



(51) International Patent Classification:

A61M 29/00 (2006.01) A61L 27/06 (2006.01)
A61M 1/12 (2006.01) A61L 27/14 (2006.01)
A61F 2/02 (2006.01)

(21) International Application Number:

PCT/US2010/042972

(22) International Filing Date:

22 July 2010 (22.07.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/271,559 22 July 2009 (22.07.2009) US
61/276,215 9 September 2009 (09.09.2009) US

(71) Applicants (for all designated States except US): **THE TEXAS A&M UNIVERSITY SYSTEM** [US/US]; Office of Technology Commercialization, 3369 Tamu, College Station, TX 77843-3369 (US). **CORINNOVA INCORPORATED** [US/US]; 7000 Fannin, Suite 1950-D, Houston, TX 77030 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ALTMAN, William, C.** [US/US]; 4030 Case Street, Houston, TX 77005 (US). **BISWAS, Saurabh** [IN/US]; 301 Holleman Drive East, Apartment 512, College Station, TX 77840 (US). **CRISCIONE, John, C** [US/US]; 8305 Shadow Oaks Drive, College Station, TX 77845 (US). **HARRISON, Lewis, D.** [US/US]; 1030 Rosita Street, Arlington, TX 76002 (US). **MORENO, Michael, R.** [US/US]; 3518 Green Ridge Circle, Bryan, TX 77802 (US). **ROBBINS, Dennis, I.** [US/US]; 1104 Morningstar Trail, Richardson, TX 75081-4412 (US).

(74) Agents: **CHALKER, Daniel, J.** et al.; Chalker Flores, LLP, 2711 LBJ Freeway, Suite 1036, Dallas, TX 75234 (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, 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, PE, PG, PH, PL, PT, RO, RS, RU, 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, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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:

3 June 2011

(54) Title: BIPHASIC AND DYNAMIC ADJUSTABLE SUPPORT DEVICES AND METHODS WITH ASSIST AND RECOIL CAPABILITIES FOR TREATMENT OF CARDIAC PATHOLOGIES

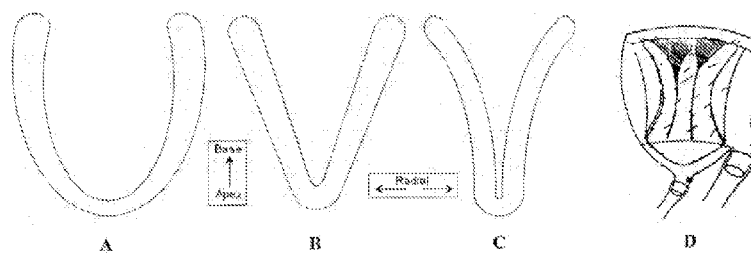


FIGURE 1

(57) Abstract: The present invention provides a direct cardiac contact device adapted to be implanted in a patient suffering from congestive heart failure and related cardiac pathologies, said cardiac device having means for providing ventricular assist, ventricular support and diastolic recoil, or for providing ventricular support and diastolic recoil only.



WO 2011/011642 A3

A. CLASSIFICATION OF SUBJECT MATTER*A61M 29/00(2006.01)i, A61M 1/12(2006.01)i, A61F 2/02(2006.01)i, A61L 27/06(2006.01)i, A61L 27/14(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)

A61M 29/00; A62B 9/02; A61H 31/00; A61M 16/20; A61M 16/00

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) & Keywords: cardiac, diastolic recoil, heart

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2005-0217677 A1 (KEITH LURIE et al.) 06 October 2005 See claims 1-38, figures 1-5	1-41
A	US 2007-0221222 A1 (KEITH LURIE) 27 September 2007 See claims 1-27, figures 1-7	1-41
A	US 2008-0257344 A1 (LURIE KEITH G. et al.) 23 October 2008 See claims 1-20, figures 1-4	1-41
A	US 2009-0062701 A1 (YANNOPOULOS DEMETRIS et al.) 05 March 2009 See claims 1-24, figures 1-7	1-41

 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

"&" document member of the same patent family

Date of the actual completion of the international search

13 APRIL 2011 (13.04.2011)

Date of mailing of the international search report

14 APRIL 2011 (14.04.2011)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex-Daejeon, 189 Cheongsa-ro,
Seo-gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

HAN, SANG SOO

Telephone No. 82-42-481-8648



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2010/042972

Patent document cited in search report	Publication date	Patent family member(s)	Publication date		
US 2005-0217677 A1	06.10.2005	US 2005-0056277 A1	17.03.2005		
		US 2005-056277 A1	17.03.2005		
		US 2005-217677 A1	06.10.2005		
		US 2007-0221222 A1	27.09.2007		
		US 2008-0047555 A1	28.02.2008		
		US 6938618 B2	06.09.2005		
		US 7275542 B2	02.10.2007		
		WO 2005-035065 A1	21.04.2005		
		WO 2008-106505 A2	04.09.2008		
		WO 2008-106505 A3	04.09.2008		
		US 2007-0221222 A1	27.09.2007	US 2005-0056277 A1	17.03.2005
US 2005-0217677 A1	06.10.2005				
US 2008-0047555 A1	28.02.2008				
US 6938618 B2	06.09.2005				
US 7275542 B2	02.10.2007				
WO 2005-035065 A1	21.04.2005				
WO 2008-106505 A2	04.09.2008				
WO 2008-106505 A3	04.09.2008				
US 2008-0257344 A1	23.10.2008			AU 2008-243018 A1	30.10.2008
				CA 2684613 A1	30.10.2008
				CN 101743039 A	16.06.2010
		EP 2152372 A2	17.02.2010		
		JP 2010-524578 A	22.07.2010		
		JP 2010-524578 T	22.07.2010		
		US 2008-257344 A1	23.10.2008		
		WO 2008-130937 A2	30.10.2008		
		WO 2008-130937 A3	24.12.2008		
US 2009-0062701 A1	05.03.2009	None			