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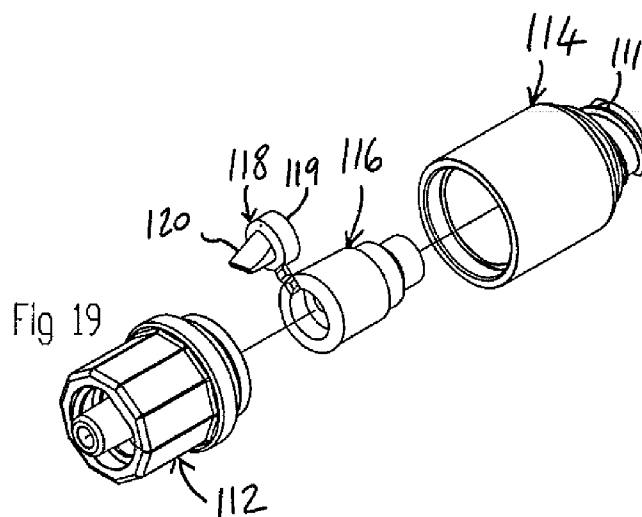
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(54) Title: MEDICAL CONNECTOR WITH TWO VALVES



(57) Abstract: Inside a connector body (112, 114; 300) of a medical connector providing a fluid flow conduit, a one-way valve (118) is fitted directly into one end of a stop valve (116) in a manner providing a fluid tight seal between these valves. The stop valve (116) prevents fluid flowing out of the end (111; 311) of the connector body (112, 114; 300) unless a complementary end of a separate device (not shown), typically a Luer lock connector, engages the end of the connector body and opens the stop valve (116). To facilitate manufacture and assembly, the one-way valve (118) and the stop valve (116) can be formed as parts of a single piece of elastomeric material, the parts being hingedly connected so that the one-way valve part (118) can be folded over to be fitted directly into the end of the stop valve part (116). A further possibility, also applicable when only a stop valve (116) is provided, is that the connector body (300) may be formed in one piece with a folding, snap fit closure (312).



INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2016/051572

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61M39/24 A61M39/10
 ADD. A61M39/26 A61M39/22

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

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)

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	WO 95/15194 A1 (MEDEX INC [US]) 8 June 1995 (1995-06-08)	1-9, 11-20
Y	figures 1-7	1-9, 11-20
Y	----- GB 2 458 572 A (QUEEN ELIZABETH HOSPITAL KING [GB]) 30 September 2009 (2009-09-30) page 3, second and third complete paragraphs; figures 1-4	1-9, 11-20
Y	----- US 2007/225648 A1 (WINSOR CHRIS [US] ET AL) 27 September 2007 (2007-09-27) paragraph [0026] - paragraph [0031]; figures 1-5	1-9, 11-20
	----- -/-	



Further documents are listed in the continuation of Box C.



See patent family 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 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 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

2 September 2016

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21/11/2016

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2016/051572

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 2005/228346 A1 (GOODE LOUIS B [US] ET AL) 13 October 2005 (2005-10-13) paragraph [0052] - paragraph [0055]; figures 3-5 -----	11,12
Y	US 2011/319859 A1 (ZEYTOONIAN PAUL [US] ET AL) 29 December 2011 (2011-12-29) paragraph [0053] - paragraph [0056]; figures 3A-5 -----	11,12
Y	EP 2 777 757 A1 (CAREFUSION 303 INC [US]) 17 September 2014 (2014-09-17) paragraph [0022] - paragraph [0034]; figures 2-7 -----	11,12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2016/051572

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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 No. III Observations where unity of invention is lacking (Continuation of item 3 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 fees, this Authority did not invite payment of additional fees.
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.:

1-9, 13-20(completely); 11, 12(partially)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ 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: 1-9, 13-20(completely); 11, 12(partially)

The first invention is directed to a fluid connector having a one-way valve fitted into an end of a stop valve. This is related to a particular fluid flow path design through multiple valves.

2. claims: 10(completely); 11, 12(partially)

The second invention is directed to a fluid connector (without a one-way valve) wherein the connector body is formed in one piece with a folding, snap fit closure. This is related to manufacturing and assembly of the fluid connector.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2016/051572

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