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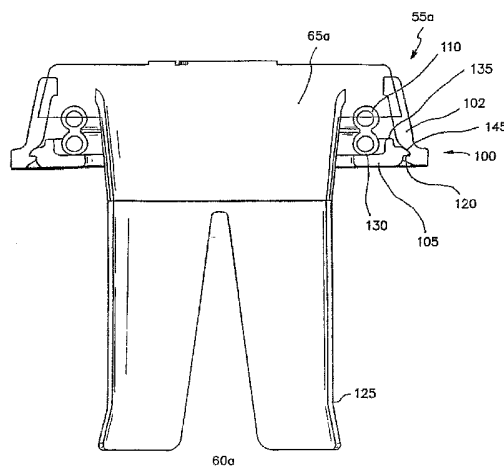
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(54) Title: SURGICAL INSTRUMENT ACCESS DEVICE



(57) Abstract: A surgical access device includes a single valve that forms a seal with a body wall and provides an access channel into a body cavity. The valve has properties for creating a zero seal in the absence of an instrument as well as an instrument seal for an instrument having a diameter up to about 37 mm. The valve can include a gel material and the access channel can include a protective sleeve to provide for wound protection during insertion and withdrawal of a sharp surgical instrument. The valve further comprises a cap ring which may be inserted or molded with the gel material. The protective sleeve may be bonded or molded around an inner diameter of the cap ring. The protective sleeve may be a single tubular member, or may comprise a plurality of axially extending sleeve members having a plurality of axial slits. The protective sleeve and the cap ring may comprise of the same or different materials. The surgical access device further comprises at least one support ring disposed circumferentially of the valve forming a hollow space, and a wound retractor operatively placed in the hollow space. The wound retractor includes an inner ring, an outer ring, and a flexible sleeve connecting the inner ring and the outer ring.

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# INTERNATIONAL SEARCH REPORT

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**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC: **A61B 1/32( 2006.01)**

USPC: 600/208  
 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)  
 U.S. : 600/208

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)

| C. DOCUMENTS CONSIDERED TO BE RELEVANT |  |                            |
|--|--|----------------------------|
| Category *                             | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No.      |
| X<br>---<br>Y                          | US 5,407,433 A (Loomas) 18 April 1995 (18.04.1995), col. 12, lines 14-17; figure 1. Col. 9, lines 20-49, 68; col.10, lines 1-3, 30-45, 62-63; col. 11, lines 67-68; col. 12, lines 1-2 | 17<br>-----<br>1-16, 25-35 |
| Y                                      | US 4,895,565 A (Hillstead) 23 January 1990 (23.01.1990), col. 3, lines 13-27; 4, lines 54-60.  | 1-3, 5-7                   |
| X<br>---<br>Y                          | US 5,865,807 A (Blake III) 02 February 1999 (02.02.1999), col. 4, lines 55-56,60-61; figure 3. Col. 4, lines 23-36, 48-50, 55-61.  | 17<br>-----<br>17-24       |
| Y                                      | US 5,803,919 A (Hart et al.) 08 September 1998 (08.09.1998), col. 4, lines 24-30.  | 9, 14, 18-19, 24, 27, 29   |
| Y,P                                    | US 2004/0106942 A1 (Taylor) 03 June 2004 (03.06.2004) 03 Jun. 2004, col. 2, 41-50.   | 3-4                        |

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

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PCT/US04/28250**C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category * | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|------------|---|-----------------------|
| Y          | US 5,628,732 A (Antoon Jr. et al.) 13 May 1997 (13.05.1997), figure 3.  | 32-34                 |
| Y          | US 4,222,126 A (Boretos et al.) 16 September 1980 (16.09.1980), col. 6, lines 4-7; col. 7, lines 8-11.  | 15-16                 |
| X, P       | US 2004/0015185 A1 (Ewers) 22 January 2004 (22.01.2004), figures 32, 36; col. 8, lines 33-67; col. 9, lines 1-67; col. 10, lines 53-59; claims 1-8, 12. | 1-35                  |