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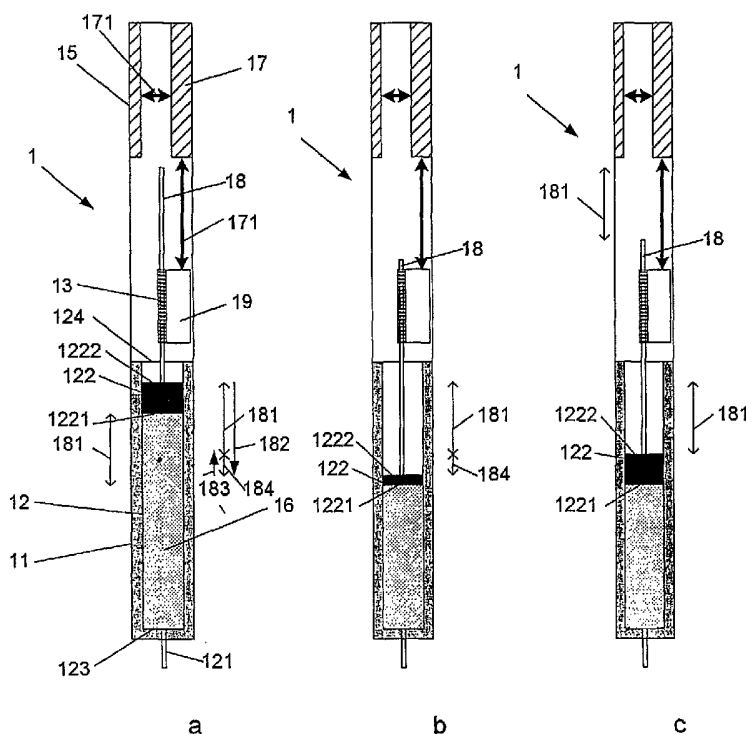
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- Published:
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- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A LIQUID MEDICATION DELIVERY DEVICE AND A METHOD OF DELIVERING AN INTENDED DOSE



(57) Abstract: The invention relates to : A liquid medication delivery device (1) for delivering an intended dose, said delivery device including means (11) for holding a cartridge (12), a cartridge (12) for holding a liquid (16) to be fully or partially injected into a body, said cartridge (12) having an outlet (121) connected to a needle at one end (123) and a moveable wall (122) at another end (124), said movable wall (122) having an inner (1221) face and an outer (1222) face, and a piston rod (18) being operable to engage and displace said movable wall (122). The object of the present invention is to reduce the overall injection time, while improving the dose accuracy for a liquid medication delivery system. The problem is solved in that the piston rod is adapted to sequentially advance the outer face of said movable wall to return to a position corresponding to the intended dose. This has the advantage of improving the performance of the delivery device. The invention may e.g. be used in pen type or doser type injection devices or in pump type infusion devices for

continuous delivery of medication in connection with the treatment of a disease such as diabetes.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/DK 01/00492

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A61M 5/178, A61M 5/315

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)

IPC7: 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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5713520 A (STEPHEN F. GLASSEY ET AL), 3 February 1998 (03.02.98), claim 1, abstract --	1-6
A	US 6050450 A (IVAN GARDOS), 18 April 2000 (18.04.00), abstract, claims --	1-6
A	US 5928201 A (JENS ULRİK POULSEN ET AL), 27 July 1999 (27.07.99), claim 11, abstract --	1-6

☒ 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

"I" 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

6 November 2001

10. 12. 2001

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/DK 01/00492

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>US 4335834 A (MARVIN ZEPKIN), 22 June 1982 (22.06.82), claims 1,14, abstract, figure</p> <p style="text-align: center;">-- -----</p>	1-6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/DK01/00492

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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.: **7-9**
because they relate to subject matter not required to be searched by this Authority, namely:
See PCT Rule 39.1(iv): Methods for treatment of the human or animal body by surgery or therapy, as well as diagnostic methods.
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 II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

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 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.
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

01/10/01

International application No.

PCT/DK 01/00492

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
US	5713520	A	03/02/98	FR	2741673 A	30/05/97
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				PL	330817 A	07/06/99
				WO	9801168 A	15/01/98

US	4335834	A	22/06/82	NONE		
