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Published:

— *with international search report (Art. 21(3))*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:
2 May 2013

(54) Title: NEEDLE-FREE INJECTION DEVICE

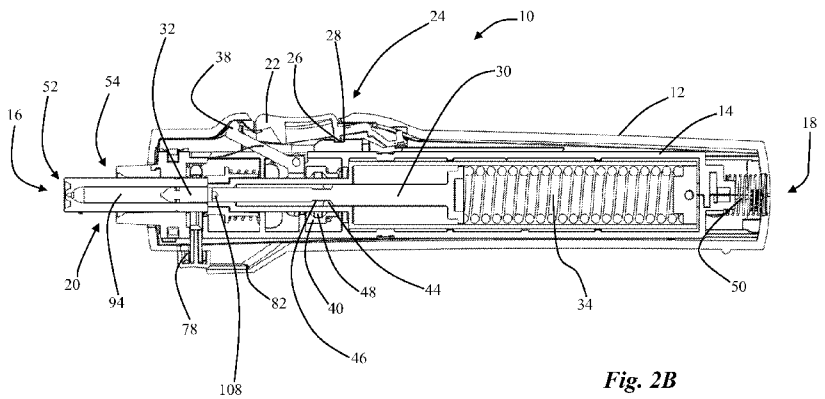


Fig. 2B

(57) Abstract: A needle-free injection device having an outer housing and an inner housing is disclosed. The inner housing is configured to receive a needle-free syringe in one end. In addition, the inner housing is movable within the outer housing between a syringe loading position and a firing position. The device also includes an activation button operatively associated with the inner and outer housings and a housing lock engaged by the activation button to prohibit movement of the inner housing from the syringe loading position to the firing position when the activation button is activated with the inner housing in the syringe loading position. Methods and apparatus for using, filing and operating the needle-free injection device are also disclosed.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/049312

A. CLASSIFICATION OF SUBJECT MATTER

A61M 5/303(2006.01)i, A61M 5/315(2006.01)i

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 5/303; A61M 5/30; A61B 19/00; A61M 5/315

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean utility models and applications for utility models
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS(KIPO internal) "needle-free", "injection", "needle-less", "syringe", "lock", and similar terms

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2006-0089593 A1 (LANDAU, SERGIO et al.) 27 April 2006 See abstract, paragraphs [0049]-[0070], [0079]-[0080], [0092]-[0093], claims 13-16, and figures 1-23	1-44
A	US 2009-0156992 A1 (LANDAU, SERGIO) 18 June 2009 See abstract, paragraphs [0027]-[0036], [0047]-[0051], [0058]-[0059], and figures 6-17.	1-44
A	US 2008-0281261 A1 (STEINWAY, ROBERT et al.) 13 November 2008 See abstract, paragraphs [0040]-[0042], claims 1-18, 20, and figures 1-6B.	1-44
X A	US 2003-0109846 A1 (ZINGER, FREDDY et al.) 12 June 2003 See abstract, paragraphs [0039], [0044], and figures 1-3, 7-8.	37,39 1-36,38,40-44
X A	US 2010-0076374 A1 (LANDAU, SERGIO et al.) 25 March 2010 See abstract, paragraph [0041], and figure 7.	37,39 1-36,38,40-44

☐ 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 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	Date of mailing of the international search report
25 FEBRUARY 2013 (25.02.2013)	**26 FEBRUARY 2013 (26.02.2013)**

Name and mailing address of the ISA/KR
Korean Intellectual Property Office
189 Cheongsa-ro, Seo-gu, Daejeon Metropolitan City, 302-701, Republic of Korea
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Authorized officer
HYUN, Seung Hoon
Telephone No. 82-42-481-8401

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/049312

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:

I. Claims 1-14, 40, and 41 directed to a housing lock with an inner housing.
II. Claims 15-24 directed to an interlocking structure with a syringe mount.
III. Claims 25-32, and 42-44 directed to a syringe body with a dosage surface.
IV. Claims 33-36 directed to a plunger system with a handle.
V. Claims 37-39 directed to a syringe body with a filling adapter.

1. ☐ As all required addtional 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 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

Information on patent family members

International application No.

PCT/US2012/049312

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