(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
23 July 2009 (23.07.2009)

PCT

(10) International Publication Number
WO 2009/090224 A1

(51) International Patent Classification:
B65D 47/24 (2006.01) *B65D 77/06* (2006.01)
B65D 51/16 (2006.01)

(21) International Application Number:
PCT/EP2009/050443

(22) International Filing Date: 15 January 2009 (15.01.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
08100515.9 15 January 2008 (15.01.2008) EP

(71) Applicant *(for all designated States except US)*: **InBev S.A.** [BE/BE]; Grand-Place 1, B-1000 Bruxelles (BE).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **VANHOVE, Sarah** [BE/BE]; Strijdersstraat 10, B-3370 Boutersem (BE). **PEIRSMAN, Daniël** [BE/BE]; Eksterlaan 6, B-2880 Bornem (BE). **VALLES, Vanessa** [BE/BE]; Jagerstraat 42/9, B-3500 Hasselt (BE).

(74) Agent: **GEVERS, François**; Gevers & Vander Haeghen, Holidaystraat 5, B-1831 Diegem (BE).

(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, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:
— *of inventorship (Rule 4.17(iv))*

Published:
— *with international search report*

(54) **Title:** ASSEMBLY OF A CONTAINER AND A CLOSURE

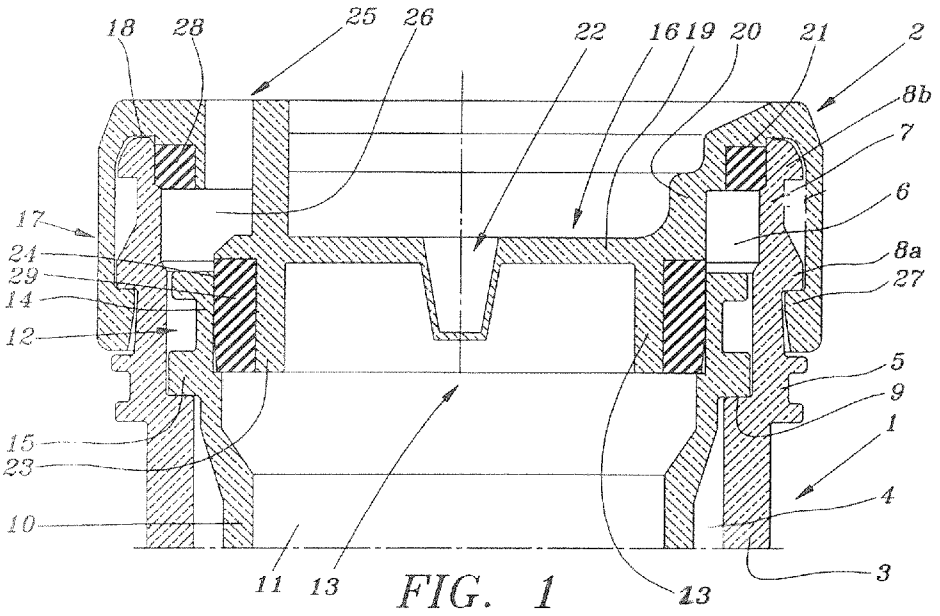


FIG. 1

(57) **Abstract:** An assembly of a container and a closure: the container comprising an outer shelf having a neck portion defining a first access opening and a flexible inner bag having a neck finish defining second access opening; the closure being fixed to the container, said closure comprising at least two access ports positioned in front of said access openings and; the assembly comprising sealing means positioned between the closure and the container, characterized in that said sealing means comprise at least two distinct sealing members, one positioned between the closure and the neck portion, the other positioned between the closure and the neck finish.

WO 2009/090224 A1

ASSEMBLY OF A CONTAINER AND A CLOSURE

Field of the Invention

The present invention generally relates to an assembly of a container and a closure, the container comprising an outer shelf having a neck portion defining a first access opening and a flexible inner bag having a neck finish defining second access opening, the closure being fixed to the container, thereby covering both access openings and the assembly comprising sealing means positioned between the closure and the container.

Background of the Invention

With the increasing success of home appliance systems for carbonated beverages such as beer, there is an increasing need for safe and easy to handle containers guaranteeing an optimal storing capacity for the beverage in terms of quality maintenance and shelf life. As an answer to the mentioned needs, containers have been developed comprising an outer shelf having a neck portion defining a first access opening and a flexible inner bag having a neck finish defining second access opening. Such containers are generally known as bag-in-box containers.

To adequately seal the openings while allowing access thereto for dispensing a fluid from the container, it is known to use valve assemblies that can be actuated by dispensing means provided in the home appliance systems. However valve assemblies are expensive and consist of several parts of different materials, rendering the valve assembly difficult to recycle. To overcome the above inconveniences, the home appliance systems are provided with dispensing means comprising valve assemblies, while the containers are provided with a closure comprising an access port where through the dispenser means can be introduced in the container.

WO 89/07575 discloses an assembly of a closure and a bag-in-box container, comprising two distinct sealing members, a first sealing member in the form of a sheet provided on the neck finish of the inner bag and as such sealing the access

opening defined by said neck finish. A second sealing member in the form of a sheet is applied on the outer surface of the closure and covers both access ports defined therein. A drawback of this known assembly is that it can not be combined with the use of a closure having an access port that in a fixed position of the closure on the container extends into the access opening of the inner bag as in that case, the concerning sealing member would be broken.

Another drawback of a sealing member according to WO 89/07575 is that is has to be removed or pierced to gain access to the container and inner bag. This seriously limits material choice for the sealing members that need on one hand to fulfil a sealing function and on the other hand to be such that no parts can fall off during piercing of the member since such parts can fall into the liquid stored in the container.

