



- (51) International Patent Classification:
A61B 17/12 (2006.01) A61B 17/00 (2006.01)
A61F 2/01 (2006.01)
- (21) International Application Number:
PCT/US2014/044358
- (22) International Filing Date:
26 June 2014 (26.06.2014)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
61/839,843 26 June 2013 (26.06.2013) US
61/907,288 21 November 2013 (21.11.2013) US
14/315,237 25 June 2014 (25.06.2014) US
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- (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, IR, IS, JP, KE, KG, 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, 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, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,

[Continued on next page]

(54) Title: SPACE FILLING DEVICES

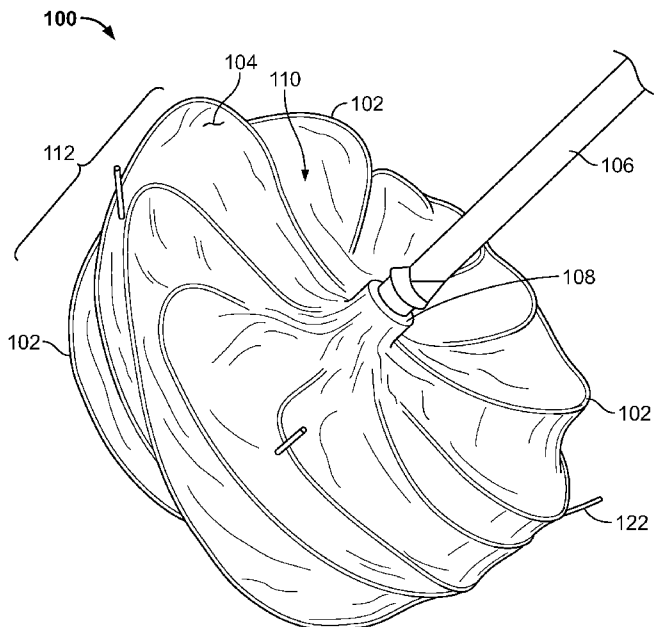


FIG. 1A

(57) Abstract: A device frame includes a plurality of elongate frame members, first and second hub members substantially aligned along a longitudinal axis of the device frame, and a coupling element that couples the first hub member to the second hub member. The device frame includes a face section, a laterally facing skirt section, and an inverted section. First portions of the elongate members define the face section and extend radially from the first hub member. Second portions of the elongate members define the laterally facing skirt section and extend in a distal, axial, and helical direction along a first rotational direction from the face section. Third portions of the elongate members define the inverted section and extend in a generally proximal direction from a distal portion of the laterally facing skirt section to the second hub member along a rotational direction opposite the first rotational direction.





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, KM, ML, MR, NE, SN, TD, TG).

Published:

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

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

13 August 2015

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2014/044358

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61B17/12 A61F2/01 A61B17/00
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)
A61B 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.
Y A	WO 2013/040431 A1 (GORE & ASS [US]; LARSEN COBY C [US]; MASTERS STEVEN J [US]; SHAW EDWAR) 21 March 2013 (2013-03-21) page 5, paragraph 28 page 6, paragraph 33 - page 14, paragraph 50 figures 1-3, 13	62, 65-68, 70-73 1,10-15, 18-22, 24,28,34
Y A	US 2011/054515 A1 (BRIDGEMAN JOHN [US] ET AL) 3 March 2011 (2011-03-03) page 1, paragraph 31 - page 3, paragraph 53 figures 1a-1c, 2, 16	72,73 1,10,12, 17-20, 22-25, 28-31, 34-37, 62, 65-68,71
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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	Date of mailing of the international search report
24 April 2015	06/05/2015

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 Kakoullis, Marios
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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2014/044358

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2012/172927 A1 (CAMPBELL BENJAMIN D [US] ET AL) 5 July 2012 (2012-07-05) page 3, paragraph 53-53 page 4, paragraph 63 - page 5, paragraph 70 figures 15A, 16A-18C, 19A -----	1-5, 17-20, 22,24,28
Y	US 2007/066993 A1 (KREIDLER MARC S [US]) 22 March 2007 (2007-03-22)	71
A	page 4, paragraph 58 - page 7, paragraph 88 figures 3-3B, 4-7 -----	1,10-12, 16-20, 22-24, 28-31, 34-38, 62,70
A	US 2007/162048 A1 (QUINN CHRIS [US] ET AL) 12 July 2007 (2007-07-12) page 2, paragraph 48 - page 3, paragraph 56 page 3, paragraph 61 - page 4, paragraph 67 figures 4, 6, 9-14 -----	1,5,10, 11,16, 18-20, 22,23, 25,28, 29,31, 34-38, 62, 65-68, 72,73
Y	US 2001/000799 A1 (WESSMAN BRADLEY JOHN [US] ET AL) 3 May 2001 (2001-05-03)	62, 65-68, 70-73
A	page 1, paragraphs 2, 7 page 4, paragraph 40-42 figures 3-3A -----	28,31, 34-37
A	US 2004/122467 A1 (VANTASSEL ROBERT A [US] ET AL) 24 June 2004 (2004-06-24) page 1, paragraphs 3, 9-11 page 5, paragraph 122-129 page 13, paragraph 198 - page 14, paragraph 207 figures 53, 59, 76-82 -----	28,29, 31, 34-38, 62,72,73

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2014/044358

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.:
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.:

1-38, 62-73

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-27

Coupling element.

2. claims: 28-38

Covering component.

3. claims: 39-45

Anchor portion frame.

4. claims: 46-61

The second hub member is nested within the first hub member.

5. claims: 62-73

The plurality of occlusive device elongate frame members terminate in free ends at the distal portion.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2014/044358

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