



(51) International Patent Classification:

B65D 51/22 (2006.01)

(21) International Application Number:

PCT/EP2023/056978

(22) International Filing Date:

19 March 2023 (19.03.2023)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2204208.9	24 March 2022 (24.03.2022)	GB
2215177.3	14 October 2022 (14.10.2022)	GB
2215180.7	14 October 2022 (14.10.2022)	GB
2215186.4	14 October 2022 (14.10.2022)	GB

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(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, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, 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, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

(54) Title: CLOSURES FOR A FLOWABLE PRODUCT

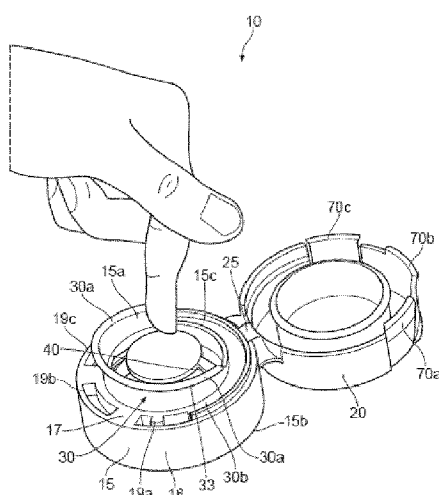


Fig. 1

(57) Abstract: A closure for a flowable product is provided. The closure comprises a base (15) and a lid (20). The base comprises a flowable product dispensing passage (30) along the longitudinal length of the base extending from a first end of the base to a second end of the base. The base further comprises a sealing element (40) configured to be coupled within the dispensing passage of the base such that the dispensing passage is sealed and the flowable product cannot pass through the dispensing passage. Additionally, the base comprises a pressing element (50) configured to be pressed and displaced between a first operational position and a second operational position such that when the pressing element is at the first operational position the pressing element does not contact with the sealing element (40) and the flowable product cannot pass through the dispensing passage, and when the pressing element is at the second operational position, the pressing element contacts and breaks the sealing element (40) and the flowable product can pass through the dispensing passage.

Published:

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

CLOSURES FOR A FLOWABLE PRODUCT

The present disclosure relates to a closure for a flowable product. The closure is configured to be attached to a container, while such container is arranged for storing
5 a fluid or another flowable medium, which can be dispensed through a dispensing passage of the closure.

BACKGROUND

10 The packaging of flowable products and particularly comestibles such as edible oil is commonly done in food containers. In order to maintain the quality of such flowable products, it is important that such containers are hermetically closed particularly during their transportation from a point of sale to the place of use. Additionally, to prevent tampering with the contents of a sealed container, it is desirable that the food
15 container, once it is sealed, not be capable of being initially opened without visible indication of the container having been opened.

To prevent tampering, container manufacturers have designed containers having e.g., integral tamper evident features. For example, many containers that are factory
20 packaged are sealed by a tamper evident seal adhesively attached over an opening. These seals may be aluminum foil, cardboard, or plastic membranes.

When a screw-on cap is used, they are to be found sealing the opening underneath the cap. Although some seals have integral tabs or removal attachments, they are
25 typically difficult to grasp and require excessive force to remove.

Other seals have no removal means whatsoever leaving the user to improvise some apparatus and methods such as using a pointed object including scissors, knife, pen and so forth. Besides the inconvenience of not having such objects handy, with an
30 aging population some of these devices are an injury hazard. They may also contaminate the flowable product being protected from contamination by the seal.

Overall, it is not rare for pieces of this seal to remain in place on the opening underneath the cap, thus raising problems during the recycling of the container, as
35 the residues of seal may be treated differently with respect to the body.

In some other examples, these containers use a detachable ring-pull which serves

both as a tamper-evident seal and transport seal. However, the ring-pull is a detachable element which can easily get lost in the environment contributing to plastic waste. Moreover, a ring-pull can be difficult for consumers to grab and pull out of the bottle due to its size. In addition, due to irregularities and / or wear in the mold
5 used during manufacturing, this ring-pull can become difficult to remove and, in some cases, requires the use of a tool to pierce it.

The containers may also comprise liners or seals which are activated by pushing a feature on the closure that breaks an independent seal or bottle liner, not
10 manufactured in the closure. These kind of liners or seals are generally welded to the bottle at the filling location, causing potential problems if not welded correctly, despite have the closure fully applied.

Examples of the present disclosure seek to at least partially reduce one or more of
15 the aforementioned problems.

SUMMARY

According to a first aspect, a closure for a flowable product is provided. The closure
20 comprises a base and a lid, the base and the lid being joint together by a hinge such that the lid is movable between an open position and a closed position and the base extends longitudinally from a first end to a second end. The base comprises a flowable product dispensing passage along the longitudinal length of the base extending from the first end to the second end of the base. The base further
25 comprises a sealing element configured to be coupled within the dispensing passage of the base such that the dispensing passage is sealed and the flowable product cannot pass through the dispensing passage. The base further comprises a pressing element configured to be pressed and displaced between a first operational position and a second operational position such that when the pressing element is at the first
30 operational position the pressing element does not contact with the sealing element and the flowable product cannot pass through the dispensing passage, and when the pressing element is at the second operational position, the pressing element contacts and breaks the sealing element and the flowable product can pass through the dispensing passage.

