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Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

[Continued on next page]

(54) Title: SHAPED FIBER ENDS AND METHODS OF MAKING SAME

(57) Abstract: An optical fiber tip comprises a core and a recess formed in said core at a distal end of the optical fiber tip, said recess having a vertex within said core.

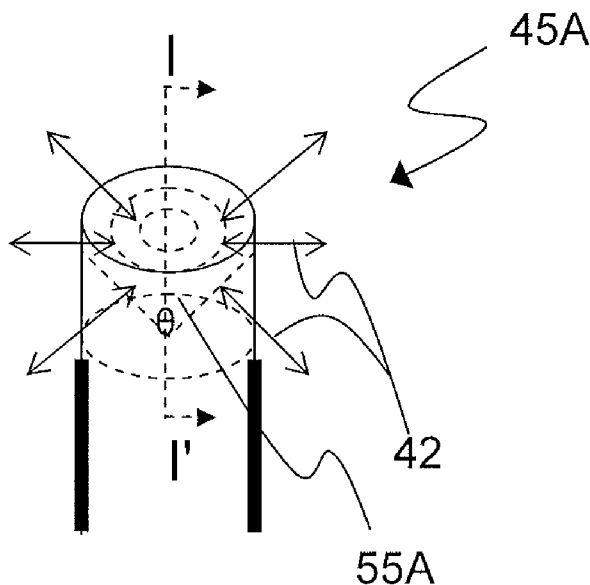


FIG. 1A

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A. CLASSIFICATION OF SUBJECT MATTER*A61M 25/10(2006.01)i, A61L 33/00(2006.01)i*

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 : A61M 25/10, A61B 18/20 , G02B 6/32, A61N 5/02 , A61B 17/36

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Utility models and applications for Utility models since 1975

Japanese Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & keyword:tip, optical fiber, recess, core, catheter, balloon, angioplasty

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,572,609 B1 (NORMAN E. FARR et al.) 03 JUNE 2003 See abstract, figs. 2, 4, 5, columns 2, 8, 9, 12.	1, 2, 5, 7, 8, 10, 15-18, 26, 30, 38, 41, 42, 44, 49, 50, 52
X	US 6,671,432 B2(AYA IMADA et al.) 30 DECEMBER 2003 See abstract, figs. 3A, 3B, 8, columns 3, 4, 9, 10, claims 1, 3, 7.	1, 5, 10, 30
A	US 6,110,167 A1(COLETTE COZEAN et al.) 29 AUGUST 2000 See the whole document.	1 - 56
A	US 4,968,314 A1 (JONATHAN A. MICHAELS) 06 NOVEMBER 1990 See the whole document.	1 - 56

 Further documents are listed in the continuation of Box C. See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 06572609 B1	03.06.2003	AU 1995-36269 B2	08.09.1995
		AU 2004-208838 A1	03.02.2004
		AU 2001-75938 A1	16.07.2001
		AU 2000-70762 A1	25.08.2000
		AU 2000-62151 A1	14.07.2000
		AU 725320 B2	12.10.2000
		CA 2515029 A1	19.08.2004
		CA 2416242 A1	24.01.2002
		CA 2199384 C	06.06.2006
		CN 1072971 C	17.10.2001
		CN 1165485 A	19.11.1997
		EP 1866019 A1	19.12.2007
		EP 1679045 A2	12.07.2006
		EP 1592358 A2	09.11.2005
		EP 1527798 A2	04.05.2005
		EP 1301139 A1	16.04.2003
		EP 1200002 B1	12.04.2006
		JP 10-504989 A	19.05.1998
		JP 04-261101 B2	20.02.2009
		JP 03-675482 B2	13.05.2005
		JP 2008-531086 A	14.08.2008
		JP 2006-516465 A	06.07.2006
		JP 2004-503326 A	05.02.2004
		JP 2003-518395 A	10.06.2003
		KR 1997-0706039 A	03.11.1997
		US 05632767 A	27.05.1997
		US 05643253 A	01.07.1997
		US 05908415 A	01.06.1999
		US 05947959 A	07.09.1999
		US 06102905 A	15.08.2000
		US 05637877 A	10.06.1997
		US 06168591 B1	02.01.2001
		US 06270492 B1	07.08.2001
		US 06423055 B1	23.07.2002
		US 06558375 B1	06.05.2003
		US 06579285 B2	17.06.2003
		US 06626900 B1	30.09.2003
		US 06676656 B2	13.01.2004
		US 06942657 B2	13.09.2005
		US 06953457 B2	11.10.2005
		US 07207984 B2	24.04.2007
		US 07357796 B2	15.04.2008
		US 2002-0068924 A1	06.06.2002
		US 2002-0077623 A1	20.06.2002
		US 2002-0183729 A1	05.12.2002
		US 2004-0006333 A1	08.01.2004
		US 2004-0059397 A1	25.03.2004

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/030457

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		US 2004-0147911 A1	29.07.2004
		US 2004-0147912 A1	29.07.2004
		US 2004-0147913 A1	29.07.2004
		US 2004-0167503 A1	26.08.2004
		US 2005-0038419 A9	17.02.2005
		US 2005-0065504 A1	24.03.2005
		US 2005-0171520 A1	04.08.2005
		US 2005-0222557 A1	06.10.2005
		US 2005-0222558 A1	06.10.2005
		US 2005-0234436 A1	20.10.2005
		US 2005-0234437 A1	20.10.2005
		US 2005-0267452 A1	01.12.2005
		US 2006-0253113 A1	09.11.2006
		US 2008-0195088 A1	14.08.2008
		WO 1996-007451 A3	14.03.1996
		WO 2001-003599 A2	18.01.2001
		WO 2006-091597 A1	31.08.2006
		WO 2002-005722 A1	24.01.2002
		WO 2004-069072 A2	19.08.2004
		WO 2001-013812 A1	01.03.2001
US 06671432 B2	30.12.2003	JP 2001-350037 A	21.12.2001
		US 2001-0038737 A1	08.11.2001
		US 2004-0076375 A1	22.04.2004
US 06110167 A	29.08.2000	US 05707368 A	13.01.1998
US 04968314 A	06.11.1990	EP 0311295 A2	12.04.1989
		JP 02-140156 A	29.05.1990