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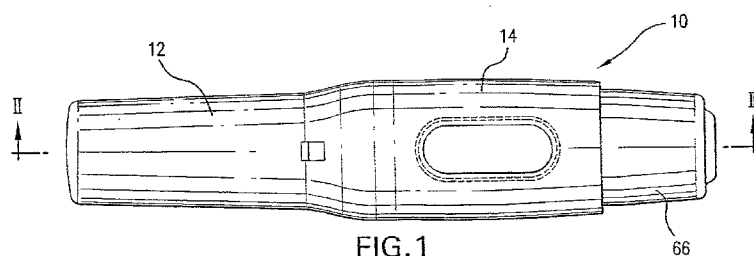
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18 June 2015

(54) **Title:** PREFILLED SYRINGE WITH BREAKAWAY FORCE FEATURE



(57) **Abstract:** A jet injector that includes a prefilled syringe. The syringe includes a fluid chamber that contains a medicament. The syringe also has an injection- assisting needle, and a plunger is movable within the fluid chamber. A housing is configured for allowing insertion of the needle to a penetration depth. The housing includes a retractable guard and an interference component, e.g., a lock ring, adjacent to the retractable guard that interferes with the movement of the retractable guard. An energy source is configured for biasing the plunger to produce an injecting pressure to jet inject the medicament from the fluid chamber through the needle to an injection site.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 13/29085

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61M 5/00; A61M 5/20 (2013.01)

USPC - 604/110; 604/135

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)

USPC: 604/110; 604/135

IPC(8): A61M 5/00; A61M 5/20 (2013.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPC: 604/228, 192, 218, 198, 194, 195, 197, 131, 134, 135, 136, 140, 141, 43, 156, 157, 181

IPC(8): A61M5/32, 5/315, 37/00 (keyword limited; terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PatBase; Google Patents; Google

Search Terms Used: flap, needle, sheath, guard, shroud, shield, cover, retract*, lock*, jet, inject*, arm, leg, extension, ring, spring

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	US 2011/0144594 A1 (SUND et al) 16 June 2011 (16.06.2011) fig 2, 7A, 7B, 7C, para [0031]-[0036], [0039]-[0040], [0045]-[0046], [0059]-[0060], [0063]-[0065]	1-6, 9-11, 13-20 ----- 7-8, 12, 21-22
Y	US 2012/0004608 A1 (LESCH JR.) 05 January 2012 (05.01.2012) fig 8, para [0012], [0030], [0049]	7-8, 12, 21
Y	US 6,391,003 B1 (LESCH JR.) 21 May 2002 (21.05.2002) fig 24, col 10, ln 42-48	22

☐ 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

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