



(43) International Publication Date
30 May 2013 (30.05.2013)

(51) International Patent Classification:
A61F 2/24 (2006.01)

(21) International Application Number:
PCT/IL20 12/050469

(22) International Filing Date:
21 November 2012 (21.11.2012)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/561,986 21 November 2011 (21.11.2011) US

(71) Applicant: **MOR RESEARCH APPLICATIONS LTD.**
[IL/IL]; 38 HaBarzel Street, 69710 Tel-Aviv (IL).

(72) Inventor: **VATURI, Mordehay**; 16 Carmel Street, 55900
Ganei-Tikva (IL).

(74) Agent: **G.E. EHRLICH (1995) LTD.**; 11 Menachem Be-
gin Road, 5268104 Ramat Gan (IL).

(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, BN, 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, PA, 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, 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).

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

— with international search report (Art. 21(3))

— before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))

(88) Date of publication of the international search report:
20 March 2014

(15) Information about Corrections:

[Continued on next page]

(54) Title: DEVICE FOR PLACEMENT IN THE TRICUSPID ANNULUS

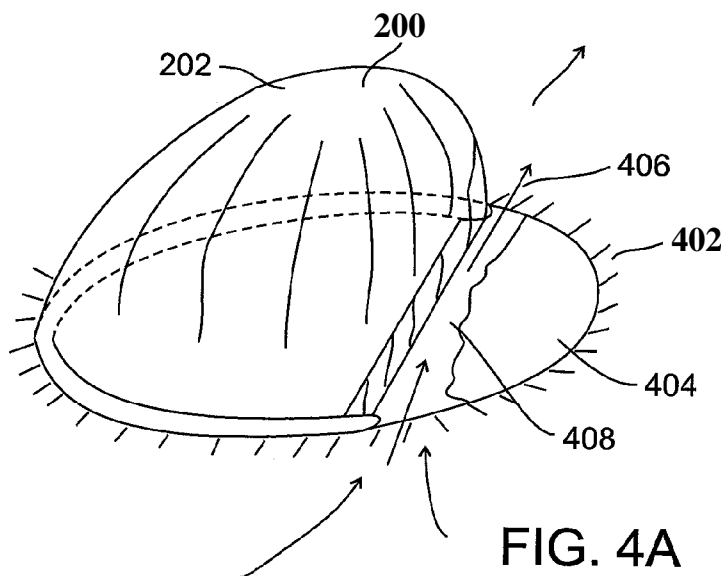


FIG. 4A

(57) Abstract: A device (200) for implantation in or near an annulus of a tricuspid valve comprising at least one blood flow control element (202) adapted to capture a volume of blood therein. Optionally or alternatively, the blood flow control element is adapted to allow at least some volume of blood (406) to regurgitate through the annulus during at least some part of systole. Optionally or alternatively, the device comprises a relatively rigid annulus with an arc length of less than 300 degrees. Optionally or alternatively, the relatively rigid annulus comprises a plurality of tissue fixation elements positioned along no more than 300 degrees of a circumference of the annulus, for example to avoid damaging conduction pathways between an atria and a chamber.



WO 2013/076724 A3

Previous Corrections:

see Notice of 22 August 2013

see Notice of 18 July 2013

INTERNATIONAL SEARCH REPORT

International application No

PCT/IL2012/050469

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61F2/24

ADD.

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

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)

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.
X	US 2006/058871 AI (ZAKAY AVRAHAM [IL] ET AL) 16 March 2006 (2006-03-16) paragraph [0089] - paragraph [0097] paragraph [0103] - paragraph [0104] paragraph [0124] - paragraph [0126] paragraph [0159] figures 1-26B -----	1-12 , 14, 15 , 18, 20-22 , 26
X	US 2007/270943 AI (SOLEM JAN OTTO [CH] ET AL) 22 November 2007 (2007-11-22) paragraph [0057] paragraph [0071] paragraph [0083] - paragraph [0088] figures 2, 4E, 6, 7, 8D, 14, 17, 18 ----- -/- .	1-15 , 20, 21



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 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

"&" document member of the same patent family

Date of the actual completion of the international search

11 November 2013

Date of mailing of the international search report

03/02/2014

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

Portoni , Lui sa

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL2012/050469

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.: 34-42, 44
because they relate to subject matter not required to be searched by this Authority, namely:
see FURTHER INFORMATION sheet PCT/ISA/210
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:

see additional sheet

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 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 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. :

