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(71) Applicant (for all designated States except US): SHERWOOD SERVICES AG [CH/CH]; Schwertstrasse 9, CH-8201 Schaffhausen (CH).

(72) Inventors; and

(75) Inventors/Applicants (for US only): WEILBACHER, Eugene, E. [US/US]; 16488 Dapple Gray Court, Chesterfield, MO 63005 (US). STEUBE, Gregory, A. [US/US]; 515 North Benton, St. Charles, MO 63301 (US).

(74) Agents: LEONARDO, Mark, S.; Brown Rudnick Berlack Israels LLP, One Financial Center, Boston, MA 02110 et al. (US).

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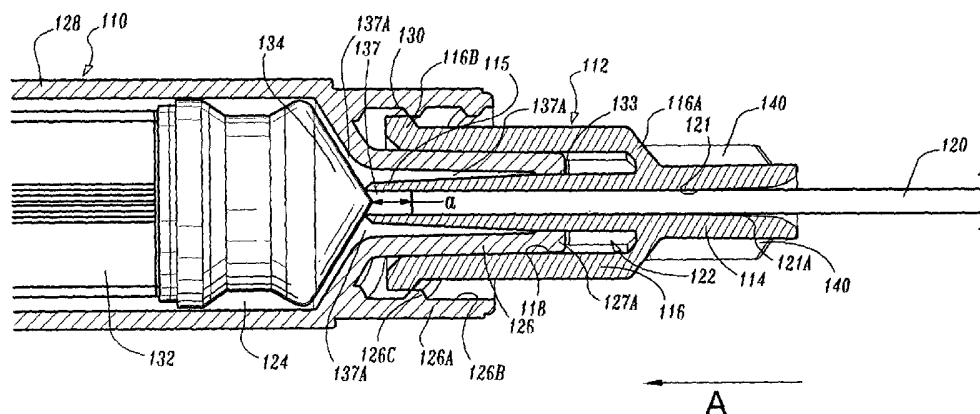
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: NEEDLE HUB ASSEMBLY



(57) Abstract: A needle hub (112) is disclosed which includes a needle support (114) having a wall that defines a needle cavity (118). The wall further defines at least one wall cavity that facilitates fluid communication with the needle cavity. A needle cannula (120) may be disposed within the needle cavity and in fluid communication therewith. The wall may define a plurality of wall cavities. The cavities may include a pair of diametrically opposed wall cavities. At least one wall cavity can be formed in a proximal face of the wall. The proximal face may be transversely oriented relative to a longitudinal axis defined by the needle support. The at least one wall cavity includes a radial slot formed adjacent a proximal end of the needle support.



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INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 02/15924

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 A61M5/32 A61M5/31 A61M5/34

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 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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 4 040 421 A (YOUNG H THEODORE) 9 August 1977 (1977-08-09)  the whole document	1-7, 10-18, 21-25 19, 20, 27, 35, 41
X A	US 4 240 425 A (AKHAVI DAVID S) 23 December 1980 (1980-12-23) the whole document	1-26  27, 35, 41
X A	US 2 834 346 A (ADAMS JOHN Q) 13 May 1958 (1958-05-13) the whole document	1-3, 5, 8, 9, 15, 18, 21, 22 19, 20, 27, 35, 41
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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)
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- \*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  26 February 2003	Date of mailing of the international search report  14. 03. 2002
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Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer  Jameson, P
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## INTERNATIONAL SEARCH REPORT

Internatio	ication No
PCT/US	02/15924

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 144 483 A (VETTER & CO APOTHEKER) 19 June 1985 (1985-06-19) page 6, line 21 -page 8, line 34; figures 1,2 ---	1-41
A	US 4 249 530 A (MILLET MARCUS J) 10 February 1981 (1981-02-10) column 1, line 1 -column 3, line 47; figures 1,2 column 4, line 22-46 ---	1-26
X	US 5 112 318 A (MCLEAN DONALD A ET AL) 12 May 1992 (1992-05-12)  column 27, line 26 -column 28, line 21; figures 51-53 ---	27, 29-33, 35-39,41
X	US 4 955 870 A (SUDHARTO V WIDADI ET AL) 11 September 1990 (1990-09-11) column 5, line 25-59; figures 2,3 ---	27-32,34
A	EP 1 092 443 A (BECTON DICKINSON CO) 18 April 2001 (2001-04-18) column 7, line 33 -column 8, line 13; figures 3,6 ---	27,28, 31,32,34 35,41
X	US 3 186 408 A (JACOB EZEKIEL J) 1 June 1965 (1965-06-01) column 1, line 63 -column 2, line 34; figures 1-3 ---	27,28, 31,32,34 35
A	US 5 902 270 A (JENTZEN S WILLIAM) 11 May 1999 (1999-05-11) column 4, line 46-56; figure 6 -----	27-41

# INTERNATIONAL SEARCH REPORT

Intern: application No.  
PCT/US 02/15924

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 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 II Observations where unity of invention is lacking (Continuation of item 2 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.:

### 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: 1-26

Needle hub assemblies with interior cavity with a barrel tip engaging fin therein; needle assemblies and syringe.

2. Claims: 27-41

Needle hub with needle support having a wall with at least one wall cavity; and syringe with at least one radial slot.

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 02/15924

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Information on patent family members

International application No

PCT/US 02/15924

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