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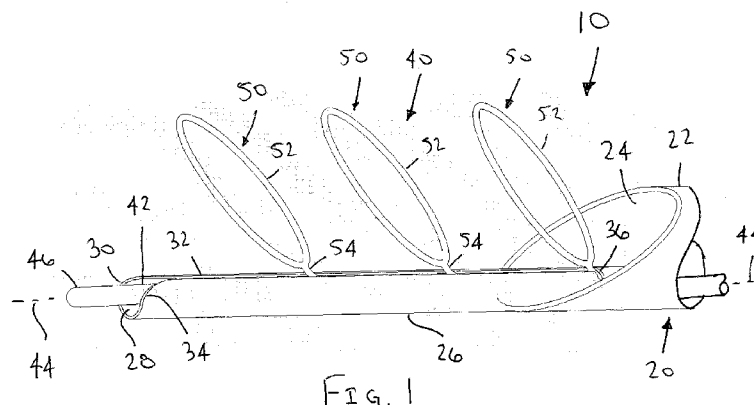
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, 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, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
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Published:

- with international search report (Art. 21(3))
- 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))

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25 March 2010

(54) Title: APPARATUS AND METHODS FOR REMOVING OBSTRUCTIVE MATERIAL FROM BODY LUMENS



(57) Abstract: An apparatus is provided for removing material within a body lumen that includes a catheter including a proximal end, a distal end for introduction into a body lumen, and an aspiration lumen extending therebetween; a guide member extending from the distal end and terminating in a distal tip, the guide member comprising a track adjacent a track lumen extending from the distal tip into the aspiration lumen; and an obstruction clearing device deployable from the guide member and retractable along the track. In addition or alternatively, the apparatus includes a cutting head reciprocable within the aspiration lumen adjacent the distal end for macerating material being aspirated into the aspiration lumen.

WO 2010/002549 A3

A. CLASSIFICATION OF SUBJECT MATTER*A61B 17/50(2006.01)i, A61B 17/22(2006.01)i, A61M 1/00(2006.01)i*

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 : A61B 17/22, A61B 17/50, A61M 1/00

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

- Korean Utility models and applications for Utility models since 1975
- Japanese Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & keywords : "blood", "lumen", "cutting" and "clear"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| X --- | US 05843103 A (EDWARD I. WULFMAN) 01 Dec. 1998 See Column 2, line 66 - Column 5, line 25; Claims 1-4; Figs. 1, and 6-9. | 21 - 24 ----- |
| A | The whole documents. | 1 - 10, 25 - 30 |
| A | US 06547754 B1 (MICHAEL EVANS et al.) 15 Apr. 2003 The whole documents. | 1 - 10, 21 - 30 |
| A | US 2005-038383 A1 (GREGORY S. KELLEY et al.) 17 Feb. 2005 The whole documents. | 1 - 10, 21 - 30 |

 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 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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Date of mailing of the international search report

27 JANUARY 2010 (27.01.2010)

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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.: 11 - 20 and 31
because they relate to subject matter not required to be searched by this Authority, namely:
Claims 11-20 and 31 pertain to methods for treatment of a patient by surgery, and thus relate to a subject matter which this International Searching Authority is not required, under Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulations under the PCT.
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:

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 fee, this Authority did not invite payment of any additional fee.
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.:

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

Information on patent family members

International application No.

PCT/US2009/046659

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| US 2005-038383 A1 | 17.02.2005 | None | |