A sealing member according WO 89/07575 has further the inconvenience in that it is difficult to apply on the neck finish of the inner bag once this is applied in the outer shelf. Indeed, the access opening of the neck portion of the outer shelf limits freedom to handle. This inconvenience is very pertinent when the inner bag and outer shelf are assembled in a preform stage and consecutively blow moulded together. This method for manufacturing the container includes maintaining the access port of both the inner bag and the outer shelf open at the time of assembling both parts, since the access openings are needed to insert air therein during blow moulding.

Given the above drawbacks and inconveniences, it is now an objective of the present invention to provide an assembly of a container and a closure comprising sealing means that allow design flexibility with regard to both the container and the closure, in particular of the access openings and access ports thereof.

It is a further objective of the present invention to provide a container of the bag-in-box type with an efficient overpressure relief system.

It is generally known that containers for storing carbonated beverages necessitate an overpressure relief system. Such an overpressure relief system has the aim to prevent uncontrolled burst of the container or an uncontrolled ejection of a valve or

closure fixed thereto. Existing overpressure relief systems included containers having weakened spots in their body so as to allow a controlled burst in case of overpressure of the use of overpressure valves. With the increasing interest in home appliances, containers with weakened spots in their body have become undesirable, while valves are considered as expensive and as such also undesired. Accordingly, overpressure relief systems have been incorporated in the closure of containers.

Overpressure release systems are described in the art. For example EP-A-1 614 636 and US 5,328,063 both disclose a closure comprising a mount piece that is snap fitted on a container and defining an outflow opening thereof. Centrally in the outflow opening is provided a stem that is an integral part of the mount piece. The closure further comprises a closure cap fixed to the mount piece, the closure cap comprising a flexible diaphragm sealing an outlet of the container and having a free edge that engages the stem. When overpressure occurs in the container, the flexible diaphragm deforms and an opening is created between the stem and the free end of the diaphragm, thereby allowing overpressure relief.

A drawback of the prior art closures incorporating an overpressure relief system is that the essentially comprise a flexible diaphragm, which clearly limits design options with respect to access control by example given piercing. Another drawback is that said closures comprise different materials, in particular a rigid portion for the fixation of the closure to the mount piece of container and a flexible portion for allowing overpressure relief. Hence, the manufacturing and recycling of the known closures is relatively complicated and expensive.

Summary of the Invention

The present invention concerns an assembly of a container and a closure,

- the container comprising an outer shelf having a neck portion defining a first access opening and a flexible inner bag having a neck finish defining second access opening;
- the closure being fixed to the container, said closure comprising at least two access ports positioned in front of said access openings and;

- the assembly comprising sealing means positioned between the closure and the container,

wherein said sealing means comprise at least two distinct sealing members, one positioned between the closure and the neck portion, the other positioned between the closure and the neck finish.

Preferably, the assembly comprises an overpressure relief system. According to a preferred embodiment, the overpressure relief system comprises a fixation between the closure and the container, the fixation comprising two fixation positions in between which the closure is movable, a first fixation position wherein the closure seals the opening of the container and a second fixation position wherein the sealing between the closure and the container is disrupted, thereby allowing pressure relief.

Brief Description of the Drawings

In order to better explain the characteristics of the invention, the following preferred embodiments of an assembly according to the invention is given as an example only without being limitative in any way, with reference to the accompanying drawings, in which:

Figure 1 represents a cross section of an assembly according the present invention;
Figure 2 represents a corresponding cross section of the assembly as figure 1, though in another fixation position of the closure on the container;
Figure 3 represents a perspective view of a closure according the present invention;
Figures 4 and 5 represent cross sections corresponding to figures 1 and 2, in alternative embodiment mode.

Detailed Description of Embodiment(s)

Figure 1 represents an assembly according to the present invention, the assembly comprising a container 1 and a closure 2 fixed thereon.

The container 1 comprises an outer shelf 3 defining a space 4 and provided with a neck portion 5 defining an access opening 6. In the represented embodiment, the

neck portion 5 comprises a cylindrical wall part 7 whereon are provided at least two sets 8a and 8b of outwardly extending protrusions, both sets being provided at a different level of the neck portion 5.

The neck portion 5 of the outer shelf 3 further comprises a shoulder portion 9 creating a seat at the inner edge of the neck portion 5.

The different protrusions of a single set 8a or 8b are preferably positioned in an annular configuration and on a same level of the neck portion 5 and can be mutually spaced apart or can form a continuous annular rim.

In the space 4 defined by the outer shelf 3 is provided an inner bag 10 manufactured in a flexible material. This inner bag 10 encloses an inner space 11 and is provided with a neck finish 12 defining an access opening 13. At its neck finish 12, the material thickness of the inner bag 10 is substantially thicker than over the rest thereof, making the neck finish 12 substantially rigid. The neck finish 12 essentially comprises a cylindrical wall part 14 provided with an outwardly extending rim 15 resting on the above mentioned seat 9 provided in the neck portion 5 of the outer shelf 3.

As represented in figure 3, the closure 2 comprises a base 16 and a skirt 17 extending transversally with respect to the general plane of the base 16.

The base 16 is provided with a hub 18 having a peripheral edge extending into the skirt 17. The inner edge of the hub extends into a central disc 19 by a intermediate wall 20. As will be appreciated from figure 1, the intermediate wall 20 is provided with an outwardly directed shoulder 21 adjacent to the hub 18. The intermediate wall is preferably designed in a step-wise configuration.

The disc 19 is preferably provided with a wedged area 22 creating a piercable primary access port to the inner bag 10, while concentrically around the wedged area 22, a further cylindrical wall portion 23 is provided on said disc 19, the further wall portion 23 extending in a same sense as the skirt 17 and having a diameter that is smaller than the diameter of the disc 19, thereby creating a shoulder 24.

Along the intermediate wall 20 of the closure 2 is provided a secondary access port 25 to the space 4 intermediate the inner bag 10 and the outer shelf 3. In the represented embodiment, this access port is created by a cylindrical tube extending in a same longitudinal direction as the closure 2 up to the above mentioned disc 19. The tube comprising an open end near the hub and a lateral opening 26 adjacent said disc 19.

