Abstract:

A cover for an articulation joint that is supported in an elongate shaft assembly of a surgical instrument that is operably coupled to a surgical end effector that includes at least one end effector conductor therein. The cover includes at least one electrically conductive pathway that extends from the distal end of the cover to form an electrically conductive pathway from the end effector conductor to a shaft conductor on the elongate shaft assembly while facilitating operation of the articulation joint. Various conductor arrangements facilitating the passage of electrical current between an end effector to a control system across the articulation joint are also disclosed.
— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(H)(i))

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))

(88) Date of publication of the international search report:
11 December 2014
**INTERNATIONAL SEARCH REPORT**

**International application No**

PCT/US2014/018224

A. **CLASSIFICATION OF SUBJECT MATTER**

INV. A61B17/072 A61B17/068 A61B17/29

ADD.

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)

A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. **DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
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<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<td>Y</td>
<td>EP 2 263 568 A2 (TYCO HEALTHCARE [US]) 22 December 2010 (2010-12-22) paragraphs [0063], [0075]</td>
<td>8, 15, 16</td>
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Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" later document which may throw doubts on priority claim(s) on which the application may be based
- "O" document referred to in the written description of the invention, but not considered to establish the place in which the invention or its principle was first described
- "P" document published prior to the international filing date but later than the priority date claimed

* "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

* "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

* "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is taken in combination with one or more other such documents, such combination being obvious to a person skilled in the art

* "A" document member of the same patent family

Date of the actual completion of the international search

9 October 2014

Date of mailing of the international search report

29/10/2014

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040
Fax: (+31-70) 340-3016

Authorized officer

Angel i, Markus

Form PCT/ISA/210 (second sheet) (April 2005)
### Box No. II  Observations where certain claims were found unsearchable (Continuation of item 2 of 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. □ Claims Nos.:
   because they relate to subject matter not required to be searched by this Authority, namely:

2. □ Claims 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. □ Claims 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 additional sheet

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 an 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 claims 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 claims 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.
International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-6

   A cover for an articulation joint with at least one electrically conductive pathway for electrically connecting a proximal shaft portion with the end-effector while bridging the joint.

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2. claims: 7-20

   A surgical instrument comprising a coupler assembly for forming an electrically conductive coupler pathway between the end-effector and the articulation joint conductor.

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