

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
28 July 2011 (28.07.2011)

PCT

(10) International Publication Number
WO 2011/090629 A3

(51) International Patent Classification:

A61M 5/14 (2006.01) A61M 5/142 (2006.01)
A61M 5/168 (2006.01) A61M 5/145 (2006.01)

(21) International Application Number:

PCT/US20 10/060895

(22) International Filing Date:

16 December 2010 (16.12.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12/649,6 19 30 December 2009 (30.12.2009) US

(71) Applicant (for all designated States except US):
MEDTRONIC MINIMED, INC. [US/US]; 18000 Devonshire Street, Northridge, CA 91325-12 19 (US).

(72) Inventors; and

(75) Inventors/ Applicants (for US only): **HANSON, Ian, B.** [US/US]; 11480 Ghiberti Way, Northridge, CA 91326 (US). **BENTE, IV, Paul F.** [US/US]; 711 Orange Grove, Apt 315, South Pasadena, CA 91030 (US).

(74) Agent: **RITTMASER, Ted, R.;** Foley & Lardner LLP, Customer No. 90319, 555 South Flower Street, Suite 3500, Los Angeles, CA 90071-241 1 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, 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).

Published:

— with international search report (Art. 21(3))

[Continued on next page]

(54) Title: MODULAR SKIN PATCH INFUSION DEVICE WITH REPLACEABLE RESERVOIR AND ALIGNMENT - AND IDENTIFICATION - SYSTEMS

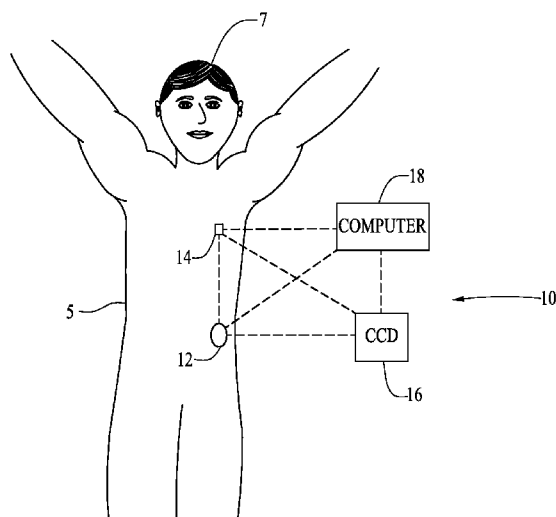


Fig. 1

(57) Abstract: A delivery system for delivering fluidic media may include a second housing (402) configured to be selectively operatively engaged with and disengaged from a first housing portion (401) adapted to be carried by a user. One of the housing portions may support a reservoir for containing fluidic media and a plunger head moveable within the reservoir. A drive device may be supported by the other of the housing portions for coupling with the reservoir upon the housing portions being operatively engaged. A first interactive element (404) may be supported on the first housing portion for interacting with a second interactive element (406) supported on the second housing portion. Circuitry (410, 414) may be configured to detect an interaction between the interactive elements and configured to provide a signal or a change in state in response to the housing portions being operatively engaged and an interaction between the interactive elements being detected.



WO 2011/090629 A3

— *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))*

(88) Date of publication of the international search report:
22 September 2011

INTERNATIONAL SEARCH REPORT

International application No PCT/US2010/060895
--

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61M5/14 A61M5/168 A61M5/142
ADD. A61M5/145

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 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	<p>wo 2008/024814 A2 (MEDTRONIC MINIMED INC [US] ; MOBERG SHELDON B [US] ; HANSON IAN B [US] ;) 28 February 2008 (2008-02-28) abstract; figures 41,42 paragraphs [0196] - [0222] ----- -/- .</p>	<p>1-14, 31-34, 36-46,48</p>

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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.</p> <p>"&" document member of the same patent family</p>
--	--

Date of the actual completion of the international search 5 July 2011	Date of mailing of the international search report 13/07/2011
---	---

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 Petersch , Bernhard
--	--

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/060895

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. :

1-28, 31-34, 36-46, 48

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.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2010/060895

