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(81) Designated States (*unless otherwise indicated, for every
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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, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
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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: MEDICAL DEVICES AND PROCESSES FOR PREPARING SAME

(57) Abstract: A medical device such as a catheter, stent or balloon, is formed by depositing a radiation curable composition on a form (30) made of ice or wax. The deposited composition may be cured by irradiation, suitably with UV light. Complex structures can be built up if the deposition or curing is achieved imagewise. Compositions which photocure to polyester, polyamide or polyimide may be employed. A particular structure is a balloon for a rapid exchange catheter which has a guide wire lumen (85) passing through the balloon cone walls (86, 87).

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/022999

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B29C33/52 B29C41/10 A61M25/00 A61M25/10 B32B1/08
B32B3/02 C08G73/10

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 B29C A61M

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, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 952 357 A (EUTENEUER CHARLES L) 28 August 1990 (1990-08-28) cited in the application	1,2,6-8, 11,12, 17,19, 22,24
Y	column 3, line 3 - line 33 column 3, line 51 - line 53 column 4, line 28 - line 33 -----	3,16,20, 21,46, 54-63
X	GB 773 971 A (JOHN FREDERICK PATRICK SMITH) 1 May 1957 (1957-05-01) claim 1 page 1, line 45 - line 52 page 1, line 58 - line 59 -----	16,53, 55,63
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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.
- "&" document member of the same patent family

Date of the actual completion of the international search

3 November 2004

Date of mailing of the international search report

18 03. 2005

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2004/022999

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE 42 23 991 A (GRIESEL HEINRICH) 25 February 1993 (1993-02-25) claims 1,2 -----	3,16,46, 54-57,63
Y	PATENT ABSTRACTS OF JAPAN vol. 0113, no. 56 (M-644), 20 November 1987 (1987-11-20) & JP 62 135325 A (KANTO YAKIN KOGYO KK), 18 June 1987 (1987-06-18) abstract -& DATABASE WPI Week 198730 Derwent Publications Ltd., London, GB; AN 1987-209222 XP002303571 & JP 62 135325 A 18 June 1987 (1987-06-18) abstract -----	3,46, 54-57, 61-63
Y	PATENT ABSTRACTS OF JAPAN vol. 0160, no. 44 (M-1207), 4 February 1992 (1992-02-04) & JP 3 248822 A (PENDEL KK), 6 November 1991 (1991-11-06) abstract -----	3,16,46, 54-57,63
Y	DE 18 10 311 A (WACKER WERKE KG) 19 February 1970 (1970-02-19) claim 1 -----	3,16,46, 54-57,63
Y	FR 2 634 413 A (PEUGEOT ; CITROEN SA (FR)) 26 January 1990 (1990-01-26) abstract -----	3,16,46, 54-57,63
Y	WO 03/000480 A (HOLLISTER SCOTT J ; TABOAS JUAN M (US); UNIV MICHIGAN (US); MADDOX RAC) 3 January 2003 (2003-01-03) claim 6 -----	3,58
Y	WO 02/068167 A (VANTICO AG ; HOCHWALD PETER (DE)) 6 September 2002 (2002-09-06) claim 1 page 1, paragraph 2 -----	20,21, 58-60
Y	DE 195 34 836 A (RIESELMANN F & H KUNSTSTOFF) 27 March 1997 (1997-03-27) claim 1 -----	20,21, 59,60
Y	US 5 184 874 A (OLSON PAUL D ET AL) 9 February 1993 (1993-02-09) column 4, line 33 - line 38 -----	20,21, 59,60
P,Y	US 2003/197308 A1 (MONTROYA JEAN PATRICK) 23 October 2003 (2003-10-23) claim 15 -----	20,21, 59,60

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/022999

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.:

1-3, 6-8, 11, 12, 16, 17, 19-22, 24, 46, 53-63

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

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

1. claims: 1-3, 6-8, 11, 12, 16, 17, 19-22, 24, 46, 53-63

Method and mold for making a medical device by a fluidizing shape-forming form

2. claim: 9

Medical device comprising a drug containing chamber

3. claims: 4,5,14,15,18,23,25,26,39-45,50-52

Radiation curable (or photocurable or UV curable) medical device and composition for obtaining said radiation curable medical device

4. claims: 27-31

Medical balloon comprising a lumen through a tapering proximal and distal wall portion

5. claims: 32-38

A multi-layered article having an at-rest configuration

6. claims: 10,13,47,49

A method for making an article whereby the composition is varied in formulation over a portion of the article

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/022999

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