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(54) Title: METHODS AND APPARATUS FOR ENHANCING VASCULAR ACCESS IN AN APPENDAGE TO ENHANCE THERAPEUTIC AND INTERVENTIONAL PROCEDURES

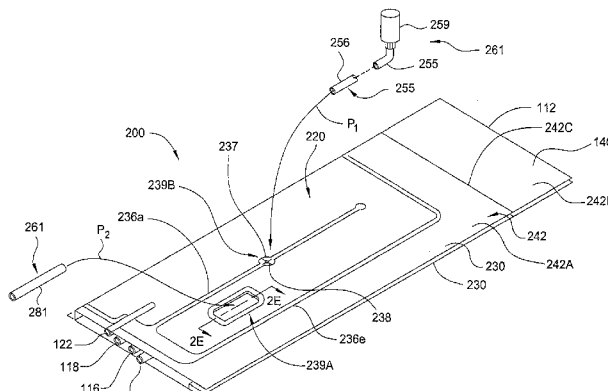


FIG. 2C

(57) Abstract: Embodiments of the invention disclosed herein generally include methods and/or devices for increasing blood flow, controlling the vasodilatation of a patient's vascular structure, regulating the temperature of a portion of a mammal, and for improving various interventional procedures and/or therapeutic techniques. The device may also include one or more access ports, or apertures, that allow access to portions of the mammal's extremity to allow interventional type medical devices, therapeutic devices, surgical support equipment or patient monitoring devices to have access to the extremity on which a body element is disposed. The device may also be configured to allow other supporting components, which may include IV or other catheters, a means of accessing to a portion of the extremity positioned inside the temperature regulating device. In one configuration the device comprises flexible materials that are adapted to conform to the surface of the extremity disposed in the device when a vacuum pressure is applied to an internal region of the device.



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## INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/US2011/020601****A. CLASSIFICATION OF SUBJECT MATTER***A61F 7/00(2006.01)i, A61H 39/06(2006.01)i, A61F 7/02(2006.01)i*

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)

A61F 7/00; A61F 7/08; A61H 1/00; A61F 7/02

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) &amp; Keywords: heat,exchange,extremity,aperture

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2009-0177184 A1 (CHRISTENSEN et al.) 09 July 2009 See the whole document.	1-16
A	EP 1929980 A1 (DYNATHERM MEDICAL, INC.) 11 June 2008 See the whole document.	1-16
A	US 2008-0021531 A1 (KANE et al.) 24 January 2008 See the whole document.	1-16
A	US 2003-0097163 A1 (KANE et al.) 22 May 2003 See the whole document.	1-16

 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

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"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

"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

"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 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

"&amp;" document member of the same patent family

Date of the actual completion of the international search

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**23 SEPTEMBER 2011 (23.09.2011)**

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**INTERNATIONAL SEARCH REPORT**

International application No.

**PCT/US2011/020601****Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.: 17-20  
because they relate to subject matter not required to be searched by this Authority, namely:  
Claims 17-20 are the methods for treatment of the human body by surgery or therapy as well as diagnostic methods [Article 17(2)(a)(i), Rule 39.1(iv) PCT].
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2011/020601**

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009-0177184 A1	09.07.2009	None	
EP 1929980 A1	11.06.2008	EP 1972312 A2 EP 1972312 A3 JP 2008-155007 A JP 2008-246196 A US 2008-0132816 A1 US 2008-0132976 A1	24.09.2008 18.05.2011 10.07.2008 16.10.2008 05.06.2008 05.06.2008
US 2008-0021531 A1	24.01.2008	EP 1884226 A1 JP 2008-114043 A US 2005-0209663 A1 US 2007-0112400 A1 US 7160316 B2	06.02.2008 22.05.2008 22.09.2005 17.05.2007 09.01.2007
US 2003-0097163 A1	22.05.2003	AU 2002-343759 A1 EP 1446078 A1 US 6846322 B2 WO 03-045289 A1	10.06.2003 18.08.2004 25.01.2005 05.06.2003