

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
22 January 2009 (22.01.2009)

PCT

(10) International Publication Number
WO 2009/010302 A3

(51) International Patent Classification:

A61M 1/10 (2006.01)

(21) International Application Number:

PCT/EP2008/005916

(22) International Filing Date: 18 July 2008 (18.07.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

07014120.5 18 July 2007 (18.07.2007) EP

(71) Applicant (for all designated States except US):
SURGERY IN MOTION LTD [GB/GB]; St.James
House, 13 Kiensington Square, London W8 5HD (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **HORMOZ,**
Mehmanesh [IR/IR]; No. 7, Heydary St., Moghadas
Ardebili St., Tehran (IR).

(74) Agent: **AHR, Martin**; Grünecker, Kinkeldey, Stockmair
& Schwanhauser, Leopoldstrasse 4, 80802 München
(DE).

(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, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, 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: CARDIAC ASSIST DEVICE

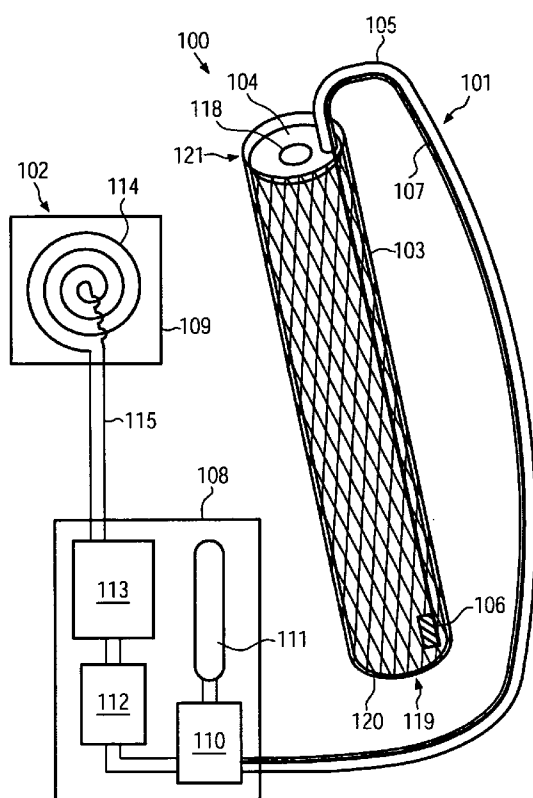


FIG. 1

(57) Abstract: A cardiac assist device (100) comprises a stent (103, 403) which is implantable into a blood vessel of a patient. The stent (103, 403) encloses an inner volume (119, 419). At least one inflatable element (104, 409-413) is attached to the stent (103). The at least one inflatable element (104, 409-413) is provided in the inner volume (119, 419) of the stent (103, 403), wherein the at least one inflatable element (104, 409-413) annularly encloses a central opening (118, 418) being parallel to a longitudinal axis of said stent (103, 403). The cardiac assist device (100) further comprises a fluid supply adapted for periodically inflating and deflating the at least one inflatable element (104, 409-413), wherein said fluid supply comprises at least one fluid supply line (105, 405) connectable to the at least one inflatable element (104, 409-413) and implantable into a blood vessel of the patient.



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*

(88) Date of publication of the international search report:
12 March 2009

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2008/005916

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61M1/10

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)

A61M

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 practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 00/53240 A (ABIOMED INC [US]) 14 September 2000 (2000-09-14) page 8, line 3 - line 25 figures 1,2	1-18
A	WO 00/35515 A1 (CORVASCULAR INC [US]; PASPA PAUL [US]; NAGAO REX [US]) 22 June 2000 (2000-06-22) page 6, line 5 - line 21 page 7, line 16 - line 23 page 10, line 19 - line 21 page 11, line 29 - line 32 page 17, line 12 - line 15 figures	1-18
	----- --/--	

☒ 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 document 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 another 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.

G document member of the same patent family

Date of the actual completion of the international search

4 December 2008

Date of mailing of the international search report

12/01/2009

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Kaden, Malte

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2008/005916

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2006/067473 A (HAREFIELD CARDIAC LTD [GB]; BOWLES CHRISTOPHER [GB]; HARRIS CHARLOTTE) 29 June 2006 (2006-06-29) page 7, line 20 - line 21 page 23, line 31 - line 33 page 29, line 6 - line 11 page 30, line 3 - line 9 -----	11-13

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2008/005916

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.: 19-25
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy
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 allsearchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers 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/EP2008/005916

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 0053240	A	14-09-2000	US	6210318 B1	03-04-2001
WO 0035515	A1	22-06-2000	AU	2188700 A	03-07-2000
WO 2006067473	A	29-06-2006	AU	2005317897 A1	29-06-2006
			CA	2634816 A1	29-06-2006
			CN	101124002 A	13-02-2008
			EP	1830903 A1	12-09-2007
			JP	2008525077 T	17-07-2008