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CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ,
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(54) Title: BOLUS DOSE DETERMINATION FOR A THERAPEUTIC FLUID DISPENSING SYSTEM

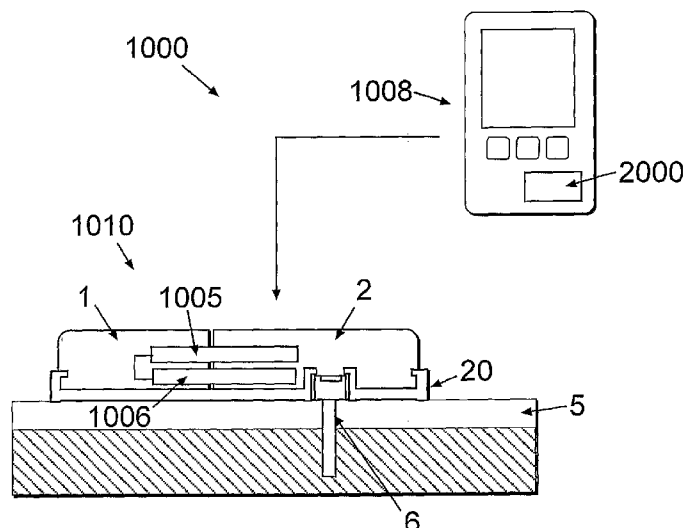


FIG 12b

(57) Abstract: Disclosed is a medical device to treat diabetes. The medical device includes a bolus calculator to determine an insulin bolus based on, at least in part, a glycemic index value associated with an intake to be consumed by a user, the bolus calculator further adapted to determine the insulin bolus using one or more inputs selected from the group consisting of carbohydrate load of the intake, current glucose level of the user, residual insulin of the user, carbohydrate to insulin ratio, insulin sensitivity of the user and target glucose level of the user. The bolus calculator is housed in one or more of, for example, an insulin dispensing pump, a handheld remote control unit for an insulin dispensing pump and/or a handheld glucose monitor.

INTERNATIONAL SEARCH REPORT

International application No

PCT/IL2009/000104

A. CLASSIFICATION OF SUBJECT MATTER

INV. G06F19/00

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)

G06F

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2007/112298 A1 (MUELLER JOHN C JR [US] ET AL) 17 May 2007 (2007-05-17) paragraphs [0027] - [0072]; figures 1,2 -----	1-5



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 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

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Date of mailing of the international search report

15/09/2009

Name and mailing address of the ISA/

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.1

Claims Nos.: 18-40

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy: claims 18-40 refer to methods of dispensing an insulin bolus, including the step of "dispensing the determined insulin bolus into the user" or "dispensing the determined insulin bolus into a body of a user". These methods therefore constitute methods of treatment of the human body, practised on the human body.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL2009/000104

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.: 18-40
because they relate to subject matter not required to be searched by this Authority, namely:
see FURTHER INFORMATION sheet PCT/ISA/210
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 allsearchable 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 reportcovers 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.:

1-5

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: 1-5, 18-22, 27-35, 40

closed loop insulin dispensing system

2. claims: 6-12

insulin pump is securable to and removable from the user's skin/body

3. claims: 13, 23, 36

bolus determination based on the formula defined in claim 13

4. claims: 14-16, 24, 25, 37, 38

computation of a composite glycemic index corresponding to a composite intake comprising two or more dietary componets

5. claims: 17, 26, 39

determination of the insulin bolus based on the blood glucose level of the user and the glucose level in the interstitial fluids of the user

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IL2009/000104

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007112298	A1	17-05-2007	CA
			2626001 A1
			EP
			1948268 A1
			WO
			2007059061 A1
			24-05-2007
			24-05-2007
			30-07-2008
			24-05-2007