

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
18 September 2008 (18.09.2008)

PCT

(10) International Publication Number  
**WO 2008/112472 A3**

- (51) **International Patent Classification:**  
A61M5/20 (2006.01) A61M5/32 (2006.01)
- (21) **International Application Number:**  
PCT/US2008/055892
- (22) **International Filing Date:** 5 March 2008 (05.03.2008)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**  
60/893,996 9 March 2007 (09.03.2007) US
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(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, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

(84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

[Continued on next page]

(54) **Title:** DELAY MECHANISM FOR AUTOMATIC INJECTION DEVICE

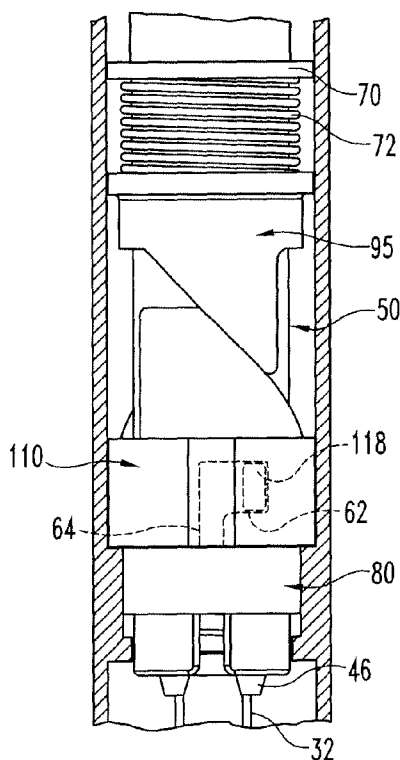


Fig. 13

(57) **Abstract:** A delay mechanism for staging the operation of an automatic injection apparatus (20) to ensure medication contents are properly delivered prior to the needled syringe (32) of the apparatus being retracted. In one form, the delay mechanism includes a shuttle (50), a follower (110), a locking member, a damping compound, and a driver and a driver biasing element (44). The shuttle is for a needled syringe of the apparatus and includes a first latching element. The follower includes a second latching element and a camming surface, which second latching element is for cooperating with the first latching element to limit motion of the shuttle relative to the follower in a second direction opposite the first direction. The locking member is movable from a locking position to a release position by engagement with the syringe plunger during an injection, the locking member, when in the locking position, preventing rotation of the follower relative to the shuttle, the locking member, when in the release position, allowing rotation of the follower relative to the shuttle. The damping compound is between the follower and a supporting surface to dampen rotation of the follower relative to the shuttle. The driver is rotatably fixed relative to the shuttle and includes a camming surface. The shuttle allowing retracting of the syringe needle into the housing of the automatic injection apparatus after injection.

WO 2008/112472 A3



ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, **DK**, EE, ES, FI,  
FR, GB, GR, **HR**, HU, IE, **IS**, **IT**, LT, LU, LV, MC, MT, NL,  
NO, PL, PT, **RO**, SE, **SI**, SK, TR), OAPI (BF, **BJ**, CF, CG,  
CI, CM, GA, GN, GQ, GW, ML, **MR**, NE, SN, TD, TG).

**Published:**

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

**Declaration under Rule 4.17:**

- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(Hi))*

**(88) Date of publication of the international search report:**  
20 November 2008

# INTERNATIONAL SEARCH REPORT

International application No

PCT/US2008/055892

**A. CLASSIFICATION OF SUBJECT MATTER**  
 INV. A61M5/20 A61M5/32

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**

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X	WO 00/24441 A (PHARMACIA & UPJOHN AB [SE]; BERGENS THOMAS [SE]; AAMARK MIKAEL [SE]) 4 May 2000 (2000-05-04) page 18; figure 2A	1, 15
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Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

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| <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P1" document published prior to the international filing date but later than the priority date claimed</p> | <p>"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</p> <p>"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</p> <p>"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.</p> <p>"&amp;" document member of the same patent family</p> |
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Date of the actual completion of the international search	Date of mailing of the international search report
19 September 2008	01/10/2008

Name and mailing address of the ISA/ European Patent Office, P B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer  Ehrsam, <b>Fernand</b>
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## INTERNATIONAL SEARCH REPORT

International application No

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