

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
13 December 2007 (13.12.2007)

PCT

(10) International Publication Number
WO 2007/143281 A3

(51) International Patent Classification:
A61B 8/00 (2006.01)

(21) International Application Number:
PCT/US2007/066635

(22) International Filing Date: 13 April 2007 (13.04.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/791,654 13 April 2006 (13.04.2006) US
11/623,705 16 January 2007 (16.01.2007) US

(63) Related by continuation (CON) or continuation-in-part (CIP) to earlier application:
US 60/791,654 (CIP)
Filed on 13 April 2006 (13.04.2006)

(71) Applicant (for all designated States except US):
MIRABILIS MEDICA INC. [US/US]; 2401 Elliott Avenue, Suite 350B, Seattle, WA 98121 (US).

(72) Inventors; and

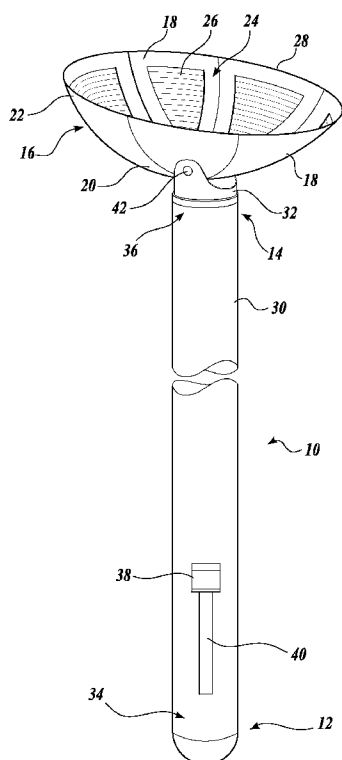
(75) Inventors/Applicants (for US only): **LAU, Michael, P., H.** [US/US]; 7015 147th Street SW, Edmonds, WA 98026 (US). **TENG, Nelson** [US/US]; 525 University Avenue, Suite 1400, Palo Alto, CA 94301 (US). **VAEZY, Shahram** [US/US]; 8628 26th Avenue NE, Seattle, WA 98115 (US). **LEBEDEV, Alexander** [US/US]; 3217 Eastlake Avenue East, #203, Seattle, WA 98102 (US). **LAU, Michael, William** [US/US]; 7015 147th Street SW, Edmonds, WA 98026 (US). **CONNOLLY, Michael, J.** [US/US]; 2800 Elliott Avenue, #1030, Seattle, WA 98121 (US).

(74) Agent: **SEELIG, Melanie, J.**; Christensen O'Connor Johnson Kindness PLLC, 1420 Fifth Avenue, Suite 2800, Seattle, WA 98101 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, 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, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO,

[Continued on next page]

(54) Title: METHODS AND APPARATUS FOR THE TREATMENT OF MENOMETRORRHAGIA, ENDOMETRIAL PATHOLOGY, AND CERVICAL NEOPLASIA USING HIGH INTENSITY FOCUSED ULTRASOUND ENERGY



(57) Abstract: A probe having a high intensity focused ultrasound (HIFU) transducer is positioned in a female patient. The HIFU transducer is deployed within the vagina of the patient outside of the cervix and uterine cavity and is configured to direct HIFU energy to a treatment site within the uterus of the patient. An imaging component positioned relative to the patient images a portion of the patient's uterus that includes the treatment site to help guide the delivery of the HIFU energy to the treatment site. A liquid medium may be infused into the uterine cavity of the patient where it is maintained during imaging and delivery of the HIFU therapy. The HIFU transducer produces a thermal heating of tissue at a focus within the treatment site to initiate necrosis of the tissue. The location of the focus is controlled in accordance with an image obtained by the imaging component.



RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US (patent), UZ, VC, VN, ZA,
ZM, ZW.

FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, 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).

(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,

Published:

— *with international search report*

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

16 October 2008

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/66635

A. CLASSIFICATION OF SUBJECT MATTER

IPC: A61B 8/00(2006.01)

USPC: 600/439

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. : 600/439, 461, 462, 466;

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	US 6,840,936 B2 (Silwa Jr. et al.) 11 January 2005 (11.01.2005), Claims 1-3	1-45
X	US 6,425,867 B1 (Vaezy et al.) 30 July 2002 (30.07.2002), Abstract, Claims 1, 2, and 4.	1-45



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

14 June 2008 (14.06.2008)

Date of mailing of the international search report

23 JUL 2008

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

SANJAY CATTUNGAL

Telephone No. (571)272-1306