Title: SYSTEMS AND METHODS FOR ENCLOSED AN ANATOMICAL OPENING

Abstract: Implantable therapeutic devices and methods for endovascular placement of devices at a target site, such an opening at a neck of an aneurysm, are disclosed. Selected embodiments of the present technology have closures (102) that at least partially occlude the neck of an aneurysm to stabilize embolic or coagulative treatment of the aneurysm. In one embodiment, for example, an aneurysm closure device comprises a closure structure (102) and a supplemental stabilizer (103). The closure structure can have a curved portion configured to extend along a first vessel, such as a side branch of a bifurcated vessel that extends along a lateral axis (T). The supplemental stabilizer extends from the closure structure along a longitudinal axis (L) transverse to the lateral axis of the first vessel. The supplemental stabilizer is configured to exert an outward force against a second vessel, such as a parent vessel, that extends transversely to the first vessel.
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).

— 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: 7 July 2011

— with international search report (Art. 21(3))
### INTERNATIONAL SEARCH REPORT

**International application No**

PCT/US2010/047908

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**A. CLASSIFICATION OF SUBJECT MATTER**

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<th>INV.</th>
<th>A61B 17/12</th>
<th>A61F 2/90</th>
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According to International Patent Classification (IPC) or to both national classification and IPC.

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**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

A61B A51 F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

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<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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**Further documents are listed in the continuation of Box C.**

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**Date of actual completion of the international search**

11 January 2011

**Date of mailing of the international search report**

25/05/2011

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**Name and mailing address of the ISA/ European Patent Office, P. B. 5618 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax (+31-70) 340-3016**

**Authorized officer**

Schiell, Werner
INTERNATIONAL SEARCH REPORT

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. [X] Claims Nos.: 88 - 114

   Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
   Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy

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 64(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. [X] As all searchable claims could be searched without effort justifying an additional fee, 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:

   the following claims were paid, specifically claims Nos.:
   0-0

4. [X] 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.:

   1-38, 52, 61, 64-67, 69-71, 82-85

Remark on Protest

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

1. claims: 1-38, 52, 61, 64-67, 69-71, 82-85

   An aneurysm device wherein the distal framework portion of the closure structure comprises a vertex from which the proximal support framework is biased to press outward against a luminal wall of the parent artery (see claim 2) so that the anchoring force needs not be provided by the supplemental stabilizer itself.

2. claims: 39-51, 57-60, 62, 63, 79, 80, 87

   An aneurysm device wherein the specific constructional details (see claims 39, 45, 57, 60, 62, 63, 79, 80, 87) of the closure structure provide an improved occlusion of an aneurysm neck and a better fixation in the downstream arteries.

3. claims: 53-56, 86

   An aneurysm device wherein the stabilizer comprises a helical leg projecting proximally from the closure structure (claims 53, 86) to improve the fixation of the stabilizer in the parent artery.

4. claims: 68, 81

   An aneurysm device wherein a barrier or membrane of the closure structure is adapted to modify the blood flow in and around the aneurysm either by a one-way valve (claim 68) or a wedge (claim 81) in order to limit the blood pressure within the aneurysm.

5. claims: 72-78

   A system wherein the positioning mechanism of a delivery device comprises two wires (claims 72, 76) to enhance the positioning of the aneurysm device.
# INTERNATIONAL SEARCH REPORT

Information on patent Family members

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Form PCT/ISA/210 (patent family annex) (April 2005)