



- (51) **International Patent Classification:**
A24F 47/00 (2006.01) *B65D 47/08* (2006.01)
- (21) **International Application Number:**
PCT/GB2011/000151
- (22) **International Filing Date:**
4 February 2011 (04.02.2011)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
1001944.6 5 February 2010 (05.02.2010) GB
- (71) **Applicant (for all designated States except US):** **KIND CONSUMER LIMITED** [GB/GB]; Lighterman House, 26-36 Wharfedale Road, London N1 9RY (GB).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **HEARN, Alex** [GB/GB]; 33 Eagle House, 30 Eagle Wharf Road, London N1 7EH (GB). **MATHIAS, Richard** [GB/GB]; 3 Moorlands Close, Melbourn, Royston, Hertfordshire SG8 6FF (GB).
- (74) **Agents:** **DRAPER, Martyn, John** et al.; **BOULT WADE TENNANT**, Verulam Gardens, 70 Gray's Inn Road, London WC1X 8BT (GB).

- (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))

(54) **Title:** A SIMULATED SMOKING DEVICE

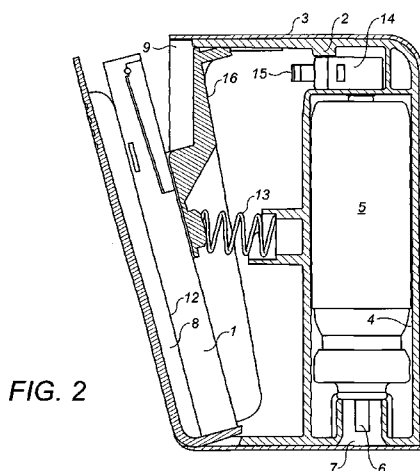


FIG. 2

(57) **Abstract:** A simulated smoking device comprising a simulated cigarette (1) having a cigarette-like shape and a refill device. A drawer (8) is provided in the side of the refill device with a recess (4) for the simulated cigarette (1). A resilient member (13) biases the drawer open to allow access to the simulated cigarette (1). A latch (14) is releasable by an inward movement of the drawer (8) whereupon the drawer is unlatched and urged by the resilient member (13) to the open position. The latch (14) is automatically engageable upon closure of the drawer (8) to hold the drawer in a closed position against the action of the resilient member.

WO 2011/095781 A1

- 1 -

A SIMULATED SMOKING DEVICE

The present invention relates to a simulated smoking device comprising a simulated cigarette having a
5 substantially cigarette-like shape and a refill device, the refill device containing a canister of refill gas and having an outlet valve in its bottom surface against which the simulated cigarette is arranged to be pressed to release gas
10 from the canister into the simulated cigarette. Such a device will subsequently be referred to as being "of the kind described".

A device of the kind described is disclosed in our earlier application WO 2009/001078. In this device, the
15 refill pack has a shape corresponding to the shape of a standard cigarette pack. The simulated cigarette is retained within the refill device and a hinged lid is provided in the top corner of the device to provide access to the simulated cigarette. The pack was designed in this
20 way so as to resemble as closely as possible the act of opening a real cigarette pack to remove a real cigarette. However, the disclosure does not address the issue of ease of use of the refill device.

25 According to the present invention, a simulated smoking device of the kind described is characterised by:

a drawer in the side of the refill device;
a recess within the drawer to retain the simulated
cigarette;

30 a resilient member to bias the drawer into an open position to allow access to the simulated cigarette; and

- 2 -

a latch being releasable by an inward movement of the drawer, whereupon the drawer is unlatched and urged by the resilient member to the open position, and the latch being automatically engagable upon closure of the drawer to hold
5 the drawer in a closed position against the action of the resilient member.

With such an arrangement, a user wishing to use the simulated cigarette simply has to push the drawer inwardly,
10 whereupon the drawer is pushed open by the resilient member presenting the simulated cigarette to the user allowing them to readily remove it. Thus, the user can easily hold the refill device and open the drawer with one hand. They then have a second hand free to remove the simulated cigarette,
15 and press it against the outlet valve in order to fill the simulated cigarette with a charge of gas from the canister. This is a significant improvement on the previous design where it was awkward to hold the refill device and open the hinged lid with a single hand. Users therefore generally
20 tried to do this with two hands which then made the subsequent refill process awkward. Therefore, although the present invention does not mimic the act of opening a conventional cigarette pack in the same manner as WO
2009/061078, this disadvantage is outweighed by the ease of
25 use provided by the opening mechanism.

The drawer may be arranged to slide laterally out of the refill device. However, preferably, the drawer is pivotally mounted about a bottom corner of the refill
30 device. A pivotally mounted device is easier to configure, and can be more reliably operated than a sliding drawer.

- 3 -

The latch may be any suitable type, for example, magnetic or electromagnetic, but preferably has a mechanical interface with the drawer to hold the drawer in the latched position.

5

The present invention also extends to a refill device for a simulated smoking device, the refill device containing a canister of refill gas, and having an outlet valve in its bottom surface against which a simulated cigarette is arranged, in use, to be pressed to release gas from the canister into the simulated cigarette; characterised by:

10

a drawer in the side of the refill device;

a recess within the drawer to retain the simulated cigarette, in use;

15

a resilient member to bias the drawer into an open position to allow access to the simulated cigarette; and

a latch being releasable by an inward movement of the drawer, whereupon the drawer is unlatched and urged by the resilient member to the opening position, and the latch

20

being automatically engagable upon closure of the drawer to hold the drawer in a closed position against the action of the resilient member.

