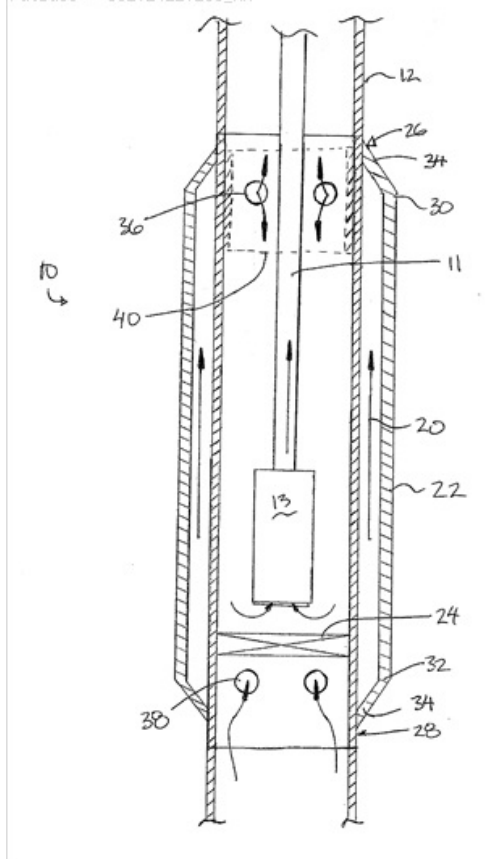
Classifications:

International (IPC 8-9): E21B43/12 E21B43/38 (Advanced/Invention)

CPC: E21B43/127 E21B43/128 E21B43/38

US: 1/1 166/105.5 166/378

PatBase - US2014110133_AA



Family:

Publication number	Publication date	Application number	Application date
US2014110133 AA	20140424	US20130059303	20131021
US2017058654 AA	20170302	US20160347189	20161109
US2018187531 AA	20180705	US20180909496	20180301
US9518458 BB	20161213	US20130059303	20131021
US9909400 BB	20180306	US20160347189	20161109

Priority:

US20120795597P 20121022
US20180909496 20180301

US20130059303 20131021

US20160347189 20161109

Probable Assignee: BLACKJACK PRODUCTION TOOLS LLC

Assignee(s): (std): BLACKJACK PRODUCTION TOOLS INC ; BLACKJACK PRODUCTION TOOLS LLC ; ELLITHORP BRIAN ; ELLITHORP VERLEY GENE

Inventor(s): (std): ELLITHORP VERLEY GENE ; ELLITHORP BRIAN

Agent(s): TOMLINSON RUST MCKINSTRY GRABLE; TOMLINSON MCKINSTRY PC

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2014110133 AA	20140424	LSPB	+	published / reissued	
US2014110133 AA	20160705	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BLACKJACK PRODUCTION TOOLS, INC., OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:ELLITHORP, VERLEY GENE; ELLITHORP, BRIAN; REEL/FRAME:039073/0736 EFFECTIVE DATE : 20160630

US2014110133 AA	20161122	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2017058654 AA	20170302	LSPB	+	published / reissued	
US2017058654 AA	20170628	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BLACKJACK PRODUCTION TOOLS, LLC, OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:BLACKJACK PRODUCTION TOOLS, INC.; REEL/FRAME:042852/0781 EFFECTIVE DATE : 20161114
US2017058654 AA	20171003	LSES	+ALW2	Allowed -- Notice of Allowance Not Yet Mailed	
US2017058654 AA	20171018	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2017058654 AA	20180214	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2018187531 AA	20180705	LSPB	+	published / reissued	
US2018187531 AA	20191219	LSES	NFA1	Non Final Action Mailed	
US9518458 BB	20161213	LSGT	+	granted / extensions (spc, cpc, pte)	
US9518458 BB	20161122	LSGT	PAT1	Patented Case	
US9518458 BB	20170628	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BLACKJACK PRODUCTION TOOLS, LLC, OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:BLACKJACK PRODUCTION TOOLS, INC.; REEL/FRAME:042852/0781 EFFECTIVE DATE : 20161114
US9518458 BB	20350121	PEXP		Calculated Patent Term Expiry (PTA 457 days)	
US9909400 BB	20180306	LSGT	+	granted / extensions (spc, cpc, pte)	
US9909400 BB	20180214	LSGT	PAT1	Patented Case	
US9909400 BB	20180918	LSRE	CC	CERTIFICATE OF CORRECTION	
US9909400 BB	20361109	PEXP		Calculated Patent Term Expiry	

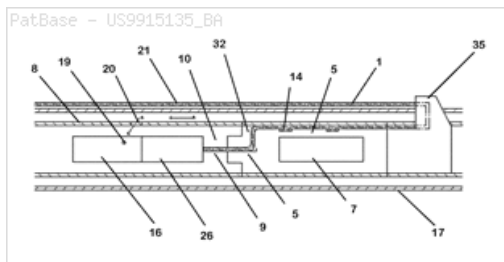
Title: DOWNHOLE POWERED DEVICE SYSTEM

Abstract: System and method for providing power to a downhole powered device through a sensor housing. At least some of the illustrative embodiments are a powered device engaged with a power line connectable to a power supply by a power connector, and a sensor system arranged in a sensor housing, the sensor housing located between the powered device and the power connector, and the power line passing through the sensor housing such that heat generated from the power line is dissipated away from the sensor system.

Classifications:

International (IPC 8-9): E21B43/12 E21B47/00 E21B47/01
E21B47/017 E21B47/06 F04B47/00 (Advanced/Invention)

CPC: E21B43/128 E21B47/0007 E21B47/011 F04B47/06 F04B51/00



Family:

Publication number	Publication date	Application number	Application date
US9915135 BA	20180313	US20150627732	20150220

Priority:

US20140943549P 20140224 US20150627732 20150220

Probable Assignee:

ACCESSESP UK LTD

Assignee(s): (std):

ACCESSESP UK LTD

Assignee(s):

COMERICA BANK

Inventor(s): (std):

MALONE DAVID

Agent(s):

GORDON G WAGGETT PC

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US9915135 BA	20180313	LSGT	+	granted / extensions (spc, cpc, pte)	
US9915135 BA	20150220	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ACCESSESP UK LIMITED, UNITED KINGDOM OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:MALONE, DAVID; REEL/FRAME:034997/0741 EFFECTIVE DATE : 20150212
US9915135 BA	20161102	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : COMERICA BANK, MICHIGAN OLDPARTY : SECURITY INTEREST; ASSIGNOR:ACCESSESP UK LIMITED; REEL/FRAME:040550/0887 EFFECTIVE DATE : 20161014
US9915135 BA	20180221	LSGT	PAT1	Patented Case	
US9915135 BA	20180221	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US9915135 BA	20351016	PEXP		Calculated Patent Term Expiry (PTA 238 days)	

Title: PUMP SHAFT BEARING SUPPORT

Abstract: A device and method of tailoring a pump lift capacity of a pump for an electrical submersible pumping unit (ESP). The pump unit of the ESP has a plurality of stages, each made up of an impeller and a diffuser. The ESP has a pump lift capacity, which is ideally matched with well capacity. The well capacity is, therefore, the target lift capacity. To facilitate matching of pump lift capacity and well capacity, one or more stages of the pump unit may be replaced with a spacer assembly to reduce pump lift capacity by a desired amount. The spacer assembly may include a shaft bearing support made up of an outer ring and an inner ring, wherein the outer and inner ring are connected by webs, which allow oil to flow through the support. The spacer assembly may be axially located on the pump shaft via compression tubes.

Classifications:

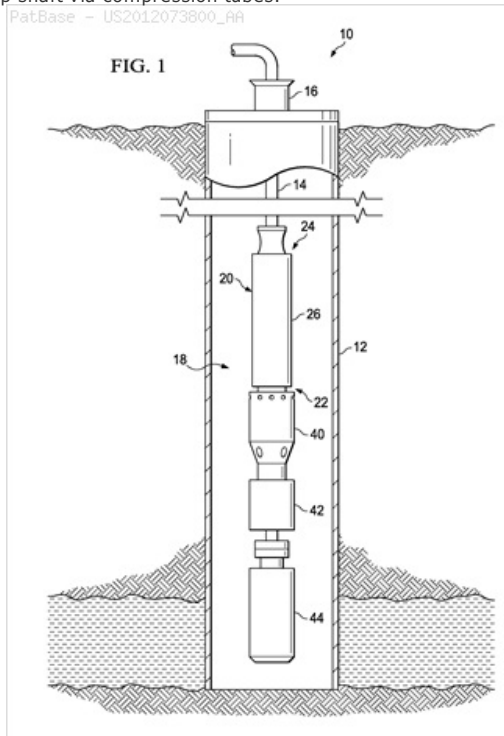
International (IPC 8-9): E21B43/00 F04B35/04 (Advanced/Invention)

CPC: F04D13/10 E21B43/128 F04D29/043 F04D29/0462

European: E21B43/12B10 F04D13/10 F04D29/043 F04D29/046B

US: 166/105 417/410.1 417/410.100S

PatBase - US2012073800_AA

**Family:**

Publication number	Publication date	Application number	Application date
US2012073800 AA	20120329	US20100893553	20100929

Priority:

US20100893553 20100929

Probable Assignee:

SUBMERSIBLE PUMPS INC

Assignee(s): (std):

JANITZ MIKEL ERIC

Assignee(s):

SUBMERSIBLE PUMPS INC

Inventor(s): (std):

JANITZ MIKEL ERIC

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2012073800 AA	20120329	LSPB	+	published / reissued	
US2012073800 AA	20101027	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SUBMERSIBLE PUMPS, INC., OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:JANITZ, MIKEL; REEL/FRAME:025202/0058 EFFECTIVE DATE : 20101020
US2012073800 AA	20130601	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	

Title: HIGH TEMPERATURE MOTOR SEAL FOR **ARTIFICIAL LIFT** SYSTEM

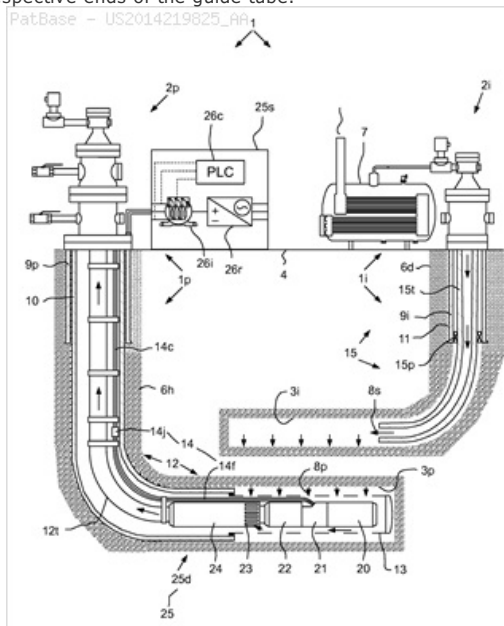
Abstract: A thermal compensator for a motor seal, includes: a guide tube for receiving a shaft of the motor seal; a metallic bag disposed around the guide tube and having an expansion profile formed in at least a portion thereof to accommodate radial and circumferential expansion of the metallic bag; a pair of flanges attached to opposite ends of the metallic bag; and a pair of adapters fastened to the respective flanges and receiving respective ends of the guide tube.

Classifications:

International (IPC 8-9): E21B4/00 E21B43/12 E21B43/24 F04B47/06 F04D13/08 F04D13/10 F04D29/10 F16J15/48 F16J15/52 H02K5/124 H02K5/132 (Advanced/Invention); H02K5/132 (Advanced/Non-invention)

CPC: E21B43/128 E21B4/003 E21B43/121 F04B47/06 F04D13/086 F04D13/10 F04D29/106 H02K5/132 E21B43/2406 F16J15/52

US: 1/1 277/331 384/91 417/53



Family:

Publication number	Publication date	Application number	Application date
CA2842011 AA	20140807	CA20142842011	20140206
CA2842011 C	20171114	CA20142842011	20140206
US2014219825 AA	20140807	US20140173930	20140206
US2018371885 AA	20181227	US20180118841	20180831
US10094206 BB	20181009	US20140173930	20140206

Priority:

US20130761976P 20130207 US20140173930 20140206 US20180118841 20180831

Probable Assignee: OILFIELD EQUIPMENT DEVELOPMENT CENTER LTD

Assignee(s): (std): OILFIELD EQUIPMENT DEV CT LTD ; OILFIELD EQUIPMENT DEVELOPMENT CENTER LTD

Assignee(s): SANTOS ENRIQUE C2052 TANNER WYND NWTERWILLEGAR TOWNEEDMONTONA1T6R 2R4CA ; OILFIELD EQUIPMENT DEVELOPMENT CENTER LTDTRINITY HOUSE1ST FLOOR ALBERT STREETMAHE VICTORIASC ; SANTOS ENRIQUE C ; MADAMBA EDISON R ; MADAMBA EDISON R714 SADDLEBACK ROADMONTONA1T6J 5E6CA

Inventor(s): (std): SANTOS ENRIQUE C ; MADAMBA EDISON R

Inventor(s): SANTOS ENRIQUE C2052 TANNER WYND NWTERWILLEGAR TOWNEEDMONTONA1T6R 2R4CA ; MADAMBA EDISON R714 SADDLEBACK ROADMONTONA1T6J 5E6CA

Agent(s): DEETH WILLIAMS WALL LLP; PATTERSON AND SHERIDAN LLP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA2842011 AA	20140807	LSPB	+	published / reissued	
CA2842011 C	20171114	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2842011 C	20340206	PEXP		Calculated Patent Term Expiry	
US10094206 BB	20181009	LSGT	+	granted / extensions (spc, cpc, pte)	
US10094206 BB	20180919	LSGT	PAT1	Patented Case	
US10094206 BB	20340206	PEXP		Calculated Patent Term Expiry	
US2014219825 AA	20140807	LSPB	+	published / reissued	
US2014219825 AA	20140812	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : OILFIELD EQUIPMENT DEVELOPMENT CENTER LIMITED,

					SEY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:SANTOS, ENRIQUE C.; MADAMBA, EDISON R.; REEL/FRAME:033516/0338 EFFECTIVE DATE : 20140625
US2014219825 AA	20170123	LSES	NFA1	Non Final Action Mailed	
US2014219825 AA	20180209	LSES	ADV1	Advisory Action Mailed	
US2014219825 AA	20180523	LSES	+NAM1	Notice of Allowance Mailed - - Application Received in Office of Publications	
US2014219825 AA	20180919	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2018371885 AA	20181227	LSPB	+	published / reissued	
US2018371885 AA	20181022	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : OILFIELD EQUIPMENT DEVELOPMENT CENTER LIMITED, SEY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:SANTOS, ENRIQUE C.; MADAMBA, EDISON R.; REEL/FRAME:047262/0509 EFFECTIVE DATE : 20140625
US2018371885 AA	20190910	LSES	NFA1	Non Final Action Mailed	

Title: HYDRAULIC OIL WELL PUMPING SYSTEM, AND METHOD FOR DELIVERING GAS FROM A WELL

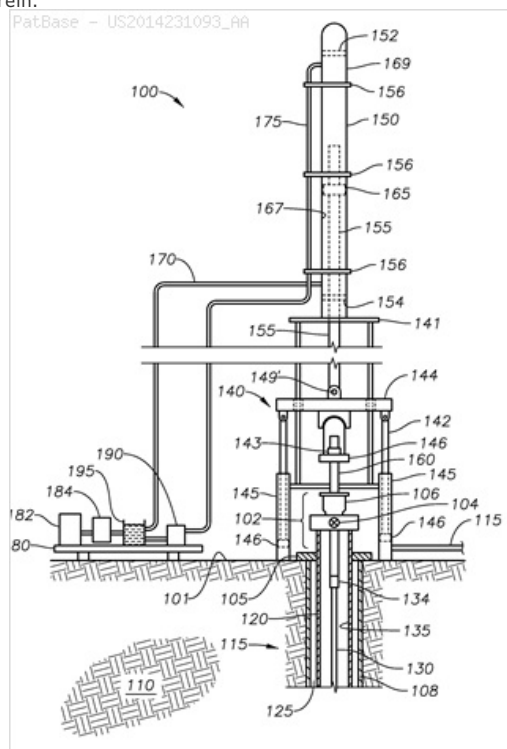
Abstract: A hydraulic oil well pumping system is provided. The system uses a pump to exert hydraulic pressure against a reciprocating lift piston over a wellbore. The lift piston is operatively connected to a rod string and downhole pump for pumping oil from a wellbore. Thus, oil is pumped from the wellbore as the rod string and downhole pump move between upper and lower rod positions. In addition, the system includes at least one compressor cylinder having a compressor piston that reciprocates with the lift piston in order to compress produced gas at the surface. A method for compressing gas while pumping oil from a wellbore using such a system is also provided herein.

Classifications:

International (IPC 8-9): E21B43/12 (Advanced/Invention)

CPC: E21B43/121 E21B43/126

US: 166/105 166/372



Family:

Publication number	Publication date	Application number	Application date
US2014231093 AA	20140821	US20140183947	20140219

Priority:

US2013076664P 20130219 US20140183947 20140219

Probable Assignee:

HOELL R LEE

Assignee(s): (std):

HOELL R LEE

Inventor(s): (std):

HOELL R LEE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2014231093 AA	20140821	LSPB	+	published / reissued	
US2014231093 AA	20161021	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	

Title: ELECTRIC SUBMERSIBLE PUMPING SENSOR DEVICE AND METHOD

Abstract: An electric submersible pump device having a pump; a motor, the motor being adjacent to the pump and having motor windings extending a first distance along the motor; a support member, the support member supporting the sensor and having a length so that the sensor is located the first distance downhole from a downhole distal end of the motor windings; the sensor device comprising at least one selected from the following: a temperature sensor, a flow-meter, a vibration sensor or a pressure sensor.

Classifications:

International (IPC 8-9): E21B43/12 E21B47/00 E21B47/01

F04B17/03 F04D13/10 F04D15/02 F04D25/06 (Advanced/Invention);

E21B47/00 (Advanced/Non-invention);

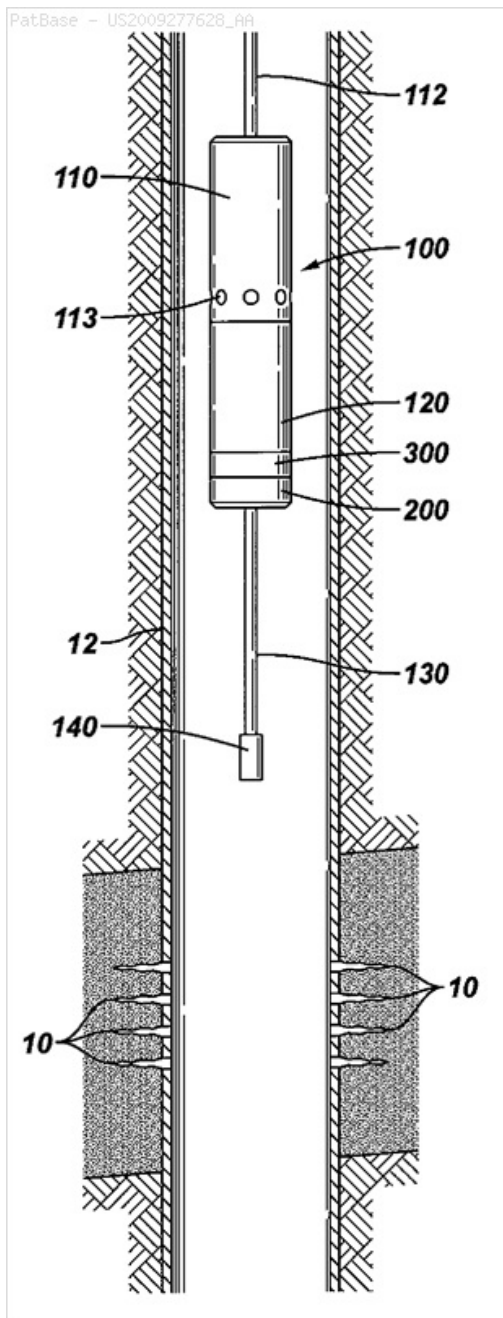
E21B47/00 F04B17/03 (Core/Invention)

CPC: E21B47/0007 E21B47/01 E21B43/128 F04D25/06 F04B2207/02

F04B2207/03 F04D15/0209 F04D13/10 F04D15/0218

European: F04D13/10 F04D15/02B2

US: 166/105 166/250.01

**Family:**

Publication number	Publication date	Application number	Application date
■ CN101576070 A	20091111	CN200910139134	20090507
■ CN101576070 B	20140709	CN200910139134	20090507
■ GB200907343 A0	20090610	GB20090007343	20090429
■ GB2466686 A1	20100707	GB20090007343	20090429
■ GB2466686 B2	20110803	GB20090007343	20090429
■ US2009277628 AA	20091112	US20080116302	20080507
■ US9482233 BB	20161101	US20080116302	20080507

Priority:

US20080116302 20080507

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Assignee(s): (std): ARMSTRONG KENNETH ; BOOKER JOHN A ; ROWATT JOHN DAVID ; SCHLUMBERGER HOLDINGS ; SCHLUMBERGER TECHNOLOGY CORP ; WATSON ARTHUR I

Assignee(s): SCHLUMBERGER HOLDINGS LTD

Inventor(s): (std): BOOKER JOHN A ; WATSON ARTHUR I ; ARMSTRONG KENNETH ; ROWATT JOHN DAVID ; KENNETH ARMSTRONG ; DAVID ROWATT JOHN

Inventor(s): JOHN DAVID ROWATT ; ARTHUR I WATSON ; JOHN A BOOKER
Agent(s): SCHLUMBERGER RESERVOIR COMPLETIONS; MICHAEL

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN101576070 A	20091111	LSPB	+	published / reissued	
CN101576070 A	20091111	LSPB	+C06	PUBLICATION	
CN101576070 B	20140709	LSGT	+	granted / extensions (spc, cpc, pte)	
CN101576070 B	20140709	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN101576070 B	20180529	LSLE	-CF01	TERMINATION OF PATENT RIGHT DUE TO NON-PAYMENT OF ANNUAL FEE	
CN101576070 B	20290507	PEXP		Calculated Patent Term Expiry	
GB2466686 A1	20100707	LSPB	+	published / reissued	
GB2466686 B2	20110803	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2466686 B2	20171227	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	EFFECTIVE DATE : 20170429
GB2466686 B2	20290429	PEXP		Calculated Patent Term Expiry	
US2009277628 AA	20091112	LSPB	+	published / reissued	
US2009277628 AA	20161012	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US9482233 BB	20161101	LSGT	+	granted / extensions (spc, cpc, pte)	
US9482233 BB	20080718	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:WATSON, ARTHUR I.; BOOKER, JOHN A.; ARMSTRONG, KENNETH; AND OTHERS; REEL/FRAME:021256/0918; SIGNING DATES FROM 20080424 TO 20080625
US9482233 BB	20080718	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:WATSON, ARTHUR I.; BOOKER, JOHN A.; ARMSTRONG, KENNETH; AND OTHERS; SIGNING DATES FROM 20080424 TO 20080625; REEL/FRAME:021256/0918
US9482233 BB	20161012	LSGT	PAT1	Patented Case	
US9482233 BB	20300611	PEXP		Calculated Patent Term Expiry (PTA 765 days)	

Title: NON-AQUEOUS FOAM COMPOSITION FOR GAS LIFT INJECTION AND METHODS FOR MAKING AND USING SAME

Abstract: A hydrocarbon drilling fluid system is disclosed including a hydrocarbon fluid and a foaming composition, where the foaming composition includes a polymer, a gelling agent and its cross-linking agent, an optional foaming agent, or mixtures or combinations thereof. Uses of this drilling fluid system in a variety of downhole application are also disclosed.

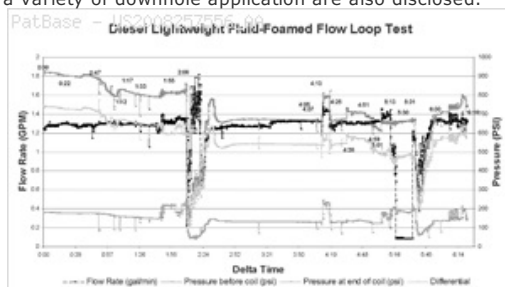
Classifications:

International (IPC 8-9): C09K8/02 C09K8/58 C09K8/594
E21B33/138 E21B43/00 E21B43/12 E21B43/16 (Advanced/Invention);
C09K8/02 C09K8/58 E21B43/00 E21B43/12
E21B43/16 (Core/Invention)

CPC: C09K8/58 C09K8/594 E21B43/122

European: C09K8/58 C09K8/594 E21B43/12B2

US: 166/309 166/372



Family:

Publication number	Publication date	Application number	Application date
AU2008201671 AA	20081106	AU20080201671	20080417
AU2008201671 BB	20130328	AU20080201671	20080417
CA2629204 AA	20081018	CA20082629204	20080416
CA2629204 C	20110712	CA20082629204	20080416
GB200806693 A0	20080514	GB20080006693	20080414
GB2448584 A1	20081022	GB20080006693	20080414
GB2448584 B2	20110810	GB20080006693	20080414
NO20081782 A	20081020	NO20080001782	20080411
NO20081782 L	20081020	NO20080001782	20080411
NO341290 B1	20171002	NO20080001782	20080411
US2008257556 AA	20081023	US20070736971	20070418
US7565933 BB	20090728	US20070736971	20070418

Priority:

US20070736971 20070418 CA20082629204 20080416

Probable Assignee: WEATHERFORD TECHNOLOGY HOLDINGS LLC

Assignee(s): (std): CLEARWATER INT L L C ; CLEARWATER INT LLC ; WEATHERFORD TECHNOLOGY HOLDINGS LLC ; WEATHERFORD TECH HOLDINGS LLC

Assignee(s): DEUTSCHE BANK TRUST CO AMERICAS ADMINISTRATIVE AGENT AS ; WELLS FARGO BANK NATIONAL ASSOCIATION AGENT AS ; WEATHERFORD INT LTD ; CLEARWATER INTERNATIONAL L L C ; CLEARWATER INTERNATIONAL LLC ; ZAMORA FRANK ; KIPPIE DAVID P ; LUBRIZOL OILFIELD SOLUTIONS INC

Inventor(s): (std): ZAMORA FRANK ; KIPPIE DAVID P ; KIPPIE DAVID

Inventor(s): DAVID KIPPIE ; FRANK ZAMORA ; DAVID P KIPPIE

Agent(s): FRASER OLD AND SOHN; MARKS AND CLERK; ROBERT W STROZIER PLLC; ROBERT W

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2008201671 AA	20081106	LSPB	+	published / reissued	
AU2008201671 BB	20130328	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2008201671 BB	20130725	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2008201671 BB	20160211	LSAS	PC	ASSIGNMENT REGISTERED	PARTYTYPE : OWNER OWNER : WEATHERFORD TECHNOLOGY HOLDINGS, LLC OLDPARTY : FORMER OWNER WAS: CLEARWATER INTERNATIONAL, L.L.C.
AU2008201671 BB	20191114	LSLE	-MK14	PATENT CEASED SECTION 143(A) (ANNUAL FEES NOT PAID) OR EXPIRED	
AU2008201671 BB	20280417	PEXP		Calculated Patent Term Expiry	
CA2629204 AA	20081018	LSPB	+	published / reissued	
CA2629204 AA	20080618	LSSES	+EEER	EXAMINATION REQUEST	
CA2629204 C	20110712	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2629204 C	20280416	PEXP		Calculated Patent	

				Term Expiry	
GB2448584 A1	20081022	LSPB	+	published / reissued	
GB2448584 B2	20110810	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2448584 B2	20191225	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	EFFECTIVE DATE : 20190414
GB2448584 B2	20280414	PEXP		Calculated Patent Term Expiry	
NO20081782 A	20081020	LSPB	+	published / reissued	
NO20081782 L	20160215	LSAS	CHAD	CHANGE OF THE OWNER'S NAME OR ADDRESS (PAR. 44 PATENT LAW, PAR. PATENTFORSKRIFTEN)	PARTYTYPE : OWNER OWNER : WEATHERFORD TECHNOLOGY HOLDINGS, US
NO341290 B1	20171002	LSGT	+	granted / extensions (spc, cpc, pte)	
NO341290 B1	20191125	LSLE	-MM1K	LAPSED BY NOT PAYING THE ANNUAL FEES	
NO341290 B1	20280411	PEXP		Calculated Patent Term Expiry	
US2008257556 AA	20081023	LSPB	+	published / reissued	
US2008257556 AA	20090708	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US7565933 BB	20090728	LSGT	+	granted / extensions (spc, cpc, pte)	
US7565933 BB	20090708	LSGT	PAT1	Patented Case	
US7565933 BB	20121002	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7565933 BB	20151009	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : LUBRIZOL OILFIELD SOLUTIONS, INC., OHIO OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR: CLEARWATER INTERNATIONAL, L.L.C.; REEL/FRAME: 036822/0379 EFFECTIVE DATE : 20150804
US7565933 BB	20151214	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEATHERFORD TECHNOLOGY HOLDINGS, LLC, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR: LUBRIZOL OILFIELD SOLUTION, INC.; REEL/FRAME: 037281/0505 EFFECTIVE DATE : 20151110
US7565933 BB	20170112	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US7565933 BB	20191218	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WELLS FARGO BANK NATIONAL ASSOCIATION AS AGENT, TEXAS OLDPARTY : SECURITY INTEREST; ASSIGNORS: WEATHERFORD TECHNOLOGY HOLDINGS LLC; WEATHERFORD NETHERLANDS B.V.; WEATHERFORD NORGE AS; AND OTHERS; REEL/FRAME: 051891/0089 EFFECTIVE DATE : 20191213
US7565933 BB	20191226	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : DEUTSCHE BANK TRUST COMPANY AMERICAS, AS ADMINISTRATIVE AGENT OLDPARTY : SECURITY INTEREST; ASSIGNORS: WEATHERFORD TECHNOLOGY HOLDINGS, LLC; WEATHERFORD NETHERLANDS B.V.; WEATHERFORD NORGE AS; AND OTHERS; REEL/FRAME: 051419/0140 EFFECTIVE DATE : 20191213
US7565933 BB	20191226	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : DEUTSCHE BANK TRUST COMPANY AMERICAS, AS ADMINISTRATIVE AGENT, NEW YORK OLDPARTY : SECURITY

INTEREST;
ASSIGNORS:WEATHERFORD
TECHNOLOGY HOLDINGS, LLC;
WEATHERFORD NETHERLANDS
B.V.; WEATHERFORD NORGE
AS; AND OTHERS;
REEL/FRAME:051419/0140
EFFECTIVE DATE : 20191213

US7565933 BB

20270716

PEXP

Calculated Patent
Term Expiry (PTA 89
days)

Title: APPARATUS, ASSEMBLY AND PROCESS FOR INJECTING FLUID INTO A SUBTERRANEAN WELL

Abstract: Apparatus, assembly and process for allowing gas lift operations to be conducted along a relatively long perforated interval below a packer in a subterranean well. An elongated segregation member is lowered into locking engagement with a bypass mandrel secured to a tubing string above the packer. This segregation member is configured and dimensioned to define two fluid flow paths. A first flow path extends from the surface of the earth through the annulus formed between the tubing string above the packer and casing secured in the well, the bypass mandrel, a bore through a portion of the segregation member and the interior of the tubing string below the packer. A second flow path extends from the subterranean region penetrated by the well through the annulus formed between the tubing string below the packer and casing secured in the well, the annulus between the segregation member and the packer, and the interior of the tubing string above the packer. Fluid produced into the well from the subterranean region is conveyed to the surface via the second flow path and can be assisted by gas injected into the first flow path via retrievable gas lift valves in the tubing string above and below the packer. Pressurized gas is conveyed via the first flow path to these retrievable gas lift valves.

Classifications:

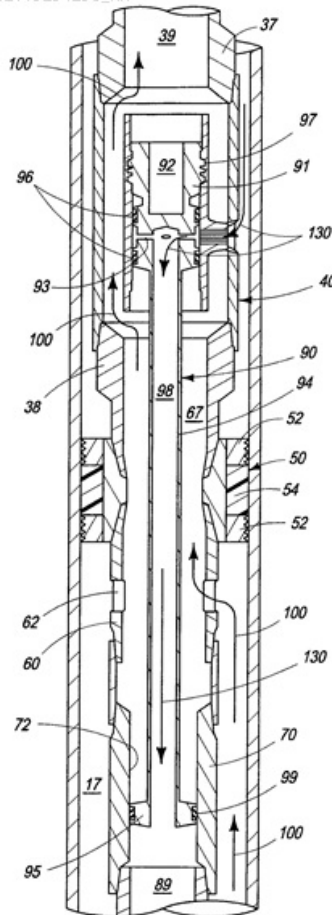
International (IPC 8-9): E21B19/00 E21B23/03 E21B33/12
E21B43/00 E21B43/12 E21B43/16 E21B43/18 (Advanced/Invention);
E21B23/00 E21B43/00 E21B43/12 E21B43/16 (Core/Invention)

CPC: E21B17/18 E21B33/12 E21B43/122

European: E21B17/18 E21B43/12B2

US: 166/105 166/105S 166/114 166/311 166/312 166/316 166/369
166/372 166/377 166/386 166/387 166/50 166/64 166/75.11
166/75.110S

PatBase - US2009194293_AA



Family:

Publication number	Publication date	Application number	Application date
AU2009210651 AA	20090813	AU20090210651	20090116
AU2009210651 BB	20150507	AU20090210651	20090116
CA2712069 AA	20090813	CA20092712069	20090116
CA2712069 C	20140422	CA20092712069	20090116
EP2250341 A1	20101117	EP20090709171	20090116
EP2250341 A4	20171004	EP20090709171	20090116
US2009194293 AA	20090806	US20080025465	20080204
US2011042097 AA	20110224	US20100849496	20100803
US7766085 BB	20100803	US20080025465	20080204
US8413726 BB	20130409	US20100849496	20100803
WO09099744 A1	20090813	WO2009US31307	20090116
WO12018772 A1	20120209	WO2011US46206	20110802

Priority:

US20080025465 20080204 WO2009US31307 20090116 US20100849496 20100803

Probable Assignee: PCS FERGUSON INC

Assignee(s): (std): MARATHON OIL CO ; HOLMES WILLIAM D ; STEPHENSON PEARL E ; POHLER STEVEN A

Assignee(s): JPMORGAN CHASE BANK NA ; MARATHON OIL COMPANY ; PCS FERGUSON INC

Inventor(s): (std): STEPHENSON PEARL E ; HOLMES WILLIAM D ; POHLER STEVEN A

Inventor(s): PEARL E STEPHENSON ; WILLIAM D HOLMES

Agent(s): DAVIES COLLISON CAVE; DAVIES COLLISON CAVE PTY LTD; MACRAE AND CO; MALLALIEU CATHERINE LOUISE; MARATHON OIL CO C O LAW OFFICE OF JACK E EBEL; JACK E; EBEL JACK E

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
AU2009210651 AA	20090813	LSPB	+	published / reissued	
AU2009210651 BB	20150507	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2009210651 BB	20150903	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2009210651 BB	20180809	LSLE	-MK14	PATENT CEASED SECTION 143(A) (ANNUAL FEES NOT PAID) OR EXPIRED	
AU2009210651 BB	20290116	PEXP		Calculated Patent Term Expiry	
CA2712069 AA	20090813	LSPB	+	published / reissued	
CA2712069 AA	20100713	LSES	+EEER	EXAMINATION REQUEST	
CA2712069 C	20140422	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2712069 C	20290116	PEXP		Calculated Patent Term Expiry	
EP2250341 A1	20101117	LSPB	+	published / reissued	
EP2250341 A1	20101117	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20100831
EP2250341 A4	20171004	LSES	+RA4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED (CORRECTED)	EFFECTIVE DATE : 20170831
EP2250341 A4	20190109	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20180330
US2009194293 AA	20090806	LSPB	+	published / reissued	
US2009194293 AA	20100714	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2011042097 AA	20110224	LSPB	+	published / reissued	
US2011042097 AA	20130320	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US7766085 BB	20100803	LSGT	+	granted / extensions (spc, cpc, pte)	
US7766085 BB	20080416	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MARATHON OIL COMPANY, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:STEPHENSON, PEARL E.; HOLMES, WILLIAM D.; REEL/FRAME:020811/0071 EFFECTIVE DATE : 20080306
US7766085 BB	20100714	LSGT	PAT1	Patented Case	
US7766085 BB	20140128	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7766085 BB	20180319	LSFE	FEPP	FEE PAYMENT PROCEDURE	TEXT : MAINTENANCE FEE REMINDER MAILED (ORIGINAL EVENT CODE: REM.)
US7766085 BB	20180731	LSFE	FEPP	FEE PAYMENT PROCEDURE	TEXT : 7.5 YR SURCHARGE - LATE PMT W/IN 6 MO, LARGE ENTITY

US7766085 BB	20180731	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US7766085 BB	20180813	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PCS FERGUSON, INC., COLORADO OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:MARATHON OIL COMPANY; REEL/FRAME:046627/0562 EFFECTIVE DATE : 20180808
US7766085 BB	20191106	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : JPMORGAN CHASE BANK, N.A., NEW YORK OLDPARTY : SECURITY AGREEMENT; ASSIGNORS:APERGY ESP SYSTEMS, LLC; APERGY BMCS ACQUISITION CORP.; PCS FERGUSON, INC.; AND OTHERS; REEL/FRAME:050941/0695 EFFECTIVE DATE : 20191101
US7766085 BB	20280326	PEXP		Calculated Patent Term Expiry (PTA 51 days)	
US8413726 BB	20130409	LSGT	+	granted / extensions (spc, cpc, pte)	
US8413726 BB	20101104	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MARATHON OIL COMPANY, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:STEPHENSON, PEARL E; HOLMES, WILLIAM D; POHLER, STEVEN A; SIGNING DATES FROM 20101004 TO 20101005; REEL/FRAME:025309/0877
US8413726 BB	20130320	LSGT	PAT1	Patented Case	
US8413726 BB	20160926	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US8413726 BB	20180813	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PCS FERGUSON, INC., COLORADO OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:MARATHON OIL COMPANY; REEL/FRAME:046627/0562 EFFECTIVE DATE : 20180808
US8413726 BB	20191106	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : JPMORGAN CHASE BANK, N.A., NEW YORK OLDPARTY : SECURITY AGREEMENT; ASSIGNORS:APERGY ESP SYSTEMS, LLC; APERGY BMCS ACQUISITION CORP.; PCS FERGUSON, INC.; AND OTHERS; REEL/FRAME:050941/0695 EFFECTIVE DATE : 20191101
US8413726 BB	20310616	PEXP		Calculated Patent Term Expiry (PTA 317 days)	
WO09099744 A1	20090813	LSPB	+	published / reissued	
WO09099744 A1	20100708	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2009210651 COUNTRY OF REF DOCUMENT : AU
WO09099744 A1	20100713	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2712069 COUNTRY OF REF DOCUMENT : CA
WO09099744 A1	20100729	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2009210651 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20090116 KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO09099744 A1	20100805	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE

WO09099744 A1	20100824	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2009709171 COUNTRY OF REF DOCUMENT : EP
WO12018772 A1	20120209	LSPB	+	published / reissued	
WO12018772 A1	20130204	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO12018772 A1	20130828	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 11815161 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

Title: CONNECTABLE ROD SYSTEM FOR DRIVING DOWNHOLE PUMPS FOR OIL FIELD INSTALLATIONS

Abstract: Improved sucker rod joints for down hole petroleum pumping applications are provided within the form factor of standard API sucker rods, such that existing inventory in suitable condition is fully usable in more demanding applications. The pin ends are selected or processed such as to provide preselected axial distance between a flat pin end and at least one reference surface, such as a threaded region or reference shoulder or both. The coupler is dimensioned such that the pin ends are in abutment either with each other or with opposite sides of an intervening torque washer in the central region, when the connection is made to a selected level of thread engagement. Furthermore, the engagement is such as to put the pin ends in compression and the coextensive length of coupler in tension. This increases frictional restraints and locks the elements together to resist fatigue failure upon cycling and to insure together with an anaerobic adhesive sealant, against back threading. This arrangement enables standard quality sucker rods to be employed in a configuration which is mechanically secure and highly resistant to tensile, bending and torsional forces, thus assuring a greater strength at the joint than in the rod itself, and resisting the effects of material fatigue arising from long term and stressful cycling operations.

Classifications:

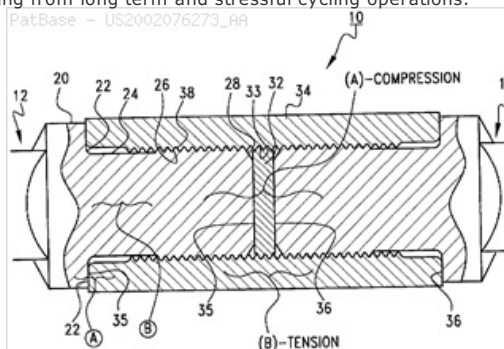
International (IPC 8-9): B23P19/04 E21B17/02 E21B17/042
E21B17/10 E21B19/06 F16B37/14 F16B7/18 (Advanced/Invention);
B23P19/04 E21B17/00 E21B17/02 E21B19/00 F16B37/00
F16B7/18 (Core/Invention)

International (IPC 1-7): B21D39/00 B23P19/04 B25G3/00
E21B17/02 F16B1/00 F16D1/00 F16G11/00 F16L7/00

CPC: Y10T403/5733 Y10T403/67 Y10T403/68 Y10T29/49821
Y10T29/49874 Y10T29/49881 Y10T29/53687 Y10T403/27
Y10T403/32909 Y10T403/457 Y10T29/53665 Y10T403/5726
F16B37/145 F16B7/182 E21B17/0426

European: E21B17/042P F16B37/14S F16B7/18B

US: 166/241.2 166/241.4 166/242.6 285/123.1 285/333 285/343
285/66 29/236 29/24 29/240 29/240S 29/426.4 29/426.400P 29/452
29/456 29/456S 294/91 403/156 403/227 403/304 403/305 403/342
403/343 403/41



Family:

Publication number	Publication date	Application number	Application date
CA2432501 AA	20041216	CA20032432501	20030616
CA2432501 C	20110614	CA20032432501	20030616
US2002076273 AA	20020620	US20010961391	20010925
US2004231127 AA	20041125	US20030357220	20030204
US2006273601 AA	20061207	US20060484727	20060712
US6942254 BB	20050913	US20030357220	20030204
US7108063 BB	20060919	US20010961391	20010925
US7596847 BB	20091006	US20060484727	20060712

Priority:

US20000235186P 20000925 US20010961391 20010925 US20020354880P 20020205
US20030357220 20030204 CA20032432501 20030616 US20060484727 20060712

Probable Assignee: CARSTENSEN KENNETH J

Assignee(s): (std): CARSTENSEN KENNETH J

Assignee(s): CARTSESEN KENNETH J

Inventor(s): (std): CARSTENSEN KENNETH J ; CARTSESEN KENNETH J

Inventor(s): KENNETH J CARSTENSEN ; CARSTENSEN KENNETH

Agent(s): MACRAE AND CO; JONES TULLAR AND COOPER PC; BOGUCKI RAYMOND A; RAYMOND A

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA2432501 AA	20041216	LSPB	+	published / reissued	
CA2432501 AA	20080403	LSSES	+EEER	EXAMINATION REQUEST	
CA2432501 C	20110614	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2432501 C	20230616	PEXP		Calculated Patent Term Expiry	
US2002076273 AA	20020620	LSPB	+	published / reissued	
US2002076273 AA	20060830	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2004231127 AA	20041125	LSPB	+	published / reissued	
US2004231127 AA	20050824	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2006273601 AA	20061207	LSPB	+	published / reissued	
US2006273601 AA	20090916	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US6942254 BB	20050913	LSGT	+	granted / extensions (spc, cpc, pte)	

US6942254 BB	20050824	LSGT	PAT1	Patented Case	
US6942254 BB	20090113	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6942254 BB	20121221	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6942254 BB	20170307	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6942254 BB	20230301	PEXP		Calculated Patent Term Expiry (PTA 25 days)	
US7108063 BB	20060919	LSGT	+	granted / extensions (spc, cpc, pte)	
US7108063 BB	20060830	LSGT	PAT1	Patented Case	
US7108063 BB	20100319	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7108063 BB	20140116	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US7108063 BB	20180306	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US7108063 BB	20210925	PEXP		Calculated Patent Term Expiry (a terminal disclaimer has been filed)	
US7596847 BB	20091006	LSGT	+	granted / extensions (spc, cpc, pte)	
US7596847 BB	20090916	LSGT	PAT1	Patented Case	
US7596847 BB	20121221	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7596847 BB	20170329	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US7596847 BB	20260712	PEXP		Calculated Patent Term Expiry	

Title: SYSTEMS AND METHODS FOR CONTROLLING DOWNHOLE LINEAR MOTORS

Abstract: Systems and methods for detecting and arresting free fall of a mover in a linear motor for an ESP. In one embodiment, the motor of the ESP is initially automatically commutated, but is limited by the back pressure of the fluid being pumped. The drive system of the ESP monitors the speed of the mover in the linear motor and determines whether the speed of the mover exceeds a threshold speed (e.g., by determining whether time differentials between transitions in position sensor signals fall below a threshold value). If the speed of the mover does not exceed the threshold speed, the motor is deemed not to be in free fall. If the speed of the mover exceeds the threshold speed, the motor is considered to be in free fall, so automatic commutation of the motor is disabled and the mover is advanced through its stroke at a predetermined speed.

Classifications:

International (IPC 8-9): E21B43/12 E21B47/00 F04B17/03

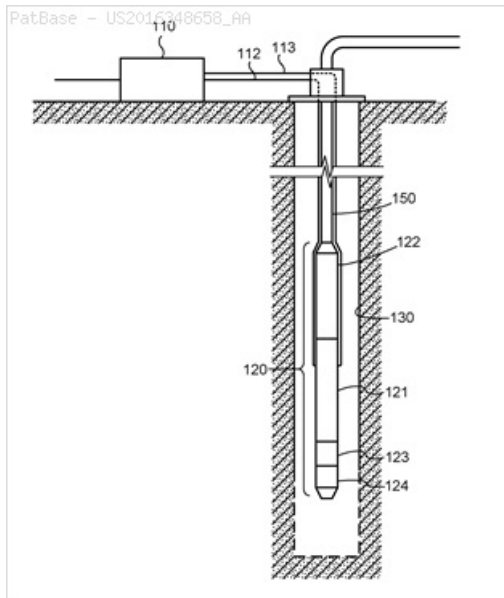
F04B47/02 F04B47/06 F04B49/10 F04B49/20

H02P6/00 (Advanced/Invention)

CPC: F04B17/03 F04B47/06 F04B2203/0409 E21B43/128 F04B47/02

F04B49/103 F04B49/20 H02P6/006

US: 1/1 417/45

**Family:**

Publication number	Publication date	Application number	Application date
AR104730 AA	20170809	AR2016P101493	20160523
US2016348658 AA	20161201	US20160145395	20160503
US10443362 BB	20191015	US20160145395	20160503

Priority:

US20150166268P 20150526

US20160145395 20160503

Probable Assignee:

BAKER HUGHES INC

Assignee(s): (std):

BAKER HUGHES INC

Inventor(s): (std):

MACKAY EVAN G

Agent(s):

SPRINKLE IP LAW GROUP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AR104730 AA	20170809	LSPB	+	published / reissued	
US10443362 BB	20191015	LSGT	+	granted / extensions (spc, cpc, pte)	
US10443362 BB	20160503	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BAKER HUGHES INCORPORATED, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:MACKAY, EVAN G.; REEL/FRAME:038447/0421 EFFECTIVE DATE : 20160421
US10443362 BB	20370907	PEXP		Calculated Patent Term Expiry (PTA 492 days)	
US2016348658 AA	20161201	LSPB	+	published / reissued	
US2016348658 AA	20180525	LSES	NFA1	Non Final Action Mailed	
US2016348658 AA	20181030	LSES	NFA1	Non Final Action Mailed	
US2016348658 AA	20190611	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	

US2016348658 AA	20190911	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
US2016348658 AA	20190925	LSGT	PAT1	Patented Case	
US2016348658 AA	20190925	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE

Title: METHOD AND ARRANGEMENT FOR PREVENTING HYDROCARBON BASED DEPOSITIONS PROCEDE ET AGENCEMENT POUR EMPECHER LES DEPOTS A BASE D'HYDROCARBURES

Abstract: Method for preventing hydrocarbon based deposition in a multiphase fluid mixture flowing in a pipe section, said mixture being susceptible to the formation of hydrate and wax under given thermodynamic conditions, comprising: - flowing the multiphase fluid mixture (13) in a pipe section (21) having a measurement section (22); - irradiating the multiphase fluid mixture (13) flowing into the measurement section (22) with a radiation having a spectrum comprising at least three distinct energy levels; - measuring (S11) the attenuation of the radiation transmitted through the measurement section (22) of the multiphase fluid mixture (13); - estimating a solution triangle and an operating point (OP) based on said attenuation measurements, said solution triangle comprising an oil apex (AP O) and a water apex (AP W); - measuring a differential pressure of the multiphase fluid mixture in the measurement section (22); - repeating over time the attenuation and pressure measurement steps, and solution triangle and operating point estimation step; wherein the method for preventing hydrocarbon based deposition further comprises: - detecting over time a shift of the operating point towards said oil or water apex in dependence on the hydrocarbon based deposition; - detecting over time whether a variation of the differential pressure is outside a differential pressure range, respectively; and - initiating at least one prevention measure (S13, S16) when detecting a correlation between said shift of the operating point (OP) towards oil or water apex and the differential pressure being outside the differential pressure range (S12, S14, S17).

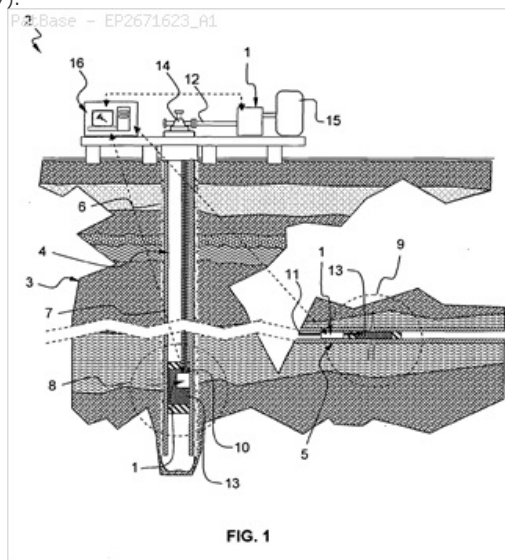
Classifications:

International (IPC 8-9): B01D53/00 E21B43/22 E21B47/10

E21B49/08 F17D1/16 F17D3/18 G01F1/34

G01N23/18 (Advanced/Invention)

CPC: G01F1/66 G01F1/74 G01F1/36 E21B47/1015



Family:

Publication number	Publication date	Application number	Application date
CA2818065 AA	20131208	CA20132818065	20130606
EP2671623 A1	20131211	EP20120290194	20120608
RU2013126111 A	20141220	RU20130126111	20130606

Priority:

EP20120290194 20120608 CA20132818065 20130606

Probable Assignee: SCHLUMBERGER CA LTD

Assignee(s): (std): PRAD RES AND DEV LTD ; SCHLUMBERGER CA LTD ; SCHLUMBERGER HOLDINGS LTD SHL ; SCHLUMBERGER SERVICES PETROL ; SCHLUMBERGER TECHNOLOGY STBV BV ; SCHLUMBERGER TECHNOLOGY BV

Assignee(s): ZHDANEEV OLEG ; SCHLUMBERGER HOLDINGS SHL LTD ; KORKIN ROMAN ; ZAKHAROV LEV ; SCHLUMBERGER CANADA LTD ; SERVICES PETROLIERS SCHLUMBERGER SPS ; PRAD RESEARCH AND DEVELOPMENT LTD

Inventor(s): (std): KORKIN ROMAN ; ZAKHAROV LEV ; ZHDANEEV OLEG

Agent(s): SMART AND BIGGAR; RZANIAK MARTIN

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
CA2818065 AA	20131208	LSPB	+	published / reissued	
CA2818065 AA	20160720	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20160608
EP2671623 A1	20131211	LSPB	+	published / reissued	
EP2671623 A1	20140723	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20140611
EP2671623 A1	20180103	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20171205

EP2671623 A1	20180110	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20171212
EP2671623 A1	20181010	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20180424
RU2013126111 A	20141220	LSPB	+	published / reissued	
RU2013126111 A	20160810	LSWD	-FA93	ACKNOWLEDGEMENT OF APPLICATION WITHDRAWN (NO REQUEST FOR EXAMINATION)	EFFECTIVE DATE : 20160607

Title: DOWNHOLE GAS/WATER SEPARATION AND RE-INJECTION

Abstract: It is common in oil extraction operations to reinject produced gas and/or water back into hydrocarbon bearing formations in order to maintain formation pressure. Conventional production facilities normally flow all formation fluids to the surface and subsequently reinject the required fluids back into the formation, which can be extremely inefficient due to the high power input required to overcome the large pressure differential between the surface and formation level. Accordingly, there is disclosed a production fluid handling method and apparatus for separating downhole at least gaseous and liquid components (16, 18, 20) of fluid produced from a hydrocarbon bearing formation (12), and reinjecting at least a portion of the gaseous and liquid components (16, 18, 20), as required, back into the formation (12). Re-injection also occurs downhole to increase the overall efficiency of a separation/re-injection operation as the re-injection pressure differential is minimized.

