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[Continued on next page]

(54) Title: SURGEON FEEDBACK SENSING AND DISPLAY

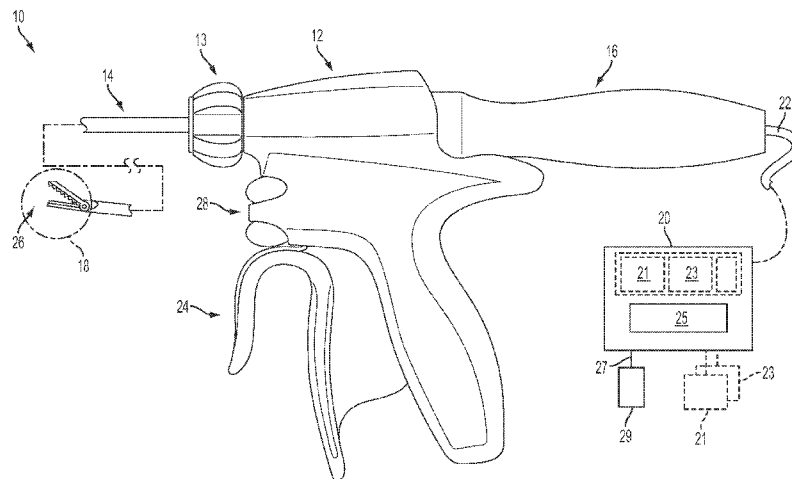


FIG. 1

(57) Abstract: Various embodiments described herein are directed to surgical instruments with visual feedback. In one embodiment, a surgical instrument with visual feedback comprises an end effector. The end effector has a first jaw member and a second jaw member. At least one sensor is coupled to the end effector. The at least one sensor is configured convert at least one state of the end effector to a feedback signal. The feedback signal is corresponding to the at least one state of the end effector. The feedback signal may be transmitted to a display to render a visual representation of the at least one state of the end effector. The surgical instrument may further comprise an instrument mounting portion to mount to a robotic surgical system. The instrument mounting portion comprises an interface to mechanically and electrically interface to the surgical instrument.



Declarations under Rule 4.17:

- *as to the identity of the inventor (Rule 4.17(i))*
- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *with international search report (Art. 21(3))*
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A. CLASSIFICATION OF SUBJECT MATTER
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 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

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/292691 A1 (BROGNA SALVATORE [US]) 18 November 2010 (2010-11-18)	1-4,9, 10, 14-17, 23,26
Y	figures 1,6,9a-10 paragraph [0062] - paragraph [0067] -----	24
X	US 2007/074584 A1 (TALARICO JOSEPH [US] ET AL) 5 April 2007 (2007-04-05) claims 1-20; figure 1 paragraph [0029] paragraph [0051] ----- -/--	1-4,9, 10, 14-17, 20,22

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
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- "&" document member of the same patent family

Date of the actual completion of the international search 18 June 2014	Date of mailing of the international search report 25/06/2014
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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 Cornelissen, P
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INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 2 238 938 A1 (TYCO HEALTHCARE [US]) 13 October 2010 (2010-10-13) paragraph [0043] - paragraph [0044]; figure 7	1,11
X	US 2012/116391 A1 (HOUSER KEVIN L [US] ET AL) 10 May 2012 (2012-05-10) paragraph [0108] paragraph [0062] paragraph [0077] - paragraph [0078] paragraph [0089]	1,9,10, 13,15, 20,21, 23,25
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International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2012/061722 A2 (ETHICON ENDO SURGERY INC [US]; HOUSER KEVIN L [US]; DANNAHER WILLIAM D) 10 May 2012 (2012-05-10) paragraph [0052] - paragraph [0053]; figure 9 -----	15,21
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/064022

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-14, 26

Surgical forceps with a sensor

2. claims: 15-25

Feedback device comprising a display and communications unit

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2013/064022

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