(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 4 January 2007 (04.01.2007)

PCT

(10) International Publication Number WO 2007/002946 A3

(51) International Patent Classification: *A61F 7/00* (2006.01)

(21) International Application Number:

PCT/US2006/026014

(22) International Filing Date: 29 June 2006 (29.06.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/695,786 29 June 2005 (29.06.2005) US

(71) Applicants (for all designated States except US): RA-DIANT MEDICAL, INC. [US/US]; 250 Chesapeake Drive, Redwood City, 5 94063 (US). WILSON, Scott, D. [US/US]; 1045 Eden Bower Lane, Redwood City, CA 94061 (US).

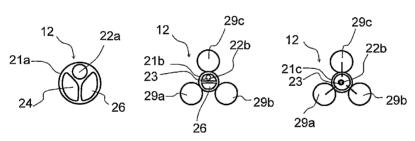
(72) Inventor; and

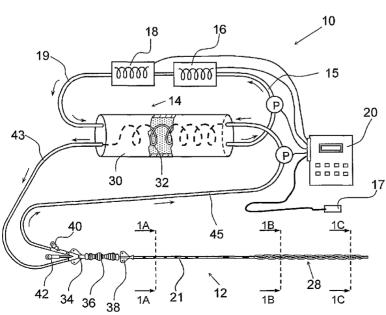
(75) Inventor/Applicant (for US only): BRIAN, III, Ben, F. [US/US]; 20828 Camino De Los Robles, Menlo Park, CA 94015 (US).

- (74) Agent: BUYAN, Robert, D.,; Stout, Uxa, Buyan & Mullins LLP, 4 Venture, Suite 300, Irvine, CA 92618 (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).

[Continued on next page]

(54) Title: DEVICES, SYSTEMS AND METHODS FOR RAPID ENDOVASCULAR COOLING





(57) Abstract: Devices and methods for warming or cooling blood flowing through the vasculature of a human or animal subject so as to alter or control the temperature of all or part of the subject's body. Heat exchangers are positioned within the subject's vasculature and heated or cooled heat exchange fluid is circulated through the heat exchanger. For certain therapeutic applications, the heat exchanger and associated elements of the system have sufficient power to lower the subject's body temperature by at least 3 degrees C in less than 30 minutes.

WO 2007/002946 A3 |||||||||||

WO 2007/002946 A3



Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

 $\textbf{(88)} \ \ \textbf{Date of publication of the international search report:}$

22 March 2007

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.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US06/26014

A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - A61F 7/00 (2006.01) USPC - 607/96 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) - A61F 7/00 (2006.01) USPC - 607/96,104,108,113		
Documentati	ion searched other than minimum documentation to the extent that such documents	are included in the fields searched
	ata base consulted during the international search (name of data base and, where pr t, IP.com, DialogPro	acticable, search terms used)
C. DOCU	MENTS CONSIDERED TO BE RELEVANT	
Category*	Citation of document, with indication, where appropriate, of the releva	nt passages Relevant to claim No.
X -	US 6,231,594 B1 (DAE) 15 May 2001 (15.05.2001) entire document	1, 3-4, 25-32, 68-75, 91- 105
Y		2, 5-24, 33-67, 76-90, 106-110
Υ	US 4,173,228 A (VAN STEENWYK et al) 06 November 1979 (06.11.1979) ent	ire document 14, 16-19, 20-22
Υ	WO 98/24491 A1 (SUHR) 11 June 1998 (11.06.1998) entire document	14, 15
Further documents are listed in the continuation of Box C.		
* 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 but 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 "Y" document of particular relevance; the claimed invention cannot be step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be		
special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "O" and disclosure, use, exhibition or other means "O" document referring to an oral disclosure, use, exhibition or other means "O" document referring to an oral disclosure, use, exhibition or other means "O" document referring to an oral disclosure, use, exhibition or other means "O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than "&" document member of the same patent family the priority date claimed		
Date of the actual completion of the international search 21 December 2006 Date of mailing of the international search report 0.5 F 5 2007		international search report
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 Box 1450, Alexandria, Virginia 22313-1450 Box 1450, Alexandria, Virginia 22313-1450		
Facsimile No. 571-273-3201 PCT OSP: 571-272-7774		