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According to this first aspect, a closure which is designed to avoid flowable product leakage during transport, or handling e.g., on large volume containers is provided. The closure is further design to avoid that contamination passes through the closure and contaminates the flowable product, stored in a container, to which the closure, in
5 use, may be attached. To this end, the closure comprises a (protective) sealing element configured to be coupled within the dispensing passage of the base of the closure such that the dispensing passage is sealed and the flowable product cannot be dispensed via the dispensing passage and pollution cannot pass through the dispensing passage towards the flowable product stored e.g., in a container to which,
10 in use, the closure may be attached.

Additionally, with a simple push / press action, the pressing element may be displaced between a first operational position and a second operational position. When the pressing element is at the second operation position, the pressing
15 elements is configured to contact and break the seal. As a result, the flowable product can pass through the dispensing passage and can be dispensed via the dispensing passage. A push open sealing element is easier to use and more convenient than the current tear-off ring membranes which are in the market.

20 This way, a closure in which the protective sealing element of the dispensing passage of the closure may be broken in a simple, cost-effective, and versatile way and that can be used effectively with all types of containers for storing flowable product and different kinds of protective sealing elements is provided.

25 According to an example, the pressing element comprises an annular outer collar, a central hub and a plurality of spokes extending from the collar to the central hub. Moreover, a plurality of through-holes are defined between corresponding spokes. The through-holes, the spokes, the central hub and the annular outer collar are arranged to control the flux of flowable product when flowing through the dispensing
30 passage such that the gurgling of the flowable product is at least partially reduced.

According to this example, the pressing element may comprise the function of breaking the seal in a very convenient way and, at the same time, the protective seal may comprise an anti-glug function such that the flowable product is dispensed in a
35 controlled way i.e., without gurgling.

In examples, the base, the lid and the seal are made of the same material e.g., polyolefin. The recyclability of the closure may thus be improved.

- 5 In further examples, the sealing element is a stretched film and the stretched film is configured to break and retract without any material separation upon contact of the pressing element with the sealing element.

10 According to this example, when the sealing element is broken, the sealing element does not create any dust or lose parts that could enter into a container, to which the base of the closure may be attached (in use), and pollute the flowable product which may be stored within the container. In this respect, the stretched material is characterized by the fact that it may be broken and retracted without any material separation.

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In a further aspect, a a kit for containing and dispensing a flowable product is provided. The kit comprises a container comprising an interior space for housing the flowable product and a filling and dispensing spout. Kits may further comprise a container according to first aspect, wherein the base of the closure is configured to be
20 attached to the filling and dispensing spout of the container.

Such kits may be packaged as a unit in a packaging.

BRIEF DESCRIPTION OF DRAWINGS

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Non-limiting examples of the present disclosure will be described in the following, with reference to the appended drawings, in which:

30 Figure 1 schematically illustrates a perspective view of an example of a closure in an open configuration;

Figure 2 schematically illustrates another perspective view of the closure shown in figure 1;

35 Figure 3 schematically illustrates an example of a sealing element forming part of the closure shown in figure 1 and figure 2;

Figure 4 schematically illustrates a cross-sectional view of the closure of figure 1 and figure 2,

- 5 Figure 5 schematically illustrates a cross sectional view of part of the closure in a closed configuration;

Figure 6 schematically illustrates a cross sectional view of part of the closure in an open configuration;

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Figure 7 schematically illustrates a cross-sectional view of another closure in a closed configuration;

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Figure 8 schematically illustrates a cross-sectional view of the closure described with reference to figure 7, in an open configuration;

Figure 9 schematically illustrates a top view of the closure described with reference to figure 7 and figure 8.

20 DETAILED DESCRIPTION OF EXAMPLES

Figure 1 schematically illustrates a perspective view of an example of a closure in an open configuration. Figure 2 schematically illustrates another perspective view of the closure shown in figure 1. As shown in these figures, the closure 10 may comprise a
25 base 15 and a lid 20. The base 15 in this example is a substantially circular base.

The base 15 and the lid 20 may be connected by a hinge 25 situated at a "*back part*" of the closure 1. This way, the lid 20 may be displaced between an "*open*" position and a "*closed*" position with respect to the base 15. In examples, the closure may be
30 an edible oil flip-top-closure i.e., the flowable product, which is intended to be stored, in a container to which the closure (as hereinafter and hereinbefore described) may be connected, is edible oil. However, the closure 10 may be applied to other applications: for example, closures for use in conjunction with products that require a high-level tamper evident or transport seal. For example, such products may be baby
35 food products, energy drinks products, pharma products, CRC, Sauces and so forth.

