

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
15 February 2007 (15.02.2007)

PCT

(10) International Publication Number
WO 2007/019152 A3

(51) International Patent Classification:

A61B 10/00 (2006.01)

(21) International Application Number:

PCT/US2006/030022

(22) International Filing Date: 2 August 2006 (02.08.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

11/198,558 5 August 2005 (05.08.2005) US

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

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HIBNER, John,**
A. [US/US]; 3257 Range Court, Mason, OH 45040 (US).
BECKMAN, Andrew, T. [US/US]; 676 Wilfert Drive,
Cincinnati, OH 45245 (US). **REICHEL, Lee** [US/US]; 80
Glencoe Court, Springboro, OH 45066 (US). **CICENAS,**
Chris, W. [US/US]; 2253 Victoria Park Drive, Columbus,
OH 43235 (US). **STONIS, Luke, C.** [US/US]; 133 West
Cooke Road, Columbus, OH 43214 (US).

(74) Agents: **KREGER, Verne, E., Jr.** et al.; 4545 Creek
Road, Cincinnati, OH 45242 (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, HN, HR, HU, ID, IL, IN, IS, JP,
KE, KG, KM, KN, KP, KR, KZ, LA, 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, RS, RU, SC,
SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ,
UA, UG, US, UZ, VC, VN, 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:

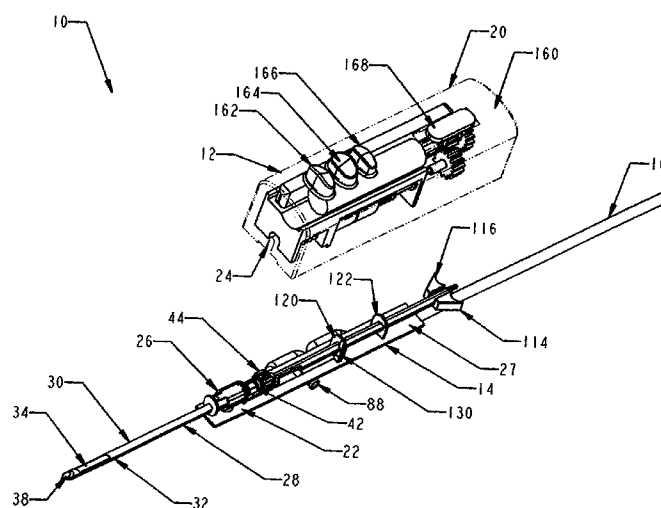
— with international search report

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

3 January 2008

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

(54) Title: BIOPSY DEVICE WITH REPLACEABLE PROBE AND INCORPORATING VIBRATION INSERTION ASSIST
AND STATIC VACUUM SOURCE SAMPLE STACKING RETRIEVAL



(57) Abstract: A biopsy device and method are provided for obtaining a tissue sample, such as a breast tissue biopsy sample. The biopsy device includes a disposable probe assembly with an outer cannula having a distal piercing tip, a cutter lumen, and a cutter tube that rotates and translates past a side aperture in the outer cannula to sever a tissue sample. The biopsy device also includes a reusable hand piece with an integral motor and power source to make a convenient, untethered control for use with ultrasonic imaging. The reusable hand piece incorporates a probe oscillation mode to assist when inserting the distal piercing tip into tissue. A straw stacking assembly is automatically positioned by the reusable hand piece to retract multiple samples with a single probe insertion as well as giving a visual indication to the surgeon of the number of samples that have been taken.

WO 2007/019152 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 06/30022

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8): A61B 10/00 (2007.01)

USPC: 600/566; 600/567

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)

USPC: 600/566; 600/567

IPC(8): A61B 10/00 (2007.01)

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

USPC: 600/300, 562-572, 600/411, 606/167, 606/171

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

WEST (USPT,USOC,EPAB,JPAB; PLUR) and Google Patents (<http://www.google.com/patents>). Please see form 300 for a more comprehensive listing of search terms. However, search terms included, e.g., "biopsy" and "vacuum" and "probe" and "needle" and "tip" and "cutting lumen" and "sample" and "plurality."

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 6,237,862 B1 (PRIVITERA ET AL.) 14 August 2001 (14.08.2001): col 13, ln 24-26; fig. 1K, item 60; col 22, ln 1; col 22, ln 7-8; col 9, ln 2; col 3, ln 38; col 3, ln 40; col 11, ln 3-4; fig. 6A-6B, item 104; col 12, ln 7; col 3, ln 40; col 8, ln 37; col 9, ln 24-25; col 5, ln 21-22; col 5, ln 30-31; col 5, ln 21-22; col 5, ln 30-31	1-3, 6, 8-10, 17, 19, 30-32, 34 and 43 4-5, 7, 11-16, 18, 20-29, 33 and 35-42
Y	US 5,234,000 A (HAKKY ET AL.) 10 August 1993 (10.08.1993): col 4, ln 60-62; col 5, ln 18-20; col 5, ln 10; col 5, ln 17-20; col 2, ln 37; col 3, ln 55-56; col 4, ln 3; fig. 1, element 22; col 4, ln 61-63	4-5, 7, 23-24, 26, 39, and 42
Y	US 6,849,080 B2 (LEE ET AL.) 1 February 2005 (01.02.2005): col 22, ln 22	35-36
Y	US 3,630,192 A (JAMSHIDI) 28 December 1971 (28.12.1971): col 3, ln 35-37; fig. 4	11 and 29
Y	US 5,601,585 A (BANI ET AL.) 11 February 1997 (11.02.1997): col 1, ln 51-53; 2, ln 3-10	12-13, 33, and 40-42
Y	US 4,600,014 A (BERAHA) 15 July 1986 (15.07.1986): col 3, ln 2; col 3, ln 5; col 5, ln 41-42	16
Y	US 5,645,209 A (GREEN ET AL.) 8 July 1997 (08.07.1997): col 30, ln 21-27; fig. 66, element 850; fig. 66, element 826; col 32, ln 46-49; col 33, ln 1-5; fig. 85, element 926	18 and 20-29
Y	US 4,051,852 A (VILLARI) 4 October 1977 (04.10.1977): col 3, ln 14-21	4-5 and 23

☒ Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"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	

Date of the actual completion of the international search

18 July 2007 (18.07.2007)

Date of mailing of the international search report

27 SEP 2007

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:

Lee W. Young

PCT Helpdesk: 571-272-4300

PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 06/30022

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,638,235 B2 (MILLER ET AL.) 28 October 2003 (28.10.2003): col 12, ln 15-23	37-39
Y	US 6,620,111 B2 (STEPHENS ET AL.) 16 September 2003 (16.09.2003): col 8, ln 7; fig. 3-4, element 124	42
Y	US 5,876,329 A (HARHEN) 2 March 1999 (02.03.1999): col 3, ln 39-48	14
Y	US 6,213,957 B1 (MILLIMAN ET AL.) 10 April 2001 (10.04.2001): col 8, ln 45-46; col 8, ln 41-42	15
Y	US 4,782,833 A (EINHORN) 8 November 1988 (08.09.1988): col 1, ln 9; col 1, ln 16; col 1, ln 18; col 1, ln 20; col 3, ln 20-32	13