Turning now to the skirt 17, it will be appreciated that it comprises a continuous cylinder, whereon a set of inwardly directed protrusions 27 is provided.

In an assembled position of the closure 2 and the container 1, the closure is fixed in a first fixation position, wherein the protrusions 27 of the closure are snap-fitted behind the protrusions 8a of the container 1. As clearly represented in figure 1, the further wall portion 23 partially extends in the access opening 13 defined by the neck finish 12, while the disc 19 of the closure 2 or at least the lateral opening 26 in the second access port 25 is situated in the access opening 6 of the outer shelf, though not in the access opening 13 of the inner bag 10.

According to the invention, sealing means are provided in between the closure and the container, said sealing means at least comprising a first sealing member 28 positioned between the closure 2 and the neck portion 5 of the container. As such the first sealing member is positioned at the circumference of the access opening 6 of the outer shelf 3. The sealing means further comprise a second, distinct sealing member 29 positioned between the closure 2 and the neck finish 12 of the inner bag 10. As such the second sealing member is positioned at the circumference of the access opening 13 of the inner bag 10. For the purpose of the present invention the term "distinct" should be understood that the sealing members 28-29 are acting on different, spaced apart places. In case both sealing members 28-29 are mutually connected by a connecting part having no sealing functionality the mutually connected sealing members 28-29 should be considered as distinct sealing members.

The first sealing member 28 is essentially a sealing ring made of a resilient, preferably elastomeric like material and positioned in the shoulder 21 provided at the

intermediate wall 20 of the closure 2. As represented in figure 1, this sealing member 28 engages both said shoulder 21 and the inner edge of the neck portion 5 of the outer shelf 3, thereby sealing the space 4 in the outer shelf 3 from the atmosphere (apart from the second access port 25).

The second sealing member 29 is essentially cylindrical with open ends and is interposed between the shoulder portion 24 and the inside of the neck finish 12 of the inner bag 10, thereby segregating the space 4 in the outer shelf 3 from the space 11 in the inner bag 10. This segregation of both spaces 4 and 11 allows both preventing fluids stored in the inner bag to leak into the space 4 in the outer shelf 3, it also allows preventing fluid, in particular O2, ingress in the inner bag 10. The second sealing member 29 is preferably manufactured in a same material as the first sealing member 28, though can also be manufactured in a different resilient and preferably elastomeric like material.

In a preferred embodiment and as represented in figures 1 and 2, the first sealing member 28 is provided between the intermediate wall 20 of the closure 2 and the radial inner surface of the neck portion 5 of the container 1, while the second sealing member 29 is provided in between the radial outer surface of wall portion 23 of the closure 2 and the inner radial surface of neck finish 12 of the inner bag 10.

Preferably the height H1 and H2 of both sealing members 28 and 29 is smaller than the distance D between both sets of protrusions 8a and 8b provided on the neck portion 5 of the outer shelf 3. It is noticed however, that the second sealing member 29 preferably has a substantial height H2. Furthermore, preferably at least the second sealing member 29 and even more preferably both sealing members 28-29 have a given thickness. This thickness is especially preferred when the closure 2 is manufactured in a material having a greater axial thermal expansion coefficient than the axial thermal expansion coefficient of the inner bags neck finish 12. As such, upon temperature increase, the closure will more closely fit in the neck portion of the container 1, thereby compressing the second sealing member 29 between the closure and the radial inner surface of the neck finish 12 and ensuring good sealing against fluid leakage out of the inner bag 10. The thickness of the second sealing member 29 is hereby important to provide compression capability, since otherwise,

the thermal expansion of the closure will act directly on the neck finish of the inner bag 10 and the neck portion 5 of the container 1, and may cause damage. The thermal expansion coefficient is hereby defined as the relation between a change in temperature to a change in a material's linear dimensions. It is the fractional change in length per degree of temperature change. Furthermore, the thickness and/or height of the sealing members 28-29 allows good resistance against fluid permeation therethrough.

It is apparent that with the assembly according the invention, the sealing means do not form part of the access ports 22 and 25 and do not need to be pierced to gain access to the space 4 in the outer shelf 3 or to the space 11 in the inner bag 10. In the case the closure 2 is positioned as represented in figure 1, i.e. in the fixation position the sealing means essentially provide only a sealing function and do not act as access ports.

In a preferred embodiment, both sealing members 28 and 29 are fixed to the closure 2, thereby facilitating the assembly of the closure 2 on the container 1, while assuring that the sealing members 28 and 29 are positioned correctly. The fixation can be achieved by gluing, overmoulding or any other known fixation technique assuring good contact between the sealing members and the closure.

However, it is also possible to fix the sealing members on the container or to use loose sealing members.

Overpressure relief system

According to the invention the assembly of container 1 and closure 2 comprises an overpressure relief system comprising a fixation between the closure 2 and the container 1, said fixation comprising two positions in between which the closure 2 is movable.

In the represented embodiment, the overpressure relief system comprises both sets of protrusions 8a and 8b of the neck portion 5 as well as the skirt 17 and the corresponding set of protrusions 27.

In the above configuration of the assembly according to the invention, the first fixation position is the one wherein the set of protrusions 27 located on the skirt 17 are snap fitted (i.e. clamped) behind the set of protrusions 8a located closest to the containers body and wherein the closure 2 seals said opening 6 of the outer shelf 3 and the opening 13 of the inner bag 10.

A second fixation position is represented in figure 2 and is defined as the position wherein the set of protrusions 27 of the skirt 17 are snap fitted behind the set of protrusions 8b located distant from the containers body. In this second fixation position, the sealing of the openings 6 and 13 is disrupted. The disruption of the sealing is assured by designing the sealing members 28 and 29 such that their height H1 and H2 is smaller than the distance D where over the closure 2 is moved by altering its fixation position. Clearly, disrupting the sealing of the space in the inner bag 10 in view of the atmosphere allows overpressure relief.