Classifications:

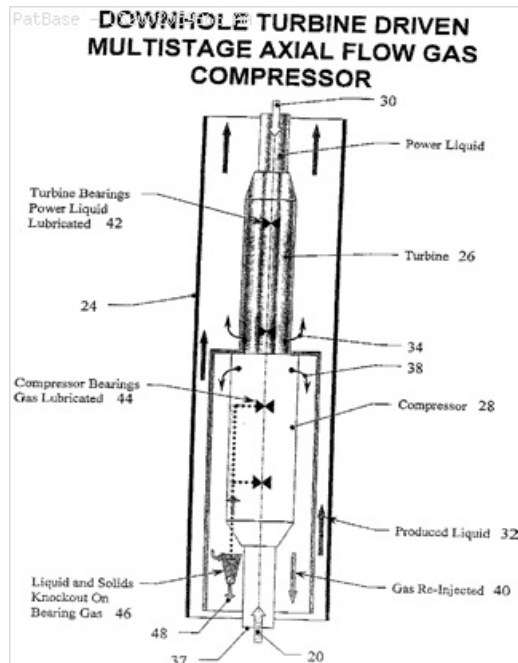
International (IPC 8-9): E21B43/38 (Advanced/Invention);
E21B43/34 (Core/Invention)

International (IPC 1-7): B01D19/00 E21B E21B43/00 E21B43/38
E21B43/40 E21B43/49

CPC: E21B43/385 F04D25/0686

European: E21B43/38B F04D25/06S

US: 166/105.5 166/265 166/306 210/540 210/802 95/258 95/258P
95/261 95/261S 96/208 96/208S

**Family:**

Publication number	Publication date	Application number	Application date
GB200022411 A0	20001101	GB20000022411	20000913
GB200122210 A0	20011107	GB20010022210	20010913
GB2367576 A1	20020410	GB20010022210	20010913
GB2367576 B2	20041027	GB20010022210	20010913
NO20014434 A	20020314	NO20010004434	20010912
NO20014434 A0	20010912	NO20010004434	20010912
NO20014434 L	20020314	NO20010004434	20010912
NO331401 B1	20111219	NO20010004434	20010912
US2002059866 AA	20020523	US20010951596	20010913
US6691781 BB	20040217	US20010951596	20010913

Priority:

GB20000022411 20000913

Probable Assignee: WEIR PUMPS LTD

Assignee(s): (std): GRAMME PER EIVIND ; GRANT ALEXANDER ANGUS ; KJOLBERG SVEN ARNE ; NORSK HYDRO AS ; NORSK HYDRO ASA ; OLSEN BJARNE ; SONDTVEDT TERJE ; ALMDAHL PER ; WEIR PUMPS LTD

Assignee(s): WEIR PUMPS LIMITED ; ALPHA BIDCO LTD ; CLYDE PUMPS LTD ; CLYDE UNION LTD ; WEIR ENGINEERING SERVICES LTD

Inventor(s): (std): GRANT ALEXANDER ANGUS ; ALMDAHL PER ; GRAMME PER EIVIND ; KJOLBERG SVEN ARNE ; OLSEN BJARNE ; SONDTVEDT TERJE ; KJOLBERG SVEN ARNE ; SONDTVEDT TERJE ; SONDTVEDT TERJE

Inventor(s): TERJE SONDTVEDT ; SVEN ARNE KJOLBERG ; PER EIVIND GRAMME ; PER ALMDAHL ; ALEXANDER ANGUS GRANT ; BJARNE OLSEN

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
GB200022411 A0	20020109	LSWD	-AT	APPLICATIONS TERMINATED BEFORE PUBLICATION UNDER SECTION 16(1)	
GB2367576 A1	20020410	LSPB	+	published / reissued	
GB2367576 B2	20041027	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2367576 B2	20210913	PEXP		Calculated Patent Term Expiry	

NO20014434 A	20020314	LSPB	+	published / reissued	
NO331401 B1	20111219	LSGT	+	granted / extensions (spc, cpc, pte)	
NO331401 B1	20190930	LSAS	CHAD	CHANGE OF THE OWNER'S NAME OR ADDRESS (PAR. 44 PATENT LAW, PAR. PATENTFORSKRIFTEN)	PARTYTYPE : OWNER OWNER : NORSK HYDRO ASA, GB
NO331401 B1	20210912	PEXP		Calculated Patent Term Expiry	
US2002059866 AA	20020523	LSPB	+	published / reissued	
US2002059866 AA	20040129	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US6691781 BB	20040217	LSGT	+	granted / extensions (spc, cpc, pte)	
US6691781 BB	20011212	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEIR PUMPS LIMITED, UNITED KINGDOM OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:GRANT, ALEXANDER ANGUS; ALMDSHL, PER; GRAMME, PER EIVIND; AND OTHERS; REEL/FRAME:012233/0470 EFFECTIVE DATE : 20011207
US6691781 BB	20011212	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : NORSK HYDRO ASA, NORWAY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:GRANT, ALEXANDER ANGUS; ALMDSHL, PER; GRAMME, PER EIVIND; AND OTHERS; REEL/FRAME:012233/0470 EFFECTIVE DATE : 20011207
US6691781 BB	20040129	LSGT	PAT1	Patented Case	
US6691781 BB	20070720	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6691781 BB	20110721	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6691781 BB	20150401	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEIR ENGINEERING SERVICES LIMITED, UNITED KINGDOM OLDPARTY : CHANGE OF NAME; ASSIGNOR:WEIR PUMP LIMITED; REEL/FRAME:035310/0121 EFFECTIVE DATE : 20070510
US6691781 BB	20150817	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6691781 BB	20191029	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEIR ENGINEERING SERVICES LIMITED, UNITED KINGDOM OLDPARTY : CORRECTIVE ASSIGNMENT TO CORRECT THE CHANGE OF NAME PREVIOUSLY RECORDED AT REEL: 035310 FRAME: 0121. ASSIGNOR(S) HEREBY CONFIRMS THE ASSIGNMENT; ASSIGNOR:WEIR PUMP LIMITED; REEL/FRAME:050849/0352 EFFECTIVE DATE : 20070510
US6691781 BB	20191031	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEIR PUMPS LIMITED, UNITED KINGDOM OLDPARTY : CORRECTIVE ASSIGNMENT TO CORRECT THE 6884031; 6691781; 6601651 PREVIOUSLY RECORDED ON REEL 050849 FRAME 0352. ASSIGNOR(S) HEREBY CONFIRMS THE CHANGE OF NAME; ASSIGNOR:WEIR ENGINEERING SERVICES LIMITED; REEL/FRAME:051283/0405 EFFECTIVE DATE : 20170510
US6691781 BB	20191217	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ALPHA BIDCO LIMITED, SCOTLAND OLDPARTY : ASSIGNMENT OF

ASSIGNORS INTEREST;
ASSIGNOR:WEIR PUMPS
LIMITED;
REEL/FRAME:051300/0273
EFFECTIVE DATE : 20070508

US6691781 BB 20191218 LSAS AS ASSIGNMENT

PARTYTYPE : OWNER
OWNER : CLYDE PUMPS
LIMITED, SCOTLAND
OLDPARTY : CHANGE OF
NAME; ASSIGNOR:ALPHA
BIDCO LIMITED;
REEL/FRAME:051321/0582
EFFECTIVE DATE : 20070507

US6691781 BB 20191220 LSAS AS ASSIGNMENT

PARTYTYPE : OWNER
OWNER : CLYDE UNION
LIMITED, SCOTLAND
OLDPARTY : CHANGE OF
NAME; ASSIGNOR:CLYDE
PUMPS LIMITED;
REEL/FRAME:051346/0362
EFFECTIVE DATE : 20081113

US6691781 BB 20210913 PEXP Calculated Patent
Term Expiry

Title: SYSTEMS AND METHODS FOR SENSING PARAMETERS IN AN ESP USING MULTIPLE MEMS SENSORS

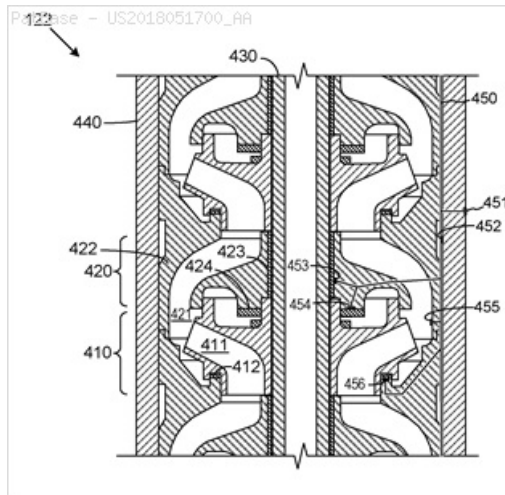
Abstract: Systems and methods for distributed downhole sensing of operating parameters in an ESP utilizing MEMS sensors. In one embodiment, an ESP is installed in a well. The ESP has a pump, a gas separator, a seal section and a motor. Multiple MEMS sensors are positioned within one or more of the ESP components. Each of the MEMS sensors has a sensor component and on-board circuitry that are formed on a substrate. Each MEMS sensor's sensor component senses a corresponding operating parameter and provides sensed information to the on-board circuitry, which processes the received sensor signal as needed and provides the processed information at an output of the MEMS sensor. The outputs of the different MEMS sensors can be networked together, and the sensor information for the different operating parameters can be communicated to equipment at the surface of the well via a common electrical line.

Classifications:

International (IPC 8-9): E21B43/12 E21B43/38 F04B47/06
F04B51/00 F04D1/06 F04D13/06 F04D13/10 F04D15/00 F04D29/22
F04D29/42 F04D29/44 F04D7/02 (Advanced/Invention)

CPC: F04D15/0088 F04D7/02 F04D13/10 E21B43/38 F04D29/22
F04D29/44 F04D29/42 E21B43/128 F04D13/0693 E21B47/0007
F04D1/06 F05D2270/334

US: 1/1 415/1



Family:

Publication number	Publication date	Application number	Application date
US2018051700 AA	20180222	US20160239721	20160817
WO18034939 A1	20180222	WO2017US46275	20170810

Priority:

US20160239721 20160817

Probable Assignee: BAKER HUGHES INC

Assignee(s): (std): BAKER HUGHES A GE CO LLC ; BAKER HUGHES INC ; FORSBERG MICHAEL A ; SHETH KETANKUMAR

Inventor(s): (std): FORSBERG MICHAEL A ; SHETH KETANKUMAR

Agent(s): HENDRYX THOMAS 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 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
US2018051700 AA	20180222	LSPB	+	published / reissued	
US2018051700 AA	20160817	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BAKER HUGHES INCORPORATED, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:SHETH, KETANKUMAR; FORSBERG, MICHAEL A.; REEL/FRAME:039470/0487 EFFECTIVE DATE : 20160816
US2018051700 AA	20200123	LSSE	NFA1	Non Final Action Mailed	
WO18034939 A1	20180222	LSPB	+	published / reissued	
WO18034939 A1	20190219	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO18034939 A1	20190911	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 17841894 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

Title: SEALING A BORE OR OPEN ANNULUS

Abstract: Disclosed is a method for use in restricting or sealing a bore. A tubular is expanded in the bore to cause the tubular to split and be extended towards a wall of the bore. A straddle is located within the tubular so as to extend across the region of the tubular which has been split, and expanded to seal the split in the tubular. Also disclosed is apparatus comprising one or more expansion tools and a straddle, for use in sealing or restricting a bore. The apparatus may be used in conjunction with a tubular as disclosed herein, having one or more weak zones adapted to preferentially split under the action of an expansion tool.

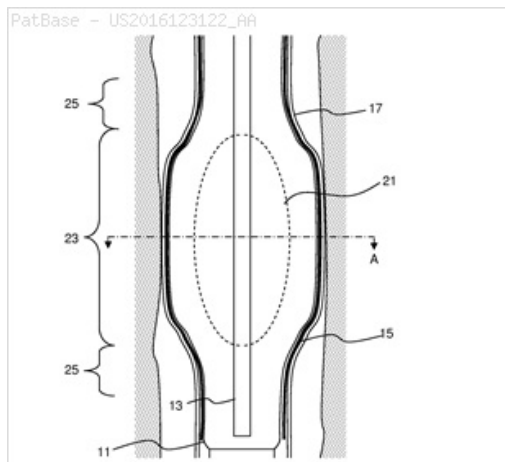
Classifications:

International (IPC 8-9): E21B17/00 E21B29/00 E21B29/02

E21B43/10 (Advanced/Invention)

CPC: E21B29/00 E21B43/105 E21B43/108 E21B17/00 E21B29/02

US: 166/195 166/242.1 166/384



Family:

Publication number	Publication date	Application number	Application date
DK178819 B1	20170227	DK20150070085	20150216
DK201570085 A1	20150223	DK20150070085	20150216
EP3011131 A1	20160427	EP20140731568	20140609
GB201310742 A0	20130731	GB20130010742	20130617
US2016123122 AA	20160505	US20140898872	20140609
WO14202419 A1	20141224	WO2014EP61940	20140609

Priority:

GB20130010742 20130617 WO2014EP61940 20140609

Probable Assignee: MAERSK OLIE OG GAS A S

Assignee(s): (std): MAERSK OLIE AND GAS ; MAERSK OLIE OG GAS AS

Assignee(s): MAERSK OLIE OG GAS A S

Inventor(s): (std): VAN DONGEN HANS JOHANNES CORNELIUS MARIA ; KOGSBOLL HANS HENRIK ; DONGEN HANS JOHANNES CORNELIUS MARIA VAN

Agent(s): DOCHERTY ANDREW JOHN; DOCHERTY ANDREW

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
DK178819 B1	20170227	LSGT	+	granted / extensions (spc, cpc, pte)	
DK178819 B1	20350216	PEXP		Calculated Patent Term Expiry	
DK201570085 A1	20150223	LSPB	+	published / reissued	
EP3011131 A1	20160427	LSPB	+	published / reissued	
EP3011131 A1	20160427	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20151215
EP3011131 A1	20181003	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20180904
EP3011131 A1	20191127	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20191031
GB201310742 A0	20141210	LSWD	-AT	APPLICATIONS TERMINATED	

					BEFORE PUBLICATION UNDER SECTION 16(1)
US2016123122 AA	20160505	LSPB	+	published / reissued	
US2016123122 AA	20160321	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MAERSK OLIE OG GAS A/S, DENMARK OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:VAN DONGEN, HANS JOHANNES CORNELIUS MARIA; KOGSBOLL, HANS-HENRIK; SIGNING DATES FROM 20160219 TO 20160225; REEL/FRA:038053/0630
US2016123122 AA	20170808	LSES	NFA1	Non Final Action Mailed	
US2016123122 AA	20181031	LSES	NFA1	Non Final Action Mailed	
US2016123122 AA	20190916	LSES	ADV1	Advisory Action Mailed	
US2016123122 AA	20191018	LSES	NFA1	Non Final Action Mailed	
WO14202419 A1	20141224	LSPB	+	published / reissued	
WO14202419 A1	20151215	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2014731568 COUNTRY OF REF DOCUMENT : EP
WO14202419 A1	20151216	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 14898872 COUNTRY OF REF DOCUMENT : US
WO14202419 A1	20151217	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE

Title: SYSTEM AND METHOD FOR DIRECT DRIVE PUMP

Abstract: A method and a system are provided for a direct drive pump for use in pumping fluids and/or quasi-fluids from one location to another. In the direct drive pump, bearings or bushings are optimally spaced, taking into account various operational considerations such as load, path, pressure, and tension. Further, bearings or bushings are coupled to the drive string, thus assisting in more efficient installation and de-installation. The bearings or bushings are not fixed to the production casing or drive tube. In embodiments, the drive tube can be vented, and the production fluid can be used as a lubricant for the system bearings.

Classifications:

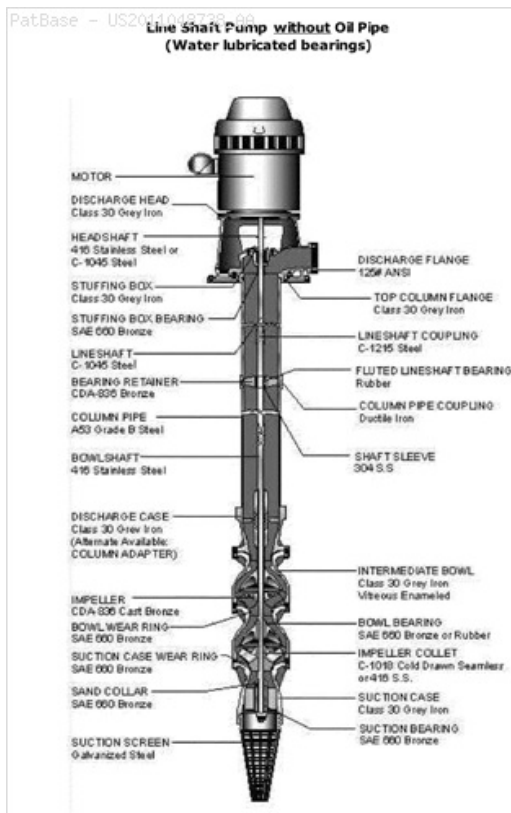
International (IPC 8-9): E21B17/10 E21B19/16 E21B23/00
E21B43/00 E21B43/12 E21B43/126 F04C2/107 F04D13/06
F04D13/10 F04D29/043 F04D29/044 F04D29/046 F04D29/047
F04D29/62 (Advanced/Invention)

International (IPC 1-7): E21B43/12 F04D13/06 F04D13/10
F04D29/62

CPC: E21B19/16 F04D29/043 F04D29/044 F04D29/046 E21B17/1071
E21B43/126 F04D13/10 F04D29/628

European: E21B17/10S E21B43/12B9 F04D13/10 F04D29/046
F04D29/62P

US: 1/1 166/105 166/105S 166/380 166/66.4 166/66.400S 415/1
415/122.1 417/360 417/423.3 417/423.300S 417/62

**Family:**

Publication number	Publication date	Application number	Application date
AR079097 AA	20111228	AR2010P102959	20100812
AU2010282441 AA	20110217	AU20100282441	20100812
AU2010282441 AA	20120209	AU20100282441	20100812
AU2010282441 BB	20160602	AU20100282441	20100812
BR112012003240 A2	20170321	BR20121103240	20100812
CA2770853 AA	20110217	CA20102770853	20100812
CA2770853 C	20171212	CA20102770853	20100812
CN102741498 A	20121017	CN201080034115	20100812
CN102741498 B	20160504	CN201080034115	20100812
DE602010045609 D1	20171116	DE201060045609T	20100812
EP2464820 A2	20120620	EP20100808786	20100812
EP2464820 A4	20151104	EP20100808786	20100812
EP2464820 B1	20170927	EP20100808786	20100812
GC3047 A	20140522	GC2010P016503	20100814
MX2012001735 A1	20120329	MX20120001735	20100812
PE01742011 A1	20110415	PE20100000514	20100812
PE20110174 A1	20110415	PE20100000514	20100812
RU2012106458 A	20130827	RU20120106458	20100812
RU2554380 C2	20150627	RU20120106458	20100812
US2011048738 AA	20110303	US20090552806	20090902
US2013112431 AA	20130509	US20120726589	20121225
US2013330211 AA	20131212	US20130967758	20130815
US8336632 BB	20121225	US20090552806	20090902
US9470075 BB	20161018	US20130967758	20130815
WO11019958 A2	20110217	WO2010US45377	20100812
WO11019958 A3	20120301	WO2010US45377	20100812

Priority:

US20090233488P 20090812	US20090233826P 20090813	US20090552806 20090902
EP20100808786 20100812	WO2010US45377 20100812	US20120726589 20121225
US20130967758 20130815		

Probable Assignee: HARRIER TECHNOLOGIES INC

Assignee(s): (std): HARRIER TECHNOLOGIES INC ; MORROW WILLIAM BRUCE ; WITTEN RAYMOND ; HARRIER TECH ; HARRIER TECH INC

Assignee(s): HARRIER TECHNOLOGIES ; HARRIER TECHNOLOGIES INC GREENWICH

Inventor(s): (std): MORROW WILLIAM BRUCE ; WITTEN RAYMOND ; WILLIAM BRUCE MORROW ; RAYMOND WITTEN ; BRUCE MORROW WILLIAM

Inventor(s): MORROW WILLIAM BRUCE SANTA BARBARA ; WITTEN RAYMOND OWASSO

Agent(s): ADAMS PLUCK; RIDOUT AND MAYBEE LLP; CLOUGHLEY PETER ANDREW; MILLER STURT KENYON; SULEIMAN I AL AMMAR LAW OFFICE; KENYON AND KENYON LLP; CARTER LEDYARD AND MILBURN LLP; KEITH D; LECOMTE LINDA

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
AR079097 AA	20111228	LSPB	+	published / reissued	
AR079097 AA	20141203	LSWD	-FA	ABANDONMENT OR WITHDRAWAL	
AU2010282441 AA	20110217	LSPB	+	published / reissued	
AU2010282441 AA	20120209	LSPB	+	published / reissued	
AU2010282441 BB	20160602	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2010282441 BB	20160929	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2010282441 BB	20300812	PEXP		Calculated Patent Term Expiry	
BR112012003240 A2	20170613	LSFE	-B08F	APPLICATION FEES: DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW	
BR112012003240 A2	20170725	LSFE	+B08G	APPLICATION FEES: RESTORATION	
BR112012003240 A2	20190226	LSRV	B11E	DISMISSAL ACC. ART. 34 OF IPL - REQUIREMENTS FOR EXAMINATION INCOMPLETE	
CA2770853 AA	20110217	LSPB	+	published / reissued	
CA2770853 AA	20150723	LSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20150703
CA2770853 C	20171212	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2770853 C	20300812	PEXP		Calculated Patent Term Expiry	
CN102741498 A	20121017	LSPB	+	published / reissued	
CN102741498 A	20121017	LSPB	+C06	PUBLICATION	
CN102741498 B	20160504	LSGT	+	granted / extensions (spc, cpc, pte)	
CN102741498 B	20160504	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN102741498 B	20300812	PEXP		Calculated Patent Term Expiry	
EP2464820 A2	20120620	LSPB	+	published / reissued	
EP2464820 A2	20120620	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20120321
EP2464820 A4	20151104	LSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	EFFECTIVE DATE : 20151002
EP2464820 A4	20161116	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20161018

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EP2464820 A4	20170329	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20170302
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EP2464820 B1	20180212	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : LT REF LEGAL EVENT CODE : MG4D
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EP2464820 B1	20180228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BG NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20171227
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EP2464820 B1	20180430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : RO NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20170927
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EP2464820 B1	20180531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20170927
EP2464820 B1	20180531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : EE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20170927
EP2464820 B1	20180628	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 602010045609 COUNTRY OF REF DOCUMENT : DE
EP2464820 B1	20180712	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 9
EP2464820 B1	20180731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20170927
EP2464820 B1	20180831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20170927
EP2464820 B1	20180905	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20180628
EP2464820 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20180712 YEAR OF FEE PAYMENT : 9
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EP2464820 B1	20181130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20180808 YEAR OF FEE PAYMENT : 9
EP2464820 B1	20190329	LSLE	-PG25	LAPSED IN A CONTRACTING STATE	COUNTRY OF REF DOCUMENT : MC NOTIFICATIONOFLAPSE : LAPSE

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EP2464820 B1	20190430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20180831
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EP2464820 B1	20190731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20180812
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EP2464820 B1	20191231	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20190808 YEAR OF FEE PAYMENT : 10
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EP2464820 B1	20300812	PEXP		Calculated Patent Term Expiry	
GC3047 A	20140522	LSGT	+	granted / extensions (spc, cpc, pte)	
GC3047 A	20300814	PEXP		Calculated Patent Term Expiry	

MX2012001735 A1	20120329	LSPB	+	published / reissued	
MX2012001735 A1	20150401	LSGT	+FG	GRANT OR REGISTRATION	
PE01742011 A1	20110415	LSPB	+	published / reissued	
PE01742011 A1	20150430	LSGT	+FG	GRANT, REGISTRATION	
PE20110174 A1	20110415	LSPB	+	published / reissued	
RU2012106458 A	20130827	LSPB	+	published / reissued	
RU2554380 C2	20150627	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2554380 C2	20300812	PEXP		Calculated Patent Term Expiry	
US2011048738 AA	20110303	LSPB	+	published / reissued	
US2011048738 AA	20121205	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2013112431 AA	20130509	LSPB	+	published / reissued	
US2013112431 AA	20131007	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
US2013330211 AA	20131212	LSPB	+	published / reissued	
US2013330211 AA	20160928	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US8336632 BB	20121225	LSGT	+	granted / extensions (spc, cpc, pte)	
US8336632 BB	20100316	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARRIER TECHNOLOGIES, INC., CONNECTICUT OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:MORROW, WILLIAM BRUCE; WITTEN, RAYMOND; SIGNING DATES FROM 20100223 TO 20100302; REEL/FRAME:024089/0456
US8336632 BB	20121205	LSGT	PAT1	Patented Case	
US8336632 BB	20130924	LSRE	CC	CERTIFICATE OF CORRECTION	
US8336632 BB	20160609	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US8336632 BB	20300217	PEXP		Calculated Patent Term Expiry (PTA 168 days)	
US9470075 BB	20161018	LSGT	+	granted / extensions (spc, cpc, pte)	
US9470075 BB	20130815	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARRIER TECHNOLOGIES, INC., CONNECTICUT OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:MORROW, WILLIAM BRUCE; REEL/FRAME:031018/0819 EFFECTIVE DATE : 20130813
US9470075 BB	20151117	LSSES	NFA1	Non Final Action Mailed	
US9470075 BB	20160928	LSGT	PAT1	Patented Case	
US9470075 BB	20341122	PEXP		Calculated Patent Term Expiry (PTA 464 days)	
WO11019958 A2	20110217	LSPB	+	published / reissued	
WO11019958 A2	20091208	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 201080034115.2 COUNTRY OF REF DOCUMENT : CN

WO11019958 A2	20111222	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2010808786 COUNTRY OF REF DOCUMENT : EP
WO11019958 A2	20120118	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2010282441 COUNTRY OF REF DOCUMENT : AU
WO11019958 A2	20120209	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2010282441 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20100812 KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO11019958 A2	20120209	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : MX/A/2012/001735 COUNTRY OF REF DOCUMENT : MX
WO11019958 A2	20120209	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 12022829 COUNTRY OF REF DOCUMENT : CO
WO11019958 A2	20120210	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2770853 COUNTRY OF REF DOCUMENT : CA
WO11019958 A2	20120213	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO11019958 A2	20120222	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2012106458 COUNTRY OF REF DOCUMENT : RU
WO11019958 A3	20170321	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112012003240 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20120213

Title: SYSTEM FOR INSTALLING AN ELECTRICALLY SUBMERSIBLE PUMP ON A WELL

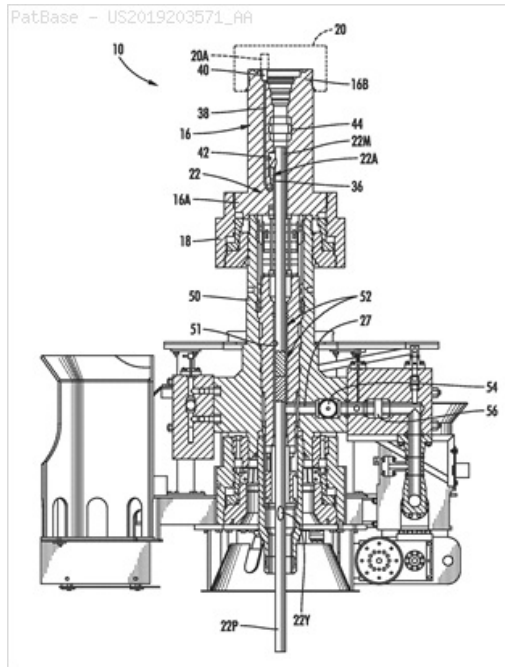
Abstract: Disclosed is a system for installing an ESP on a well. In one example the system comprises a production tree (12, 50) that is operatively coupled to a well (14), an ESP spool (16) that is operatively coupled to the production tree and production tubing (60) that extends into the well. The system also comprises an ESP (22) positioned within an inside diameter of the production tubing (60), wherein the ESP (22) comprises an electric motor (22M) and a pump (22P), the electric motor (22M) being positioned above the pump (22P), and wherein the pump (22P) comprises a fluid inlet (22X) and a fluid outlet (22Y). The system is installed above the existing down hole safety valve, and requires no modification to the existing well's completion equipment.

Classifications:

International (IPC 8-9): E21B33/035 E21B34/02 E21B43/01 E21B43/12 (Advanced/Invention)

International (IPC 1-7): E21B33/035 E21B43/01 E21B43/12

CPC: E21B33/035 E21B43/01 E21B43/128 E21B34/02 E21B43/126



Family:

Publication number	Publication date	Application number	Application date
BR112019000513 A2	20190424	BR20191100513	20160713
EP3485136 A1	20190522	EP20160741505	20160713
US2019203571 AA	20190704	US20160314257	20160713
WO18013095 A1	20180118	WO2016US41970	20160713

Priority:

US20160314257 20160713 WO2016US41970 20160713

Probable Assignee: FMC TECH INC

Assignee(s): (std): FMC TECH INC

Assignee(s): FMC TECHNOLOGIES INC

Inventor(s): (std): HARTLEY HOWARD J ; HOWARD J HARTLEY

Agent(s): ONSAGERS AS; AMERSON J MIKE 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
EP3485136 A1	20190522	LSPB	+	published / reissued	
EP3485136 A1	20190522	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20190211
EP3485136 A1	20191218	LSSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20191113
US2019203571 AA	20190704	LSPB	+	published / reissued	
US2019203571 AA	20181228	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : FMC TECHNOLOGIES, INC., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:HARTLEY, HOWARD J.; REEL/FRAME:047870/0156 EFFECTIVE DATE : 20160712

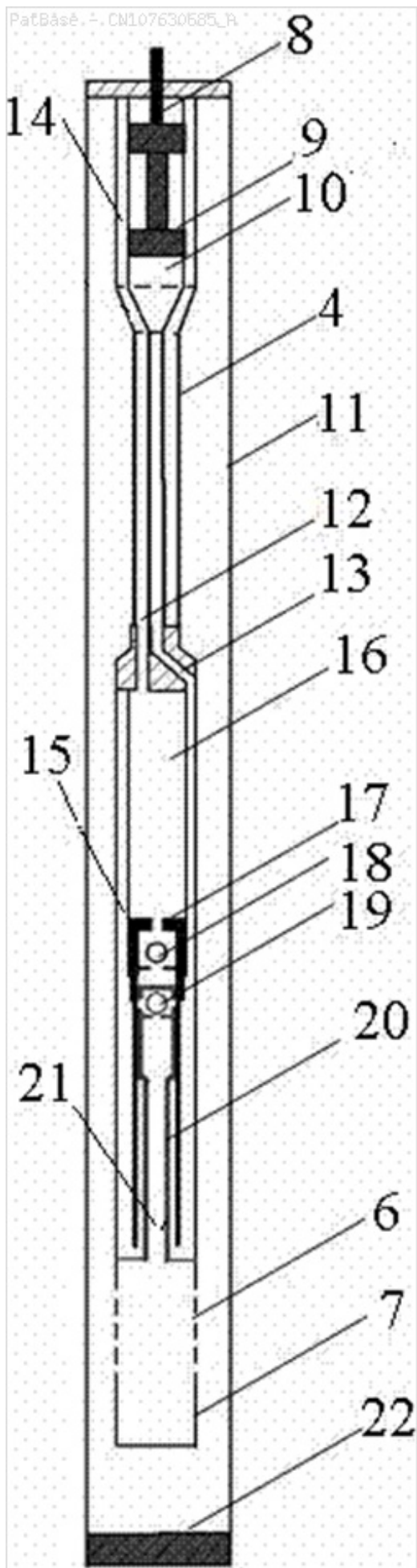
US2019203571 AA	20190411	LSES	NFA1	Non Final Action Mailed	
US2019203571 AA	20191125	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2019203571 AA	20200214	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
WO18013095 A1	20180118	LSPB	+	published / reissued	
WO18013095 A1	20190115	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO18013095 A1	20190222	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2016741505 COUNTRY OF REF DOCUMENT : EP EFFECTIVE DATE : 20190213
WO18013095 A1	20190424	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112019000513 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20190110

Title: PIPE COLUMN AND METHOD FOR RODLESS OIL EXTRACTING OF OIL PUMPING WELL

Abstract: The invention provides a pipe column and method for rodless oil extracting of an oil pumping well. The pipe column comprises a light rod, a hydraulic plunger pump, a concentric double pipe, a double-plunger oil pump, a screen pipe and an oil pipe which are connected in sequence from top to bottom. The upper end of the light rod is connected with a horsehead of a pumping unit. The lower end of the light rod is connected with a piston connecting rod of the hydraulic plunger pump. The hydraulic plunger pump, the concentric double pipe and the double-plunger oil pump communicate with one another to form an inner flow way and an outer flow way. According to the method, the new technology that the beam pumping unit is used as driving equipment to be matched with the hydraulic plunger pump, the concentric double pipe and the double-plunger oil pump to conduct rodless oil extracting is used, pipe rod deviation contradiction in the exploitation process of a directional well and a highly-deviated well in an **artificial lift** mode is fundamentally solved, the frequency of oil well operation is reduced, and the cycle of pump inspection is prolonged; and meanwhile, the problems of high one-time investment cost, complex system structure, low stability and complex operation on site existing in rodless oil extracting through an oil-submerged direct-drive screw pump and an oil-submerged linear motor and water base hydraulic force rodless oil extracting technologies can be effectively solved.

Classifications:

International (IPC 8-9): E21B17/00 E21B43/08 E21B43/12
F04B47/00 F04B53/12 F04B53/14 (Advanced/Invention)



Family:

Publication number	Publication date	Application number	Application date
■ CN107630685 A	20180126	CN201710849917	20170920

Priority:

CN201710849917 20170920

Probable Assignee: PETROCHINA CO LTD**Assignee(s):** (std): PETROCHINA CO LTD**Inventor(s):** (std): GAN QINGMING ; LI DAJIAN ; LIU TAO ; LIU TIANYU ; LU MEI ; NIU CAIYUN ; SHI HAIXIA ; WANG TAIXU ; XIN HONG ; ZHANG YAN ; ZHAO FANGZHEN ; ZHOU ZHIPING**Legal status (INPADOC)**[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
CN107630685 A	20180126	LSPB	+	published / reissued	
CN107630685 A	20180126	LSPB	PB01	PUBLICATION	

Title: SYSTEMS AND METHODS FOR **ARTIFICIAL LIFT** VIA A DOWNHOLE PIEZOELECTRIC PUMP

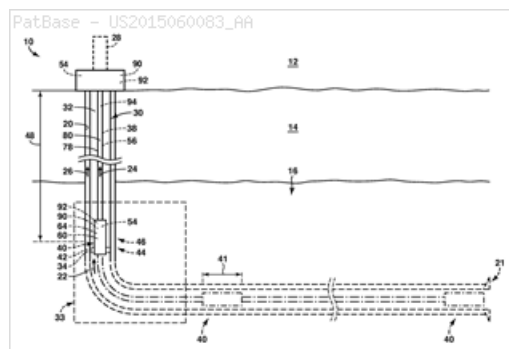
Abstract: Systems and methods for **artificial lift** via a downhole piezoelectric pump are disclosed herein. The methods include methods of removing a wellbore liquid from a wellbore that extends within a subterranean formation and/or methods of locating the downhole piezoelectric pump within the wellbore. The systems include hydrocarbon wells that include the wellbore, a casing, the downhole piezoelectric pump, and a liquid discharge conduit and the systems may be utilized with and/or configured to perform the methods.

Classifications:

International (IPC 8-9): E21B23/00 E21B43/12 F04B43/04 F04B47/06 (Advanced/Invention)

CPC: E21B43/128 F04B47/06 E21B23/00

US: 166/370 166/381 166/65.1



Family:

Publication number	Publication date	Application number	Application date
US2015060083 AA	20150305	US20140321583	20140701
US10030489 BB	20180724	US20140321583	20140701
WO15030930 A2	20150305	WO2014US45138	20140701
WO15030930 A3	20150917	WO2014US45138	20140701

Priority:

US20130870657P 20130827 US20140321583 20140701

Probable Assignee: EXXON MOBIL CORP

Assignee(s): (std): EXXON MOBIL CORP ; EXXONMOBIL UPSTREAM RES CO ; ROMER MICHAEL C ; TAVAREZ FEDERICO A ; TOLMAN RANDY C

Assignee(s): EXXONMOBIL UPSTREAM RESEARCH CO

Inventor(s): (std): ROMER MICHAEL C ; TAVAREZ FEDERICO A ; TOLMAN RANDY C

Agent(s): EXXONMOBIL UPSTREAM RESEARCH CO LAW DEPARTMENT; JAMES RICK F 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 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
US10030489 BB	20180724	LSGT	+	granted / extensions (spc, cpc, pte)	
US10030489 BB	20180704	LSGT	PAT1	Patented Case	
US10030489 BB	20370325	PEXP		Calculated Patent Term Expiry (PTA 998 days)	
US2015060083 AA	20150305	LSPB	+	published / reissued	
US2015060083 AA	20170622	LSES	NFA1	Non Final Action Mailed	
US2015060083 AA	20171026	LSES	NFA1	Non Final Action Mailed	
US2015060083 AA	20180322	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2015060083 AA	20180331	LSFE	-AWA4	Awaiting TC Resp., Issue Fee Not Paid	
US2015060083 AA	20180423	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2015060083 AA	20180509	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2015060083 AA	20180622	LSFE	+PPR1	Publications -- Issue Fee Payment Received	
US2015060083 AA	20180625	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
US2015060083 AA	20180704	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE

WO15030930 A2	20150305	LSPB	+	published / reissued	
WO15030930 A3	20160229	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO15030930 A3	20161026	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 14748009 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) :

Title: SYSTEM AND METHOD TO INTERPRET DISTRIBUTED TEMPERATURE SENSOR DATA AND TO DETERMINE A FLOW RATE IN A WELL

Abstract: A distributed temperature sensor is deployed in a wellbore and is functionally connected to a processor. The processor receives the data from the distributed temperature sensor and automatically processes the data to highlight valuable information to the user relating to the relevant well, completion, or reservoir. In one embodiment, the distributed temperature sensor and processor are utilized in a well containing a gas-lift system, wherein the processor highlights valuable information to the user pertaining to the gas-lift system. A well model enabled by the processor enables the determination of a produced fluid flow rate in the well having a gas lift system. Temperatures are measured within the well to obtain a temperature profile, and this profile is processed according to the well model. The well model relates thermal characteristics, e.g. thermal decay and/or amplitude of a thermal discontinuity at an injection point, to flow rate. The flow rate determined from the thermal characteristics is used to optimize production from the well.

Classifications:

International (IPC 8-9): E21B43/12 E21B47/00 E21B47/06

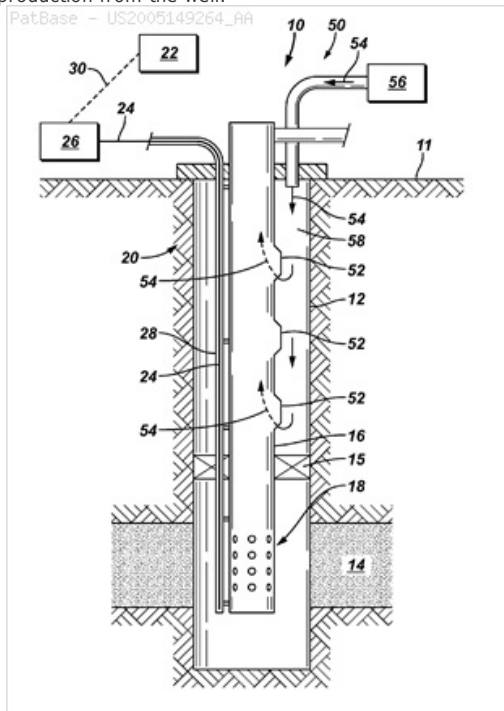
G01K11/32 G06F19/00 (Advanced/Invention)

International (IPC 1-7): G01K11/32 G06F19/00

CPC: G01K11/32 E21B47/065 G01F1/6884

European: E21B47/06B G01K11/32

US: 166/250.15 166/250.150P 374/E11.015 374/E11.015S 702/12 702/12S 702/6 702/6P



Family:

Publication number	Publication date	Application number	Application date
CA2551660 AA	20060627	CA20042551660	20041130
MXPA06007547 A1	20070130	MX2006PA07547	20041130
US2005149264 AA	20050707	US20040711918	20041013
US2009173494 AA	20090709	US20070874491	20071018
WO05064297 A1	20050714	WO2004GB05029	20041130

Priority:

US20030533188P 20031230 US20040536059P 20040113 US20040711918 20041013
WO2004GB05029 20041130 US20070874491 20071018

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Assignee(s): (std): BROWN GEORGE A ; PRAD RES AND DEV NV ; SCHLUMBERGER TECHNOLOGY CORP ; SCHLUMBERGER SURENCO SA ; SCHLUMBERGER OILFIELD ASSIST ; SCHLUMBERGER OVERSEAS ; SCHLUMBERGER HOLDINGS ; SCHLUMBERGER SERVICES LTD ; SCHLUMBERGER TECHNOLOGY BV ; SCHLUMBERGER SERVICES PETROL ; SCHLUMBERGER CA LTD ; TARVIN JEFFREY A ; VENKATARAMANAN LALITHA ; WHITE THOMAS M

Assignee(s): SCHLUMBERGER CANADA LTD ; SCHLUMBERGER OVERSEAS S A ; SERVICES PETROLIERS SCHLUMBERGER ; SCHLUMBERGER OILFIELD ASSISTANCE LTD ; SCHLUMBERGER OVERSEAS SA ; SCHLUMBERGER HOLDINGS LTD ; PRAD RESEARCH AND DEVELOPMENT N V ; PRAD RESEARCH AND DEVELOPMENT NV

Inventor(s): (std): TARVIN JEFFREY A ; VENKATARAMANAN LALITHA ; WHITE THOMAS M ; BROWN GEORGE A

Inventor(s): THOMAS M WHITE ; JEFFREY A TARVIN ; LALITHA VENKATARAMANAN ; GEORGE A BROWN ; BROWN GEORGE ; TARVIN JEFFREY ; WHITE THOMAS

Agent(s): SMART AND BIGGAR; SCHLUMBERGER RESERVOIR COMPLETIONS

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 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

CA2551660 AA	20060627	LSPB	+	published / reissued
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CA2551660 AA	20060627	LSES	+EEER	EXAMINATION REQUEST	
CA2551660 AA	20140528	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20140402
MXPA06007547 A1	20070130	LSPB	+	published / reissued	
MXPA06007547 A1	20100514	LSGT	+FG	GRANT OR REGISTRATION	
US2005149264 AA	20050707	LSPB	+	published / reissued	
US2005149264 AA	20041013	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: TARVIN, JEFFREY A.; VENKATARAMANAN, LALITHA; WHITE, THOMAS M.; AND OTHERS; REEL/FRA:015241/0832; SIGNING DATES FROM 20040830 TO 20041011
US2005149264 AA	20111026	LSWD	-ABD1	Abandoned -- After Examiner's Answer or Board of Appeals Decision	
US2009173494 AA	20090709	LSPB	+	published / reissued	
US2009173494 AA	20140414	LSWD	-ABD1	Abandoned -- After Examiner's Answer or Board of Appeals Decision	
WO05064297 A1	20050714	LSPB	+	published / reissued	
WO05064297 A1	20060627	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2551660 COUNTRY OF REF DOCUMENT : CA
WO05064297 A1	20060629	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : PA/A/2006/007547 COUNTRY OF REF DOCUMENT : MX
WO05064297 A1	20060701	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO05064297 A1	20060701	LSWD	-WWW	WIPO INFORMATION: WITHDRAWN IN NATIONAL OFFICE	TEXT : DE
WO05064297 A1	20070124	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF COUNTRY CODE : WO

Title: SUBSEA OR DOWNHOLE ELECTRICAL PENETRATOR

Abstract: A subsea electrical device has a penetrator extending through a housing for the connection of a motor lead cable supplying electric power or electric signals. The penetrator has a glass or glass-ceramic body sealed to the housing. A connector, such as a pin connector, extends through the glass or glass-ceramic body. The motor lead cable connects to one end of the connector while the other end of the connector allows for the transfer of the electric power or electric signals to the components within the housing. The glass or glass-ceramic body withstands the high pressure and harsh environment of the subsea atmosphere, allowing for the long term use of the electrical device without need for replacement due to failure of the penetrator.

Classifications:

International (IPC 8-9): E21B17/02 E21B17/046 E21B33/03

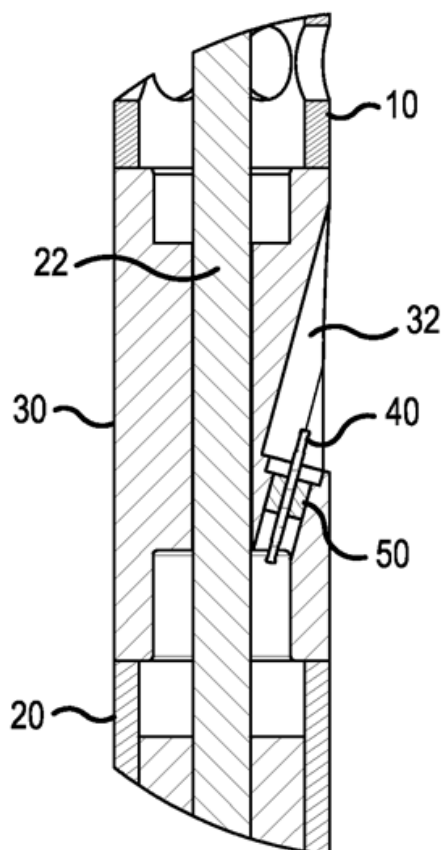
E21B33/038 E21B41/00 H01R13/523 (Advanced/Invention)

CPC: E21B41/0007 E21B17/02 E21B17/028 E21B17/046

E21B33/0385 H01R13/523 H01R13/533

US: 166/335

PatBase - US2014360729_AA



Family:

Publication number	Publication date	Application number	Application date
US2014360729 AA	20141211	US20140298585	20140606
WO14195465 A2	20141211	WO2014EP61842	20140606
WO14195465 A3	20150409	WO2014EP61842	20140606

Priority:

US20130832411P 20130607 US20140298585 20140606

Probable Assignee: INGENIOER HARALD BENESTAD AS

Assignee(s): (std): INGENIOR HARALD BENESTAD AS

Assignee(s): INGENIOER HARALD BENESTAD AS

Inventor(s): (std): BENESTAD HARALD

Agent(s): ZACCO NORWAY AS

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 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
US2014360729 AA	20141211	LSPB	+	published / reissued	
US2014360729 AA	20140902	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : INGENIOER HARALD

BENESTAD AS, NORWAY
OLDPARTY : ASSIGNMENT OF
ASSIGNORS INTEREST;
ASSIGNOR: BENESTAD, HARALD;
REEL/FRA: 033650/0658
EFFECTIVE DATE : 20140812

US2014360729 AA 20150716 LSES NFA1 Non Final Action
Mailed

US2014360729 AA 20160222 LSWD -ABD3 Abandoned --
Failure to
Respond to an
Office Action

WO14195465 A2 20141211 LSPB + published /
reissued

WO14195465 A3 20160629 LSNE -122 EP: PCT
APPLICATION
NON-ENTRY IN
EUROPEAN
PHASE REF DOCUMENT NUMBER :
14728966
COUNTRY OF REF DOCUMENT : EP
KIND CODE OF REF DOCUMENT : A2
DESIGNATED STATE(S) :

Title: COATED APPARATUS FOR IMPROVED CORROSION RESISTANCE AND ASSOCIATED SYSTEM AND METHOD FOR **ARTIFICIAL LIFT**

Abstract: Embodiments provide a coated apparatus for improved corrosion resistance and associated system and system and method for **artificial lift**.

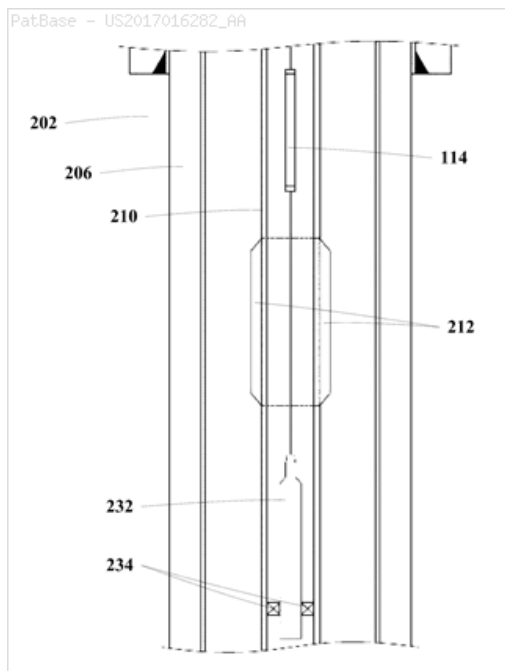
Classifications:

International (IPC 8-9): B32B15/01 C22C18/04 E21B17/00

E21B43/12 (Advanced/Invention)

CPC: E21B17/00 E21B43/121 B32B15/013 B32B15/012 B32B15/011 B32B15/015 C22C18/04 E21B43/126

US: 1/1 166/372



Family:

Publication number	Publication date	Application number	Application date
US2017016282 AA	20170119	US20150799301	20150714
US9580971 BB	20170228	US20150799301	20150714

Priority:

US20150799301 20150714

Probable Assignee: BCM PRODUCTION LLC

Assignee(s): (std): BCM PRODUCTION LLC ; BCM PRODUCTION SERVICES LLC

Inventor(s): (std): MCNEASE LARRY LANCE

Agent(s): HULSEY PC

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2017016282 AA	20170119	LSPB	+	published / reissued	
US2017016282 AA	20170208	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US9580971 BB	20170228	LSGT	+	granted / extensions (spc, cpc, pte)	
US9580971 BB	20170208	LSGT	PAT1	Patented Case	
US9580971 BB	20350714	PEXP		Calculated Patent Term Expiry	

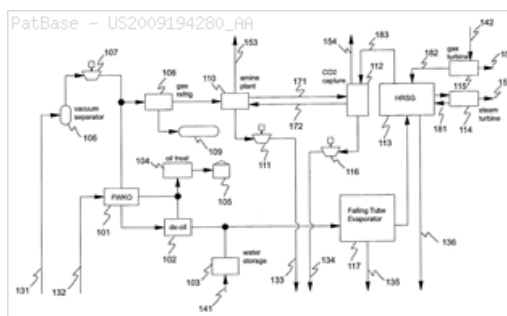
Abstract: The present invention is directed to generating a range of petroleum products from bitumen or heavy oil reservoir by installing wells from a combination of surface and underground well-head platforms while controlling carbon dioxide emissions during thermal recovery operations.

International (IPC 8-9): C10G1/02 C10G1/04 E21B43/00 E21B43/14
E21B43/24 E21B43/26 E21B43/30 E21B43/34
E21B43/40 (Advanced/Invention);
C10G1/00 E21B43/00 E21B43/16 E21B43/25
E21B43/34 (Core/Invention)

CPC: E21B41/0064 E21B43/2406 E21B43/2408 E21B43/305
E21B43/40 Y02C10/14

European: E21B41/00M2C E21B43/24S E21B43/24S2 E21B43/30B
E21B43/40 Y02C10/14

US: 166/266 166/267 166/272.1 166/272.100S 166/272.2
166/272.200S 166/272.3 166/272.6 166/57



Publication number	Publication date	Application number	Application date
CA2713536 AA	20100727	CA20092713536	20090206
CA2713536 C	20130625	CA20092713536	20090206
CA2813001 AA	20090813	CA20092813001	20090206
US2009194280 AA	20090806	US20090366845	20090206
US8176982 BB	20120515	US20090366845	20090206
WO09098597 A2	20090813	WO2009IB05087	20090206
WO09098597 A3	20091001	WO2009IB05087	20090206

US20080026594P	20080206	US20080030817P	20080222	CA20092713536	20090206
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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
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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

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Patent	Date recorded	Event group	Code	Event	Details
CA2713536 AA	20100727	LSPB	+	published / reissued	
CA2713536 AA	20100727	LSSES	+EEER	EXAMINATION REQUEST	
CA2713536 C	20130625	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2713536 C	20160321	LSLE	-MKLA	LAPSED	EFFECTIVE DATE : 20160208
CA2713536 C	20290206	PEXP		Calculated Patent Term Expiry	
CA2813001 AA	20090813	LSPB	+	published / reissued	
CA2813001 AA	20130523	LSSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20130411
CA2813001 AA	20160321	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20160208
US2009194280 AA	20090806	LSPB	+	published / reissued	
US2009194280 AA	20120425	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US8176982 BB	20120515	LSGT	+	granted / extensions (spc, cpc, pte)	
US8176982 BB	20090417	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER

					OWNER : OSUM OIL SANDS CORP., CANADA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: GIL, HENRY; SQUIRES, ANDREW; REEL/FRAME: 022561/0589; SIGNING DATES FROM 20090330 TO 20090331
US8176982 BB	20090417	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : OSUM OIL SANDS CORP., CANADA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: GIL, HENRY; SQUIRES, ANDREW; SIGNING DATES FROM 20090330 TO 20090331; REEL/FRAME: 022561/0589
US8176982 BB	20120425	LSGT	PAT1	Patented Case	
US8176982 BB	20160428	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US8176982 BB	20200106	LSFE	FEPP	FEE PAYMENT PROCEDURE	TEXT : MAINTENANCE FEE REMINDER MAILED (ORIGINAL EVENT CODE: REM.); ENTITY STATUS OF PATENT OWNER: SMALL ENTITY
US8176982 BB	20300605	PEXP		Calculated Patent Term Expiry (PTA 484 days)	
WO09098597 A2	20090813	LSPB	+	published / reissued	
WO09098597 A3	20100727	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2713536 COUNTRY OF REF DOCUMENT : CA
WO09098597 A3	20100807	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO09098597 A3	20110427	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 09707394 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) :

Title: SYSTEM AND METHOD FOR PERFORMING OILFIELD SIMULATION OPERATIONS

Abstract: The invention relates to a system for modeling an oilfield, which has process facilities and wellsite operatively connected, each wellsite having a wellbore penetrating a subterranean formation for extracting fluid from an underground reservoir. The system includes multiple wellsite simulators, each modeling a portion of the wellsite, at least one non-wellsite simulator, each modeling a portion of a non-wellsite region of the oilfield; and at least one coupling positioned among the wellsite simulators and the non-wellsite simulator. The coupling selectively links the wellsite simulators and the non-wellsite simulator according to a pre-defined configuration for selective communication.