In examples, the closure 10 may be a one-piece closure i.e., it may be manufactured

as a single piece and can be made of a single material. A one-piece mono material solution is light-weight and fully recyclable with current recycling processes.

5 The size of the base 15 (and the corresponding lid 20) may be adjusted in accordance with its objective and can thus be varied for different flowable products applications.

10 The base 15 extends longitudinally between a first end 15a and a second end 15b. The base 15 comprises a dispensing channel 15c along the longitudinal length of the base 15 between the first end 15a and the second end 15b. The dispensing channel 15c is suitable to dispense a flowable medium previously stored in a container to which the closure, in use, is attached.

15 The base 15 includes a generally cylindrical sidewall 16 and an annular top platform 17. In the center of the platform 17, a cylindrical dispensing spout 30 is provided. The cylindrical dispensing spout 30 extends from a first end 30a to a second end 30b. The first end 30a comprises a circumferential pouring rim 33.

20 In the "*front part*" of the closure 10 (opposite to the above-commented "*back part*" and thus opposite to the hinge 25) three arcuated slots 19a, 19b, 19c are provided. The slots form female coupling elements and are adapted to receive and mate with further connectors or male coupling elements located e.g., in the lid, as will be explained later on.

25 Following the example, the base may comprise a (guarantee) sealing element 40 e.g., a sealing membrane. Particularly, the seal may be situated within the dispensing channel and thus a seal can be defined such that flowable liquid cannot pass through the closure 10.

30 As shown in figure 3, the sealing element 40 in this example is substantially circular-shaped. The seal 40 may comprise a substantially circular inner wall 40a, an annular top platform 40b and a substantially circular outer rim 40c. The substantially circular inner wall 40a may be of substantially constant height as shown in this example. In some other examples now shown, the inner sidewall may comprise portions and the portions may be of varying height. The seal 40 further comprises a bottom surface 40d. The annular top platform 40b and / or the outer rim 40c may act as a coupling surfaces for attaching the sealing membrane within the dispensing channel of the

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base, as will be described later on.

5 The substantially circular inner wall 40a may be arranged radially inwardly (i.e., closer to a geometric centre of the sealing element 40) with respect to the circular outer rim 40b. As also shown in this example, the height of the circular inner wall 40a with respect to a top edge of the circular inner wall 40a is larger than the height of the outer rim 40c.

10 The substantially circular inner wall 40a may extend substantially perpendicularly to a plane defined by the bottom surface 40d. Moreover, the dimensions of the sealing element 40 are chosen such that the sealing element 40 may be coupled to the dispensing channel of the base 15 of the closure 10 in a suitable way i.e., sealing the dispensing channel in a suitable way.

15 Particularly, the sealing element 40 is configured to sealingly couple with an inner portion of the dispensing passage of the base 15. A seal is thus formed within the dispensing channel. Therefore, when the closure is connected to a container, the closure defines a sealing such that the flowable product e.g., edible oil contained in a sealed container space, is carried out in substantially aseptic conditions, i.e., avoiding
20 external contaminations, particularly during transport from one point to another point.

In use, the circular inner wall 40a and / or the rim 40c may be welded or be mechanically attached to an inner portion of the dispensing channel. In examples, the seal may be welded or mechanically attached to a lower portion of a pressing
25 element forming part of the closure 10, as will be explained later on. In any event, this may require an external process to assemble the seal 40 to the dispensing channel 15c of the base 15 of the closure 10. Alternatively, the seal 40 may be inserted inside the mould to be attached to the base 15 of the closure 20, thus avoiding any additional industrial process.

30 The sealing element 40 may be formed of any suitable material e.g., polyethylene or polyolefin. In examples, the base 15 and the lid 20 of the closure 10 may be formed of the same material as the seal 40 e.g., polyethylene or polyolefin. As a result, the seal 40 may be produced using the same material as the base 15 and the lid 20 of
35 the closure 10. The recyclability of the closure may thus be improved.

The seal 40 may be e.g., thinner than 100 microns. The seal may be e.g., a membrane and/or a film made of a stretched material configured to be retracted, after puncturing the membrane as will be explained later on, without any material separation. As a result, the sealing element 40 may remain connected to the closure, after the seal is punctured as will be described later on, thus improving the recyclability of the closure. In any event, the sealing element 40 guarantees the security of a flowable product which may be situated in a liquid container (not shown) to which the closure is attached, under extreme transport conditions.

Again in figure 2, the base 15 further comprises a pressing element 50. As can be seen in figure 2, the pressing element 50 may comprise an annular outer collar 50a and a central hub 50b. In this particular example, four spokes 50c extend from the collar 50a. to the central hub 50b although a different number of spokes may be provided. In use, a distal end 50a of the spokes and / or the outer collar 50a may act as a coupling surface and it may be attached to an inner portion of the dispensing passage 15c. Four through-holes 50d may be formed between corresponding spokes. With such an arrangement including the central hub, the spokes and the through-holes, an anti-gurgling function may be achieved by the pressing element which provides a controlled pouring of a flowable product which may be situated in a liquid container (not shown) to which the closure is attached.

