

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference CBL4-63954WO	FOR FURTHER ACTION	See item 4 below
International application No. PCT/US2018/059372	International filing date (<i>day/month/year</i>) 06 November 2018 (06.11.2018)	Priority date (<i>day/month/year</i>) 07 December 2017 (07.12.2017)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant BAKER HUGHES HOLDINGS LLC		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).																								
2.	This REPORT consists of a total of 9 sheets, including this cover sheet.																								
In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.																									
3.	This report contains indications relating to the following items: <table style="width: 100%;"> <tr> <td style="width: 5%; text-align: center;">☒</td> <td style="width: 25%;">Box No. I</td> <td style="width: 70%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;">☒</td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;">☒</td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;">☒</td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	☒	Box No. I	Basis of the report	☐	Box No. II	Priority	☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	☐	Box No. IV	Lack of unity of invention	☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	☐	Box No. VI	Certain documents cited	☒	Box No. VII	Certain defects in the international application	☒	Box No. VIII	Certain observations on the international application
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4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	Date of issuance of this report 09 June 2020 (09.06.2020) Authorized officer Athina Nickitas-Etienne e-mail: pct.team4@wipo.int
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PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To: HUNZIKER, Robin 300 NE 9th Street Oklahoma City, Oklahoma 73104 USA

Date of mailing (day/month/year)	27 February 2019 (27.02.2019)
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Applicant's or agent's file reference CBL4-63954WO		FOR FURTHER ACTION See paragraph 2 below	
International application No. PCT/US2018/059372	International filing date (day/month/year) 06 November 2018 (06.11.2018)	Priority date(day/month/year) 17 December 2017 (17.12.2017)	
International Patent Classification (IPC) or both national classification and IPC H01R 13/52(2006.01)i			
Applicant BAKER HUGHES, A GE COMPANY, LLC			

1. This opinion contains indications relating to the following items:

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|-------------------------------------|--------------|--|
| ☒ | Box No. I | Basis of the opinion |
| ☐ | Box No. II | Priority |
| ☐ | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| ☐ | Box No. IV | Lack of unity of invention |
| ☒ | Box No. V | Reasoned statement under Rule 43bis. I(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement |
| ☐ | Box No. VI | Certain documents cited |
| ☒ | Box No. VII | Certain defects in the international application |
| ☒ | Box No. VIII | Certain observations on the international application |

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/KR International Application Division Korean Intellectual Property Office 189 Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea Facsimile No. +82-42-481-8578	Date of completion of this opinion 26 February 2019 (26.02.2019)	Authorized officer KANG, Sung Chul Telephone No. +82-42-481-8405
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US2018/059372

Box No. 1 Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of :

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*. I(a))

3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:

- a. ☐ forming part of the international application as filed:
☐ in the form of an Annex C/ST.25 text file.
☐ on paper or in the form of an image file.
- b. ☐ furnished together with the international application under PCT Rule 13*ter*. I(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
- c. ☐ furnished subsequent to the international filing date for the purposes of international search only:
☐ in the form of an Annex C/ST.25 text file (Rule 13*ter*. I(a)).
☐ on paper or in the form of an image file (Rule 13*ter*. I(b) and Administrative Instructions, Section 713).

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2018/059372

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-15	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-15	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims	NONE	NO

2. Citations and explanations :

Reference is made to the following documents:

D1: US 2012-0063932 A1 (MICHAEL R. RUMBAUGH et al.) 15 March 2012

D2: US 2011-0045701 A1 (SATOSHI TSURUTA) 24 February 2011

1. Novelty and Inventive Step

1.1 Claims 1-15

1.1.1 Independent claim 1

D1, which is considered to be the closest prior art to the subject matter of independent claim 1, discloses a connector comprising: a lower cap 42 (see paragraph [0036] and figure 4 in D1); a metal tube 36 surrounding each insulation 35 (see paragraph [0035] and figure 4 in D1); a power cable 20 (see paragraph [0030] and figure 1 in D1); a pothead electrical insulator 44 located within the lower cap 42 (see paragraph [0036] and figure 4 in D1); and an upper cap 40 (see paragraph [0036] and figure 4 in D1).

Claim 1 differs from D1 in a lower housing having a plurality of upward protruding bosses (71), the bosses having axes (79) parallel with each other that are located in a single plane, each of the bosses having an annular external side wall (81); and an upper housing characterized by: first and second members (45a, 45b) that clamp around electrical lines, each of the first and second members having a plurality of recesses (87), the recesses of the first member mating with the recesses of the second member to define cavities within the interior of the upper housing, each of the cavities receiving one of isolation boots. However, these differences are merely variations of the disclosure of D2 considering that four locking legs 57 project from a rear surface of a substrate 51 of a retainer 50 and each locking leg 57 has a

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2018/059372

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claim 9 is contrary to PCT Rule 6.1(a) because the subject matter of claims 4 and 9 is same.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US2018/059372

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The expression "electric lines" of claims 3, 10 is considered to be a typo of "electrical lines". Therefore, claims 3, 10 do not meet the requirements of PCT Article 6.