Classifications:

International (IPC 8-9): E21B43/00 E21B43/16 E21B44/00 E21B47/00 E21B49/00 G06F17/50 G06F19/00 G06G7/48

G06G7/50 (Advanced/Invention);

E21B43/00 E21B44/00 E21B47/00 G06F17/50

G06G7/00 (Core/Invention)

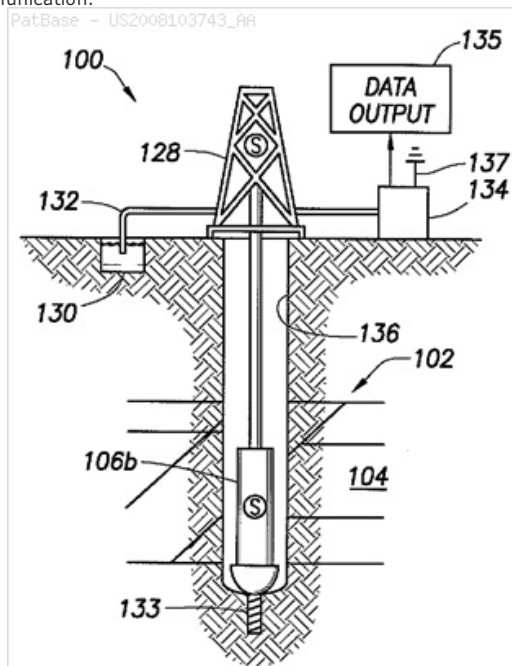
CPC: E21B41/0064 Y02C10/14 G06F30/20 G06F2111/10 E21B43/00

E21B47/00 E21B49/00 E21B43/16 E21B44/00

European: E21B41/00M2C E21B43/00 E21B43/16 E21B44/00

E21B47/00 E21B49/00 G06F17/50C S06F217/16 Y02C10/14

US: 702/6 703/10 703/10P

**Family:**

Publication number	Publication date	Application number	Application date
BRPI0812761 A2	20141125	BR2008PI12761	20080702
CA2665116 AA	20090401	CA20072665116	20071030
CA2665116 C	20110719	CA20072665116	20071030
CA2665122 AA	20090401	CA20072665122	20071030
CA2665122 C	20121218	CA20072665122	20071030
CA2691241 AA	20090108	CA20082691241	20080702
CA2691241 C	20140325	CA20082691241	20080702
GB200904534 A0	20090429	GB20090004534	20071030
GB200904539 A0	20090429	GB20090004539	20071030
GB200921738 A0	20100127	GB20090021738	20080702
GB2456925 A1	20090805	GB20090004534	20071030
GB2456925 B2	20110810	GB20090004534	20071030
GB2457823 A1	20090902	GB20090004539	20071030
GB2457823 B2	20120321	GB20090004539	20071030
GB2464003 A1	20100407	GB20090021738	20080702
GB2464003 B2	20131127	GB20090021738	20080702
NO20091079 A	20090505	NO20090001079	20090312
NO20091079 L	20090505	NO20090001079	20090312
NO20100016 A	20100326	NO20100000016	20100108
NO20100016 L	20100326	NO20100000016	20100108
NO342368 B1	20180514	NO20100000016	20100108
NO344317 B1	20191104	NO20090001079	20090312
US2008103743 AA	20080501	US20070929811	20071030
US2008133194 AA	20080605	US20070929921	20071030
US2009012765 AA	20090108	US20080167069	20080702
US2010318337 AA	20101216	US20100761368	20100415
US8352227 BB	20130108	US20070929921	20071030
US8775141 BB	20140708	US20080167069	20080702
US8818777 BB	20140826	US20070929811	20071030
WO08055186 A2	20080508	WO2007US83070	20071030
WO08055186 A3	20080619	WO2007US83070	20071030
WO08055188 A2	20080508	WO2007US83072	20071030
WO08055188 A3	20080619	WO2007US83072	20071030
WO08055188 C1	20080821	WO2007US83072	20071030
WO09006526 A2	20090108	WO2008US69031	20080702
WO09006526 A3	20090219	WO2008US69031	20080702

Priority:

US20060855262P 20061030	US20070958208P 20070702	US20070929811 20071030
US20070929921 20071030	WO2007US83072 20071030	WO2007US83070 20071030
US20080167069 20080702	WO2008US69031 20080702	US20090169622P 20090415
US20100761368 20100415		

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Assignee(s): (std): BAILEY WILLIAM J ; COUET BENOIT ; HOPMAN NADEGE ; HOWELL ANDREW JOHN ; JAMMES LAURENT ; KLUMPEN HANS ERIC ; SCHLUMBERGER TECHNOLOGY CORP ; RAPHAEL SCOTT TREVOR ; SCHLUMBERGER CA LTD ; SCHLUMBERGER SERVICES PETROL ; PRAD RES AND DEV LTD ; NUNEZ GUSTAVO ; SCHLUMBERGER TECHNOLOGY BV ; MASELES DANITA ; LOGINED BV ; RAMAKRISHNAN TERIZHANDUR S ; TORRENS RICHARD IAN ; TORRENS RICHARD ; VERMA SANDEEP

Assignee(s): SERVICES PETROLIERS SCHLUMBERGER ; SCHLUMBERGER CANADA LTD ; PRAD RESEARCH AND DEVELOPMENT LTD

Inventor(s): (std): RAPHAEL SCOTT TREVOR ; HOWELL ANDREW JOHN ; TORRENS RICHARD IAN ; COUET BENOIT ; BAILEY WILLIAM J ; NUNEZ GUSTAVO ; KLUMPEN HANS ERIC ; JAMMES LAURENT ; TORRENS RICHARD ; HOPMAN NADEGE ; VERMA SANDEEP ; RAMAKRISHNAN TERIZHANDUR S

Inventor(s): SCOTT TREVOR RAPHAEL ; ANDREW JOHN HOWELL ; RICHARD IAN TORRENS ; BENOIT COUET ; GUSTAVO NUNEZ ; WILLIAM J BAILEY ; HANS ERIC KLUMPEN

Agent(s): SMART AND BIGGAR; OSHA LIANG LLP SLB; SCHLUMBERGER TECHNOLOGY OSHA LIANG MR BRYAN GALLOWAY MANAGING IP COUNSEL CORP; OSHA LIANG LLP; COLIN; LORD ROBERT P ET AL

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 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
BRPI0812761 A2	20180502	LSFE	-B08F	APPLICATION FEES:	DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW
BRPI0812761 A2	20180605	LSRV	B11E	DISMISSAL ACC. ART. 34 OF IPL - REQUIREMENTS FOR EXAMINATION INCOMPLETE	
CA2665116 AA	20090401	LSPB	+	published / reissued	EXAMINATION REQUEST
CA2665116 AA	20090401	LSES	+EEER	EXAMINATION REQUEST	
CA2665116 C	20110719	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2665116 C	20271030	PEXP		Calculated Patent Term Expiry	EXAMINATION REQUEST
CA2665122 AA	20090401	LSPB	+	published / reissued	
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CA2665122 C	20121218	LSGT	+	granted / extensions (spc, cpc, pte)	Calculated Patent Term Expiry
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CA2691241 AA	20091215	LSES	+EEER	EXAMINATION REQUEST	Calculated Patent Term Expiry
CA2691241 C	20140325	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2691241 C	20280702	PEXP		Calculated Patent Term Expiry	
GB2456925 A1	20090805	LSPB	+	published / reissued	Calculated Patent Term Expiry
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GB2457823 B2	20120321	LSGT	+	granted / extensions	

(spc, cpc, pte)						
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GB2464003 B2	20280702	PEXP		Calculated Patent Term Expiry		
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NO342368 B1	20180514	LSGT	+	granted / extensions (spc, cpc, pte)		
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NO344317 B1	20191104	LSGT	+	granted / extensions (spc, cpc, pte)		
NO344317 B1	20290312	PEXP		Calculated Patent Term Expiry		
US2008103743 AA	20080501	LSPB	+	published / reissued		
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US2008133194 AA	20080605	LSPB	+	published / reissued		
US2008133194 AA	20121218	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE	
US2009012765 AA	20090108	LSPB	+	published / reissued		
US2009012765 AA	20140618	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE	
US2010318337 AA	20101216	LSPB	+	published / reissued		
US2010318337 AA	20150506	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action		
US8352227 BB	20130108	LSGT	+	granted / extensions (spc, cpc, pte)		
US8352227 BB	20080125	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:KLUMPEN, HANS ERIC; RAPHAEL, SCOTT TREVOR; TORRENS, RICHARD IAN; AND OTHERS; REEL/FRAME:020416/0322; SIGNING DATES FROM 20071221 TO 20080115	
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US8775141 BB	20080708	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:RAPHAEL, SCOTT TREVOR; REEL/FRAME:021202/0454 EFFECTIVE DATE : 20080702
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US8775141 BB	20180103	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US8775141 BB	20320102	PEXP		Calculated Patent Term Expiry (PTA 1279 days)	
US8818777 BB	20140826	LSGT	+	granted / extensions (spc, cpc, pte)	
US8818777 BB	20071102	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:HOWELL, ANDREW JOHN; RAPHAEL, SCOTT TREVOR; TORRENS, RICHARD IAN; REEL/FRAME:020060/0491; SIGNING DATES FROM 20071026 TO 20071029
US8818777 BB	20071102	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:HOWELL, ANDREW JOHN; RAPHAEL, SCOTT TREVOR; TORRENS, RICHARD IAN; SIGNING DATES FROM 20071026 TO 20071029; REEL/FRAME:020060/0491
US8818777 BB	20140806	LSGT	PAT1	Patented Case	
US8818777 BB	20180221	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US8818777 BB	20300416	PEXP		Calculated Patent Term Expiry (PTA 899 days)	
WO08055186 A2	20080508	LSPB	+	published / reissued	
WO08055186 A3	20090317	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	TEXT : PCT FILING DATE = 20071030 REF DOCUMENT NUMBER : 0904534 COUNTRY OF REF DOCUMENT : GB KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO08055186 A3	20090317	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 0904534.5 COUNTRY OF REF DOCUMENT : GB
WO08055186 A3	20090401	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2665116 COUNTRY OF REF DOCUMENT : CA
WO08055186 A3	20090501	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO08055186 A3	20091209	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 07863672 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) :
WO08055188 A2	20080508	LSPB	+	published / reissued	
WO08055188 C1	20090317	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	TEXT : PCT FILING DATE = 20071030 REF DOCUMENT NUMBER : 0904539 COUNTRY OF REF DOCUMENT : GB KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO08055188 C1	20090317	LSNP	+WWE	WIPO INFORMATION:	REF DOCUMENT NUMBER : 0904539.4 COUNTRY OF REF DOCUMENT : GB

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WO08055188 C1	20090401	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2665122 COUNTRY OF REF DOCUMENT : CA
WO08055188 C1	20090501	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO08055188 C1	20091223	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 07863674 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) :
WO09006526 A2	20090108	LSPB	+	published / reissued	
WO09006526 A3	20091214	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	TEXT : PCT FILING DATE = 20080702 REF DOCUMENT NUMBER : 0921738 COUNTRY OF REF DOCUMENT : GB KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO09006526 A3	20091214	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 0921738.1 COUNTRY OF REF DOCUMENT : GB
WO09006526 A3	20091215	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2691241 COUNTRY OF REF DOCUMENT : CA
WO09006526 A3	20100105	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO09006526 A3	20100804	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 08781285 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) :
WO09006526 A3	20141125	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : PI0812761 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20091229

Title: H₂S REMOVAL USING SCAVENGING MATERIAL FOR GRAVEL PACK

Abstract: A method of producing hydrocarbons through a production well connected to a subterranean hydrocarbon reservoir includes completing the production well in fluid communication with the subterranean hydrocarbon reservoir and placing a gravel pack in the production well. The gravel pack comprises hydrogen sulfide, H₂S, scavenging material such as siderite, iron oxides such as magnetite, or other suitable H₂S scavenging material.

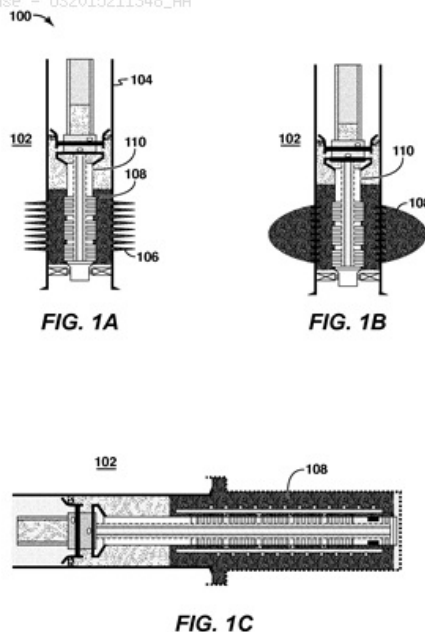
Classifications:

International (IPC 8-9): C02F1/70 C02F3/34 E21B43/04 E21B43/16 E21B43/22 E21B43/38 (Advanced/Invention)

CPC: E21B41/02 E21B43/38 C02F1/705 C02F3/34 E21B43/16 C02F2101/101 C02F2103/10 E21B43/04

US: 166/278

PatBase - US2015211348_AA



Family:

Publication number	Publication date	Application number	Application date
US2015211348 AA	20150730	US20130415693	20130712
WO14046769 A1	20140327	WO2013US50375	20130712

Priority:

US20120703128P 20120919 US20130415693 20130712 WO2013US50375 20130712

Probable Assignee: EXXON MOBIL CORP

Assignee(s): (std): DALE BRUCE ; DALE BRUCE A ; EXXON MOBIL CORP ; EXXONMOBIL UPSTREAM RES CO ; LAWRENCE JOHN J ; HORNEMANN JENNIFER A

Assignee(s): EXXONMOBIL UPSTREAM RESEARCH CO

Inventor(s): (std): LAWRENCE JOHN J ; HORNEMANN JENNIFER A ; DALE BRUCE ; DALE BRUCE A

Agent(s): BELL ANNORA A 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 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 PA 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
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US2015211348 AA	20170222	LSSES	NFA1	Non Final Action Mailed	
US2015211348 AA	20170922	LSSES	ADV1	Advisory Action Mailed	
US2015211348 AA	20171027	LSSES	NFA1	Non Final Action Mailed	
US2015211348 AA	20171027	LSSES	-NFA2	Non Final Action Counted, Not Yet Mailed	
US2015211348 AA	20180504	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
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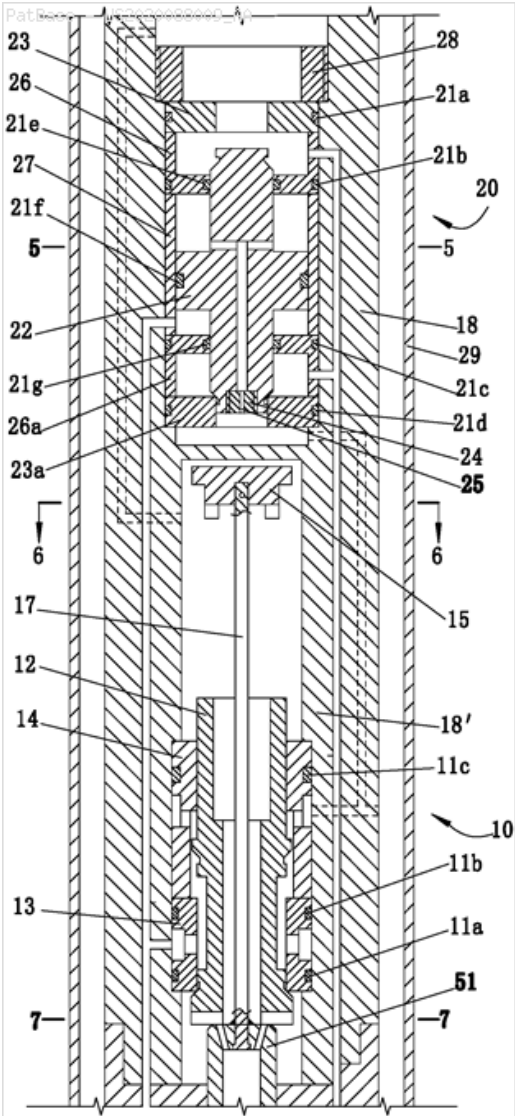
WO14046769 A1	20151014	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 13839547 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :
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Title: REVERSING VALVE FOR HYDRAULIC PISTON PUMP

Abstract: A reversing valve for a hydraulic piston pump, including a pilot valve and a main valve. The pilot valve includes a pilot valve seat, a hollow spool and a pull rod. The main valve comprises an upper valve seat, a lower valve seat and a main spool. When the hollow spool is at a lower position, the control flow path communicates with the exhaust fluid flow path, and the main spool is at a lower position, so the power piston is driven to move upwardly by the power fluids provided by the main valve. When the hollow spool is at an upper position, the power piston is driven, by the power fluids provided by the pilot valve force the power piston to move downwardly.

Classifications:

International (IPC 8-9): E21B34/14 E21B43/12 F04B49/22
F04B53/10 F04B9/103 (Advanced/Invention)
CPC: F04B9/103 F04B49/225 F04B53/10 E21B34/14 E21B2034/007
E21B43/121 F04B49/22



Family:

Publication number	Publication date	Application number	Application date
CN107676237 A	20180209	CN201710683380	20170804
CN107676237 B	20190604	CN201710683380	20170804
US2020088009 AA	20200319	US20190688759	20191119
WO19024428 A1	20190207	WO2018CN000217	20180607

Priority:

CN201710683380 20170804 WO2018CN000217 20180607 US20190688759 20191119

Probable Assignee: CUI NAILIN

Assignee(s): (std): CUI NAILIN

Assignee(s): ? CUI FOREST

Inventor(s): (std): CUI NAILIN

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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CN107676237 A	20180209	LSPB	+	published / reissued	
CN107676237 A	20180209	LSPB	PB01	PUBLICATION	
CN107676237 B	20190604	LSGT	+	granted / extensions (spc, cpc, pte)	
CN107676237 B	20190604	LSGT	+GR01	PATENT GRANT	
CN107676237 B	20370804	PEXP		Calculated Patent Term Expiry	
US2020088009 AA	20200319	LSPB	+	published / reissued	
WO19024428 A1	20190207	LSPB	+	published / reissued	
WO19024428 A1	20200205	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE

Title: CYCLIC SOLVENT PROCESS FOR IN-SITU BITUMEN AND HEAVY OIL PRODUCTION

Abstract: A process for recovery of hydrocarbons in a production fluid from an underground reservoir of said hydrocarbons, the process comprising of: (a) injecting a viscosity reducing solvent of a fraction of said hydrocarbons into said reservoir at a pressure in the reservoir of above a liquid/vapor phase change pressure of a fraction of said solvent; said pressure in said reservoir also being sufficient to cause geomechanical formation dilation or pore fluid compression, and then, (b) allowing said solvent to mix with said hydrocarbons under pore dilation conditions, and then, (c) reducing the pressure in said reservoir to below said liquid/vapor phase change pressure of at least said fraction of said solvent thereby evincing solvent gas drive of said fraction of said hydrocarbons from said reservoir; and then, (d) repeating steps (a) to (c) as required.

Classifications:

International (IPC 8-9): C09K8/58 C09K8/594

E21B43/22 (Advanced/Invention);

C09K8/58 (Core/Invention)

International (IPC 1-7): E21B43/12 E21B43/16 E21B43/22

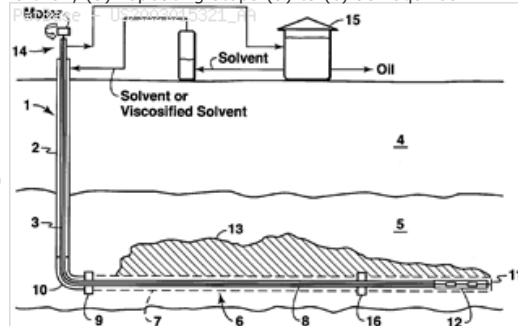
CPC: C09K8/58 C09K8/594 C09K2208/22 E21B43/16

European: C09K8/58 C09K8/594 E21B43/16 M09K208/22

US: 166/263 166/267 166/267S 166/279 166/279S 166/305.1

166/305.100S 166/31 166/310 166/310S 166/369 166/369S 166/370

166/5 166/50 166/50S

**Family:**

Publication number	Publication date	Application number	Application date
CA2349234 AA	20021130	CA20012349234	20010531
CA2349234 C	20041214	CA20012349234	20010531
US2003015321 AA	20030123	US20020158611	20020530
US6769486 BB	20040803	US20020158611	20020530

Priority:

CA20012349234 20010531

Probable Assignee: EXXON MOBIL CORP

Assignee(s): (std): IMP OIL RESOURCES LTD ; EXXONMOBIL UPSTREAM RES CO

Assignee(s): EXXONMOBIL UPSTREAM RESEARCH CO ; EXXONMOBIL UPSTREAM RESEARCH COMPANY ; EXXON MOBIL CORP ; IMPERIAL OIL RESOURCES LIMITED ; KRY P RICHARD ; LIM GIT B ; LEBEL J PIERRE ; KWAN MORI Y

Inventor(s): (std): LIM GIT B ; KRY P RICHARD ; LEBEL J PIERRE ; KWAN MORI Y

Agent(s): BORDEN LADNER GERVAIS LLP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA2349234 AA	20021130	LSPB	+	published / reissued	
CA2349234 AA	20031211	LSSES	+EEER	EXAMINATION REQUEST	
CA2349234 C	20041214	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2349234 C	20210531	PEXP		Calculated Patent Term Expiry	
US2003015321 AA	20030123	LSPB	+	published / reissued	
US2003015321 AA	20040715	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US6769486 BB	20040803	LSGT	+	granted / extensions (spc, cpc, pte)	
US6769486 BB	20020724	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : EXXONMOBIL UPSTREAM RESEARCH COMPANY, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:LIM, GIT B.; KRY, P. RICHARD; LEBEL, J. PIERRE; AND OTHERS; REEL/FRAME:012921/0473 EFFECTIVE DATE : 20020610
US6769486 BB	20040715	LSGT	PAT1	Patented Case	

US6769486 BB	20080107	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6769486 BB	20110923	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6769486 BB	20160125	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6769486 BB	20220707	PEXP		Calculated Patent Term Expiry (PTA 38 days)	

Title: GEOTHERMAL INTEGRATED EXPANSION SPOOL ASSEMBLY

Abstract: Embodiments of the present disclosure are directed towards a geothermal expansion spool assembly having an integrated or single piece configuration. The geothermal expansion spool assembly comprises an upper portion adapted to directly couple to a production valve and a lower portion adapted to surround and engage with a surface casing of a geothermal well, wherein the upper and lower portion are permanently fixed to one another.

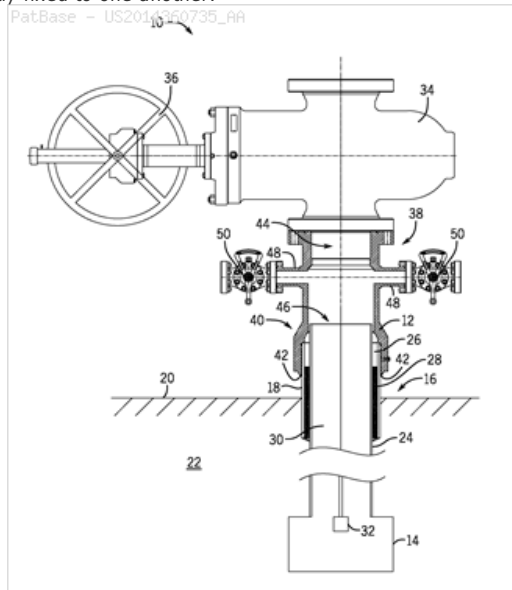
Classifications:

International (IPC 8-9): E21B33/03 E21B33/04 E21B34/02

F24J3/08 (Advanced/Invention)

CPC: E21B33/03 F24T10/00 Y02E10/10 E21B34/02

US: 1/1 166/379 166/95.1



Family:

Publication number	Publication date	Application number	Application date
SG11201509541X A1	20151230	SG20151109541	20140429
US2014360735 AA	20141211	US20130913238	20130607
US9644449 BB	20170509	US20130913238	20130607
WO14197138 A2	20141211	WO2014US35939	20140429
WO14197138 A3	20150416	WO2014US35939	20140429

Priority:

US20130913238 20130607 WO2014US35939 20140429

Probable Assignee: CAMERON INT CORP

Assignee(s): (std): CAMERON INT CORP

Inventor(s): (std): LEE JEFFREY MICHAEL ; ROBINSON STUART

Agent(s): FLETCHER YODER PC; SWANSON TAIT R 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 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
SG11201509541X A1	20151230	LSPB	+	published / reissued	
US2014360735 AA	20141211	LSPB	+	published / reissued	
US2014360735 AA	20170419	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US9644449 BB	20170509	LSGT	+	granted / extensions (spc, cpc, pte)	
US9644449 BB	20131004	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CAMERON INTERNATIONAL CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:LEE, JEFFREY MICHAEL; ROBINSON, STUART; SIGNING DATES FROM 20130906 TO 20130918; REEL/FRAME:031352/0214

US9644449 BB	20170404	LSFE	+PPV1	Publications - - Issue Fee Payment Verified	
US9644449 BB	20170419	LSGT	PAT1	Patented Case	
US9644449 BB	20340920	PEXP		Calculated Patent Term Expiry (PTA 470 days)	
WO14197138 A2	20141211	LSPB	+	published / reissued	
WO14197138 A3	20160713	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 14728373 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) :

Title: UPSTREAM SHUTTLE VALVE FOR USE WITH PROGRESSIVE CAVITY PUMP

Abstract: An **artificial lift** system is provided for use for pumping fluid from a downhole wellbore to surface. The system comprises a progressive cavity pump, said progressive cavity pump comprising a stator run on a tubing string and a rotor run on a rod string into the stator and a shuttle valve positioned upstream of the progressive cavity pump, wherein said shuttle valve comprises a non-weighted shuttle and wherein said non-weighted shuttle is moveable axially within said shuttle valve from force of fluid alone. An upstream shuttle valve is further provided for use upstream of a progressive cavity pump, wherein said shuttle valve comprises a non-weighted shuttle that is moveable axially within said shuttle valve from a force of fluid alone, to open and close the shuttle valve. A method is further still provided for pumping fluid from a wellbore in an **artificial lifts** system.

Classifications:

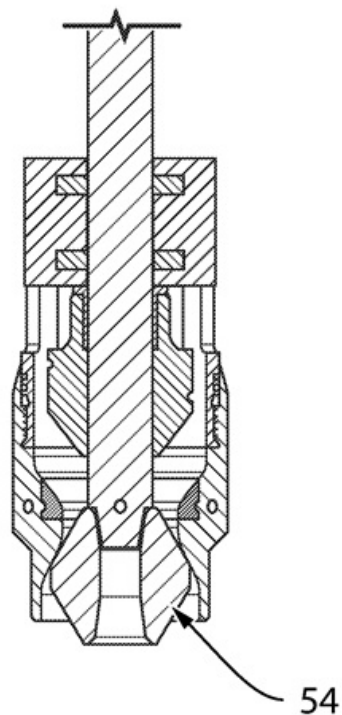
International (IPC 8-9): E21B34/08 E21B34/14 E21B43/12

F04C2/107 (Advanced/Invention)

CPC: E21B34/08 E21B34/14 E21B43/121

US: 1/1 166/373

PatBase - US2017152724_AA



Family:

Publication number	Publication date	Application number	Application date
CA2950083 AA	20170530	CA20162950083	20161130
US2017152724 AA	20170601	US20160364735	20161130

Priority:

US20150261041P 20151130 US20160364735 20161130

Probable Assignee: COTE BRENNON LEIGH

Assignee(s): (std): COTE BRENNON LEIGH ; MOORE EDWARD

Inventor(s): (std): MOORE EDWARD ; COTE BRENNON LEIGH

Agent(s): FIELD LLP

Legal status (INPADOC)

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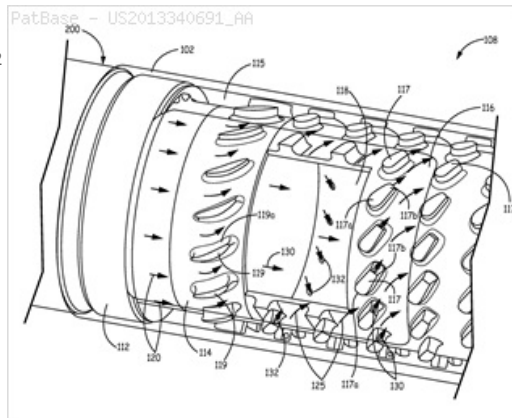
Patent	Date recorded	Event group	Code	Event	Details
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US2017152724 AA	20170601	LSPB	+	published / reissued	
US2017152724 AA	20181221	LSSES	NFA1	Non Final Action Mailed	
US2017152724 AA	20190415	LSSES	NFA1	Non Final Action Mailed	

Title: HIGH EFFICIENCY DIRECT CONTACT HEAT EXCHANGER

Abstract: A direct contact heat exchanger assembly is provided. The direct contact heat exchanger includes an evaporator jacket and an inner member. The inner member is received within the evaporator jacket. A sleeve passage is formed between the evaporator jacket and the inner member. The sleeve passage is configured and arranged to pass a flow of liquid. The housing has an inner exhaust chamber that is coupled to pass hot gas. The inner member further has a plurality of exhaust passages that allow some of the hot gas passing through the inner exhaust chamber to enter the flow of liquid in the sleeve passage.

Classifications:

International (IPC 8-9): E21B36/00 E21B36/02 E21B43/12
E21B43/24 E21B43/243 E21B43/26 E21B43/263 F22B1/18 F22B27/02
F22B27/12 F23D14/02 F23D14/70 F23Q7/00 F23R3/34 F28C3/06
F28C3/08 F28F1/38 F28F13/06 (Advanced/Invention)
CPC: E21B36/02 E21B43/122 E21B43/24 E21B43/26 F22B1/1853
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Y10T137/0329 E21B43/243 E21B43/263 F22B1/18
US: 1/1 122/31.1 137/3 166/256 166/299 166/59 166/63 431/258
431/354



Family:

Publication number	Publication date	Application number	Application date
BR112014032350 A2	20170627	BR20141132350	20130624
BR112014032496 A2	20170627	BR20141132496	20130624
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CA2877595 AA	20141219	CA20132877595	20130624
CA2877866 AA	20141223	CA20132877866	20130624
CN104508236 A	20150408	CN201380040068	20130624
CN104508236 B	20170426	CN201380040068	20130624
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CN104520528 B	20170419	CN201380039182	20130624
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CN104903672 A	20150909	CN201380039188	20130624
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RU2604357 C2	20161210	RU20150102141	20130624
RU2616955 C2	20170418	RU20150102147	20130624
US2013340691 AA	20131226	US20130793891	20130311
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US2013341026 AA	20131226	US20130840672	20130315
US2013344448 AA	20131226	US20130782865	20130301
US9228738 BB	20160105	US20130745196	20130118
US9383093 BB	20160705	US20130793891	20130311
US9383094 BB	20160705	US20130840672	20130315
US9388976 BB	20160712	US20130782865	20130301
WO14004352 A2	20140103	WO2013US47266	20130624
WO14004352 A3	20150611	WO2013US47266	20130624
WO14004353 A1	20140103	WO2013US47268	20130624
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WO14004356 A1	20140103	WO2013US47273	20130624

Priority:

US20120664015P	20120625	US20130745196	20130118	US20130782865	20130301
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Probable Assignee: NORTHROP GRUMMAN INNOVATION SYSTEMS INC

Assignee(s): (std): ALLIANT TECHSYSTEMS INC ; ORBITAL ATK INC ; ORBITAL EJTJEK INK

Assignee(s): ORBITAL SCIENCES CORP ; NORTHROP GRUMMAN INNOVATION SYSTEMS INC ; WELLS FARGO BANK
NATIONAL ASSOCIATION ADMINISTRATIVE AGENT AS ; EAGLE IND UNLIMITED INC ; FEDERAL
CARTRIDGE CO ; ORBITAL ATK INC F K A ALLIANT TECHSYSTEMS INC ; ALLIANT TECHSYSTEMS

INC7480 FLYING CLOUD DRIVEMINNEAPOLISMN55344US ; AMMUNITION ACCESSORIES INC ; ATK PHYSICAL SCIENCES INC ; BANK OF AMERICA NA ; TILMONT DANIEL ; CUSTODIO TROY ; TILIAKOS NICHOLAS ; SKLAR AKIVA A ; VERRELLI VINCENZO ; ALIFANO JOSEPH A

Inventor(s): (std): ALIFANO JOSEPH A ; TILMONT DANIEL ; CUSTODIO TROY ; TILIAKOS NICHOLAS ; SKLAR AKIVA A ; VERRELLI VINCENZO ; JOSEPH A ALIFANO ; DANIEL TILMONT ; VIRRELLI VINCENZO ; VINCENZO VIRRELLI ; AKIVA A SKLAR ; NICHOLAS TILIAKOS ; TILMONT DENIEL ; ALIFANO DZHOZEF E ; VERRELLI VINCHENTSO ; TILIAKOS NIKOLAS ; VINCENZO VERRELLI

Inventor(s): CUSTODIO TROYUS ; TILMONT DANIELUS

Agent(s): SMART AND BIGGAR; SMART AND BIGGAR LLP; LANG JOHANNES; TRASKBRITT; LUNDBERG SCOTT; LUNDBERG SCOTT V

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 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 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
BR112014032350 A2	20180102	LSAS	B25D	REQUESTED CHANGE OF NAME OF APPLICANT APPROVED	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC. (US)
BR112014032350 A2	20180116	LSAS	B25G	REQUESTED CHANGE OF HEADQUARTER APPROVED	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC. (US)
BR112014032350 A2	20190604	LSAS	B25D	REQUESTED CHANGE OF NAME OF APPLICANT APPROVED	PARTYTYPE : OWNER OWNER : NORTHROP GRUMMAN INNOVATION SYSTEMS, INC. (US)
BR112014032496 A2	20180102	LSAS	B25D	REQUESTED CHANGE OF NAME OF APPLICANT APPROVED	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC. (US)
BR112014032496 A2	20180116	LSAS	B25G	REQUESTED CHANGE OF HEADQUARTER APPROVED	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC. (US)
BR112014032496 A2	20190604	LSAS	B25D	REQUESTED CHANGE OF NAME OF APPLICANT APPROVED	PARTYTYPE : OWNER OWNER : NORTHROP GRUMMAN INNOVATION SYSTEMS, INC. (US)
CA2876974 AA	20141216	LSPB	+	published / reissued	
CA2876974 AA	20180214	LSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20180208
CA2876974 C	20191231	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2876974 C	20330624	PEXP		Calculated Patent Term Expiry	
CA2877595 AA	20141219	LSPB	+	published / reissued	
CA2877595 AA	20180215	LSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20180208
CA2877866 AA	20141223	LSPB	+	published / reissued	
CA2877866 AA	20180523	LSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20180516
CN104508236 A	20150408	LSPB	+	published / reissued	
CN104508236 A	20150408	LSPB	+C06	PUBLICATION	
CN104508236 A	20150408	LSPB	PB01	公开 (The publication of application)	TEXT : 公开 (DISCLOSURE)
CN104508236 A	20161012	LSAS	CB02	申请人信息变更 (Change of applicant information)	TEXT : 著录事项变更 (THE BIBLIOGRAPHIC DATA) ASSIGNEE AFTER CHANGE : 轨道 ATK股份有限公司 (TRACK ATK CO., LTD.) ASSIGNEE BEFORE CHANGE : 阿利安特技术系统公司 (ALI ANTE TECHNICAL SYSTEMS, INC.)
CN104508236 A	20161012	LSRE	COR	CHANGE OF BIBLIOGRAPHIC	

DATA					
CN104508236 B	20170426	LSGT	+	granted / extensions (spc, cpc, pte)	
CN104508236 B	20170426	LSGT	+GR01	PATENT GRANT	
CN104508236 B	20190108	LSAS	CP01	CHANGE IN THE NAME OR TITLE OF A PATENT HOLDER	
CN104508236 B	20190108	LSAS	CP01	专利权人姓名或者名称的变更 (Change of name of patentee)	TEXT : 专利权人的姓名或者名称、地址的变更 (THE NAME OR ADDRESS OF A PATENTEE) PATENTEE AFTER CHANGE : 诺思路·格魯曼创新系统公司 (CONNAUGHT IDEAS · GRUMMAN INNOVATIVE SYSTEMS, INC.) PATENTEE BEFORE CHANGE : 轨道 ATK股份有限公司 (TRACK ATK CO., LTD.)
CN104508236 B	20330624	PEXP		Calculated Patent Term Expiry	
CN104520528 A	20150415	LSPB	+	published / reissued	
CN104520528 A	20150415	LSPB	+C06	PUBLICATION	
CN104520528 A	20150415	LSPB	PB01	公开 (The publication of application)	TEXT : 公开 (DISCLOSURE)
CN104520528 A	20161012	LSAS	CB02	申请人信息变更 (Change of applicant information)	TEXT : 著录事项变更 (THE BIBLIOGRAPHIC DATA) ASSIGNEE AFTER CHANGE : 轨道 ATK股份有限公司 (TRACK ATK CO., LTD.) ASSIGNEE BEFORE CHANGE : 阿利安特技术系统公司 (ALI ANTE TECHNICAL SYSTEMS, INC.)
CN104520528 A	20161012	LSRE	COR	CHANGE OF BIBLIOGRAPHIC DATA	
CN104520528 B	20170419	LSGT	+	granted / extensions (spc, cpc, pte)	
CN104520528 B	20170419	LSGT	+GR01	PATENT GRANT	
CN104520528 B	20190111	LSAS	CP01	CHANGE IN THE NAME OR TITLE OF A PATENT HOLDER	
CN104520528 B	20190111	LSAS	CP01	专利权人姓名或者名称的变更 (Change of name of patentee)	TEXT : 专利权人的姓名或者名称、地址的变更 (THE NAME OR ADDRESS OF A PATENTEE) PATENTEE AFTER CHANGE : 诺思路·格魯曼创新系统公司 (CONNAUGHT IDEAS · GRUMMAN INNOVATIVE SYSTEMS, INC.) PATENTEE BEFORE CHANGE : 轨道 ATK股份有限公司 (TRACK ATK CO., LTD.)
CN104520528 B	20330624	PEXP		Calculated Patent Term Expiry	
CN104704194 A	20150610	LSPB	+	published / reissued	
CN104704194 A	20150610	LSPB	+C06	PUBLICATION	
CN104704194 A	20150610	LSPB	PB01	公开 (The publication of application)	TEXT : 公开 (DISCLOSURE)
CN104704194 A	20161012	LSAS	CB02	申请人信息变更 (Change of applicant information)	TEXT : 著录事项变更 (THE BIBLIOGRAPHIC DATA) ASSIGNEE AFTER CHANGE : 轨道 ATK股份有限公司 (TRACK ATK CO., LTD.) ASSIGNEE BEFORE CHANGE : 阿利安特技术系统公司 (ALI ANTE TECHNICAL SYSTEMS, INC.)
CN104704194 A	20161012	LSRE	COR	CHANGE OF BIBLIOGRAPHIC DATA	
CN104704194 B	20170531	LSGT	+	granted / extensions (spc, cpc, pte)	
CN104704194 B	20170531	LSGT	+GR01	PATENT GRANT	
CN104704194 B	20190111	LSAS	CP01	CHANGE IN THE	

CN104704194 B	20190111	LSAS	CP01	NAME OR TITLE OF A PATENT HOLDER 专利权人姓名或者名称的变更 (Change of name of patentee)	TEXT : 专利权人的姓名或者名称、地址的变更 (THE NAME OR ADDRESS OF A PATENTEE) PATENTEE AFTER CHANGE : 诺思路·格鲁曼创新系统公司 (CONNAUGHT IDEAS · GRUMMAN INNOVATIVE SYSTEMS, INC.) PATENTEE BEFORE CHANGE : 轨道ATK股份有限公司 (TRACK ATK CO., LTD.)
CN104704194 B	20330624	PEXP		Calculated Patent Term Expiry	
CN104903672 A	20150909	LSPB	+	published / reissued	
CN104903672 A	20150909	LSPB	PB01	公开 (The publication of application)	TEXT : 公开 (DISCLOSURE)
CN104903672 A	20161012	LSAS	CB02	申请人信息变更 (Change of applicant information)	TEXT : 著录事项变更 (THE BIBLIOGRAPHIC DATA) ASSIGNEE AFTER CHANGE : 轨道ATK股份有限公司 (TRACK ATK CO., LTD.) ASSIGNEE BEFORE CHANGE : 阿利安特技术系统公司 (ALI ANTE TECHNICAL SYSTEMS, INC.)
CN104903672 A	20161012	LSRE	COR	CHANGE OF BIBLIOGRAPHIC DATA	
CN104903672 B	20170606	LSGT	+	granted / extensions (spc, cpc, pte)	
CN104903672 B	20170606	LSGT	+GR01	PATENT GRANT	
CN104903672 B	20190111	LSAS	CP01	CHANGE IN THE NAME OR TITLE OF A PATENT HOLDER	
CN104903672 B	20190111	LSAS	CP01	专利权人姓名或者名称的变更 (Change of name of patentee)	TEXT : 专利权人的姓名或者名称、地址的变更 (THE NAME OR ADDRESS OF A PATENTEE) PATENTEE AFTER CHANGE : 诺思路·格鲁曼创新系统公司 (CONNAUGHT IDEAS · GRUMMAN INNOVATIVE SYSTEMS, INC.) PATENTEE BEFORE CHANGE : 轨道ATK股份有限公司 (TRACK ATK CO., LTD.)
CN104903672 B	20330624	PEXP		Calculated Patent Term Expiry	
EP2864584 A1	20150429	LSPB	+	published / reissued	
EP2864584 A1	20150429	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20150121
EP2864584 A1	20160420	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC.
EP2864584 A1	20170405	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20170301
EP2864584 A1	20190220	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : NORTHROP GRUMMAN INNOVATION SYSTEMS, INC.
EP2867451 A1	20150506	LSPB	+	published / reissued	
EP2867451 A1	20150506	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20150121
EP2867451 A1	20160420	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC.
EP2867451 A1	20170809	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20170711
EP2867451 A1	20190220	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : NORTHROP GRUMMAN INNOVATION SYSTEMS, INC.

EP2893128 A2	20150715	LSPB	+	published / reissued	
EP2893128 A2	20150715	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20150123
EP2893128 A2	20160420	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC.
EP2893128 A2	20190220	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : NORTHROP GRUMMAN INNOVATION SYSTEMS, INC.
EP2893128 A2	20200115	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20191218
MX2014015863 A1	20150326	LSPB	+	published / reissued	
MX2014015863 A1	20160510	LSAS	HC	CHANGE OF COMPANY NAME OR JURIDICAL STATUS	PARTYTYPE : OWNER OWNER : VIIV HEALTHCARE UK (NO. 5) LIMITED
MX2014015863 A1	20180302	LSGT	+FG	GRANT OR REGISTRATION	
MX2014015868 A1	20150313	LSPB	+	published / reissued	
MX2014015868 A1	20180129	LSGT	+FG	GRANT OR REGISTRATION	
MX353775 B	20180129	LSGT	+	granted / extensions (spc, cpc, pte)	
MX353775 B	20330624	PEXP		Calculated Patent Term Expiry	
MX354382 B	20180302	LSGT	+	granted / extensions (spc, cpc, pte)	
MX354382 B	20330624	PEXP		Calculated Patent Term Expiry	
RU2015102141 A	20160810	LSPB	+	published / reissued	
RU2015102142 A	20160810	LSPB	+	published / reissued	
RU2015102147 A	20160810	LSPB	+	published / reissued	
RU2588509 C1	20160627	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2588509 C1	20330624	PEXP		Calculated Patent Term Expiry	
RU2602949 C2	20161120	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2602949 C2	20330624	PEXP		Calculated Patent Term Expiry	
RU2604357 C2	20161210	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2604357 C2	20330624	PEXP		Calculated Patent Term Expiry	
RU2616955 C2	20170418	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2616955 C2	20330624	PEXP		Calculated Patent Term Expiry	
US2013340691 AA	20131226	LSPB	+	published / reissued	
US2013340691 AA	20150522	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC., VIRGINIA OLDPARTY : CHANGE OF NAME; ASSIGNOR:ALLIANT TECHSYSTEMS INC.; REEL/FRA:035752/0471 EFFECTIVE DATE : 20150209
US2013340691 AA	20150930	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER

					OWNER : WELLS FARGO BANK, NATIONAL ASSOCIATION, AS ADMINIS OLDPARTY : SECURITY AGREEMENT; ASSIGNORS:ORBITAL ATK, INC.; ORBITAL SCIENCES CORPORATION; REEL/FRAME:036732/0170 EFFECTIVE DATE : 20150929
US2013340691 AA	20151008	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : FEDERAL CARTRIDGE CO., MINNESOTA OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:036816/0624 EFFECTIVE DATE : 20150929
US2013340691 AA	20151008	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : EAGLE INDUSTRIES UNLIMITED, INC., MISSOURI OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:036816/0624 EFFECTIVE DATE : 20150929
US2013340691 AA	20151008	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC. (F/K/A ALLIANT TECHSYSTEMS INC.) OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:036816/0624 EFFECTIVE DATE : 20150929
US2013340691 AA	20151008	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ALLIANT TECHSYSTEMS INC., VIRGINIA OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:036816/0624 EFFECTIVE DATE : 20150929
US2013340691 AA	20151008	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : AMMUNITION ACCESSORIES, INC., ALABAMA OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:036816/0624 EFFECTIVE DATE : 20150929
US2013340691 AA	20160615	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2013341015 AA	20131226	LSPB	+	published / reissued	
US2013341015 AA	20150522	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC., VIRGINIA OLDPARTY : CHANGE OF NAME; ASSIGNOR:ALLIANT TECHSYSTEMS INC.; REEL/FRAME:035752/0471 EFFECTIVE DATE : 20150209
US2013341015 AA	20150930	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WELLS FARGO BANK, NATIONAL ASSOCIATION, AS ADMINIS OLDPARTY : SECURITY AGREEMENT; ASSIGNORS:ORBITAL ATK, INC.; ORBITAL SCIENCES CORPORATION; REEL/FRAME:036732/0170 EFFECTIVE DATE : 20150929
US2013341015 AA	20151216	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2013341026 AA	20131226	LSPB	+	published / reissued	
US2013341026 AA	20150522	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC., VIRGINIA OLDPARTY : CHANGE OF NAME; ASSIGNOR:ALLIANT TECHSYSTEMS INC.; REEL/FRAME:035752/0471 EFFECTIVE DATE : 20150209
US2013341026 AA	20150930	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WELLS FARGO BANK, NATIONAL ASSOCIATION, AS

					ADMINIS OLDPARTY : SECURITY AGREEMENT; ASSIGNORS:ORBITAL ATK, INC.; ORBITAL SCIENCES CORPORATION; REEL/FRAME:036732/0170 EFFECTIVE DATE : 20150929
US2013341026 AA	20151008	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : FEDERAL CARTRIDGE CO., MINNESOTA OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:036816/0624 EFFECTIVE DATE : 20150929
US2013341026 AA	20151008	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC. (F/K/A ALLIANT TECHSYSTEMS INC.) OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:036816/0624 EFFECTIVE DATE : 20150929
US2013341026 AA	20151008	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ALLIANT TECHSYSTEMS INC., VIRGINIA OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:036816/0624 EFFECTIVE DATE : 20150929
US2013341026 AA	20151008	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : AMMUNITION ACCESSORIES, INC., ALABAMA OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:036816/0624 EFFECTIVE DATE : 20150929
US2013341026 AA	20151008	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : EAGLE INDUSTRIES UNLIMITED, INC., MISSOURI OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:036816/0624 EFFECTIVE DATE : 20150929
US2013341026 AA	20160615	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2013344448 AA	20131226	LSPB	+	published / reissued	
US2013344448 AA	20150522	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC., VIRGINIA OLDPARTY : CHANGE OF NAME; ASSIGNOR:ALLIANT TECHSYSTEMS INC.; REEL/FRAME:035752/0471 EFFECTIVE DATE : 20150209
US2013344448 AA	20150930	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WELLS FARGO BANK, NATIONAL ASSOCIATION, AS ADMINIS OLDPARTY : SECURITY AGREEMENT; ASSIGNORS:ORBITAL ATK, INC.; ORBITAL SCIENCES CORPORATION; REEL/FRAME:036732/0170 EFFECTIVE DATE : 20150929
US2013344448 AA	20151008	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : FEDERAL CARTRIDGE CO., MINNESOTA OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:036816/0624 EFFECTIVE DATE : 20150929
US2013344448 AA	20151008	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : EAGLE INDUSTRIES UNLIMITED, INC., MISSOURI OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:036816/0624 EFFECTIVE DATE : 20150929
US2013344448 AA	20151008	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER

					OWNER : ALLIANT TECHSYSTEMS INC., VIRGINIA OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:036816/0624 EFFECTIVE DATE : 20150929
US2013344448 AA	20151008	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC. (F/K/A ALLIANT TECHSYSTEMS INC.) OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:036816/0624 EFFECTIVE DATE : 20150929
US2013344448 AA	20151008	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : AMMUNITION ACCESSORIES, INC., ALABAMA OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:036816/0624 EFFECTIVE DATE : 20150929
US2013344448 AA	20160622	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US9228738 BB	20160105	LSGT	+	granted / extensions (spc, cpc, pte)	
US9228738 BB	20130118	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ALLIANT TECHSYSTEMS INC., MINNESOTA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:TILMONT, DANIEL; CUSTODIO, TROY; SIGNING DATES FROM 20121214 TO 20130111; REEL/FRAME:029658/0025
US9228738 BB	20131126	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BANK OF AMERICA, N.A., CALIFORNIA OLDPARTY : SECURITY AGREEMENT; ASSIGNORS:ALLIANT TECHSYSTEMS INC.; CALIBER COMPANY; EAGLE INDUSTRIES UNLIMITED, INC.; AND OTHERS; REEL/FRAME:031731/0281 EFFECTIVE DATE : 20131101
US9228738 BB	20151130	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
US9228738 BB	20151216	LSGT	PAT1	Patented Case	
US9228738 BB	20160412	LSRE	CC	CERTIFICATE OF CORRECTION	
US9228738 BB	20180606	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC., MINNESOTA OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:045998/0801 EFFECTIVE DATE : 20180520
US9228738 BB	20180606	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ALLIANT TECHSYSTEMS INC., MINNESOTA OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:045998/0801 EFFECTIVE DATE : 20180520
US9228738 BB	20180606	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ORBITAL SCIENCES CORPORATION, MINNESOTA OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.; REEL/FRAME:045998/0801 EFFECTIVE DATE : 20180520
US9228738 BB	20180606	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ATK/PHYSICAL SCIENCES, INC., MINNESOTA OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:BANK OF AMERICA, N.A.;

US9228738 BB	20180606	LSAS	AS	ASSIGNMENT	REEL/FRAME:045998/0801 EFFECTIVE DATE : 20180520 PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC., VIRGINIA OLDPARTY : TERMINATION AND RELEASE OF SECURITY INTEREST IN PATENTS; ASSIGNOR:WELLS FARGO BANK, NATIONAL ASSOCIATION, AS ADMINISTRATIVE AGENT; REEL/FRAME:046477/0874 EFFECTIVE DATE : 20180606
US9228738 BB	20181101	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : NORTHROP GRUMMAN INNOVATION SYSTEMS, INC., MINNESO OLDPARTY : CHANGE OF NAME; ASSIGNOR:ORBITAL ATK, INC.; REEL/FRAME:047400/0381 EFFECTIVE DATE : 20180606
US9228738 BB	20190705	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US9228738 BB	20340205	PEXP		Calculated Patent Term Expiry (PTA 383 days)	
US9383093 BB	20160705	LSGT	+	granted / extensions (spc, cpc, pte)	
US9383093 BB	20130311	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ALLIANT TECHSYSTEMS INC., MINNESOTA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:TILMONT, DANIEL; ALIFANO, JOSEPH A.; REEL/FRAME:029965/0430 EFFECTIVE DATE : 20130311
US9383093 BB	20130515	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BANK OF AMERICA, N.A., CALIFORNIA OLDPARTY : INTELLECTUAL PROPERTY SECURITY AGREEMENT SUPPLEMENT; ASSIGNOR:ALLIANT TECHSYSTEMS INC.; REEL/FRAME:030426/0757 EFFECTIVE DATE : 20130331
US9383093 BB	20131126	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BANK OF AMERICA, N.A., CALIFORNIA OLDPARTY : SECURITY AGREEMENT; ASSIGNORS:ALLIANT TECHSYSTEMS INC.; CALIBER COMPANY; EAGLE INDUSTRIES UNLIMITED, INC.; AND OTHERS; REEL/FRAME:031731/0281 EFFECTIVE DATE : 20131101
US9383093 BB	20160615	LSGT	PAT1	Patented Case	
US9383093 BB	20161115	LSRE	CC	CERTIFICATE OF CORRECTION	
US9383093 BB	20180606	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC., VIRGINIA OLDPARTY : TERMINATION AND RELEASE OF SECURITY INTEREST IN PATENTS; ASSIGNOR:WELLS FARGO BANK, NATIONAL ASSOCIATION, AS ADMINISTRATIVE AGENT; REEL/FRAME:046477/0874 EFFECTIVE DATE : 20180606
US9383093 BB	20181101	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : NORTHROP GRUMMAN INNOVATION SYSTEMS, INC., MINNESO OLDPARTY : CHANGE OF NAME; ASSIGNOR:ORBITAL ATK, INC.; REEL/FRAME:047400/0381 EFFECTIVE DATE : 20180606
US9383093 BB	20200106	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US9383093 BB	20340502	PEXP		Calculated Patent Term Expiry (PTA 417 days)	

US9383094 BB	20160705	LSGT	+	granted / extensions (spc, cpc, pte)	
US9383094 BB	20130617	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ALLIANT TECHSYSTEMS INC., MINNESOTA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:ALIFANO, JOSEPH A.; TILMONT, DANIEL; SIGNING DATES FROM 20130409 TO 20130617; REEL/FRAME:030623/0840
US9383094 BB	20130826	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BANK OF AMERICA, N.A., CALIFORNIA OLDPARTY : INTELLECTUAL PROPERTY SECURITY AGREEMENT SUPPLEMENT; ASSIGNOR:ALLIANT TECHSYSTEMS INC.; REEL/FRAME:031081/0622 EFFECTIVE DATE : 20130630
US9383094 BB	20131126	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BANK OF AMERICA, N.A., CALIFORNIA OLDPARTY : SECURITY AGREEMENT; ASSIGNORS:ALLIANT TECHSYSTEMS INC.; CALIBER COMPANY; EAGLE INDUSTRIES UNLIMITED, INC.; AND OTHERS; REEL/FRAME:031731/0281 EFFECTIVE DATE : 20131101
US9383094 BB	20160615	LSGT	PAT1	Patented Case	
US9383094 BB	20180606	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC., VIRGINIA OLDPARTY : TERMINATION AND RELEASE OF SECURITY INTEREST IN PATENTS; ASSIGNOR:WELLS FARGO BANK, NATIONAL ASSOCIATION, AS ADMINISTRATIVE AGENT; REEL/FRAME:046477/0874 EFFECTIVE DATE : 20180606
US9383094 BB	20181101	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : NORTHROP GRUMMAN INNOVATION SYSTEMS, INC., MINNESO OLDPARTY : CHANGE OF NAME; ASSIGNOR:ORBITAL ATK, INC.; REEL/FRAME:047400/0381 EFFECTIVE DATE : 20180606
US9383094 BB	20200106	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US9383094 BB	20340406	PEXP		Calculated Patent Term Expiry (PTA 387 days)	
US9388976 BB	20160712	LSGT	+	granted / extensions (spc, cpc, pte)	
US9388976 BB	20130301	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ALLIANT TECHSYSTEMS INC., MINNESOTA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:TILMONT, DANIEL; ALIFANO, JOSEPH A.; SKLAR, AKIVA A.; AND OTHERS; REEL/FRAME:029909/0001 EFFECTIVE DATE : 20130214
US9388976 BB	20130515	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BANK OF AMERICA, N.A., CALIFORNIA OLDPARTY : INTELLECTUAL PROPERTY SECURITY AGREEMENT SUPPLEMENT; ASSIGNOR:ALLIANT TECHSYSTEMS INC.; REEL/FRAME:030426/0757 EFFECTIVE DATE : 20130331
US9388976 BB	20131126	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BANK OF AMERICA, N.A., CALIFORNIA OLDPARTY : SECURITY AGREEMENT; ASSIGNORS:ALLIANT TECHSYSTEMS INC.; CALIBER COMPANY; EAGLE INDUSTRIES UNLIMITED, INC.; AND OTHERS; REEL/FRAME:031731/0281 EFFECTIVE DATE : 20131101

US9388976 BB	20151202	LSSES	ADV1	Advisory Action Mailed	
US9388976 BB	20160613	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
US9388976 BB	20160622	LSGT	PAT1	Patented Case	
US9388976 BB	20161129	LSRE	CC	CERTIFICATE OF CORRECTION	
US9388976 BB	20180606	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ORBITAL ATK, INC., VIRGINIA OLDPARTY : TERMINATION AND RELEASE OF SECURITY INTEREST IN PATENTS; ASSIGNOR:WELLS FARGO BANK, NATIONAL ASSOCIATION, AS ADMINISTRATIVE AGENT; REEL/FRAME:046477/0874 EFFECTIVE DATE : 20180606
US9388976 BB	20181101	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : NORTHROP GRUMMAN INNOVATION SYSTEMS, INC., MINNESO OLDPARTY : CHANGE OF NAME; ASSIGNOR:ORBITAL ATK, INC.; REEL/FRAME:047400/0381 EFFECTIVE DATE : 20180606
US9388976 BB	20200113	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US9388976 BB	20331229	PEXP		Calculated Patent Term Expiry (PTA 303 days)	
WO14004352 A2	20140103	LSPB	+	published / reissued	
WO14004352 A2	20141218	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : MX/A/2014/015863 COUNTRY OF REF DOCUMENT : MX
WO14004352 A2	20141223	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2877866 COUNTRY OF REF DOCUMENT : CA
WO14004352 A2	20141229	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO14004352 A2	20150123	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2013736690 COUNTRY OF REF DOCUMENT : EP
WO14004352 A2	20150126	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2015102142 COUNTRY OF REF DOCUMENT : RU KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO14004352 A3	20170627	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112014032350 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20141223
WO14004353 A1	20140103	LSPB	+	published / reissued	
WO14004353 A1	20141216	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2876974 COUNTRY OF REF DOCUMENT : CA
WO14004353 A1	20141229	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO14004353 A1	20150121	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2013733517 COUNTRY OF REF DOCUMENT : EP
WO14004353 A1	20150126	LSNP	ENP	ENTRY INTO THE NATIONAL	REF DOCUMENT NUMBER : 2015102088

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WO14004355 A1	20140103	LSPB	+	published / reissued	
WO14004355 A1	20141218	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : MX/A/2014/015868 COUNTRY OF REF DOCUMENT : MX
WO14004355 A1	20141219	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2877595 COUNTRY OF REF DOCUMENT : CA
WO14004355 A1	20141229	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO14004355 A1	20150126	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2015102141 COUNTRY OF REF DOCUMENT : RU KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO14004355 A1	20170627	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112014032496 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20141223
WO14004356 A1	20140103	LSPB	+	published / reissued	
WO14004356 A1	20141229	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO14004356 A1	20150126	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2015102147 COUNTRY OF REF DOCUMENT : RU KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO14004356 A1	20150722	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 13735510 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

Title: HOT RODS

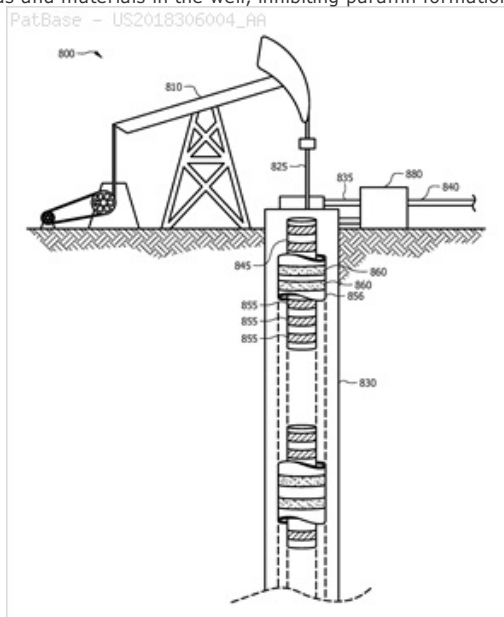
Abstract: System and methods are described that help to inhibit the formation of paraffin or wax within an oil well or pumping mechanism. Magnets can be integrated into a rod within the well tubing. The tubing can comprise metal portions such as bands or coils that can experience an induced electrical current as the rod magnets pass back and forth during pump operation. The induced electric current raises the temperature of fluids and materials in the well, inhibiting paraffin formation.