Upon positioning the closure 2 in the first (sealing) fixation position and an overpressure arises in the container, the overpressure will force the closure 2 upward into the second fixation position, wherein the overpressure is released, without the closure being loosened from the container. As such a controlled system is obtained to handle the safety issue of overpressure occurring in the container 1.

In the above described embodiment, the different protrusions can either be distinct spaced apart protrusions or can form a continuous ring.

In case the protrusions 27 form such a continuous ring and in the case the protrusion 8b located distant from the container 1 form a continuous rim, it is preferred that in either the ring or the rim or in both are provided some lateral grooves (not shown) that ensure contact between the space 4, 11 confined by the container and the environment when the closure 2 is positioned in the second fixation position (i.e. the position allowing overpressure relief).

Appropriate materials for both the outer shelf and the closure or at least the elements constituting the overpressure relief system are stainless steel or one or more of a synthetic material such as for example polyesters and/or polyolefins.

In accordance with the above described embodiments, the neck portion 5 comprises at least two sets of protrusions 8a and 8b, while the closure is provided with at least one set of protrusions 27. In accordance with further embodiments the overpressure relief system can also comprise at least two sets of protrusions on the closure 2, and at least one set of protrusions on the neck portion 5, wherein during movement of the closure 2 from a first fixation position to a second fixation position, the same set of protrusions on the neck portion 5 disengages the first set of protrusions of the closure 2 and subsequently engages the second set of protrusions of said closure 2.

Apart from the above described overpressure relief system that is primarily meant as a safety measure when the pressure in the container increases to a level where burst of the container or the closure or closure blow off may occur, it is noted that the design of the closure as described in the preferred embodiment also allows gradual pressure release at lower pressure levels. Indeed, upon pressure build up, the base of the closure will slightly deform, i.e. bulge outward. The bulging results in an axial displacement of the closure 2 in a direction out of the container 1 and of a distance that is smaller than the height of the second sealing member 29 that remains engaged. As a result of the displacement of the closure 2, the head space in the container increases in volume and the pressure inside the container will slightly drop. When the pressure still further increases, the closure will bulge out some more and the second sealing member 29 will disengage from the inner surface of the neck finish 12. As such active venting is allowed. Once the pressure drops, the closure will regain its original form and the sealing member 29 will be reengaged.

The bulging of the closure and particularly the axial displacement resulting there from is, in this case, attained by the step-wise design of the intermediate wall 20 of the closure 2, allowing a displacement of the base 16 without any major displacement of the hub 18 and hence without loosening the snap fit.

Alternative embodiment

Figures 4 and 5 represent an alternative embodiment of an assembly according the present invention. The assembly corresponds to the assembly described with reference to figures 1 to 3, apart from the fixation of the closure on to the container being achieved by just one set of outwardly extending protrusions 8a on the containers neck portion, thereby working in conjunction with the inwardly directed protrusions provided on the closure. Further, the base of the closure can be designed such to provide flexibility resulting into outwards bulging upon sealing a container wherein a given overpressure occurs.

From the above, it is evident that such design options can be achieved in numerous manners well-known in the practice of manufacturing.

Another alternative embodiment such as described with reference to figures 1 to 3 resides in the design of the sealing member 29 positioned in between the closure 2 and the neck finish 12 of the inner bag 10. This sealing member 29 is essentially cylindrical with open ends and is provided with at least one and preferably several intrusions 30 positioned along the outer edge of the sealing. These intrusions 30 extend over a part of the height H2 of the sealing member 29 at that side of the sealing member 29 that -upon assembly, between closure and container- is directed towards the inside of the container. The part or parts of the sealing positioned in the extension of these intrusions have a height H2' which is less than the displacement of the base of the closure during deformation caused by the overpressure in the container.

As will be appreciated from figure 5, the above alternative embodiment of the assembly of the invention incorporates an overpressure relief system. Indeed, in case a given overpressure arises in the container's inner bag 10, the base 16 of the closure will bulk outward, thereby displacing the second sealing member 29. Due to that displacement, the second sealing member 29 will be displaced such that the part or parts of that sealing member 29 situated in the extension of the intrusions 30 is disengaged from the inner bag's neck finish 12. As such, the intrusions 30 form venting channels between the space 11 in the inner bag and the intermediate space 4 which, in turn, is in communication with the ambient atmosphere via the second

access port 25, thereby allowing overpressure relief. Alternatively, the first sealing member 28 can also be provided with an intrusion corresponding to the intrusion 30 in the second sealing member 29, such that in case of deformation of the closure 2, the first sealing member 28 too disengages.

Upon pressure drop at a given level, the closure will regain its original form and the sealing members will be reengaged and reseal the inner space 11 from the intermediate space 4 the intermediate space 4 being sealed from the ambient atmosphere.

From the above, it is evident that for the alternative embodiment, the fixation of the closure to the container is not limited to a so-called snap-fit fixation, but can also be achieved in numerous other fixation means such as, for example, by means of a thread.

The above described assemblies according the invention are particularly suited for containers designed to contain carbonated beverages, such as for example beer.

It is noted that the container according to the present invention is a container of the type generally known as bag-in-containers, also referred to as bag-in-bottles or bag-in-boxes depending on the geometry of the outer vessel, all terms considered herein as being comprised within the meaning of the term bag-in-container, are a family of liquid dispensing packaging consisting of an outer container comprising an opening to the atmosphere --the mouth-- and which contains a collapsible inner bag joined to said container and opening to the atmosphere at the region of said mouth. The system must comprise at least one vent fluidly connecting the atmosphere to the region between the inner bag and the outer container in order to control the pressure in said region to squeeze the inner bag and thus dispense the liquid contained therein.

