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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, BN, 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, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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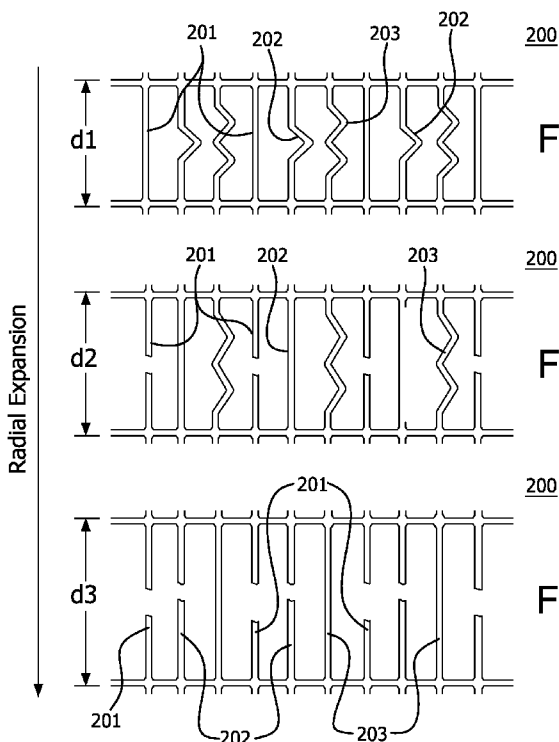


FIG. 5A

FIG. 5B

FIG. 5C

(57) Abstract: The invention relates to medical devices and methods of using them. The devices are prostheses which can be percutaneously deliverable with (or on) an endovascular catheter or via other surgical or other techniques and then expanded. The prostheses are configured to have a lattice resistant to dilation and creep, which is defined by a plurality of openings. The prosthesis may also optionally have a stent disposed proximal to the lattice. In exemplary embodiments, the fluoropolymer is expanded polytetrafluoroethylene. The composite materials exhibit high elongation while substantially retaining the strength properties of the fluoropolymer membrane. In at least one embodiment, the lattice is made of a composite material that includes a least one fluoropolymer membrane including serpentine fibrils and an elastomer. A lattice including a generally tubular member formed of a composite material including a least one fluoropolymer membrane containing serpentine fibrils and an elastomer is also provided.





EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,
LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,
SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

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A. CLASSIFICATION OF SUBJECT MATTER
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 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)
 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 practicable, 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	US 5 843 158 A (LENKER JAY A [US] ET AL) 1 December 1998 (1998-12-01) column 3, line 53 - column 4, line 29 column 9, line 10 - column 10, line 4; figures 5-5E	1,4-9, 26-28, 30-37, 39-52, 54-58, 61-64, 66-91, 194
X	US 2009/005854 A1 (HUANG BIN [US] ET AL) 1 January 2009 (2009-01-01) the whole document	1-7,9, 26,27, 29,32, 33,36-41

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 another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
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- "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
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- "&" document member of the same patent family

Date of the actual completion of the international search 28 October 2013	Date of mailing of the international search report 11/11/2013
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Steiner, Bronwen

INTERNATIONAL SEARCH REPORT

International application No.
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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.:
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 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:

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 fees, this Authority did not invite payment of additional fees.
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

International application No
PCT/US2012/065066

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00/41649 A1 (SCIMED LIFE SYSTEMS INC [US]) 20 July 2000 (2000-07-20) the whole document page 7, lines 1-22; figures 11a-11e -----	1,24-26, 28,32, 36,40, 43-46, 48,49, 51,54, 58,62, 66,68, 194
X	US 2010/094405 A1 (COTTONE ROBERT J [US]) 15 April 2010 (2010-04-15) the whole document -----	43-45, 47,52, 53,55, 74,75, 79,82,83
X	US 7 105 018 B1 (YIP PHILIP S [US] ET AL) 12 September 2006 (2006-09-12) the whole document -----	58-62, 65-69, 72,73, 194
X	US 2008/119943 A1 (ARMSTRONG JOSEPH R [US] ET AL) 22 May 2008 (2008-05-22) the whole document ----- ----- -/--	118-120, 122,123, 127,128, 131,137, 138,141, 143,147, 148,151, 157,158, 161,167, 168,171, 177,178, 181,183, 186,189, 191,193

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/065066

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/74272 A2 (ADVANCED CARDIOVASCULAR SYSTEM [US]) 11 October 2001 (2001-10-11)	118-120, 122, 126-128, 131, 136-138, 141, 146-148, 151, 156-158, 161, 166-168, 171, 176-178, 181
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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/065066

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 02/060506 A1 (ADVANCED BIO PROSTHETIC SURFAC [US]; BOYLE CHRISTOPHER T [US]) 8 August 2002 (2002-08-08) the whole document	92,93, 99, 112-114
A	----- US 2007/254012 A1 (LUDWIG FLORIAN N [US] ET AL) 1 November 2007 (2007-11-01) the whole document	92,93, 112,116, 117
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2012/065066

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International application No PCT/US2012/065066

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-57, 74-91

An endovascular prosthesis with a tubular lattice having at least two circumferential segments oriented at between 45° and 90° with respect to the longitudinal axis of the tube. The tube can expand radially to a first dimension and at least one circumferential segment is resistant to further expansion. When a further force is applied the lattice is enlarged to a second dimension and the resistant segment is either plastically deformed or broken.

2. claims: 58-73, 194

An endovascular prosthesis having a multi-layer lattice, each layer having a plurality of openings. After expansion to a first enlarged dimension at least one layer of the lattice is resistant to further expansion. The prosthesis can be expanded to a second enlarged dimension when force is applied to compromise the resistant layer.

3. claims: 92-117

An endovascular prosthesis with a lattice having at least two layers and a reservoir layer comprising therapeutic agents. The lattice defines openings with an inner wall, the therapeutic agent is sealed within the reservoir layer at the inner wall and as the prosthesis is enlarged by a force applied on it, the inner wall of the openings is resistant to dilation to allow the therapeutic agent to be released.

4. claims: 118-193

An endovascular prosthesis comprising a stent and a lattice with a plurality of openings. Dependent claims give details of the lattice including the microstructure of a fluoropolymer membrane comprising fibrils.