Classifications:

International (IPC 8-9): C02F1/48 E21B17/00 E21B36/00 E21B36/04 E21B37/00 E21B43/00 E21B43/24 E21B43/34 H05B6/02 H05B6/10 (Advanced/Invention)

CPC: E21B36/04 E21B43/127 E21B43/24 H05B6/108 E21B17/00

US: 1/1 166/302

**Family:**

Publication number	Publication date	Application number	Application date
US2018306004 AA	20181025	US20170496564	20170425
WO18200321 A1	20181101	WO2018US28489	20180420

Priority:

US20170496564 20170425

Probable Assignee: WELLWORX ENERGY SOLUTIONS LLC

Assignee(s): (std): RAGLIN JOHN M ; WELLWORX ENERGY SOLUTIONS LLC

Inventor(s): (std): RAGLIN JOHN M

Agent(s): COX CRAIG J 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 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
US2018306004 AA	20181025	LSPB	+	published / reissued	
US2018306004 AA	20180411	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WELLWORX ENERGY SOLUTIONS LLC, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:RAGLIN, JOHN M.; REEL/FRAME:045509/0120 EFFECTIVE DATE : 20180410
US2018306004 AA	20190304	LSES	NFA1	Non Final Action Mailed	
WO18200321 A1	20181101	LSPB	+	published / reissued	
WO18200321 A1	20191026	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE

Title: SYSTEM, METHOD AND APPARATUS FOR CONCENTRIC TUBING DEPLOYED, **ARTIFICIAL LIFT** ALLOWING GAS VENTING FROM BELOW PACKERS

Abstract: An **artificial lift** deployed on concentric tubing allows gas to be vented from below packers in a well. A central flow path is used for the fluid production from the **artificial lift** system, while an outer concentric tubing allows for the venting and production of gas from below a packer. The gas enters the outer concentric flow path through a perforated sub set that is located below the packer. Sealing of the inner concentric string flow from the outer concentric flow path is achieved with a polished bore receptacle and stinger assembly.

Classifications:

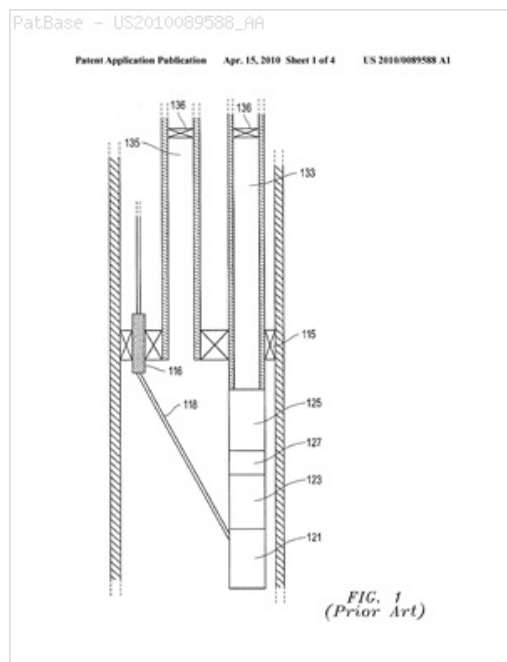
International (IPC 8-9): E21B17/00 E21B34/00 E21B43/00
E21B43/12 (Advanced/Invention);

E21B17/00 E21B34/00 E21B43/00 (Core/Invention)

CPC: E21B17/18 E21B43/121 E21B43/38

European: E21B17/18 E21B43/12B E21B43/38

US: 166/105.5 166/105.500S 166/106 166/106S 166/242.1
166/242.100S 166/316 166/316S 166/370 166/372



Family:

Publication number	Publication date	Application number	Application date
US2010089588 AA	20100415	US20080248930	20081010
US7857060 BB	20101228	US20080248930	20081010

Priority:

US20080248930 20081010

Probable Assignee:

BAKER HUGHES INC

Assignee(s): (std):

BAKER HUGHES INC

Inventor(s): (std):

THOMPSON DAVID

Agent(s):

BRACEWELL AND GIULIANI LLP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2010089588 AA	20100415	LSPB	+	published / reissued	
US7857060 BB	20101228	LSGT	+	granted / extensions (spc, cpc, pte)	
US7857060 BB	20081010	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BAKER HUGHES INCORPORATED, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR: THOMPSON, DAVID; REEL/FRAME: 021664/0286 EFFECTIVE DATE : 20081010
US7857060 BB	20081010	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BAKER HUGHES INCORPORATED, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR: THOMPSON, DAVID; REEL/FRAME: 021664/0286 EFFECTIVE DATE : 20081010
US7857060 BB	20141228	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US7857060 BB	20150126	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	

US7857060 BB	20150126	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	TEXT : PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US7857060 BB	20150217	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20141228
US7857060 BB	20281010	PEXP		Calculated Patent Term Expiry	

Title: COOLING WATER SYSTEM

Abstract: A system for supplying cooling water to a process on board a floating vessel for the production of hydrocarbons, wherein the vessel (1) is anchored by means of a bottom-anchored turning unit (20) mounted in a receiving space (7) in the hull (34) of the vessel and allowing turning of the vessel (1) about the turning unit, and wherein the turning unit (20) supports a swivel unit (24) for the transfer of hydrocarbons from production risers (28) extending between the seabed and the turning unit (20), the system comprising a conduit means (30) depending from the vessel (1) to a depth for taking in cooled sea water, and a pump means (44) for pumping of the sea water from the conduit to a place of use for the process. The turning unit (20) is designed as a seawater swivel, the unit being provided with one or more passages (29) for receiving upper end portions of respective seawater risers (30) constituting the conduit means, and with a means for transferring sea water from the upper end portions of the risers (30) to an annulus (31) arranged at the boundary surface between mutually movable parts (21, 22) of the turning unit (20) or between the tuning unit (20) and the vessel hull (34), and communicating with one or more passages (41) arranged in the vessel hull and leading to said place of use, a seawater sealing means (37, 39) being arranged on each side of the annulus (31).

Classifications:

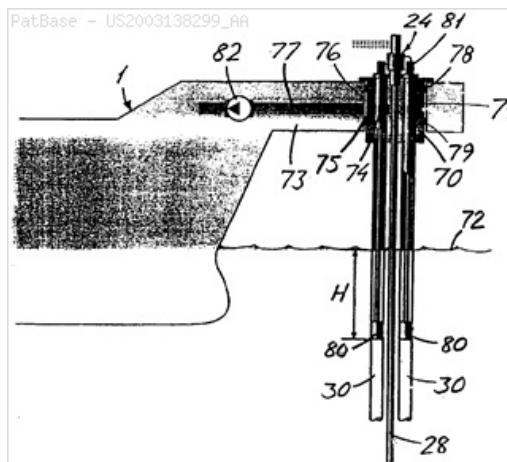
International (IPC 8-9): B63B13/02 B63B21/50 B63B22/02 B63B22/26 B63B35/44 B63H21/38 (Advanced/Invention); B63B13/00 B63B21/00 B63B22/00 B63B35/44 B63H21/00 (Core/Invention)

International (IPC 1-7): B63B21/50 B63B22/02 B63B22/02 B63B22/26 B63B35/44 B63H19/00 E21B43/013

CPC: B63H21/383 B63B13/02 B63B21/507 B63B35/4413 B63J2/00 B63J2002/005

European: B63B13/02 B63B21/50T B63H21/38C B63J2/00 L63B35/44B L63J2/00C

US: 114/230.12 114/382 114/382S 166/355 166/367 166/367S 405/224.2 405/224.200P 440/113 440/113S

**Family:**

Publication number	Publication date	Application number	Application date
AU200124126 A1	20010709	AU20010024126	20001222
AU200124126 A5	20010709	AU20010024126D	20001222
AU777798 B2	20041028	AU20010024126	20001222
BRPI0016623 A	20020903	BR2000PI16623	20001222
BRPI0016623 B1	20090113	BR2000PI16623	20001222
CA2395361 AA	20020621	CA20002395361	20001222
CN1180951 C	20041222	CN20008017634	20001222
CN1413156 A	20030423	CN20008017634	20001222
GB200212316 A0	20020710	GB20020012316	20001222
GB2372236 A1	20020821	GB20020012316	20001222
GB2372236 B2	20030409	GB20020012316	20001222
MY134847 A	20071231	MY20000005977	20001220
NO311513 B1	20011203	NO19990006449	19991223
NO996449 A	20010625	NO19990006449	19991223
NO996449 A0	19991223	NO19990006449	19991223
NO996449 L	20010625	NO19990006449	19991223
US2003138299 AA	20030724	US20020168510	20021024
US6845727 BB	20050125	US20020168510	20021024
WO0147768 A1	20010705	WO2000N000447	20001222

Priority:

NO19990006449 19991223 WO2000N000447 20001222

Probable Assignee: STATOIL PETROLEUM AS

Assignee(s): (std): EIDE JOERGEN ; NORSKE STATS OLJESELSKAP ; SKJAASTAD OTTO ; STATOIL ASA ; PAUROLA PENTTI

Assignee(s): STATOIL N SA ; EIDE JORGEN ; SKJASTAD OTTO ; EQUINOR ENERGY AS ; STATOIL SA ; STATOIL PETROLEUM AS ; STATOILHYDRO ASA ; DEN NORSKE STATS OLJESELSKAP ; DEN NORSKE STATS OLJESELSKAP A S ; DEN NORSKE STATS OLJESELSKAP AS

Inventor(s): (std): SKJ STAD OTTO ; EIDE JORGEN ; PAUROLA PENTTI ; SKJASTAD OTTO ; EIDE J ; PAUROLA P ; SKJSTAD O ; SKJSTAD OTTO ; J EIDE ; PENTTI PAUROLA ; JORGEN EIDE ; O SKJSTAD ; OTTO SKJASTAD ; P PAUROLA ; SKJAASTAD OTTO ; EIDE JOERGEN

Inventor(s): OTTO SKJ STAD

Agent(s): PAUL A GRANT AND ASSOCIATES; SHAPIRO COHEN; AVENTUM IP LAW LLP

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 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
AU200124126 A1	20010709	LSPB	+	published / reissued	

AU777798 B2	20041028	LSGT	+	granted / extensions (spc, cpc, pte)	
AU777798 B2	20190404	LSAS	HB	ALTERATION OF NAME IN REGISTER	PARTYTYPE : OWNER OWNER : EQUINOR ENERGY AS OLDPARTY : FORMER NAME(S): STATOIL PETROLEUM AS
AU777798 B2	20201222	PEXP		Calculated Patent Term Expiry	
BRPI0016623 A	20020903	LSPB	+	published / reissued	
BRPI0016623 A	20080923	LSGT	B09A	DECISION: INTENTION TO GRANT	
BRPI0016623 B1	20090407	LSGT	+B16A	PATENT OR CERTIFICATE OF ADDITION OF INVENTION GRANTED	TEXT : PRAZO DE VALIDADE: 20 (VINTE) ANOS CONTADOS A PARTIR DE 22/12/2000, OBSERVADAS AS CONDICOES LEGAIS.
BRPI0016623 B1	20150630	LSAS	B25D	REQUESTED CHANGE OF NAME OF APPLICANT APPROVED	PARTYTYPE : OWNER OWNER : STATOILHYDRO ASA (NO)
BRPI0016623 B1	20150721	LSAS	B25D	REQUESTED CHANGE OF NAME OF APPLICANT APPROVED	PARTYTYPE : OWNER OWNER : STATOIL ASA (NO)
BRPI0016623 B1	20150818	LSAS	B25A	REQUESTED TRANSFER OF RIGHTS APPROVED	PARTYTYPE : OWNER OWNER : STATOIL PETROLEUM AS (NO)
BRPI0016623 B1	20201222	PEXP		Calculated Patent Term Expiry	
CA2395361 AA	20020621	LSPB	+	published / reissued	
CA2395361 AA	20061222	LSLE	-FZDE	DEAD	
CN1180951 C	20041222	LSGT	+	granted / extensions (spc, cpc, pte)	
CN1180951 C	20041222	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN1180951 C	20131016	LSAS	ASS	SUCCESSION OR ASSIGNMENT OF PATENT RIGHT	PARTYTYPE : OWNER OWNER : STATOIL PETROLEUM AS OLDPARTY : FORMER OWNER: STATOIL ASA EFFECTIVE DATE : 20130918
CN1180951 C	20131016	LSAS	C41	TRANSFER OF PATENT APPLICATION OR PATENT RIGHT OR UTILITY MODEL	
CN1180951 C	20131016	LSAS	C56	CHANGE IN THE NAME OR ADDRESS OF THE PATENTEE	
CN1180951 C	20131016	LSAS	C56	CHANGE IN THE NAME OR ADDRESS OF THE PATENTEE	PARTYTYPE : OWNER OWNER : STATOIL ASA OLDPARTY : FORMER NAME: STATOILHYDRO ASA
CN1180951 C	20131016	LSAS	C56	CHANGE IN THE NAME OR ADDRESS OF THE PATENTEE	PARTYTYPE : OWNER OWNER : STATOILHYDRO ASA OLDPARTY : FORMER NAME: DEN NORSKE STATS OLJESELSKAP A.S.
CN1180951 C	20201222	PEXP		Calculated Patent Term Expiry	
CN1413156 A	20030423	LSPB	+	published / reissued	
CN1413156 A	20030423	LSPB	+C06	PUBLICATION	
GB2372236 A1	20020821	LSPB	+	published / reissued	
GB2372236 B2	20030409	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2372236 B2	20201222	PEXP		Calculated Patent Term Expiry	
MY134847 A	20071231	LSGT	+	granted / extensions (spc, cpc, pte)	
MY134847 A	20221231	PEXP		Calculated Patent Term Expiry	
NO311513 B1	20011203	LSGT	+	granted / extensions (spc, cpc, pte)	
NO311513 B1	20140519	LSAS	CHAD	CHANGE OF THE	PARTYTYPE : OWNER

NO311513 B1	20140602	LSAS	CHAD	OWNER'S NAME OR ADDRESS (PAR. 44 PATENT LAW, PAR. PATENTFORSKRIFTEN) CHANGE OF THE OWNER'S NAME OR ADDRESS (PAR. 44 PATENT LAW, PAR. PATENTFORSKRIFTEN)	OWNER : STATOIL ASA, NO PARTYTYPE : OWNER OWNER : STATOIL PETROLEUM AS, NO
NO311513 B1	20200113	LSLE	-MK1K	PATENT EXPIRED	
NO311513 B1	20191223	PEXP		Calculated Patent Term Expiry	
NO996449 A	20010625	LSPB	+	published / reissued	
US2003138299 AA	20030724	LSPB	+	published / reissued	
US2003138299 AA	20050106	LSGT	PAT1	Patented Case	
US2003138299 AA	20050106	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US6845727 BB	20050125	LSGT	+	granted / extensions (spc, cpc, pte)	
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US6845727 BB	20080717	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6845727 BB	20120720	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6845727 BB	20131025	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : STATOILHYDRO ASA, NORWAY OLDPARTY : CHANGE OF NAME; ASSIGNOR:STATOIL ASA; REEL/FRAME:031495/0001 EFFECTIVE DATE : 20071001
US6845727 BB	20131031	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : STATOIL ASA, NORWAY OLDPARTY : CHANGE OF NAME; ASSIGNOR:STATOILHYDRO ASA; REEL/FRAME:031528/0807 EFFECTIVE DATE : 20091102
US6845727 BB	20131113	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : STATOIL PETROLEUM AS, NORWAY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:STATOIL ASA; REEL/FRAME:031627/0265 EFFECTIVE DATE : 20130502
US6845727 BB	20160715	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6845727 BB	20221110	PEXP		Calculated Patent Term Expiry (PTA 17 days)	
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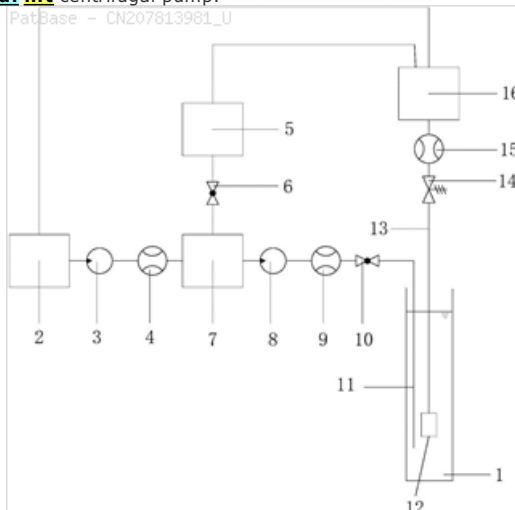
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WO0147768 A1	20040928	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : JP
WO0147768 A1	20050217	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 24126/01 COUNTRY OF REF DOCUMENT : AU

Title: HYDRATE EXPLOITATION PROCESS MIDDLEINGS IS TO TEST SYSTEM OF CENTRIFUGAL PUMP WEARING AND TEARING

Abstract: The utility model relates to a marine gas hydrate resource development engineering technical field, concretely relates to hydrate exploitation process middleings is to test system of centrifugal pump wearing and tearing, including secret simulation wellbore hole, water tank, water sand mixing box, sand injection allocation ware and water sand separator. Secret simulation wellbore hole is established to the all mistakes of this department, pours into an amount of sand and water into to the pit shaft, and simulated water closes thing exploitation in -process pit shaft normal water, the double -phase mixed fluid state of sand, and then under hydrate exploitation pit shaft condition, test different sand grains footpath, different sand concentration and the different flow condition under, sand to the centrifugal pump impeller with lead the degree of wear of shell, provide the basis for the design of hydrate exploitation **artificial lift** centrifugal pump.

Classifications:

International (IPC 8-9): E21B47/008 F04D15/00 (Advanced/Invention)



Family:

Publication number	Publication date	Application number	Application date
■ CN207813981 U	20180904	CN201721648630U	20171130

Priority:

CN201721648630U 20171130

Probable Assignee: QINGDAO INST MARINE GEOLOGY

Assignee(s): (std): QINGDAO INST MARINE GEOLOGY

Assignee(s): QINGDAO INST OF MARINE GEOLOGY

Inventor(s): (std): BU QINGTAO ; CHEN QIANG ; HU GAOWEI ; HUANG LI ; LI YANLONG ; WAN YIZHAO ; WANG DAIGANG

Legal status (INPADOC)

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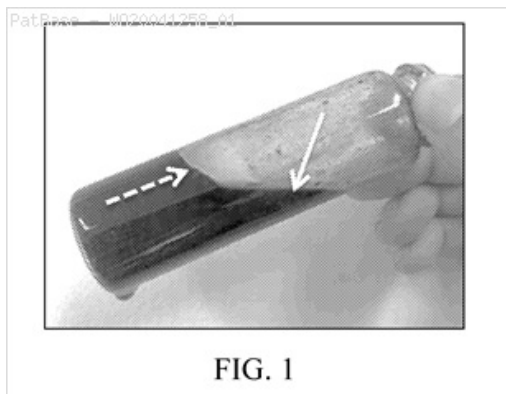
Patent	Date recorded	Event group	Code	Event	Details
CN207813981 U	20180904	LSGT	+	granted / extensions (spc, cpc, pte)	
CN207813981 U	20180904	LSGT	+GR01	PATENT GRANT	
CN207813981 U	20271130	PEXP		Calculated Patent Term Expiry	

Title: METHODS FOR PARAFFIN REMOVAL AND EXTENDED POST-PRIMARY OIL RECOVERY

Abstract: The subject invention provides a three-part method for increasing the amount of oil recovered from an oil well, the method comprising (1) paraffin removal; (2) gas release; and (3) plugging. The combination of parts provides for enhanced oil recovery over an extended period of time, for example two weeks or longer. In preferred embodiments, the subject invention utilizes microorganisms and/or their growth by-products, as well as other environmentally-friendly compounds, to enhance oil recovery by removing paraffin deposits from a well and providing controlled production of carbon dioxide in the well.

Classifications:

International (IPC 8-9): C09K8/52 E21B37/06 (Advanced/Invention)



Family:

Publication number	Publication date	Application number	Application date
WO20041258 A1	20200227	WO2019US47186	20190820

Priority:

US20180719773P 20180820

Probable Assignee: LOCUS OIL IP CO LLC

Assignee(s): (std): LOCUS OIL IP CO LLC

Inventor(s): (std): FARMER SEAN ; ALIBEK KEN ; NERRIS ANTHONY ; DIXON TYLER ; MOLDAKOZHAYEV ALIBEK ; KARATHUR KARTHIK ; LEFKOWITZ ANDREW ; SHUMWAY MARTIN

Inventor(s): SHUMWAY MARTIN R ; KARATHUR KARTHIK N ; LEFKOWITZ ANDREW R

Agent(s): SALIWANCHIK DAVID R 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 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
WO20041258 A1	20200227	LSPB	+	published / reissued	

Title: Coupled downhole pump for simultaneous injection and production in an oil well

Abstract: An apparatus for the downhole production of hydrocarbons. The apparatus includes a first pump coupled to a second pump. The first pump is powered by injection fluid contained in the tubing string; thus, eliminating the need for electrical connection cables or rotating rods. Typically, the second pump is powered by the first pump. The apparatus is capable of simultaneous injection and hydrocarbon production in a single wellbore. The coupling of the first and second pumps may further include a cross-over piece wherein the injection fluid and hydrocarbon production bypass one another.

Classifications:

International (IPC 8-9): E21B17/18 E21B43/12 E21B43/16

E21B43/34 F04B23/08 F04B47/08 (Advanced/Invention);

E21B17/00 E21B43/12 E21B43/16 F04B23/00

F04B47/00 (Core/Invention)

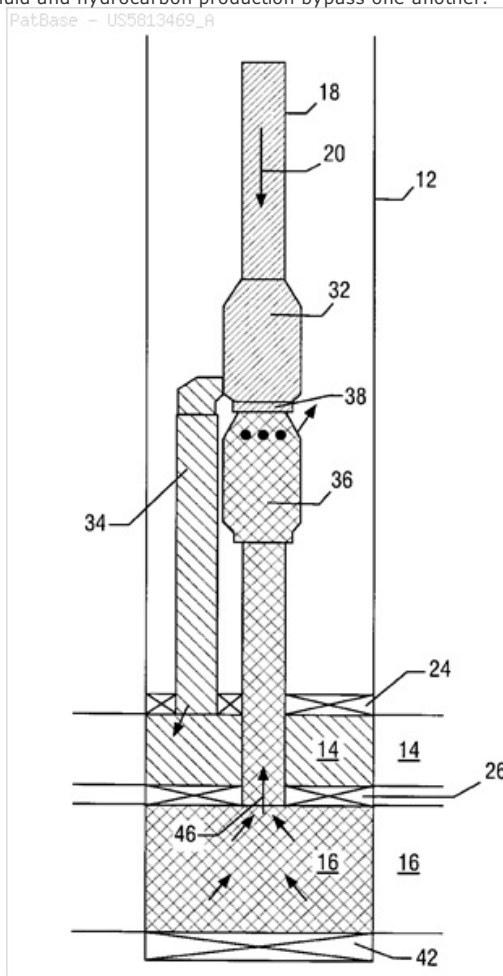
International (IPC 1-7): E21B43/12 E21B43/34

CPC: E21B17/18 E21B43/121 E21B43/16 F04B23/08 F04B47/08

European: E21B17/18 E21B43/12B E21B43/16 F04B23/08

F04B47/08

US: 166/369 166/68



Family:

Publication number	Publication date	Application number	Application date
CA2231662 AA	19980912	CA19982231662	19980310
US5813469 A	19980929	US19970814918	19970312

Priority:

US19970814918 19970312 CA19982231662 19980310

Probable Assignee: TEXACO INC

Assignee(s): (std): TEXACO DEVELOPMENT CORP ; TEXACO INC

Assignee(s): BOWLIN KEVIN R

Inventor(s): (std): BOWLIN KEVIN R

Agent(s): SMART AND BIGGAR

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA2231662 AA	19980912	LSPB	+	published / reissued	
CA2231662 AA	20040310	LSLE	-FZDE	DEAD	
US5813469 A	19980929	LSGT	+	granted / extensions (spc, cpc, pte)	
US5813469 A	19970312	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : TEXACO INC., NEW YORK OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:BOWLIN, KEVIN R.; REEL/FRAME:008451/0743 EFFECTIVE DATE : 19970310

US5813469 A	19990420	LSRE	CC	CERTIFICATE OF CORRECTION	
US5813469 A	20020913	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5813469 A	20060929	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US5813469 A	20061101	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
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US5813469 A	20061128	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20060929
US5813469 A	20170312	PEXP		Calculated Patent Term Expiry	

Title: ELECTRIC SUBMERSIBLE PUMP EVENT DETECTION

Abstract: A method for monitoring operation of an electric submersible pump. The method includes receiving data signals indicating values for a plurality of parameters regarding operation of the electric submersible pumping system; establishing, for at least some of the plurality of parameters, an associated reference signal; and detecting a deviation of one of the parameters from the reference signal associated with that parameter. As a result of the deviation having a rate of change below a predetermined threshold, the method includes updating the value of the reference signal to reflect the deviation. As a result of the deviation having a rate of change above the predetermined threshold, the method includes detecting an event and generating an indication of the event. The indication of the event further depends on a type of the parameter and a direction of the deviation from the reference signal.

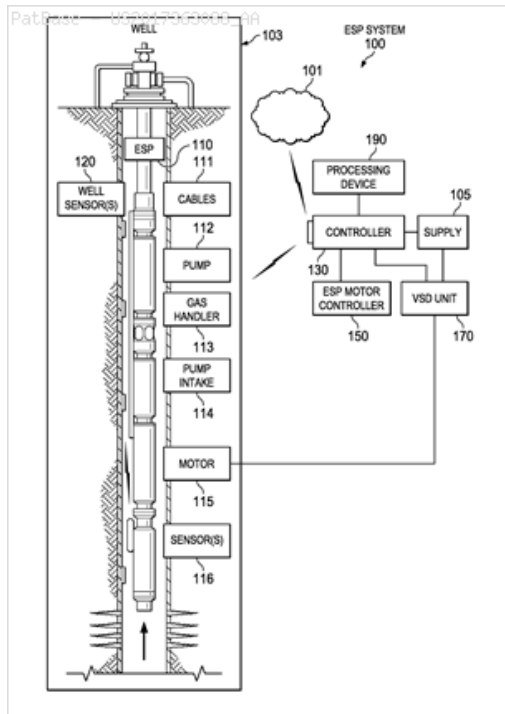
Classifications:

International (IPC 8-9): E21B43/12 E21B47/00 F04D13/10 F04D15/00 (Advanced/Invention);

E21B43/12 E21B47/00 F04D15/00 (Advanced/Non-invention)

CPC: E21B43/128 E21B47/0007 F04D13/10 F04D15/0088

US: 1/1 73/152.51

**Family:**

Publication number	Publication date	Application number	Application date
GB201708707 A0	20170719	GB20170008707	20151209
GB2547852 A1	20170830	GB20170008707	20151209
US2017363088 AA	20171221	US20150534608	20151209
US10385857 BB	20190820	US20150534608	20151209
WO16094530 A1	20160616	WO2015US64737	20151209

Priority:

US20140089480P 20141209 US20150534608 20151209 WO2015US64737 20151209

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Assignee(s): (std): SCHLUMBERGER SERVICES PETROL ; SCHLUMBERGER TECH CORP ; SCHLUMBERGER TECHNOLOGY CORP ; SCHLUMBERGER TECHNOLOGY BV ; SCHLUMBERGER CA LTD

Assignee(s): SCHLUMBERGER CANADA LTD ; SERVICES PETROLIERS SCHLUMBERGER ; SENSIA LLC

Inventor(s): (std): SUBERVIE YVES MARIE CLET ROBERT ; NGUYEN NAM ; COSTE EMMANUEL ; ROBERT YVES MARIE CLET ; EMMANUEL COSTE ; YVES MARIE CLET ROBERT SUBERVIE ; NAM NGUYEN

Agent(s): STONEBROOK MICHAEL 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 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
GB2547852 A1	20170830	LSPB	+	published / reissued	
US10385857 BB	20190820	LSGT	+	granted / extensions (spc, cpc, pte)	
US10385857 BB	20170706	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:NGUYEN, NAM; SUBERVIE, YVES-MARIE CLET ROBERT; COSTE,

					EMMANUEL; SIGNING DATES FROM 20161202 TO 20170630; REEL/FRAME:042920/0190	
US10385857 BB	20191226	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SENSIA LLC, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:SCHLUMBERGER TECHNOLOGY CORPORATION; REEL/FRAME:051370/0374 EFFECTIVE DATE : 20190927	
US10385857 BB	20351209	PEXP		Calculated Patent Term Expiry		
US2017363088 AA	20171221	LSPB	+	published / reissued		
US2017363088 AA	20180918	LSSES	NFA1	Non Final Action Mailed		
US2017363088 AA	20190405	LSSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications		
US2017363088 AA	20190710	LSFE	+PPV1	Publications -- Issue Fee Payment Verified		
US2017363088 AA	20190731	LSGT	PAT1	Patented Case		
US2017363088 AA	20190731	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE	
WO16094530 A1	20160616	LSPB	+	published / reissued		
WO16094530 A1	20170601	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	TEXT : PCT FILING DATE = 20151209 REF DOCUMENT NUMBER : 201708707 COUNTRY OF REF DOCUMENT : GB KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :	
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WO16094530 A1	20180117	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 15868590 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :	

Title: EXPANDABLE LINER TIEBACK CONNECTION

Abstract: A method of connecting a first tubular member to a second tubular member located in a wellbore, the second tubular member including an upper end portion which has a greater diameter than the diameter of the first tubular member, the method comprising: lowering the first tubular member into the wellbore until the first tubular member is located at least within the bore of the upper end portion of the second tubular member; and expanding the first tubular member until the first tubular member is sealingly connected to the second tubular member.

Classifications:

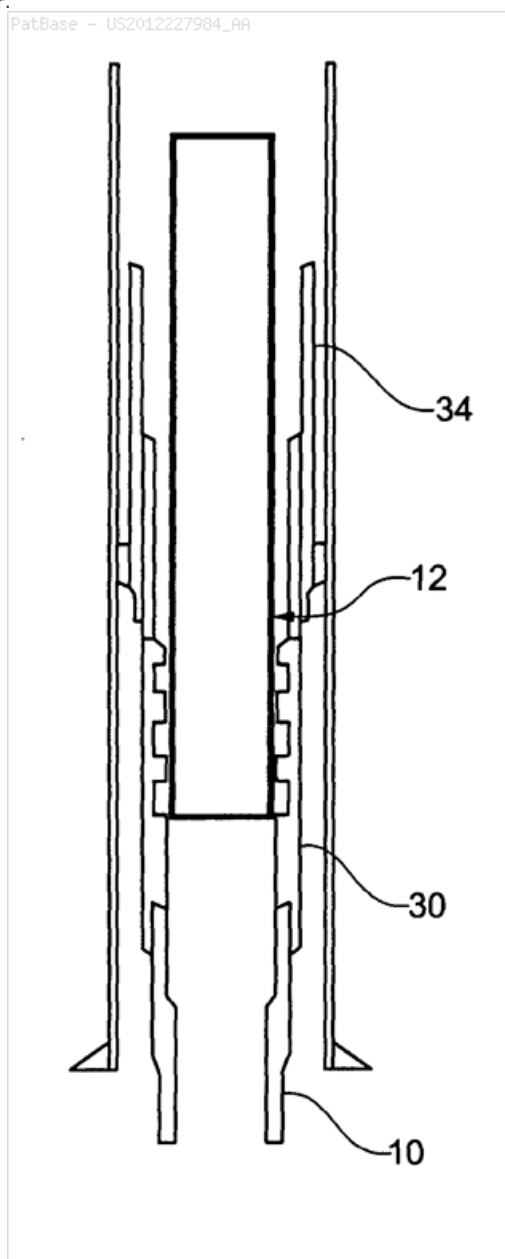
International (IPC 8-9): B67B E21B17/02 E21B19/16 E21B23/04 E21B43/10 (Advanced/Invention)

International (IPC 1-7): E21B43/10

CPC: E21B43/106 E21B43/108

European: E21B43/10F3

US: 166/207 166/208 166/380 166/384



Family:

Publication number	Publication date	Application number	Application date
AU2010309542 AA	20110428	AU20100309542	20101022
AU2010309542 BB	20160804	AU20100309542	20101022
BR112012009471 A2	20160426	BR20121109471	20101022
BR112012009471 B1	20190709	BR20121109471	20101022
CN102575512 A	20120711	CN201080047147	20101022
CN102575512 B	20150107	CN201080047147	20101022
EP2491222 A2	20120829	EP20100773960	20101022
EP2491222 B1	20190227	EP20100773960	20101022
GB200918627 A0	20091209	GB20090018627	20091023
GB2474692 A1	20110427	GB20090018627	20091023
GB2474692 B2	20140115	GB20090018627	20091023
IN03983DN2012 A	20151030	IN2012DN03983	20120505
MX2012004440 A1	20120628	MX20120004440	20101022
MX338864 B	20160504	MX20120004440	20101022
US2012227984 AA	20120913	US20100501249	20101022
US8910709 BB	20141216	US20100501249	20101022
WO11048426 A2	20110428	WO2010GB51779	20101022
WO11048426 A3	20110811	WO2010GB51779	20101022

Priority:

GB20090018627 20091023 WO2010GB51779 20101022

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP**Assignee(s):** (std): READ WELL SERVICES LTD ; SCHLUMBERGER BV ; THOMSON NEIL ; WOOD PETER ; GORRARA ANDREW ; META DOWNHOLE LTD**Assignee(s):** READ WELL SERVICES LIMITED ; SCHLUMBERGER TECHNOLOGY CORP**Inventor(s):** (std): GORRARA ANDREW ; THOMSON NEIL ; WOOD PETER ; ANDREW GORRARA ; PETER WOOD ; NEIL THOMSON**Agent(s):** WRAYS; BROWN JAMES DOUGLAS; SOMERVELL THOMAS RICHARD; LAW OFFICE OF JESSE D LAMBERT LLC; HARRISON GODDARD FOOTE**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)**[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
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AU2010309542 AA	20161208	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2010309542 AA	20170921	LSAS	PC	ASSIGNMENT REGISTERED	PARTYTYPE : OWNER OWNER : SCHLUMBERGER B.V. OLDPARTY : FORMER OWNER(S): READ WELL SERVICES LIMITED
AU2010309542 BB	20160804	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2010309542 BB	20301022	PEXP		Calculated Patent Term Expiry	
BR112012009471 A2	20180220	LSAS	B25D	REQUESTED CHANGE OF NAME OF APPLICANT APPROVED	PARTYTYPE : OWNER OWNER : META DOWNHOLE LIMITED (GB)
BR112012009471 A2	20180306	LSAS	B25A	REQUESTED TRANSFER OF RIGHTS APPROVED	PARTYTYPE : OWNER OWNER : SCHLUMBERGER B.V. (NL)
BR112012009471 A2	20190507	LSGT	B09A	DECISION: INTENTION TO GRANT	
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CN102575512 B	20150107	LSGT	+	granted / extensions (spc, cpc, pte)	
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				NON-PAYMENT OF ANNUAL FEE	
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EP2491222 A2	20180103	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : SCHLUMBERGER B.V.
EP2491222 A2	20181017	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20180919
EP2491222 B1	20190227	LSGT	+	granted / extensions (spc, cpc, pte)	
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EP2491222 B1	20190710	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : LT REF LEGAL EVENT CODE : MG4D
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EP2491222 B1	20190731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20190227
EP2491222 B1	20190812	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NO REF LEGAL EVENT CODE : T2 EFFECTIVE DATE : 20190227
EP2491222 B1	20190830	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HR NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20190227
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EP2491222 B1	20190830	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LV NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20190227
EP2491222 B1	20190830	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IS NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20190627
EP2491222 B1	20190830	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BG NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20190527
EP2491222 B1	20190830	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : RS NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20190227
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EP2491222 B1	20191031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : EE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20190227
EP2491222 B1	20191031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20190227
EP2491222 B1	20191031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20190227
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				FROM NATIONAL OFFICE TO EPO]	
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EP2491222 B1	20301022	PEXP		Calculated Patent Term Expiry	
GB2474692 A1	20110427	LSPB	+	published / reissued	
GB2474692 B2	20140115	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2474692 B2	20291023	PEXP		Calculated Patent Term Expiry	
IN03983DN2012 A	20151030	LSPB	+	published / reissued	
MX2012004440 A1	20120628	LSPB	+	published / reissued	
MX338864 B	20160504	LSGT	+	granted / extensions (spc, cpc, pte)	
MX338864 B	20160504	LSGT	+FG	GRANT OR REGISTRATION	
MX338864 B	20301022	PEXP		Calculated Patent Term Expiry	
US2012227984 AA	20120913	LSPB	+	published / reissued	
US2012227984 AA	20130619	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : META DOWNHOLE LIMITED, UNITED KINGDOM OLDPARTY : CHANGE OF NAME; ASSIGNOR:READ WELL SERVICES LIMITED; REEL/FRAME:030660/0228 EFFECTIVE DATE : 20120614
US2012227984 AA	20141125	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US8910709 BB	20141216	LSGT	+	granted / extensions (spc, cpc, pte)	
US8910709 BB	20120522	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : READ WELL SERVICES LIMITED, UNITED KINGDOM OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:THOMSON, NEIL; WOOD, PETER; GORRARA, ANDREW; SIGNING DATES FROM 20120508 TO 20120514; REEL/FRAME:028280/0137
US8910709 BB	20141125	LSGT	PAT1	Patented Case	
US8910709 BB	20160418	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:META DOWNHOLE LIMITED; REEL/FRAME:038302/0209 EFFECTIVE DATE : 20160324
US8910709 BB	20180607	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US8910709 BB	20310820	PEXP		Calculated Patent Term Expiry (PTA 302 days)	
WO11048426 A2	20110428	LSPB	+	published / reissued	
WO11048426 A2	20101022	LSNP	+WWE	WIPO	REF DOCUMENT NUMBER :

WO11048426 A3	20120410	LSNP	+WWE	INFORMATION: ENTRY INTO NATIONAL PHASE	201080047147.6 COUNTRY OF REF DOCUMENT : CN
				WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2010309542 COUNTRY OF REF DOCUMENT : AU
WO11048426 A3	20120416	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : MX/A/2012/004440 COUNTRY OF REF DOCUMENT : MX
WO11048426 A3	20120423	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO11048426 A3	20120503	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2010309542 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20101022 KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO11048426 A3	20120505	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 3983/DELNP/2012 COUNTRY OF REF DOCUMENT : IN
WO11048426 A3	20120521	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2010773960 COUNTRY OF REF DOCUMENT : EP
WO11048426 A3	20120522	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 13501249 COUNTRY OF REF DOCUMENT : US
WO11048426 A3	20160426	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112012009471 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20120420

Title: LINEAR ELECTRIC MOTOR FOR **ARTIFICIAL LIFT** SYSTEM

Abstract: A method for pumping production fluid from a wellbore includes deploying a downhole assembly of an **artificial lift** system (ALS) into the wellbore. The downhole assembly includes a linear electric motor (LEM) and a pump. The method further includes operating the LEM, thereby reciprocating the pump and lifting production fluid from the wellbore to surface. The LEM includes a stator and a reciprocating head having permanent magnets. The production fluid leaks through an interface formed between the head and the stator.

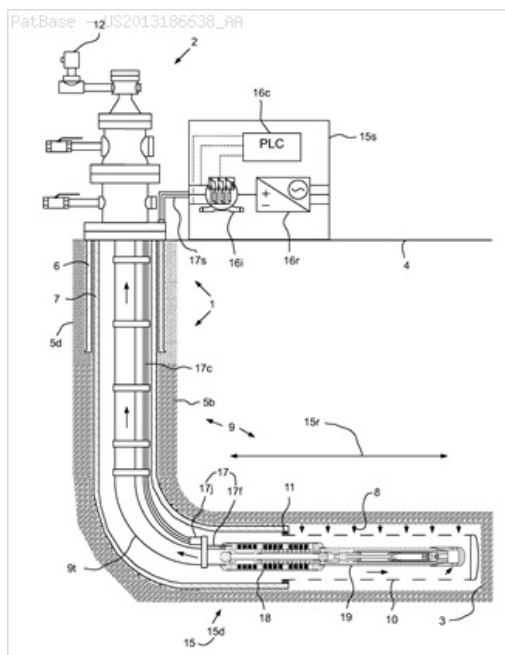
Classifications:

International (IPC 8-9): E21B43/12 E21B43/16 H02K33/16 H02K41/02 H02K41/03 H02K5/132 (Advanced/Invention)

CPC: E21B43/128 H02K33/16 H02K41/031 Y10T29/49009 Y02A30/17

European: H02K33/16 H02K41/03M

US: 1/1 166/372 166/66.4 29/596



Family:

Publication number	Publication date	Application number	Application date
CA2808565 AA	20131121	CA20132808565	20130308
CA2808565 C	20170117	CA20132808565	20130308
RU2011120410 A	20121127	RU20110120410	20110523
US2013186638 AA	20130725	US20130791217	20130308
US9260954 BB	20160216	US20130791217	20130308
WO12161625 A2	20121129	WO2012RU00401	20120521
WO12161625 A3	20130228	WO2012RU00401	20120521

Priority:

RU20110120410 20110523 WO2012RU00401 20120521 CA20132808565 20130308

Probable Assignee: OILFIELD EQUIPMENT DEVELOPMENT CENTER LTD

Assignee(s): (std): SAGALOVSKY VLADIMIR IOSIFOVICH ; SAGALOVSKY ANDREI VLADIMIROVICH ; SHARIPOV SALIHAN SHAKIRIANOVICH ; TS RAZRABOTKI NEFTEDOBYVAJUSCHEGO OBORU ; SAGALOVSKIY VLADIMIR IOSIFOVICH ; SAGALOVSKIY ANDREI VLADIMIROVICH ; SHARIPOV SALIHAN SHAKIRYANOVICH ; FILIPPOV ALEKSANDR VASILIEVICH ; FILIPPOV ALEXANDR VASILIEVICH ; OILFIELD EQUIPMENT DEV CENTER LTD ; OILFIELD EQUIPMENT DEV CT LTD

Assignee(s): OILFIELD EQUIPMENT DEVELOPMENT CENTER LIMITED ; OILFIELD EQUIPMENT DEVELOPMENT CENTER LTD ; SAGALOVSKIY VLADIMIR IOSIFOVICH ; SAGALOVSKIY ANDREI VLADIMIROVICH ; TSENTR RAZRABOTKI NEFTEDOBYVAJUSCHEGO OBORUDOVANIYA

Inventor(s): (std): SAGALOVSKY VLADIMIR IOSIFOVICH ; SAGALOVSKY ANDREI VLADIMIROVICH ; FILIPPOV ALEXANDR VASILIEVICH ; SHARIPOV SALIHAN SHAKIRIANOVICH ; FILIPPOV ALEKSANDR VASILIEVICH ; SAGALOVSKIY VLADIMIR IOSIFOVICH ; SAGALOVSKIY ANDREI VLADIMIROVICH ; SHARIPOV SALIHAN SHAKIRYANOVICH ; SAGALOVSKIY VLADIMIR IOSIFOVICH ; SAGALOVSKIY ANDREI VLADIMIROVICH ; SHARIPOV SALIKHYAN SHAKIRIANOVICH

Agent(s): DEETH WILLIAMS WALL LLP; PATTERSON AND SHERIDAN LLP; SAKOVICH VLADIMIR DMITRIEVICH

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 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
CA2808565 AA	20131121	LSPB	+	published / reissued	
CA2808565 C	20170117	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2808565 C	20330308	PEXP		Calculated Patent Term Expiry	

RU2011120410 A	20121127	LSPB	+	published / reissued	
RU2011120410 A	20130927	LSWD	-FA92	ACKNOWLEDGEMENT OF APPLICATION WITHDRAWN (LACK OF SUPPLEMENTARY MATERIALS SUBMITTED)	EFFECTIVE DATE : 20130827
US2013186638 AA	20130725	LSPB	+	published / reissued	
US2013186638 AA	20130814	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : OILFIELD EQUIPMENT DEVELOPMENT CENTER LIMITED, SEY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: FILIPPOV, ALEXANDR VASILIEVICH; SHARIPOV, SALIHAN SHAKIRIANOVICH; SAGALOVSKIY, VLADIMIR IOSIFOVICH; AND OTHERS; REEL/FRA: 031011/0373 EFFECTIVE DATE : 20130607
US2013186638 AA	20160127	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US9260954 BB	20160216	LSGT	+	granted / extensions (spc, cpc, pte)	
US9260954 BB	20151002	LSSE	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US9260954 BB	20160106	LSFE	+PPR1	Publications -- Issue Fee Payment Received	
US9260954 BB	20160127	LSGT	PAT1	Patented Case	
US9260954 BB	20190716	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US9260954 BB	20340424	PEXP		Calculated Patent Term Expiry (PTA 412 days)	
WO12161625 A2	20121129	LSPB	+	published / reissued	
WO12161625 A3	20131125	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO12161625 A3	20140611	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 12790292 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) :

Title: METHODS AND SYSTEMS FOR PERFORMING OILFIELD PRODUCTION OPERATIONS

Abstract: Methods and systems for performing well network production optimizations are described. For example, in one embodiment, a method of allocating an applied resource throughout a well network includes receiving topological data into an analytical model of a well network having one or more wells. The topological data includes a plurality of performance curves that relate well performance to one or more levels of an applied resource. The method also includes determining an optimum allocation of the applied resource using the analytical model to maximize an operating parameter of the well network, including converting a portion the analytical model having one or more wells and a linear inequality relationship to a modified portion having a single variable and a linear equality constraint.

Classifications:

International (IPC 8-9): E21B43/00 G01N15/08 G06G7/48 G06G7/50 G06Q10/00 G06Q50/00 (Advanced/Invention);

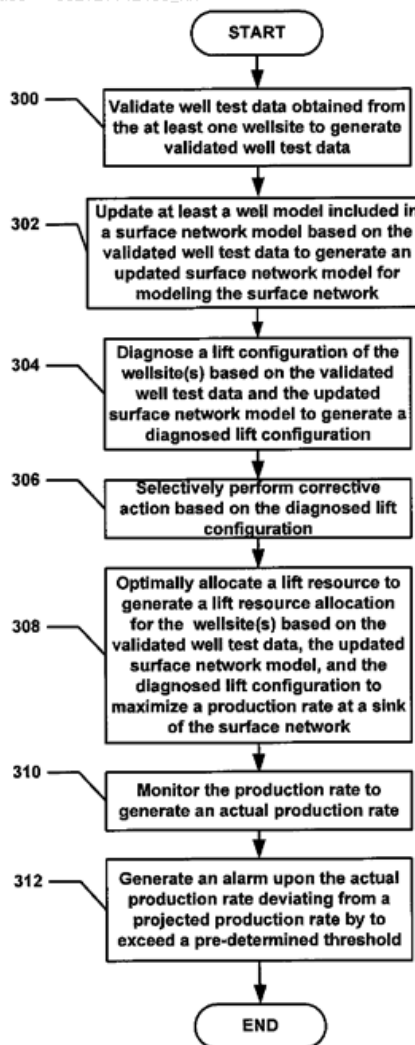
G06Q10/00 G06Q50/00 (Core/Invention)

CPC: G06Q10/04 E21B43/122

European: E21B43/12B2 G06Q10/04

US: 166/245 166/267 702/12 702/13 703/10 703/10P 703/9 705/7 705/7S 705/8 705/8P

PatBase - US2010042458_AA

**Family:**

Publication number	Publication date	Application number	Application date
US2010042458 AA	20100218	US20090534962	20090804
US8670966 BB	20140311	US20090534962	20090804

Priority:

US20080086126P 20080804 US20090534962 20090804

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Assignee(s): (std): HALLQUIST ARON EDWARD ; HUBER MICHAEL ; LUCAS CLEMENTS DANIEL COLIN NESBITT ; RASHID KASHIF ; SCHLUMBERGER TECHNOLOGY CORP ; SHAND ANDREW MICHAEL ; TONKIN TREVOR GRAHAM

Inventor(s): (std): HUBER MICHAEL ; RASHID KASHIF ; LUCAS CLEMENTS DANIEL COLIN NESBITT ; TONKIN TREVOR GRAHAM ; SHAND ANDREW MICHAEL ; HALLQUIST ARON EDWARD

Agent(s): SCHLUMBERGER INFORMATION SOLUTIONS; COLIN L; ALEC J; RODNEY

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2010042458 AA	20100218	LSPB	+	published / reissued	
US2010042458 AA	20140219	LSGT	STCF	INFORMATION ON STATUS: PATENT	TEXT : PATENTED CASE

GRANT					
US8670966 BB	20140311	LSGT	+	granted / extensions (spc, cpc, pte)	
US8670966 BB	20091013	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: RASHID, KASHIF; LUCAS-CLEMENTS, DANIEL COLIN NESBITT; HALLQUIST, ARON EDWARD; AND OTHERS; SIGNING DATES FROM 20091008 TO 20091009; REEL/FRAAME:023365/0233
US8670966 BB	20091013	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: RASHID, KASHIF; LUCAS-CLEMENTS, DANIEL COLIN NESBITT; HALLQUIST, ARON EDWARD; AND OTHERS; SIGNING DATES FROM 20091008 TO 20091009; REEL/FRAAME:023365/0233
US8670966 BB	20140219	LSGT	PAT1	Patented Case	
US8670966 BB	20170911	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US8670966 BB	20310217	PEXP		Calculated Patent Term Expiry (PTA 562 days)	

Title: Undersea integrated repressurization system and method

Abstract: An undersea integrated repressurization system includes a first undersea separator (1) on the sea bottom (2) at which output from one or more wells (A, B, C and D) is collected with gas flowing through a low pressure gas line (3) to production platform (4) and oil flowing to a repressurization well (5). A power gas line (6) extends from compressor (7) on production platform (4) for injection of gas into the lower end of a pipe adjacent the bottom of the repressurization well (5), through an opening (8) whereby the oil and gas rise through the pipe to a second undersea separator (9) on the sea bottom (2). The separated oil then enters oil pipeline (10) along which the oil flows and the separated gas enters a high pressure gas pipeline (11) which carries the gas, both leading to a production platform (4).