Claim 1 relates to a connector, but claims 14-15 directly or indirectly dependent on claim 1 relates to an assembly. As claims 14-15 do not clearly define the matter for which protection is sought, the claims do not meet the requirement of PCT Article 6.

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of : Box No. V

locking groove 58 open at an upper edge thereof (see paragraph [0055] in D2); and a retainer 50 has two parts 50A separate from each other with respect to a longitudinal center line (see paragraph [0054] and figure 10 in D2), and a person skilled in the art would arrive at the claimed invention by general experimentation alone without exercising any ingenuity. In addition, D1 and D2 are in the related technical fields, and therefore it would not be particularly difficult for a person skilled in the art to combine D1 and D2. Accordingly, claim 1 would have been obvious over a combination of D1 and D2. Therefore, claim 1 lacks an inventive step under PCT Article 33(3).

1.1.2 Dependent claims 2-15

The additional feature of claim 2 is merely a variation of the disclosure of D2 considering that the retainer 50 is mounted on an upper open edge 48 of a housing 20 (see paragraph [0052] in D2), and a person skilled in the art would arrive at the claimed invention by general experimentation alone without exercising any ingenuity.

The additional feature of claim 3 is merely a variation of the disclosures of D1 and D2 considering that tubes 36 may be formed of an anti-corrosive material, such as Inconel or a stainless steel (see paragraph [0035] in D1); and the four locking legs 57 project from the rear surface of the substrate 51 of the retainer 50 and each locking leg 57 has the locking groove 58 open at an upper edge thereof (see paragraph [0055] in D2), and a person skilled in the art would arrive at the claimed invention by general experimentation alone without exercising any ingenuity.

The additional features of claims 4, 9 are merely variations of the disclosure of D2 considering that the retainer 50 has the two parts 50A separate from each other with respect to the longitudinal center line (see paragraph [0054] and figure 10 in D2), and a person skilled in the art would arrive at the claimed invention by general experimentation alone without exercising any ingenuity.

The additional feature of claim 5 is merely a variation of the disclosure of D1 considering that a strip of tape or film 27 with three layers is wrapped helical around a conductor 25 in one direction (see paragraph [0031] in D1), and a person skilled in the art would arrive at the claimed invention by general experimentation alone without exercising any ingenuity.

Continued on The Next Page

Supplemental Box

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The additional feature of claim 6 is merely a variation of the disclosure of D1 considering that the metal tube 36 surrounds each insulation 35 (see paragraph [0035] in D1), and a person skilled in the art would arrive at the claimed invention by general experimentation alone without exercising any ingenuity.

The additional features of claims 7-8 are merely variations of the disclosure of D2 considering that locking projections 81 fit in and lock to a corresponding locking hole 83 (see paragraph [0078] in D2), and a person skilled in the art would arrive at the claimed invention by general experimentation alone without exercising any ingenuity.

The additional feature of claim 10 is merely a variation of the disclosures of D1 and D2 considering that the tubes 36 may be formed of the anti-corrosive material, such as Inconel or the stainless steel (see paragraph [0035] in D1); and the four locking legs 57 project from the rear surface of the substrate 51 of the retainer 50 and each locking leg 57 has the locking groove 58 open at the upper edge thereof (see paragraph [0055] in D2), and a person skilled in the art would arrive at the claimed invention by general experimentation alone without exercising any ingenuity.

The additional feature of claim 11 is merely a variation of the disclosure of D2 considering that the retainer 50 has the two parts 50A separate from each other with respect to the longitudinal center line (see paragraph [0054] and figure 10 in D2); and the four locking legs 57 project from the rear surface of the substrate 51 of the retainer 50 and each locking leg 57 has the locking groove 58 open at the upper edge thereof (see paragraph [0055] in D2), and a person skilled in the art would arrive at the claimed invention by general experimentation alone without exercising any ingenuity.

Claim 12 further specifies that the external side wall of each of the bosses is conical. However, this feature is regarded as a normal design option within the coverage of the prior art by a person skilled in the art.

The additional feature of claim 13 is merely a variation of the disclosure of D1 considering that each motor lead tube 36 extends into a tubing adapter 38, and the tube 36 terminates within the tubing adapter 38, where it is secured by the compression exerted by the tubing

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In case the space in any of the preceding boxes is not sufficient.

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adapter 38 (see paragraph [0036] in D1), and a person skilled in the art would arrive at the claimed invention by general experimentation alone without exercising any ingenuity.

The additional feature of claim 14 is merely a variation of the disclosure of D1 considering that a the pothead electrical insulator 44 is located within the lower cap 42, and an electrical terminal 46 is secured to each motor lead conductor 34 (see paragraph [0036] in D1), and a person skilled in the art would arrive at the claimed invention by general experimentation alone without exercising any ingenuity.

Claim 15 further specifies that lead sheaths have lower ends within the bosses. However, this feature is regarded as a normal design option within the coverage of the prior art by a person skilled in the art.

Accordingly, claims 2-15 would have been obvious over a combination of D1 and D2. Therefore, claims 2-15 lack an inventive step under PCT Article 33(3).

2. Industrial Applicability

Claims 1-15 are industrially applicable under PCT Article 33(4).