Traditionally, bag-in-containers were --and still are-- produced by independently producing an inner bag provided with a specific neck closure assembly and a structural container (usually in the form of a bottle). The bag is inserted into the fully formed bottle opening and fixed thereto by means of the neck closure assembly,

which comprises one opening to the interior of the bag and vents fluidly connecting the space between bag and bottle to the atmosphere; examples of such constructions can be found inter alia in US-A-3484011, US-A-3450254, US-A-4,330,066, and US-A-4892230.

Finally it is remarked that the present invention does not address assemblies of containers and closures comprising one or more valve assemblies provided in the access openings 6, 13 shut off by the closure 2.

The present invention is by no means limited to the embodiments described above and represented in the accompanying figures; on the contrary, such an assembly of a container and a closure comprising an overpressure relief system can be made in various executions while still remaining within the scope of the invention.

CLAIMS

1. An assembly of a container and a closure,
   - the container (1) comprising an outer shelf (3) having a neck portion (5) defining a first access opening (6) and a flexible inner bag (10) having a neck finish (12) defining second access opening (13);
   - the closure (2) being fixed to the container (1), said closure (2) comprising at least two access ports (22, 25) positioned in front of said access openings (6, 13) and;
   - the assembly comprising sealing means positioned between the closure (2) and the container (1),

   characterized in that said sealing means comprise at least two distinct sealing members (28, 29), one positioned between the closure (2) and the neck portion (5), the other positioned between the closure (2) and the neck finish (12).

2. The assembly according to claim 1, characterized in that the assembly comprises an overpressure relief system.

3. The assembly according to any of claims 1 and 2, characterized in that the closure (2) is manufactured in a material having a greater axial thermal expansion coefficient than the axial thermal expansion coefficient of the inner bag (10).

4. The assembly according to claim 2, characterized in that the overpressure relief system comprises a fixation between the closure (2) and the container (1), the fixation comprising two fixation positions in between which the closure (2) is movable, a first fixation position wherein the closure (2) seals the opening of the container (1) and a second fixation position wherein the sealing between the closure (2) and the container (1) is disrupted, thereby allowing pressure relief.

5. The assembly according to claim 4, characterized in that the sealing members (28, 29) are cylindrical with open ends.

6. The assembly according to any of the preceding claims, characterized in that the sealing members (28, 29) have a height (H1, H2) that is smaller than the distance (D) of displacement of the closure (2) when moving from the first fixation position to the second fixation position.

7. The assembly according to any of the preceding claims, characterized in that the closure (2) comprises a flexible base (16).

8. The assembly according to any of the preceding claims, characterized in that the second sealing member (29) is provided with at least one intrusion (30) provided at the periphery of the sealing member (29) and at the side thereof which, upon assembly, is directed towards the container (1).

9. The assembly according to any of the preceding claims, characterized in that the sealing members (28, 29) are fixed to the closure (2).

10. The assembly according to any of the preceding claims, characterized in that the neck portion (5) of the container (1) is provided with at least two sets of outwardly extending protrusions (8a, 8b), both sets being provided at a different level.

11. The assembly according to claim 10, characterized in that the closure (2) comprises a base part (16) and a skirt (17) extending transversally with respect to the base (16), the skirt (17) comprising at least one set of inwardly directed protrusions (27) configured to snap fit the closure (2) behind one of the sets of protrusions (8a, 8b) on the containers neck portion (5).

12. The assembly according to any of the preceding claims, characterized in that the container (1) is designed to contain carbonated beverages.

13. A closure having a base (16), a skirt (17) and sealing means, the closure defining two distinct access ports (22, 25), characterized in that the sealing

means comprise two distinct sealing members (28, 29) each positioned at the circumference of a different access port (22, 25).

14. A container comprising an outer shelf (3) having a neck portion (5) defining a first access opening (6) and a flexible inner bag (10) having a neck finish (12) defining second access opening (13), the container (1) further comprising sealing means, characterized in that said sealing means comprise at least two distinct sealing members (28, 29), one provided at the circumference of the first access opening (6), the other provided at the circumference of the second access opening (13).

