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26 August 2010

(54) Title: APPARATUS FOR FILTERING A BODY LUMEN

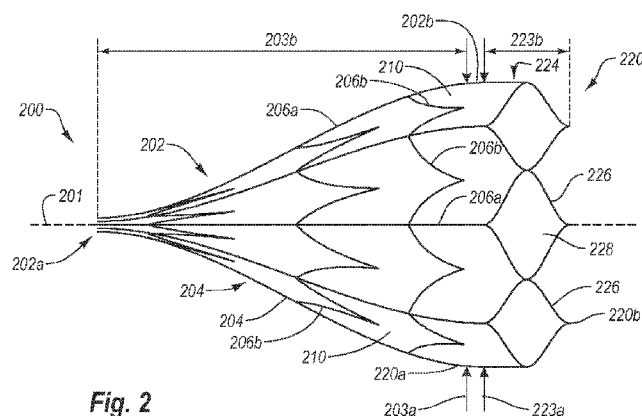


Fig. 2

(57) Abstract: An implantable lumen filter (200) is described. The implantable lumen filter includes a body (202) having a proximal end (202a), a distal end (202b), and a generally tapered outer surface (204). The outer surface is formed by a plurality of struts (206a, 206b). The plurality of struts forms a plurality of apertures (210). The apertures are dimensioned to inhibit and/or to lyse particulates of a selected size from passing through the apertures. The body (202) is transitionable from a collapsed state toward a deployed state. The implantable lumen filter includes an engaging portion (220) having a proximal end (220a) and a distal end (220b). The proximal end of the engaging portion is connected to a distal end of the body. The engaging portion has a generally annular shape and is configured to engage an inner surface of a body lumen.

# INTERNATIONAL SEARCH REPORT

International application No

PCT/US2009/068301

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. A61F2/01

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)  
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 practical, 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	US 6 214 025 B1 (THISTLE ROBERT [US] ET AL) 10 April 2001 (2001-04-10) column 1, line 47 - column 3, line 46; figures 1, 1A, 2, 2A, 9-11 -----	1-21
X	US 2008/097518 A1 (THINNES JOHN H JR [US] ET AL) 24 April 2008 (2008-04-24) paragraph [0014] paragraph [0111] - paragraph [0116] figures , 21-22D -----	1-22
X	US 2006/025852 A1 (ARMSTRONG JOSEPH R [US] ET AL) 2 February 2006 (2006-02-02) paragraph [0041] - paragraph [0043] paragraph [0093] - paragraph [0094] paragraph [0096] - paragraph [0098] paragraph [0104] - paragraph [0105] figures 10-12 ----- -/-	1,10-12

☒ 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 document 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

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Name and mailing address of the ISA/

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International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/131452 A1 (WALAK STEVEN E [US] ET AL) 16 June 2005 (2005-06-16) paragraph [0050] - paragraph [0051]; figures 4,5 -----	1-21
X	US 2005/004596 A1 (MCGUCKIN JAMES F [US] ET AL MCGUCKIN JR JAMES F [US] ET AL) 6 January 2005 (2005-01-06) figures 11A,11B,12 -----	1,18-22
X	US 2003/149475 A1 (HYODOH HIDEKI [JP] ET AL KONYA ANDRAS [US] ET AL) 7 August 2003 (2003-08-07) paragraph [0216] paragraph [0308] - paragraph [0311]; figures 51-52 -----	1,10-12

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2009/068301

## 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.: 23-26, 49-50, 69-70  
because they relate to subject matter not required to be searched by this Authority, namely:  
see FURTHER INFORMATION sheet PCT/ISA/210
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.:  
1-22

### 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

Continuation of Box II.1

Claims Nos.: 23-26, 49-50, 69-70

Methods for filtering a body lumen as defined in claims 23-26, 49-50, and 69-70 of the present international application are methods of treatment of the human or animal body including surgical steps, as those necessary to deliver the filter to a desired deployment site within a body lumen.

Thus, claims 23-26, 49-50, and 69-70 relate to subject matter considered by this Authority to be covered by the provisions of Rule 39.1(iv) PCT, and no international search report will be established with respect to the subject matter of these claims (Article 17(2)(a)(i) PCT).

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-22

implantable lumen filter comprising a body having a tapered shape and an engaging portion having an annular shape  
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2. claims: 27-39

implantable lumen filter comprising a body having a generally conically shaped concave outer surface and an engaging portion  
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3. claims: 40-45

implantable lumen filter comprising a body and an engaging portion comprising a tissue piercing portion and a tissue engaging portion  
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4. claims: 46-48

implantable lumen filter comprising a body, a retrieval portion, and a receiving portion  
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5. claims: 51-59

body lumen filter comprising a body and a plurality of rounded portions about at least a portion of a periphery of the body when in a deployed state  
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6. claims: 60-68

body lumen filter comprising a body having a plurality of arcuate anchors  
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2009/068301

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6214025	B1	10-04-2001	NONE
US 2008097518	A1	24-04-2008	US 2005165442 A1 28-07-2005
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