



- (51) **International Patent Classification:**
B65D 43/16 (2006.01) *B65D 51/20* (2006.01)
- (21) **International Application Number:**
PCT/EP2012/057958
- (22) **International Filing Date:**
1 May 2012 (01.05.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
13/163,887 20 June 2011 (20.06.2011) US
- (71) **Applicant** (for AE, AG, AU, BB, BH, BW, BZ, CA, CY, EG, GB, GD, GH, GM, IE, IL, KE, KN, LC, LK, LS, MT, MW, MY, NA, NG, NZ, OM, PG, QA, RW, SC, SD, SG, SL, SZ, TT, TZ, UG, VC, ZA, ZM, ZW only): **UNILEVER PLC** [GB/GB]; a company registered in England and Wales under company no. 41424 of Unilever House, 100 Victoria Embankment, London Greater London EC4Y 0DY (GB).
- (71) **Applicant** (for all designated States except AE, AG, AU, BB, BH, BW, BZ, CA, CY, EG, GB, GD, GH, GM, IE, IL,

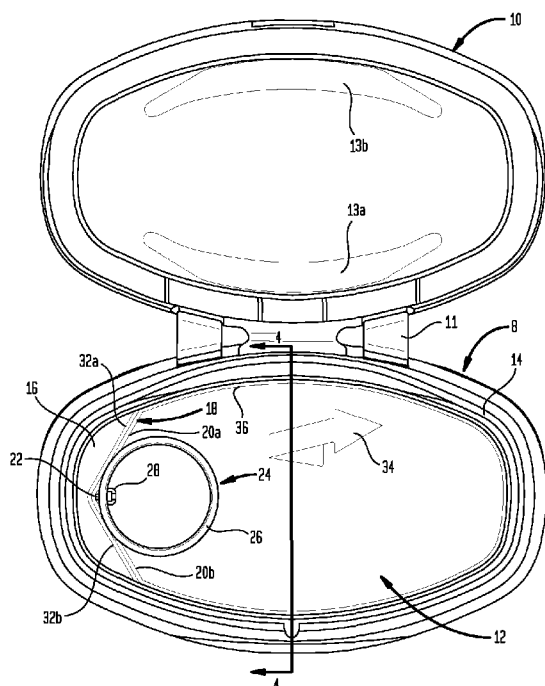
IN, KE, KN, LC, LK, LS, MT, MW, MY, NA, NG, NZ, OM, PG, QA, RW, SC, SD, SG, SL, SZ, TT, TZ, UG, US, VC, ZA, ZM, ZW): **UNILEVER N.V.** [NL/NL]; Weena 455, NL-3013 AL Rotterdam (NL).

- (71) **Applicant** (for IN only): **HINDUSTAN UNILEVER LIMITED** [IN/IN]; Unilever House, B.D. Sawant Marg Chakala Andheri (East), Mumbai, Maharashtra 400 099 (IN).
- (72) **Inventor; and**
- (75) **Inventor/Applicant** (for US only): **DOMOY, Brett, Christopher** [US/US]; Conopco Inc., d/b/a UNILEVER, 75 Merritt Boulevard, Trumbull, Connecticut 06611 (US).
- (74) **Agent:** **ACHAM, Nicholas, Clive**; Unilever PLC, Unilever Patent Group, Colworth House, Sharnbrook, Bedford Bedfordshire MK44 1LQ (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,

[Continued on next page]

(54) **Title:** CONTAINER WITH INTEGRATED PLASTIC TEAR AWAY MEMBRANE

FIG. 2



(57) **Abstract:** A container (2) is provided which includes a container body (4), a cap closure (8) and a plastic membrane (12). The container body (4) has a receiving area capable of holding a product. An open mouth surrounds the receiving area. A cap closure (6) is arranged over the open mouth. The cap closure (6) includes a fitment (8) engageable around the mouth and a lid (10) hingedly connected to the fitment (8). The plastic membrane (12) is integrally molded with the cap closure (6) and sealingly prevents leakage from the receiving area. The membrane (12) includes a minor area non-frangibly attached to the fitment (8) having a V-shaped outer border (18) with sections of the border converging to a pivot point (22), and a major area frangibly attached along its perimeter to the fitment (8) and to the V-shaped outer border (18). A pull tab (24) is formed on a surface of the membrane at the pivot point (22).