An example of a simulated smoking device and a refill device in accordance with the present invention will now be described with reference to the accompanying drawings, in which:

25

Fig. 1 is an exploded perspective view of the refill device and simulated cigarette;

30

Fig. 2 is a cross-section of the refill device and simulated cigarette showing the drawer open; and

- 4 -

Fig. 3 is a view similar to Fig. 2 showing the drawer closed;

Fig.4 and Fig 5 are a cut-away side view of one side and a cross-section of an opposite side respectively of a housing of a second example of a refill device with the drawer closed;

Fig.6 and Fig.7 are perspective views from opposite sides of the drawer mechanism of Figs. 4 and 5;

Fig.8a is a cross section of the drawer of the second example;

Fig. 8b is a detailed view of part 'b' of Fig. 8a;

Fig. 8c is a perspective view of the travelling path of the latch mechanism of the second example; and

Fig.9 is an exploded perspective of the refill device of the second example.

Many of the details of the device are the same as those disclosed in WO 2009/001078 and these will not be repeated here. In particular, the structure of the simulated cigarette device, the dimensions, pressures, capacity and composition for the simulated cigarette device and refill device, and the nature of the refill canister, valve and refill method are as described in the earlier application.

The improvement resides in the nature of the arrangement to access the simulated cigarette and this is described below.

The simulated smoking devices comprises a simulated cigarette 1 which is as described in WO 2009/001278 and will not be described further here. Further modifications to the

- 5 -

simulated cigarette device are disclosed in our own earlier applications PCT/GB2010/001487 and PCT/GB2010/001488.

The remainder of the simulated smoking device is the
5 refill device. This comprises a main housing portion 2
which is a plastics moulding. This is surrounded by a thin
card sleeve 3 on which is printed various information such
as promotional information. The size of the housing is
preferably similar to the size of a cigarette pack and may
10 be adjusted to suit particular sizing formats, e.g., to be
the size of a pack of 10 or 20 cigarettes. The housing 2
has a recess 4 in which is contained refill canister 5 of
pressurised refill gas. The canister 5 has an outlet nozzle
6 at its lowermost end. With the canister 5 in the recess
15 4, the nozzle 6 sits above refill outlet orifice 7. The
simulated cigarette device 1 is refilled by being pressed
against the refill outlet orifice 7 as described in WO
2009/001078.

20 In general terms, the housing 2 is divided into two
halves with one half containing the refill gas canister 5
and the other part containing a drawer 8 for the simulated
cigarette device. This drawer 8, together with the manner
in which it is mounted and operated will now be described.

25

The housing 2 has an opening 9 which extends along the
full length and width of the side of the housing opposite to
the side in which the refill gas canister 5 is mounted.
This creates a hollow recess in which the drawer 8 is
30 mounted.

- 6 -

The drawer 8 has a pair of projecting lugs 10 (only one of which is shown in Fig. 1 which engage with corresponding holes 11 (only one of which is shown in Fig. 1) in the housing 2 in order to provide a pivotal mounting for the drawer 8 in the housing 2. The drawer 8 defines a recess 12 for retaining the simulated cigarette 1. A spring 13 is mounted between the drawer 8 and the housing 2 so as to be compressed in the closed state as shown in Fig. 3 to urge the drawer 8 outwardly into an open position in which access to the simulated cigarette 1 is provided for a user. The drawer 8 is held in the closed position by a latch 14 mounted in the housing 2 above the canister 5.

The latch 14 is known, among other things, as a "mini-touch latch" and is well-known in the art. Essentially, the latch 14 has a pair of jaws 15 which engage with a tongue 16 on the drawer 8. In the closed position shown in Fig. 3, the jaws 15 engage with the tongue 16 to latch the drawer closed. In order to release the drawer, it is initially pushed inwards slightly causing the tongue 16 to be pushed deeper into the jaws 15. The tongue 16 has a flared shape which pushes on the jaws 15 forcing them apart. The jaws 15 release their grip on the tongue 16 and the spring 13 urges the drawer to the open configuration. The opening operation can be readily performed with one hand. The user then takes the simulated cigarette and, if necessary, presses it against the nozzle 6 in order to refill it.

Once they have finished using the simulated cigarette, they replace it in the recess 12 and push the drawer closed whereupon the jaws 15 engage with the tongue 16 to latch the drawer in the closed position. This closing operation can

- 7 -

simply be carried out by the hand in which the refill is being held.

A second example is shown in Figs. 4 to 9. Most of the features are the same as the first example. The significant change is that a new latch mechanism 19 is integrated into the refill device without the need for the 'mini-touch' latch component. In this way, a series of features can be engineered into the refill device housing so that the same function is provided as the mini-touch latch but there is a reduction in the number of components in the system.

As shown in Figs. 4 and 5 the housing 2 has a protruding beam 20 with an angled hook 21 that when in a closed position, engages with a travelling path on the drawer 8 as best shown in Figs. 7 and 8c. The path consists of an inlet entry path 21 and inlet return path 22 leading to a latched position 23. The inlet return path is separated from the latched position by a first downward step 24. The outlet path from the latched position 23 consists of an outlet initiation path 25 leading to a second downward step 26. On the opposite side of the second step 26 is an outlet exit path 27. The inlet entry 21, inlet return 22, outlet initiation 25 and outlet exit 27 paths form a generally "M"-shaped path as best shown in Fig. 7.

Facing the angled hook 21 is an inlet cam face 28. An outlet cam face 29 is provided facing the latched position 23.