Classifications:

International (IPC 8-9): E21B43/01 E21B43/12 E21B43/36

E21B43/40 (Advanced/Invention);

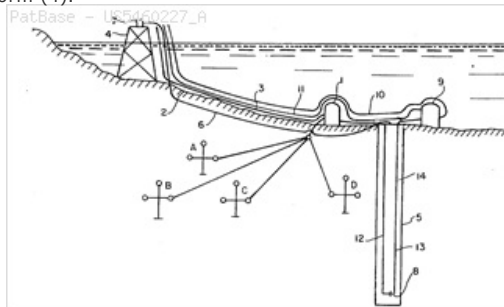
E21B43/00 E21B43/12 E21B43/34 (Core/Invention)

International (IPC 1-7): E21B43/01 E21B43/36 E21B43/40

CPC: E21B43/01 E21B43/122 E21B43/36 E21B43/40

European: E21B43/01 E21B43/12B2 E21B43/36 E21B43/40

US: 166/267 166/357 210/170 210/170.11



Family:

Publication number	Publication date	Application number	Application date
BRPI9301439 A	19941115	BR1993PI01439	19930405
GB2289077 A1	19951108	GB19940008273	19940426
GB2289077 B2	19971119	GB19940008273	19940426
GB9408273 A0	19940615	GB19940008273	19940426
US5460227 A	19951024	US19940235522	19940429

Priority:

BR1993PI01439 19930405 GB19940008273 19940426

Probable Assignee: PETROLEO BRASILEIRO SA

Assignee(s): (std): PETROLEO BRASILEIRO SA

Assignee(s): PETROLEO BRASILEIRO SA PETROBRAS ; PETROLEO BRASILEIRO PETROBRAS AV REPUBLICA DO CHIL ; PETROLEO BRASILEIRO S A ; PETROLEO BRASILEIRO S A PETROBRAS

Inventor(s): (std): COSTA SIDRIM FERNANDO ANTONIO ; SIDRIM FERNANDO ANTONIO C ; SIDRIM FERNANDO ANTONIO COSTA

Inventor(s): FERNANDO ANTONIO COSTA SIDRIM

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
BRPI9301439 A	19941115	LSPB	+	published / reissued	
BRPI9301439 A	19951212	LSES	+EE	REQUEST FOR EXAMINATION	
BRPI9301439 A	19980707	LSGT	+FF	DECISION: INTENTION TO GRANT	
BRPI9301439 A	19981124	LSGT	+FG9A	PATENT OR CERTIFICATE OF ADDITION GRANTED	
BRPI9301439 A	20030805	LSFE	B24A	PATENT ANNUAL FEE: REQUIREMENT FOR PROVING OF PAYMENT OF ANNUAL FEE	
BRPI9301439 A	20030812	LSFE	B24E	PATENT ANNUAL FEE: RESOLUTION CANCELLED	
BRPI9301439 A	20130709	LSLE	-B21A	EXPIRY ACC. ART. 78, ITEM I OF IPL- EXPIRY OF THE TERM OF PROTECTION	TEXT : PATENTE EXTINTA EM 05/04/2013
GB2289077 A1	19951108	LSPB	+	published / reissued	
GB2289077 B2	19971119	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2289077 B2	19981216	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	EFFECTIVE DATE : 19980426

GB2289077 B2	20140426	PEXP		Calculated Patent Term Expiry	
US5460227 A	19951024	LSGT	+	granted / extensions (spc, cpc, pte)	
US5460227 A	19940429	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PETROLEO BRASILEIRO S.A. - PETROBRAS, BRAZIL OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:SIDRIM, FERNANDO ANTONIO COSTA; REEL/FRAAME:006981/0320 EFFECTIVE DATE : 19940420
US5460227 A	19951013	LSGT	PAT1	Patented Case	
US5460227 A	19991024	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US5460227 A	20000104	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 19991024
US5460227 A	20180126	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US5460227 A	20180126	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	TEXT : PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US5460227 A	20140429	PEXP		Calculated Patent Term Expiry	

Title: NARROW BAND INFRARED WATER CUT METER

Abstract: The present invention provides a narrow band infrared water cut meter for detecting a full water cut range of a flow stream. The water cut meter includes a light source probe for irradiating the flow stream with a narrow band of infrared light and a light detector probe for sensing infrared light passed through the flow stream. For a narrow band of infrared light of a predetermined wavelength, there is a large difference in the absorption of infrared radiation between oil and water. At such a wavelength, the narrow band of infrared light is substantially transmitted through water content and gas content of the flow stream and substantially absorbed by oil content of the flow stream. The water cut meter thus differentiates oil by treating gas like water. Unlike other water cut meters, the narrow band infrared water cut meter is independent of variations of oil and water densities, salinity, oil emulsions, varying flow rates, and the gas content of a flow stream.

Classifications:**International (IPC 8-9):** G01F1/74 G01F1/76 G01N21/35

G01N21/3577 G01N21/359 G01N21/59 G01N22/00 G01N33/28

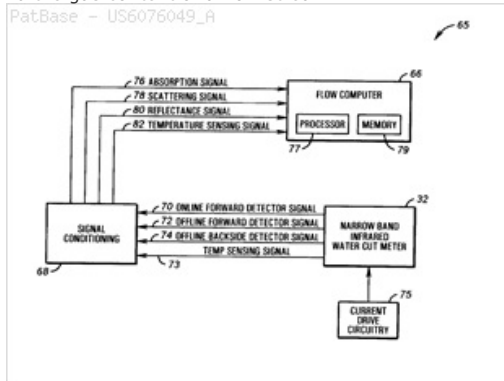
G01V8/10 (Advanced/Invention);

G01N21/59 (Advanced/Non-invention);

G01N21/31 G01N33/26 (Core/Invention)

International (IPC 1-7): E21B49/08 G01F1/74 G01F5/00 G01N022/00

G01N21/35 G01N21/59 G01N22/00 G01N33/28 G01V8/10 G01V8/12

CPC: G01N21/3577 G01N21/3504 G01N33/2823 G01N33/2847**European:** G01N21/35 G01N33/28E G01N33/28G2**US:** 324/637 702/100 702/50 73/61.44 73/861.04**Family:**

Publication number	Publication date	Application number	Application date
AT293249 E	20050415	AT19990936119T	19990225
AT510204 E	20110615	AT20010922408T	20010315
AU199933118 A1	19990915	AU19990033118	19990225
AU2001249215 AA	20011003	AU20010249215	20010315
AU2001249215 BB	20050623	AU20010249215	20010315
AU200149215 A1	20011003	AU20010049215	20010315
AU200149215 A5	20011003	AU20010049215	20010315
AU750219 B2	20020711	AU19990033118	19990225
CA2321301 AA	20000824	CA19992321301	19990225
CA2321301 C	20120417	CA19992321301	19990225
CA2403616 AA	20020919	CA20012403616	20010315
CA2403616 C	20120925	CA20012403616	20010315
DE60144653 D1	20110630	DE20016044653	20010315
DE69924709 D1	20050519	DE19996024709	19990225
EP1058835 A1	20001213	EP19990936119	19990225
EP1058835 A4	20010718	EP19990936119	19990225
EP1058835 B1	20050413	EP19990936119	19990225
EP1274988 A1	20030115	EP20010922408	20010315
EP1274988 A4	20061102	EP20010922408	20010315
EP1274988 B1	20110518	EP20010922408	20010315
NO20004262 A	20001025	NO20000004262	20000825
NO20004262 A0	20000825	NO20000004262	20000825
NO20004262 L	20001025	NO20000004262	20000825
NO20024463 A	20021120	NO20020004463	20020918
NO20024463 A0	20020918	NO20020004463	20020918
NO20024463 L	20021120	NO20020004463	20020918
NO329985 B1	20110131	NO20000004262	20000825
NO335902 B1	20150316	NO20020004463	20020918
US6076049 A	20000613	US19980031098	19980226
US6292756 BA	20010918	US20000531243	20000321
WO0171324 A1	20010927	WO2001US08354	20010315
WO9944043 A1	19990902	WO1999US04140	19990225

Priority:

US19980031098 19980226

WO1999US04140 19990225

US20000531243 20000321

EP20010922408 20010315

WO2001US08354 20010315

Probable Assignee: WEATHERFORD ARTIFICIAL LIFT SYSTEMS INC**Assignee(s):** (std): PREMIER INSTR INC ; PREMIER INSTRUMENTS INC ; WEATHERFORD ARTIFICIAL LIFT SY ; WEATHERFORD ARTIFICIAL LIFT SYSTEMS INC**Assignee(s):** DEL TORO ARNOLD ; LANSANGAN ROBERTO M ; LIEVOIS JOHN S ; RODGER GEORGE J ; SADBERRY MARK E**Inventor(s):** (std): SADBERRY MARK E ; LIEVOIS JOHN S ; LANSANGAN ROBERTO M ; RODGER GEORGE J ; SADBERRY E ; LANSANGAN M ; LIEVOIS S ; LIEVOIS JOHN ; RODGER GEORGE ; LANSANGAN ROBERTO ; JOHN S LIEVOIS ; ROBERTO M LANSANGAN ; MARK E SADBERRY ; DEL TORO ARNOLD ; TORO ARNOLD DEL ; LANSANGAN ROBERTO M**Inventor(s):** GEORGE J RODGER ; ARNOLD DEL TORO ; LIEVOIS JOHN S HOUSTON ; RODGER GEORGE J HOUSTON ; LANSANGAN ROBERTO M HOUSTON ; DEL TORO ARNOLD STAFFORD**Agent(s):** SPRUSON AND FERGUSON; ASPEN PHARMA PTY LTD; KIRBY EADES GALE BAKER; HARDING RICHARD PATRICK**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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT293249 E	20050415	LSGT	+	granted / extensions (spc, cpc, pte)	
AT293249 E	20051015	LSLE	-RER	CEASED AS TO PARAGRAPH 5 LIT. 3 LAW INTRODUCING PATENT TREATIES	
AT293249 E	20190225	PEXP		Calculated Patent Term Expiry	
AT510204 E	20110615	LSGT	+	granted / extensions (spc, cpc, pte)	
AT510204 E	20111115	LSLE	-RER	CEASED AS TO PARAGRAPH 5 LIT. 3 LAW INTRODUCING PATENT TREATIES	
AT510204 E	20210315	PEXP		Calculated Patent Term Expiry	
AU199933118 A1	19990915	LSPB	+	published / reissued	
AU2001249215 AA	20011003	LSPB	+	published / reissued	
AU2001249215 BB	20050623	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2001249215 BB	20031127	LSAS	PC1	ASSIGNMENT BEFORE GRANT (SECT. 113)	PARTYTYPE : OWNER OWNER : WEATHERFORD ARTIFICIAL LIFT SYSTEMS, INC. OLDPARTY : FORMER APPLICANT(S): PREMIER INSTRUMENTS, INC.
AU2001249215 BB	20051020	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2001249215 BB	20210315	PEXP		Calculated Patent Term Expiry	
AU200149215 A1	20011003	LSPB	+	published / reissued	
AU750219 B2	20020711	LSGT	+	granted / extensions (spc, cpc, pte)	
AU750219 B2	20021121	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU750219 B2	20031002	LSAS	PC	ASSIGNMENT REGISTERED	PARTYTYPE : OWNER OWNER : WEATHERFORD ARTIFICIAL LIFT SYSTEMS, INC. OLDPARTY : FORMER OWNER WAS: PREMIER INSTRUMENTS, INC.
AU750219 B2	20190314	LSLE	-MK14	PATENT CEASED SECTION 143(A) (ANNUAL FEES NOT PAID) OR EXPIRED	
AU750219 B2	20190225	PEXP		Calculated Patent Term Expiry	
CA2321301 AA	20000824	LSPB	+	published / reissued	
CA2321301 AA	20040225	LSSES	+EEER	EXAMINATION REQUEST	
CA2321301 C	20120417	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2321301 C	20190429	LSLE	-MKEX	EXPIRY	EFFECTIVE DATE : 20190225
CA2321301 C	20190225	PEXP		Calculated Patent Term Expiry	
CA2403616 AA	20020919	LSPB	+	published / reissued	
CA2403616 AA	20031205	LSSES	+EEER	EXAMINATION REQUEST	
CA2403616 C	20120925	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2403616 C	20210315	PEXP		Calculated Patent Term Expiry	
DE60144653 D1	20110420	LSAS	R081	CHANGE OF	PARTYTYPE : OWNER

				APPLICANT/PATENTEE	OLDPARTY : PREMIER INSTRUMENTS INC., HOUSTON, TEX., US
DE69924709 D1	20060316	LSWD	-8332	NO LEGAL EFFECT FOR DE	
EP1058835 A1	20001213	LSPB	+	published / reissued	
EP1058835 A1	20001213	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20000926
EP1058835 A1	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20160108 YEAR OF FEE PAYMENT : 18
EP1058835 A1	20160531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20160224 YEAR OF FEE PAYMENT : 18
EP1058835 A4	20010718	LSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	EFFECTIVE DATE : 20010607
EP1058835 A4	20031112	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : WEATHERFORD ARTIFICIAL LIFT SYSTEMS, INC.
EP1058835 A4	20040407	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20040219
EP1058835 A4	20041027	LSRE	RTI1	TITLE (CORRECTION)	TEXT : NARROW BAND INFRARED WATER CUT METER AND METHOD USING THE WATER CUT METER
EP1058835 B1	20050413	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1058835 B1	20050413	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050413
EP1058835 B1	20050413	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050413
EP1058835 B1	20050413	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050413
EP1058835 B1	20050413	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050413
EP1058835 B1	20050413	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050413
EP1058835 B1	20050413	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF

				NATIONAL OFFICE TO EPO]	THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050413
EP1058835 B1	20050413	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050413
EP1058835 B1	20050413	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP1058835 B1	20050415	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP1058835 B1	20050518	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP1058835 B1	20050713	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050713
EP1058835 B1	20050713	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050713
EP1058835 B1	20050713	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050713
EP1058835 B1	20050714	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050714
EP1058835 B1	20050724	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050724
EP1058835 B1	20050913	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050913
EP1058835 B1	20050926	LSRV	-LTIE	LT: INVALIDATION OF EUROPEAN PATENT OR PATENT EXTENSION	REF COUNTRY CODE : EP EFFECTIVE DATE : 20050413
EP1058835 B1	20051003	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

EP1058835 B1	20051031	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP1058835 B1	20060227	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20060227
EP1058835 B1	20060228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20060228
EP1058835 B1	20060228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20060228
EP1058835 B1	20060405	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20060116
EP1058835 B1	20061129	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP1058835 B1	20081128	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CY NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20050413
EP1058835 B1	20160108	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 18
EP1058835 B1	20170112	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 19
EP1058835 B1	20170428	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20170112 YEAR OF FEE PAYMENT : 19
EP1058835 B1	20170531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20170222 YEAR OF FEE PAYMENT : 19
EP1058835 B1	20180111	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 20
EP1058835 B1	20180430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20180221 YEAR OF FEE PAYMENT : 20
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EP1058835 B1	20190320	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : PE20 EXPIRY DATE : 20190224
EP1058835 B1	20190430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB NOTIFICATION OF LAPSE : LAPSE BECAUSE OF EXPIRATION OF PROTECTION LAPSED DATE : 20190224
EP1058835 B1	20190224	PEXP		Calculated Patent Term Expiry	
EP1058835 B1	20190225	PEXP		Calculated Patent Term Expiry	
EP1274988 A1	20030115	LSPB	+	published / reissued	

EP1274988 A1	20030115	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20021017
EP1274988 A1	20031112	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : WEATHERFORD ARTIFICIAL LIFT SYSTEMS, INC.
EP1274988 A1	20170531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20170315 YEAR OF FEE PAYMENT : 17
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EP1274988 A4	20071226	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20071121
EP1274988 B1	20110518	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1274988 B1	20110518	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP1274988 B1	20110531	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP1274988 B1	20110622	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP1274988 B1	20110630	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 60144653 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20110630
EP1274988 B1	20110907	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NL REF LEGAL EVENT CODE : VDEP EFFECTIVE DATE : 20110518
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EP1274988 B1	20111031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110518
EP1274988 B1	20111130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110518
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EP1274988 B1	20111130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110518

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EP1274988 B1	20111130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110829
EP1274988 B1	20111130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CY NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110518
EP1274988 B1	20111230	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110518
EP1274988 B1	20120229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110518
EP1274988 B1	20120425	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20120221
EP1274988 B1	20120531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110518
EP1274988 B1	20120614	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 60144653 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20120221
EP1274988 B1	20121031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20120331
EP1274988 B1	20121031	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP1274988 B1	20121221	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST EFFECTIVE DATE : 20121130
EP1274988 B1	20130102	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP1274988 B1	20130117	LSDW	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R119 REF DOCUMENT NUMBER : 60144653 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20121002
EP1274988 B1	20130131	LSLE	-PG25	LAPSED IN A	COUNTRY OF REF DOCUMENT :

				CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	FR NOTIFICATIONOF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20120402
EP1274988 B1	20130131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATIONOF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20120331
EP1274988 B1	20130131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONOF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20120331
EP1274988 B1	20130131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATIONOF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20120315
EP1274988 B1	20140430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : TR NOTIFICATIONOF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110518
EP1274988 B1	20140530	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATIONOF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20120315
EP1274988 B1	20140930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE NOTIFICATIONOF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20121002
EP1274988 B1	20180430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20180314 YEAR OF FEE PAYMENT : 18
EP1274988 B1	20190430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20190114 YEAR OF FEE PAYMENT : 19
EP1274988 B1	20210315	PEXP		Calculated Patent Term Expiry	
NO20004262 A	20001025	LSPB	+	published / reissued	
NO20024463 A	20021120	LSPB	+	published / reissued	
NO329985 B1	20110131	LSGT	+	granted / extensions (spc, cpc, pte)	
NO329985 B1	20190311	LSLE	-MK1K	PATENT EXPIRED	
NO329985 B1	20200825	PEXP		Calculated Patent Term Expiry	
NO335902 B1	20150316	LSGT	+	granted / extensions (spc, cpc, pte)	
NO335902 B1	20220918	PEXP		Calculated Patent Term Expiry	
US6076049 A	20000613	LSGT	+	granted / extensions (spc, cpc, pte)	
US6076049 A	19980226	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PREMIER INSTRUMENTS, INC., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:LIEVOIS, JOHN S.; LANSANGAN, ROBERTO M.; SADBERRY, MARK E.; REEL/FRAME:009105/0753; SIGNING DATES FROM 19980219 TO 19980223

US6076049 A	20000530	LSGT	PAT1	Patented Case	
US6076049 A	20000530	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US6076049 A	20021031	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEATHERFORD ARTIFICIAL LIFT SYSTEMS, INC., TEXAS OLDPARTY : SECURITY AGREEMENT; ASSIGNOR:PREMIER INSTRUMENTS, INC.; REEL/FRAME:013467/0888 EFFECTIVE DATE : 20021031
US6076049 A	20021202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEATHERFORD ARTIFICIAL LIFT SYSTEMS, INC., TEXAS OLDPARTY : SECURITY AGREEMENT; ASSIGNOR:PREMIER INSTRUMENTS, INC.; REEL/FRAME:013532/0924 EFFECTIVE DATE : 20021121
US6076049 A	20030728	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEATHERFORD ARTIFICIAL LIFT SYSTEMS, INC., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:PREMIER INSTRUMENTS, INC.; REEL/FRAME:014313/0845 EFFECTIVE DATE : 20030610
US6076049 A	20031112	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6076049 A	20071119	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6076049 A	20110919	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6076049 A	20180226	PEXP		Calculated Patent Term Expiry	
US6292756 BA	20010918	LSGT	+	granted / extensions (spc, cpc, pte)	
US6292756 BA	20000321	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PREMIER INSTRUMENTS, INC., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:LIEVOIS, JOHN S.; LANSANGAN, ROBERTO M.; RODGER, GEORGE J.; AND OTHERS; REEL/FRAME:010693/0001 EFFECTIVE DATE : 20000320
US6292756 BA	20010830	LSGT	PAT1	Patented Case	
US6292756 BA	20010830	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US6292756 BA	20020521	LSRE	CC	CERTIFICATE OF CORRECTION	
US6292756 BA	20021031	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEATHERFORD ARTIFICIAL LIFT SYSTEMS, INC., TEXAS OLDPARTY : SECURITY AGREEMENT; ASSIGNOR:PREMIER INSTRUMENTS, INC.; REEL/FRAME:013467/0888 EFFECTIVE DATE : 20021031
US6292756 BA	20021202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEATHERFORD ARTIFICIAL LIFT SYSTEMS, INC., TEXAS OLDPARTY : SECURITY AGREEMENT; ASSIGNOR:PREMIER INSTRUMENTS, INC.; REEL/FRAME:013532/0924 EFFECTIVE DATE : 20021121
US6292756 BA	20030728	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEATHERFORD ARTIFICIAL LIFT SYSTEMS, INC., TEXAS OLDPARTY : ASSIGNMENT OF

						ASSIGNORS INTEREST; ASSIGNOR:PREMIER INSTRUMENTS, INC.; REEL/FRAME:014313/0845 EFFECTIVE DATE : 20030610
US6292756 BA	20050223	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4	
US6292756 BA	20090218	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8	
US6292756 BA	20130220	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12	
US6292756 BA	20200321	PEXP		Calculated Patent Term Expiry		
WO0171324 A1	20010927	LSPB	+	published / reissued		
WO0171324 A1	20020919	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2403616 COUNTRY OF REF DOCUMENT : CA	
WO0171324 A1	20020927	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2001249215 COUNTRY OF REF DOCUMENT : AU	
WO0171324 A1	20021001	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2001922408 COUNTRY OF REF DOCUMENT : EP	
WO0171324 A1	20030115	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2001922408 COUNTRY OF REF DOCUMENT : EP	
WO0171324 A1	20041220	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : JP	
WO0171324 A1	20051006	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2001249215 COUNTRY OF REF DOCUMENT : AU	
WO9944043 A1	19990902	LSPB	+	published / reissued		
WO9944043 A1	20000824	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2321301 COUNTRY OF REF DOCUMENT : CA	
WO9944043 A1	20000824	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2321301 COUNTRY OF REF DOCUMENT : CA KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :	
WO9944043 A1	20000825	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : PA/A/2000/008392 COUNTRY OF REF DOCUMENT : MX	
WO9944043 A1	20000826	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : KR	
WO9944043 A1	20000831	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 1999936119 COUNTRY OF REF DOCUMENT : EP	
WO9944043 A1	20000905	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 33118/99 COUNTRY OF REF DOCUMENT : AU	
WO9944043 A1	20001213	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1999936119 COUNTRY OF REF DOCUMENT : EP	
WO9944043 A1	20001228	LSWD	REG	REFERENCE TO NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : 8642	
WO9944043 A1	20021107	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 33118/99 COUNTRY OF REF DOCUMENT : AU	

WO9944043 A1	20050413	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1999936119 COUNTRY OF REF DOCUMENT : EP
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Title: sistema de bombeio mecanico com embolos system of I pump mechanic with pistons (Machine translation)

Abstract: Source: BRPI0902037A [PT] SISTEMA DE BOMBEIO MECANICO COM EMBOLOS A presente invencao se refere a um sistema de elevacao artificial e, mais especificamente, a um sistema de bombeio mecanico com embolos(BME) que compreende uma valvula de retencao com torneira de regulacao (nipple) (2), um tubo de coleta (3), duas valvulas de retencao (4), uma camisa do pistao de fundo (5), uma camara superior (6) dacamisa do pistao de fundo (5), uma camara inferior (7) da camisa do pistao de fundo (5), um embolo superior (8), um embolo inferior (9) e divisao das camaras do pistao (10).

Machine translation: SYSTEM OF I PUMP MECHANIC WITH PISTONS the present invention if it relates to a system of artificial rise e, more specifically, to a system of I pump mechanic with pistons (BME) that he understands a valve of retention with regulation tap (nipple) (2), a collection pipe (3), two valves of retention (4), a shirt of the piston of deep (5), a superior chamber (6) dacamisa of the piston of deep (5), an inferior chamber (7) of the shirt of the piston of deep (5), a superior piston (8), an inferior piston (9) and division of the chambers of the piston (10).

Classifications:

International (IPC 8-9): E21B11/00 E21B17/00

F04B47/00 (Advanced/Invention)

International (IPC 1-7): E21B11/00 E21B17/00 F04B47/00

PatBase - BRPI0902037_A2

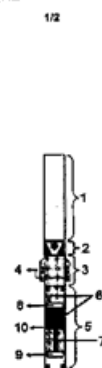


Figura 1

Family:

Publication number	Publication date	Application number	Application date
BRPI0902037 A2	20110222	BR2009PI02037	20090612
BRPI0902037 B1	20181211	BR2009PI02037	20090612

Priority:

BR2009PI02037 20090612

Probable Assignee: PETROLEO BRASILEIRO SA

Assignee(s): (std): PETROLEO BRASILEIRO PETROBRAS SA ; PETROLEO BRASILEIRO S A PETROBRAS ; PETROLEO BRASILEIRO SA

Inventor(s): (std): ERIK GONCALVES HOLDER DA SILVA ; DA SILVA ERIK GONCALVES HOLDER

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
BRPI0902037 A2	20110222	LSPB	B03A	PUBLICATION OF AN APPLICATION: PUBLICATION OF A PATENT APPLICATION OR OF A CERTIFICATE OF ADDITION OF INVENTION	
BRPI0902037 A2	20181106	LSGT	B09A	DECISION: INTENTION TO GRANT	
BRPI0902037 A2	20181211	LSGT	+B16A	PATENT OR CERTIFICATE OF ADDITION OF INVENTION GRANTED	TEXT : PRAZO DE VALIDADE: 20 (VINTE) ANOS CONTADOS A PARTIR DE 12/06/2009, OBSERVADAS AS CONDICÖES LEGAIS.
BRPI0902037 B1	20290612	PEXP		Calculated Patent Term Expiry	

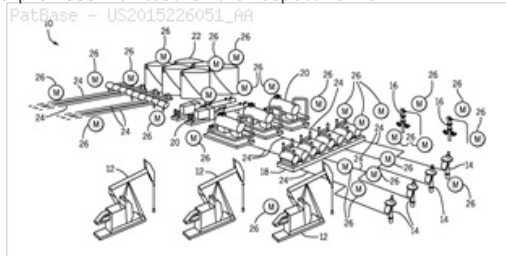
Title: SYSTEMS AND METHODS FOR LOCALLY PERFORMING WELL TESTING

Abstract: A method for locally performing a well test may include receiving, at a processor, data associated with a flow of hydrocarbons directed into an output pipe via a multi-selector valve configured to couple to one or more hydrocarbon wells. The method may also include determining one or more virtual flow rates of the liquid and gas components based on the data. The method may then send a signal to a separator configured to couple to the output pipe, wherein the signal is configured to cause the separator to perform a well test for a respective well when the virtual flow rates of the liquid and gas components do not substantially match well test data associated with the respective well, wherein the well test data comprises one or more flow rates of the liquid and gas components determined during a previous well test for the respective well.

Classifications:

International (IPC 8-9): E21B34/06 E21B43/12 E21B43/38 E21B44/00 E21B47/00 E21B47/06 E21B47/10 E21B49/00 E21B49/08 (Advanced/Invention)

CPC: E21B47/06 E21B47/10 E21B43/12 E21B49/08
US: 166/250.01 166/250.03 73/152.29

**Family:**

Publication number	Publication date	Application number	Application date
■ CN104832152 A	20150812	CN201510076759	20150212
■ CN104832152 B	20171208	CN201510076759	20150212
■ EP2910730 A2	20150826	EP20150154817	20150212
■ EP2910730 A3	20160907	EP20150154817	20150212
■ US2015226051 AA	20150813	US20140179266	20140212
■ US10370958 BB	20190806	US20140179266	20140212

Priority:

US20140179266 20140212

Probable Assignee: ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CENTER PTE LTD

Assignee(s): (std): ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CENTER PTE LTD ; ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CT PTE LTD ; ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CTR PTE LTD

Assignee(s): SENSIA NETHERLANDS BV ; ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CTR PTE

Inventor(s): (std): MIGUEL ARMANDO MACHADO ; SRIKANTH G MASHETTY ; MAHESH PUROHIT ; HASSAN S SUHEIL ; SUHEIL HASSAN S ; MASHETTY SRIKANTH G ; PUROHIT MAHESH ; MACHADO MIGUEL ARMANDO

Agent(s): GRUENECKER PATENT U RECHTSANWALTE PARTG MBB ; GRUENECKER PATENT U RECHTSANWALTE PARTG MBB ; FLETCHER YODER 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 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
CN104832152 A	20150812	LSPB	+	published / reissued	
CN104832152 A	20150812	LSPB	+C06	PUBLICATION	
CN104832152 B	20171208	LSGT	+	granted / extensions (spc, cpc, pte)	
CN104832152 B	20171208	LSGT	+GR01	PATENT GRANT	
CN104832152 B	20350212	PEXP		Calculated Patent Term Expiry	
EP2910730 A2	20150826	LSPB	+	published / reissued	
EP2910730 A3	20170315	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20170201
EP2910730 A3	20180314	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20180208
US10370958 BB	20190806	LSGT	+	granted / extensions (spc, cpc, pte)	
US10370958 BB	20140214	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CENTER P OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST;

					ASSIGNORS:MACHADO, MIGUEL ARMANDO; MASHETTY, SRIKANTH G.; PUROHIT, MAHESH; AND OTHERS; SIGNING DATES FROM 20140210 TO 20140213; REEL/FRAME:032220/0381
US10370958 BB	20191226	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SENSIA NETHERLANDS B.V., NETHERLANDS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CENTER PTE. LTD.; REEL/FRAME:051370/0400 EFFECTIVE DATE : 20191001
US10370958 BB	20350704	PEXP		Calculated Patent Term Expiry (PTA 507 days)	
US2015226051 AA	20150813	LSPB	+	published / reissued	
US2015226051 AA	20170814	LSES	ADV1	Advisory Action Mailed	
US2015226051 AA	20170921	LSAL	NAF1	Notice of Appeal Filed	
US2015226051 AA	20180205	LSAL	EAA1	Examiner's Answer to Appeal Brief Mailed	
US2015226051 AA	20180403	LSAL	APL3	Appeal Ready for Review	
US2015226051 AA	20180406	LSAL	APL5	On Appeal -- Awaiting Decision by the Board of Appeals	
US2015226051 AA	20181127	LSAL	BDR1	Board of Appeals Decision Rendered	
US2015226051 AA	20190318	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2015226051 AA	20190620	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
US2015226051 AA	20190717	LSGT	PAT1	Patented Case	
US2015226051 AA	20190717	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE

Title: BIDIRECTIONAL ELECTROMAGNETIC PROPELLED THRUSTER DEVICE FOR USE IN TUBULARS

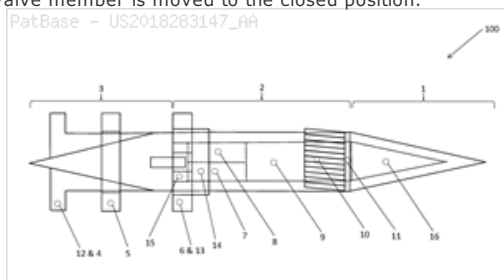
Abstract: A fluid transport system has electromagnetic elements spaced along a tubular that are controlled by a controller. A fluid thruster is provided in the tubular and has a thruster body having a downstream end and an upstream end, and a magnetic element carried by the thruster body. A valve member is carried by the thruster body that is actuatable between an open position that permits fluid flow to traverse the thruster body, and a closed position that prevents fluid flow to traverse the thruster body, in response to fluid pressure. The controller sequentially activates the electromagnetic elements to propel the fluid thruster in either the upstream direction or the downstream direction. In the upstream direction, the valve member is moved to the open position, and in the downstream direction, the valve member is moved to the closed position.

Classifications:**International (IPC 8-9):** E21B34/08 E21B43/12 E21B47/01

E21B47/06 E21B47/12 F17D3/03 (Advanced/Invention)

CPC: E21B43/121 E21B47/12 E21B33/1208 E21B34/08 E21B47/065

E21B47/011 F16L55/11 F16L55/30

US: 1/1 166/372**Family:**

Publication number	Publication date	Application number	Application date
CA2998777 AA	20180928	CA20182998777	20180321
US2018283147 AA	20181004	US20180927310	20180321

Priority:

US20170477901P 20170328

US20180927310 20180321

Probable Assignee:

PEP ENERGY SYSTEMS LTD

Assignee(s): (std):

PEP ENERGY SYSTEMS LTD

Assignee(s):

DURWARD ROBERT BONTHRON

Inventor(s): (std):

DURWARD ROBERT BONTHRON

Agent(s):

WOODRUFF NATHAN V

Legal status (INPADOC)[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
CA2998777 AA	20180928	LSPB	+	published / reissued	
US2018283147 AA	20181004	LSPB	+	published / reissued	
US2018283147 AA	20191210	LSSES	NFA1	Non Final Action Mailed	

Title: SUBMERSIBLE WELL FLUID SYSTEM

Abstract: A submersible well fluid system for operating submerged in a body of water may include an electric machine and a fluid end. The electric machine includes a rotor and a stator residing in a first housing at specified conditions. The fluid end may include an impeller and be coupled to the electric machine. The submersible well fluid system may also include an adjustable speed drive for the electric machine in the housing. The submersible well fluid system may also include a chemical distribution system for supplying treatment chemicals to the submersible well fluid system, a barrier fluid supply system for supplying a barrier fluid to the submersible well fluid system, and a pressure management system.

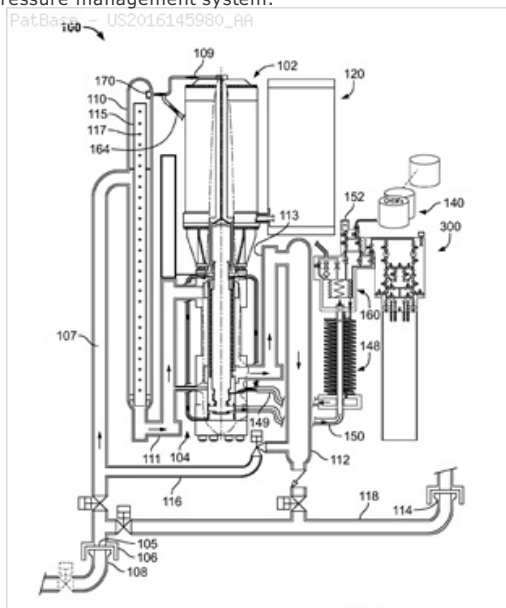
Classifications:

International (IPC 8-9): E21B43/01 E21B43/12 F04B17/00
F04B17/03 F04B35/04 F04B47/06 F04D13/10 F04D17/10 F04D19/00
F04D25/06 F04D27/00 F04D29/10 F04D29/28 F04D29/32 F04D29/42
F04D29/52 F04D31/00 (Advanced/Invention);
F04D29/32 (Advanced/Non-invention)

International (IPC 1-7): F04B17/00 F04B35/04

CPC: F04D29/104 F04D29/108 E21B43/01 E21B43/121 F04B17/03
F04B47/06 F04D13/10 F04D17/10 F04D25/0686 F04D31/00
F04D13/086 F04D19/002 F04D27/004 F04D29/32 F04D29/522

US: 417/423.3

**Family:**

Publication number	Publication date	Application number	Application date
AU2014236733 AA	20151001	AU20140236733	20140313
AU2014236733 BB	20160630	AU20140236733	20140313
AU2016235008 AA	20161027	AU20160235008	20160930
AU2016235008 BB	20180308	AU20160235008	20160930
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EP3561305 A1	20191030	EP20190179447	20140313
RU2015143215 A	20170502	RU20150143215	20140313
RU2638492 C2	20171213	RU20150143215	20140313
SG10201902570S A1	20190429	SG20191002570	20140313
SG11201507523Q A1	20151029	SG20151107523	20140313
US2016145980 AA	20160526	US20140777408	20140313
US2019195057 AA	20190627	US20190291050	20190304
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WO14151967 A1	20140925	WO2014US26745	20140313

Priority:

US20130801793P 20130315	AU20140236733 20140313	US20140777408 20140313
EP20140767998 20140313	WO2014US26745 20140313	US20150777408 20150915
AU20160235008 20160930	US20190291050 20190304	

Probable Assignee: FMC TECHNOLOGIES INC

Assignee(s): (std): EFEMSI TEKNOLODZHIZ INK ; FMC TECHNOLOGIES INC ; FMC TECHNOLOGIES ; FMC TECH INC

Assignee(s): BARTLETT TIMOTHY ; CARDOSO EDUARDO ; CUNNINGHAM CHRISTOPHER E ; GUEDES PINTO PAULO ; SINK JOHN DAVIS ; HUYNH CO SI ; PERRY ROBERT

Inventor(s): (std): SINK JOHN DAVIS ; PERRY ROBERT ; GUEDES PINTO PAULO ; CUNNINGHAM CHRISTOPHER E ; CARDOSO EDUARDO ; HUYNH CO SI ; BARTLETT TIMOTHY ; KANNINGEM KRISTOFER E ; KARDOZU EDUARDO ; BARTLETT TIMOTI ; GEDES PINTO PAULO ; KHYUIN KO SI ; PERRI ROBERT ; SINK DZHON DEVIS ; CHRISTOPHER E CUNNINGHAM ; EDUARDO CARDOSO ; TIMOTHY BARTLETT ; PAULO GUEDES PINTO ; CO SI HUYNH ; ROBERT PERRY ; JOHN DAVIS SINK ; CUNNINGHAM CHRISTOPHER

Inventor(s): JOHNDAVIS SINK

Agent(s): PIZZEYS; PIZZEYS PATENT AND TRADE MARK ATTORNEYS PTY LTD; KIRBY EADES GALE BAKER; LAWRENCE JOHN; BARKER BRETTTELL LLP; OOO YURIDICHESKAYA GORODISSKIJ I PARTNER Y FA; ALLEN AND GLEDHILL LLP; FISH AND RICHARDSON PC; SHRINIVASAN SUSHIL 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

Patent	Date recorded	Event group	Code	Event	Details
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AU2014236733 BB	20340313	PEXP		Calculated Patent Term Expiry	
AU2016235008 AA	20161027	LSPB	+	published / reissued	
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EP2971764 A4	20190116	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20181219
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RU2638492 C2	20171213	LSGT	+	granted / extensions (spc, cpc, pte)	
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SG10201902570S A1	20190429	LSPB	+	published / reissued	
SG11201507523Q A1	20151029	LSPB	+	published / reissued	
US10221662 BB	20190305	LSGT	+	granted / extensions (spc, cpc, pte)	
US10221662 BB	20190213	LSGT	PAT1	Patented Case	
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US2016145980 AA	20170419	LSES	NFA1	Non Final Action Mailed	
US2016145980 AA	20171127	LSES	NFA1	Non Final Action Mailed	
US2016145980 AA	20180410	LSES	-NFA2	Non Final Action Counted, Not Yet Mailed	
US2016145980 AA	20180412	LSES	NFA1	Non Final Action Mailed	
US2016145980 AA	20181024	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2016145980 AA	20190118	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : FMC TECHNOLOGIES, INC., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:CUNNINGHAM, CHRISTOPHER E.; CARDOSO, EDUARDO; BARTLETT, TIMOTHY; AND OTHERS; SIGNING DATES FROM 20150630 TO 20150915; REEL/FRA:048059/0533
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US2016145980 AA	20190213	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2019195057 AA	20190627	LSPB	+	published / reissued	
WO14151967 A1	20140925	LSPB	+	published / reissued	
WO14151967 A1	20150914	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2906544 COUNTRY OF REF DOCUMENT : CA
WO14151967 A1	20150915	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
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WO14151967 A1	20150922	LSNP	+WWE	WIPO	REF DOCUMENT NUMBER :

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WO14151967 A1	20170718	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112015022924 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20150912

Title: FLAPPER GAS LIFT VALVE

Abstract: A gas lift valve has a flow restrictor, a valve part on one side of the flow restrictor, a flow deflector and a tubular member on another side of the flow restrictor, and a flapper valve on the side of the flow restrictor where the tubular member is located, the flapper valve being adjacent to the tubular member. When fluid flows into the gas lift valve at sufficient pressure, the valve part opens, the fluid flows through the flow restrictor and acts on the flow diverter thereby moving the tubular member and opening the flapper valve. The tubular member extends through the opening the flapper valve covered.

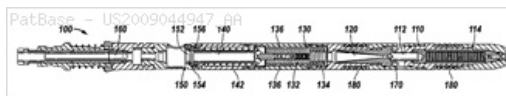
Classifications:**International (IPC 8-9):** E21B34/02 E21B34/06 E21B34/08

E21B43/00 E21B43/12 F16K31/36 (Advanced/Invention);

E21B34/00 (Advanced/Non-invention);

E21B34/00 E21B43/00 E21B43/12 F16K31/36 (Core/Invention);

E21B34/00 (Core/Non-invention)

CPC: E21B43/123 E21B2034/005**European:** E21B43/12B2C P21B34/00F**US:** 166/319 166/321 166/332.8 166/332.800S 166/372 166/373**Family:**

Publication number	Publication date	Application number	Application date
AU2008286769 AA	20090219	AU20080286769	20080815
AU2008286769 BB	20141211	AU20080286769	20080815
BRPI0815165 A2	20150331	BR2008PI15165	20080815
CA2696052 AA	20090219	CA20082696052	20080815
CA2696052 C	20160531	CA20082696052	20080815
GB201002711 A0	20100407	GB20100002711	20080815
GB2464875 A1	20100505	GB20100002711	20080815
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NO20100337 A	20100511	NO20100000337	20100310
NO20100337 L	20100511	NO20100000337	20100310
US2009044947 AA	20090219	US20080138150	20080612
US7832486 BB	20101116	US20080138150	20080612
WO09023853 A1	20090219	WO2008US73376	20080815

Priority:

US20070956069P 20070815

US20080138150 20080612

WO2008US73376 20080815

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Assignee(s): (std): GARNER JAMES ; MESSICK TYSON ; SCHLUMBERGER CA LTD ; SCHLUMBERGER HOLDINGS ; PRAD RES AND DEV LTD ; MCCALVIN DAVID ; SCHLUMBERGER SERVICES PETROL ; WHITE THOMAS ; SCHLUMBERGER TECHNOLOGY CORP ; SCHLUMBERGER TECHNOLOGY BV ; ABDELLAL FAHD F ; BURNETT III KENNETH C

Assignee(s): BURNETT KENNETH C III ; SERVICES PETROLIERS SCHLUMBERGER ; SCHLUMBERGER HOLDINGS LTD ; PRAD RESEARCH AND DEVELOPMENT LTD ; SCHLUMBERGER CANADA LTD

Inventor(s): (std): ABDELLAL FAHD F ; GARNER JAMES ; BURNETT III KENNETH C ; WHITE THOMAS ; MESSICK TYSON ; MCCALVIN DAVID ; ABDELLAL FAHD F ; WHITE THOMAS R ; BURNETT KENNETH C III ; MESSICK TYSON R ; MCCALVIN DAVID E

Inventor(s): DAVID E MCCALVIN ; TYSON R MESSICK ; JAMES GARNER ; FAHD F ABDELLAL ; DAVID MCCALVIN ; THOMAS WHITE ; TYSON MESSICK ; KENNETH C BURNETT III ; BURNETT KENNETH C

Agent(s): GRIFFITH HACK ; SMART AND BIGGAR ; SCHLUMBERGER RESERVOIR COMPLETIONS ; TIM ; KEVIN B ; RODNEY V ; MCGOFF KEVIN B ET AL

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)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
AU2008286769 AA	20090219	LSPB	+	published / reissued	
AU2008286769 BB	20141211	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2008286769 BB	20150409	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2008286769 BB	20280815	PEXP		Calculated Patent Term Expiry	
BRPI0815165 A2	20180320	LSGT	B09A	DECISION: INTENTION TO GRANT	
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NO20100337 A	20100511	LSPB	+	published / reissued	
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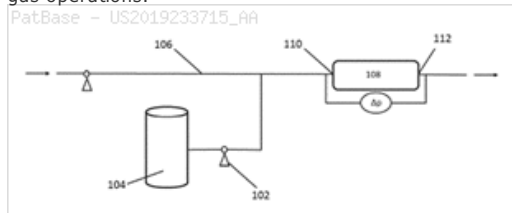
Title: COMPOSITIONS FOR USE IN OIL AND GAS OPERATIONS

Abstract: Disclosed are compositions and methods for use in oil and gas operations.

Classifications:

International (IPC 8-9): C08L33/26 C09K8/52 C09K8/584 C09K8/588 C09K8/60 C09K8/68 C09K8/88 E21B43/00 E21B43/20 F17D1/16 (Advanced/Invention)

CPC: C09K8/52 C09K8/584 C09K8/588 C09K8/68 C09K8/88 C09K2208/28 F17D1/16 C08K5/09 C08K5/37 C08L33/26 C09K8/602 E21B43/20



Family:

Publication number	Publication date	Application number	Application date
GB201901249 A0	20190320	GB20190001249	20190130
GB201901251 A0	20190320	GB20190001251	20190130
GB2572245 A1	20190925	GB20190001249	20190130
GB2572246 A1	20190925	GB20190001251	20190130
US2019233715 AA	20190801	US20190262211	20190130
US2019233716 AA	20190801	US20190262216	20190130
WO19152467 A1	20190808	WO2019US15771	20190130
WO19152470 A1	20190808	WO2019US15775	20190130

Priority:

US20180624092P 20180130 US20190262211 20190130 US20190262216 20190130

Probable Assignee: CHEVRON U S A INC

Assignee(s): (std): CHEVRON ORONITE CO ; CHEVRON USA INC

Assignee(s): CHEVRON ORONITE CO LLC ; CHEVRON U S A INC

Inventor(s): (std): ALEXIS DENNIS A ; PINNAWALA ARACHCHILAGE GAYANI ; DWARAKANATH VARADARAJAN ; KIM DO HOON ; MALIK TAIMUR ; WINSLOW GREGORY A ; WILHELM AARON ; ALEXIS DENNIS ; PINNAWALA ARACHCHILAGE GAYANI WASANA PREMATHILAKE ; DENNIS ALEXIS ; GAYANI WASANA PREMATHILAKE PINNAWALA ARACHCHILAGE ; VARADARAJAN DWARAKANATH ; DO HOON KIM ; TAIMUR MALIK ; GREGORY A WINSLOW ; AARON WILHELM

Agent(s): ZUCCHERO ANTHONY J 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 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
GB2572245 A1	20190925	LSPB	+	published / reissued	
GB2572246 A1	20190925	LSPB	+	published / reissued	
US2019233715 AA	20190801	LSPB	+	published / reissued	
US2019233716 AA	20190801	LSPB	+	published / reissued	
US2019233716 AA	20190306	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CHEVRON U.S.A. INC., CALIFORNIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: ALEXIS, DENNIS A.; PINNAWALA ARACHCHILAGE, GAYANI; DWARAKANATH, VARADARAJAN; AND OTHERS; SIGNING DATES FROM 20190131 TO 20190205; REEL/FRAME: 048515/0986
US2019233716 AA	20200226	LSSES	NFA1	Non Final Action Mailed	
WO19152467 A1	20190808	LSPB	+	published / reissued	
WO19152470 A1	20190808	LSPB	+	published / reissued	

Title: SLIMBORE SUBSEA COMPLETION SYSTEM AND METHOD

Abstract: A slimbore marine riser and BOP are provided for a subsea completion system which includes a tubing spool secured to a wellhead at the sea floor. The tubing spool has an internal landing profile for a reduced diameter tubing hanger which is arranged and dimensioned to pass through the bore of the riser and BOP at the end of a landing string. The tubing hanger, arranged and designed to be sealingly positioned in the tubing spool landing profile, has a production bore and a relatively large multiplicity of electric and hydraulic passages which terminate at a top end of the hanger with vertically extending electric and hydraulic couplers. A passage is provided through the body of the tubing spool which provides communication from above the tubing hanger to the well annulus below the hanger. A remotely controllable valve is placed in the annulus bypass passage. After the hanger is positioned in the tubing spool, the BOP may be set aside the wellhead, so that a substantially conventional xmas tree (with a BOP adaptor connected to its top profile) may be secured at its bottom end to the tubing spool. Subsequently the BOP may be secured to the top of the xmas tree by means of the BOP adaptor. After downhole and subsea completion operations are finished, the BOP and marine riser may be disconnected from the xmas tree by unlocking the bottom of the BOP adaptor from the top of the xmas tree. A tree cap can then be installed in the top profile of the xmas tree. For well intervention operations, a conventional BOP or LMRP of convenience can be reestablished to the top of the xmas tree via the BOP adaptor.

Classifications:

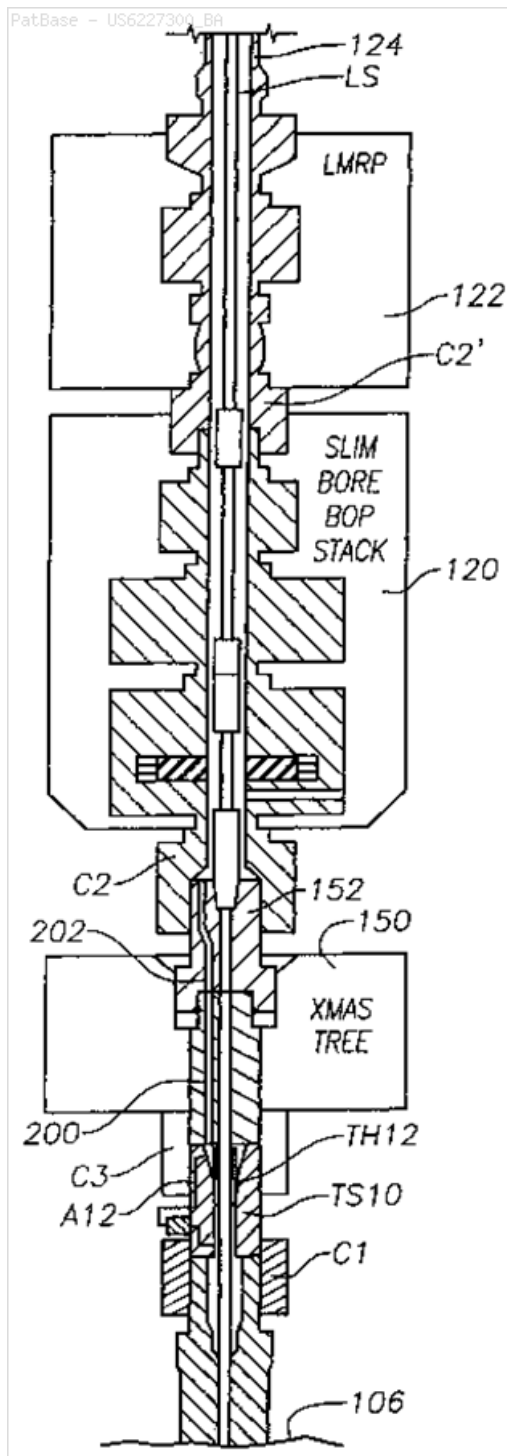
International (IPC 8-9): E21B33/035 E21B33/038 E21B33/043
E21B33/047 E21B33/064 (Advanced/Invention)

International (TPC 1-7): E21B3/3038 E21B33/03 E21B33/035
E21B33/038 E21B33/043 E21B33/047 E21B33/06 E21B33/093
E21B43/01

CPC: E21B33/035 E21B33/038 E21B33/047

European: E21B33/035 E21B33/038 E21B33/047

US: 166/339 166/345 166/348 166/363 166/364 166/365 166/368



Family:

Publication number	Publication date	Application number	Application date
AU199897918 A1	19990427	AU19980097918	19981007
BRP19812854 A	20000808	BR1998P112854	19981007
EP1021637 A1	20000726	EP19980952151	19981007

EP1021637 A4	20020724	EP19980952151	19981007
EP1021637 B1	20040211	EP19980952151	19981007
EP1350918 A2	20031008	EP20030014704	19981007
EP1350918 A3	20040204	EP20030014704	19981007
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EP1350919 A2	20031008	EP20030014705	19981007
EP1350919 A3	20040218	EP20030014705	19981007
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NO20001035 A	20000605	NO20000001035	20000301
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NO20003663 A	20000605	NO20000003663	20000717
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NO20003666 A0	20000717	NO20000003666	20000717
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NO319931 B1	20051003	NO20000003666	20000717
NO322545 B1	20061023	NO20000003663	20000717
NO331355 B1	20111205	NO20000001035	20000301
US6227300 BA	20010508	US19980168301	19981007
US6408947 BA	20020625	US20000685650	20001009
US6715554 BA	20040406	US20000685831	20001009
WO9918329 A1	19990415	WO1998US21192	19981007

Priority:

US19970061293P 19971007	EP19980952151 19981007	US19980168301 19981007
WO1998US21192 19981007	US20000685831 20001009	US20000685650 20001009

Probable Assignee: FMC TECHNOLOGIES INC

Assignee(s): (std): FMC CORP ; FMC TECHNOLOGIES ; FMC TECHNOLOGIES INC

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Inventor(s): CHRISTOPHER E CUNNINGHAM ; CHRISTOPHER D BARTLETT

Agent(s): GARY L BUSH; MAYOR DAY CALDWELL AND KEETON LLP

Designated states: AT AU BE BR CA CH CY DE DK ES FI FR GB GR IE IT LU MC NL NO PT SE

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
AU199897918 A1	19990427	LSPB	+	published / reissued	
AU199897918 A1	20000622	LSLE	-MK6	APPLICATION LAPSED SECTION 142(2) (F)/REG. 8.3(3) - PCT APPLIC. NOT ENTERING NATIONAL PHASE	
BRPI9812854 A	20000808	LSPB	+	published / reissued	
BRPI9812854 A	20050517	LSGT	B09A	DECISION: INTENTION TO GRANT	
BRPI9812854 A	20060328	LSGT	+B16A	PATENT OR CERTIFICATE OF ADDITION OF INVENTION GRANTED	TEXT : PRAZO DE VALIDADE: 20 (VINTE) ANOS CONTADOS A PARTIR DE 07/10/1998, OBSERVADAS AS CONDICOES LEGAIS.
EP1021637 A1	20000726	LSPB	+	published / reissued	
EP1021637 A1	20000726	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20000327
EP1021637 A1	20170131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20161005 YEAR OF FEE PAYMENT : 19
EP1021637 A4	20020724	LSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	EFFECTIVE DATE : 20020607
EP1021637 A4	20021002	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : FMC TECHNOLOGIES, INC.

