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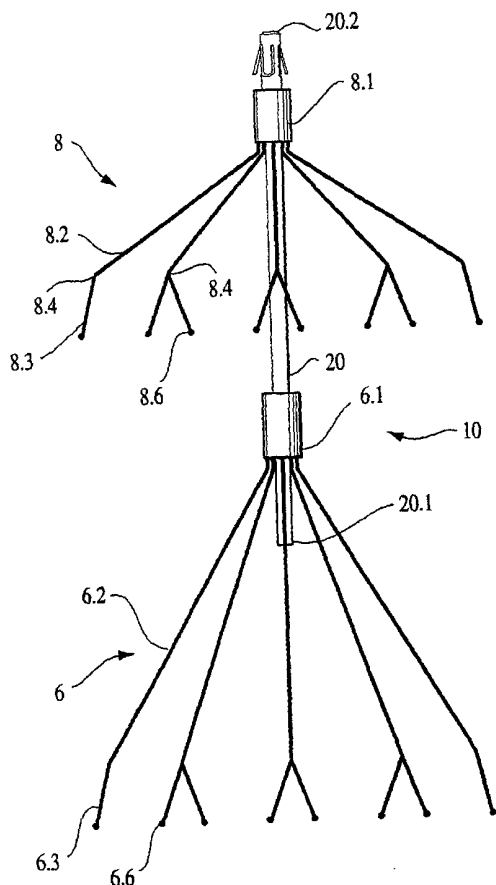
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[Continued on next page]

(54) Title: BODY VESSEL FILTER



(57) Abstract: A catheter-deliverable filter assembly deployable in a vessel of the body in alternatively a temporary configuration enabling the filter to be removed from the vessel or a permanent configuration, and a method for its use. The filter assembly comprises an elongated support carrying spaced along its length a filter element and an anchoring element with the filter element being spaced distally from the anchoring element. Each element comprises a core mounted to the elongated support and a plurality of flexible, resilient wires extending distally from the core, the wires having proximal portions attached at one hand to the core and distal portions. The wires of the anchoring element include gripping elements for gripping the walls of a vessel. The wires are so configured as to support the apices of the filter and anchoring elements substantially in the center of the vessel. The filter assembly may include a hollow flexible tether releasably attached to the proximal end of the elongated support and having a distal end portion within which are resiliently confined the wires of the anchoring element when the filter element alone is deployed.



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**(88) Date of publication of the international search report:**

22 February 2001

**Published:**

— *With international search report.*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/07406

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 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)

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)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 350 043 A (PALESTRANT AUBREY M) 10 January 1990 (1990-01-10) the whole document	1,4,5
A	---	2,3,10, 23,24
X	US 5 776 162 A (KLESHINSKI STEPHEN J) 7 July 1998 (1998-07-07) column 3, line 10 - line 63; figure 1	1,4
A	---	23,24
A	US 5 836 969 A (KIM HANNAH S ET AL) 17 November 1998 (1998-11-17) column 6, line 42 -column 7, line 35; figures	1,4,6, 23,24
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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 :

- \*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.
- \*Z\* document member of the same patent family

Date of the actual completion of the international search

25 July 2000

Date of mailing of the international search report

06. 11. 2000

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# INTERNATIONAL SEARCH REPORT

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.
A	US 5 725 550 A (NADAL GUY) 10 March 1998 (1998-03-10) claims; figures -----	1,2,5, 10,23,24

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 00/07406

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 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.: 25-32  
because they relate to subject matter not required to be searched by this Authority, namely:  
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
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 II Observations where unity of invention is lacking (Continuation of item 2 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.:

1-12,23,24

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

1. Claims: 1-12,23,24

A catheter-deliverable filter assembly comprising a filter and an anchoring element including gripping elements whereby the filter element is spaced distally from the anchoring element and a catheter assembly to deliver the filter assembly

2. Claims: 13-21

A filter assembly comprising a filter element and a flexible hollow tether to eject a fluid distally of the filter apex

3. Claim : 22

A filter assembly comprising a core and a plurality of flexible wires which are U-shaped extending from the core through axially extending bores to lock each wire to the core and prevent rotation of the wires about their axes

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/07406

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