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DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,
KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME,
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,
OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,
SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM,
ZW.

[Continued on next page]

(54) Title: PORTABLE FLUID DELIVERY SYSTEM

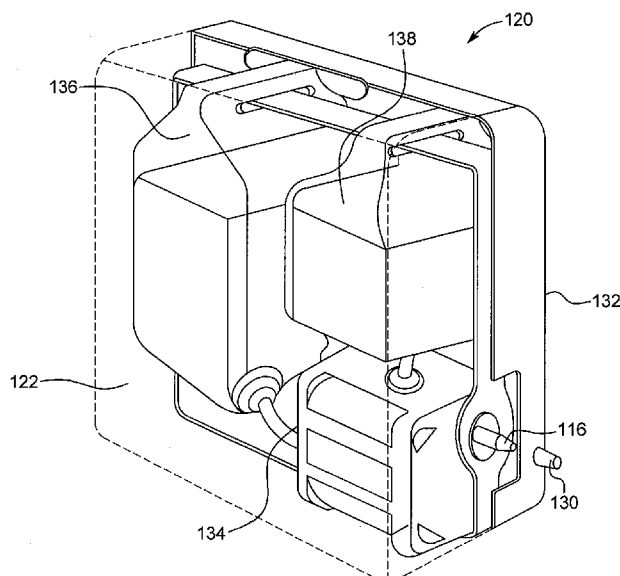


FIG. 6A

(57) Abstract: A fluid delivery system includes a
first container configured for storing a first fluid
therein and a second container configured for storing
a second fluid therein, wherein the second fluid is
different from the first fluid. The fluid delivery sys-
tem further includes at least one pump configured
for delivering under pressure one or both of the first
and second fluids. At least one valve is provided for
selectively delivering one or both of the first and
second fluids to the pump. The first and second con-
tainers, the pump, and the valve are contained within
a cartridge that is removably insertable into a car-
tridge carrier of the fluid delivery system.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US14/42310

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61M 5/142 (2014.01)

CPC - A61M 5/16827, M39/22

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)

IPC(8) - A61M 5/142, 37/00; B01L 3/00 (2014.01)

CPC - A61M5/007, M5/16827, M39/22; B01L 3/505 USPC - 600/431, 573; 604/123 131, 151, 246, 249, 250, 508

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)

MicroPatent (US Granted, US Applications, EP-A, EP-B, WO, JP, DE-G, DE-A, DE-T, DE-U, GB-A, FR-A); Google; Google Scholar; ProQuest; Fluid*, drug*, medicin*, Container*, cartridge*, Pump*, Valv*, Deliver*, Inject*

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 8,007,487 B2 (PATRICK, T. et al.) 30 August 2011; figures 4A, 7A - 7D, 8, 11A; column 1, lines 65-67; column 3, lines 1-5; column 13, lines 10-20; column 23, line 50; 24, lines 45-50;	1-5, 12, 17, 18
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Y	column 27, lines 50-55; column 37, lines 25-30; column 38, lines 5-15; column 39, lines 25-30; column 40, lines 1-25; column 55, lines 20-25; column 56, lines 1-65; column 58, lines 35-40; column 67, line 40; column 70, line 10	6-11, 13-16, 19
Y	US 2010/0249586 A1 (COCKER, R.C. et al.) 30 September 2010; figures 3A-B, 4A-C, 5A, and 6; paragraph [0096] - [0109]	6-11
Y	US 4,227,615 A (FLICK, G.M.) 14 October 1980; figure 3; column 3, lines 20-25; column 4, lines 15-55	13
Y	US 7,618,412 B2 (CHERNACK, M. 17 November 2009; figures 1-3; column 4, lines 55-60; column 5, lines 1-5; column 7, lines 45-55	14
Y	US 8,343,128 B2 (NAGAO, K.) 01 January 2013; figure 1; column 4, lines 10-15; column 5, lines 25-30	15
Y	US 8,287,724 B2 (SLEPICKA, J.S. et al. 16 October 2012; figure 4; column 5, lines 15-25; column 2, lines 35-40	16
Y	US 6,306,117 B1 (UBER, III, A.E. 23 October 2001; figure 1; column 1, lines 50-55; column 2, lines 30-65	19

☐ 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 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

09 December 2014 (09.12.2014)

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US14/42310

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:

-Please See Supplemental Page-

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.:
1-19

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.

---Continued from Box No. III: Observations where unity of invention is lacking---

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 examined, the appropriate additional examination fees must be paid.

Group I: claims 1-19 are directed toward a cartridge carrier.

Group II: claim 20 are directed toward a medical connector.

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.

The special technical features of Group I include a cartridge carrier; and a cartridge configured for being removably engagable with the cartridge carrier, the cartridge further comprising: a first fluid container configured for storing a first fluid therein; a second fluid container configured for storing a second fluid therein, the second fluid being different from the first fluid; at least one pump configured for delivering under pressure one or both of the first fluid and the second fluid; at least one valve configured for selectively delivering one or both of the first fluid and the second fluid to the pump, wherein the first and second containers, the at least one pump, the at least one valve are received within an outer shell of the cartridge (which are not present in Group II).

The special technical features of Group II include each single-patient connector comprising a housing having a proximal end opposite a distal end with a central fluid path extending therebetween; a flange extending around the distal end, and a cap removably engaged to the flange; and a sterility-maintaining arrangement configured for slidably removing the cap from the one or more single-patient connectors without exposing the distal end of the one or more single-patient connectors to contamination (which are not present in Group I).

The common technical features of Groups I-II include at least one multi-patient connector configured for fluidly connecting the cartridge to a single-patient connector.

These common technical features are disclosed by US 6,306,117 B1 (UBER, III, A.E.): at least one multi-patient connector (rotary switch 27; figures 1 and ; column 2, lines 60-65) configured for fluidly connecting the cartridge (fluid containers 10 and 11, pumps 12 and 13 (cartridge, collectively; figure 1; column 2, lines 30-35) to a single-patient connector (rotary switch 27 (multi-patient connector) connected to individual hookups 30, 31, 32 (single patient connectors); figure 1; column 2, lines 60-65).

Because the common technical features are disclosed by Uber, the inventions are not so linked as to form a single general inventive concept. Therefore, Groups I-II lack unity.