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 2009/144726 A1 (MEDINGO LTD [IL]; YODFAT OFER [IL]; KERET AVIH00 P [IL]) 3 December 2009 (2009-12-03) paragraph [0002] paragraph [0011] - paragraph [0013] paragraph [0015] - paragraph [0016] paragraph [0021] - paragraph [0024] paragraph [0025] - paragraph [0026] paragraph [0035] paragraph [0038] - paragraph [0040] paragraph [0063] - paragraph [0065] paragraph [0071] - paragraph [0074] paragraph [0082] paragraph [0086] paragraph [0088] paragraph [0090] - paragraph [0091] paragraph [0098]</p> <p style="text-align: center;">-----</p>	<p>1-14, 31-34, 36-46,48</p>
X	<p>US 2009/259198 A1 (CHONG COLIN A [US] ET AL) 15 October 2009 (2009-10-15)</p>	<p>1-14, 31-34, 36-46,48</p>
A	<p>abstract; figures 1-12 paragraphs [0097], [0104] - [0105]</p> <p style="text-align: center;">-----</p>	<p>15-28</p>
X	<p>US 2007/270744 A1 (DACQUAY BRUNO [US] ET AL) 22 November 2007 (2007-11-22)</p> <p>abstract; figures 1-20 paragraphs [0002], [0008] - [0010], [0034], [0043] - [0048], [0051], [0052], [0061] - [0063], [0070] - [0077], [0079], [0080], [0084], [0101], [0102] paragraph [0116]</p> <p style="text-align: center;">-----</p>	<p>1-14, 31-34, 36-46,48</p>
X	<p>US 2001/034506 A1 (HIRSCHMAN ALAN D [US] ET AL) 25 October 2001 (2001-10-25)</p> <p>abstract; figures 1-13 paragraphs [0027], [0059], [0060], [0065], [0067], [0069], [0073], [0076], [0080], [0088] - [0090], [0092] - [0093] paragraphs [0098], [0099], [0106] - [0110], [0113], [0114] claim 10</p> <p style="text-align: center;">-----</p>	<p>1-28, 31-34, 36-46,48</p>
X	<p>WO 2009/125398 A2 (MEDINGO LTD [IL]; YODFAT OFER [IL]; DAN YAIR [IL]; ARNOLD OFER [IL]; N) 15 October 2009 (2009-10-15) abstract; figures 44-46 pages 17-18 pages 24-25 page 64</p> <p style="text-align: center;">-----</p>	<p>1-28</p>
	-/--	

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2010/060895

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 2009/093759 A1 (CANON KK [JP]; MASADA YOHEI [JP]; IMAI MITSURU [JP]; KAWAHARA KEISUKE) 30 July 2009 (2009-07-30) abstract; figures 1,6-8,16 pages 34-35</p> <p style="text-align: center;">-----</p>	1-28
X	<p>US 2006/079765 A1 (NEER CHARLES S [US] ET AL NEER CHARLES S [US]) 13 April 2006 (2006-04-13) abstract; figures 2,5,10,11 paragraphs [0012] - [0014], [0018], [0049], [0060] - [0062], [0067], [0090] - [0093]</p> <p style="text-align: center;">-----</p>	1-28
X	<p>US 5 662 612 A (NIEHOFF KENNETH J [US]) 2 September 1997 (1997-09-02) abstract; figure 5 column 10, line 63 - column 11, line 6</p> <p style="text-align: center;">-----</p>	1-28
X	<p>US 5 628 309 A (BROWN STEPHEN J [US]) 13 May 1997 (1997-05-13) abstract; figures 2,5-8 column 2, lines 20-43 column 4, lines 14-46 column 5, lines 23-30 column 6, lines 41-47 column 7, line 7 - column 8, line 48</p> <p style="text-align: center;">-----</p>	15-28

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2010/060895

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2008024814	A2	28-02-2008	CA 2658857 AI 28-02-2008
			CN 101522235 A 02-09-2009
			EP 2061535 A2 27-05-2009
			JP 2010501283 A 21-01-2010
			US 2009036870 AI 05-02-2009
			US 2009270811 AI 29-10-2009
			US 2008097326 AI 24-04-2008
			US 2008097381 AI 24-04-2008
			US 2008077081 AI 27-03-2008

