

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)**

To:

see form PCT/ISA/220

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/B2018/053586

International filing date (day/month/year)
21.05.2018

Priority date (day/month/year)
27.06.2017

International Patent Classification (IPC) or both national classification and IPC
INV. A61B17/072 A61B17/115

Applicant
ETHICON LLC

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

- 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.1(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 usually 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.

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Date of completion of this opinion

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Box No. I Basis of the 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 43bis.1(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 13ter.1(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 13ter.1(a)).
 - on paper or in the form of an image file (Rule 13ter.1(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:

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)	Yes: Claims	<u>1-20</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	<u>1-20</u>
	No: Claims	
Industrial applicability (IA)	Yes: Claims	<u>1-20</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

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

see separate sheet

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:

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1 Reference is made to the following documents:

D1 EP 3 064 146 A1 (ETHICON ENDO SURGERY LLC [PR]) 7
September 2016 (2016-09-07)

D2 EP 2 923 647 A2 (ETHICON ENDO SURGERY INC [US]) 30
September 2015 (2015-09-30)

2 D1 is regarded as being the prior art closest to the subject-matter of claim 1, and discloses:

An apparatus (fig. 1: instrument 10), comprising:

(a) a body assembly (fig. 2: handle assembly 14), wherein the body assembly comprises:

(i) a control circuit (fig. 4: circuit board 100),

(ii) a battery pack (fig. 4: removable power pack 94) operable to power the control circuit, and

(iii) a first electrical contact assembly (fig. 3: electrical connector 1400), wherein the first electrical contact assembly is in communication with the control circuit (fig. 19: microcontroller 1500);

(b) a modular shaft assembly (fig. 2: shaft assembly 200) configured to selectively couple with the body assembly, wherein the modular shaft assembly comprises a second electrical contact assembly (fig. 3: electrical connector 1410), wherein the second electrical contact assembly is configured to operatively engage the first electrical contact assembly when the modular shaft assembly selectively couples with the body assembly; and
(c) a coupling detection assembly comprising:

(i) a detection activation member (figs. 3,19: magnetic field sensor 1402) associated with the body assembly, wherein the detection activation member is in communication with the control circuit (paragraph [0043], second sentence), and

(ii) a detection trigger member (fig. 3: magnetic element 1407) associated with the modular shaft assembly, wherein the detection trigger member is configured to activate the detection activation member such that the detection activation member communicates a first detection signal to the control circuit when the modular shaft assembly selectively couples with the body assembly (paragraph [0043], first and second sentences).

The subject-matter of claim 1 therefore differs from this known apparatus in that the control circuit is configured to verify operative engagement between the first electrical contact and the second electrical contact in response to the control circuit receiving the first detection signal, and wherein the control circuit is configured to energize the first electrical contact assembly in response to verifying operative engagement between the first electrical contact assembly and the second electrical contact assembly and is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as how to further decrease the risk of electrical discharge if the shaft assembly is not properly connected to the body assembly.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons: In order to solve the above-mentioned problem, D1 discloses mechanical solutions (paragraphs [0047], [0048]) which the skilled person would therefore consider first. In paragraph [0049] of D1, a monitored state for the contacts is disclosed. However, it appears from that paragraph that this monitoring actually occurs before the detection signal is received by the control circuit in order to deactivate shorted circuits. Hence, the teachings of paragraph [0049] do not amount to a verification of the operative engagement in response to the first detection signal. As the suggested solution of additionally verifying the electrical connection after having received a first detection signal is not known from related fields either, the skilled person would not have arrived at the claimed subject-matter.

- 3 Independent claims 17 and 19 relate to essentially the same subject-matter as claim 1. Hence, the subject-matter of these claims is also considered to involve an inventive step (Article 33(3) PCT) for the same reasons as given above with respect to claim 1.
- 4 Claims 2-16, 18, 20 are dependent on one or more independent claims whose subject-matter is considered as being new and inventive, as discussed above, and as such said dependent claims also meet the requirements of the PCT with respect to novelty and inventive step.

Re Item VII

Certain defects in the international application

- 5 Any independent claim should be in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known from the prior art D1 being placed in the preamble (Rule 6.3(b)(i) PCT) and the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).
- 6 The features of all claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
- 7 To comply with the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in D1 and D2 should be mentioned in the description and the documents identified therein.
- 8 The applicant is made aware that in some member states, there is no provision to incorporate a document merely by reference thereto.

Re Item VIII

Certain observations on the international application

- 9 The application does not meet the requirements of Article 6 PCT, because claims 1, 2, 8-12, 17 and 19 are not clear.
- 9.1 Although claims 1, 17 and 19 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and/or in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.
- 9.2 The respective final features of claims 1, 17 and 19 require the control circuit to "energize the first electrical contact assembly in response to verifying operative engagement ...". This formulation also encompasses the possibility that the first electrical contact assembly is energized even though the preceding verification failed. This possibility is at odds with the content of the application and therefore renders the claim unclear and unsupported by the description (Art. 6 PCT). Instead, it should have been specified that the energizing step occurs "in response to successfully verifying...".

- 9.3 There is no antecedent for "the first electrical contact" and "the second electrical contact" in claims 1, 8-12 and 17 or the claims they depend on, therefore rendering unclear the claimed subject-matter (Art. 6 PCT). It is assumed that it is intended to refer to the first/second electrical contact assemblies instead.
- 9.4 In claim 2, the proximity target and the proximity sensor appear to have been erroneously interchanged as the claim formulation is in contradiction with paragraph [0074], thereby rendering the claim unclear (Art. 6 PCT).