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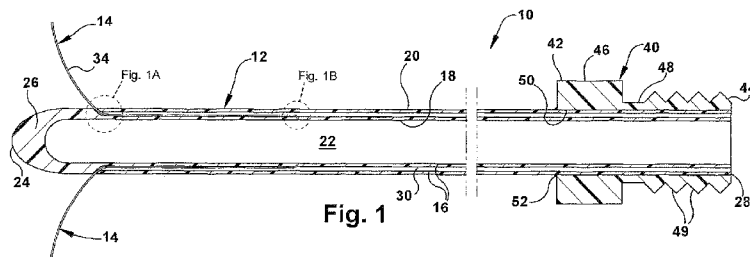
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(54) Title: CATHETER ASSEMBLY



(57) Abstract: A catheter assembly comprises a first catheter including a wall with an inner surface at least partially defining a lumen. A second catheter is connected to the wall of the first catheter and is disposed outward of the inner surface of the wall. The second catheter is at least partially covered by a sheath portion of the first catheter.

A. CLASSIFICATION OF SUBJECT MATTER*A61M 25/16(2006.01)i, A61M 25/10(2006.01)i, A61M 29/02(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)

A61M 25/16; A61M 29/00; A61M 25/10; A61B 17/39; A61B 18/00

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

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: catheter, cover, sheath, lumen, wall

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|---|-----------------------------|
| Y A | US 05464395 A (FAXON et al.) 07 November 1995 See the abstract; claim 1; column 3, lines 36-42 and column 5, lines 53-65; and figs.1 and 15. | 1-13, 16-23 14-15, 24-43 |
| Y | US 05588960 A (EDWARDS et al.) 31 December 1996 See the abstract; claims 1, 4, 6, and 9; column 3, lines 2-13 and lines 36-42, and column 4, lines 8-14; and figs.1-3. | 1-13, 16-23 |
| A | US 6458098 B1 (KANESAKA) 01 October 2002 See the abstract; claims 1, 5, and 8-9; columns 1 and 3; and figs.1-2. | 1-43 |
| A | US 2006-0129178 A1 (REIFART et al.) 15 June 2006 See the abstract; claims 29 and 34-35; paragraphs [0003], [0013], and [0015]; and figs.1 and 4. | 1-43 |



Further documents are listed in the continuation of Box C.



See patent family annex.

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Information on patent family members

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| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|----------------------------|---------------------|
| US 05464395 A | 07.11.1995 | WO 95-26776 A1 | 12.10.1995 |
| US 05588960 A | 31.12.1996 | CN 1173118 A0 | 11.02.1998 |
| | | EP 0797409 A1 | 16.06.2004 |
| | | EP 0797409 B1 | 16.06.2004 |
| | | JP 2001-527428 A | 25.12.2001 |
| | | WO 96-16606 A1 | 06.06.1996 |
| US 6458098 B1 | 01.10.2002 | None | |
| US 2006-0129178 A1 | 15.06.2006 | EP 0578777 A1 | 19.01.1994 |
| | | EP 0578777 A4 | 13.07.1994 |
| | | EP 0578777 B1 | 21.01.1998 |
| | | JP 03137646 B2 | 08.12.2000 |
| | | US 2005-0027249 A1 | 03.02.2005 |
| | | US 6702781 B1 | 09.03.2004 |
| | | US 6733473 B1 | 11.05.2004 |
| | | WO 92-17236 A1 | 15.10.1992 |