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- (71) **Applicant (for all designated States except US):** **UCB PHARMA S.A.** [BE/BE]; Allee De La Recherche, 60, B-1070 Brussels (BE).
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[Continued on next page]

(54) **Title:** SYRINGE SAFETY ASSEMBLY

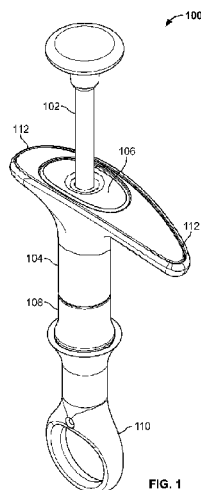


FIG. 1

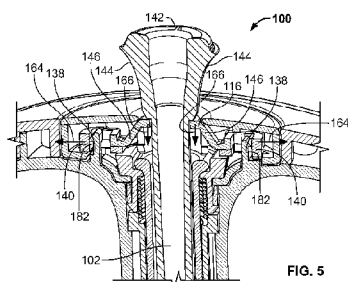


FIG. 5

(57) **Abstract:** Systems, devices, and methods are provided for providing safe syringe assemblies for injections. The syringe assemblies include a shielding mechanism that covers a syringe needle after an injection is delivered, thereby reducing the risk of a subsequent accidental stab from the needle. The shielding mechanism has a pre-injection configuration in which the needle extends beyond the housing and a post-injection configuration in which at least one component of the syringe assembly covers the needle. In some implementations, the syringe assembly includes a lock that inhibits the assembly from returning to the pre-injection configuration once an injection is delivered. The syringe assemblies may also include a bevel orientation mechanism that allows a user to align a needle bevel to accurately insert a needle for injection.



TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2012/044017

A. CLASSIFICATION OF SUBJECT MATTER

INV. A61M5/32 A61M5/50
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 practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2007/239117 A1 (CHELAK TODD M [US] ET AL) 11 October 2007 (2007-10-11)	1-4,6, 8-11, 16-20, 39-42
Y	paragraphs [0074], [0076], [0081] - [0084] figures 3-17	5,7, 12-15
Y	----- WO 2009/066130 A1 (BECTON DICKINSON FRANCE [FR]; PERUZZO GREGORY [FR]) 28 May 2009 (2009-05-28)	5,14,15
A	page 14, line 34 - page 15, line 3 page 16, line 1 - line 23 figures 3-8	39
Y	----- WO 2004/043524 A1 (BECTON DICKINSON CO [US]) 27 May 2004 (2004-05-27) paragraphs [0051] - [0053]; figures 19A-19E, 20	7,12,13



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 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

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Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/044017

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.:

1-20, 39-42

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/US2012/044017

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007239117 A1	11-10-2007	AU 2007227200 A1	27-09-2007
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		WO 2004043524 A1	27-05-2004

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-20, 39-42

Claims 1-19 :

Syringe assembly having

a) a housing having

a1) a retaining clip and a2) an inner chamber with first and second opening;

b) first sheath

c) spring

d) retainer

Claims 20 and 42 :

A method of making a syringe assembly and

- claim 20: providing features a), a1) a2), positioning feature d), placing feature b) and positioning feature c);

- claim 42: providing features a), a1) a2), positioning feature d), placing feature b) and positioning feature i) (see below).

Claim 39 :

Syringe assembly having

features a), a2), b), c),

e) locking mechanism

f) a plate that rotates to release the locking mechanism

Claim 40 :

A syringe assembly having

feature b), a), c), e) and

g) activating member

Claim 41 :

h) means for receiving a syringe having

features a1), a2), b)

i) means for biasing the means h)

j) retaining means

(purpose: to reduce the risk of disease transmission)

2. claims: 21-38, 43

Claims 21-38 :

Syringe assembly having

k) a bevel orientation mechanism

features a), a2), b) and

l) collar

m) wherein rotation of feature l) relative to the housing drives rotation of a syringe inserted into the syringe assembly.

Claim 43 :

Syringe assembly having

n) means for receiving a syringe having feature a2), feature l)

o) sheathing means disposed within feature l) and n) wherein rotation of feature l) relative to feature n) drives rotation of a syringe inserted into the syringe assembly.

(purpose: give accurate injections and reduce patient pain)

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210