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, QA, RO, RS, RU, RW, 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, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, 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).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

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

CONTAINER WITH INTEGRATED PLASTIC TEAR AWAY MEMBRANE

BACKGROUND OF THE INVENTION

5 Field of the Invention

The invention concerns a frangible membrane for sealing containers, particularly for sealing jars having a flip-top cap closure.

The Related Art

10 WO 2009/109480 (Domoy et al.) discloses a jar for a cosmetic product, advantageously for cold cream or petrolatum. The jar has a non-circular container body and a cap closure. The cap closure includes a fitment engagable around the mouth of the jar. A lid is hingedly connected to the fitment.

15 Jars of the aforementioned description have experienced a number of problems. Under extremely hot climate conditions, mobility of product contained within the jar increases to the level of leakage. Also there is the issue of potential tampering.

Accordingly, there is a need to develop a seal system that provides a potential
20 purchaser evidence of non-tamper on a retail shelf. Also there is a need for a seal that prevents any product leakage, especially for those products distributed in hot climates.

SUMMARY OF THE INVENTION

25 A container (2) is provided which includes:

- (i) a container body (4) with a receiving area capable of holding a product, the container (2) having an open mouth surrounding the receiving area;
- (ii) a cap closure (6) arranged over the open mouth, the closure (6) including a fitment (8) engagable around the mouth and a lid (10) hingedly connected to
30 the fitment (8); and
- (iii) a plastic membrane (12) integrally molded with the cap closure (6) and surrounded by a supporting wall (14) projecting upwards from the fitment (18),

- 2 -

the membrane (12) sealingly closing off the mouth, the membrane (12) including:

- 5 (a) at one end a minor area non-frangibly attached to the supporting wall which is a shelf (16) having a V-shaped outer border (18) with sections of the border (20a, 20b) angularly converging to a pivot point (22);
- (b) a major area at a second end of the membrane in part being frangibly attached along a perimeter thereof to the supporting wall (14) and in another part of the perimeter to the V-shaped outer border (18); and
- 10 (c) a pull tab (24) projecting outwardly from a surface of the membrane and attached adjacent to the pivot point (22) of the V-shaped outer border (18).

BRIEF DESCRIPTION OF THE DRAWING

Further features and advantages of the present invention will become more evident
15 upon consideration of the drawing in which:

Fig. 1 is a perspective view of a container according to the present invention;

Fig. 2 is a top view of a cap closure in an open position;

Fig. 3 is a right side plan view of the open cap closure shown in Fig. 2;

20 Fig. 4 is a cross-sectional view along line 4-4 shown in Fig. 2; and

Fig. 5 is an underside view of the open cap closure shown in Fig. 2.

DETAILED DESCRIPTION OF THE INVENTION

Previous problems of leakage and absence of a non-tamper proof seal have been
25 resolved by use of a fracturable membrane co-injection molded with the cap closure.

Fig. 1 illustrates a preferred embodiment. Therein is shown a container 2 featuring a container body 4 with an open mouth secured by a cap closure 6. The closure includes a fitment 8 and a hingedly connected lid 10.

30

Lid 10 is attached to the fitment via a hinge 11. Crescent shaped indentations 13a, 13b face one another and are fashioned into a roof of the lid.

Fig. 2 and 3 illustrate a plastic membrane 12 integrally molded with the cap closure and serving to sealingly close off the mouth of the container body. A supporting wall 14 projects upward from the fitment and surrounds the membrane.

5 The membrane at one end has a minor area non-frangibly attached to the supporting wall which is a shelf 16. The shelf has a V-shaped outer border 18 with sections of the border 20a, 20b angularly converging to a pivot point 22. A major area of the membrane is a removable section 17, frangibly attached to the supporting wall and shelf.

10

A pull tab 24 may in a preferred embodiment be a ring 26. Support to the ring is provided by an attached post 28 projecting outwardly from a surface of the membrane adjacent the pivot point 22. The post at point of attachment to the membrane as shown in Fig. 4 features at least two feet 30 giving the post a broader connection than a diameter of the post at the ring attachment end.

15

A pair of intersecting bars 32a, 32b are formed on the minor area (i.e. the shelf) of the membrane. Together these bars trace the V-shaped outer border along at least 80% of a length thereof. The bars form an angle at the point of intersection ranging from 90 to 170°, preferably from 110 to 150°C.