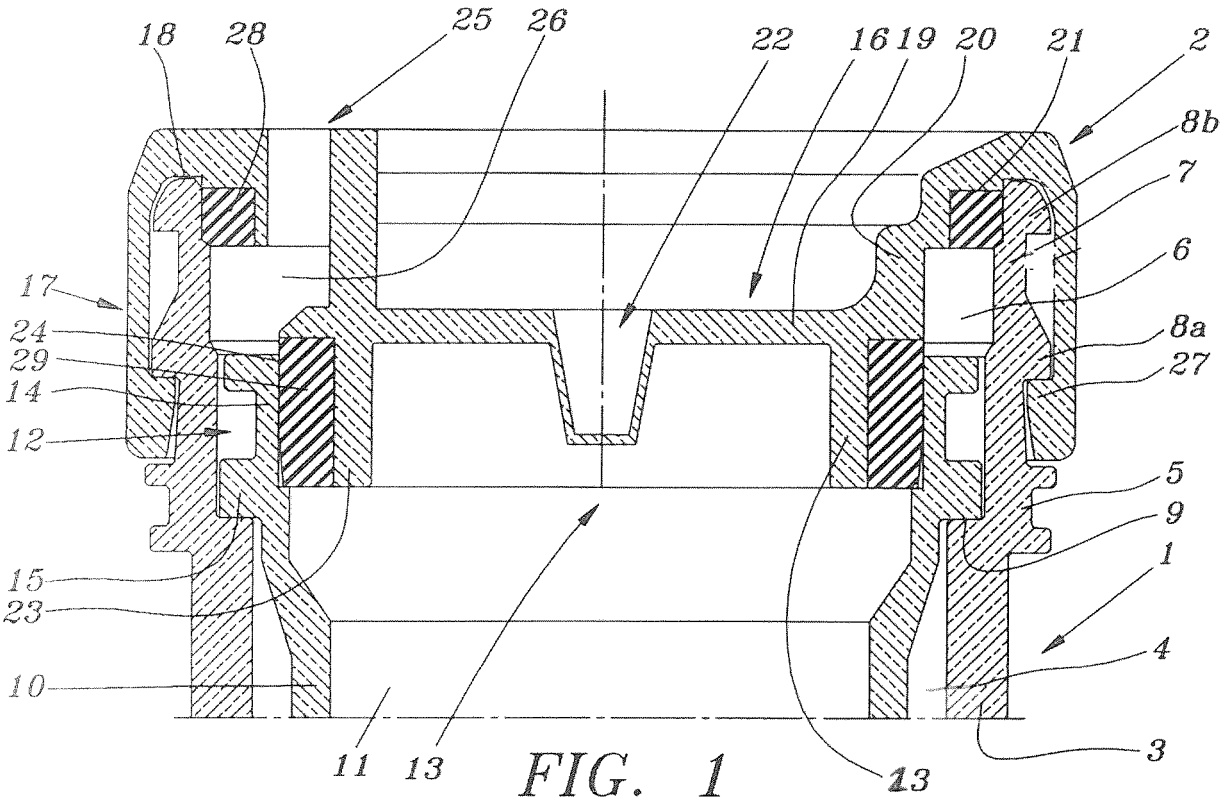

18
28
25
26
22
16
19
20
21
2
8b
7
6
17
24
29
14
12
8a
27
5
9
1
15
23
4
10
3
11
13
13

FIG. 1

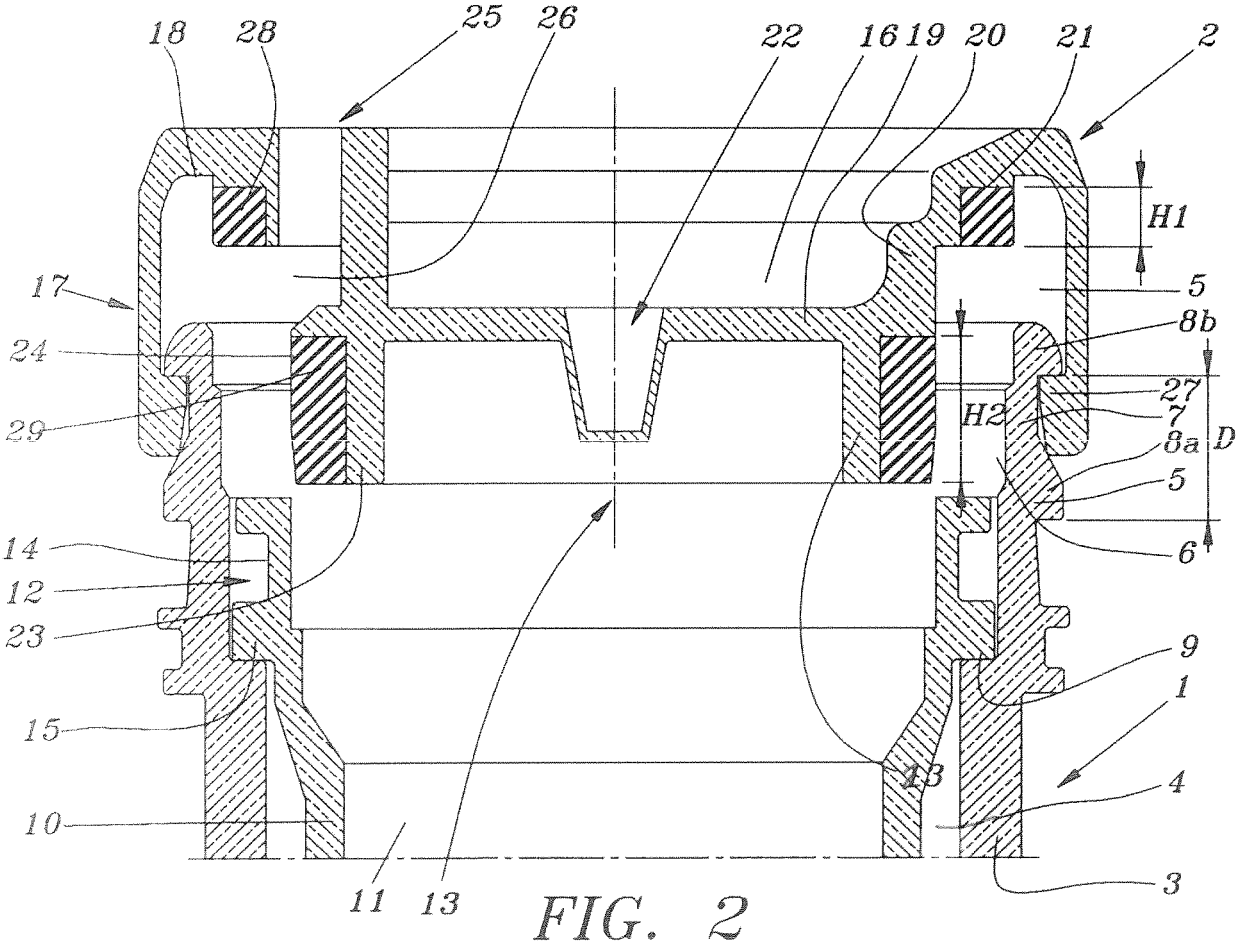

18
28
25
26
22
16
19
20
21
2
H1
17
5
8b
24
27
29
H2
7
8a
D
5
14
6
12
23
9
1
15
13
4
10
3
11
13

