



(51) International Patent Classification:

E21B 17/06 (2006.01) E21B 19/16 (2006.01)
E21B 17/02 (2006.01)

(21) International Application Number:

PCT/CA2018/050312

(22) International Filing Date:

15 March 2018 (15.03.2018)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/471,699 15 March 2017 (15.03.2017) US

(71) Applicant: HEAL SYSTEMS LP [CA/CA]; 125 9th Avenue S.E., Suite 200, Calgary, Alberta T2G 0P6 (CA).

(72) Inventors: SAPONJA, Jeffrey Charles; c/o Heal Systems Lp, 125 9th Avenue S.E., Suite 200, Calgary, Alberta T2G 0P6 (CA). HARI, Robbie Singh; c/o Heal Systems Lp, 125 9th Avenue S.E., Suite 200, Calgary, Alberta T2G 0P6 (CA). KEITH, Tim; c/o Heal Systems Lp, 125 9th Avenue S.E., Suite 200, Calgary, Alberta T2G 0P6 (CA). KIMERY, Dave; c/o Heal Systems Lp, 125 9th Avenue S.E., Suite 200, Calgary, Alberta T2G 0P6 (CA). WALL, Trystan; c/o Heal Systems Lp, 125 9th Avenue S.E., Suite 200, Calgary, Alberta T2G 0P6 (CA). DEUGO, Shawn; c/o Heal Systems

Lp, 125 9th Avenue S.E., Suite 200, Calgary, Alberta T2G 0P6 (CA).

(74) Agent: RIDOUT & MAYBEE LLP et al.; 250 University Avenue, 5th Floor, Toronto, Ontario M5H 3E5 (CA).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

(54) Title: RELEASABLE TOOL FOR EFFECTING COUPLING WITHIN A WELLBORE

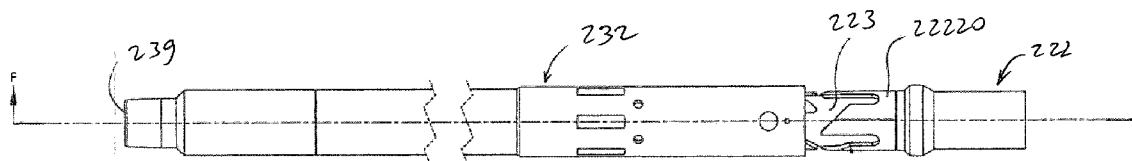


FIGURE 7A

(57) Abstract: There is provided a connecting device includes first and second device counterparts. The first device counterpart and the second device counterpart are co-operatively configured such that: releasable coupling between the first device counterpart and the second device counterpart is effectible, while the first device counterpart is releasably coupled to the second device counterpart in a releasably coupled position: (i) displacement of the first device counterpart, relative to the second device counterpart, along an axis in a first direction, is prevented or substantially prevented; and (ii) the first device counterpart is displaceable, relative to the second device counterpart, along an axis in a second direction that is opposite, or substantially opposite, to the first direction, for effecting release of the first device counterpart from the coupling to the second device counterpart, with effect that the first device counterpart becomes disposed in a released position. The release of the first device counterpart from the releasable coupling to the second device counterpart is effectible in absence, or substantial absence, of torque applied to the first device counterpart about an axis that is parallel, or substantially parallel, to the central longitudinal axis of the first device counterpart.



Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*
- *in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE*

(88) Date of publication of the international search report:

24 January 2019 (24.01.2019)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CA2018/050312

A. CLASSIFICATION OF SUBJECT MATTER
 IPC: *E21B 17/06* (2006.01), *E21B 17/02* (2006.01), *E21B 19/16* (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC: *E21B 17/06* (2006.01), *E21B 17/02* (2006.01), *E21B 19/16* (2006.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 None

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)
 Canadian Patents Database; QUESTEL-ORBIT (FamPat database), Google
 Keywords: wellbore; sens+, monitor+, detect; overpull; gas interference, gas lock; +rotat+; torque; horizontal; j pin, j slot, j tool; hook load