As shown in figure 4 (and as commented above), the annular top platform 40b of the sealing element 40 may act as a coupling surface for assembling or attaching the sealing element to a lower portion of the annular outer collar 50a of the pressing element 50 (forming part of the base of the closure). The rim of the sealing element may also act as a coupling surface for attaching the seal to an inner portion of the dispensing passage. The sealing element may thus be attached to the dispensing passage and / or to the pressing element and it may be situated underneath the pressing element. A sealing is defined within the dispensing passage such that a flowable product cannot pass through such dispensing passage. At a lower side of the central hub 50b of the pressing element 50, one or more cutting elements 50d may be provided.

During opening of the closure 10, the central hub 50b of the pressing element 50 may

be pressed (and thus displaced in the direction of the arrow (arrow A)), with respect to the sealing membrane, such that the central hub (and thus the cutting elements 50d) is displaced from a operational first position, in which the pressing element (and thus the cutting element 50d) does not interact with the seal and the flowable product cannot pass through the dispensing channel 15c, to a second operational position in which the pressing element (and thus the cutting element 50d) contacts and breaks the sealing element 40 (this second operational position is not shown in figure 4). As a result, the sealing element 40 may be broken and retracted without any material separation (particularly due to the fact that e.g., the membrane may be made of a stretched material configured to be retracted, after puncturing, without any material separation).

In summary, a user can easily break the sealing membrane, which seals the pouring passage of the closure, by simply pushing on a very convenient activation system. It is noted that the push-open system as hereinbefore described is easier and more convenient than the known tear-off ring membranes. It is further noted that the seal does not create any dust or loses any part that could enter into the flowable fluid container, during separation.

Again in figure 2, the lid 20 may comprise an outer substantially circular sidewall 70 and an inner substantially circular wall 71. The lid may comprise a recess 72 in between sidewalls 70, 71. The lid 20 is configured to be coupled to the base 15, thus before first opening the closure, the lid 20 closes off the top of the base 15.

The inner substantially circular sidewall 71 is arranged radially inwardly (i.e., closer to a geometric centre of the lid 20) with respect to the outer substantially circular sidewall 70. The inner substantially circular sidewall 71 may be of constant height along its perimeter, as shown in this example. The outer substantially circular sidewall 71 may be of a variable height along its perimeter, as also shown in this example. In examples, the height of the inner substantially circular sidewall 71 may be different from the height of the outer substantially circular sidewall 70.

As can be better seen in figure 1, the outer substantially circular sidewall 70 may comprise three arcuated spaced apart connectors 70a, 70b, 70c which extend substantially perpendicularly to a plane defined by the base of the cap. The

connectors form male coupling members that are configured to mate with the three arcuated slots 19a, 19b, 19c i.e., with female coupling members located in the base 15 of the closure.

- 5 In some examples, in order to provide a sealing engagement of the male and female coupling members a snap fit may be used. In the example, the slot 19b form a sealing clip configured to snap fit over the male connector 70b on the base of the closure. In any case, the shape and size of the slot 19b may vary depending on the shape and size of the connector 70b located e.g., in lid to be attached to the base.
- 10 With such an arrangement, the lid 20 may be releasably joined to the base 15 using e.g., a snap fit locking mechanism.

- The first connector 70a may be provided in the form of a first tamper evident element and the third connector 70c may also be provided in the form of a second tamper-
- 15 evident element. The tamper evident elements 70a, 70c may be placed right and left respectively of a front part of the lid (opposite to the back part of the lid wherein the hinge is located). For example, the tamper evident elements may be placed right and left from an Y axis if the Y axis is situated between the front part of the lid and the back part of the lid wherein the hinge is situated. With such an arrangement, the force
- 20 is balanced between the opening force in the lid and the opening force in the hinge, in that way is much comfortable to open the closure and mechanically better to avoid breakage of parts of the lid and the hinge.

- As can be seen in figure 5, the first tamper evident tab 70a is frangibly connected to
- 25 the lid 20. The first tamper evident tab 70a comprises a lower element 130 including a projection 133 on its lower radially outward side. The lid is moulded in the open position. When the lid is initially closed at least part of a lower element 130 passes through an opening in the annular top platform of the base partially into a void or pocket 131 provided in the base 15. The projection 133 engages underneath the
- 30 annular top platform 17 of the base 15. The projection 133 is formed such that it allows the tamper-evident tab to pass through the opening in the top surface 17 but will not allow it to be removed. Frangible bridges 132 are provided which connect the first tamper evident tab 70a to the lid 20.