EP1021637 A4	20030102	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20021118
EP1021637 B1	20040211	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1021637 B1	20040211	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20040211
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US6227300 BA	19981007	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : FMC CORPORATION, ILLINOIS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:CUNNINGHAM, CHRISTOPHER E.; BARTLETT, CHRISTOPHER D.; REEL/FRAME:009511/0407 EFFECTIVE DATE : 19981007
US6227300 BA	20010420	LSGT	PAT1	Patented Case	
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US6227300 BA	20081110	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
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US6408947 BA	20131127	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6408947 BA	20201009	PEXP		Calculated Patent Term Expiry	
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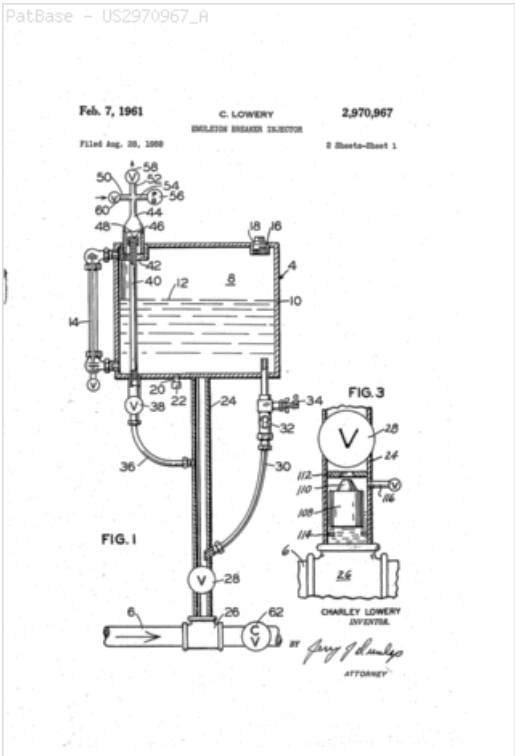
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WO9918329 A1	19990415	LSPB	+	published / reissued	
WO9918329 A1	20000324	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 1998952151 COUNTRY OF REF DOCUMENT : EP
WO9918329 A1	20000726	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1998952151 COUNTRY OF REF DOCUMENT : EP
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WO9918329 A1	20040211	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1998952151 COUNTRY OF REF DOCUMENT : EP

Title: EMULSION BREAKER INJECTOR

Abstract: (Claim 1) 1. In combination with a flow line through which a mixture of oil, gas and water is pumped and wherein the flow line has a horizontally extending portion; a gas-tight housing for storing a supply of emulsion breaker; 75 means for supporting the housing above the horizontal portion of the flow line; said means including a vertically extending pipe connected to the flow line in communication with the upper interior of the horizontal portion of the flow line to receive free gas from the flow line; a first tube connected, to an intermediate portion of said 5 pipe and to the bottom of the housing with the upper end, thereof, positioned substantially even with the bottom of the housing, a riser threaded in the upper end of said tube and extending upwardly into the upper portion of the housing, a cover threaded into the top of the housing 10 above said riser to facilitate removal of the riser and drainage of the housing through: said tube and said pipe into the flow line, a second tube connected to the lower portion of the housing and to said pipe for feeding emul-sion breaker from the housing into the flow line, the 15 upper end of said second tube being positioned above the bottom of the housing, and a needle valve in said second tube for regulating the amount of emulsion breaker injected into the flow line. 2. The combination defined in claim 1 characterized 20 further to include a valved conduit connected to said cover for supplying gas to the upper portion of said housing from a separate gas supply. 3. The combination defined in claim 1 characterized a further to include an orificed cap on the upper end of said riser. 4. The combination defined in claim 1 characterized further to include a sight glass assembly having upper and lower arms connected to the upper and lower portions of the housing to indicate the leve! of emulsion breaker in the housing, said second tube being connected to the lower arm of the sight glass assembly and an intermediate portion of said pipe. Refereaces Cited in the file of this patent UNITED STATES PATENTS 1,606,685 Averii_Nov. 9, 1926 OTHER

Classifications:

International (IPC 8-9): E21B43/34 (Advanced/Invention);
E21B43/34 (Core/Invention)
International (IPC 1-7): C10G33/00
CPC: E21B43/34 Y10T137/7426 Y10T137/87676
European: E21B43/34
US: 137/430 137/605 366/142 366/177.1 366/182.4



Family:

Publication number	Publication date	Application number	Application date
US2970967 A	19610207	US19580757759	19580828

Priority:

US19580757759 19580828

Probable Assignee:

Assignee(s): (std): CHARLEY LOWERY
Inventor(s): (std): CHARLEY LOWERY
Inventor(s): LOWERY CHARLEY

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2970967 A	19610207	LSGT	+	granted / extensions (spc, cpc, pte)	

Title: MULTI-USE DATA PROCESSING CIRCUITRY FOR WELL MONITORING

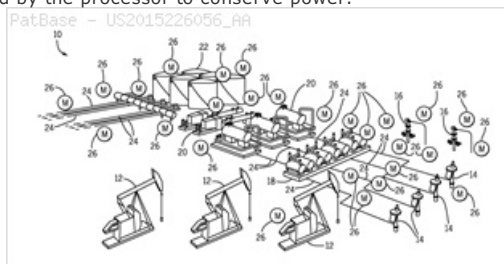
Abstract: A circuit for processing data associated with a well may include a power port that receives an input voltage and a processor. The processor may receive data associated with one or more properties of the well and a well device configured to control a flow of hydrocarbons extracted from the well. The processor may also receive a value that corresponds to the input voltage. The processor may then operate in a first power mode when the value is not greater than a threshold, such that the first power mode may limit one or more processes performed by the processor to conserve power.

Classifications:

International (IPC 8-9): E21B41/00 E21B47/00 E21B47/12
G05B19/042 (Advanced/Invention)

CPC: E21B47/12 G05B19/0428 E21B41/0085 E21B41/00 E21B47/00

US: 340/853.3



Family:

Publication number	Publication date	Application number	Application date
■ CN104834248 A	20150812	CN201510076571	20150212
■ CN104834248 B	20180622	CN201510076571	20150212
■ DE602015020243 D1	20181220	DE201560020243T	20150211
■ EP2907966 A2	20150819	EP20150154683	20150211
■ EP2907966 A3	20151202	EP20150154683	20150211
■ EP2907966 B1	20181128	EP20150154683	20150211
■ US2015226056 AA	20150813	US20140179241	20140212
■ US9803470 BB	20171031	US20140179241	20140212

Priority:

US20140179241 20140212 EP20150154683 20150211

Probable Assignee: ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CENTER PTE LTD

Assignee(s): (std): ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CENTER PTE LTD ; ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CT PTE LTD ; ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CTR PTE LTD

Assignee(s): SENSIA NETHERLANDS BV ; ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CTR PTE

Inventor(s): (std): KIDWAI OWAS ; SIADO CELSO ; SUHEIL HASSAN S ; MASHETTY SRIKANTH G ; SRIKANTH G MASHETTY ; CELSO SIADO ; OWAS KIDWAI ; HASSAN S SUHEIL

Inventor(s): MASHETTY SRIKANTH G HOUSTON ; SIADO CELSO HOUSTON ; KIDWAI OWAS TOMBALL ; SUHEIL HASSAN S HOUSTON

Agent(s): GRUENECKER PATENT U RECHTSANWAELTE PARTG MBB; GRUENECKER PATENT U RECHTSANWAELTE PARTG MBB; FLETCHER YODER 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 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
CN104834248 A	20150812	LSPB	+	published / reissued	
CN104834248 A	20150812	LSPB	+C06	PUBLICATION	
CN104834248 B	20180622	LSGT	+	granted / extensions (spc, cpc, pte)	
CN104834248 B	20180622	LSGT	+GR01	PATENT GRANT	
CN104834248 B	20350212	PEXP		Calculated Patent Term Expiry	
EP2907966 A2	20150819	LSPB	+	published / reissued	
EP2907966 A3	20160713	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20160601
EP2907966 A3	20180808	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20180713
EP2907966 B1	20181128	LSGT	+	granted / extensions (spc, cpc, pte)	
EP2907966 B1	20181130	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP2907966 B1	20181215	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : REF REF DOCUMENT NUMBER : 1070468 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) :

EFFECTIVE DATE : 20181215					
EP2907966 B1	20181220	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602015020243 COUNTRY OF REF DOCUMENT : DE
EP2907966 B1	20181226	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP2907966 B1	20190410	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : LT REF LEGAL EVENT CODE : MG4D
EP2907966 B1	20190415	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : MK05 REF DOCUMENT NUMBER : 1070468 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20181128
EP2907966 B1	20190430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20181128
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EP2907966 B1	20190830	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : EE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20181128
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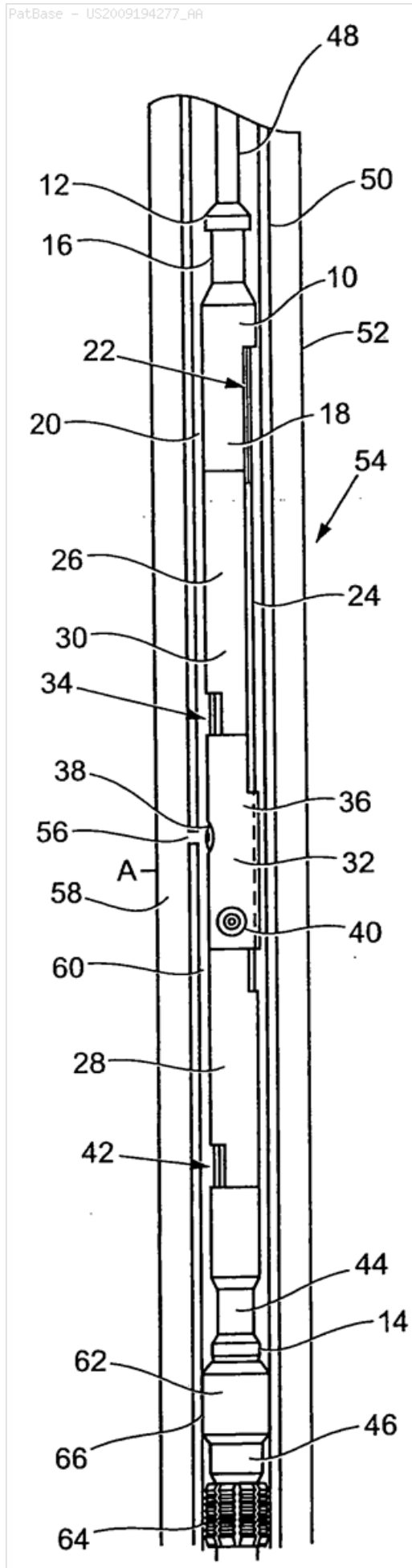
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EP2907966 B1	20191031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20181128
EP2907966 B1	20191106	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20190829
EP2907966 B1	20191127	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP2907966 B1	20191231	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20190228
EP2907966 B1	20191231	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20190228
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EP2907966 B1	20350211	PEXP		Calculated Patent Term Expiry	
US2015226056 AA	20150813	LSPB	+	published / reissued	
US2015226056 AA	20170727	LSSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2015226056 AA	20170926	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
US2015226056 AA	20171011	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US9803470 BB	20171031	LSGT	+	granted / extensions (spc, cpc, pte)	
US9803470 BB	20140214	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CENTER P OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:MASHETTY, SRIKANTH G.; SIADO, CELSO; KIDWAI, OWAIS; AND OTHERS; REEL/FRAME:032220/0112 EFFECTIVE DATE : 20140213
US9803470 BB	20171011	LSGT	PAT1	Patented Case	
US9803470 BB	20191226	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SENSIA NETHERLANDS B.V., NETHERLANDS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CENTER PTE. LTD.; REEL/FRAME:051370/0400 EFFECTIVE DATE : 20191001
US9803470 BB	20360426	PEXP		Calculated Patent Term Expiry (PTA 804 days)	

Title: SINGLE TRIP TUBING PUNCH AND SETTING TOOL

Abstract: A tubing punch and setting tool (TPST), operating on a single run for improved well bore intervention. The tool includes a setting tool for connecting to and setting a reference tool in a tubing string, a punch tool for punching holes in the tubing string wall, and actuation means to trigger the sequencing of the setting tool and the punch tool. The tool can be run on wireline, e-line or coiled tubing and allows a reference tool to be run and set on the same trip as punching holes in the tubing string. An embodiment is described wherein the reference tool is an anchor tool. With the distance known accurately between the anchor tool and the punched holes, a shortened retrofit gas lift straddle can be deployed.

Classifications:

International (IPC 8-9): E21B23/00 E21B23/06 E21B43/11
E21B43/112 E21B43/114 E21B43/116 E21B43/117 E21B43/118
E21B43/12 E21B47/00 E21B47/09 (Advanced/Invention);
E21B23/00 E21B43/11 E21B43/12 E21B47/00 (Core/Invention)
CPC: E21B43/11 E21B43/114 E21B43/116 E21B43/117 E21B43/118
E21B23/00 E21B43/112 E21B43/122
European: E21B23/00 E21B43/11 E21B43/112 E21B43/114
E21B43/116 E21B43/117 E21B43/118
US: 166/255.1 166/255.100P 166/297 166/298 166/298S 166/55.1
166/55.100S

**Family:**

Publication number	Publication date	Application number	Application date
DK2085571 T3	20191007	DK20090250175T	20090122

EP2085571 A3	20190805	EP20090250175	20090122
EP2085571 B1	20190925	EP20090250175	20090122
GB200801730 A0	20080305	GB20080001730	20080131
GB200901032 A0	20090311	GB20090001032	20090122
GB2456234 A1	20090715	GB20090001032	20090122
GB2456234 B2	20120208	GB20090001032	20090122
US2009194277 AA	20090806	US20090322129	20090129
US8136584 BB	20120320	US20090322129	20090129

Priority:

GB20080001730 20080131

Probable Assignee: HALLIBURTON CO

Assignee(s): (std): BROWN IRVINE CARDNO ; BURNETT WILLIAM STEPHEN ; HALLIBURTON CO ; HALLIBURTON MFG AND SERVICES LTD ; RED SPIDER TECHNOLOGY LTD

Assignee(s): RED SPIDER TECHNOLOGY LIMITED

Inventor(s): (std): BROWN IRVINE CARDNO ; BROWN IRVINE CARNO ; BURNETT WILLIAM STEPHEN

Inventor(s): IRVINE CARNO BROWN ; WILLIAM STEPHEN BURNETT

Agent(s): CAMPBELL ARLENE; HOFFMANN EITLE; EDWARDS ANGELL PALMER AND DODGE LLP; LADAS AND PARRY 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 TR

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
DK2085571 T3	20191007	LSGT	+	granted / extensions (spc, cpc, pte)	
DK2085571 T3	20290122	PEXP		Calculated Patent Term Expiry	
EP2085571 A2	20090805	LSPB	+	published / reissued	
EP2085571 A2	20131113	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : HALLIBURTON MANUFACTURING & SERVICES LIMITED
EP2085571 A3	20170809	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20170629
EP2085571 A3	20171122	LSFE	+AKX	DESIGNATION FEES PAID	COUNTRY OF REF DOCUMENT : AT COUNTRY OF REF DOCUMENT : BE COUNTRY OF REF DOCUMENT : BG COUNTRY OF REF DOCUMENT : CH COUNTRY OF REF DOCUMENT : CY COUNTRY OF REF DOCUMENT : CZ COUNTRY OF REF DOCUMENT : DE COUNTRY OF REF DOCUMENT : DK COUNTRY OF REF DOCUMENT : EE COUNTRY OF REF DOCUMENT : ES COUNTRY OF REF DOCUMENT : FI COUNTRY OF REF DOCUMENT : FR COUNTRY OF REF DOCUMENT : GB COUNTRY OF REF DOCUMENT : GR COUNTRY OF REF DOCUMENT : HR COUNTRY OF REF DOCUMENT : HU COUNTRY OF REF DOCUMENT : IE COUNTRY OF REF DOCUMENT : IS COUNTRY OF REF DOCUMENT : IT COUNTRY OF REF DOCUMENT : LI COUNTRY OF REF DOCUMENT : LT COUNTRY OF REF DOCUMENT : LU COUNTRY OF REF DOCUMENT : LV COUNTRY OF REF DOCUMENT : MC COUNTRY OF REF DOCUMENT : MK COUNTRY OF REF DOCUMENT : MT COUNTRY OF REF DOCUMENT :

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EP2085571 A3	20190522	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20190426
EP2085571 B1	20190925	LSGT	+	granted / extensions (spc, cpc, pte)	
EP2085571 B1	20190930	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP2085571 B1	20191015	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : REF REF DOCUMENT NUMBER : 1184002 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20191015
EP2085571 B1	20191016	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP2085571 B1	20191017	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602009059941 COUNTRY OF REF DOCUMENT : DE
EP2085571 B1	20191125	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NO REF LEGAL EVENT CODE : T2 EFFECTIVE DATE : 20190925
EP2085571 B1	20200131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20190925
EP2085571 B1	20200131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20190925
EP2085571 B1	20200131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20190925
EP2085571 B1	20200131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BG NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY

				EPO]	THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20191225
EP2085571 B1	20200131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20190925
EP2085571 B1	20200210	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : LT REF LEGAL EVENT CODE : MG4D
EP2085571 B1	20200228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LV NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20190925
EP2085571 B1	20200228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20191226
EP2085571 B1	20200228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK PAYMENT DATE : 20191230 YEAR OF FEE PAYMENT : 12
EP2085571 B1	20290122	PEXP		Calculated Patent Term Expiry	
GB200801730 A0	20090729	LSWD	-AT	APPLICATIONS TERMINATED BEFORE PUBLICATION UNDER SECTION 16(1)	
GB2456234 A1	20090715	LSPB	+	published / reissued	
GB2456234 B2	20120208	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2456234 B2	20290122	PEXP		Calculated Patent Term Expiry	
US2009194277 AA	20090806	LSPB	+	published / reissued	
US2009194277 AA	20120229	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US8136584 BB	20120320	LSGT	+	granted / extensions (spc, cpc, pte)	
US8136584 BB	20090406	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : RED SPIDER TECHNOLOGY LIMITED, UNITED KINGDOM OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:BURNETT, WILLIAM STEPHEN; BROWN, IRVINE CARDNO; REEL/FRAME:022507/0007 EFFECTIVE DATE : 20090209
US8136584 BB	20120229	LSGT	PAT1	Patented Case	
US8136584 BB	20130916	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HALLIBURTON MANUFACTURING & SERVICES LIMITED, UNIT OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:RED SPIDER TECHNOLOGY LIMITED; REEL/FRAME:031213/0489 EFFECTIVE DATE : 20130813
US8136584 BB	20150825	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US8136584 BB	20300810	PEXP		Calculated Patent Term Expiry (PTA 558 days)	

Title: PROTECTION CIRCUIT FOR A TRANSISTOR

Abstract: A protection circuit for transistor that avoids the use of performance hindering resistors or diodes or capacitors includes a routing circuit for routing an electrostatic discharge current around the transistor and a detection circuit that switches on the routing circuit when a breakdown current in the transistor exceeds a threshold.

Classifications:

International (IPC 8-9): C09K8/54 C10G31/00 C10L1/00 C10L3/00 C12N15/113 C12N9/02 E21B41/02 H01L23/60 H01L23/62 H01L27/04 H01L27/08 H01L27/088 H02H3/00 H02H9/00

H03F1/52 (Advanced/Invention);

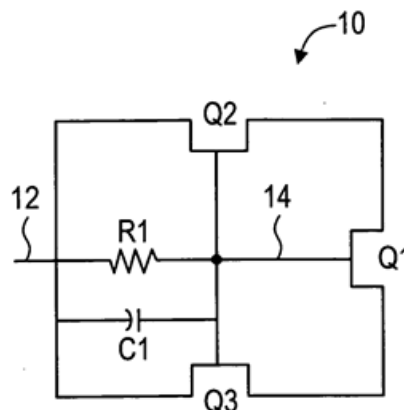
C09K8/54 C10G31/00 C10L1/00 C10L3/00 C12N15/113 C12N9/02 E21B41/00 H01L23/58 H01L27/04 H01L27/08 H02H3/00 H02H9/00 (Core/Invention)

CPC: H03F1/523 H01L27/0266 H03F3/193 C10L3/10 C09K8/52 C09K2208/20 C10G1/047 C10L3/102 C12N9/0051 C12N15/1137 C12N2310/11 C12Y108/99001 C09K8/54 C10G31/00 C10L1/00 C10L3/00 E21B41/02

European: C09K8/52 C09K8/54 C10G1/04W C10G31/00 C10L1/00 C10L3/00 C10L3/10 C10L3/10B2 C12N15/113D C12N9/00P18 C12Y108/99001 E21B41/02 H01L27/02B4F6 H03F1/52B H03F3/193 M09K208/20 M12N310/11

US: 361/56

PatBase - US2006126236_AA

**Family:**

Publication number	Publication date	Application number	Application date
CN100530649 C	20090819	CN200510112859	20051014
CN1790713 A	20060621	CN200510112859	20051014
GB200525446 A0	20060125	GB20050025446	20051214
GB200525466 A0	20060125	GB20050025466	20051214
GB200624969 A0	20070124	GB20060024969	20061214
GB2421378 A1	20060621	GB20050025466	20051214
GB2433261 A1	20070620	GB20060024969	20061214
GB2433261 B2	20090114	GB20060024969	20061214
US2006126236 AA	20060615	US20040012705	20041215
US7230807 BB	20070612	US20040012705	20041215
WO07068926 A2	20070621	WO2006GB04668	20061214
WO07068926 A3	20070802	WO2006GB04668	20061214

Priority:

US20040012705 20041215 GB20050025446 20051214 GB20050025466 20051214

Probable Assignee: AVAGO TECHNOLOGIES LTD

Assignee(s): (std): AGILENT TECHNOLOGIES INC ; DUNSMORE BRADER ; ROBINSON KEITH ; OILPLUS LTD ; VICE MICHAEL W

Assignee(s): OILPLUS LIMITED ; CITICORP NORTH AMERICA INC ; AVAGO TECHNOLOGIES WIRELESS IP SINGAPORE PTE LTD ; AVAGO TECHNOLOGIES GENERAL IP PTE LTD ; AVAGO TECHNOLOGIES GENERAL IP SINGAPORE PTE LTD ; AVAGO TECHNOLOGIES LTD ; AVAGO TECHNOLOGIES WIRELESS IP (SINGAPORE) PTE LTD ; AVAGO TECHNOLOGIES WIRELESS IP PTE LTD

Inventor(s): (std): DUNSMORE BRADEN ; ROBINSON KEITH ; DUNSMORE BRADER ; VICE MICHAEL W

Inventor(s): MICHAEL W VICE ; VICE MICHAEL ; KEITH ROBINSON ; BRADEN DUNSMORE

Agent(s): AGILENT TECHNOLOGIES INC INTELLECTUAL PROPERTY ADMINISTRATION LEGAL DEPT

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 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 MG MK ML MN MR 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 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
CN100530649 C	20090819	LSGT	+	granted / extensions (spc, cpc, pte)	
CN100530649 C	20090819	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN100530649 C	20141210	LSLE	-C17	CESSATION OF PATENT RIGHT	
CN100530649 C	20251014	PEXP		Calculated Patent Term Expiry	
CN1790713 A	20060621	LSPB	+	published / reissued	
CN1790713 A	20060621	LSPB	+C06	PUBLICATION	

CN1790713 A	20070131	LSAS	C41	TRANSFER OF PATENT APPLICATION OR PATENT RIGHT OR UTILITY MODEL	
GB2421378 A1	20060621	LSPB	+	published / reissued	
GB2421378 A1	20091007	LSWD	-WAP	APPLICATION WITHDRAWN, TAKEN TO BE WITHDRAWN OR REFUSED ** AFTER PUBLICATION UNDER SECTION 16(1)	
GB2433261 A1	20070620	LSPB	+	published / reissued	
GB2433261 B2	20090114	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2433261 B2	20180829	LSLE	-PCNP	PATENT CEASED THROUGH NON- PAYMENT OF RENEWAL FEE	EFFECTIVE DATE : 20171214
GB2433261 B2	20261214	PEXP		Calculated Patent Term Expiry	
US2006126236 AA	20060615	LSPB	+	published / reissued	
US7230807 BB	20070612	LSGT	+	granted / extensions (spc, cpc, pte)	
US7230807 BB	20050429	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : AGILENT TECHNOLOGIES, INC., COLORADO OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:VICE, MICHAEL W; REEL/FRAME:015963/0363 EFFECTIVE DATE : 20041129
US7230807 BB	20060222	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : AVAGO TECHNOLOGIES GENERAL IP PTE. LTD., SINGAPORE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:AGILENT TECHNOLOGIES, INC.; REEL/FRAME:017206/0666 EFFECTIVE DATE : 20051201
US7230807 BB	20060222	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : AVAGO TECHNOLOGIES GENERAL IP PTE. LTD.,SINGAPORE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:AGILENT TECHNOLOGIES, INC.; REEL/FRAME:017206/0666 EFFECTIVE DATE : 20051201
US7230807 BB	20060224	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CITICORP NORTH AMERICA, INC., DELAWARE OLDPARTY : SECURITY AGREEMENT; ASSIGNOR:AVAGO TECHNOLOGIES GENERAL IP (SINGAPORE) PTE. LTD.; REEL/FRAME:017207/0882 EFFECTIVE DATE : 20051201
US7230807 BB	20060224	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CITICORP NORTH AMERICA, INC.,DELAWARE OLDPARTY : SECURITY AGREEMENT; ASSIGNOR:AVAGO TECHNOLOGIES GENERAL IP (SINGAPORE) PTE. LTD.; REEL/FRAME:017207/0882 EFFECTIVE DATE : 20051201
US7230807 BB	20060525	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : AVAGO TECHNOLOGIES WIRELESS IP (SINGAPORE) PTE. LT OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:AVAGO TECHNOLOGIES GENERAL IP (SINGAPORE) PTE. LTD; REEL/FRAME:017675/0434 EFFECTIVE DATE : 20060127

US7230807 BB	20101110	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7230807 BB	20150612	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US7230807 BB	20150713	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US7230807 BB	20150713	LSLE	-STCH	INFORMATION ON STATUS: PATENT DISCONTINUATION	TEXT : PATENT EXPIRED DUE TO NONPAYMENT OF MAINTENANCE FEES UNDER 37 CFR 1.362
US7230807 BB	20150804	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20150612
US7230807 BB	20160506	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : AVAGO TECHNOLOGIES GENERAL IP (SINGAPORE) PTE. LTD OLDPARTY : CORRECTIVE ASSIGNMENT TO CORRECT THE ASSIGNEE NAME PREVIOUSLY RECORDED AT REEL: 017206 FRAME: 0666. ASSIGNOR(S) HEREBY CONFIRMS THE ASSIGNMENT; ASSIGNOR:AGILENT TECHNOLOGIES, INC.; REEL/FRAME:038632/0662 EFFECTIVE DATE : 20051201
US7230807 BB	20241215	PEXP		Calculated Patent Term Expiry	
WO07068926 A2	20070621	LSPB	+	published / reissued	
WO07068926 A3	20080617	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO07068926 A3	20090121	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 06820515 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) :

Title: DOWNHOLE OIL/WATER SEPARATION SYSTEM WITH SOLIDS SEPARATION

Abstract: A downhole oil/water separation apparatus and process which separates solids from total production fluid prior to oil/water separation is disclosed. Production fluid is passed to a downhole solid/liquid cyclone which separates the fluid into a solids enriched stream and an oil/water stream. The oil is then commingled with the solids enriched stream and brought to surface. The water is reinjected downhole. The method effectively removes solids from the disposal fluid and thus avoids injectivity impairment caused by solids plugging.

Classifications:

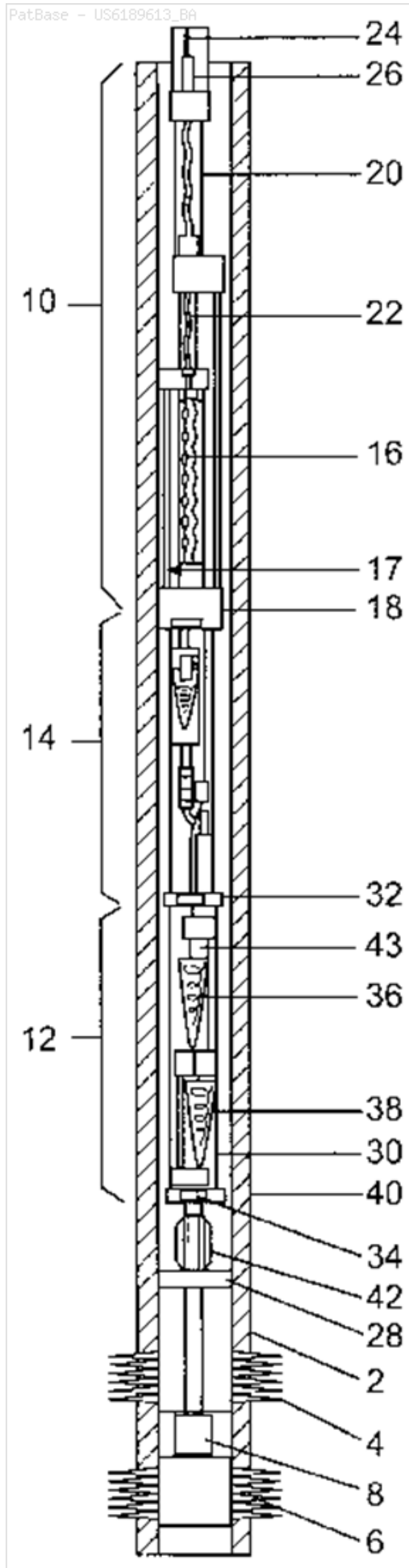
International (IPC 8-9): E21B43/38 (Advanced/Invention);
E21B43/34 (Core/Invention)

International (IPC 1-7): E21B43/34 E21B43/38

CPC: E21B43/385

European: E21B43/38B

US: 166/105.5 166/265 166/369



Family:

Publication number	Publication date	Application number	Application date
CA2247838 AA	20000325	CA19982247838	19980925
CA2247838 C	20070918	CA19982247838	19980925

Priority:

CA19982247838 19980925

Probable Assignee: CFER TECHNOLOGIES INC

Assignee(s): (std): PAN CANADIAN PETROLEUM LTD ; PANCANADIAN PETROLEUM

Assignee(s): PANCANADIAN PETROLEUM LIMITED ; PANCANADIAN PETROLEUM LTD ; SOLANKI SANDEEP C ; CFER
TECHNOLOGIES INC ; CHACHULA RYAN C ; PAN CANADIAN PETROLEUM LIMITED

Inventor(s): (std): CHACHULA RYAN C ; SOLANKI SANDEEP C

Agent(s): OSLER HOSKIN AND HARCOURT LLP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA2247838 AA	20000325	LSPB	+	published / reissued	
CA2247838 AA	20030923	LSES	+EEER	EXAMINATION REQUEST	
CA2247838 C	20070918	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2247838 C	20110926	LSLE	-MKLA	LAPSED	
CA2247838 C	20180925	PEXP		Calculated Patent Term Expiry	
US6189613 BA	20010220	LSGT	+	granted / extensions (spc, cpc, pte)	
US6189613 BA	19990924	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PANCANADIAN PETROLEUM LIMITED, CANADA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:CFER TECHNOLOGIES, INC.; REEL/FRAME:010270/0050 EFFECTIVE DATE : 19990729
US6189613 BA	19990924	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CFER TECHNOLOGIES, INC., CANADA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:SOLANKI, SANDEEP C.; REEL/FRAME:010270/0061 EFFECTIVE DATE : 19990729
US6189613 BA	19990924	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PANCANADIAN PETROLEUM LIMITED, CANADA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:CHACHULA, RYAN C.; REEL/FRAME:010270/0066 EFFECTIVE DATE : 19990212
US6189613 BA	20010202	LSGT	PAT1	Patented Case	
US6189613 BA	20010202	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US6189613 BA	20040817	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6189613 BA	20080808	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6189613 BA	20130130	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6189613 BA	20190924	PEXP		Calculated Patent Term Expiry	

Title: Method and apparatus for determining the location of an interface region

Abstract: A method and apparatus for determining the location of an interface region between at least two components of a medium within a subterranean environment comprises isolating at least one zone within a subterranean environment, heating a medium within the at least one isolated zone, measuring a rate of change of temperature at different locations within the medium, and identifying an interface region between at least two locations with different measured rates of change of temperature. The method may comprise measuring temperature at different location by one or more thermal imaging apparatus, such as a thermal imaging camera, or by at least one distributed temperature sensor arrangement. An apparatus 30 for locating interfaces 20, 22 may be located within a wellbore 10 and comprises tubular support member 32 which includes a plurality of swellable packers 34. The packers, once activated to create a seal define a number of isolated annular zones 40. Measurements may be taken within these isolated zones to determine the location of interfaces 20, 22.

Classifications:

International (IPC 8-9): E21B47/04 E21B47/10 G01F23/22

G01K11/32 (Advanced/Invention)

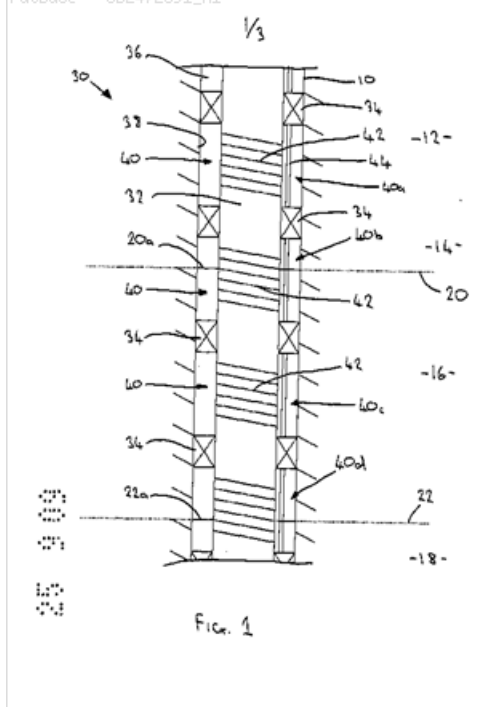
CPC: G01K11/32 E21B36/04 E21B47/042 E21B47/1005 G01F23/247

G01F23/248 G01K3/10 G01K3/14 G01F23/22 G01K11/3206

European: E21B36/04 E21B47/04B E21B47/10B G01F23/24C2

G01F23/24C2B G01K11/32 G01K3/10 G01K3/14

PatBase - GB2472391_A1



Family:

Publication number	Publication date	Application number	Application date
GB200913504 A0	20090916	GB20090013504	20090803
GB2472391 A1	20110209	GB20090013504	20090803

Priority:

GB20090013504 20090803

Probable Assignee: SENSORNET LTD

Assignee(s): (std): SENSORNET LTD

Assignee(s): SENSORNET LIMITED

Inventor(s): (std): CARTER NEALE ; MCROBB GRAEME GEORGE ; WATLEY DANIEL ANDREW

Inventor(s): NEALE CARTER ; DANIEL ANDREW WATLEY ; GRAEME GEORGE MCROBB

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
GB2472391 A1	20110209	LSPB	+	published / reissued	
GB2472391 A1	20170201	LSWD	-WAP	APPLICATION WITHDRAWN, TAKEN TO BE WITHDRAWN OR REFUSED ** AFTER PUBLICATION UNDER SECTION 16(1)	

Title: GAS LIFT VALVES

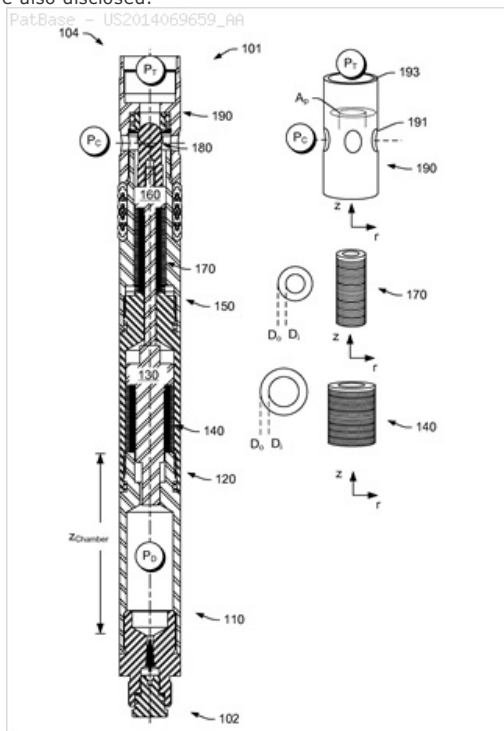
Abstract: A method can include selecting a ratio of a first effective cross-sectional area of a first component of a gas lift valve to a second effective cross-sectional area of a second component of the gas lift valve; charging a chamber of the gas lift valve; and positioning the gas lift valve in a pocket to expose the gas lift valve to a tubing pressure and a casing pressure, where transitioning of the gas lift valve from a closed state to an open state depends at least in part on the selected ratio. Various other apparatuses, systems, methods, etc., are also disclosed.

Classifications:

International (IPC 8-9): E21B34/08 E21B43/12 (Advanced/Invention)

CPC: E21B43/123

US: 166/321 166/373



Family:

Publication number	Publication date	Application number	Application date
BR102013022919 A2	20170620	BR20131022919	20130906
GB201315886 A0	20131023	GB20130015886	20130906
GB2507175 A1	20140423	GB20130015886	20130906
NO20131208 A	20140310	NO20130001208	20130906
US2014069659 AA	20140313	US20130017712	20130904
US9546541 BB	20170117	US20130017712	20130904

Priority:

US20120698589P 20120908 US20120698622P 20120908 US20130017712 20130904

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Assignee(s): (std): SCHLUMBERGER HOLDINGS ; SCHLUMBERGER TECH BV ; SCHLUMBERGER TECHNOLOGY BV ; SCHLUMBERGER TECHNOLOGY CORP

Assignee(s): SCHLUMBERGER HOLDINGS LTD

Inventor(s): (std): BALASUBRAMANIAN GANESH ; WANG CHAO ; KEONG WINSON TIONG WENG ; YU SHAN CHRIS LI ; YUSHAN CHRIS LI ; TIONG WINSON ; CHRIS LI YUSHAN ; WINSON TIONG ; GANESH BALASUBRAMANIAN ; CHAO WANG ; LI YUSHAN ; TIONG WENG KEONG

Agent(s): MICHAEL

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
BR102013022919 A2	20170620	LSPB	B03A	PUBLICATION OF AN APPLICATION: PUBLICATION OF A PATENT APPLICATION OR OF A CERTIFICATE OF ADDITION OF INVENTION	
BR102013022919 A2	20180703	LSFE	-B08F	APPLICATION FEES: DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW	

BR102013022919 A2	20181030	LSLE	-B08K	LAPSE AS NO EVIDENCE OF PAYMENT OF THE ANNUAL FEE HAS BEEN FURNISHED TO INPI (ACC. ART. 87)	TEXT : EM VIRTUDE DO ARQUIVAMENTO PUBLICADO NA RPI 2478 DE 03-07-2018 E CONSIDERANDO AUSENCIA DE MANIFESTACAO DENTRO DOS PRAZOS LEGAIS, INFORMO QUE CABE SER MANTIDO O ARQUIVAMENTO DO PEDIDO DE PATENTE, CONFORME O DISPOSTO NO ARTIGO 12, DA RESOLUCAO 113/2013.
GB2507175 A1	20140423	LSPB	+	published / reissued	
GB2507175 A1	20180627	LSWD	-WAP	APPLICATION WITHDRAWN, TAKEN TO BE WITHDRAWN OR REFUSED ** AFTER PUBLICATION UNDER SECTION 16(1)	
NO20131208 A	20140310	LSPB	+	published / reissued	
NO20131208 A	20180423	LSRV	-FC2A	WITHDRAWAL, REJECTION OR DISMISSAL OF LAID OPEN PATENT APPLICATION	
US2014069659 AA	20140313	LSPB	+	published / reissued	
US2014069659 AA	20161228	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US9546541 BB	20170117	LSGT	+	granted / extensions (spc, cpc, pte)	
US9546541 BB	20140214	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:WANG, CHAO; TIONG, WINSON; YUSHAN, CHRIS LI; AND OTHERS; SIGNING DATES FROM 20131002 TO 20140213; REEL/FRAME:032216/0379
US9546541 BB	20140214	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:WANG, CHAO; TIONG, WINSON; YUSHAN, CHRIS LI; AND OTHERS; SIGNING DATES FROM 20131002 TO 20140213; REEL/FRAME:032216/0361
US9546541 BB	20161228	LSGT	PAT1	Patented Case	
US9546541 BB	20170328	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : CORRECTIVE ASSIGNMENT TO CORRECT THE 2ND AND 3RD INVENTOR NAMES PREVIOUSLY RECORDED ON REEL 032216 FRAME 0379. ASSIGNOR(S) HEREBY CONFIRMS THE WINSON TONGCHRIS LI YUSHAN; ASSIGNORS:WANG, CHAO; TIONG, WENG KEONG; LI, YUSHAN; AND OTHERS; SIGNING DATES FROM 20161130 TO 20170327; REEL/FRAME:042104/0347
US9546541 BB	20350302	PEXP		Calculated Patent Term Expiry (PTA 544 days)	

Title: PLUG IN PUMP FOR INVERTED SHROUD ASSEMBLY

Abstract: The pump can be utilized in gassy oil wells to prevent gas slugs from locking the electrical submersible pump. A shroud assembly is provided with a bottom that can be fixed to the top of a seal section connected to the top of a motor. Additional lengths of shroud can be added as the shroud assembly is lowered into the well. The electrical submersible pump can then be lowered into the shroud and supported from a production tubing string. A hanger can then be attached to the production tubing string to carry the weight of the shroud assembly, motor, and seal section.

Classifications:

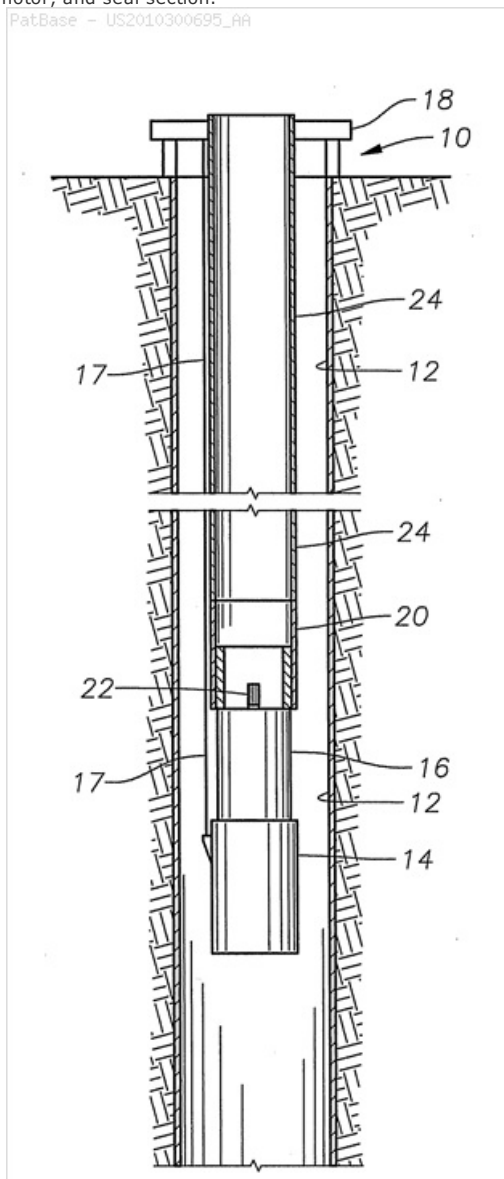
International (IPC 8-9): E21B23/00 E21B43/00 E21B43/12
F04B47/06 F04B53/16 F04D13/08 (Advanced/Invention)

CPC: E21B43/128

European: E21B43/12B10

US: 166/105 166/105S 166/313 166/372 166/382 166/68

PatBase - US2010300695_AA



Family:

Publication number	Publication date	Application number	Application date
CA2705959 AA	20101202	CA20102705959	20100601
CA2705959 C	20130723	CA20102705959	20100601
US2010300695 AA	20101202	US20090476831	20090602
US8079418 BB	20111220	US20090476831	20090602

Priority:

US20090476831 20090602 CA20102705959 20100601

Probable Assignee: BAKER HUGHES INC

Assignee(s): (std): BAKER HUGHES INC ; BROWN DONN J ; MACK JOHN J ; TETZLAFF STEVEN K ; WILSON BROWN LYLE

Inventor(s): (std): TETZLAFF STEVEN K ; BROWN DONN J ; WILSON BROWN LYLE ; MACK JOHN J

Agent(s): SIM AND MCBURNEY; BRACEWELL AND GIULIANI LLP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA2705959 AA	20101202	LSPB	+	published / reissued	
CA2705959 AA	20100601	LSES	+EEER	EXAMINATION	

CA2705959 C	20130723	LSGT	+	REQUEST granted / extensions (spc, cpc, pte)	
CA2705959 C	20300601	PEXP		Calculated Patent Term Expiry	
US2010300695 AA	20101202	LSPB	+	published / reissued	
US2010300695 AA	20111130	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US8079418 BB	20111220	LSGT	+	granted / extensions (spc, cpc, pte)	
US8079418 BB	20090602	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BAKER HUGHES INCORPORATED, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: BROWN, DONN J.; WILSON, BROWN LYLE; TETZLAFF, STEVEN K.; AND OTHERS; REEL/FRA: 022769/0743 EFFECTIVE DATE : 20090529
US8079418 BB	20111130	LSGT	PAT1	Patented Case	
US8079418 BB	20150603	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US8079418 BB	20190522	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US8079418 BB	20300325	PEXP		Calculated Patent Term Expiry (PTA 296 days)	

Title: OIL AND GAS PRODUCTION WITH DOWNHOLE SEPARATION AND COMPRESSION OF GAS

Abstract: A method and system for producing a mixed gas-oil stream through a wellbore wherein at least a portion of the gas is separated from the stream downhole and is compressed (e.g. using a SPARC) before both the compressed gas and the remainder of the stream is brought to the surface through separate flowpaths. The system includes a string of tubing which provides the flowpath for the remainder of the stream while the annulus, formed between the tubing string and the wellbore provides the flowpath for the compressed gas.

Classifications:

International (IPC 8-9): E21B43/12 E21B43/38

E21B43/40 (Advanced/Invention);

E21B43/12 E21B43/34 (Core/Invention)

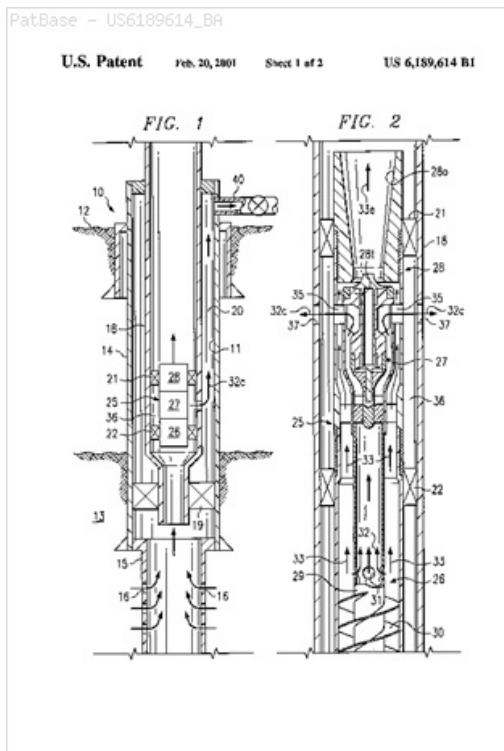
International (IPC 1-7): E21B E21B4/338 E21B4/340 E21B43/00

E21B43/38 E21B43/40

CPC: E21B43/12 E21B43/40

European: E21B43/12 E21B43/40

US: 166/265 166/266 166/267 166/370 166/52 405/128 405/128.15 405/128.2



Family:

Publication number	Publication date	Application number	Application date
EP1041243 A2	20001004	EP20000302575	20000329
EP1041243 A3	20020102	EP20000302575	20000329
NO20001613 A	20001002	NO20000001613	20000328
NO20001613 A0	20000328	NO20000001613	20000328
NO20001613 L	20001002	NO20000001613	20000328
NO330791 B1	20110718	NO20000001613	20000328
US6189614 BA	20010220	US19990282056	19990329

Priority:

US19990282056 19990329

Probable Assignee: CONOCO PHILLIPS CO

Assignee(s): (std): CONOCO PHILLIPS CO ; CONOCOPHILLIPS CO ; ATLANTIC RICHFIELD CO

Assignee(s): ATLANTIC RICHFIELD COMPANY ; PHILLIPS PETROLEUM CO ; PHILLIPS PETROLEUM COMPANY

Inventor(s): (std): BRADY JERRY L ; STEVENSON MARK D ; KLEIN JOHN M ; CAWVEY JAMES L

Inventor(s): JERRY L BRADY ; MARK D STEVENSON ; JOHN M KLEIN ; JAMES L CAWVEY

Designated states: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

Legal status (INPADOC)

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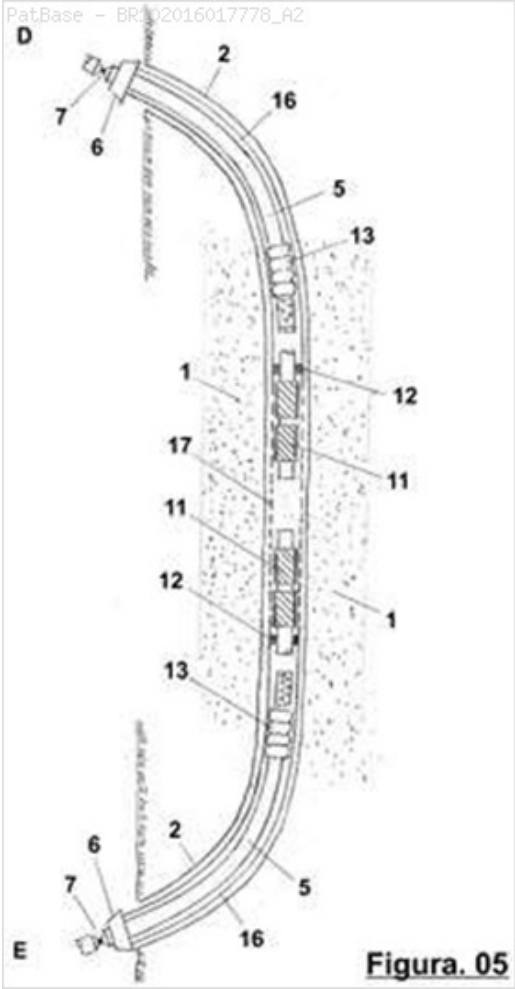
Patent	Date recorded	Event group	Code	Event	Details
EP1041243 A2	20001004	LSPB	+	published / reissued	
EP1041243 A3	20020130	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : PHILLIPS PETROLEUM COMPANY
EP1041243 A3	20020918	LSFE	+AKX	DESIGNATION FEES PAID	
EP1041243 A3	20030502	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20020703
NO20001613 A	20001002	LSPB	+	published / reissued	
NO330791 B1	20110718	LSGT	+	granted / extensions	

				(spc, cpc, pte)		
NO330791 B1	20200328	PEXP		Calculated Patent Term Expiry		
US6189614 BA	20010220	LSGT	+	granted / extensions (spc, cpc, pte)		
US6189614 BA	19990329	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ATLANTIC RICHFIELD COMPANY, CALIFORNIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:JERRY BRADY, L.; STEVENSON, MARK D.; KLEIN, JOHN M.; AND OTHERS; REEL/FRAME:009873/0653; SIGNING DATES FROM 19990316 TO 19990322	
US6189614 BA	20010202	LSGT	PAT1	Patented Case		
US6189614 BA	20010202	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE	
US6189614 BA	20011217	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PHILLIPS PETROLEUM COMPANY, OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:ATLANTIC RICHFIELD COMPANY; REEL/FRAME:012333/0329 EFFECTIVE DATE : 20010920	
US6189614 BA	20040629	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4	
US6189614 BA	20080717	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8	
US6189614 BA	20090608	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CONOCOPHILLIPS COMPANY, TEXAS OLDPARTY : CHANGE OF NAME; ASSIGNOR:PHILLIPS PETROLEUM COMPANY; REEL/FRAME:022793/0106 EFFECTIVE DATE : 20021212	
US6189614 BA	20120725	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12	
US6189614 BA	20190329	PEXP		Calculated Patent Term Expiry		

Title: METODO PARA O DESENVOLVIMENTO E PRODUCAO DE AQUIFEROS SUBTERRANEOS ATRAVES DA TECNICA DAS PERFURACOES HORIZONTAIS Method FOR THE DEVELOPMENT AND PRODUCTION OF UNDERGROUND AQUIFERS THROUGH ART HORIZONTAL PERFORATIONS (Machine translation)

Abstract: Source: BR102016017778A [PT] RESUMO "METODO PARA O DESENVOLVIMENTO E PRODUCAO DE AQUIFEROS SUBTERRANEOS ATRAVES DA TECNICA DAS PERFURACOES HORIZONTAIS" Campo de Aplicacao A presente invencao e relacionada e esta inserida na industria de perfuracao de pozos destinados a producao de aguas subterraneas. Objeto da Invencao A presente invencao introduz um novo e diferenciado metodo, no qual o desenvolvimento e a producao de aquiferos subterraneos se fazem a partir de pozos direcionais horizontalizados, em substituicao aos costumeiros pozos verticais. Peticao 870160040679, de 29/07/2016, pag. 14/22 **Machine translation:** A METHOD FOR THE DEVELOPMENT AND PRODUCTION OF UNDERGROUND AQUIFERS BY A TECHNIQUE OF THE PRESENT INVENTION Application Field horizontal perforations" is related and is inserted into the well drilling industry for the production of subterranean waters. The present invention introduces a new object and differentiated method, in which the development and production of underground aquifers are from customary horizontalizados directional wells, in substitution for vertical wells. The 870160040679 repeat 29/07/2016, pp. Materials

Classifications:
International (IPC 8-9): E21B47/02 E21B7/04 (Advanced/Invention)
International (IPC 1-7): E21B47/02 E21B7/04
CPC: E21B7/04 E21B47/02



Family:

Publication number	Publication date	Application number	Application date
BR102016017778 A2	20171024	BR20161017778	20160729

Priority:

BR20161017778 20160729

Probable Assignee: SERGIO RODOLFO CACACE MUELLER
Assignee(s): (std): SERGIO RODOLFO CACACE MUELLER
Inventor(s): (std): SERGIO RODOLFO CACACE MUELLER

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
BR102016017778 A2	20171024	LSPB	B03B	PUBLICATION OF AN APPLICATION: ANTICIPATED PUBLICATION	

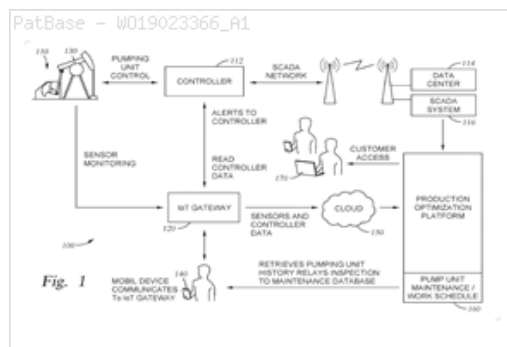
Title: INTERNET OF THINGS GATEWAY SYSTEMS AND METHODS FOR OIL AND GAS FIELDS

Abstract: The present disclosure describes implementation of wireless sensor packages to monitor various oilfield equipment health status, such as bearing wear and detect out-of-balance condition on reciprocating rod lifts (RRLs). Equipment health data can be collected, analyzed and stored by an IoT gateway, which is a small form-factor, ruggedized, low-power Intel processor computer running a novel message-oriented middleware software stack that leverages the MQTT protocol. Data may subsequently be transmitted to a cloud service via the internet via a datacenter through SCADA, for analysis and action.