- 8 -

From the open configuration shown in Fig. 8c, as the user pushes drawer 8, the hook 21 initially encounters the inlet cam face 28 and is deflected sideways into the inlet entry path 21. As it passes the inlet cam face 28, the resilience of the beam 20 urges the angled hook 21 back against the direction in which it is deflected by the inlet cam face 28, such that it travels along inlet return path 22 dropping over the inlet step 24 and settling in the latch position 23. In order to open the drawer, the user again pushes the drawer 8 against the action of the spring 13. The presence of the first step 24 and the outlet cam face 29 causes the angled hook 21 to travel along the outlet initiation path 25 in the process dropping over the second step 26 and into the outlet exit path 27. As the user releases the drawer, the resilience of the spring will cause the hook 21 to travel along outlet exit path 27 thereby releasing the drawer 8. In the opening process, the beam 20 is deflected sideways by the first step 24 and the outlet cam surface 29. As it leaves the outlet exit path 27 it is deflected by its own resilience back into the position shown in Fig. 8c where it once again faces the inlet cam surface 28 so that it is in a position to be re-closed as described above.

25 Additionally, the refill hole 7 can be situated at the bottom or at the top of the refill device according to the particular format. Should the refill hole 7 become situated at the top, and the canister will be stored in an upright position, the latch mechanisms will be integrated further towards the drawer in order to allow sufficient space for the refill canister to reside.

CLAIMS:-

1. A simulated smoking device comprising a simulated cigarette having a substantially cigarette-like shape and a
5 refill device, the refill device containing a canister of refill gas and having an outlet valve against which the simulated cigarette is arranged to be pressed to release gas from the canister into the simulated cigarette,
characterised by:
- 10 a drawer in the side of the refill device;
a recess within the drawer to retain the simulated cigarette;
a resilient member to bias the drawer into an open position to allow access to the simulated cigarette; and
15 a latch being releasable by an inward movement of the drawer, whereupon the drawer is unlatched and urged by the resilient member to the open position, and the latch being automatically engagable upon closure of the drawer to hold the drawer in a closed position against the action of the
20 resilient member.
2. A simulated smoking device according to claim 1, wherein the drawer is pivotally mounted about a bottom corner of the refill device.
- 25
3. A simulated smoking device according to claim 1 or claim 2, wherein the latch has a mechanical interference with the drawer to hold the drawer in the latched position.
- 30
4. A simulated smoking device according to any one of the preceding claims, wherein the latch is integrally moulded with a housing of the refill device and the drawer.

- 10 -

5. A simulated cigarette according to any one of the preceding claims, wherein the outlet valve is in the bottom surface of the refill device.

5

6. A refill device for a simulated smoking device, the refill device containing a canister of refill gas, and having an outlet valve against which a simulated cigarette is arranged, in use, to be pressed to release gas from the canister into the simulated cigarette; characterised by:

10

a drawer in the side of the refill device;

a recess within the drawer to retain the simulated cigarette, in use;

15

a resilient member to bias the drawer into an open position to allow access to the simulated cigarette; and

a latch being releasable by an inward movement of the drawer, whereupon the drawer is unlatched and urged by the resilient member to the opening position, and the latch being automatically engagable upon closure of the drawer to hold the drawer in a closed position against the action of the resilient member.

20

7. A refill device according to claim 6, wherein the drawer is pivotally mounted about a bottom corner of the refill device.

25

8. A refill device according to claim 6 or claim 7, wherein the latch has a mechanical interference with the drawer to hold the drawer in the latched position.

30

9. A refill device according to any one of claims 6 to 8, wherein the latch is integrally moulded with a housing of the refill device and the drawer.

5 10. A refill device according to any one of the preceding claims, wherein the outlet valve is on the bottom surface of the refill device.