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2013/133795 A1 (RINGGENBERG) 12 September 2013 (12-09-2013) * Whole document *	1-10, 17-33, 39-54 & 60-77 & 84
X	US 7,380,596 B2 (DE CLUTE-MELANCON) 03 June 2008 (03-06-2008) * Whole document *	1-10, 17-33, 39-54 & 60-77 & 84
X	US 5,310,001 A (BURNS, SR. ET AL) 10 May 1994 (10-05-1994) * Whole document *	1-10, 17-33, 39-54 & 60-77 & 84

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
 17 December 2018 (17-12-2018)

Date of mailing of the international search report
 20 December 2018 (20-12-2018)

Name and mailing address of the ISA/CA
 Canadian Intellectual Property Office
 Place du Portage I, C114 - 1st Floor, Box PCT
 50 Victoria Street
 Gatineau, Quebec K1A 0C9
 Facsimile No.: 819-953-2476

Authorized officer
 Jason Fisher (819) 639-7805

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CA2018/050312

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,700,778 A (SMITH ET AL) 20 October 1987 (20-10-1987) * Whole document *	1-10, 17, 25-33, 39, 40, 48-54, 60, 61 & 69-70
X	BURGESS ET AL "Horizontal Drilling Comes of Age". Oilfield Review. 31 July 1990, Vol. 2, No. 3, pages 22-33 * 'Planning a Horizontal Well' section*	78-83
---End of Items---		

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of the first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claim Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claim Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

See supplemental page

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claim Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim Nos.:

- Remark on Protest**
- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
 - The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
 - No protest accompanied the payment of additional search fees.

The claims are directed to a plurality of inventive concepts as follows:

Group A - Claims 1 - 77 & 84 are directed to connecting device assemblies comprising: a first device counterpart ;and a second device counterpart ;wherein the first and second device counterparts are co-operatively configured such that they are releasably couplable such that, i) when coupled, displacement of the first device counterpart relative to the second device counterpart, along an axis in a first direction, is substantially prevented , and ii) the first device counterpart is displaceable relative to the second device counterpart, in a second direction that is substantially opposite to the first direction so as to effect release of the first and second device counterparts (and related tools, systems and reservoir fluid conduction assemblies); and

Group B - Claims 78 - 83 are directed to a process for sensing a downhole condition of a first device counterpart with respect to a second device counterpart, comprising: processes of monitoring for overpull while displacing the first device counterpart in the uphole direction.

The claims must be limited to one inventive concept as set out in PCT Rule 13.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CA2018/050312

Patent Document Cited in Search Report	Publication Date	Patent Family Member (s)	Publication Date
WO2013133795A1	12 Sep 2013 (12-09-2013)	AU2012372852A1 AU2012372852B2 CN104246111A CN104246111B EP2791456A1 EP2791456A4 MY166496A SG11201403116A US2013233566A1 US8727019B2	03 Jul 2014 (03-07-2014) 31 Jul 2014 (31-07-2014) 24 Dec 2014 (24-12-2014) 08 Jun 2016 (08-06-2016) 22 Oct 2014 (22-10-2014) 24 Jun 2015 (24-06-2015) 27 Jun 2018 (27-06-2018) 30 Jul 2014 (30-07-2014) 12 Sep 2013 (12-09-2013) 20 May 2014 (20-05-2014)
US7380596B2	03 Jun 2008 (03-06-2008)	US2007261889A1	15 Nov 2007 (15-11-2007)
US5310001A	10 May 1994 (10-05-1994)	AU1590792A AU658880B2 CA2066996A1 EP0511789A2 EP0511789A3 NO921656D0 NO921656A US5224547A	05 Nov 1992 (05-11-1992) 04 May 1995 (04-05-1995) 31 Oct 1992 (31-10-1992) 04 Nov 1992 (04-11-1992) 05 May 1993 (05-05-1993) 28 Apr 1992 (28-04-1992) 02 Nov 1992 (02-11-1992) 06 Jul 1993 (06-07-1993)
US4700778A	20 Oct 1987 (20-10-1987)	None	