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(54) Title: END EFFECTOR FOR INSTRUMENT WITH ULTRASONIC AND ELECTROSURGICAL FEATURES

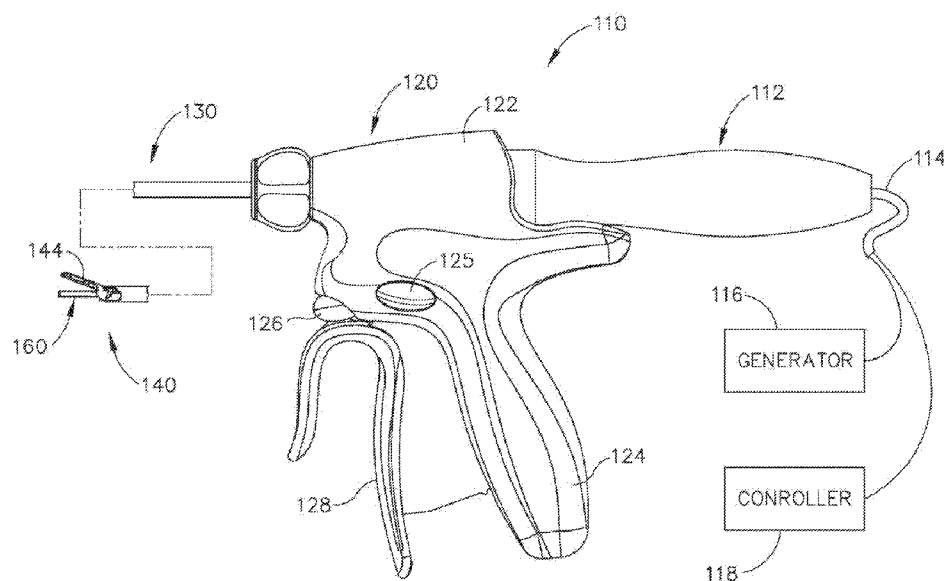


Fig. 1

(57) Abstract: An apparatus includes a body, a shaft assembly, and an end effector. The end effector includes an ultrasonic blade and a clamp arm assembly. The ultrasonic blade is in acoustic communication with an acoustic waveguide of the shaft assembly. The clamp arm assembly is pivotable toward and away from the ultrasonic blade. The clamp arm assembly includes a clamp pad and an electrode. The clamp pad is configured to compress tissue against the ultrasonic blade. The clamp pad has a proximal end, a distal end, and a pair of lateral sides extending from the proximal end to the distal end. The electrode is operable to apply RF energy to tissue. The electrode extends along both lateral sides of the clamp pad. The electrode further extends around the distal end of the clamp pad.

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Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

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— *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))*

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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER

INV. A61B18/14

ADD. A61B17/32 A61B17/00 A61B17/29

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 2011/015631 A1 (WIENER EITAN T [US] ET AL) 20 January 2011 (2011-01-20)	1-15,17
Y	paragraphs [0060] - [0080]; figures 1, 5, 10- 12,16,17,20	16
Y	----- WO 2008/118709 A1 (ETHICON ENDO SURGERY INC [US]; ROBERTSON GALEN C [US]; NEUROHR MARK A) 2 October 2008 (2008-10-02)	16
	paragraphs [0139], [0140]; figures 22-30, 32-40	
X	----- US 2015/141981 A1 (PRICE DANIEL W [US] ET AL) 21 May 2015 (2015-05-21)	18,19
	cited in the application paragraphs [0027] - [0030], [0035] - [0038], [0056]; claim 20; figures 1-4,6,8-12	
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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" 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)

"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

"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 combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

15 September 2017

Date of mailing of the international search report

25/09/2017

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2016/065570

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: 1-17

Combined electrosurgical ultrasonic apparatus with electrode extending around distal end of clamp pad

2. claims: 18, 19

Combined electrosurgical ultrasonic apparatus with electrode interposed between perforated clamp pad and clamp arm body.

3. claim: 20

Combined electrosurgical ultrasonic apparatus with blade guard carrying two RF electrodes separated by insulative portion

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2016/065570

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 2014/135804 A1 (WEISENBURGH II WILLIAM B [US] ET AL) 15 May 2014 (2014-05-15)	20
A	paragraphs [0023], [0027], [0063], [0072] - [0075], [0146] - [0249], [0291], [0309] - [0330]; claim 89; figures 1-3, 8, 107- 120 -----	1-19
A	US 2014/336698 A1 (BOUDREAUX CHAD P [US] ET AL) 13 November 2014 (2014-11-13) paragraphs [0053] - [0061], [0068] - [0077], [0088]; figure 3 -----	1-20

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2016/065570

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