



- (51) **International Patent Classification:**
A61B 18/18 (2006.01) *A61B 17/00* (2006.01)
- (21) **International Application Number:**
PCT/US2012/023176
- (22) **International Filing Date:**
30 January 2012 (30.01.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
61/462,328 1 February 2011 (01.02.2011) US
61/571,123 22 June 2011 (22.06.2011) US
- (71) **Applicant (for all designated States except US):** CHANNEL MEDSYSTEMS, INC. [US/US]; 340 Bryant Street, Suite 220, San Francisco, California 94107 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** BURNETT, Daniel Rogers [US/US]; 588 Teresita Blvd, San Francisco, California 94127 (US). NEIL, Brian Michael [US/US]; 1330 Fell Street, Apt. #3, San Francisco, California 94117 (US). MALECKI, William Walter [US/US]; 91 Wildwood Gardens, Piedmont, California 94611 (US). KOCH, Kathleen Marie [US/US]; 20 Parker Avenue, #2, San Francisco, California 94118 (US). LEE, Gregory Jin-keng [US/US]; 1148 Oak Street, San Francisco, California 94117 (US).
- (74) **Agents:** HAN, Johnney U. et al.; Levine Bagade Han LLP, 2400 Geng Road, Suite 120, Palo Alto, California 94303 (US).
- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, 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, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— with international search report (Art. 21(3))

[Continued on next page]

(54) **Title:** METHODS AND APPARATUS FOR CYROGENIC TREATMENT OF A BODY CAVITY OR LUMEN

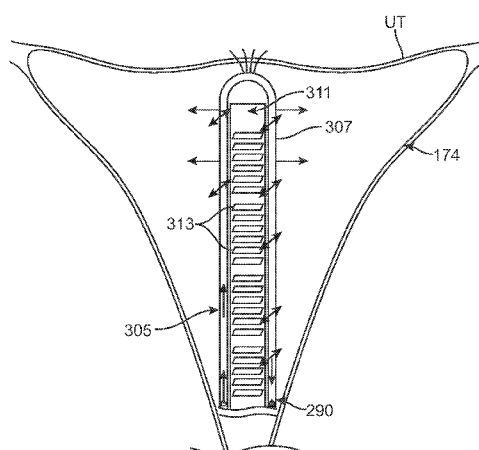


FIG. 42

(57) **Abstract:** Methods and apparatus for the treatment of a body cavity or lumen are described where a heated fluid and/or gas may be introduced through a catheter and into treatment area within the body contained between one or more inflatable/expandable members. The catheter may also have optional pressure and temperature sensing elements which may allow for control of the pressure and temperature within the treatment zone and also prevent the pressure from exceeding a pressure of the inflatable/expandable members to thereby contain the treatment area between these inflatable/expandable members. Optionally, a chilled, room temperature, or warmed fluid such as water may then be used to rapidly terminate the treatment session.





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

7 November 2013

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US12/23176

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61B 18/18, 17/00 (2012.01)

USPC - 606/20-23, 25, 1

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)

IPC(8): A61B 18/18, 17/00 (2012.01)

USPC: 606/20-23, 25, 1

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

IPC(8): A61B 18/18, 17/00 (2012.01)

USPC: 606/20-23, 25, 1

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

MicroPatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C,B, DE-A, DE-T, DE-U, GB-A, FR-A); Google; Google Scholar; DialogPRO (Engineering, General Research); align*, hole, opening, port, orifice, slot*, cryo*, ablat*, "nitrous oxide," lumen, deliver*, tissue, uter*, cavity, cell", taper", "uterine cornu," balloon, hysteroscope, slid", flex", bend", arm, channel, catheter, receiv", conduct", interior, inside

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 7794454 B2 (ABBOUD, M et al.) September 14, 2010, abstract; figures 4-6, 25, 27, 28, 31, 32, 35, 40, 41, 43; column 2, lines 60-67; column 5, lines 9-10; column 5, lines 66-67 to column 6, lines 1-8; column 6, lines 66-67 to column 7, lines 1-5; column 10, lines 62-65; column 11, lines 1-32; column 11, lines 60-67; column 12, lines 31-56; column 13, lines 66-67 to column 14, line 1; column 16, lines 47-56; column 17, lines 62-66	1-72
Y	WO 2010/135602 A1 (LIU, Y et al.) November 25, 2010, abstract; figures 6, 7A, 7B, 16A, 16B, 16H, 17B, 17C, 17D, 17G-J; paragraphs [0002]-[0004], [0069], [0074], [0078], [0102], [0117], [0120]-[0127], [0129], [0131], [0136], [0167], [0171], [0173], [0181], [0183], [0187]-[0190]	1-72
Y	US 2007/0088247 A1 (BLIWEIS, M et al.) April 19, 2007, figure 3b; paragraphs [0143], [0150], [0173]	5, 6, 34, 72
Y	US 4416660 A (DAFOE, CA) November 22, 1983, abstract	15, 40, 69
Y	US 7566341 B2 (KELLER, WA et al.) July 28, 2009, figures 1, 3A, 4, 5; column 12, lines 40-61; column 21, lines 22-53	18, 49, 50, 55
Y	US 2010/0198040 A1 (FRIEDMAN, P et al.), August 5, 2010, figures 34A, 34B; paragraphs [0046], [0158], [0230]-[0232]	20-26, 52
Y	US 2008/0188912 A1 (STONE, CW et al.), August 7, 2008, paragraphs [0059], [0067]; figures 6A, 9A-9C	30, 46, 66
Y	US 7101368 B2 (LAFONTAINE, DM), September 5, 2006, column 2, lines 56-60; column 5, lines 31-40; column 8, lines 26-42	48, 54-56

☐ 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

08 May 2012 (08.05.2012)

Date of mailing of the international search report

21 JUN 2012

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:

Shane Thomas

PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774