Classifications:**International (IPC 8-9):** G05B19/418 H04L29/08

H04W4/38 (Advanced/Invention);

E21B47/00 (Advanced/Non-invention)

CPC: E21B47/0008 E21B47/122 E21B47/00 H04L67/12 H04W4/38**Family:**

Publication number	Publication date	Application number	Application date
AU2018308383 AA	20200206	AU20180308383	20180725
CA3070438 AA	20200117	CA20183070438	20180725
WO19023366 A1	20190131	WO2018US43728	20180725

Priority:

US20170536813P 20170725 WO2018US43728 20180725

Probable Assignee: WEATHERFORD TECH HOLDINGS LLC**Assignee(s):** (std): WEATHERFORD TECHNOLOGY HOLDINGS LLC ; WEATHERFORD TECH HOLDINGS LLC**Assignee(s):** MAHDAVI MEHRZAD ; PENNER JASON ; STOUT DALE ; TAIT COLIN**Inventor(s):** (std): STOUT DALE ; PENNER JASON ; TAIT COLIN ; MAHDAVI MEHRZAD**Agent(s):** WRAYS PTY LTD; DEETH WILLIAMS WALL LLP; PATTERSON WILLIAM B 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 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
AU2018308383 AA	20200206	LSPB	+	published / reissued	
CA3070438 AA	20200117	LSPB	+	published / reissued	
WO19023366 A1	20190131	LSPB	+	published / reissued	
WO19023366 A1	20200117	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 3070438 COUNTRY OF REF DOCUMENT : CA
WO19023366 A1	20200128	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO19023366 A1	20200206	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2018308383 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20180725 KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :

Title: HIGH-SPEED, MULTI-POWER SUBMERSIBLE PUMPS AND COMPRESSORS

Abstract: An apparatus, method and system for removing fluids from a well comprising a rotary pump for positioning within the well, the rotary pump including an inlet end and a discharge end, the rotary pump comprising at least one pump impeller intermediate the inlet end and discharge end, the at least one pump impeller rotating at a rate greater than 3600 rpm; a driver for driving the at least one pump impeller to a rate greater than 3600 rpm, the driver positioned within the wellbore and operatively connected to the rotary pump; a magnetic bearing system, the magnetic bearing system operatively connected to the rotary pump and/or driver; and a digital controller positioned within the wellbore to control the magnetic bearing system. A method for removing liquids from a well and an apparatus and method for producing gas from a wellbore or injecting a fluid into a wellbore are also provided.

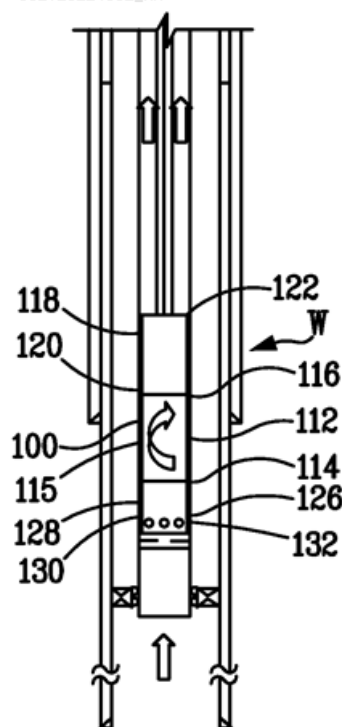
Classifications:

International (IPC 8-9): E21B4/00 E21B41/00 E21B43/12 E21B43/16 E21B47/00 E21B47/12 F04B47/00 F16C32/04 H02K7/09 (Advanced/Invention)

CPC: E21B43/126 E21B47/0007 E21B43/128 E21B43/129 E21B47/122 E21B43/168 E21B41/0085 E21B4/003 H02K7/09 F16C32/044 F16C2352/00

US: 166/250.15 166/305.1 166/372 166/66 166/66.4 166/66.5

PatBase - US2015114632_AA



Family:

Publication number	Publication date	Application number	Application date
US2015114632 AA	20150430	US20140464618	20140820
WO15065574 A1	20150507	WO2014US51947	20140820

Priority:

US20130897035P 20131029 US20140464618 20140820

Probable Assignee: EXXON MOBIL CORP

Assignee(s): (std): EXXON MOBIL CORP ; EXXONMOBIL UPSTREAM RES CO ; ROMER MICHAEL C ; UPTIGROVE STAN O

Assignee(s): EXXONMOBIL UPSTREAM RESEARCH CO

Inventor(s): (std): ROMER MICHAEL C ; UPTIGROVE STAN O

Agent(s): JAMES RICK F 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 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
US2015114632 AA	20150430	LSPB	+	published / reissued	
US2015114632 AA	20170105	LSES	NFA1	Non Final Action Mailed	
US2015114632 AA	20180531	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
WO15065574 A1	20150507	LSPB	+	published / reissued	
WO15065574 A1	20160429	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO15065574 A1	20161221	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 14766258

COUNTRY OF REF
DOCUMENT : EP
KIND CODE OF REF
DOCUMENT : A1
DESIGNATED
STATE(S) :

Title: SYSTEM AND METHOD FOR ESTIMATING FLOW CAPACITY OF A RESERVOIR

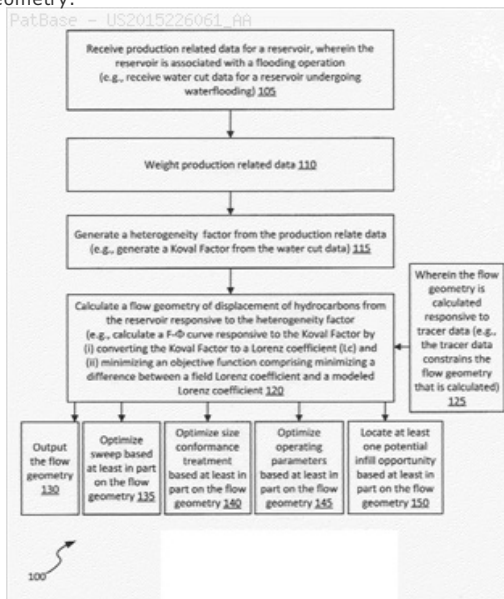
Abstract: The disclosure relates to a computer implemented method and system for determining a flow geometry of a subsurface reservoir, as well as a method of hydrocarbon production with flooding. A general embodiment of the disclosure is a method for determining a flow geometry of a subsurface reservoir, the method comprising: (a) receiving production related data for the reservoir, wherein the reservoir is associated with a flooding operation; (b) generation a heterogeneity factor from the production related data; (c) calculating a flow geometry of displacement of hydrocarbons from the reservoir responsive to the heterogeneity factor; and (d) outputting the flow geometry.

Classifications:

International (IPC 8-9): E21B49/08 (Advanced/Invention)

CPC: E21B43/20

US: 702/12



Family:

Publication number	Publication date	Application number	Application date
US2015226061 AA	20150813	US20150622826	20150214

Priority:

US20140939590P 20140213 US20150622826 20150214

Probable Assignee: CHEVRON USA INC

Assignee(s): (std): CHEVRON USA INC ; SHOOK G MICHAEL

Inventor(s): (std): SHOOK G MICHAEL

Legal status (INPADOC)

[View legal status timeline](#)

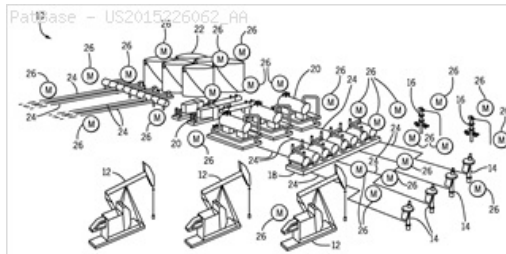
Patent	Date recorded	Event group	Code	Event	Details
US2015226061 AA	20150813	LSPB	+	published / reissued	
US2015226061 AA	20150216	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CHEVRON U.S.A. INC., CALIFORNIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:SHOOK, G. MICHAEL; REEL/FRAME:034966/0042 EFFECTIVE DATE : 20150213
US2015226061 AA	20171101	LSSES	NFA1	Non Final Action Mailed	
US2015226061 AA	20180725	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	

Title: SYSTEMS AND METHODS FOR LOCALIZED WELL ANALYSIS AND CONTROL

Abstract: A system may include a well device to control a flow of hydrocarbons extracted from a well and a monitoring device to receive data associated with one or more properties of the well and the well device. The monitoring device is disposed on the well device and receives pressure data and temperature data associated with the well device. The monitoring device may then determine an inflow performance relationship, a tubing performance relationship, a choke performance relationship, and a wellhead performance relationship, or any combination thereof based on the pressure data and the temperature data. The monitoring device may also generate at least one plot that illustrates the inflow performance relationship, the tubing performance relationship, the choke performance relationship, and the wellhead performance relationship, or any combination thereof. The monitoring system may then display the at least one plot on a display device disposed on the monitoring system.

Classifications:**International (IPC 8-9):** E21B43/12 E21B47/06 E21B49/08

G05B19/05 G06F17/50 (Advanced/Invention)

CPC: G05B19/05 G05B2219/15078 E21B43/12**US:** 73/152.29**Family:**

Publication number	Publication date	Application number	Application date
■ CN104834263 A	20150812	CN201510076383	20150212
■ CN104834263 B	20181002	CN201510076383	20150212
■ EP2910729 A2	20150826	EP20150154816	20150212
■ EP2910729 A3	20160518	EP20150154816	20150212
■ US2015226062 AA	20150813	US20140179255	20140212
■ US10072485 BB	20180911	US20140179255	20140212

Priority:

US20140179255 20140212

Probable Assignee: ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CENTER PTE LTD**Assignee(s):** (std): ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CENTER PTE LTD ; ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CT PTE LTD ; ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CTR PTE LTD**Assignee(s):** SENSIA NETHERLANDS BV ; ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CTR PTE**Inventor(s):** (std): MACHADO MIGUEL ARMANDO ; SUHEIL HASSAN S ; MASHETTY SRIKANTH G ; SRIKANTH G MASHETTY ; MIGUEL ARMANDO MACHADO ; HASSAN S SUHEIL**Agent(s):** GRUENECKER PATENT U RECHTSANWAELTE PARTG MBB; FLETCHER YODER 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 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
CN104834263 A	20150812	LSPB	+	published / reissued	
CN104834263 A	20150812	LSPB	+C06	PUBLICATION	
CN104834263 B	20181002	LSGT	+	granted / extensions (spc, cpc, pte)	
CN104834263 B	20181002	LSGT	+GR01	PATENT GRANT	
CN104834263 B	20350212	PEXP		Calculated Patent Term Expiry	
EP2910729 A2	20150826	LSPB	+	published / reissued	
EP2910729 A3	20161228	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20161118
EP2910729 A3	20180314	LSSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20180208
US10072485 BB	20180911	LSGT	+	granted / extensions (spc, cpc, pte)	
US10072485 BB	20140214	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CENTER P OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST;

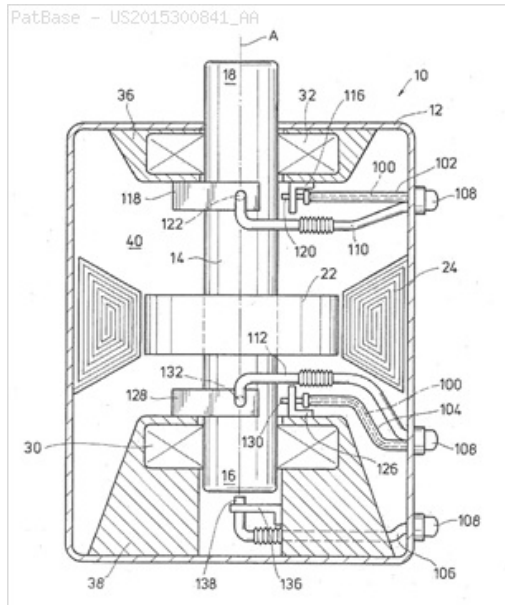
					ASSIGNORS:MACHADO, MIGUEL ARMANDO; SUHEIL, HASSAN S.; MASHETTY, SRIKANTH G.; SIGNING DATES FROM 20140210 TO 20140213; REEL/FRAME:032220/0275
US10072485 BB	20180823	LSGT	PAT1	Patented Case	
US10072485 BB	20191226	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SENSIA NETHERLANDS B.V., NETHERLANDS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:ROCKWELL AUTOMATION ASIA PACIFIC BUSINESS CENTER PTE. LTD.; REEL/FRAME:051370/0400 EFFECTIVE DATE : 20191001
US10072485 BB	20360313	PEXP		Calculated Patent Term Expiry (PTA 760 days)	
US2015226062 AA	20150813	LSPB	+	published / reissued	
US2015226062 AA	20170714	LSES	ADV1	Advisory Action Mailed	
US2015226062 AA	20170815	LSES	NFA1	Non Final Action Mailed	
US2015226062 AA	20180221	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2015226062 AA	20180605	LSES	+ALW2	Allowed -- Notice of Allowance Not Yet Mailed	
US2015226062 AA	20180605	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2015226062 AA	20180808	LSFE	+PPR1	Publications -- Issue Fee Payment Received	
US2015226062 AA	20180823	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE

Title: SUBSEA SENSOR ASSEMBLIES

Abstract: Sensor assemblies, electrical penetrator assemblies and associated methods are provided for monitoring operational characteristics of subsea rotating devices such as subsea motors and pumps. Pressure-compensated proximity sensors configured to withstand subsea pressures are disposed adjacent a subsea rotating shaft for directly monitoring a position of the rotating shaft during dynamic operation thereof. A sensor tip assembly includes a sensor cap and a sensing element therein configured to produce a signal indicative of a distance between the sensor cap and the rotating shaft. A substantially incompressible fluid is disposed within a fluid reservoir within a sensor housing, and fluidly communicates with the sensor cap such that at least a portion of an internal pressure within the sensor housing is applied to interior portions of the sensor cap. The sensor housing is configured such that the internal pressure increases in response to an increase in an external pressure of the sensor housing.

Classifications:

International (IPC 8-9): E21B47/00 E21B47/01 E21B47/06
F04D13/08 G01B7/02 G01B7/14 G01D11/24 G01D5/20 G01L9/08
H02K11/00 H02K11/21 (Advanced/Invention);
E21B43/01 E21B43/12 (Advanced/Non-invention)
CPC: E21B47/0001 E21B47/0007 E21B47/011 G01D5/20
G01D11/245 H02K11/21 E21B43/01 E21B43/12 E21B47/06
E21B47/065 F04D13/08 G01B7/14 G01L9/08
US: 1/1 310/338 310/68B 324/207.15 324/207.17 417/410.1

**Family:**

Publication number	Publication date	Application number	Application date
DE602015031772 D1	20190627	DE201560031772T	20150402
EP3134613 A2	20170301	EP20150716686	20150402
EP3134613 B1	20190612	EP20150716686	20150402
US2015300841 AA	20151022	US20140258880	20140422
US2017234672 AA	20170817	US20170582136	20170428
US2019003817 AA	20190103	US20180012911	20180620
US9671250 BB	20170606	US20140258880	20140422
US10024645 BB	20180717	US20170582136	20170428
WO15164038 A2	20151029	WO2015US24049	20150402
WO15164038 A3	20151223	WO2015US24049	20150402

Priority:

US20140258880 20140422 EP20150716686 20150402 WO2015US24049 20150402
US20170582136 20170428 US20180012911 20180620

Probable Assignee: GENERAL ELECTRIC CO**Assignee(s):** (std): GEN ELECTRIC**Assignee(s):** GENERAL ELECTRIC CO ; GENERAL ELECTRIC CO SCHENECTADY ; BAKER HUGHES A GE CO LLC**Inventor(s):** (std): CAMPBELL LAM ARTHUR ; LU DAN THO ; ABRAHAMSEN JENS ; HAUGEN SVEIN ARILD**Inventor(s):** CAMPBELL LAM ARTHUR HOUSTON ; LU DAN THO MINDEN**Agent(s):** LEE BRENDA ; ILLINGWORTH LAW WILLIAM ILLINGWORTH ; ARMSTRONG TEASDALE LLP ; MINTZ LEVIN COHN FERRIS GLOVSKY AND POPEO PC ; MIDGLEY STEPHEN G 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)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
EP3134613 A2	20170301	LSPB	+	published / reissued	
EP3134613 A2	20170301	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20161122
EP3134613 A2	20171227	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20171122

				DESPATCHED	
EP3134613 A2	20190116	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20181217
EP3134613 B1	20190612	LSGT	+	granted / extensions (spc, cpc, pte)	
EP3134613 B1	20190612	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP3134613 B1	20190614	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP3134613 B1	20190615	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : REF REF DOCUMENT NUMBER : 1142765 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20190615
EP3134613 B1	20190627	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602015031772 COUNTRY OF REF DOCUMENT : DE
EP3134613 B1	20190710	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP3134613 B1	20191025	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : LT REF LEGAL EVENT CODE : MG4D
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OFFICE TO EPO]					LAPSED DATE : 20190912
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EP3134613 B1	20200131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CZ NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20190612
EP3134613 B1	20200131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE

				INFORMATION FROM NATIONAL OFFICE TO EPO]	WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20190612
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EP3134613 B1	20350402	PEXP		Calculated Patent Term Expiry	
US10024645 BB	20180717	LSGT	+	granted / extensions (spc, cpc, pte)	
US10024645 BB	20170503	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : GENERAL ELECTRIC COMPANY, NEW YORK OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: CAMPBELL, LAM ARTHUR; LU, DAN THO; HAUGEN, SVEIN ARLID; AND OTHERS; SIGNING DATES FROM 20140404 TO 20140422; REEL/FRAME:042221/0773
US10024645 BB	20180627	LSGT	PAT1	Patented Case	
US10024645 BB	20200126	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BAKER HUGHES, A GE COMPANY, LLC, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR: GENERAL ELECTRIC COMPANY; REEL/FRAME:051699/0052 EFFECTIVE DATE : 20170703
US10024645 BB	20370428	PEXP		Calculated Patent Term Expiry (a terminal disclaimer has been filed)	
US2015300841 AA	20151022	LSPB	+	published / reissued	
US2015300841 AA	20170501	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
US2015300841 AA	20170517	LSGT	STCF	INFORMATION	TEXT : PATENTED CASE

US2017234672 AA	20170817	LSPB	+	ON STATUS: PATENT GRANT published / reissued	
US2017234672 AA	20171130	LSES	-NFA2	Non Final Action Counted, Not Yet Mailed	
US2017234672 AA	20171204	LSES	NFA1	Non Final Action Mailed	
US2017234672 AA	20180411	LSES	+ALW2	Allowed -- Notice of Allowance Not Yet Mailed	
US2017234672 AA	20180420	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2017234672 AA	20180621	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
US2017234672 AA	20180627	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2019003817 AA	20190103	LSPB	+	published / reissued	
US2019003817 AA	20190718	LSES	NFA1	Non Final Action Mailed	
US2019003817 AA	20200214	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US9671250 BB	20170606	LSGT	+	granted / extensions (spc, cpc, pte)	
US9671250 BB	20140422	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : GENERAL ELECTRIC COMPANY, NEW YORK OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: CAMPBELL, LAM ARTHUR; LU, DAN THO; HAUGEN, SVEIN ARILD; AND OTHERS; SIGNING DATES FROM 20140404 TO 20140422; REEL/FRAME:032730/0650
US9671250 BB	20170517	LSGT	PAT1	Patented Case	
US9671250 BB	20200126	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BAKER HUGHES, A GE COMPANY, LLC, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR: GENERAL ELECTRIC COMPANY; REEL/FRAME:051699/0052 EFFECTIVE DATE : 20170703
US9671250 BB	20350726	PEXP		Calculated Patent Term Expiry (PTA 460 days)	
WO15164038 A2	20151029	LSPB	+	published / reissued	
WO15164038 A3	20161014	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2015716686 COUNTRY OF REF DOCUMENT : EP
WO15164038 A3	20161024	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE

Abstract: The utility model provides an infiltration plated alloy corrosion proof pumping rod which belongs to the field of **artificial lift** devices. The utility model is composed of a rod head and a rod body, wherein the surfaces of the rod head and the rod body are plated with quenching and nickel plating phosphorus alloy corrosion proof anti-wear layers, and the thickness of the quenching and nickel plating phosphorus alloy corrosion proof anti-wear layer is 0.5 mm to 4.5 mm. Owing to the quenching and nickel plating phosphorus alloy corrosion proof anti-wear layers, the utility model not only can be prevented from being corroded by various media, but also can increase tensile strength by more than 10 percent, and a fatigue circulation cycle is increased to three times on the basis of current national trade standards. The utility model variety of the utility model comprises a pumping rod and the pumping rod pup joint and the polished rod thereof; a special torsion resistant pumping rod for a screw pump and the torsion resistant pumping rod pup joint and the torsion resistant polished rod thereof; a rod and hoop integrated pumping rod and the pup joint and the polished rod thereof.

International (IPC 8-9): C21D9/00 C23C2/04 C23C2/14 E21B17/00 (Advanced/Invention);

Technical drawing of a mechanical part, likely a shaft or rod, showing a cross-section with a central hole and a central section labeled 'A'.

PatBase PDF Export - Page: 193 21/03/2020

Publication number	Publication date	Application number	Application date
 CN2758445 Y	20060215	CN200420096668U	20041010

Priority:

CN200420096668U 20041010

Probable Assignee: JIUHUAN PETROLEUM MACHINERY CO

Assignee(s): (std): JIUHUAN PETROLEUM MACHINERY CO

Assignee(s): JIUHUAN PETROLEUM MACHINERY CO LTD

Inventor(s): (std): WANG CHUNHE ; XIN MINCHANG ; ZHANG JUGUO

Inventor(s): CHUNHE WANG ; JUGUO ZHANG ; MINCHANG XIN

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN2758445 Y	20060215	LSGT	+	granted / extensions (spc, cpc, pte)	
CN2758445 Y	20060215	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN2758445 Y	20141203	LSLE	-C17	CESSATION OF PATENT RIGHT	
CN2758445 Y	20141010	PEXP		Calculated Patent Term Expiry	

Title: **ARTIFICIAL LIFT** METHOD FOR LOW PRESSURE SAGD WELLS

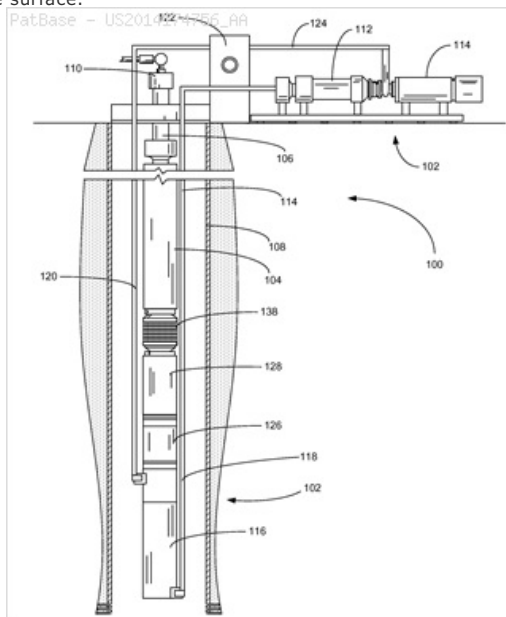
Abstract: A pumping system includes a hydraulic motor assembly configured to drive a production pump. The hydraulic motor assembly includes a master pump located on the surface and an electric motor configured to controllably power the master pump. When moved by the electric motor, the master pump discharges a working fluid under pressure. The pressurized working fluid is transferred to a hydraulic turbine located in the wellbore. The hydraulic turbine converts the pressure of the working fluid into torque, which is transferred through a driveline to a production pump. The production pump pressurizes production fluids, which are carried under pressure to the surface.

Classifications:

International (IPC 8-9): E21B43/12 (Advanced/Invention)

CPC: E21B43/126 E21B43/129

US: 166/105 166/372 166/68.5



Family:

Publication number	Publication date	Application number	Application date
CA2896509 AA	20150625	CA20132896509	20131209
US2014174756 AA	20140626	US20120727318	20121226
WO14105400 A2	20140703	WO2013US73802	20131209
WO14105400 A3	20150305	WO2013US73802	20131209

Priority:

US20120727318 20121226 WO2013US73802 20131209

Probable Assignee: GE OIL AND GAS ESP INC

Assignee(s): (std): GE OIL AND GAS ESP INC

Assignee(s): SAKAMOTO STEPHEN

Inventor(s): (std): SAKAMOTO STEPHEN

Agent(s): CRAIG WILSON AND CO; TOPPIN CATHERINE J 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 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
CA2896509 AA	20150625	LSPB	+	published / reissued	
CA2896509 AA	20190122	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20181211
US2014174756 AA	20140626	LSPB	+	published / reissued	
US2014174756 AA	20121227	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : GE OIL & GAS ESP, INC., OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:SAKAMOTO, STEPHEN; REEL/FRAME:029531/0490 EFFECTIVE DATE : 20121219
US2014174756 AA	20150605	LSSES	NFA1	Non Final Action Mailed	
US2014174756 AA	20160106	LSWD	-ABD3	Abandoned -- Failure to Respond to an	

Office Action					
WO14105400 A2	20140703	LSPB	+	published / reissued	
WO14105400 A3	20150625	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2896509 COUNTRY OF REF DOCUMENT : CA
WO14105400 A3	20160302	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 13811728 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) :

Title: WELL COMPLETION SYSTEM

Abstract: PCT No. PCT/GB91/02020 Sec. 371 Date Aug. 20, 1993 Sec. 102(e) Date Aug. 20, 1993 PCT Filed Nov. 15, 1991 PCT Pub. No. WO92/08875 PCT Pub. Date May 29, 1992. A well completion system comprises production tubing (5) extending downhole from wellhead equipment (2) to a plurality of completion systems (7, 8, 9). A well testing facility comprising a test loop (26) with flow metering equipment (27) is included in the wellhead equipment. Each of a plurality of independently adjustable flow control means (57) is operable to stop the flow of fluid from a respective one of the completion assemblies into the production tubing. The downhole completion assemblies (7, 8, 9) are mounted on a common fluid and electrical supply means (4) comprising tubular electrical conductor means (42) and tubing (41, 45, 46) defining fluid paths.

Classifications:

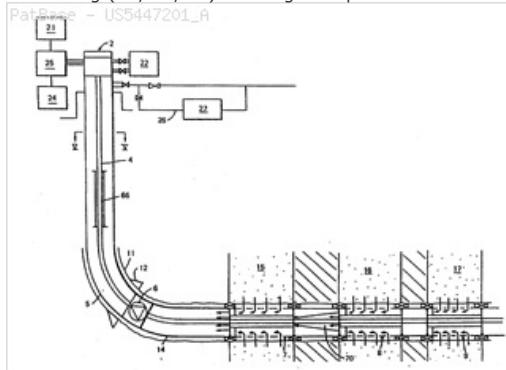
International (IPC 8-9): E21B17/00 E21B17/18 E21B34/10 E21B36/00 E21B41/02 E21B43/12 E21B43/14 E21B47/00 E21B49/08 (Advanced/Invention)

International (IPC 1-7): E21B17/00 E21B17/10 E21B17/18 E21B34/10 E21B43/12 E21B43/14

CPC: E21B17/003 E21B17/18 E21B34/10 E21B36/00 E21B41/02 E21B43/12 E21B43/121 E21B43/14 E21B47/00

European: E21B17/00K E21B17/18 E21B34/10 E21B36/00 E21B41/02 E21B43/12 E21B43/12B E21B43/14 E21B47/00 E21B49/08

US: 166/375 166/65.1 166/67



Family:

Publication number	Publication date	Application number	Application date
AT169371 E	19980815	AT19910919844T	19911115
CA2101446 AA	19930518	CA19912101446	19911115
CA2101446 C	20030506	CA19912101446	19911115
DE0558534 T1	19940303	DE19910919844T	19911115
DE69129943 D1	19980910	DE19916029943	19911115
DE69129943 T2	19990429	DE19916029943T	19911115
DK0558534 T3	19990510	DK19910919844T	19911115
EP0558534 A1	19930908	EP19910919844	19911115
EP0558534 B1	19980805	EP19910919844	19911115
ES2048696 T1	19940401	ES19910919844T	19911115
ES2048696 T3	19990101	ES19910919844T	19911115
GB9025230 A0	19910102	GB19900025230	19901120
GR930300136 T1	19940131	GR19940300136T	19940131
NO307192 B1	20000221	NO19930001736	19930513
NO931736 A	19930513	NO19930001736	19930513
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NO931736 L	19930513	NO19930001736	19930513
US5447201 A	19950905	US19930064075	19930820
WO9208875 A2	19920529	WO1991GB02020	19911115
WO9208875 A3	19920709	WO1991GB02020	19911115

Priority:

GB19900025230 19901120 WO1991GB02020 19911115

Probable Assignee: FRAMO ENGINEERING AS

Assignee(s): (std): FRAMO ENG AS ; FRAMO DEV LTD

Assignee(s): FRAMO DEVELOPMENTS (UK) LTD ; FRAMO DEVELOPMENTS LTD ; FRAMO DEVELOPMENTS U K LIMITED ; FRAMO ENGINEERING A S ; FRAMO ENGINEERING AS ; FRAMO DEVELOPMENTS U K LTD LONDON GB ; FRAMO DEVELOPMENTS UK LTD ; FRAMO ENGINEERING A S SANDSLI NO ; FRAMO DEVELOPMENTS UK LIMITED ; FRAMO DEVELOPMENTS U K LTD ; MOHN FRANK

Inventor(s): (std): MOHN FRANK

Inventor(s): MOHN FRANK LONDON SW20 0AY GB

Agent(s): CASSAN MACLEAN

Designated states: AT BE CA CH DE DK ES FR GB GR IT LI LU NL NO SE US

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT169371 E	19980815	LSGT	+	granted / extensions (spc, cpc, pte)	
AT169371 E	19990215	LSLE	-RER	CEASED AS TO PARAGRAPH 5 LIT. 3 LAW INTRODUCING PATENT TREATIES	
AT169371 E	20111115	PEXP		Calculated Patent Term Expiry	
CA2101446 AA	19930518	LSPB	+	published / reissued	
CA2101446 AA	19981102	LSSES	+EEER	EXAMINATION	

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CA2101446 C	20030506	LSGT	+	granted / extensions (spc, cpc, pte)	
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DK0558534 T3	19990510	LSGT	+	granted / extensions (spc, cpc, pte)	
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EP0558534 A1	19930908	LSPB	+	published / reissued	
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EP0558534 A1	19970611	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : FRAMO ENGINEERING A/S
EP0558534 A1	19971119	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : FRAMO ENGINEERING A/S
EP0558534 B1	19980805	LSGT	+	granted / extensions (spc, cpc, pte)	
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EP0558534 B1	20111207	LSLE	REG	REFERENCE TO A NATIONAL CODE		REF COUNTRY CODE : GB REF LEGAL EVENT CODE : PE20 EXPIRY DATE : 20111114
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EP0558534 B1	20111115	PEXP		Calculated Patent Term Expiry		
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ES2048696 T3	19990101	LSGT	+	granted / extensions (spc, cpc, pte)		
ES2048696 T3	19990101	LSGT	+FG2A	DEFINITIVE PROTECTION		REF DOCUMENT NUMBER : 558534 COUNTRY OF REF DOCUMENT : ES
ES2048696 T3	20111115	PEXP		Calculated Patent Term Expiry		
GR930300136 T1	19940131	LSPB	+	published / reissued		
NO307192 B1	20000221	LSGT	+	granted / extensions (spc, cpc, pte)		
NO307192 B1	20111212	LSLE	-MK1K	PATENT EXPIRED		
NO307192 B1	20130513	PEXP		Calculated Patent Term Expiry		
NO931736 A	19930513	LSPB	+	published / reissued		
US5447201 A	19950905	LSGT	+	granted / extensions (spc, cpc, pte)		
US5447201 A	19931018	LSAS	AS	ASSIGNMENT		PARTYTYPE : OWNER OWNER : FRAMO DEVELOPMENTS (UK) LIMITED, ENGLAND OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:MOHN, FRANK; REEL/FRAME:006737/0754 EFFECTIVE DATE : 19930514
US5447201 A	19950824	LSGT	PAT1	Patented Case		
US5447201 A	19970724	LSAS	AS	ASSIGNMENT		PARTYTYPE : OWNER OWNER : FRAMO ENGINEERING AS, NORWAY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:FRAMO DEVELOPMENTS (UK) LIMITED; REEL/FRAME:008613/0411 EFFECTIVE DATE : 19970630
US5447201 A	19971001	LSAS	AS	ASSIGNMENT		PARTYTYPE : OWNER OWNER : FRAMO ENGINEERING AS, NORWAY OLDPARTY : CHANGE OF ADDRESS; ASSIGNOR:FRAMO ENGINEERING AS; REEL/FRAME:008715/0901 EFFECTIVE DATE : 19971001
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US5447201 A	20021221	LSFE	+FPAY	FEE PAYMENT		YEAR OF FEE PAYMENT : 8
US5447201 A	20070209	LSFE	+FPAY	FEE PAYMENT		YEAR OF FEE PAYMENT : 12

US5447201 A	20130820	PEXP		Calculated Patent Term Expiry
WO9208875 A2	19920529	LSPB	+	published / reissued
WO9208875 A3	19930510	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE REF DOCUMENT NUMBER : 1991919844 COUNTRY OF REF DOCUMENT : EP
WO9208875 A3	19930518	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE REF DOCUMENT NUMBER : 2101446 COUNTRY OF REF DOCUMENT : CA
WO9208875 A3	19930820	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE REF DOCUMENT NUMBER : 08064075 COUNTRY OF REF DOCUMENT : US
WO9208875 A3	19930908	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE REF DOCUMENT NUMBER : 1991919844 COUNTRY OF REF DOCUMENT : EP
WO9208875 A3	19980805	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE REF DOCUMENT NUMBER : 1991919844 COUNTRY OF REF DOCUMENT : EP

Abstract: The present invention generally provides a gas operated pump having a removable and insertable valve. In one aspect, the invention includes a pump housing having a fluid path for pressurized gas and a second fluid path for exhaust gas. The fluid paths are completed when the valve is inserted into a longitudinal bore formed in the housing.

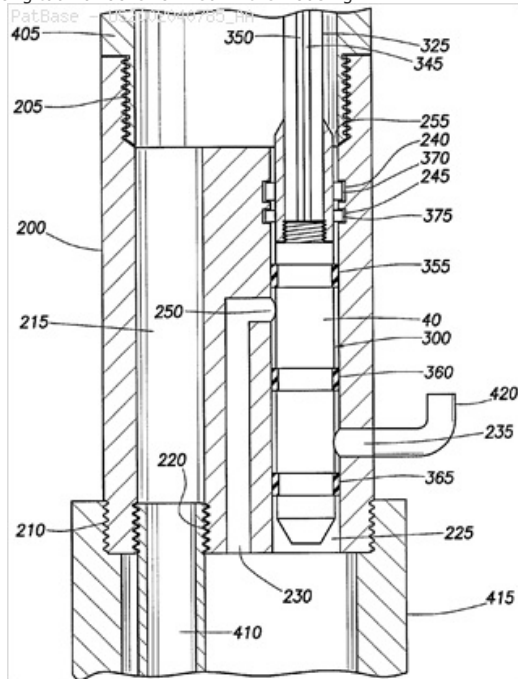
International (IPC 8-9): E21B1/00 E21B34/06 E21B34/10 E21B43/12
F04B47/08 F04B53/10 F04F1/08 (Advanced/Invention)

International (IPC 1-7): E21B1/00 E21B34/00 E21B34/06 E21B34/10
E21B34/14 E21B43/12 E21B43/16 F04B47/08 F04B53/10

CPC: E21B43/122 E21B43/129 F04B47/08 E21B34/066 E21B34/10 F04F1/08

European: E21B34/06M E21B34/10 E21B43/12B12 E21B43/12B2
F04B47/08 F04F1/08

US: 166/105 166/105S 166/322 166/332.5 166/332.500S 166/372
166/373 166/377 166/377S 166/378 166/386 166/386S



Publication number	Publication date	Application number	Application date
AU2001294011 AA	20020708	AU20010294011	20011011
AU200194011 A1	20020422	AU20010094011	20011011
AU200194011 A5	20020422	AU20010094011	20011011
BRPI0114566 A	20040120	BR2001PI14566	20011011
CA2425604 AA	20030409	CA20012425604	20011011
CA2425604 C	20071218	CA20012425604	20011011
DE60122547 D1	20061005	DE20016022547	20011011
EP1325207 A2	20030709	EP20010974496	20011011
EP1325207 B1	20060823	EP20010974496	20011011
EP1666697 A1	20060607	EP20060110792	20011011
EP1666697 B1	20080702	EP20060110792	20011011
US2002040785 AA	20020411	US20010975811	20011011
US6691787 BB	20040217	US20010975811	20011011
WO0231311 A2	20020418	WO2001GB04535	20011011
WO0231311 A3	20020704	WO2001GB04535	20011011

US20000239403P 20001011 EP20010974496 20011011 US20010975811 20011011
WO2001GB04535 20011011

Assignee(s): WEATHERFORD LAMB INC600-515 POST OAK BOULEVARDHOUSTONTX77027US ; WEATHERFORD TECHNOLOGY HOLDINGS LLC ; WEATHERFORD TECHNOLOGY HOLDINGS LLC2000 ST. JAMES PL.HOUSTONTX77056US

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 PH PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT ZA UG US UZ VN YU ZA ZW

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Patent	Date recorded	Event group	Code	Event	Details
AU2001294011 AA	20020708	LSPB	+	published / reissued	
AU200194011 A1	20020422	LSPB	+	published / reissued	

BRPI0114566 A	20040120	LSPB	+	published / reissued	
BRPI0114566 A	20090630	LSES	B07A	TECHNICAL EXAMINATION (OPINION): PUBLICATION OF TECHNICAL EXAMINATION (OPINION)	
BRPI0114566 A	20100202	LSES	B07A	TECHNICAL EXAMINATION (OPINION): PUBLICATION OF TECHNICAL EXAMINATION (OPINION)	
BRPI0114566 A	20101116	LSES	B07A	TECHNICAL EXAMINATION (OPINION): PUBLICATION OF TECHNICAL EXAMINATION (OPINION)	
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BRPI0114566 A	20110927	LSRV	B09B	DECISION: REFUSAL	TEXT : MANTIDO O INDEFERIMENTO UMA VEZ QUE NAO FOI APRESENTADO RECURSO DENTRO DO PRAZO LEGAL.
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BRPI0114566 A	20170808	LSFE	-B08F	APPLICATION FEES: DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW	
BRPI0114566 A	20180306	LSFE	B08H	APPLICATION FEES: DECISION CANCELLED	
CA2425604 AA	20030409	LSPB	+	published / reissued	
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EP1325207 A2	20030709	LSPB	+	published / reissued	
EP1325207 A2	20030709	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20030115
EP1325207 A2	20040414	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20040302
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EP1325207 A2	20160129	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20151007 YEAR OF FEE PAYMENT : 15
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EP1325207 A2	20170731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20161011
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EP1325207 B1	20211011	PEXP		Calculated Patent Term Expiry	
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EP1666697 A1	20061004	LSSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20060901
EP1666697 A1	20061206	LSSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20060901
EP1666697 A1	20070214	LSFE	+AKX	DESIGNATION FEES PAID	COUNTRY OF REF DOCUMENT : GB
EP1666697 A1	20070801	LSSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20060901
EP1666697 A1	20080702	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP1666697 A1	20090610	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20090403
EP1666697 A1	20160129	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL	COUNTRY OF REF DOCUMENT : GB

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EP1666697 B1	20211011	PEXP		Calculated Patent Term Expiry	
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US2002040785 AA	20030610	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEATHERFORD/LAMB, INC., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:AMANI, MOHAMMAD; REEL/FRAME:013722/0151 EFFECTIVE DATE : 20011115
US2002040785 AA	20040129	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US6691787 BB	20040217	LSGT	+	granted / extensions (spc, cpc, pte)	
US6691787 BB	20040129	LSGT	PAT1	Patented Case	
US6691787 BB	20070720	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6691787 BB	20110721	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6691787 BB	20141204	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEATHERFORD TECHNOLOGY HOLDINGS, LLC, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:WEATHERFORD/LAMB, INC.; REEL/FRAME:034526/0272 EFFECTIVE DATE : 20140901
US6691787 BB	20150805	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6691787 BB	20211112	PEXP		Calculated Patent Term Expiry (PTA 32 days)	
WO0231311 A2	20020418	LSPB	+	published / reissued	
WO0231311 A3	20030106	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2001974496 COUNTRY OF REF DOCUMENT : EP
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WO0231311 A3	20050914	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : JP
WO0231311 A3	20060823	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2001974496 COUNTRY OF REF DOCUMENT : EP

Title: SUBSEA SENSOR ASSEMBLIES

Abstract: Sensor assemblies and methods of assembling and using the sensor assemblies are provided for monitoring operational characteristics of subsea rotating devices such as subsea motors and pumps. Pressure-compensated proximity sensor tip assemblies configured to withstand subsea pressures are mounted adjacent a subsea rotating shaft for directly monitoring a position of the rotating shaft during dynamic operation thereof. An end of a sensor housing opposite a sensor tip assembly is mounted to a wall of the device housing. The sensor housing defines a fluid reservoir containing a substantially incompressible fluid therein that is in fluid communication with the interior portions of the proximity sensor tip assembly. A length of the sensor housing is adjusted to accommodate a distance between the wall of the device housing and the rotating shaft.

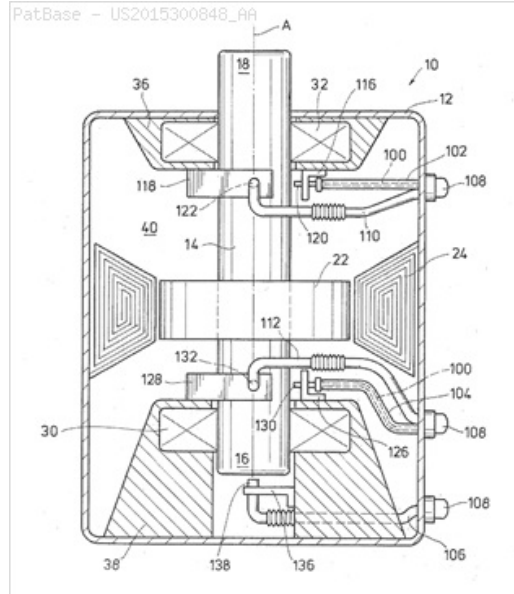
Classifications:

International (IPC 8-9): E21B33/038 E21B47/09 G01B7/02
G01D11/24 G01D11/30 G01D5/20 G01N27/72

H03K17/95 (Advanced/Invention)

CPC: G01D11/245 G01D5/2013 G01D11/30 E21B33/0385
E21B47/0905 G01N27/72

US: 29/592.1

**Family:**

Publication number	Publication date	Application number	Application date
DE602015009336 D1	20180419	DE201560009336T	20150408
DK3134617 T3	20180716	DK20150717761T	20150408
EP3134617 A1	20170301	EP20150717761	20150408
EP3134617 B1	20180328	EP20150717761	20150408
US2015300848 AA	20151022	US20140258509	20140422
US9631955 BB	20170425	US20140258509	20140422
WO15164071 A1	20151029	WO2015US24802	20150408

Priority:

US20140258509 20140422 EP20150717761 20150408 WO2015US24802 20150408

Probable Assignee: GENERAL ELECTRIC CO

Assignee(s): (std): GEN ELECTRIC

Assignee(s): GENERAL ELECTRIC CO ; GENERAL ELECTRIC CO SCHENECTADY ; BAKER HUGHES A GE CO LLC

Inventor(s): (std): HAUGEN SVEIN ARILD ; ABRAHAMSEN JENS ; LU DAN THO ; CAMPBELL LAM ARTHUR

Inventor(s): CAMPBELL LAM ARTHUR HOUSTON ; LU DAN THO MINDEN

Agent(s): LEE BRENDA ; FISCHER MICHAEL MARIA ; ARMSTRONG TEASDALE LLP ; CONKLIN MARK A 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
DK3134617 T3	20180716	LSGT	+	granted / extensions (spc, cpc, pte)	
DK3134617 T3	20350408	PEXP		Calculated Patent Term Expiry	
EP3134617 A1	20170301	LSPB	+	published / reissued	
EP3134617 A1	20170301	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20161122
EP3134617 A1	20171122	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20171024

EP3134617 B1	20180328	LSGT	+	granted / extensions (spc, cpc, pte)	
EP3134617 B1	20180328	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP3134617 B1	20180329	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP3134617 B1	20180415	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : REF REF DOCUMENT NUMBER : 983630 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20180415
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EP3134617 B1	20180419	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602015009336 COUNTRY OF REF DOCUMENT : DE
EP3134617 B1	20180731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20180328
EP3134617 B1	20180731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20180328
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EP3134617 B1	20180827	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NO REF LEGAL EVENT CODE : T2 EFFECTIVE DATE : 20180328
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EP3134617 B1	20190103	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 602015009336 COUNTRY OF REF DOCUMENT : DE
EP3134617 B1	20190123	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
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EP3134617 B1	20190430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20180408

EP3134617 B1	20190430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20180528
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EP3134617 B1	20350408	PEXP		Calculated Patent Term Expiry	
US2015300848 AA	20151022	LSPB	+	published / reissued	
US2015300848 AA	20170405	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US9631955 BB	20170425	LSGT	+	granted / extensions (spc, cpc, pte)	
US9631955 BB	20140422	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : GENERAL ELECTRIC COMPANY, NEW YORK OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: CAMPBELL, LAM ARTHUR; LU, DAN THO; HAUGEN, SVEIN ARILD; AND OTHERS; SIGNING DATES FROM 20140404 TO 20140422; REEL/FRAME: 032728/0591
US9631955 BB	20170405	LSGT	PAT1	Patented Case	
US9631955 BB	20200126	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BAKER HUGHES, A GE COMPANY, LLC, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR: GENERAL ELECTRIC COMPANY; REEL/FRAME: 051699/0052 EFFECTIVE DATE : 20170703

US9631955 BB	20350301	PEXP		Calculated Patent Term Expiry (PTA 313 days)	
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WO15164071 A1	20161018	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2015717761 COUNTRY OF REF DOCUMENT : EP
WO15164071 A1	20161024	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE

Title: WELLSCREEN HAVING HELICAL SUPPORT SURFACE

Abstract: A method and apparatus for assembling a wellscreen onto a perforated base pipe are provided. The wellscreen defines a tubular body which is suitable for subterranean use in oil, gas, and water wells. In accordance with the present invention, the wellscreen first defines a perforated base pipe having termination members at its opposite ends. Disposed on each termination member is a continuous helical, step-tiered surface. The helical surface serves as a support surface for a layer of filtering material which is rolled around the base pipe. The filtering material is pre-cut to a correct diameter and bias to match the diameters and bias of the spiraling termination support surfaces. The filtering material is connected to the rings to form a substantial seal on the opposite ends. A protective, perforated outer shroud is optionally disposed around the filtering media as well.

Classifications:

International (IPC 8-9): B01D29/11 B01D39/16 E21B43/00

E21B43/08 (Advanced/Invention);

B01D29/11 B01D39/16 E21B43/00 E21B43/02 (Core/Invention)

International (IPC 1-7): B01D29/11 E21B19/16 E21B43/08

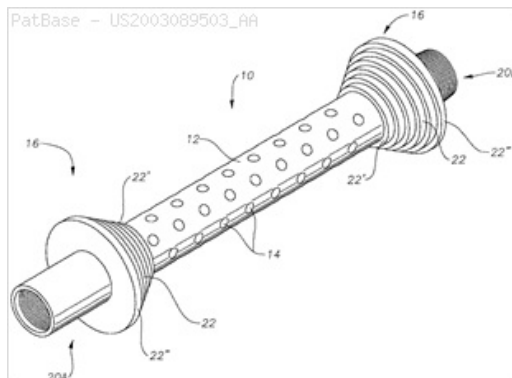
CPC: Y10T428/19 E21B43/084 B01D29/111 B01D2201/0415

B01D29/11 B01D39/1692 E21B43/08 B01D29/216

European: B01D29/11 B01D29/11B B01D39/16K E21B43/08

E21B43/08R L01D201/04C

US: 166/228 166/228S 166/23 166/230 166/233 166/380 428/57



Family:

Publication number	Publication date	Application number	Application date
CA2466582 AA	20040507	CA20022466582	20021105
CA2466582 C	20100330	CA20022466582	20021105
CA2663866 AA	20030515	CA20022663866	20021105
CA2663866 C	20130611	CA20022663866	20021105
CA2804805 AA	20030515	CA20022804805	20021105
GB200410102 A0	20040609	GB20040010102	20021105
GB200904789 A0	20090506	GB20090004789	20021105
GB200913641 A0	20090916	GB20090013641	20021105
GB2397034 A1	20040714	GB20040010102	20021105
GB2397034 B2	20090429	GB20040010102	20021105
GB2455927 A1	20090701	GB20090004789	20021105
GB2455927 B2	20091028	GB20090004789	20021105
GB2459589 A1	20091104	GB20090013641	20021105
GB2459589 B2	20091216	GB20090013641	20021105
US2003089503 AA	20030515	US20010007862	20011109
US2004118570 AA	20040624	US20030726287	20031202
US6668920 BB	20031230	US20010007862	20011109
US6991030 BB	20060131	US20030726287	20031202
WO03040519 A1	20030515	WO2002GB05041	20021105

Priority:

US20010007862 20011109	CA20022466582 20021105	CA20022663866 20021105
CA20022804805 20021105	GB20040010102 20021105	GB20090004789 20021105
GB20090013641 20021105	WO2002GB05041 20021105	US20030726287 20031202
CA20092466582 20090520	CA20132663866 20130219	

Probable Assignee: WEATHERFORD TECHNOLOGY HOLDINGS LLC

Assignee(s): (std): HARDING RICHARD PATRICK ; SETTERBERG JOHN RICHARD JR ; WEATHERFORD LAMB

Assignee(s): WEATHERFORD LAMB INC ; WEATHERFORD LAMB INC2000 ST. JAMES PLACHOUSTONTX77056US ; WEATHERFORD LAMB INC600 - 515 POST OAK BOULEVARDHOUSTONTX77027US ; WEATHERFORD TECHNOLOGY HOLDINGS LLC ; WEATHERFORD TECHNOLOGY HOLDINGS LLC2000 ST. JAMES PL.HOUSTONTX77056US

Inventor(s): (std): SETTERBERG JOHN RICHARD ; SETTERBERG JOHN RICHARD JR ; SETTERBERG JR JOHN R ; SETTERBERG JR JOHN RICHARD

Inventor(s): SETTERBERG JOHN RICHARD JRUS ; JOHN RICHARD SETTERBERG JR ; JOHN R SETTERBERG JR ; JR JOHN RICHARD ; SETTERBERG

Agent(s): MARKS AND CLERK; PATTERSON AND SHERIDAN LLP

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
CA2466582 AA	20040507	LSPB	+	published / reissued	
CA2466582 AA	20040507	LSES	+EEER	EXAMINATION REQUEST	

CA2466582 C	20100330	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2466582 C	20171218	LSLE	-MKLA	LAPSED	EFFECTIVE DATE : 20171106
CA2466582 C	20221105	PEXP		Calculated Patent Term Expiry	
CA2663866 AA	20030515	LSPB	+	published / reissued	
CA2663866 AA	20090429	LSSES	+EEER	EXAMINATION REQUEST	
CA2663866 C	20130611	LSGT	+	granted / extensions (spc, cpc, pte)	
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CA2663866 C	20221105	PEXP		Calculated Patent Term Expiry	
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CA2804805 AA	20130301	LSSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20130205
CA2804805 AA	20160714	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20160602
GB2397034 A1	20040714	LSPB	+	published / reissued	
GB2397034 A1	20170726	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	EFFECTIVE DATE : 20161105
GB2397034 B2	20090429	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2397034 B2	20221105	PEXP		Calculated Patent Term Expiry	
GB2455927 A1	20090701	LSPB	+	published / reissued	
GB2455927 A1	20170726	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	EFFECTIVE DATE : 20161105
GB2455927 B2	20091028	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2455927 B2	20221105	PEXP		Calculated Patent Term Expiry	
GB2459589 A1	20091104	LSPB	+	published / reissued	
GB2459589 A1	20170726	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	EFFECTIVE DATE : 20161105
GB2459589 B2	20091216	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2459589 B2	20221105	PEXP		Calculated Patent Term Expiry	
US2003089503 AA	20030515	LSPB	+	published / reissued	
US2003089503 AA	20031211	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US2004118570 AA	20040624	LSPB	+	published / reissued	
US6668920 BB	20031230	LSGT	+	granted / extensions (spc, cpc, pte)	
US6668920 BB	20011109	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEATHERFORD/LAMB, INC., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:SETTERBERG, JR., JOHN R.; REEL/FRAME:012373/0574 EFFECTIVE DATE : 20011107
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US6668920 BB	20040706	LSRE	CC	CERTIFICATE OF CORRECTION	

US6668920 BB	20070608	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6668920 BB	20110601	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6668920 BB	20141204	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WEATHERFORD TECHNOLOGY HOLDINGS, LLC, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:WEATHERFORD/LAMB, INC.; REEL/FRAME:034526/0272 EFFECTIVE DATE : 20140901
US6668920 BB	20150617	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6668920 BB	20220128	PEXP		Calculated Patent Term Expiry (PTA 80 days)	
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US6991030 BB	20060111	LSGT	PAT1	Patented Case	
US6991030 BB	20090701	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
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US6991030 BB	20170911	LSFE	FEPP	FEE PAYMENT PROCEDURE	TEXT : MAINTENANCE FEE REMINDER MAILED (ORIGINAL EVENT CODE: REM.)
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US6991030 BB	20231217	PEXP		Calculated Patent Term Expiry (PTA 15 days)	
WO03040519 A1	20030515	LSPB	+	published / reissued	
WO03040519 A1	20030515	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	TEXT : PCT FILING DATE = 20021105 REF DOCUMENT NUMBER : 0410102 COUNTRY OF REF DOCUMENT : GB KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO03040519 A1	20040506	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 0410102.8 COUNTRY OF REF DOCUMENT : GB
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WO03040519 A1	20041229	LSNE	-122	EP: PCT APPLICATION NON- ENTRY IN EUROPEAN PHASE	REF COUNTRY CODE : WO

WO03040519 A1	20060529	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : JP
WO03040519 A1	20060529	LSWD	-WWW	WIPO INFORMATION: WITHDRAWN IN NATIONAL OFFICE	TEXT : JP

Title: SYSTEMS AND METHODS FOR CABLE DEPLOYMENT OF DOWNHOLE EQUIPMENT

Abstract: Systems and methods for cable deployment of downhole equipment, wherein the conductors of a power cable bear the load of the downhole equipment and jewelry, as well as the cable itself. The power cable includes a set of elongated conductors, an upper coupling and a lower coupling. The upper support coupling suspends each of the conductors from the support structure and electrically couples the conductors to a power source. The lower coupling suspends the downhole electrical equipment from the conductors and electrically couples the conductors to the downhole equipment. One embodiment uses 7075 T-6 aluminum conductors to provide a length of at least 10,000 feet, a yield stress of at least 50,000 psi and a resistance of less than 0.2 ohm/kf. The aluminum conductors are homogeneous and are non-reactive with hydrogen sulfide, so no lead sheathing is required.

