

(51) International Patent Classification:
A61F 2/82 (2013.01)(21) International Application Number:
PCT/US2013/027072(22) International Filing Date:
21 February 2013 (21.02.2013)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

61/601,961	22 February 2012 (22.02.2012)	US
13/544,379	9 July 2012 (09.07.2012)	US
61/682,558	13 August 2012 (13.08.2012)	US
13/656,717	21 October 2012 (21.10.2012)	US
61/717,037	22 October 2012 (22.10.2012)	US
61/739,711	19 December 2012 (19.12.2012)	US
13/772,203	20 February 2013 (20.02.2013)	US

(71) Applicant: **SYNTHES CARDIOLOGY, LLC**
[US/US]; 13755 Southwest 119th Avenue, Miami, FL 33186 (US).

(72) Inventors: **CARTLEDGE, Richard**; 604 Boca Marina Court, Boca Raton, FL 33487 (US). **SMITH, Kevin, W.**; 570 Arvida Parkway, Coral Gables, FL 33156 (US). **BALES, Thomas, O., Jr.**; 9151 Arvida Lane, Coral Gables, FL 33156 (US). **DEVILLE, Derek, Dee**; 5500 Oak Lane, Coral Gables, FL 33156 (US). **KLINE, Korey**; 7028 Southwest 65th Avenue, Miami, FL 33143 (US).

MENDEZ, Max, Pierre; 15917 Southwest 141 Street, Miami, FL 33196 (US). **PALMER, Matthew, A.**; 12790 Southwest 64 Court, Miami, FL 33156 (US). **KIRK, Michael, Walter**; 5737 Southwest 27th Street, Miami, FL 33155 (US). **RIVERA, Carlos**; 5817 Southwest 120 Avenue, Cooper City, FL 33330 (US). **PETERSON, Eric**; 15305 Southwest 260 Street, Miami, FL 33032 (US). **MCBRAYER, Sean**; 6160 Chapman Field Drive, Miami, FL 33156 (US).

(74) Agents: **MAYBACK, Gregory, L.** et al.; Mayback And Hoffman, P.A., 5722 South Flamingo Road #232, Fort Lauderdale, FL 33330 (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, 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,

[Continued on next page]

(54) Title: ACTIVELY CONTROLLABLE STENT, STENT GRAFT, HEART VALVE AND METHOD OF CONTROLLING SAME

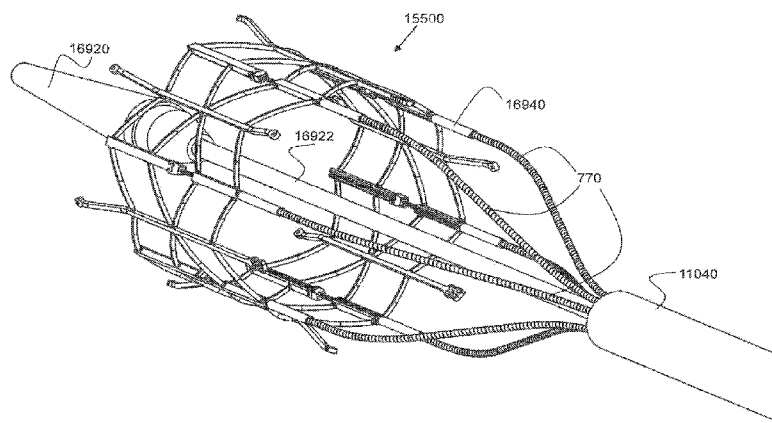


FIG. 169

(57) Abstract: Sealable and repositionable implant devices are provided to increase the ability of endovascular grafts and valves to be precisely deployed or re-deployed, with better in situ accommodation to the local anatomy of the targeted recipient anatomic site, and with the ability for post-deployment adjustment to accommodate anatomic changes that might compromise the efficacy of the implant. A surgical implant includes a self-expanding stent of a shape-memory material set to a given shape. The stent has a wall with a portion having a first thickness and a second portion having a thickness greater than the first. The second portion defines a key-hole shaped longitudinal drive orifice. The implant includes a selectively adjustable assembly having adjustable elements and being operable to force a configuration change in at least a portion of the self-expanding stent. The adjustable elements have a part rotatably disposed within the longitudinal drive orifice.



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).

Published:

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

(88) Date of publication of the international search report:

12 March 2015

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2013/027072

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61F 2/82 (2013.01)

USPC - 623/1.2

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)

IPC(8) - A61F 2/06, 2/82, 2/84 (2013.01)

USPC - 623/1.11, 1.12, 1.15, 1.17, 1.2, 23.7

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
CPC - A61F 2/90, 2/92, 2/93, 2/94 (2013.01)

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

PatBase, Google Patents, Google Scholar

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	US 2003/0040791 A1 (OKTAY) 27 February 2003 (27.02.2003) entire document	1-6, 8-14 ----- 7
Y	US 6,327,772 B1 (ZADNO-AZIZI et al) 11 December 2001 (11.12.2001) entire document	7
A	US 5,443,477 A (MARIN et al) 22 August 1995 (22.08.1995) entire document	1-14
A	US 2011/0251674 A1 (SCHMID et al) 13 October 2011 (13.10.2011) entire document	1-14

☐ Further documents are listed in the continuation of Box C.

* 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

02 April 2013

Date of mailing of the international search report

29 APR 2013

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-3201

Authorized officer:

Blaine R. Copenheaver

PCT Helpdesk: 571-272-4300

PCT OSP: 571-272-7774