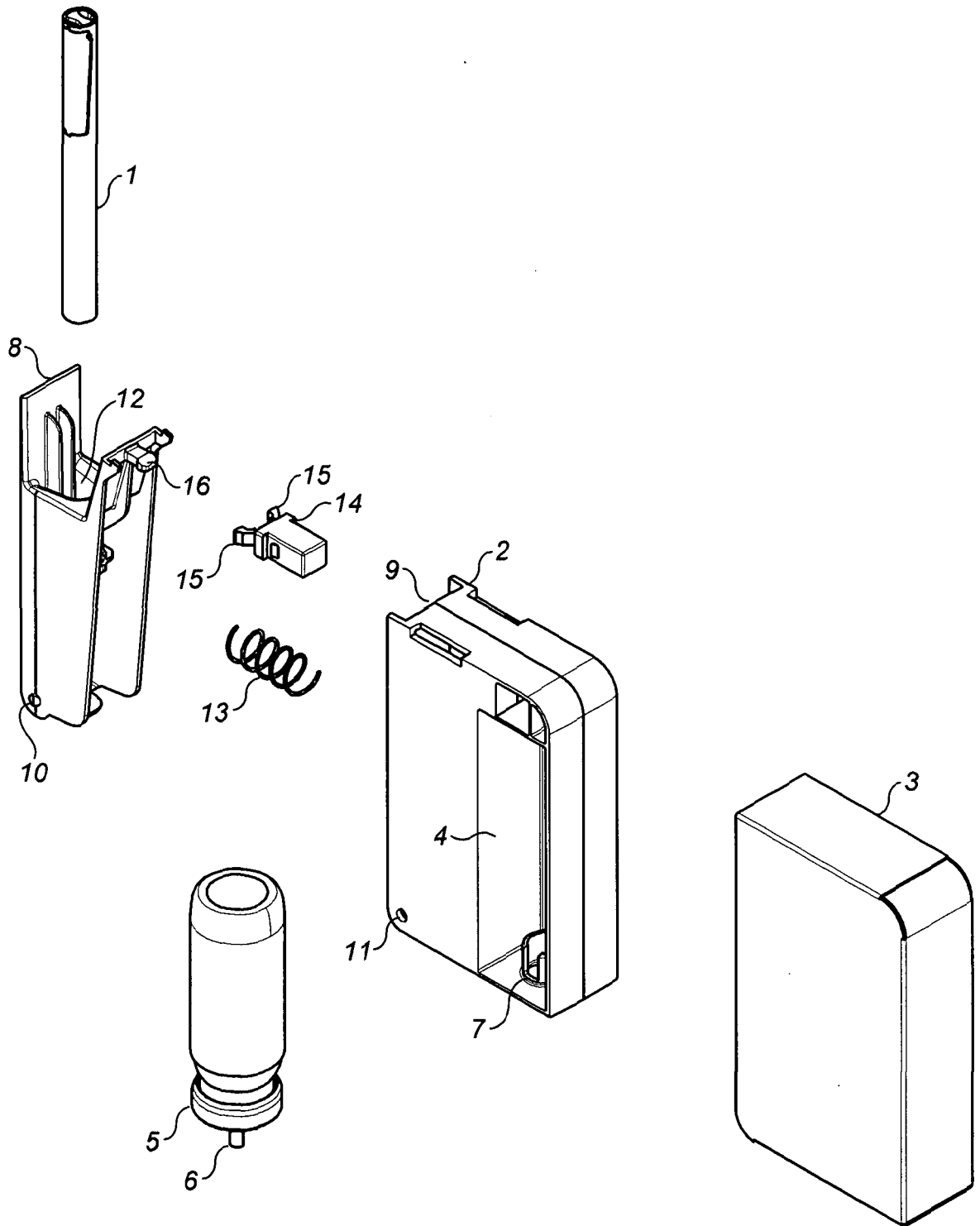


FIG. 1

217

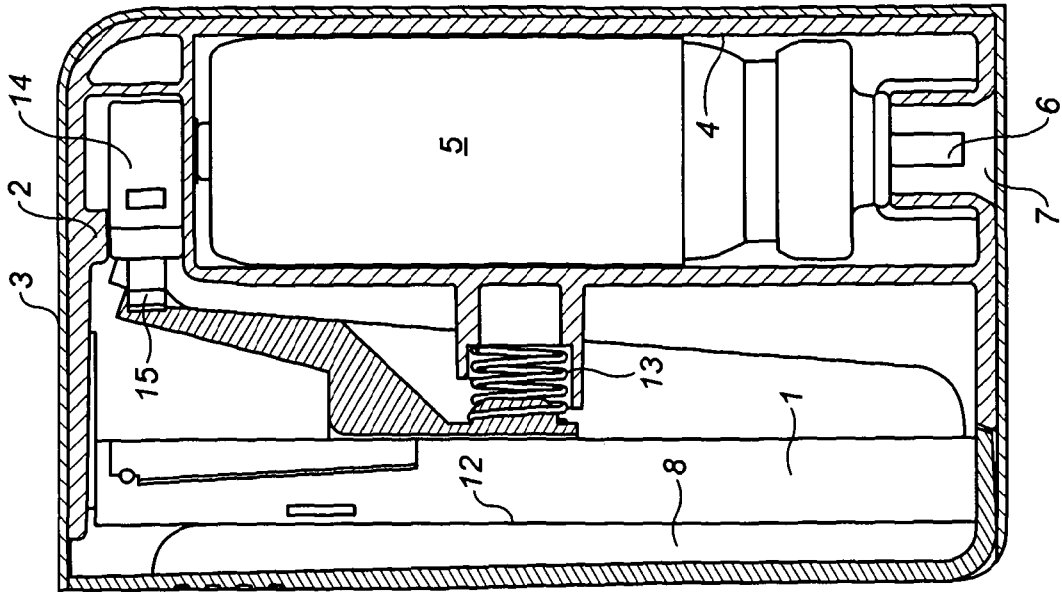


FIG. 3

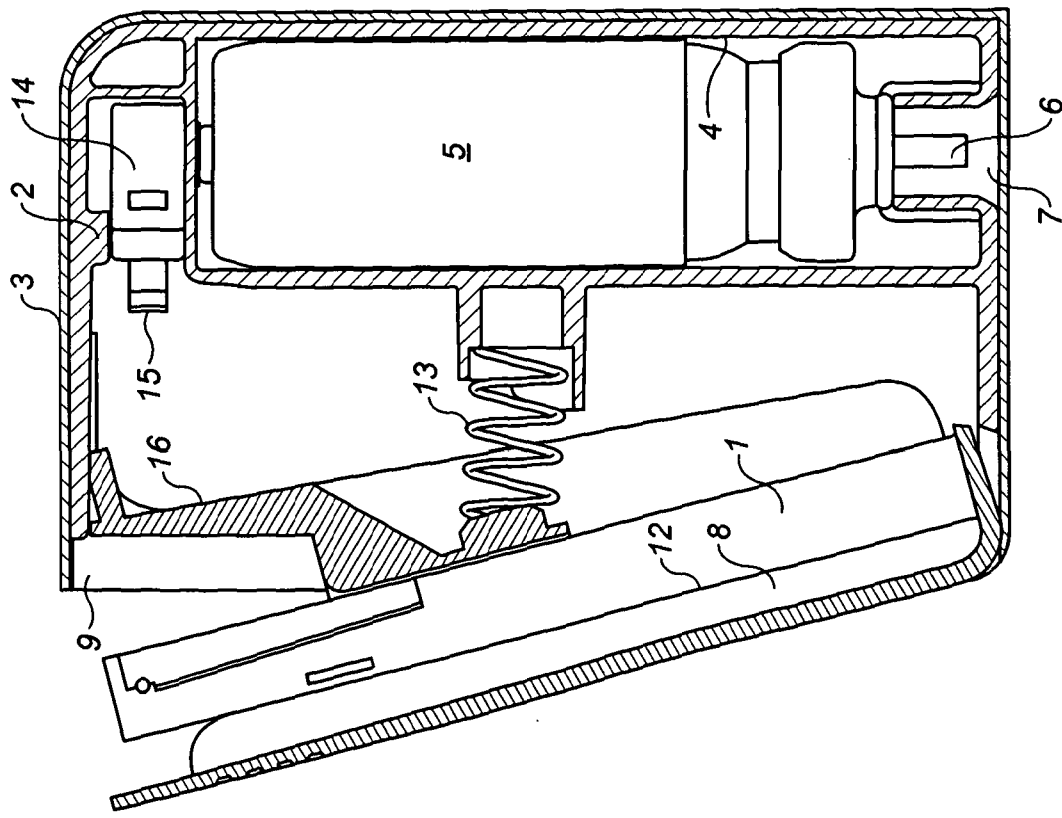


FIG. 2

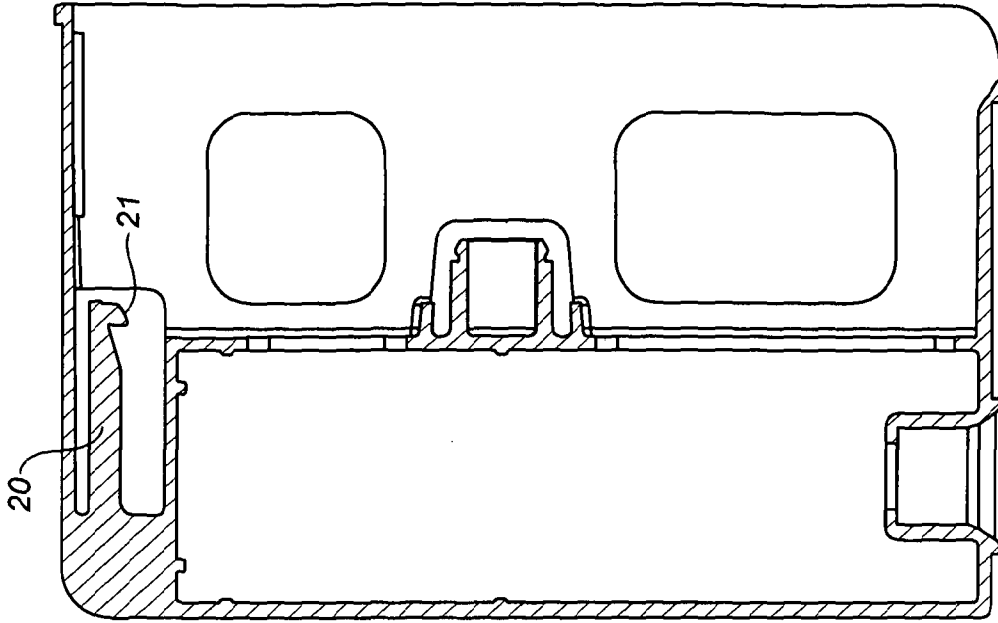


FIG. 5

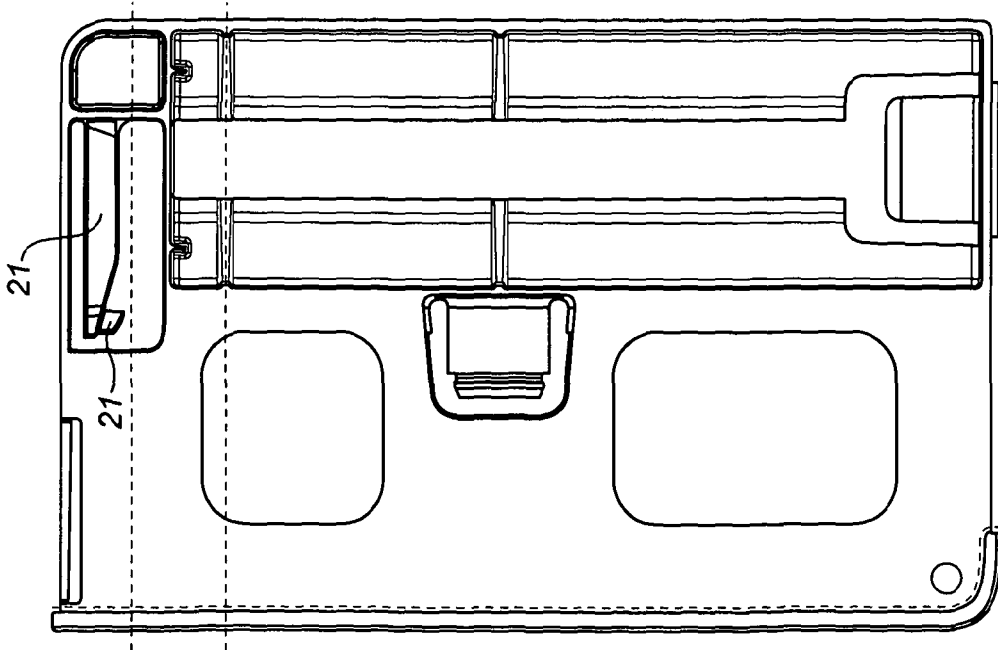


FIG. 4

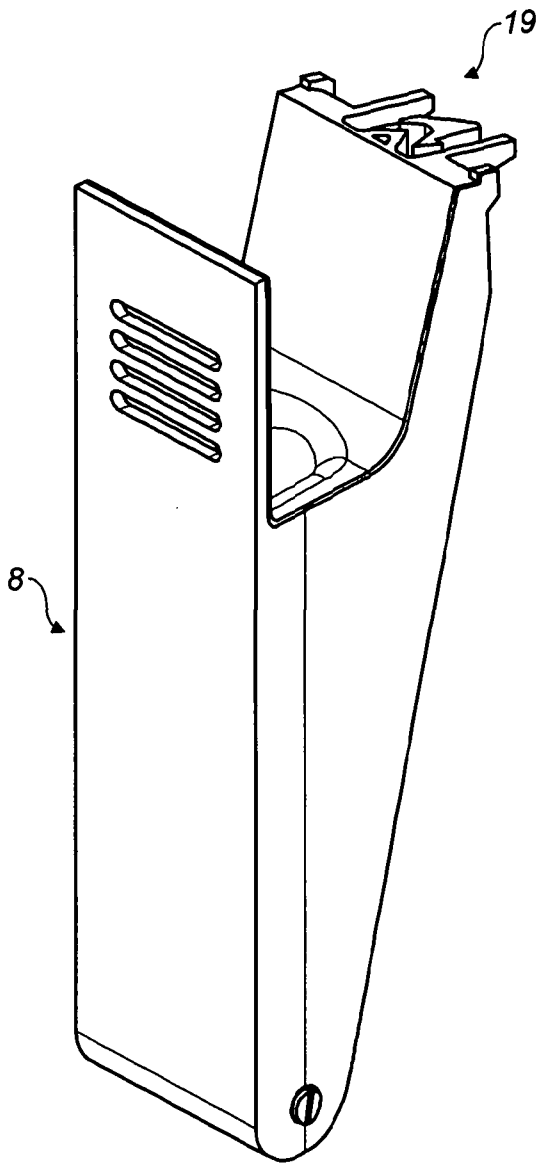


FIG. 6

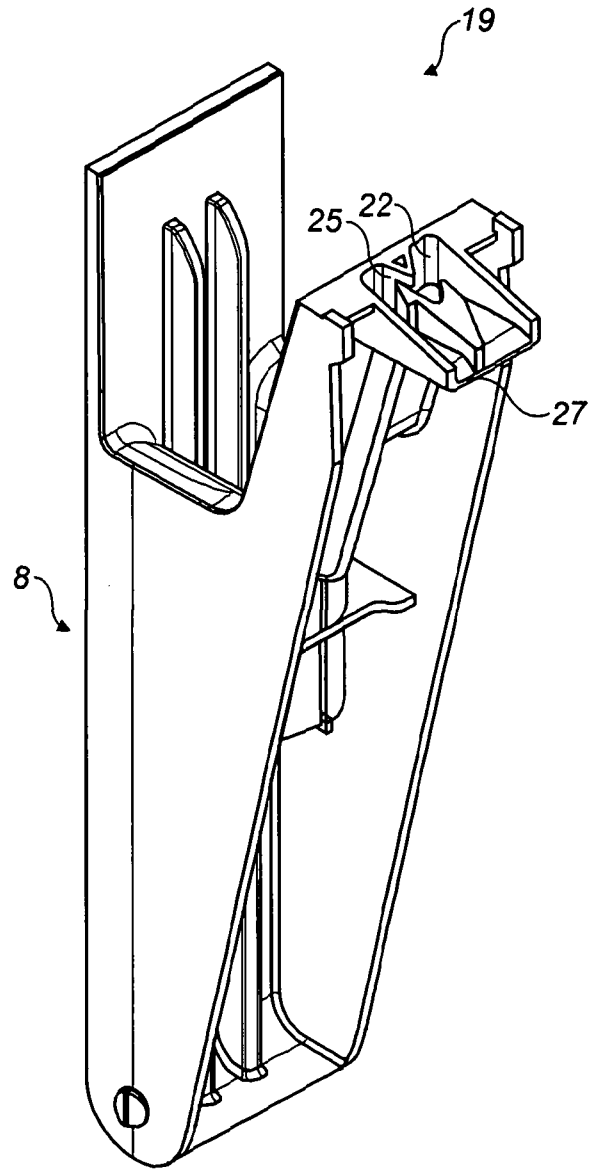


FIG. 7

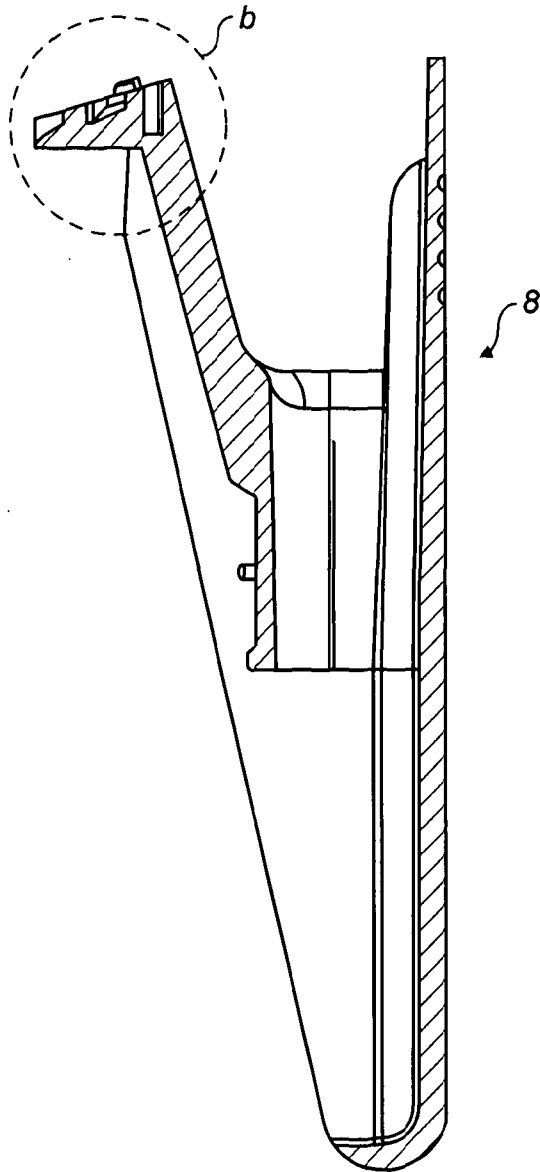


FIG. 8a

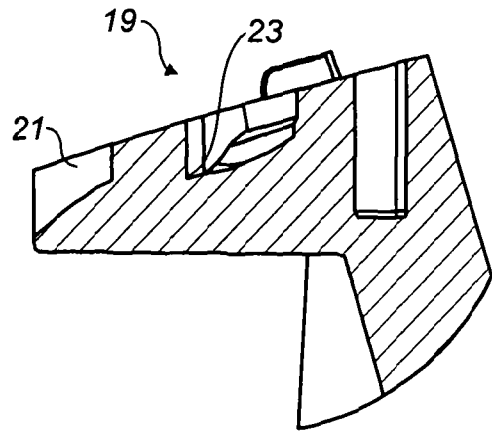


FIG. 8b

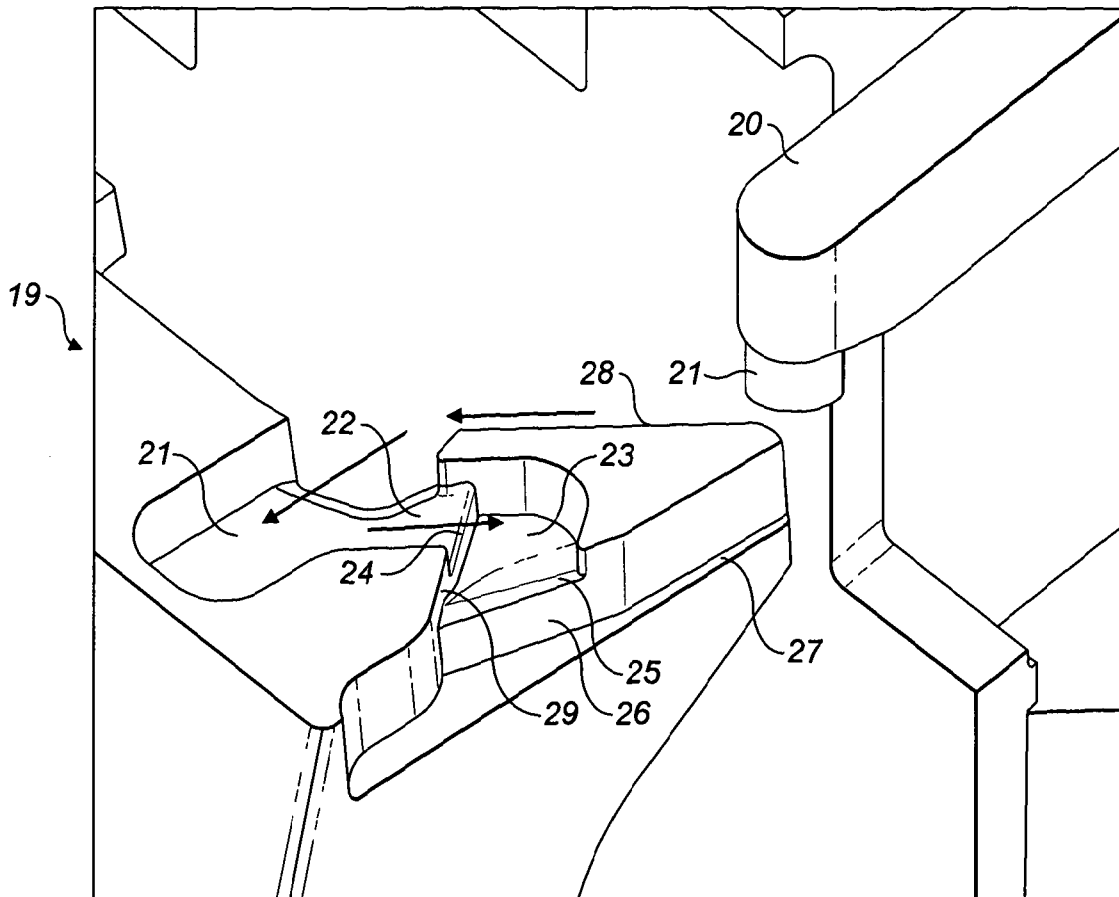


