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(54) Title: FLOW REDUCER INSERT AND COLLIMATOR FOR A TRI-CLAMP HOSE BARB FITTING

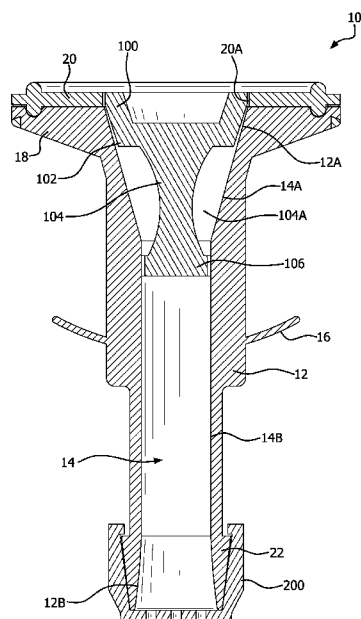


FIG. 2

(57) Abstract: A connector assembly includes a main body having a fluid conduit extending therethrough. The connector assembly further includes a flow reducer insert positioned in the fluid conduit, and the flow reducer insert includes a plurality of channels defining flow paths through the conduit. The connector assembly further includes a collimator coupled to the main body, and the collimator includes a plurality of holes configured to provide a substantially columnated flow path.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER IPC - INV. F15D 1/00 (2024.01) ADD. A61M 39/16, A61M 39/18, A61M 39/00, A61M 39/16, A61M 5/32 (2024.01) CPC - INV. F15D 1/001 ADD. A61M 39/16, A61M 39/18, A61B 90/40, A61M 2039/1027, A61M 2039/1077 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) See Search History document Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched See Search History document Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) See Search History document				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	US 2008/0037366 A1 (Smith) 14 February 2008 (14.02.2008), entire document	1-2		
Y		3-7, 10-13		
A		8-9		
Y	US 7,950,700 B2 (Willemstyn et al.) 31 May 2011 (31.05.2011), entire document	3, 6-7, 10-13		
A		8-9		
Y	US 6,047,903 A (Meyer) 11 April 2000 (11.04.2000), entire document	4		
A		8-9		
Y	US 2017/0211956 A1 (APATOR MITTORS APS) 27 July 2017 (27.07.2017), entire document	5, 10-13		
A	US 2015/0352349 A1 (ILLINOIS TOOL WORKS INC.) 10 December 2015 (10.12.2015), entire document	1-13		
☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top; border: none;"> * Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "D" document cited by the applicant in the international application "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 </td> <td style="width: 50%; vertical-align: top; border: none;"> "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 </td> </tr> </table>			* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "D" document cited by the applicant in the international application "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
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300		Authorized officer Kari Rodriguez Telephone No. PCT Helpdesk: 571-272-4300		

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 24/33254

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 Extra 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 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.:
1-13

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.

INTERNATIONAL SEARCH REPORT

International application No.

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This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I: Claims 1-13, directed to a connector assembly comprising: a flow reducer insert.

Group II: Claim 14-16, directed to a connector assembly comprising: a gasket.

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

SPECIAL TECHNICAL FEATURES

The invention of Group I includes the special technical feature of a connector assembly comprising: a flow reducer insert, not required by the claims of Group II.

The invention of Group II includes the special technical feature of a connector assembly comprising: a gasket, not required by the claims of Group I.

COMMON TECHNICAL FEATURES

Groups I-II share the common technical features of a connector assembly comprising:

a main body comprising a fluid conduit extending therethrough; and

a collimator coupled to the main body, the collimator comprising a plurality of holes configured to provide a substantially columnated flow path.

However, this shared technical feature does not represent a contribution over prior art as being anticipated by US 2015/0352349 A1 to ILLINOIS TOOL WORKS INC. (hereinafter "ITW"), which ITW discloses a connector assembly (Fig. 2-4; ABSTRACT) comprising: a main body (60, Fig. 2-3; para [0047]) comprising a fluid conduit (64, Fig. 3) extending therethrough; and a collimator (102, Fig. 3; para [0061]) coupled to the main body (60, Fig. 2-3), the collimator (102, Fig. 3; para [0061]) comprising a plurality of holes (para [0061] - screen openings) configured to provide a substantially columnated flow path.

Therefore, Groups I-II lack unity under PCT Rule 13 because they do not share a same or corresponding special technical feature.