20

Indicia including a directional arrow 34 can be molded into the membrane as instructional for consumers on how to remove the seal. Along a border of the removable section 17 of the membrane and tracing along the V-shaped outer border of the shelf is a narrow web 36 easily torn by a consumer's upwardly pulling motion on the ring 36. Thickness of the membrane relative to the web may range from about 20:1 to about 5:1, preferably from about 15:1 to about 8:1, and optimally about 10:1. In a preferred embodiment, the web is 30/1,000 of an inch thick and the web is 3/1,000 of an inch thick (2.54 cm to the inch). Improvement in the ease of fracturing the web require the post to be attached to the membrane as close as possible to the pivot point 22.

25

30

- 4 -

Additionally, it is desirable to have the V-shaped outer border 18 be at the smallest angle possible. A counter factor to a smaller angle is the practical requirement that shelf 16 not substantially obstruct access to the product in the container body. When the product is petrolatum, the shelf serves the further purpose of allowing a consumer to wipe off excess petrolatum from their finger against borders of the shelf.

Fig. 5 is an opposite face (undersurface) view of the plastic membrane 12. It reveals the trace of the frangible web 36 and, with special clarity, the V-shaped outer border 18 of shelf 16. Best seen in this illustration is a central rib 38 projecting downwardly into the container body and having a length oriented toward the pivot point 22. In the preferred embodiment, a lateral rib 40a, 40b flanks each side of the central rib and are similarly arranged on the shelf projecting downward into the container body. Both of the lateral ribs are longer than the central rib and taper toward one another.

While the invention has been described in detail with reference to specific embodiments thereof, it will be apparent to one skilled in the art that various changes and modifications can be made therein without departing from the spirit and scope thereof.

CLAIMS

1. A container (2) comprising:

(i) a container body (4) with a receiving area capable of holding a product,
5 the container (2) having an open mouth surrounding the receiving area;

(ii) a cap closure (6) arranged over the open mouth, the closure (6)
comprising a fitment (8) engagable around the mouth and a lid (10)
hingedly connected to the fitment (8); and

(iii) a plastic membrane (12) integrally molded with the cap closure (6) and
10 surrounded by a supporting wall (14) projecting upwards from the fitment
(18), the membrane (12) sealingly closing off the mouth, the membrane
(12) comprising:

(a) at one end a minor area non-frangibly attached to the supporting wall
which is a shelf (16) having a V-shaped outer border (18) with
15 sections of the border (20a, 20b) angularly converging to a pivot
point (22);

(b) a major area at a second end of the membrane in part being
frangibly attached along a perimeter thereof to the supporting wall
(14) and in another part of the perimeter to the V-shaped outer
20 border (18); and

(c) a pull tab (24) projecting outwardly from a surface of the membrane
and attached adjacent to the pivot point (22) of the V-shaped outer
border (18).

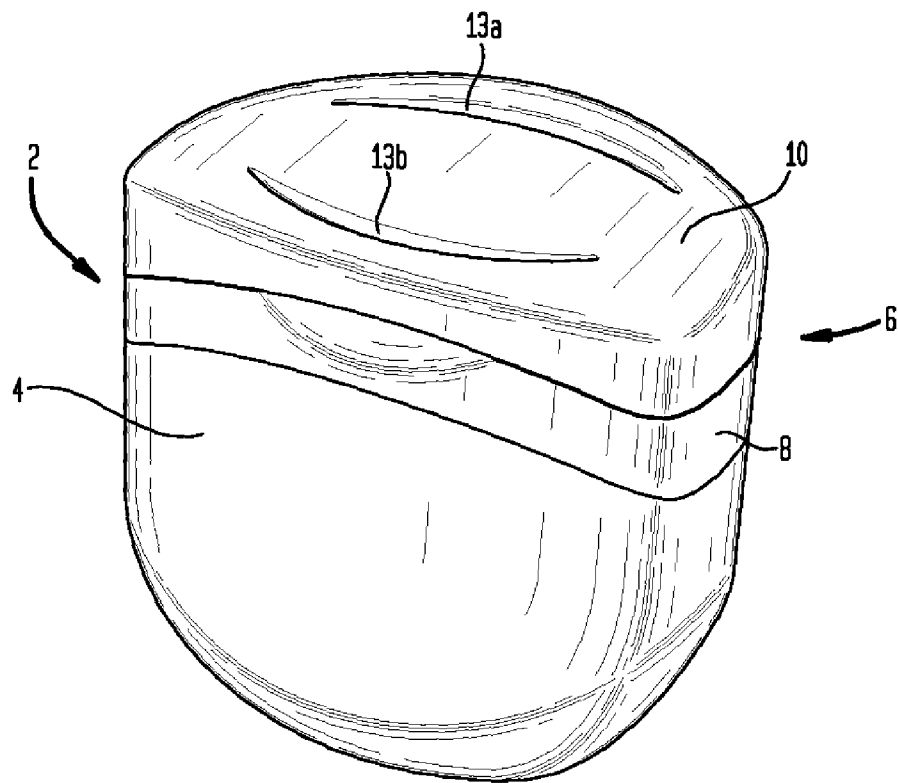
25 2. A container according to claim 1 further comprising a pair of intersecting bars
(32a, 32b) formed on the minor area and tracing the V-shaped outer border
(18) along at least 80% of a length thereof.