1-31

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

International application No

PCT/IL2012/050469

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>US 2007/185571 A1 (KAPADIA SAMIR [US] ET AL) 9 August 2007 (2007-08-09)</p> <p>paragraph [0050] - paragraph [0056] paragraph [0076] - paragraph [0078] figures 8, 15-22</p> <p>-----</p>	<p>1-4, 15, 18, 20, 21, 26</p>
X	<p>W0 2004/030568 A2 (AMPLE MEDICAL INC [US]) 15 April 2004 (2004-04-15)</p> <p>page 11, line 9 - page 13, line 33 page 22, line 3 - line 11 figures 8-20 page 15, line 27 - page 16, line 1</p> <p>-----</p>	<p>1-5, 14, 15, 17, 18, 20-24, 27-29</p>
X	<p>US 2003/199975 A1 (GABBAY SHLOMO [US]) 23 October 2003 (2003-10-23)</p> <p>figures 1-28 paragraph [0073] - paragraph [0085] paragraph [0126] - paragraph [0132] paragraph [0140]</p> <p>-----</p>	<p>1-5, 14, 15, 18, 20-24, 26-29</p>
X	<p>W0 2005/027797 A1 (EREK ERSIN [TR]) 31 March 2005 (2005-03-31)</p> <p>page 8, line 4 - page 10, line 22; figures 8-10</p> <p>-----</p>	<p>1-3, 5, 14, 15, 17-22</p>
X	<p>W0 2004/089250 A1 (REALYVASQUEZ FIDEL [US]; SCHALLER LAURENT [US]) 21 October 2004 (2004-10-21)</p> <p>page 15, line 10 - page 17, line 6; figures 12A-14B, 19E</p> <p>-----</p>	<p>1-5, 14, 15, 17, 18, 20-24, 27</p>

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IL2012/050469

Patent document cited in search report			Publication date		Patent family member(s)		Publication date	
US	2006058871	A1	16-03-2006	AU	2005284739	A1	23-03-2006	
				CA	2580053	A1	23-03-2006	
				CN	101056596	A	17-10-2007	
				EP	1796597	A2	20-06-2007	
				JP	2008513060	A	01-05-2008	
				US	2006058871	A1	16-03-2006	
				US	2010198347	A1	05-08-2010	
				US	2013268069	A1	10-10-2013	
				WO	2006032051	A2	23-03-2006	

US	2007270943	A1	22-11-2007	EP	2023858	A1	18-02-2009	
				US	2007270943	A1	22-11-2007	
				WO	2007135101	A1	29-11-2007	

US	2007185571	A1	09-08-2007	NONE				

WO	2004030568	A2	15-04-2004	AU	2003277115	A1	23-04-2004	
				US	2005010287	A1	13-01-2005	
				US	2008065204	A1	13-03-2008	
				US	2011319990	A1	29-12-2011	
				US	2012185040	A1	19-07-2012	
				WO	2004030568	A2	15-04-2004	

US	2003199975	A1	23-10-2003	AU	2003256638	A1	25-02-2004	
				CA	2494809	A1	19-02-2004	
				EP	1551337	A1	13-07-2005	
				JP	2005535384	A	24-11-2005	
				MX	PA05001495	A	03-06-2005	
				US	2003199975	A1	23-10-2003	
				WO	2004014258	A1	19-02-2004	

WO	2005027797	A1	31-03-2005	NONE				

WO	2004089250	A1	21-10-2004	US	2006271081	A1	30-11-2006	
				WO	2004089250	A1	21-10-2004	

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-31

Device comprising a blood flow control element adapted to capture a volume of blood therein

2. claim: 32

Device for replacing at least one leaflet of a tricuspid valve comprising an annulus and a blood flow control element coupled to the annulus, the control element resisting flow less for flow from the atria than from the ventricle

3. claim: 33

Device for replacing a tricuspid valve comprising an annulus comprising a plurality of tissue fixation elements and a prosthetic valve or part of it coupled to the annulus

4. claim: 43

Device for implantation in the annulus of a tricuspid valve comprising at least one blood flow element to allow blood to regurgitate through said annulus during at least some part of a systole

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.I

Claims Nos.: 34-42, 44

Methods according to any of claims 34-42, 44 are methods of treatment of the human body by surgery. Indeed, said methods includes surgical steps, as those necessary to navigate through the human body and to implant a device in a tri cuspid annulus of a patient. Thus, claims 34-42 and 44 relate to subject-matter considered by this Authority to be covered by the provisions of Rule 39.1(iv) PCT, and no international search report will be established with respect to the subject-matter of these claims (Article 17(2) (a) (i) PCT).