

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
21 March 2002 (21.03.2002)

PCT

(10) International Publication Number
WO 02/022046 A3

(51) International Patent Classification⁷: **A61F 2/01**

(21) International Application Number: PCT/US01/28743

(22) International Filing Date:
12 September 2001 (12.09.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/659,949 12 September 2000 (12.09.2000) US

(71) Applicant: **ADVANCED CARDIOVASCULAR SYSTEMS, INC.** [US/US]; 3200 Lakeside Drive, Santa Clara, CA 95054-2807 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report

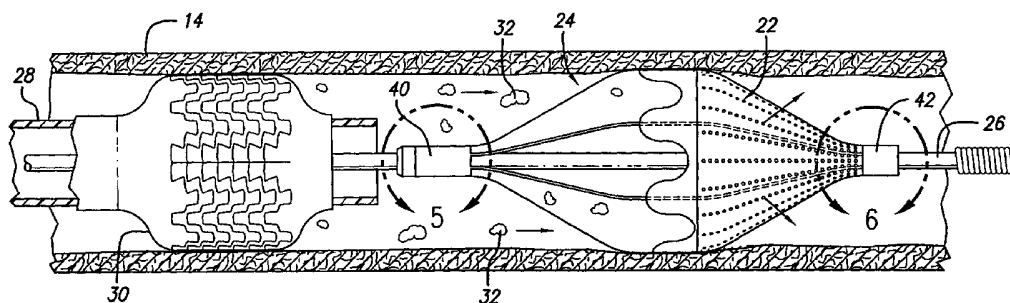
(88) Date of publication of the international search report:
24 October 2002

(72) Inventors: **HUTER, Benjamin, C.**; 24375 Jackson Avenue, Apt. I-307, Murrieta, CA 92562 (US). **HUTER, Scott, J.**; 43390 Corta Almeria, Temecula, CA 92592 (US). **STEADHAM, Christopher, L.**; 144 South Third Street, No. 133, San Jose, CA 95112 (US).

(74) Agents: **HANKE, Gunther, O.** et al.; Fulwider Patton Lee & Utecht, LLP, Howard Hughes Center, Tenth floor, 6060 Center Drive, Los Angeles, CA 90045 (US).

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 DEVICE



(57) Abstract: An intravascular filter device for capturing embolic particles entrained in blood flowing in an arterial vessel during an interventional procedure. The filter includes an expandable strut assembly and a filtering medium. Each strut is coated with an elastic polymer in order to minimize trauma to an arterial lumen upon deployment of the filter and to ensure secure adhesion of the filtering medium to the struts. Attached to the coating of the strut assembly is the filtering medium which is formed from a thin elastic polymer membrane containing a plurality of holes which allow blood to pass through filter while capturing embolic particles. The filtering medium is attached to the layer of polymeric material by laser welding, ultrasonic welding or adhesive bonding.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/28743

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	WO 00 49970 A (SCIMED LIFE SYSTEMS, INC.) 31 August 2000 (2000-08-31)	1-3, 5-10, 15-22, 24,30
Y	page 8, line 9 -page 9, line 19; figure 1 ---	4,27-29
Y	WO 99 23976 A (SALVIAC LIMITED) 20 May 1999 (1999-05-20) abstract; figure 40 -----	4,27-29



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.

& document member of the same patent family

Date of the actual completion of the international search

1 August 2002

Date of mailing of the international search report

08/08/2002

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

Smith, C

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/28743

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0049970	A	31-08-2000	US 6171327 B1	09-01-2001
			CA 2329033 A1	31-08-2000
			EP 1073383 A1	07-02-2001
			WO 0049970 A1	31-08-2000
<hr/>				
WO 9923976	A	20-05-1999	AU 9758398 A	31-05-1999
			BR 9813935 A	19-09-2000
			CA 2309055 A1	20-05-1999
			CN 1278713 T	03-01-2001
			DE 19882777 T0	26-10-2000
			DE 29880158 U1	30-11-2000
			EP 1028670 A1	23-08-2000
			GB 2345253 A ,B	05-07-2000
			IE 980920 A1	19-05-1999
			IE 81060 B2	12-01-2000
			WO 9923976 A1	20-05-1999
			JP 2001522639 T	20-11-2001
			NO 20002303 A	04-05-2000
			PL 340258 A1	29-01-2001
			US 6336934 B1	08-01-2002
			US 2002052626 A1	02-05-2002
			US 2002049467 A1	25-04-2002
			US 2002026213 A1	28-02-2002
			US 2002002384 A1	03-01-2002
<hr/>				