30 3. A container according to claim 2 wherein the bars (32a, 32b) form an angle at a
point of intersection ranging from 90 to 170°.

4. A container according to claim 2 wherein the bars (32a, 32b) form an angle at a point of intersection ranging from 110 to 150°.
- 5 5. A container according to any one of the proceeding claims wherein the pull tab (24) comprises a ring (26) and a post (28), the ring (26) being supported by the post (28).
6. A container according to claim 5 wherein the post (28) at an end attached to the membrane features at least two feet (30) broadening the end.
10
7. A container according to any one of the proceeding claims further comprising on an undersurface of the shelf a central rib (38) projecting downwardly into the container with a length oriented toward the pivot point (22).
- 15 8. A container according to claim 7 further comprising on the undersurface of the shelf a lateral rib (40a, 40b) flanking each side of the central rib, the flanking ribs (40a, 40b) having a longer dimension than that of the central rib (38).
9. A container according to claim 8 wherein the flanking ribs (40a, 40b) taper
20 inward toward one another.

1/5

FIG. 1



2/5

FIG. 2

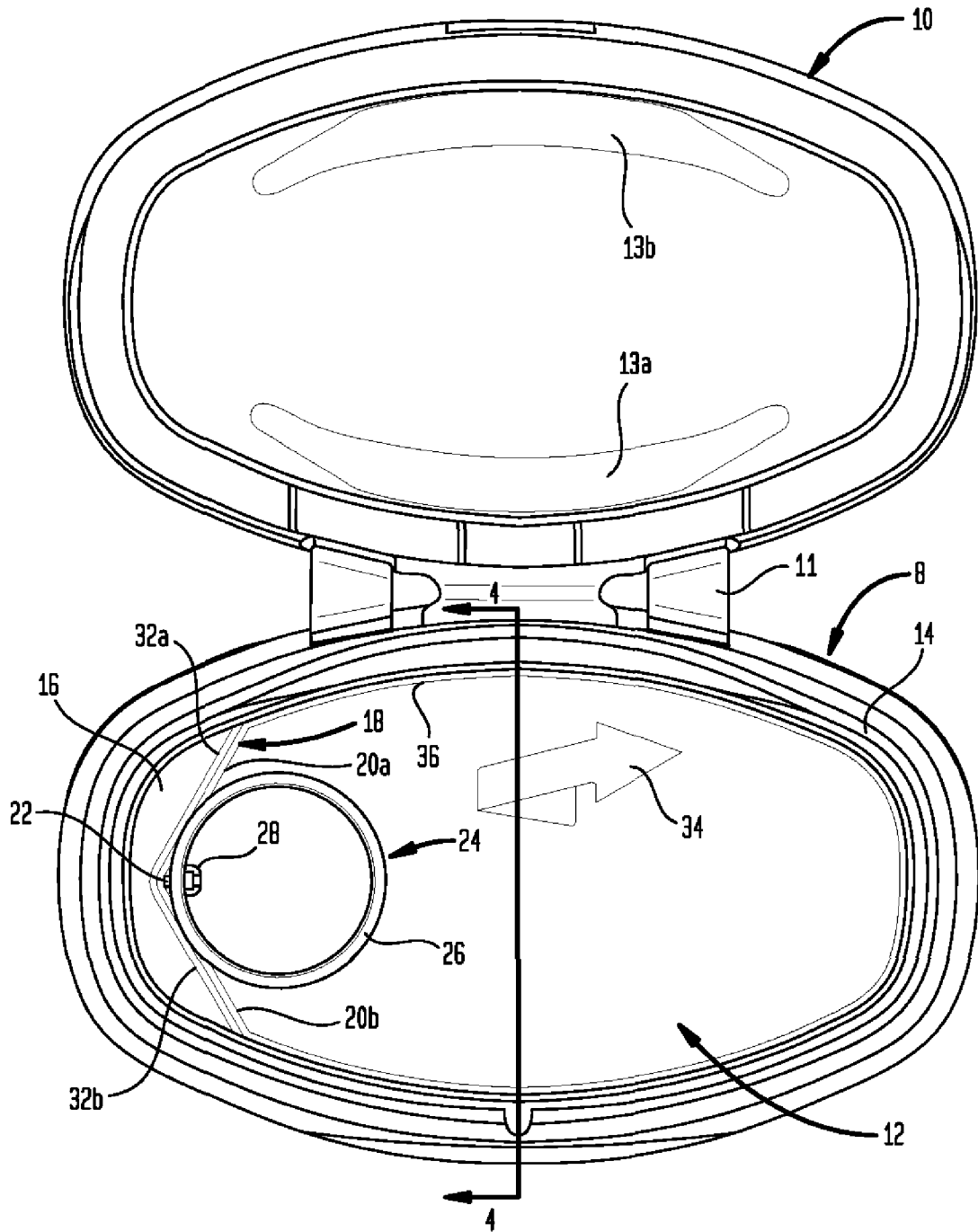


FIG. 3

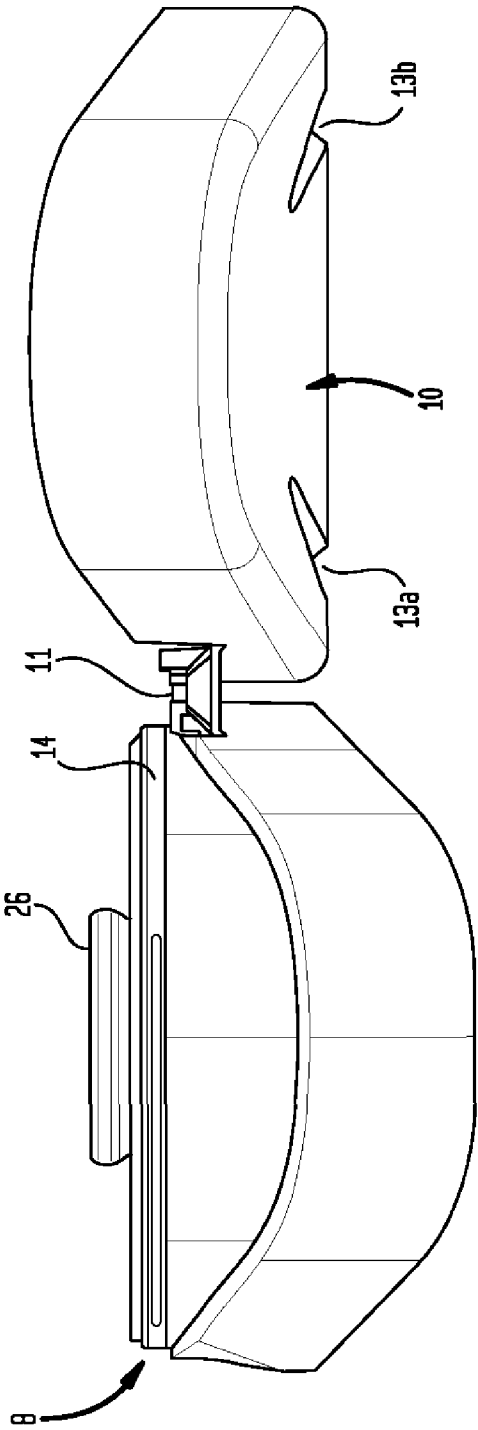
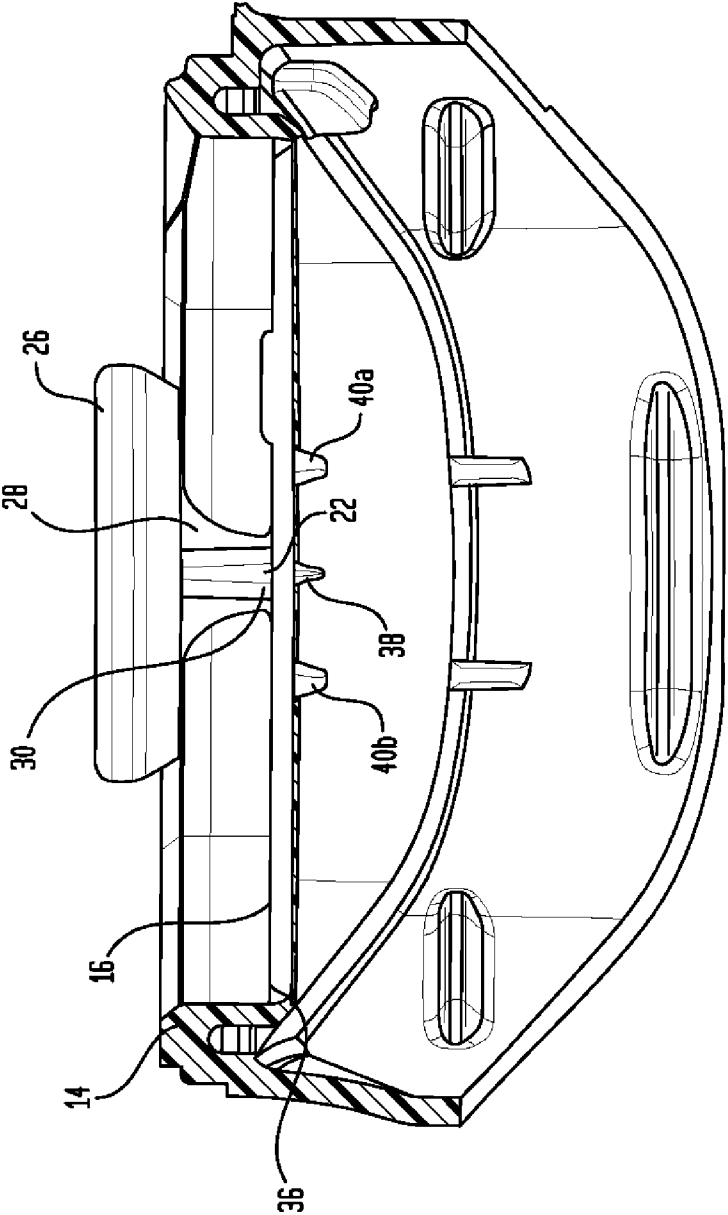
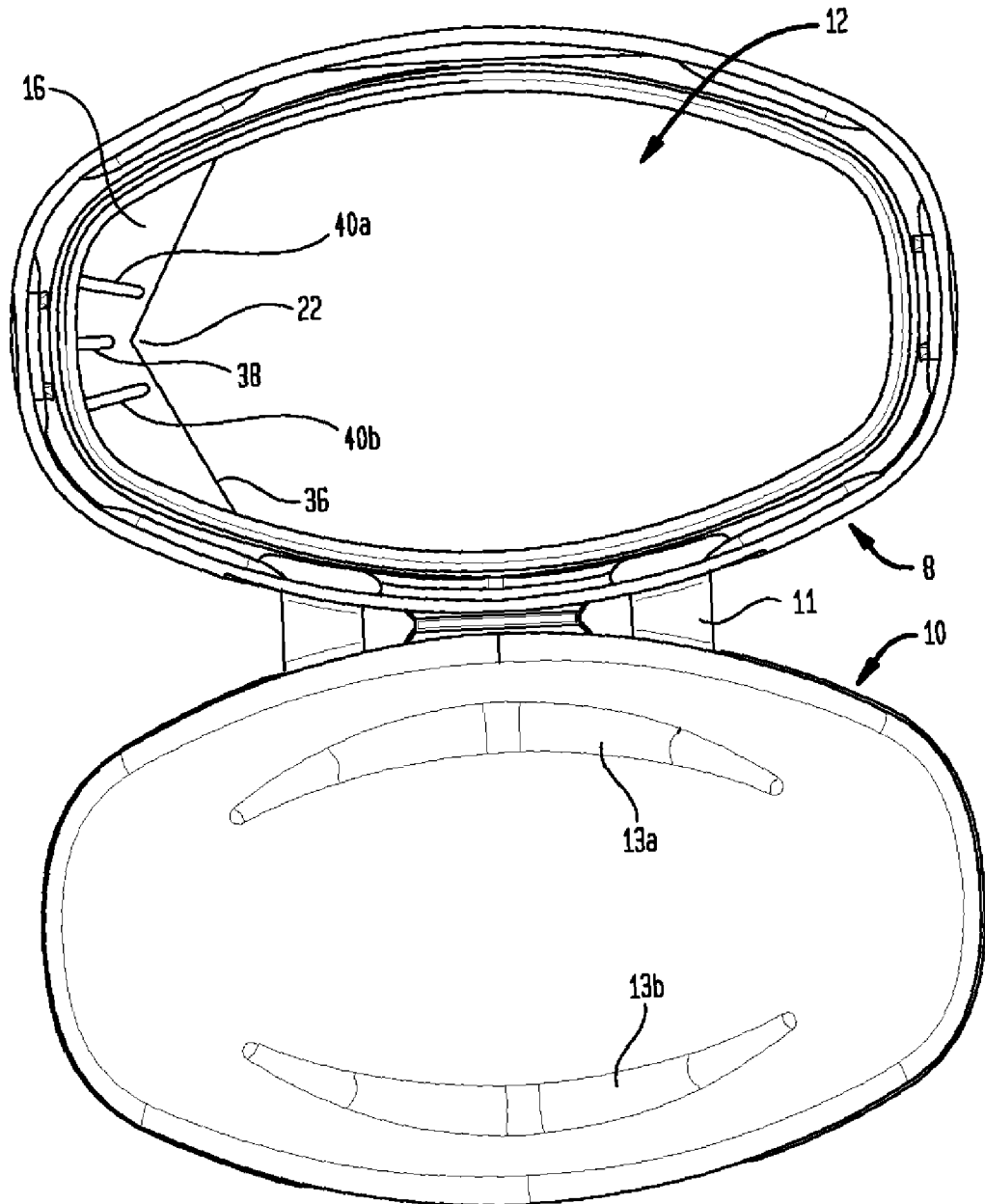


