Title: NOSE RIDER IMPROVEMENT FOR FILTER EXCHANGE AND METHOD OF USE

Abstract: Systems and methods for transporting intravascular devices through a body lumen are disclosed. A filter system in accordance with an exemplary embodiment of the present invention may include a guide tip (113) having a guidewire lumen (27) adapted to receive a guidewire, an elongated wire (11) operatively coupled to an embolic protection filter (12), and a filter delivery device (43) including an elongated tubular (44) member extending distally to a distal sheath (47), the elongated tubular member may include a first lumen (49) adapted to receive the elongated wire, and a second lumen (53) adapted to receive the guidewire.
INTERNATIONAL SEARCH REPORT

According to International Patent Classification (IPC) or to both national classification and IPC

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 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)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
<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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<td>X</td>
<td>US 6 616 679 B1 (KHOSRAVI FARHAD ET AL) 9 September 2003 (2003-09-09)</td>
<td>1,3,7,8, 11,12, 14,26-30</td>
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<td>column 8, line 66 - column 9, line 20 figures 8b,8c</td>
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<td>EP 1 297 797 A (CORDIS CORPORATION) 2 April 2003 (2003-04-02)</td>
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<td>A</td>
<td>paragraph [0023] - paragraph [0024] figures 1,2</td>
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□ Further documents are listed in the continuation of box C. □ Patent family members are listed in annex.

* Special categories of cited documents:

- "X" 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 novel or 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
- "S" document member of the same patent family

Date of the actual completion of the international search
15 June 2005

Date of mailing of the international search report
08 July 2005

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Authorized officer
Amaro, H
INTERNATIONAL SEARCH REPORT

Box 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 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 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.:

   see annex

Remark on Protest

☐ The additional search fees were accompanied by the applicant’s protest.

☐ 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: 1-4, 7, 8, 11, 12, 14, 26-30

   A filter system comprising: a guide tip with a tapered profile defining a substantially straight guidewire lumen extending therethrough adapted to receive a guidewire; an elongated wire with its distal end attached to the proximal portion of said guide tip; a self deployable embolic protection filter disposed along the elongated wire; an elongated tubular member defining a first lumen adapted to receive the elongated wire and a second lumen adapted to receive the guidewire; a distal sheath with two lumens distally extended from the elongated tubular member. The embolic protection filter is, at least in part, collapsed within one of the distal sheath's lumens. A radiopaque marker band included in the guide tip

2. claims: 5, 6

   A filter system including a guide tip with a spring coil

3. claim: 9

   A filter system including a guide tip with a guidewire lumen defined therethrough. A portion of the guidewire lumen is curved

4. claims: 10, 13

   A filter system including a guide tip with its proximal end provided with a tapered hole or a hole with a coil having a reduced diameter with relation to the elongate wire so that the elongate wire and the guide tip can be attached to each other

5. claims: 15, 16

   A filter system including an embolic protection filter with a suspension arm

6. claims: 17-21

   A filter system including a guide tip and an embolic protection filter coupled to a frame

7. claims: 22, 31, 32
A filter system including an elongated tubular member extending distally to a distal sheath, a guide tip where the guide tip is configured to slide at least in part within the distal sheath and alignment means for radially aligning the guidewire lumen of said guide tip with the guidewire lumen of the elongated tubular member

8. claims: 23-25

A filter system including a distal sheath with one or more skived regions defining a channel for the guidewire and a tool to thread the guidewire through the/each skived region(s)

9. claims: 33-37

A filter system including a multiple-lumen retrieval sheath
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