- 35 Accordingly, when the lid 15 is first opened with a sufficient force to overcome the

force present in the frangible bridges 132, bridges 132 break since the projection 133 prevents the first tamper-evident tab 70a from leaving the void 131 provided underneath the hole in the top surface 17 of the base 15. As can be seen in figure 6, when this occurs the tamper-evident tab 70a moves further into the void or pocket
5 131. The tab 70a is no longer visible through the lid window, having dropped into the void 131 above the spout ledge. The structure and operation of the second tamper-evident tab 70c may substantially be same as the first tamper-evident tab. After opening of the closure, the tabs 70a, 70c remain inside the closure such that separated parts from the closure are avoided. It is noted that this is a better solution
10 for sustainability than the current standard removable tear-off tamper evident bands of the market that are detachable.

The tamper evident elements 70a, 70c are visible prior to first opening of the closure in use. It is noted that two tamper evident are much visible than only a single tamper
15 evident member. However, upon first opening of the closure the tamper evident tabs become at least partially hidden from view which indicates that the closure has been opened at least once.

The tamper-evident elements 70a, 70c may comprise marks, wherein the marks are
20 adapted to be visible when the lid is in a closed position and the marks are not visible when the tamper evident elements are displaced into the corresponding recess after the lid is opened for the first time. For example, in the closed position the tamper evident elements may read "closed". After the closure is opened for the first time (when the tamper evident elements have fallen into the corresponding pocket), the
25 gap may read "open",

Again in figure 1, the lid 20 may comprise a grip (not shown) located e.g., at the outer part of the outer sidewall of the lid, thus the attachment, opening and manipulation of the lid 20 may be improved. The grip may be shaped so that it may be easily held
30 between the fingers of a user. The grip may also be formed by a certain surface roughness, optionally provided by a coating. With this arrangement, the lid 20 may be efficiently manipulated and used with great accuracy. Particularly, the lid 20 may be easily attached and manipulated with respect to the base 15.

35 Overall, a one-piece flip-top plastic closure with a relatively thin guarantee seal

membrane, which may have an anti-gurgling function, without removable parts is thus provided. This solution is easy to use with a simple push action and lightweight due to the reduced amount of material used.

- 5 Additionally, the closure may be designed to avoid product leakage during transport, or handling, on large volume containers. These containers may expose their seals to high internal pressure or very low pressure by the large volume of liquid in the container in the event of a shock during transportation or in over boxing shipments under extreme conditions.

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Figure 7 schematically illustrates a cross sectional view of another example of a closure 80 in a closed configuration. Figure 8 schematically illustrates a cross sectional view of the closure 80 shown in figure 7 but in an open configuration. The closure 1 shown in figures 7 - 9 differs from the closure shown in figures 1 - 6 only in that a different pressing element and a different sealing element are provided. The structure and operation of the remaining components of the closure may substantially be the same as hereinbefore described.

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The pressing element 80 in this example is substantially circular-shaped. The pressing element may be e.g., a polyethylene injected element. As can be seen in the cross-sectional view of the pressing element shown in figure 7, the pressing element may comprise a profile defined including an first slope 81 comprising a continuous increase of the height of the pressing element 80 from an initial height 83 to a maximum height 82 during a first part of the diameter of the pressing element, and a second slope comprising a continuous decrease of the height of the pressing element 80 from the maximum height 82 to a final height 84 during a second part of the diameter of the pressing element.

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As shown in figure 9, the pressing element 80 comprises a generally cylindrical side wall 92 configured to be connected to an inner portion of the dispensing passage (forming part of the base of the closure) by a plurality of frangible bridges 90. Again in figure 7, the pressing element 80 and the base of the closure may be connected by a hinge 87 situated at a "back part" of the dispensing passage 15c (and thus at a back part of the closure 10). Thus, the hinge 87 defines a support axis about which the pressing element 80 may pivot. As commented above, the pressing element may be

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frangibly connected to the base via the frangible bridges 90, and the frangible connection(s) may be breakable upon pressing the pressing element.

5 When the closure is in its as-moulded condition (i.e., it is moulded in a closed configuration), the pressing element 80 is attached to the inner part of the dispensing channel via the frangible elements 90. In this manner, when the pressing element 80 is initially closed it cannot be opened without breaking the frangible connections 90.

10 The closure further comprises a sealing element 120 e.g., a sealing membrane. The sealing element 120 in this example is substantially circular-shaped. The sealing element 120 may be made of polyethylene, and it may be welded to the dispensing passage of the base and it may be situated underneath the pressing element. The sealing element 120 comprises substantially circular inner wall 121. The circular inner wall 121 may be arranged with respect to a bottom inner surface of the sealing
15 membrane at an angle of approximately 90 degrees.

Moreover, the base comprises a recess 122 in between the flanges 123a, 123b. The recess 122 forms a female coupling member and is adapted to receive and mate with circular inner wall 121 acting as a male coupling element. As a result, the sealing
20 element 120 is attached within the dispensing passage of the base and a liquid cannot pass through the dispensing passage.