FIG. 2

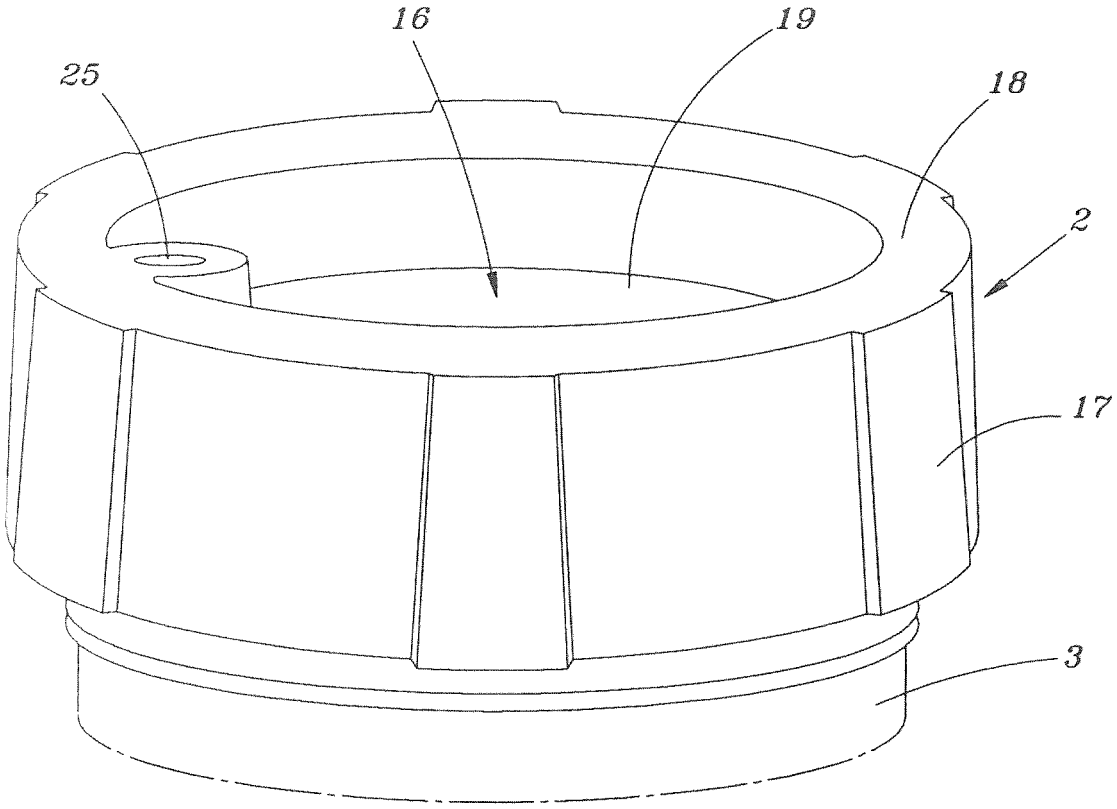

16
19
25
18
2
17
3

FIG. 3

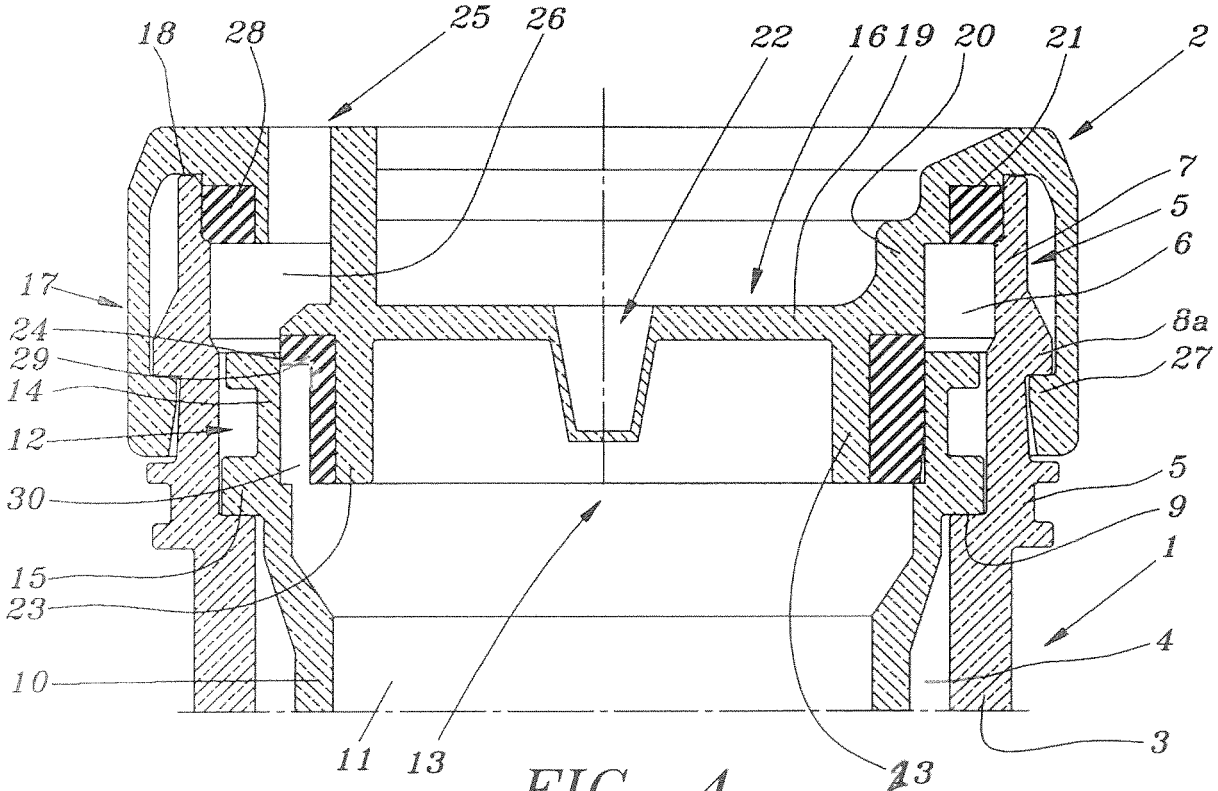

18
28
25
26
22
16
19
20
21
2
7
5
6
17
8a
24
27
29
14
12
5
30
9
1
15
4
23
10
3
11
13
13

