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(71) Applicant (for all designated States except US): **WEST PHARMACEUTICAL SERVICES, INC.** [US/US];
101 Gordon Drive, Lionville, PA 19341 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **GILLESPIE, Richard, David** [US/US]; 6136 FM 1616, Athens, TX 75752 (US). **CROW, Doug, Owen** [US/US]; 12798 State Highway 31 East, Brownsboro, TX 75756 (US).

(74) Agents: **BELISARIO, Martin, G.** et al.; Panitch Schwarze Belisario & Nadel LLP, One Commerce Square, Suite 2200, 2005 Market Street, Philadelphia, PA 19103 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, 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, PE, PG, PH, PL, PT, RO, RS, RU, 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.

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(54) Title: AUTOMATIC INJECTION SYRINGE ASSEMBLY WITH INTEGRATED, FILLABLE MEDICINE CONTAINER AND METHOD OF FILLING AN INJECTION SYRINGE ASSEMBLY

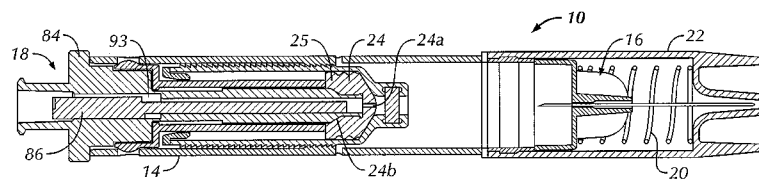


FIG. 2B

(57) Abstract: An automatic injection syringe assembly having an integrated and tillable medicine container that includes a medicine container within a housing and a conduit assembly. The medicine container includes a piston having an aperture at a distal end thereof for the passage of fluid therethrough. The conduit assembly includes a conduit member that is releasably connected to the housing and has an open proximal end and an open distal end. The open distal end of the conduit member is releasably engaged with the piston and in fluid communication with the piston aperture. The open proximal end and the open distal end of the conduit member are in fluid communication via a conduit within the conduit member.



PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 8567-1152WO	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2011/033253	International filing date (<i>day/month/year</i>) 20/04/2011	(Earliest) Priority Date (<i>day/month/year</i>) 20/04/2010
Applicant WEST PHARMACEUTICAL SERVICES, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6**bis**(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☒ **Unity of invention is lacking** (see Box No III)

4. With regard to the **title**,

- ☒ the text is approved as submitted by the applicant
- ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant
- ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 2b
- ☐ as suggested by the applicant
- ☒ as selected by this Authority, because the applicant failed to suggest a figure
- ☐ as selected by this Authority, because this figure better characterizes the invention
- b. ☐ none of the figures is to be published with the abstract

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/033253

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.:

1-17, 22-28
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 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
PCT/US2011/033253

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61M5/20 A61M5/178 A61M5/315
ADD.

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 practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2 461 086 A (CILAG GMBH INT) 23 December 2009 (2009-12-23) abstract; figures 1-5 page 2, lines 21-29 page 4, lines 19-23 page 5, lines 1-32 page 6, lines 19-24 -----	1
A	EP 0 363 338 A2 (HEIMREID KEN) 11 April 1990 (1990-04-11) abstract; figure 1 -----	1
A	GB 2 461 087 A (CILAG GMBH INT) 23 December 2009 (2009-12-23) abstract; figures 3a-3d, 4a-4d ----- -/-	1



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 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)
"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

21 October 2011

Date of mailing of the international search report

28/10/2011

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Tempels, Marco

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/033253

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 665 071 A (WYRICK RONALD E) 9 September 1997 (1997-09-09) abstract; figure 2 -----	1
A	US 2010/036320 A1 (COX JANICE L) 11 February 2010 (2010-02-11) abstract; figure 2 -----	16
A	JP 2003 341749 A (YOSHINO KOGYOSHO CO LTD) 3 December 2003 (2003-12-03) abstract; figure 6 -----	16
A	WO 2009/136209 A1 (OWEN MUMFORD LTD) 12 November 2009 (2009-11-12) abstract; figure 2 -----	16
X	EP 0 112 574 A1 (MEDITEC SA) 4 July 1984 (1984-07-04) abstract; figures 1-9 page 8, line 34 - page 9, line 24 -----	22-25
X	FR 2 082 128 A5 (IDEES) 10 December 1971 (1971-12-10) figure 1 -----	22
X	US 5 298 024 A (RICHMOND FRANK) 29 March 1994 (1994-03-29) abstract; figure 2 -----	22
X	US 5 785 683 A (SZAPIRO JAIME LUIS) 28 July 1998 (1998-07-28) abstract; figures 1-2 -----	22

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2011/033253

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2461086	A	23-12-2009	AU 2009261718 A1 23-12-2009
		CA 2727421 A1 23-12-2009	
		CN 102065933 A 18-05-2011	
		EA 201170065 A1 30-06-2011	
		EP 2331171 A1 15-06-2011	
		WO 2009153543 A1 23-12-2009	
		JP 2011524765 A 08-09-2011	
		KR 20110055518 A 25-05-2011	
		US 2011098657 A1 28-04-2011	
EP 0363338	A2	11-04-1990	JP 2193677 A 31-07-1990
			NO 884377 A 04-04-1990
GB 2461087	A	23-12-2009	AU 2009261719 A1 23-12-2009
		CA 2727950 A1 23-12-2009	
		CN 102065934 A 18-05-2011	
		EA 201170049 A1 30-08-2011	
		EP 2331170 A1 15-06-2011	
		WO 2009153544 A1 23-12-2009	
		JP 2011524766 A 08-09-2011	
		KR 20110039270 A 15-04-2011	
		US 2011098647 A1 28-04-2011	
US 5665071	A	09-09-1997	AT 213424 T 15-03-2002
		AU 683901 B2 27-11-1997	
		AU 7046294 A 20-12-1994	
		CA 2163005 A1 08-12-1994	
		DE 69429918 D1 28-03-2002	
		DE 69429918 T2 14-11-2002	
		EP 0700307 A1 13-03-1996	
		ES 2173117 T3 16-10-2002	
		JP H08507239 A 06-08-1996	
		PL 311759 A1 18-03-1996	
		RU 2131748 C1 20-06-1999	
		WO 9427660 A1 08-12-1994	
US 2010036320	A1	11-02-2010	AU 2009279719 A1 11-02-2010
			CA 2732812 A1 11-02-2010
			EP 2318075 A2 11-05-2011
			WO 2010017285 A2 11-02-2010
JP 2003341749	A	03-12-2003	JP 4082492 B2 30-04-2008
WO 2009136209	A1	12-11-2009	CN 102014992 A 13-04-2011
			EP 2303364 A1 06-04-2011
			JP 2011519651 A 14-07-2011
WO 2009136209	A1		US 2011166521 A1 07-07-2011
EP 0112574	A1	04-07-1984	JP 59155264 A 04-09-1984
FR 2082128	A5	10-12-1971	NONE
US 5298024	A	29-03-1994	NONE
US 5785683	A	28-07-1998	BR 9603091 A 05-05-1998
			ES 2109891 A1 16-01-1998

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-15, 26-28

Directed to an automatic injection syringe and/or a piston assembly comprising a medicine container including a piston having an aperture.

2. claims: 16, 17

Directed to a medicine container comprising cooperating ratcheting mechanisms.

3. claims: 18-21

Directed to a conduit assembly comprising a locking collar.

4. claims: 22-25

Directed to a piston assembly comprising an aperture extending axially through a body and a valve positioned within the aperture.