However, as depicted in figure 8, when the pressing element 80 is pressed, in the direction of the arrow (arrow B), with sufficient force to break the frangible
25 connections, the pressing element 80 is pivoted and displaced, via the hinge 87, from a first position in which the pressing element does not contact the membrane and the flowable product cannot pass through the passage of the closure (see figure 7), to a second position in which the pressing element contacts and breaks (e.g., using puncturing elements as hereinbefore described) the sealing membrane and thus the
30 flowable product can pass through the passage 15c (see figure 8). The closure may comprise a stop notch to prevent the pressing element 80 from moving, once the pressing element is in the second operational position, during the dispense of the flowable product. The stop notch is configured to lock the pressing element in a position at or near the second operation position of the pressing element such that
35 the pressing element remains in position and does not interfere with the flowable

medium following via the dispensing passage of the closure.

5 In this example, the membrane is partially broken. In this respect, a portion of the sidewall of the membrane remains connected to the recess situated between the flanges of the cover. Thus, this portion of the sidewall which acts as hinge 87 defines a support axis about which the membrane may pivot (see figure 8). In some other examples, the membrane is broken as hereinbefore described.

10 The closure of this example is based on a two-piece closure (base and lid) plus a seal i.e., three components in total.

15 Although only a number of examples have been disclosed herein, other alternatives, modifications, uses and/or equivalents thereof are possible. Furthermore, all possible combinations of the described examples are also covered. Thus, the scope of the present disclosure should not be limited by particular examples but should be determined only by a fair reading of the claims that follow.

CLAIMS

1. A closure for a flowable product comprising:

a base and a lid, the base and the lid being joint together by a hinge
5 such that the lid is movable between an open position and a closed position,
wherein the base extends longitudinally from a first end to a second end,

wherein the base comprises a flowable product dispensing passage
along the longitudinal length of the base extending from the first end to the
second end of the base,

10 wherein the base comprises a sealing element configured to be
coupled within the dispensing passage of the base such that the dispensing
passage is sealed and the flowable product cannot pass through the
dispensing passage,

wherein the base further comprises a pressing element configured to
15 be pressed and displaced between a first operational position and a second
operational position such that when the pressing element is at the first
operational position the pressing element does not contact with the sealing
element and the flowable product cannot pass through the dispensing
passage, and when the pressing element is at the second operational
20 position, the pressing element contacts and breaks the sealing element and
the flowable product can pass through the dispensing passage.

2. A closure according to claim 1, wherein the closure is a flip-top closure and the
base is connectable to a dispensing opening of a container, specifically an edible oil
25 container.

3. A closure according to any of claims 1 - 2, wherein the base further comprises a
substantially cylindrical sidewall, an annular top platform and a cylindrical dispensing
spout situated in the centre of the platform.

30 4. A closure according to any of claims 1 – 3, wherein the pressing element
comprises an annular outer collar, a central hub and a plurality of spokes extending
from the annular outer collar to the central hub.

35 5. A closure according to claim 4, wherein a plurality of through-holes are defined
between corresponding spokes and the through-holes, the spokes, the central hub

and the annular outer collar are arranged to control the flux of flowable product when flowing through the dispensing passage such that the gurgling of the flowable product is at least partially reduced.

5 6. A closure according to claim 1, wherein the pressing element is substantially circular-shaped and the pressing element comprises a cross-sectional profile defined including an first slope comprising a continuous increase of the height of the pressing element from an initial height to a maximum height during a first part of the diameter of the pressing element, and a second slope comprising a continuous decrease of the
10 height of the pressing element from the maximum height to a second height during a second part of the diameter of the pressing element.

7. A closure according to claim 6, wherein the pressing element comprises a substantially cylindrical side wall configured to be connected to an inner portion of the
15 dispensing passage by a plurality of frangible bridges.

8. A closure according to claim 7, wherein the pressing element and the base are joint together by a hinge such that, when the pressing element is first opened with a sufficient force to overcome the force present in the frangible bridges, the pressing
20 element is pivotable, via the hinge, between the first operational position and the second operational position.

9. A closure according to any of claims 1 – 12, further comprising one or more tamper evident elements frangibly connected to the lid, wherein the base comprises one or
25 more recesses into which the corresponding tamper evident element is engaged such that, when the tamper evident elements are separated with respect to the lid, the tamper-evident elements move into the corresponding recess.

10. A closure according to claim 9, wherein the tamper-evident elements comprise marks, wherein the marks are adapted to be visible when the lid is in a closed
30 position and the marks are not visible when the is displaced into the corresponding recess after the lid is opened for the first time.

11. A closure according to any of claims 1 - 10, wherein the pressing element
35 comprises one or more cutting elements situated at a lower surface of the pressing

element, wherein when the pressing element is at the first operational position the cutting elements do not touch the sealing element and when the pressing element is at the second operational position the cutting elements puncture and break the sealing element.

5

12. A closure according to any of claims 1 – 11, wherein the base comprises one or more arcuated slots and the lid comprises one or more spaced apart connectors, wherein the connectors are adapted to mate with the slots using a snap fit locking mechanism.

10

13. A closure according to any of claims 1 – 12, wherein the base, the lid and the sealing element are made of the same material, specifically the material is polyolefin.