FIG. 4

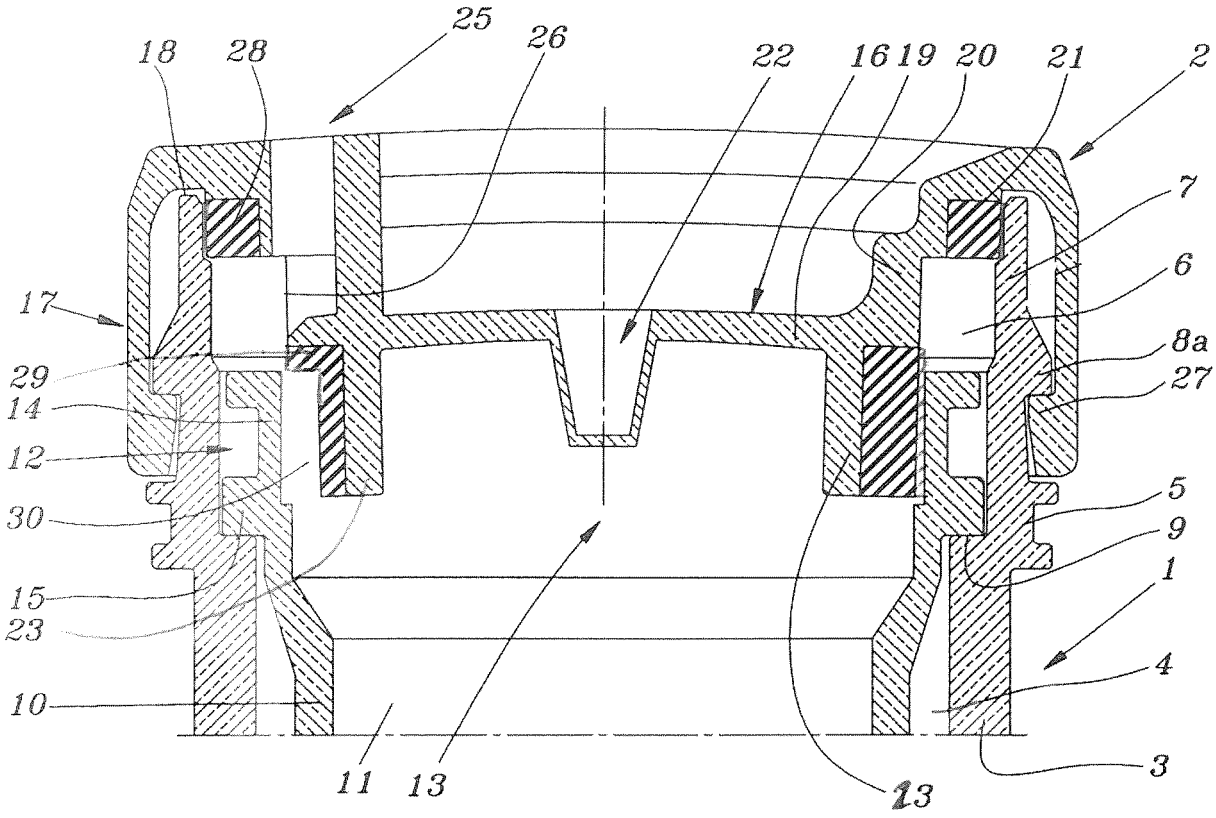

25
26
18
28
22
16
19
20
21
2
7
6
17
8a
29
27
14
12
5
30
9
1
15
23
4
10
3
11
13
13

FIG. 5

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2009/050443

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D47/24 B65D51/16 B65D77/06

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 practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 484 011 A (GREENHALGH WILLIAM ET AL) 16 December 1969 (1969-12-16) cited in the application	1-3,8, 12-14
Y	column 2, line 16 - line 58 column 3, line 42 - line 50 figures 3-5	4-7,9-11

X	EP 1 245 499 A (TAISAI KAKO CO LTD [JP]; NIHON TENGANYAKU KENKYUSYO CO [JP]) 2 October 2002 (2002-10-02) paragraph [0041] - paragraph [0044] paragraph [0048] paragraph [0055] figure 3	1,3,5, 13,14

	-/--	

[X] Further documents are listed in the continuation of Box C.

[X] 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	Date of mailing of the international search report
20 March 2009	31/03/2009

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Appelt, Lothar

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2009/050443

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 810 185 A (GROESBECK ROBERT CLAY [US]) 22 September 1998 (1998-09-22)	4-6,9
X	column 2, line 61 - column 3, line 9 figures 3,4	13
Y	US 2001/017306 A1 (WAN MIN MILES [US] ET AL) 30 August 2001 (2001-08-30) abstract; figures 8,9	10,11
Y	WO 01/32525 A (BREUER HANS WERNER [CH]) 10 May 2001 (2001-05-10) abstract; figure 2	7

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2009/050443

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3484011 A	16-12-1969	NONE	
EP 1245499 A	02-10-2002	JP 2002263166 A	17-09-2002
		US 2002130139 A1	19-09-2002
US 5810185 A	22-09-1998	NONE	
US 2001017306 A1	30-08-2001	NONE	
WO 0132525 A	10-05-2001	AT 348053 T	15-01-2007
		BR 0015015 A	01-10-2002
		CZ 20020994 A3	15-01-2003
		DE 19952214 A1	31-05-2001
		EP 1227990 A1	07-08-2002
		HU 0203749 A2	28-04-2003
		PL 354981 A1	22-03-2004