WO 2009144726	AI	03- 12-2009	EP 2303359 AI 06-04-2011
			US 2011118694 AI 19-05-2011

US 2009259198	AI	15- 10-2009	CA 2720958 AI 15-10-2009
			EP 2265304 A2 29-12-2010
			US 2009326458 AI 31-12-2009
			WO 2009126596 A2 15-10-2009
			WO 2011014839 A2 03-02-2011

US 2007270744	AI	22- 1 1-2007	US 2007293820 AI 20-12-2007
			US 2008021438 AI 24-01-2008
			WO 2008105954 A2 04-09-2008
			WO 2008105956 A2 04-09-2008

US 2001034506	AI	25- 10-2001	NONE

WO 2009125398	A2	15- 10-2009	AU 2009235064 AI 15-10-2009
			CN 102083483 A 01-06-2011
			EP 2300077 A2 30-03-2011
			JP 2011516196 A 26-05-2011
			US 2011160652 AI 30-06-2011

WO 2009093759	AI	30- 07-2009	AU 2009206947 AI 30-07-2009
			CN 101918058 A 15-12-2010
			EP 2237823 AI 13-10-2010
			JP 2009195669 A 03-09-2009
			US 2010275916 AI 04-11-2010

US 2006079765	AI	13-04-2006	CA 2583696 AI 27-04 -2006
			CN 101039710 A 19-09 -2007
			EP 1827534 A2 05-09 -2007
			EP 2319559 A2 11-05 -2011
			EP 2298385 A2 23-03 -2011
			EP 2298386 A2 23-03 -2011
			EP 2305333 A2 06-04 -2011
			EP 2301604 A2 30-03 -2011
			EP 2286853 AI 23-02 -2011
US 2006079765	AI		EP 2286854 AI 23-02 -2011
			EP 2286855 AI 23-02 -2011
			JP 2008515600 A 15-05 -2008
			JP 2009000563 A 08-01 -2009
			JP 2009061280 A 26-03 -2009
			JP 2009039550 A 26-02 -2009
			JP 2009039551 A 26-02 -2009
			JP 2009000564 A 08-01 -2009
			US 2008114302 AI 15-05 -2008
			US 2008108943 AI 08-05 -2008

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2010/060895

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		US 2008108896 AI	08-05 -2008
		us 2008108941 AI	08-05 -2008
		us 2006079766 AI	13-04 -2006
		us 2006079767 AI	13-04 -2006
		us 2009163803 AI	25-06 -2009
		us 2007106153 AI	10-05 -2007
		us 2011060217 AI	10-03 -2011
		Wo 2006044341 A2	27-04 -2006

US 5662612	A	02-09-1997	AT 339231 T
			AT 249258 T
			CA 2129284 AI
			DE 69433129 DI
			DE 69433129 T2
			DE 69434850 T2
			EP 1323441 A2
			EP 0654279 A2
			ES 2268271 T3
			ES 2202317 T3
			JP 3853385 B2
			JP 7184938 A
			JP 4681824 B2
			JP 2004275782 A
			JP 2004243149 A
			JP 2006068555 A
			JP 2009207905 A
			US 2008195048 AI
			US 2008167615 AI
			US 5681286 A
			US 5928197 A

US 5628309	A	13-05-1997	NONE

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-14, 31-34, 36-46, 48

Claims 1-14, 31-34, 36-46, 48 essentially define a modular fluid delivery system having a reservoir- and a drive-portion and any kind of switch or sensor allowing the device to detect connection of the two portions.

2. claims: 15-28(completely) ; 1 (partially)

Claims 15-28 essentially define a linear sensor arrangement for determining the position of a plunger head within a reservoir of a fluid delivery device.

3. claims: 29(completely) ; 1 (partially)

Claim 29 essentially defines a particular method of manufacturing a fluid delivery device.

4. claims: 30(completely) ; 1 (partially)

Claim 30 essentially defines a fluid delivery device with a sensor having a particular construction.

5. claims: 35(completely) ; 1 (partially)

Claim 35 essentially defines a fluid delivery device with a sensor having another particular construction.

6. claims: 47(completely) ; 1, 36(partially)

Claim 47 essentially defines a fluid delivery device with an occlusion sensor.