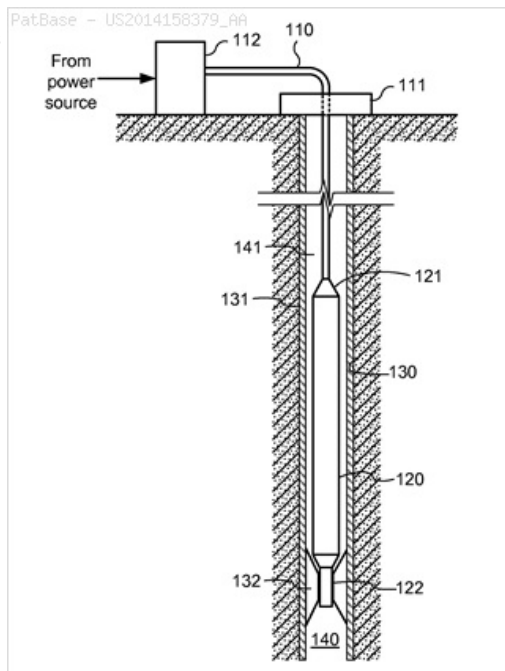
Classifications:

International (IPC 8-9): E21B17/02 E21B43/12 E21B47/12 H02G1/08 H02G9/06 H04B3/54 (Advanced/Invention)

International (IPC 1-7): E21B47/12 H04B3/54

CPC: E21B17/023 E21B43/128 H02G1/08 H02G9/06

US: 1/1 166/385 166/65.1



Family:

Publication number	Publication date	Application number	Application date
BR112015012541 A2	20170711	BR20151112541	20131206
BR112015012541 A8	20191001	BR20151112541	20131206
CA2893155 AA	20150528	CA20132893155	20131206
CA2893155 C	20171219	CA20132893155	20131206
GB201511514 A0	20150812	GB20150011514	20131206
GB2524680 A1	20150930	GB20150011514	20131206
GB2524680 B2	20190904	GB20150011514	20131206
NO20150718 A	20150604	NO20150000718	20150604
US2014158379 AA	20140612	US20120707040	20121206
US9281675 BB	20160308	US20120707040	20121206
WO14089430 A1	20140612	WO2013US73566	20131206

Priority:

US20120707040 20121206 WO2013US73566 20131206

Probable Assignee: BAKER HUGHES INC

Assignee(s): (std): BAKER HUGHES INC ; COX DON C

Inventor(s): (std): COX DON C ; DON C COX

Agent(s): SIM AND MCBURNEY; LAW OFFICES OF MARK L BERRIER

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 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
CA2893155 AA	20150528	LSPB	+	published / reissued	
CA2893155 AA	20150610	LSSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20150528
CA2893155 C	20171219	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2893155 C	20331206	PEXP		Calculated Patent Term Expiry	
GB2524680 A1	20150930	LSPB	+	published / reissued	

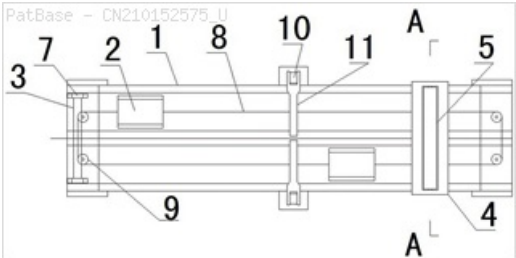
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NO20150718 A	20150604	LSPB	+	published / reissued	
NO20150718 A	20160815	LSRV	-FC2A	WITHDRAWAL, REJECTION OR DISMISSAL OF LAID OPEN PATENT APPLICATION	
NO20150718 A	20170116	LSRE	+RE	REESTABLISHMENT OF RIGHTS (PAR. 72 PATENTS ACT)	
US2014158379 AA	20140612	LSPB	+	published / reissued	
US2014158379 AA	20160217	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US9281675 BB	20160308	LSGT	+	granted / extensions (spc, cpc, pte)	
US9281675 BB	20121206	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BAKER HUGHES INCORPORATED, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:COX, DON C.; REEL/FRAME:029420/0057 EFFECTIVE DATE : 20121203
US9281675 BB	20151104	LSSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US9281675 BB	20160217	LSGT	PAT1	Patented Case	
US9281675 BB	20190821	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US9281675 BB	20340212	PEXP		Calculated Patent Term Expiry (PTA 433 days)	
WO14089430 A1	20140612	LSPB	+	published / reissued	
WO14089430 A1	20150528	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2893155 COUNTRY OF REF DOCUMENT : CA
WO14089430 A1	20150608	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
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WO14089430 A1	20150701	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 1511514.0 COUNTRY OF REF DOCUMENT : GB
WO14089430 A1	20151230	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 13859706 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :
WO14089430 A1	20170711	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112015012541 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20150529

Title: Oilfield downhole tubing conveyed device (Machine translation)

Abstract: Source: CN210152575U **Machine translation:** The utility model relates to an oilfield downhole tubing conveying means. Includes a slide, pulley, the pulley placed on the slide within the slide within the slide walking through a transmission mechanism, slide the front end is provided with a lifting roller, roller and slide with the rear end is provided with a takeover, take over the bridge bridge is provided with a rear roller for collecting pipe. The utility model bridge takeover play undertake the role, so that the tubing tubing automatically fall into the trolley, and then without manpower handling tubing to tackle, saving time and effort, greatly reducing the labor intensity of workers, saving operating time and improve work efficiency, through the chute and the chute rear end of the front end of the lifting carriage roller takeover bridge at the same time fit together to the tubing, the tubing in the front end of the lift and drag roller and a rear roller, can achieve the tubing for moving around, pushing forward line when reducing the friction between the tubing, easy effort transport to reach the purpose of the tubing, the chute front end lifting roller, eliminating the **artificial lift** tube operation.

Classifications:

International (IPC 8-9): E21B19/15 (Advanced/Invention)



Family:

Publication number	Publication date	Application number	Application date
■ CN210152575 U	20200317	CN201920897141U	20190614

Priority:

CN201920897141U 20190614

Probable Assignee:

ZHANG XIN GUANG

Assignee(s):

ZHANG XIN GUANG

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN210152575 U	20200317	LSGT	+	granted / extensions (spc, cpc, pte)	
CN210152575 U	20200317	LSGT	+GR01	授权 (The grant of patent right)	TEXT : 授权 (AUTHORIZATION)
CN210152575 U	20290614	PEXP		Calculated Patent Term Expiry	

Title: SCREW TYPE PUMP OR MOTOR

Abstract: A pump assembly comprising a stator and a rotor having vanes of opposite handed thread arrangements is described. A radial gap is located between the stator vanes and the rotor vanes such that rotation of the rotor causes the stator and rotor to co-operate to provide a system for moving fluid longitudinally between them. The operation of the pump results in a fluid seal being formed across the radial gap. The described apparatus can also be operated as a motor assembly when a fluid is directed to move longitudinally between the stator and rotor. The presence of the fluid seal results in no deterioration of the pump or motor efficiency, even when the radial gap is significantly greater than normal working clearance values. Furthermore, the presence of the radial gap makes the pump/motor assembly ideal for deployment with high viscosity and/or multiphase fluids.

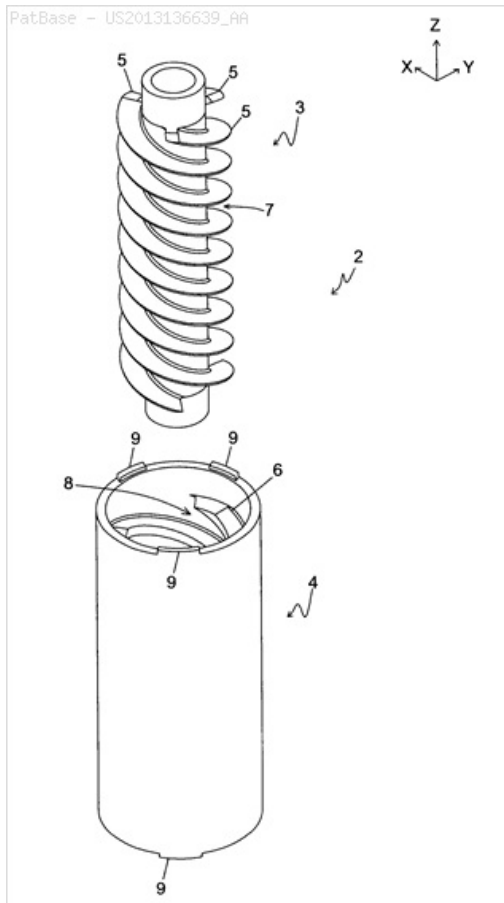
Classifications:

International (IPC 8-9): E21B43/12 F01C1/02 F04D19/00 F04D3/02 F04D5/00 F04D7/00 (Advanced/Invention)

CPC: F01C1/0215 E21B43/12 F04D3/02 F04D5/002 F04D7/00 F04D29/688

European: F04D3/02 F04D5/00R F04D7/00

US: 1/1 418/1 418/55.1



Family:

Publication number	Publication date	Application number	Application date
BR112013002364 A2	20160524	BR20131102364	20110727
CA2806472 AA	20130124	CA20112806472	20110727
CA2806472 C	20180424	CA20112806472	20110727
CA2989475 AA	20120202	CA20112989475	20110727
CA2989475 C	20190604	CA20112989475	20110727
CN103052805 A	20130417	CN201180037485	20110727
CN103052805 B	20160330	CN201180037485	20110727
DE602011028137 D1	20160825	DE201160028137T	20110727
EA022989 B1	20160429	EA20130090171	20110727
EA201390171 A1	20130628	EA20130090171	20110727
EP2598753 A1	20130605	EP20110749885	20110727
EP2598753 B1	20160713	EP20110749885	20110727
GB201012792 A0	20100915	GB20100012792	20100730
GB2482861 A1	20120222	GB20100012792	20100730
GB2482861 B2	20141217	GB20100012792	20100730
IN00171MN2013 A	20140404	IN2013MN00171	20130121
MY165835 A	20180517	MY20130000273	20110727
US2013136639 AA	20130530	US20110813004	20110727
US9382800 BB	20160705	US20110813004	20110727
WO12013973 A1	20120202	WO2011GB51430	20110727

Priority:

GB20100012792 20100730 CA20112806472 20110727 WO2011GB51430 20110727
EP20110749885 20110727 CA20182806472 20180104

Probable Assignee: VERE TECHNOLOGY LLC

Assignee(s): (std): HIVIS PUMPS AS ; SIMPSON ALASTAIR

Assignee(s): VERE TECHNOLOGY LLC ; VERETEK MULTIPHASE LLC ; VERETEK LLC ; ELITE MULTIPHASE SOLUTIONS LLC

Inventor(s): (std): SIMPSON ALASTAIR

Inventor(s): ALASTAIR SIMPSON

Agent(s): GASTLE AND ASSOCIATES; RIDOUT AND MAYBEE LLP; NORTON ROSE FULBRIGHT CANADA LLP
SENCRL SRL; BECK AND ROESSIG EUROPEAN PATENT ATTORNEYS; FULTON DAVID JAMES; NIXON
AND VANDERHYE PC; LINCOLN IP LIMITED

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

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Patent	Date recorded	Event group	Code	Event	Details
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CA2806472 AA	20160809	LSSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20160719
CA2806472 C	20180424	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2806472 C	20310727	PEXP		Calculated Patent Term Expiry	
CA2989475 AA	20120202	LSPB	+	published / reissued	
CA2989475 AA	20180207	LSSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20171219
CA2989475 C	20190604	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2989475 C	20310727	PEXP		Calculated Patent Term Expiry	
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CN103052805 B	20160330	LSGT	+	granted / extensions (spc, cpc, pte)	
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CN103052805 B	20310727	PEXP		Calculated Patent Term Expiry	
EA022989 B1	20160429	LSGT	+	granted / extensions (spc, cpc, pte)	
EA022989 B1	20310727	PEXP		Calculated Patent Term Expiry	
EA201390171 A1	20130628	LSPB	+	published / reissued	
EP2598753 A1	20130605	LSPB	+	published / reissued	
EP2598753 A1	20130605	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20130218
EP2598753 A1	20140806	LSSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20140704
EP2598753 A1	20160302	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20160204
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EP2598753 B1	20160810	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP2598753 B1	20160818	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 6
EP2598753 B1	20160825	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602011028137 COUNTRY OF REF DOCUMENT : DE
EP2598753 B1	20161031	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NO REF LEGAL EVENT CODE : T2 EFFECTIVE DATE : 20160713
EP2598753 B1	20161110	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : LT REF LEGAL EVENT CODE : MG4D
EP2598753 B1	20161215	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : MK05 REF DOCUMENT NUMBER : 812580 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20160713
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EP2598753 B1	20170131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20160713
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EP2598753 B1	20170228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PL NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20160713
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EP2598753 B1	20170228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20160713
EP2598753 B1	20170228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20160713
EP2598753 B1	20170228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20161114
EP2598753 B1	20170228	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP2598753 B1	20170418	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097

					REF DOCUMENT NUMBER : 602011028137 COUNTRY OF REF DOCUMENT : DE
EP2598753 B1	20170428	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : RO NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20160713
EP2598753 B1	20170428	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160731
EP2598753 B1	20170428	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160731
EP2598753 B1	20170428	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20160713
EP2598753 B1	20170428	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : EE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20160713
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EP2598753 B1	20170731	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NO PAYMENT DATE : 20170627 YEAR OF FEE PAYMENT : 7
EP2598753 B1	20170731	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 7
EP2598753 B1	20170831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20160713
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EP2598753 B1	20171031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20170713 YEAR OF FEE PAYMENT : 7
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EP2598753 B1	20180531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CY NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20160713
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EP2598753 B1	20180727	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 8

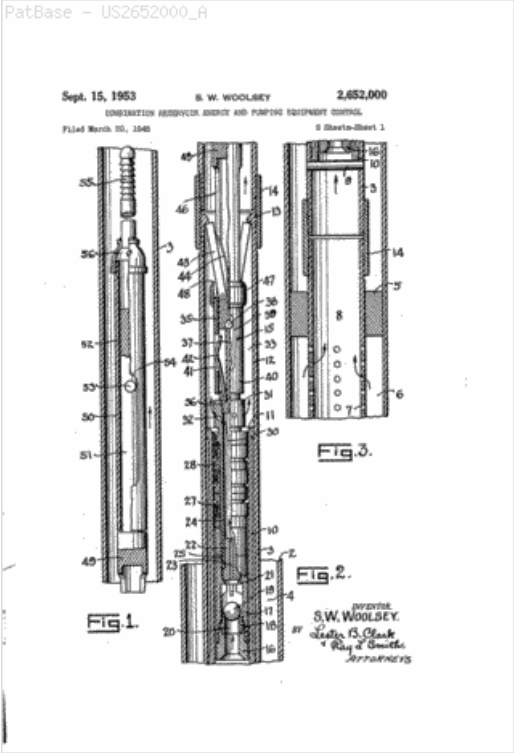
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EP2598753 B1	20181031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20180710 YEAR OF FEE PAYMENT : 8
EP2598753 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20190718 YEAR OF FEE PAYMENT : 9
EP2598753 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NO PAYMENT DATE : 20190710 YEAR OF FEE PAYMENT : 9
EP2598753 B1	20191031	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20190709 YEAR OF FEE PAYMENT : 9
EP2598753 B1	20310727	PEXP		Calculated Patent Term Expiry	
GB2482861 A1	20120222	LSPB	+	published / reissued	
GB2482861 B2	20141217	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2482861 B2	20300730	PEXP		Calculated Patent Term Expiry	
IN00171MN2013 A	20140404	LSPB	+	published / reissued	
MY165835 A	20180517	LSGT	+	granted / extensions (spc, cpc, pte)	
MY165835 A	20310727	PEXP		Calculated Patent Term Expiry	
US2013136639 AA	20130530	LSPB	+	published / reissued	
US2013136639 AA	20160615	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US9382800 BB	20160705	LSGT	+	granted / extensions (spc, cpc, pte)	
US9382800 BB	20130129	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HIVIS PUMPS AS, NORWAY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR: SIMPSON, ALASTAIR; REEL/FRAME: 029713/0743 EFFECTIVE DATE : 20130121
US9382800 BB	20160615	LSGT	PAT1	Patented Case	
US9382800 BB	20190213	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ELITE MULTIPHASE SOLUTIONS, LLC, TEXAS OLDPARTY : CHANGE OF NAME; ASSIGNOR: HIVIS PUMPS AS; REEL/FRAME: 048323/0254 EFFECTIVE DATE : 20141123

US9382800 BB	20190214	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : VERETEK MULTIPHASE LLC, TEXAS OLDPARTY : CHANGE OF NAME; ASSIGNOR:ELITE MULTIPHASE SOLUTIONS, LLC; REEL/FRAME:048339/0326 EFFECTIVE DATE : 20170616
US9382800 BB	20190218	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : VERETEK LLC, TEXAS OLDPARTY : CHANGE OF NAME; ASSIGNOR:VERETEK MULTIPHASE LLC; REEL/FRAME:048359/0216 EFFECTIVE DATE : 20170621
US9382800 BB	20190219	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : VERE TECHNOLOGY LLC, TEXAS OLDPARTY : CHANGE OF NAME; ASSIGNOR:VERETEK LLC; REEL/FRAME:048371/0844 EFFECTIVE DATE : 20170703
US9382800 BB	20191024	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HIVIS PUMPS AS, NORWAY OLDPARTY : NULLIFICATION OF NAME CHANGE DOCUMENTS RECORDED AT REEL/FRAME: 048323/0254; 048339/0326; 048359/0216; 048371/0844; ASSIGNOR:HIVIS PUMPS AS; REEL/FRAME:051885/0164 EFFECTIVE DATE : 20130121
US9382800 BB	20191209	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US9382800 BB	20310808	PEXP		Calculated Patent Term Expiry (PTA 12 days)	
WO12013973 A1	20120202	LSPB	+	published / reissued	
WO12013973 A1	20110727	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 201180037485.6 COUNTRY OF REF DOCUMENT : CN
WO12013973 A1	20130124	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2806472 COUNTRY OF REF DOCUMENT : CA
WO12013973 A1	20130129	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 13813004 COUNTRY OF REF DOCUMENT : US
WO12013973 A1	20130130	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO12013973 A1	20130218	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2011749885 COUNTRY OF REF DOCUMENT : EP
WO12013973 A1	20130226	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 201390171 COUNTRY OF REF DOCUMENT : EA
WO12013973 A1	20160524	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112013002364 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20130130

Title: COMBINATION RESERVOIR ENERGY AND PUMPING EQUIPMENT CONTROL

Abstract: (Claim 1) 1. A tool for well bores having a well casing and tubing, a packer to seal the well between such casing and tubing, a flow choke inlet at the lower end of the tubing below the packer, a removable flow choke assembly of a predetermined size and length to meter the flow and removably disposed in the tubing above said inlet, means including pivoted dogs mounted on the assembly and releasably engageable with the tubing to latch said assembly including the choke in the tubing, flow choke outlet means from the tubing to the casing above the choke and also above the packer, a plug sealing the tubing above such outlet, a reciprocating pump in the tubing above said plug, pumping inlet conduits connected at one end into the tubing above the plug, the other ends of said conduits extending to points adjacent said packer and below said flow choke outlet means so that the flow through said choke may effect a gravitational separation outside the tubing, so that the pump intake withdraws sand, foreign matter and degassed liquids.

Classifications:
International (IPC 8-9): E21B43/12 E21B43/38 (Advanced/Invention); E21B43/12 E21B43/34 (Core/Invention)
International (IPC 1-7): F04B21/04 F04B47/00 F04F1/18
CPC: E21B43/12 E21B43/38
European: E21B43/12 E21B43/38
US: 166/105.5 166/106 166/133 166/136 166/142 166/151 417/453



Family:

Publication number	Publication date	Application number	Application date
US2652000 A	19530915	US19450583746	19450320

Priority:
US19450583746 19450320

Probable Assignee: WOOLSEY STERLING W
Assignee(s): (std): WOOLSEY STERLING W
Inventor(s): (std): WOOLSEY STERLING W

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
US2652000 A	19530915	LSGT	+	granted / extensions (spc, cpc, pte)	

Title: PUMP/MOTOR ASSEMBLY

Abstract: A pump and, in reverse operation, a motor, for pumping viscous fluids is disclosed, comprising a rotor and stator each having opposite handed threads, and a fluid path between them, one of the stator motor having a solid body, typically in the sense that it has no throughbore.

Classifications:

International (IPC 8-9): E21B43/12 F04D3/02

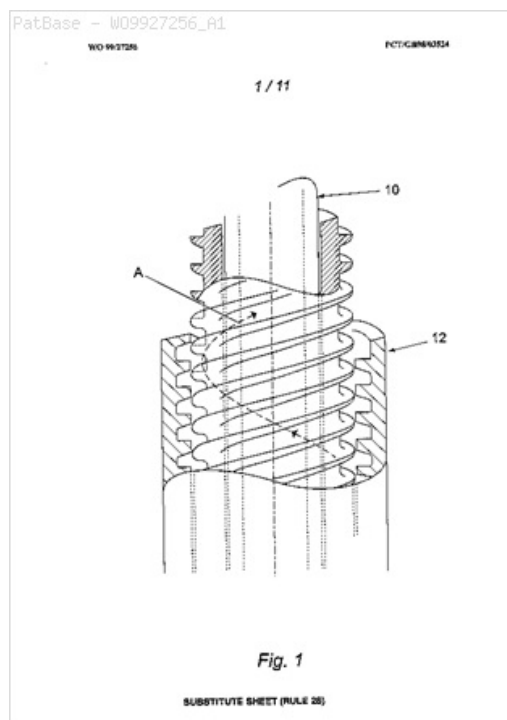
F04D31/00 (Advanced/Invention);

E21B43/12 F04D3/00 (Core/Invention)

International (IPC 1-7): F04D3/02 F04D31/00 F04D31/00

CPC: E21B43/121 F04D3/02

European: E21B43/12B F04D3/02



Family:

Publication number	Publication date	Application number	Application date
AU199913421 A1	19990615	AU19990013421	19981126
BRPI9814911 A	20001003	BR1998PI14911	19981126
CA2314350 AA	20000524	CA19982314350	19981126
CN1279747 A	20010110	CN19988011386	19981126
EP1034375 A1	20000913	EP19980956989	19981126
GB9724899 A0	19980128	GB19970024899	19971126
ID27608 A	20010412	ID20000001002	19981126
WO9927256 A1	19990603	WO1998GB03524	19981126

Priority:

GB19970024899 19971126 WO1998GB03524 19981126

Probable Assignee: TRIANGLE ENGINEERING CONSULTAN

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Assignee(s): TRIANGLE ENGINEERING CONSULTANTS LIMITED ; TRIANGLE ENGINEERING CONSULTANTS LTD

Inventor(s): (std): SIMPSON A J ; CAMERON A D ; CAMERON ANTHONY DUNCAN ; SIMPSON ALASTAIR JOHN

Inventor(s): AJSIMPSON ; ADCAMERON ; ALASTAIR JOHN SIMPSON ; ANTHONY DUNCAN CAMERON ; A D CAMERON ; A J SIMPSON

Agent(s): FETHERSTONHAUGH AND CO

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 GD GE GH GM GN GR GW HR HU ID IE IL IS IT JP KE KG KP KR KZ LC 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)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
AU199913421 A1	19990615	LSPB	+	published / reissued	
AU199913421 A1	20000810	LSLE	-MK6	APPLICATION LAPSED SECTION 142(2) (F)/REG. 8.3(3) - PCT APPLIC. NOT ENTERING NATIONAL PHASE	
BRPI9814911 A	20001003	LSPB	+	published / reissued	
BRPI9814911 A	20030225	LSRV	-FA10	DISMISSAL: DISMISSAL - ARTICLE 33 OF INDUSTRIAL PROPERTY LAW	
CA2314350 AA	20000524	LSPB	+	published / reissued	
CA2314350 AA	20031126	LSLE	-FZDE	DEAD	
CN1279747 A	20010110	LSPB	+	published / reissued	

CN1279747 A	20010110	LSPB	+C06	PUBLICATION	
CN1279747 A	20040714	LSDW	-C02	DEEMED WITHDRAWAL OF PATENT APPLICATION AFTER PUBLICATION (PATENT LAW 2001)	
EP1034375 A1	20000913	LSPB	+	published / reissued	
EP1034375 A1	20000913	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20000614
EP1034375 A1	20010711	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20010529
EP1034375 A1	20020619	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20011210
GB9724899 A0	19990310	LSWD	-AT	APPLICATIONS TERMINATED BEFORE PUBLICATION UNDER SECTION 16(1)	
ID27608 A	20010412	LSPB	+	published / reissued	
WO9927256 A1	19990603	LSPB	+	published / reissued	
WO9927256 A1	19981126	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 98811386.4 COUNTRY OF REF DOCUMENT : CN
WO9927256 A1	20000524	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2314350 COUNTRY OF REF DOCUMENT : CA
WO9927256 A1	20000524	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2314350 COUNTRY OF REF DOCUMENT : CA KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO9927256 A1	20000525	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 09555221 COUNTRY OF REF DOCUMENT : US
WO9927256 A1	20000526	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : KR
WO9927256 A1	20000614	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 1998956989 COUNTRY OF REF DOCUMENT : EP
WO9927256 A1	20000913	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1998956989 COUNTRY OF REF DOCUMENT : EP
WO9927256 A1	20000928	LSWD	REG	REFERENCE TO NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : 8642
WO9927256 A1	20011210	LSWD	-WWW	WIPO INFORMATION: WITHDRAWN IN	REF

NATIONAL OFFICE

DOCUMENT
NUMBER :
1998956989
COUNTRY OF
REF
DOCUMENT :
EP

Title: ACCUMULATOR OVER HYDRAULIC PUMP DOUBLE-ACTING CYLINDER FOR **ARTIFICIAL LIFT** OPERATIONS

Abstract: An **artificial lift** system for use with a subterranean well can include a cylinder having a piston reciprocally disposed therein, the piston having opposing sides, one side being selectively communicable with a hydraulic pressure source and a hydraulic reservoir, and the other side being selectively communicable with the hydraulic pressure source and at least one accumulator, and the accumulator being selectively communicable with an input side of a pump of the hydraulic pressure source. A method of controlling an **artificial lift** system can include connecting a cylinder to a hydraulic pressure source including a hydraulic pump, the pump being connected between the cylinder and at least one accumulator, the accumulator being connected to a gas pressure source, and operating a gas compressor of the gas pressure source, thereby increasing hydraulic pressure applied to the pump from the accumulator.

Classifications:

International (IPC 8-9): E21B34/06 E21B43/00 E21B43/12

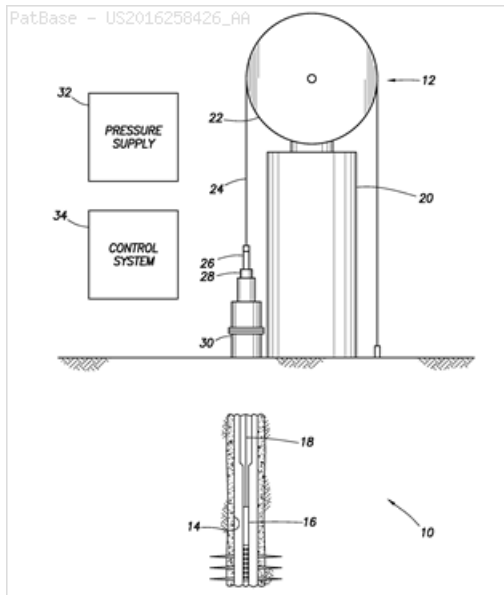
F04B19/22 F04B23/04 F04B53/14 F04B53/16

F04B9/123 (Advanced/Invention)

CPC: F04B9/123 F04B19/22 F04B23/04 F04B53/14 F04B53/16

E21B43/126

US: 1/1 417/390



Family:

Publication number	Publication date	Application number	Application date
AR100326 AA	20160928	AR2015P101375	20150506
CA2949459 AA	20161117	CA20142949459	20140708
CA2949459 C	20181106	CA20142949459	20140708
CO20160004870 A2	20170217	CO20160004870	20161130
MX2016016562 A1	20170810	MX20160016562	20140708
US2016258426 AA	20160908	US20140646813	20140708
US9828979 BB	20171128	US20140646813	20140708
WO16007137 A1	20160114	WO2014US45698	20140708

Priority:

US20140646813 20140708 WO2014US45698 20140708

Probable Assignee: HALLIBURTON CO

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Inventor(s): (std): LI YANMEI ; TAO TAO ; CHEN HUAJUN ; MCEACHERN MATHEW J ; HUAJUN CHEN ; YANMEI LI ; MATHEW J MEACHERN ; MATHEW J MCEACHERN

Inventor(s): MATHEW MCEACHERN J

Agent(s): PARLEE MCLAWS LLP; CAROLINA MERCEDES DAZA MONTALVO; MCGUIRE WOODS LLP; HILTON ROBERT C

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 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
AR100326 AA	20160928	LSPB	+	published / reissued	
CA2949459 AA	20161117	LSPB	+	published / reissued	
CA2949459 AA	20161130	LSSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20161117
CA2949459 C	20181106	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2949459 C	20340708	PEXP		Calculated	

					Patent Term Expiry	
CO20160004870 A2	20170217	LSPB	+	published / reissued		
MX2016016562 A1	20170810	LSPB	+	published / reissued		
US2016258426 AA	20160908	LSPB	+	published / reissued		
US2016258426 AA	20170411	LSES	NFA1	Non Final Action Mailed		
US2016258426 AA	20170905	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications		
US2016258426 AA	20171027	LSFE	+PPR1	Publications -- Issue Fee Payment Received		
US2016258426 AA	20171030	LSFE	+PPV1	Publications -- Issue Fee Payment Verified		
US2016258426 AA	20171108	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE	
US9828979 BB	20171128	LSGT	+	granted / extensions (spc, cpc, pte)		
US9828979 BB	20140811	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HALLIBURTON ENERGY SERVICES, INC., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:TAO, TAO; MCEACHERN, MATTHEW J.; CHEN, HUAJUN; AND OTHERS; REEL/FRAME:033508/0492 EFFECTIVE DATE : 20140710	
US9828979 BB	20150522	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HALLIBURTON ENERGY SERVICES, INC., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:TAO, TAO; MCEACHERN, MATHEW J.; CHEN, HUAJUN; AND OTHERS; REEL/FRAME:035697/0245 EFFECTIVE DATE : 20140710	
US9828979 BB	20171108	LSGT	PAT1	Patented Case		
US9828979 BB	20350330	PEXP		Calculated Patent Term Expiry (PTA 265 days)		
WO16007137 A1	20160114	LSPB	+	published / reissued		
WO16007137 A1	20150522	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 14646813 COUNTRY OF REF DOCUMENT : US	
WO16007137 A1	20161117	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2949459 COUNTRY OF REF DOCUMENT : CA	
WO16007137 A1	20161130	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : NC2016/0004870 COUNTRY OF REF DOCUMENT : CO	
WO16007137 A1	20161214	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : MX/A/2016/016562 COUNTRY OF REF DOCUMENT : MX	
WO16007137 A1	20170109	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE	
WO16007137 A1	20170802	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 14897121 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :	

Title: DOWN HOLE DRILLING ASSEMBLY WITH INDEPENDENT JET PUMP

Abstract: A Down Hole Drilling Assembly (DHDA) is disclosed that induces **artificial lift** to remove the drilling and production fluid from a well bore during drilling operations by means of a single or multiple hydraulic jet pumps attached to a concentric string of casing. The DHDA includes a drill string and drill bit that passes through the jet pump assembly so that the power fluid is separated from the drilling or production fluid until after it has passed through the nozzle of the jet pump. The jet pump assembly is joined to a concentric casing string. The jet pump also contains a bladder element that inflates or expands to redirect the flow of the drilling and production fluid from the inner or return annulus into the jet pump assembly. The purpose of the jet pump assembly is to **artificially lift** and remove fluid thereby lowering the fluid level within a well bore to a point where the hydrostatic pressure exerted by the column of fluid near the bottom of the well is lower than the pore pressure of the formation being drilled thereby creating an under balanced condition.

Classifications:

International (IPC 8-9): E21B1/00 E21B10/60 E21B21/00 E21B21/08 E21B21/12 E21B33/127 E21B43/12 E21B7/00 E21B7/20 (Advanced/Invention); E21B21/00 (Advanced/Non-invention); E21B10/00 E21B21/00 E21B33/12 E21B43/12 E21B7/00 E21B7/20 (Core/Invention)

International (IPC 1-7): E21B E21B1/00 E21B10/60 E21B21/00 E21B21/08 E21B21/12 E21B33/127 E21B43/12 E21B7/00 E21D1/06

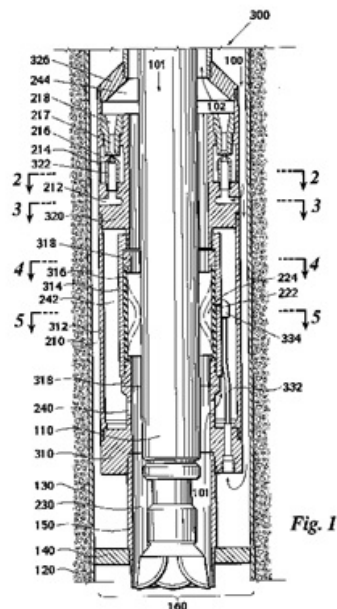
CPC: E21B21/12 E21B33/127 E21B43/124 E21B2021/006

European: E21B21/12 E21B33/127 E21B43/12B6 P21B21/00U

US: 175/324 175/34 175/340 175/393 175/57

PatBase - US2003042048_AA

Patent Application Publication Mar. 6, 2003 Sheet 1 of 8 US 2003/0042048 A1

**Family:**

Publication number	Publication date	Application number	Application date
AR036314 AA	20040825	AR2002P103262	20020829
AT391833 E	20080415	AT20020256120T	20020903
AU2002300837 AA	20030612	AU20020300837	20020902
AU2002300837 AB	20050407	AU20020300837	20020902
AU2002300837 BB	20061102	AU20020300837	20020902
CA2363811 AA	20030304	CA20012363811	20011127
CA2363811 C	20070410	CA20012363811	20011127
CN100447372 C	20081231	CN20021041569	20020903
CN1407207 A	20030402	CN20021041569	20020903
DE60225980 D1	20080521	DE20026025980	20020903
EP1288434 A1	20030305	EP20020256120	20020903
EP1288434 B1	20080409	EP20020256120	20020903
MXPA02008570 A1	20040716	MX2002PA08570	20020902
NO20024216 A	20030305	NO20020004216	20020904
NO20024216 A0	20020904	NO20020004216	20020904
NO20024216 L	20030305	NO20020004216	20020904
NO326050 B1	20080908	NO20020004216	20020904
NZ521195 A	20050324	NZ20020521195	20020904
RU2002123564 A	20040310	RU20020123564	20020903
RU2288342 C2	20061127	RU20020123564	20020903
US2003042048 AA	20030306	US20010946849	20010904
US6877571 BB	20050412	US20010946849	20010904

Priority:

US20010946849 20010904 CA20012363811 20011127

Probable Assignee: SUNSTONE TECHNOLOGIES LLC

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Inventor(s): W J HUGHES ; J G LONFRO ; KH'JUZ V. DZHEJMS

Agent(s): DAVIES COLLISON CAVE PTY LTD; DAVIES COLLISON CAVE; GOODWIN MCKAY; PARLEE MCLAWS LLP; ROBINSON IAN MICHAEL ET AL; RUDOLF O

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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AR036314 AA	20040825	LSPB	+	published / reissued	
AR036314 AA	20091223	LSGT	+FG	GRANT, REGISTRATION	
AT391833 E	20080415	LSGT	+	granted / extensions (spc, cpc, pte)	
AT391833 E	20081015	LSLE	-RER	CEASED AS TO PARAGRAPH 5 LIT. 3 LAW INTRODUCING PATENT TREATIES	
AT391833 E	20220903	PEXP		Calculated Patent Term Expiry	
AU2002300837 AA	20030612	LSPB	+	published / reissued	
AU2002300837 AB	20050310	LSAS	PC1	ASSIGNMENT BEFORE GRANT (SECT. 113)	PARTYTYPE : OWNER OWNER : SUNSTONE CORPORATION OLDPARTY : FORMER APPLICANT(S): HUGHES UBHD TOOL COMPANY, LLC
AU2002300837 AB	20050407	LSRE	DA3	AMENDMENTS MADE SECTION 104	TEXT : THE NATURE OF THE AMENDMENT IS AS SHOWN IN THE STATEMENT(S) FILED 14 OCT 2004
AU2002300837 BB	20061102	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2002300837 BB	20070301	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2002300837 BB	20190328	LSLE	-MK14	PATENT CEASED SECTION 143(A) (ANNUAL FEES NOT PAID) OR EXPIRED	
AU2002300837 BB	20220902	PEXP		Calculated Patent Term Expiry	
CA2363811 AA	20030304	LSPB	+	published / reissued	
CA2363811 AA	20031119	LSES	+EEER	EXAMINATION REQUEST	
CA2363811 C	20070410	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2363811 C	20200108	LSLE	-MKLA	LAPSED	EFFECTIVE DATE : 20191127
CA2363811 C	20211127	PEXP		Calculated Patent Term Expiry	
CN100447372 C	20081231	LSGT	+	granted / extensions (spc, cpc, pte)	
CN100447372 C	20081231	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN100447372 C	20081231	LSGT	+GR01	授权 (The grant of patent right)	TEXT : 授权 (AUTHORIZATION)
CN100447372 C	20190820	LSLE	-CF01	未缴年费专利权终止 (Termination of patent right due to unpaid annual fee)	TEXT : 专利权的终止 (TERMINATION OF PATENT RIGHT) EFFECTIVE DATE : 20180903
CN100447372 C	20190820	LSLE	-CF01	TERMINATION OF PATENT RIGHT DUE TO NON-PAYMENT OF ANNUAL FEE	
CN100447372 C	20220903	PEXP		Calculated Patent Term Expiry	
CN1407207 A	20030402	LSPB	+	published / reissued	
CN1407207 A	20030402	LSPB	+C06	PUBLICATION	
CN1407207 A	20030402	LSPB	PB01	公开 (The publication of application)	TEXT : 公开 (DISCLOSURE)
CN1407207 A	20041103	LSAS	ASS	SUCCESSION OR ASSIGNMENT OF PATENT RIGHT	PARTYTYPE : OWNER OWNER : SUNSTONE CORP. OLDPARTY : FORMER OWNER: HUSE UBHD APPLIANCE CO.,

					LTD. EFFECTIVE DATE : 20040917
CN1407207 A	20041103	LSAS	C41	TRANSFER OF PATENT APPLICATION OR PATENT RIGHT OR UTILITY MODEL	
CN1407207 A	20041103	LSAS	TA01	专利申请权的转移 (Transfer of patent application right)	TEXT : 专利申请权、专利权的转移专 利申请权的转移 (TRANSFER OF THE RIGHT OF PATENT APPLICATION OR PATENT APPLICATION RIGHT TRANSFER) APPLICANT AFTER CHANGE : 日 长石有限公司 (DAY FELDSPAR CO., LTD.) APPLICANT BEFORE CHANGE : 休斯UBHD器具有限责任公司 (HOUSTON, UBHD UTENSILS LIMITED LIABILITY COMPANY) EFFECTIVE DATE : 20040917
DE60225980 D1	20090312	LSWD	-8332	NO LEGAL EFFECT FOR DE	
EP1288434 A1	20030305	LSPB	+	published / reissued	
EP1288434 A1	20031105	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20030903
EP1288434 A1	20031126	LSFE	+AKX	DESIGNATION FEES PAID	COUNTRY OF REF DOCUMENT : AT COUNTRY OF REF DOCUMENT : BE COUNTRY OF REF DOCUMENT : BG COUNTRY OF REF DOCUMENT : CH COUNTRY OF REF DOCUMENT : CY COUNTRY OF REF DOCUMENT : CZ COUNTRY OF REF DOCUMENT : DE COUNTRY OF REF DOCUMENT : DK COUNTRY OF REF DOCUMENT : EE COUNTRY OF REF DOCUMENT : ES COUNTRY OF REF DOCUMENT : FI COUNTRY OF REF DOCUMENT : FR COUNTRY OF REF DOCUMENT : GB COUNTRY OF REF DOCUMENT : GR COUNTRY OF REF DOCUMENT : IE COUNTRY OF REF DOCUMENT : IT COUNTRY OF REF DOCUMENT : LI COUNTRY OF REF DOCUMENT : LU COUNTRY OF REF DOCUMENT : MC COUNTRY OF REF DOCUMENT : NL COUNTRY OF REF DOCUMENT : PT COUNTRY OF REF DOCUMENT : SE COUNTRY OF REF DOCUMENT : SK COUNTRY OF REF DOCUMENT : TR
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EP1288434 A1	20050427	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : SUNSTONE CORPORATION
EP1288434 A1	20060830	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20051102
EP1288434 B1	20080409	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1288434 B1	20080409	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP1288434 B1	20080430	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP1288434 B1	20080514	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP1288434 B1	20080925	LSRV	-LTIE	LT: INVALIDATION OF EUROPEAN PATENT OR PATENT EXTENSION	REF COUNTRY CODE : EP EFFECTIVE DATE : 20080409
EP1288434 B1	20081031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BG NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20080709
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EP1288434 B1	20081031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20080409
EP1288434 B1	20081031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20080909
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EP1288434 B1	20090130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CZ NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20080409
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LAPSED DATE : 20080409					
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EP1288434 B1	20090731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED VIA POSTGRANT INFORMATION FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20080903
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EP1288434 B1	20141231	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20140924 YEAR OF FEE PAYMENT : 13
EP1288434 B1	20150227	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL PAYMENT DATE : 20140918 YEAR OF FEE PAYMENT : 13
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EP1288434 B1	20160525	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20150903
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EP1288434 B1	20220903	PEXP		Calculated Patent Term Expiry	
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MXPA02008570 A1	20050523	LSAS	GB	TRANSFER OR ASSIGNMENT	
MXPA02008570 A1	20070919	LSGT	+FG	GRANT OR REGISTRATION	
NO20024216 A	20030305	LSPB	+	published / reissued	
NO326050 B1	20080908	LSGT	+	granted / extensions (spc, cpc, pte)	
NO326050 B1	20160425	LSLE	-MM1K	LAPSED BY NOT PAYING THE ANNUAL FEES	

NO326050 B1	20220904	PEXP		Calculated Patent Term Expiry published / reissued	
NZ521195 A	20050324	LSPB	+		
NZ521195 A	20050324	LSAS	ASS	CHANGE OF OWNERSHIP	PARTYTYPE : OWNER OWNER : SUNSTONE CORPORATION, US OLDPARTY : OLD OWNER(S): HUGHES UBHD TOOL COMPANY, LLC
NZ521195 A	20050729	LSGT	+PSEA	PATENT SEALED	
NZ521195 A	20060929	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	
NZ521195 A	20090925	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	
NZ521195 A	20120928	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	
NZ521195 A	20150731	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	TEXT : PATENT RENEWED FOR 1 YEAR UNTIL 04 SEP 2016 BY SEAN W GOODWIN PROFESSIONAL CORPORATION EFFECTIVE DATE : 20150701
NZ521195 A	20160826	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	TEXT : PATENT RENEWED FOR 1 YEAR UNTIL 04 SEP 2017 BY NANCY KENT-REMPEL EFFECTIVE DATE : 20160812
NZ521195 A	20170728	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	TEXT : PATENT RENEWED FOR 1 YEAR UNTIL 04 SEP 2018 BY NANCY KENT-REMPEL EFFECTIVE DATE : 20170719
NZ521195 A	20190329	LSLE	-LAPS	PATENT LAPSED	
RU2002123564 A	20040310	LSPB	+	published / reissued	
RU2288342 C2	20061127	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2288342 C2	20190715	LSLE	-MM4A	THE PATENT IS INVALID DUE TO NON-PAYMENT OF FEES	EFFECTIVE DATE : 20180904
RU2288342 C2	20220903	PEXP		Calculated Patent Term Expiry	
US2003042048 AA	20030306	LSPB	+	published / reissued	
US2003042048 AA	20040324	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HUGHES UBHD TOOL COMPANY, LLC, OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:HUGHES, WILLIAM JAMES; REEL/FRAME:015131/0366 EFFECTIVE DATE : 20020826
US2003042048 AA	20040324	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SUNSTONE CORPORATION, OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:HUGHES UBHD TOOL COMPANY, LLC; REEL/FRAME:015131/0369 EFFECTIVE DATE : 20040322
US2003042048 AA	20050323	LSGT	PAT1	Patented Case	
US2003042048 AA	20050323	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US6877571 BB	20050412	LSGT	+	granted / extensions (spc, cpc, pte)	
US6877571 BB	20050712	LSRE	CC	CERTIFICATE OF CORRECTION	
US6877571 BB	20081014	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6877571 BB	20090122	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SUNSTONE TECHNOLOGIES, LLC, OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:SUNSTONE CORPORATION; REEL/FRAME:022137/0199 EFFECTIVE DATE : 20090116

US6877571 BB	20090122	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SUNSTONE TECHNOLOGIES, LLC,OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:SUNSTONE CORPORATION; REEL/FRAME:022137/0199 EFFECTIVE DATE : 20090116
US6877571 BB	20121001	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6877571 BB	20140219	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SUNSTONE ENERGY GROUP, LLC, OKLAHOMA OLDPARTY : AMENDMENT TO SECURITY AGREEMENT; ASSIGNOR:SUNSTONE TECHNOLOGIES, LLC; REEL/FRAME:032276/0771 EFFECTIVE DATE : 20131209
US6877571 BB	20140219	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SUNSTONE ENERGY GROUP, LLC, OKLAHOMA OLDPARTY : SECURITY AGREEMENT; ASSIGNOR:SUNSTONE TECHNOLOGIES, LLC; REEL/FRAME:032276/0699 EFFECTIVE DATE : 20120725
US6877571 BB	20160929	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6877571 BB	20170818	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BLACK OAK ENERGY HOLDINGS, LLC, OKLAHOMA OLDPARTY : NOTICE OF LENDER NAME CHANGE; ASSIGNOR:SUNSTONE ENERGY GROUP, LLC; REEL/FRAME:044102/0017 EFFECTIVE DATE : 20170109
US6877571 BB	20220605	PEXP		Calculated Patent Term Expiry (PTA 274 days)	

Title: EVALUATION OF DOWNHOLE ELECTRIC COMPONENTS BY MONITORING UMBILICAL HEALTH AND OPERATION

Abstract: A method for monitoring the health of a downhole electrical system including a umbilical cable that connects a downhole electric tool to a power source or controller includes delivering electric signals, such as voltage pulses, to the downhole electric tool, which may be an electric submersible pump. The signals are delivered via the cable from a signal generator and are partially reflected by impedance mismatches in the cable or at other points in the system. Each such partially reflected signal, or response signal, is received by a controller and compared to the delivered electric signals to determine a condition of the power transmission cable.

Classifications:

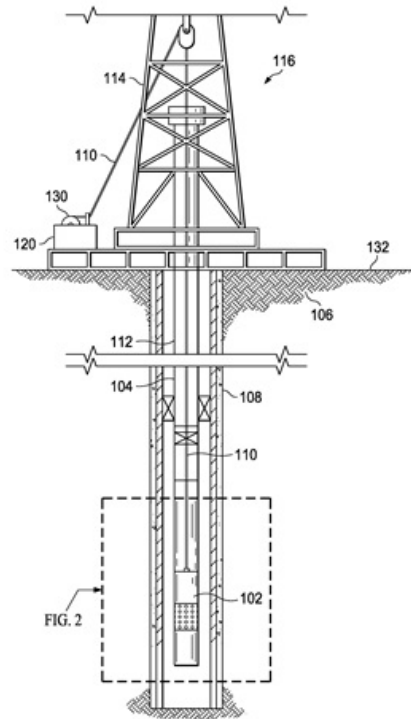
International (IPC 8-9): E21B44/00 E21B47/008 E21B47/09

E21B47/12 G01R31/08 (Advanced/Invention)

CPC: E21B47/12 E21B44/00 E21B47/122 E21B47/09 G01R31/08 E21B43/128

US: 166/250.01 166/65.1 324/511 702/9

PatBase - US2015083399_AA



Family:

Publication number	Publication date	Application number	Application date
US2015083399 AA	20150326	US20140339167	20140723
US2015267532 AA	20150924	US20150727930	20150602
WO15047226 A1	20150402	WO2013US61442	20130924

Priority:

WO2013US61442 20130924 US20140339167 20140723 US20150727930 20150602

Probable Assignee: HALLIBURTON CO

Assignee(s): (std): HALLIBURTON CO ; HALLIBURTON ENERGY SERVICES INC

Inventor(s): (std): FRIPP MICHAEL LINLEY ; DYKSTRA JASON ; BU FANPING

Agent(s): KRUEGER DANIEL J 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 HW 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 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
US2015083399 AA	20150326	LSPB	+	published / reissued	
US2015083399 AA	20140723	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HALLIBURTON ENERGY SERVICES, INC., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:FRIPP, MICHAEL LINLEY; DYKSTRA, JASON; BU, FANPING; SIGNING DATES FROM 20130925 TO 20131205; REEL/FRAME:033376/0891
US2015083399 AA	20151026	LSWD	-ABD3	Abandoned - Failure to Respond to	

				an Office Action	
US2015267532 AA	20150924	LSPB	+	published / reissued	
US2015267532 AA	20150602	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HALLIBURTON ENERGY SERVICES, INC., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:FRIPP, MICHAEL LINLEY; DYKSTRA, JASON; BU, FANPING; SIGNING DATES FROM 20130925 TO 20131205; REEL/FRA:035760/0913
US2015267532 AA	20160601	LSWD	-ABD3	Abandoned - - Failure to Respond to an Office Action	
WO15047226 A1	20150402	LSPB	+	published / reissued	
WO15047226 A1	20160324	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO15047226 A1	20161019	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 13894683 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

Title: LOW PROFILE VALVES

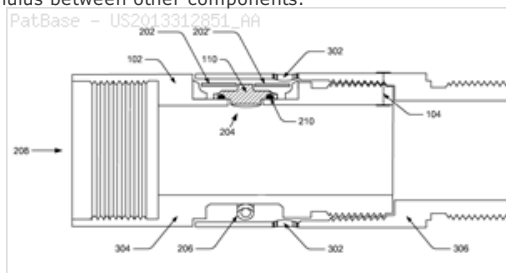
Abstract: Low profile valves are described. In an embodiment, a tubular member for fluid transport has a valve constructed within a wall of the tubular member for controlling a radial flow of fluid, such as water, oil, or gas, through the wall without impeding the flow of fluid or tools through the tubular member or near the exterior of the tubular member. The low profile valve may be used, for example, in the oil and gas industries as a pressure relief valve or check valve. When used as a pressure relief valve, a load member such as a spring, strap, or rocker arm maintains a backpressure on the valve. Example low profile valves can provide flow control from within a very thin annulus between other components.

Classifications:

International (IPC 8-9): E21B34/06 F16K1/32 F16K15/00 F16K15/03 F16K17/04 F16K27/02 F16K51/00 F16L55/07 (Advanced/Invention); F16K1/00 F16K15/00 (Core/Invention)

CPC: F16K15/033 F16K17/0413 F16K27/0209 Y10T137/0491 Y10T137/7922

US: 1/1 137/15.18 137/535

**Family:**

Publication number	Publication date	Application number	Application date
AU2013205979 AA	20131212	AU20130205979	20130522
AU2013205979 BB	20160317	AU20130205979	20130522
CA2816099 AA	20131125	CA20132816099	20130523
MX2013005935 A1	20131125	MX20130005935	20130527
MX340415 B	20160708	MX20130005935	20130527
US2013312851 AA	20131128	US20120481241	20120525
US9416885 BB	20160816	US20120481241	20120525

Priority:

US20120481241 20120525 CA20132816099 20130523

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Assignee(s): (std): ANDERSEN CAMERON ; MANGUM JARED ; MASON GARTH L ; MESSICK TYSON R ; STODDARD KENNETH JOHN ; SCHLUMBERGER TECHNOLOGY CORP ; SCHLUMBERGER TECHNOLOGY BV ; SCHLUMBERGER CA LTD

Assignee(s): SCHLUMBERGER CANADA LTD

Inventor(s): (std): ANDERSEN CAMERON ; CAMERON ANDERSEN ; MANGUM JARED ; KENNETH JOHN STODDARD ; JARED MANGUM ; GARTH L MASON ; MASON GARTH L ; MESSICK TYSON R ; STODDARD KENNETH JOHN ; TYSON R MESSICK

Agent(s): GRIFFITH HACK ; SMART AND BIGGAR ; MICHAEL

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2013205979 AA	20131212	LSPB	+	published / reissued	
AU2013205979 BB	20160317	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2013205979 BB	20160714	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2013205979 BB	20171221	LSLE	-MK14	PATENT CEASED SECTION 143(A) (ANNUAL FEES NOT PAID) OR EXPIRED	
AU2013205979 BB	20330522	PEXP		Calculated Patent Term Expiry	
CA2816099 AA	20131125	LSPB	+	published / reissued	
CA2816099 AA	20180704	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20180523
MX2013005935 A1	20131125	LSPB	+	published / reissued	
MX2013005935 A1	20160708	LSGT	+FG	GRANT OR REGISTRATION	
MX340415 B	20160708	LSGT	+	granted / extensions (spc, cpc, pte)	

MX340415 B	20330527	PEXP		Calculated Patent Term Expiry	
US2013312851 AA	20131128	LSPB	+	published / reissued	
US2013312851 AA	20160727	LSGT	STCF	INFORMATION ON STATUS: PATENT GRANT	TEXT : PATENTED CASE
US9416885 BB	20160816	LSGT	+	granted / extensions (spc, cpc, pte)	
US9416885 BB	20120726	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:ANDERSEN, CAMERON; MANGUM, JARED; MASON, GARTH L.; AND OTHERS; REEL/FRAME:028644/0867 EFFECTIVE DATE : 20120725
US9416885 BB	20121104	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SCHLUMBERGER TECHNOLOGY CORPORATION, TEXAS OLDPARTY : CORRECTIVE ASSIGNMENT TO CORRECT THE ONE INVENTOR IS ADDED. PREVIOUSLY RECORDED ON REEL 028644 FRAME 0867. ASSIGNOR(S) HEREBY CONFIRMS THE ASSIGNMENT; ASSIGNORS:ANDERSEN, CAMERON; MANGUM, JERED; MASON, GARTH L; AND OTHERS; REEL/FRAME:029237/0892 EFFECTIVE DATE : 20121102
US9416885 BB	20151001	LSSES	NFA1	Non Final Action Mailed	
US9416885 BB	20160719	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
US9416885 BB	20160727	LSGT	PAT1	Patented Case	
US9416885 BB	20340527	PEXP		Calculated Patent Term Expiry (PTA 732 days)	