FIG. 8c

717

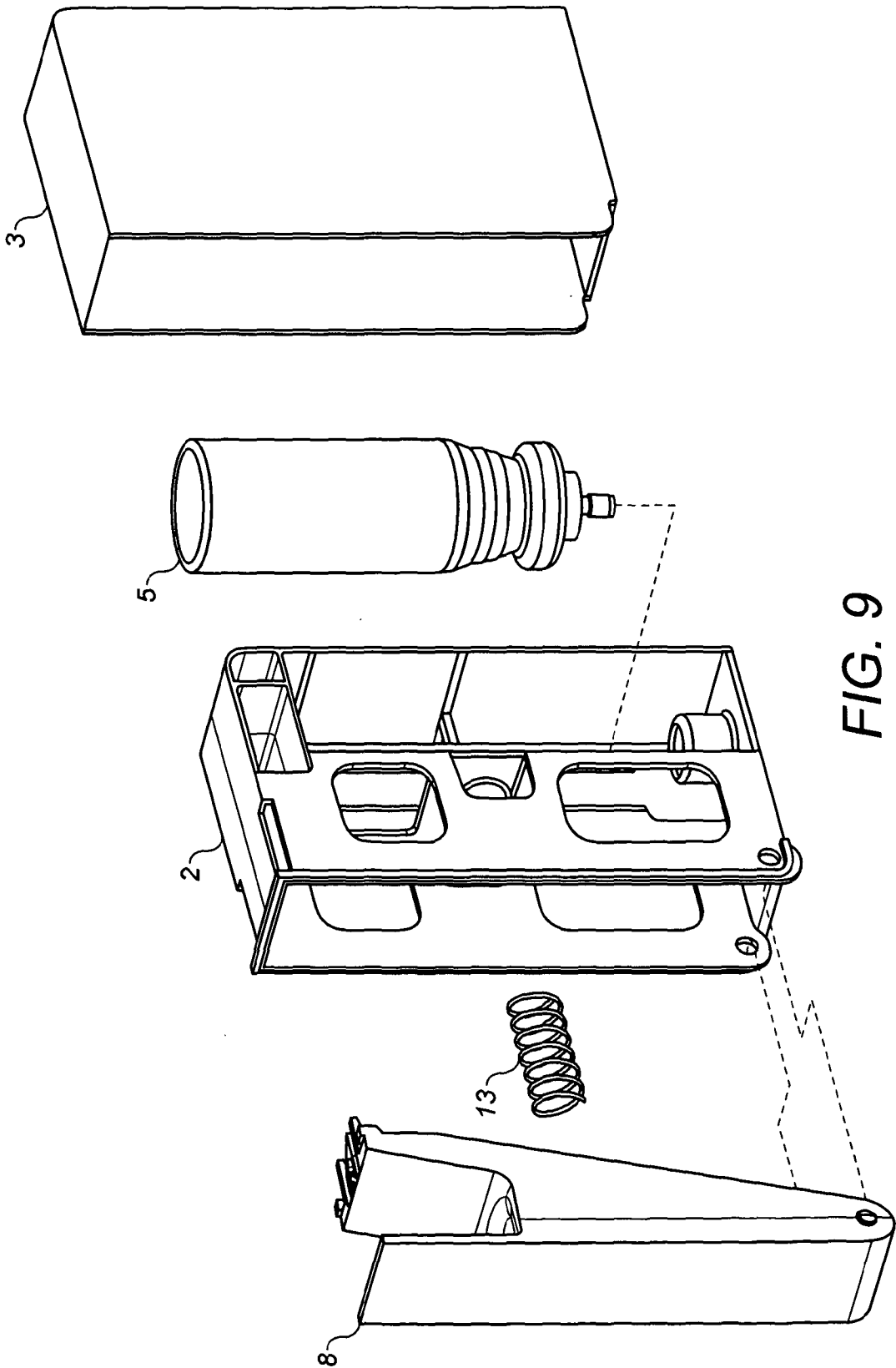


FIG. 9

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2011/000151

A. CLASSIFICATION OF SUBJECT MATTER
 INV. A24F47/00 B65D47/08
 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)
 A24F B65D

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)
 EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2009/001078 A2 (KIND CONSUMER LTD [GB]; HEARN ALEX [GB]) 31 December 2008 (2008-12-31) cited in the application the whole document -----	1-10
