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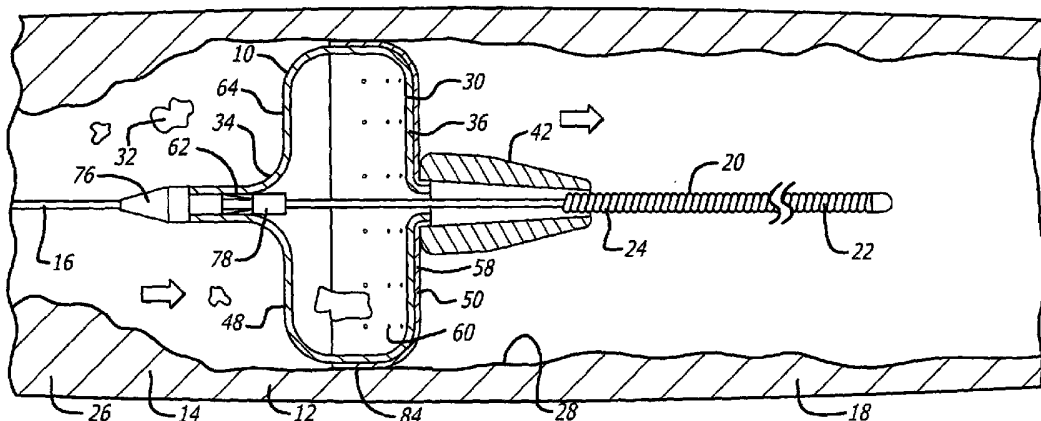
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: EMBOLIC PROTECTION SYSTEMS



(57) Abstract: A system for enabling the insertion and removal of an embolic protection device, for capturing and retaining embolic debris which may be created during the performance of a therapeutic interventional procedure in a stenosed or occluded region of a blood vessel. The system, in an embodiment thereof, enables the device to be snap-fitted so as to engage the distal end of a guide wire, to be pre-formed for expansion thereof so as to seal off the inner surface of a blood vessel, to inhibit the forming of a gap therein, for inhibiting embolic material from passing therethrough, and to be foreshortened to enable insertion thereof through confined spaces. The system, in another embodiment thereof, enables expandable material to be formed into an 10 expandable configuration of an embolic protection device for capturing embolic material, which is capable of sealing off the inner surface of the blood vessel.

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 02/17802

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) EPO-Internal		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00 67670 A (BRADY EAMON ;GILSON PAUL (IE); SALVIAC LTD (IE); GILVARRY MICHAEL) 16 November 2000 (2000-11-16) page 13, line 22 - line 29 page 14, line 5 -page 15, line 30	27,29, 30,32
A	---	1
X	WO 01 10346 A (FORBER SIMON JOHN ;BRAUN MEDICAL B (FR)) 15 February 2001 (2001-02-15) page 9, line 22 - line 28 figure ALL	27,29, 30,32
A	---	1
X	WO 01 45592 A (PERCUSURGE INC) 28 June 2001 (2001-06-28) page 5, line 3 -page 26, line 8	27,29, 30,32
A	---	1
	-/--	
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> 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. *&* document member of the same patent family
Date of the actual completion of the international search 30 January 2003		Date of mailing of the international search report 07.02.2003
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer Mary, C

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.
P, X	WO 01 49215 A (ADVANCED CARDIOVASCULAR SYSTEM) 12 July 2001 (2001-07-12) figure ALL page 18, line 2 - line 10 page 19, line 3 -page 44, line 2	27, 29, 30, 32
A	---	1
X	WO 96 01591 A (MICROVENA CORP) 25 January 1996 (1996-01-25) page 29, line 5 -page 32, line 18	27, 29, 30, 32
A	figure 10C page 24, line 19 -page 29, line 4 ---	1, 33, 40
A	US 6 048 484 A (HOUSE WAYNE D ET AL) 11 April 2000 (2000-04-11) figures 1, 2 column 3, line 16 -column 4, line 6 ---	33, 40
A	US 5 733 294 A (FORBER SIMON JOHN ET AL) 31 March 1998 (1998-03-31) figure 4 column 4, line 20 - line 38 -----	33, 40

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 02/17802

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.: **39**
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.:

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: 1-32

A system comprising a guidewire and a filter device

2. Claims: 33-38,40

A system to preform an expandable material and method

The present application lacks unity within the meaning of Rule 13 of the P.C.T for the following reasons:

The document W0067670 cited in our search report discloses a system comprising a guidewire and a filter device.

Beyond this prior art, the special technical features (in the meaning of Rule 13.2 of the P.C.T) left in the independant claims 1, 27, 30, 33 of the application are:

In independant claims 1, 27, 30: none.

In independant claims 33, 40: a system to preform an expandable material and method.

No same or correspondent special technical feature can be found between claims 1, 27, 30 and claims 33, 40.

There is therefore no technical relationship involving same or corresponding special technical features between claims 1, 27, 30 and claims 33,40.

The inventions defined in the above-mentioned claims are not linked by a common inventive concept.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0067670	A	16-11-2000	WO 0067666 A1 16-11-2000
			WO 0067664 A1 16-11-2000
			AU 3844499 A 21-11-2000
			AU 4426500 A 21-11-2000
			AU 4606400 A 21-11-2000
			DE 10084521 T0 20-06-2002
			DE 20080298 U1 20-12-2001
			EP 1176923 A1 06-02-2002
			EP 1176924 A1 06-02-2002
			WO 0067668 A1 16-11-2000
			WO 0067670 A1 16-11-2000
			US 2002107541 A1 08-08-2002
			US 2002062133 A1 23-05-2002
AU 3844199 A 21-11-2000			
WO 0110346	A	15-02-2001	FR 2797390 A1 16-02-2001
			EP 1117346 A1 25-07-2001
			WO 0110346 A1 15-02-2001
WO 0145592	A	28-06-2001	AU 2737001 A 03-07-2001
			WO 0145592 A1 28-06-2001
WO 0149215	A	12-07-2001	AU 2607101 A 16-07-2001
			EP 1242002 A2 25-09-2002
			WO 0149215 A2 12-07-2001
WO 9601591	A	25-01-1996	CA 2194671 A1 25-01-1996
			EP 1221307 A2 10-07-2002
			EP 0769926 A1 02-05-1997
			EP 0902704 A1 24-03-1999
			JP 10504738 T 12-05-1998
			WO 0053120 A1 14-09-2000
			US 2002095172 A1 18-07-2002
			US 2002062135 A1 23-05-2002
			US 2002072765 A1 13-06-2002
			US 2002087187 A1 04-07-2002
			US 2002095173 A1 18-07-2002
			US 2002138095 A1 26-09-2002
			WO 9601591 A1 25-01-1996
			WO 9726939 A1 31-07-1997
			US 6048484
AU 6943794 A 14-03-1995			
CA 2167943 A1 23-02-1995			
DE 69428282 D1 18-10-2001			
EP 0714345 A1 05-06-1996			
JP 9501585 T 18-02-1997			
WO 9505277 A1 23-02-1995			
US 5733294	A	31-03-1998	
			DE 69620466 D1 08-05-2002
			DE 69620466 T2 07-11-2002
			EP 0883418 A1 16-12-1998
			ES 2176524 T3 01-12-2002
			WO 9731672 A1 04-09-1997