

(51) International Patent Classification:  
*A61F 2/24* (2006.01)(21) International Application Number:  
PCT/IL2012/000250(22) International Filing Date:  
21 June 2012 (21.06.2012)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
13/167,444 23 June 2011 (23.06.2011) US  
13/167,476 23 June 2011 (23.06.2011) US  
13/167,492 23 June 2011 (23.06.2011) US(63) Related by continuation (CON) or continuation-in-part (CIP) to earlier application:  
US 13/167,444 (CIP)  
Filed on 23 June 2011 (23.06.2011)

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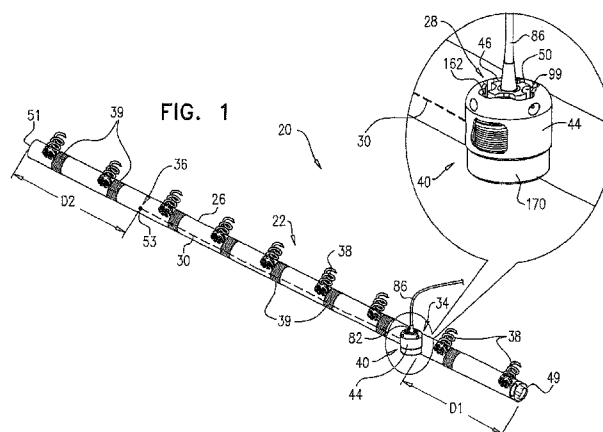
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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, 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, 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).

[Continued on next page]

(54) Title: CLOSURE ELEMENT FOR USE WITH ANNULOPLASTY STRUCTURE



(57) Abstract: Apparatus is provided including an implantable structure (22), including a flexible sleeve (26), having first and second sleeve ends (49, 51), a contracting assembly (40), which is configured to longitudinally contract the sleeve (26). The contracting assembly (40) includes a contracting mechanism (28), which is at a first site of the sleeve (26); and a longitudinal contracting member (30), having (a) a first member end, (b) a second member end (53), coupled to the sleeve (26) at a second site longitudinally between the first site and the second sleeve end (49 or 51), exclusive. A force-distributing element (540) is coupleable to the sleeve (26) in a vicinity of the second sleeve end (49 or 51), element (540) is configured to distribute a contraction force by the contracting member (30) between the second member end (53) and the second sleeve end (49 or 51). Other applications are also described.

**WO 2012/176195 A3**



**Published:**

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

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

28 March 2013

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IL2012/000250

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61F 2/24 (2012.01)

USPC - 623/2.37

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 2/24 (2012.01)

USPC - 606/108; 623/2.11, 2.36, 2.37, 2.38, 904

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)

PatBase, Orbit, Google Patents, Google

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|------------------------------------------------------------------------------------|-----------------------|
| Y         | US 2010/0280604 (ZIPORY et al) 04 November 2010 (04.11.2010) entire document       | 1-15                  |
| Y         | US 6,709,456 B2 (LANGBERG et al) 23 March 2004 (23.03.2004) entire document        | 1-15                  |
| Y         | US 7,753,924 B2 (STARKSEN et al) 13 July 2010 (13.07.2010) entire document         | 5                     |
| Y         | US 7,507,252 B2 (LASHINSKI et al) 24 March 2009 (24.03.2009) entire document       | 8-15                  |
| Y         | US 6,579,297 B2 (BICEK et al) 17 June 2003 (17.06.2003) entire document            | 11-13                 |
| A         | US 6,855,126 B2 (FLINCHBAUGH) 15 February 2005 (15.02.2005) entire document        | 1-15                  |

☐ 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

21 November 2012

Date of mailing of the international search report

06 DEC 2012

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

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PCT Helpdesk: 571-272-4300

PCT OSP: 571-272-7774

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL2012/000250

## 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 extra 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 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.:  
1-15

### 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/IL2012/000250

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-15, are drawn to an implantable structure comprising a flexible sleeve, contracting assembly with a contracting mechanism and a longitudinal contracting member, and a force-distribution element (Fig. 9).

Group II, claims 16-29 and claims 190-205, are drawn to an implantable structure comprising a flexible sleeve and a second-sleeve coupling member (Fig. 23A).

Group III, claims 30-42, are drawn to an implantable structure comprising a flexible sleeve, contracting assembly, a contracting-member receiving element and a stopper (Fig. 13A at stopper 572).

Group IV, claims 43-51, are drawn to an implantable structure comprising a flexible sleeve and a deflectable structural element (Fig. 13A at element 570).

Group V, claims 52-56, are drawn to an implantable structure comprising a flexible sleeve, contracting assembly, and a sleeve shortening element (Fig. 10A).

Group VI, claims 57-83, are drawn to an implantable structure comprising a flexible sleeve, contracting assembly and a plurality of tissue anchors (Fig. 1).

Group VII, claims 84-102, are drawn to an implantable structure comprising a flexible sleeve, contracting assembly with a contracting mechanism configured to apply a longitudinal force (Page 62, Lines 13-15).

Group VIII, claims 103-110, are drawn to an implantable structure comprising a flexible sleeve with a plurality of radiopaque markers. (Fig. 12 at radiopaque markers 39)

Group IX, claims 111-158, are drawn to an implantable structure comprising a sleeve having a lumen and a closure element (Fig. 14A).

Group X, claims 159-166, are drawn to an implantable structure comprising a flexible sleeve, a contracting assembly with a second longitudinal member (Page 73, Lines 25-30).

Group XI, claims 167-189, are drawn to an implantable structure comprising a flexible sleeve arranged in a closed loop (Fig. 20).

Group XII, claims 206-209, are drawn to an implantable structure comprising a flexible sleeve, a contracting member and contraction-restricting elements (Fig. 25E).

Group XIII, claims 210-233, are drawn to an implantable structure comprising a coiled element (Fig. 27).

The inventions listed as Groups I-XIII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

(See isa206\_PCT-IL2012-00250 for full explanation)

Since none of the special technical features of the Group I to XIII inventions are found in more than one of the inventions, unity of invention is lacking.