

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
20 April 2006 (20.04.2006)

PCT

(10) International Publication Number
WO 2006/042210 A3

(51) International Patent Classification:
A61B 18/18 (2006.01)

(21) International Application Number:
PCT/US2005/036389

(22) International Filing Date: 7 October 2005 (07.10.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/617,427 8 October 2004 (08.10.2004) US
60/676,709 2 May 2005 (02.05.2005) US

(71) Applicant (for all designated States except US):
ETHICON ENDO-SURGERY, INC. [US/US]; 4545
Creek Road, Cincinnati, Ohio 45242 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FALLER, Craig N.**
[US/US]; 5960 E. Day Circle, Milford, Ohio 45150-2360
(US). **KOWALSKI, Karen M.** [US/US]; 9414 Raven
Lane, Cincinnati, Ohio 45242 (US). **HOUSER, Kevin
L.** [US/US]; 570 Foliage Lane, Springboro, Ohio 45066
(US). **NEUROHR, Mark A.** [US/US]; 658 Nelson Place,
Newport, Kentucky 41071 (US). **NEUENFELDT, Steven
K.** [US/US]; 833 Independence Court, Pleasanton, Cali-
fornia 94566 (US). **BARTON, Scott N.** [US/US]; 6034
Bridgehaven Drive, Milford, Ohio 45150 (US).

(74) Agents: **JOHNSON, Phillip S.** et al.; JOHNSON
& JOHNSON, One Johnson & Johnson Plaza, New
Brunswick, New Jersey 08933 (US).

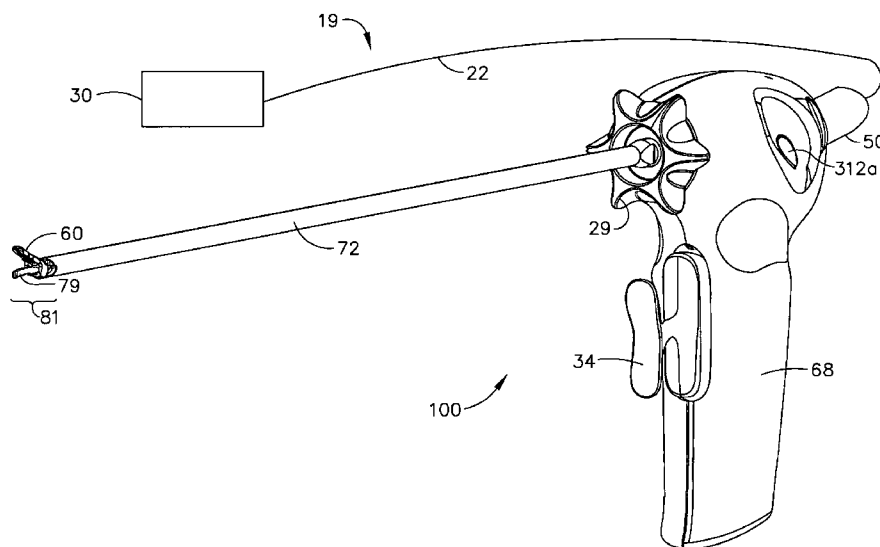
(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY,
MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO,
NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK,
SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,
VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,
RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report

[Continued on next page]

(54) Title: ULTRASONIC SURGICAL INSTRUMENT



(57) Abstract: An ultrasonic clamp coagulator assembly (100) that is configured to permit selective cutting, coagulation and clamping of tissue during surgical procedures. An elongated portion of the instrument can be configured for endoscopic applications and has an outside diameter of less than 6mm. The construction includes a clamping mechanism, including a clamp arm pivotally mounted at the distal portion of the instrument, which is specifically configured to create a desired level of tissue clamping forces, exceeding 4 pounds when the trigger is fully closed. The clamping mechanism includes a two-piece pad design and pad material that enables the higher tissue clamping forces and a force-limiting mechanism that effectively smooths out abusive tissue forces. The assembly also features hand activation configured to provide an ergonomic grip and operation for the surgeon. Hand switches are placed in the range of the natural swing of the surgeon's thumb, whether gripping the surgical instrument right-handed or left handed.

WO 2006/042210 A3



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:

25 January 2007

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/36389

A. CLASSIFICATION OF SUBJECT MATTER
 IPC: **A61B 18/18(2007.01)**

USPC: 606/40
 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)
 U.S. : 606/40

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 5,322,055 A (DAVISON et al.) 21 June 1994 (21.06.1994), entire document.	1-52 ----- 1-52
X --- Y	US 6,325,811 B1 (MESSERLY) 04 December 2001 (04.12.2001), entire document.	1-52 ----- 1-52
X --- Y	US 5,873,873 A (SMITH et al.) 23 February 1999 (23.02.1999), entire document.	1-52 ----- 1-52

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	"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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 28 September 2006 (28.09.2006)	Date of mailing of the international search report 30 NOV 2006
---	---

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer Linda C Dvorak <i>J. Roberts for</i> Telephone No. (571) 272-3700
---	--