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61/716,345 19 October 2012 (19.10.2012) 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, 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, 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:**
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 - 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:**
6 March 2014

(54) **Title:** PERCUTANEOUS PERFORATION CLOSURE SYSTEMS, DEVICES, AND METHODS

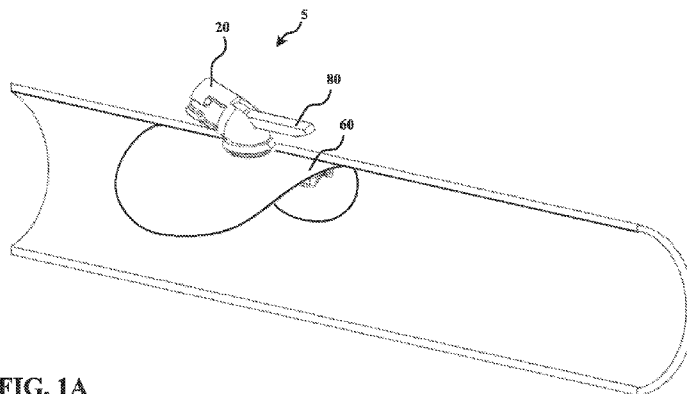


FIG. 1A

(57) **Abstract:** A device for sealing an aperture in a tissue includes: a foot including a distal portion configured to be disposed distal to the tissue when the device is implanted in a position to seal the aperture; and a flexible wing positionable against a distal surface of the tissue adjacent the aperture such that the flexible wing is disposed between the distal portion of the foot and the distal surface adjacent the aperture.



INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2013/000839

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61B17/00 A61B19/02
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

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)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2007/011353 A2 (KLESHINSKI STEPHEN J [US]; RUSSELL SCOTT M [US] STOUT MEDICAL GROUP LP) 25 January 2007 (2007-01-25) paragraphs [0044] - [0045]; figure 4 -----	1-4,11, 15, 94-97,99
X	WO 2011/080588 A2 (VIVASURE MEDICAL LTD [IE]; MARTIN CHRISTOPHER [IE]; RYAN DAMIEN [IE];) 7 July 2011 (2011-07-07) figures 11,29,57,72 -----	1,11,15, 94-97,99
X	WO 2008/042229 A2 (NMT MEDICAL INC [US]; CAHILL RYAN [US]) 10 April 2008 (2008-04-10) paragraphs [0116], [0122], [0123]; figures 22,25A,26A,26B ----- -/--	1,11,15, 94-97,99

☒ 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

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"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

12 September 2013

Date of mailing of the international search report

14/01/2014

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2013/000839

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2010/123821 A1 (ZHANG PING YE [US]; TAN JIANFONG [SG]; ACHIEVA MEDICAL LTD) 28 October 2010 (2010-10-28) paragraph [0041]; figures 4,5 -----	1,2,15, 94,95, 97,99
X	WO 2010/027693 A2 (KILLION DOUGLAS P [US]; VIDLUND ROBERT M [US]; CATES CHRISTOPHER U [US]) 11 March 2010 (2010-03-11) paragraphs [0139], [0140]; figures 34,35 -----	1,2,11, 15,94, 95,99
A	WO 2008/152617 A2 (ZERUSA LTD [IE]; MARTIN CHRISTOPHER [IE]) 18 December 2008 (2008-12-18) page 20; figures 13,14,30 -----	1
A	EP 0 894 475 A1 (MEDTRONIC INC [US]) 3 February 1999 (1999-02-03) figures 1,3 -----	1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2013/000839

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.:
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.:

1-4, 11, 15, 94-97, 99

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: 1-4, 11, 15, 94-97, 99
 delivery device for sealing an aperture in a tissue

2. claims: 5, 98, 109-114
 device with a handle and an actuator with two positions

3. claims: 6, 7, 88, 89
 shelf stable implant

4. claims: 8-10, 90-93
 biodegradable implant

5. claims: 12-14, 17-24, 45-58, 64-71, 74, 75
 sealing implant with extraluminal foot and intraluminal wing

6. claims: 16, 63
 implant with inherent viscosity in a range from 0.5 to 7.0
 dl/g

7. claims: 25-29, 41-44, 59-62, 72, 73, 87
 implant with a sealing member / closure member or a movable
 pin

8. claims: 30-40, 100-108, 115-120
 funnel having a tapered portion

9. claims: 76-86
 implant with increased wettability

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2013/000839

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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