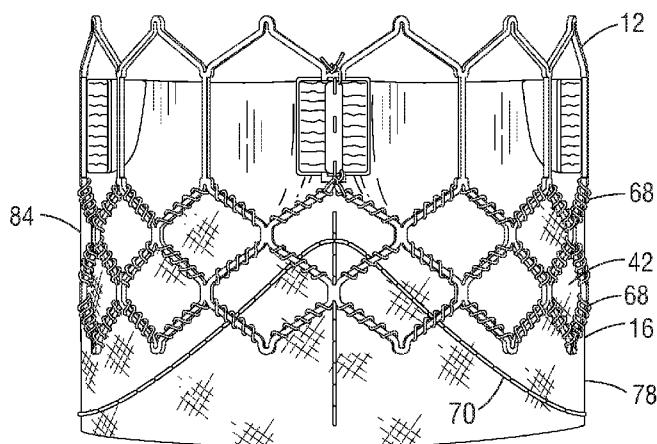




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- (72) Inventor: LEVI, Tamir, S.; Edwards Lifesciences, One Edwards Way, Legal Department, Irvine, CA 92614 (US).
- (74) Agent: KAISER, AnneMarie et al.; Edwards Lifesciences, One Edwards Way, Irvine, CA 92614 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, 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, SA, 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, ST, 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,

(54) Title: PROSTHETIC HEART VALVE HAVING LEAFLET INFLOW BELOW FRAME

FIG. 2



(57) Abstract: Embodiments of a prosthetic heart valve are disclosed. An implantable prosthetic valve can include an annular frame having an inflow end, an outflow end and a central longitudinal axis extending from the inflow end to the outflow end. The valve can include a valvular structure including two or more leaflets, each of the two or more leaflets having a leaflet inflow edge positioned at least partially outside of the frame and a leaflet outflow edge positioned within the frame, wherein at least a portion of each of the leaflet inflow edges is unsupported by the frame.



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

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26 July 2018 (26.07.2018)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2017/061253**A. CLASSIFICATION OF SUBJECT MATTER****A61F 2/24(2006.01)i**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHEDMinimum documentation searched (classification system followed by classification symbols)
A61F 2/24Documentation 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 modelsElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS(KIPO internal) & Keywords: prosthetic, valve, inner, outer, skirt, outflow, inflow, edge, secure, leaflet, extend, beyond, frame**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2012-0123529 A1 (LEVI, T. et al.) 17 May 2012 See paragraphs [0051]-[0083]; figures 1-43.	1-5, 12-14, 17-20
A	US 2013-0131788 A1 (CARDIAQ VALVE TECHNOLOGIES, INC.) 23 May 2013 See the whole document.	1-5, 12-14, 17-20
A	US 2016-0120646 A1 (MEDTRONIC VASCULAR, INC.) 05 May 2016 See the whole document.	1-5, 12-14, 17-20
A	US 2014-0172082 A1 (W. L. GORE & ASSOCIATES, INC.) 19 June 2014 See the whole document.	1-5, 12-14, 17-20
A	US 2012-0071969 A1 (LI, X. et al.) 22 March 2012 See the whole document.	1-5, 12-14, 17-20

 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

19 February 2018 (19.02.2018)

Date of mailing of the international search report

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Name and mailing address of the ISA/KR

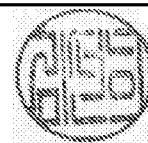
International Application Division
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2017/061253**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.:
because they relate to subject matter not required to be searched by this Authority, namely:

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.: 6-11,15,16,21
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 fees, this Authority did not invite payment of any 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.:

- 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.

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International application No.

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