Title: REDUCING WITHDRAWAL FORCE IN A SAFETY IV CATHETER

Abstract: An extravascular system for accessing the vasculature of a patient may include a catheter adapter, a needle, and/or a needle tip shield assembly. The needle tip shield assembly may have a needle cap, and the needle cap may have a needle shield and at least one low friction surface. The needle may be disposed within the catheter assembly and the needle tip shield assembly. The low friction surface may reside between the needle shield and the needle. The at least one low friction surface may reside on the needle, on the V-clip, and/or on a structure located between the needle and the V-clip.
INTERNATIONAL SEARCH REPORT

International application No. PCT/US 07/85411

A. CLASSIFICATION OF SUBJECT MATTER

IPCl(8) - A61M 5/178 (2008.04)
USPC - 604/164,07

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)
USPC - 604/164,07

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 604/1110; 604/164.01; 604/164.08; 604/164.12; 604/188; 604/198; 604/263

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubMed, USPTO, EPAB, Google Scholar, Google Patents: Needle, shield, sheath, cap, catheter, cannula, frictionless, low, friction, v, clip, fin, polymer, lub, slide, smooth, withdraw

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>US 2004/0215154 A1 (HWANG et al.) 28 Oct 2004 (28.10.2004); para [0034], [0036], [0040], [0043], [0044], [0046]; Fig 2, 6, 9, 17, 22</td>
<td>1-20</td>
</tr>
<tr>
<td>Y</td>
<td>US 2006/0079844 A1 (WHISSON et al.) 13 Apr 2006 (13.04.2006); para [0012], [0019]-[0024]; Fig 1, 2</td>
<td>1-20</td>
</tr>
<tr>
<td>Y</td>
<td>US 2004/0243061 A1 (MCGURK) 02 Dec 2004 (02.12.2004); para [0024], [0025]; Fig 3, 8</td>
<td>6-9 and 19</td>
</tr>
</tbody>
</table>

D. Further documents are listed in the continuation of Box C.

* 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
  '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 novel or 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
12 May 2008 (12.05.2008)

Date of mailing of the international search report
03 JUN 2008

Authorized officer: Lee W. Young

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