14. A closure according to any of claims 1 – 13, wherein the sealing element comprises a stretched film and the stretched film is configured to break and retract without any material separation upon contact of the pressing element with the sealing element, specifically the sealing element is thinner than 100 microns.

15

15. A kit for containing and dispensing a flowable product comprising:

20

a container comprising an interior space for housing the flowable product and a filling and dispensing spout,

a closure according to any of claims 1 – 14, wherein the base of the closure is configured to be attached to the filling and dispensing spout.

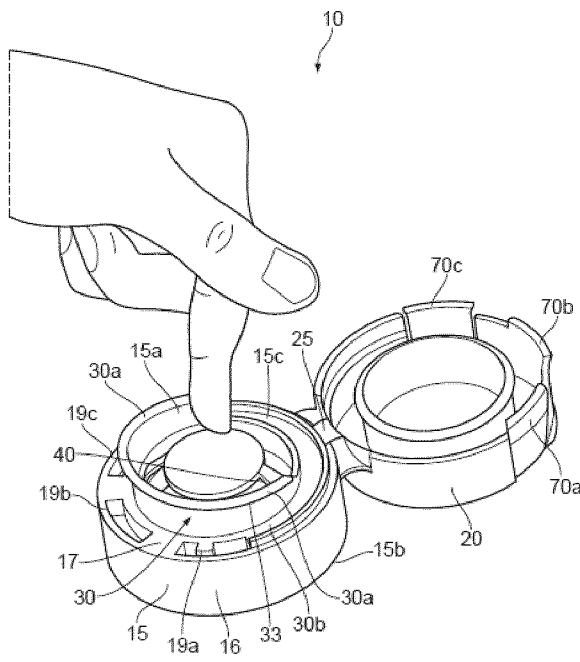


Fig. 1

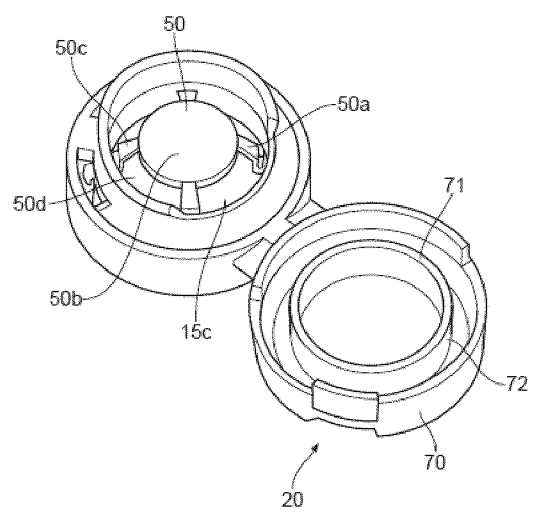


Fig. 2

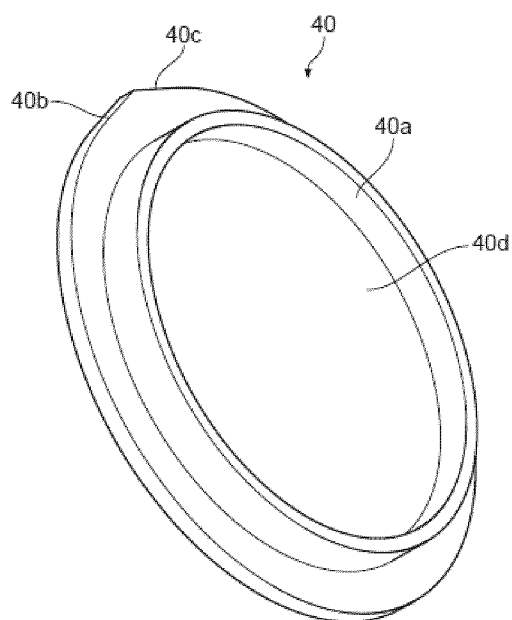


Fig. 3

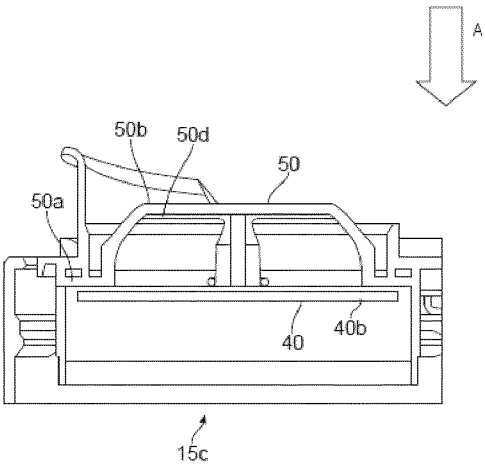


Fig. 4

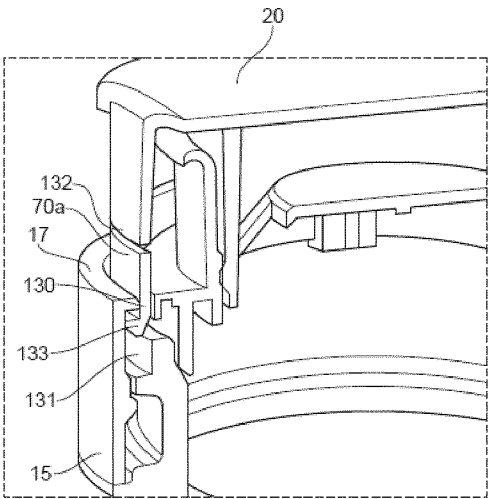


Fig. 5

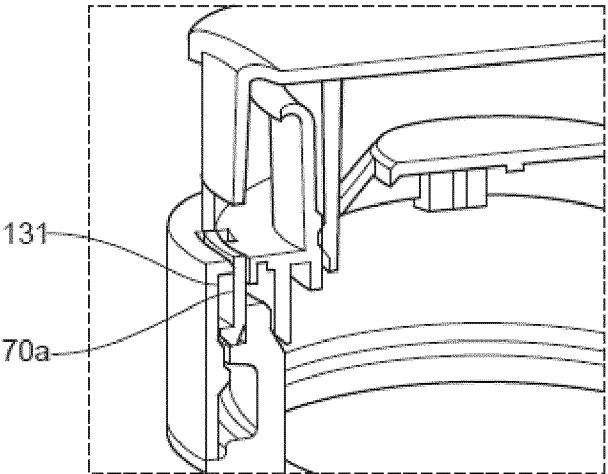


Fig. 6

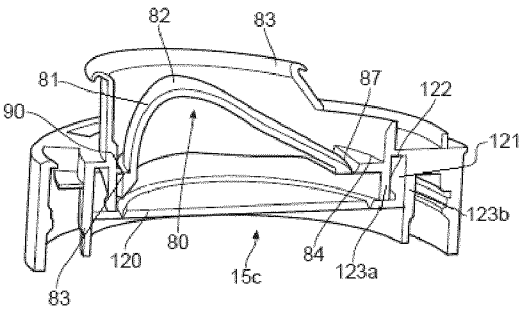


Fig. 7

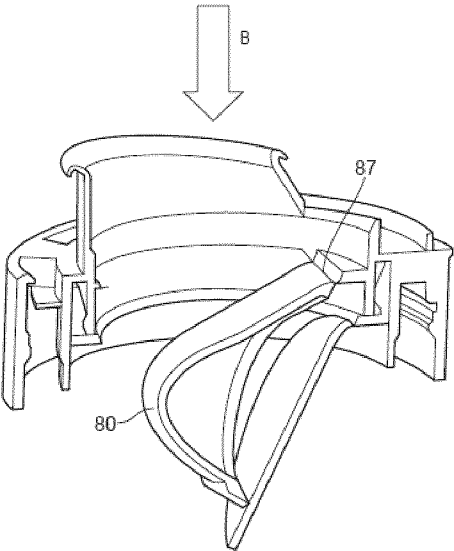


Fig. 8

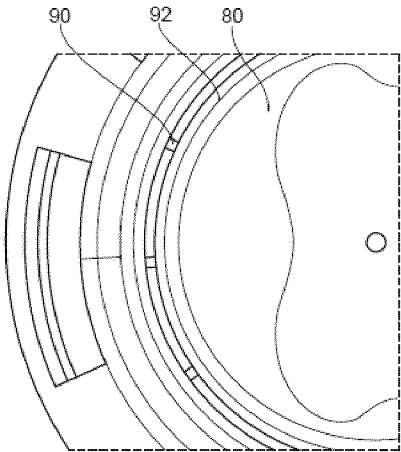


Fig. 9

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2023/056978

A. CLASSIFICATION OF SUBJECT MATTER**INV. B65D51/22****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.
X	WO 2007/137721 A1 (GRUP VEMSA 1857 S L [ES]; BARNIOL SURINAC JORDI [ES] ET AL.) 6 December 2007 (2007-12-06) the whole document -----	1-3, 11-13, 15
X	US 2004/007587 A1 (WESTPHAL SCOTT K [US]) 15 January 2004 (2004-01-15) the whole document -----	1-3, 15
A	the whole document -----	4-14
X	US 2007/181522 A1 (DAVIDSON RYAN P [US]) 9 August 2007 (2007-08-09) the whole document -----	1-3, 15
X	WO 2015/009171 A1 (SJI LTD [NZ]) 22 January 2015 (2015-01-22) the whole document -----	1-3, 15
A	the whole document -----	4-14
	-/--	



Further documents are listed in the continuation of Box C.



See patent family annex.

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"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

30 June 2023

Date of mailing of the international search report

11/07/2023

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INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2023/056978

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2009/301988 A1 (RHO HEE KWON [KR]) 10 December 2009 (2009-12-10) Figures 17, 18, 19 and related text in the description. -----	1-15

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Information on patent family members

International application No

PCT/EP2023/056978

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