Y	US 6 065 626 A (HUANG CHIEN JUNG [TW] ET AL) 23 May 2000 (2000-05-23) column 1, line 41 - column 3, line 24; figures -----	1-10
Y	DE 200 00 604 U1 (FHW FEUCHT HYGIENE WERK GMBH [DE]) 23 March 2000 (2000-03-23) the whole document -----	1-10
	-/--	

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 12 April 2011	Date of mailing of the international search report 19/04/2011
--	--

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 Marzano Monterosso
--	--

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2011/000151

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 1 053 955 A2 (ALBAAD MASSUOT YITZHAK LIMITED [IL] ALBAAD MASSUOT YITZHAK LTD [IL]) 22 November 2000 (2000-11-22) the whole document -----	1-10
Y	WO 03/016172 A1 (BEIERSDORF AG [DE]; FELTEN BERNHARD [DE]) 27 February 2003 (2003-02-27) the whole document -----	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2011/000151

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2009001078	A2	31-12-2008	AU 2008269566 A1 31-12-2008
			CA 2691564 A1 31-12-2008
			CN 101784209 A 21-07-2010
			EP 2160108 A2 10-03-2010
			JP 2010531186 T 24-09-2010
			KR 20100034754 A 01-04-2010
			US 2010242975 A1 30-09-2010

US 6065626	A	23-05-2000	NONE

DE 20000604	U1	23-03-2000	NONE

EP 1053955	A2	22-11-2000	AT 319632 T 15-03-2006
			DE 60026479 T2 12-10-2006
			ES 2259986 T3 01-11-2006
			IL 129856 A 10-02-2002
			US 6394298 B1 28-05-2002

WO 03016172	A1	27-02-2003	DE 10139852 A1 27-02-2003
			EP 1419096 A1 19-05-2004
			MX PA04001410 A 27-05-2004