FIG. 4



5/5

FIG. 5



INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2012/057958

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D43/16 B65D51/20
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)
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 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.
A	FR 2 824 813 A1 (SAFET [FR]) 22 November 2002 (2002-11-22) page 3, line 21 - page 4, line 19; figures -----	1
A	EP 1 157 936 A2 (KRAFT FOODS HOLDINGS INC [US]) 28 November 2001 (2001-11-28) column 5, paragraph 24 - column 6, paragraph 29; figures -----	1
A	US 5 667 092 A (JULIUS ROBERT P [US] ET AL) 16 September 1997 (1997-09-16) column 5, line 62 - column 6, line 7; figure 12 -----	1
A	US 4 724 977 A (CLEEVELY BRUCE T [US] ET AL) 16 February 1988 (1988-02-16) column 3, line 34 - column 5, line 24; figures ----- -/-	1



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

26 June 2012

Date of mailing of the international search report

04/07/2012

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

Newell, Philip

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2012/057958

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 462 379 A2 (PORTOLA PACKAGING LTD [GB]) 29 September 2004 (2004-09-29) page 10, paragraph 49; figure 4 -----	5,6

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2012/057958

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2824813	A1	22-11-2002	NONE
EP 1157936	A2	28-11-2001	CA 2348337 A1 26-11-2001 EP 1157936 A2 28-11-2001 US 6761283 B1 13-07-2004
US 5667092	A	16-09-1997	AU 7175194 A 29-09-1994 US 5474199 A 12-12-1995 US 5667092 A 16-09-1997 WO 9516616 A1 22-06-1995
US 4724977	A	16-02-1988	NONE
EP 1462379	A2	29-09-2004	AU 2004200440 A1 14-10-2004 CA 2449926 A1 26-09-2004 EP 1462379 A2 29-09-2004 GB 2399814 A 29-09-2004 GB 2428669 A 07-02-2007 US 2004217083 A1 04-11-2004 US 2009188887 A1 30-07-2009 ZA 200309139 A 21-07-2004