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[Continued on next page]

(54) Title: AUTOMATIC INJECTION DEVICE WITH DELAY MECHANISM INCLUDING DUAL FUNCTIONING BIASING MEMBER

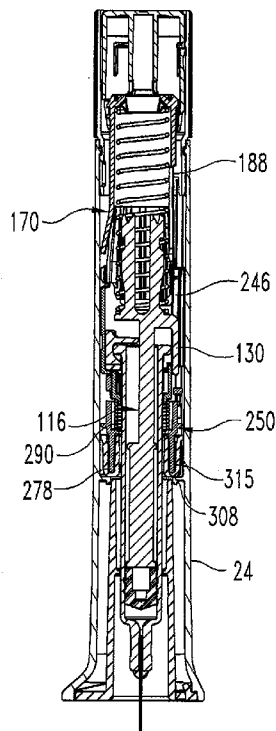


Fig. 17

(57) Abstract: An automatic injection apparatus including a delay mechanism for properly delivering medication prior to the needled syringe of the apparatus being retracted. In one form, the delay mechanism includes a shuttle ( 170 ) for the syringe, a follower ( 250 ), a locking member, a damping compound between the follower and a supporting surface ( 308 ) to dampen rotation of the follower relative to the shuttle, and a dual functioning biasing member ( 290 ) acting between the shuttle and the follower. When the locking member moves to a release position during an injection, the dual functioning biasing member first provides a torsional force to force the follower to rotate relative to the shuttle from a latching position to an unlatching position, and then the dual functioning biasing member provides an axial force to force the shuttle axially relative to the follower to move the shuttle for retracting the syringe needle into the housing of the apparatus after injection.

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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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— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

**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))

**Declarations under Rule 4.17:**

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10 November 2011

# INTERNATIONAL SEARCH REPORT

International application No PCT/US2011/025988
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<b>A. CLASSIFICATION OF SUBJECT MATTER</b> INV. A61M5/20 ADD.		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
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, WPI Data		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2008/112472 A2 (LILLY CO ELI [US]; JAMES ADRIAN BENTON [US]; LISTER ROBERT IAN [GB]; S) 18 September 2008 (2008-09-18)	1-8
A	page 16, line 27 - page 28, line 18; figures 22-36	9-11
A	----- WO 2009/092807 A1 (NOVO NORDISK AS [DK]; RADMER BO [DK]; GLEJBOEL KRISTIAN [DK]; TORRY-SM) 30 July 2009 (2009-07-30) page 29, lines 7-20; figure 7	1-8
A	----- ES 2 070 782 A1 (VITA INVEST SA [ES]) 1 June 1995 (1995-06-01) figures 1-6 ----- -/--	9-11
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <span style="margin-left: 100px;"><input checked="" type="checkbox"/> See patent family annex.</span>		
* 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  <div style="text-align: center; font-weight: bold;">7 September 2011</div>	Date of mailing of the international search report  <div style="text-align: center; font-weight: bold;">16/09/2011</div>	
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  <div style="text-align: center; font-weight: bold;">Rosenblatt, Thomas</div>	

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2011/025988

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 03/097133 A1 (OWEN MUMFORD LTD [GB]; MARSHALL JEREMY [GB]) 27 November 2003 (2003-11-27) page 5, line 18 - page 6, line 2; figures 1,2  -----	9-11

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2011/025988

## 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.:
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.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

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

1. claims: 1-8

automatic injection apparatus delay mechanism with  
releasable shuttle and follower arrangement, damping  
compound and dual functioning biasing member

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2. claims: 9-11

automatic injection apparatus wihc needled syringe having a  
plunger releasably connected with a latchable element in the  
apparatus housing

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2011/025988
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		JP 2005525879 A	02-09-2005
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