(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 4 219 332 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
02.08.2023 Bulletin 2023/31

(21) Application number: **20800225.3**

(22) Date of filing: **24.09.2020**

(51) International Patent Classification (IPC):
B65D 47/08 *(2006.01)* ***B65D 51/24*** *(2006.01)*
B65D 55/02 *(2006.01)*

(52) Cooperative Patent Classification (CPC):
B65D 51/248; B65D 47/0809; B65D 55/024

(86) International application number:
PCT/ES2020/070572

(87) International publication number:
WO 2022/064080 (31.03.2022 Gazette 2022/13)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

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(54) **SAFETY LID FOR BOTTLES**

(57) Safety lid for bottles, comprising a pouring element (1) that can be attached to the neck of a bottle, a closure cap (2) attached to the pouring element (1) through a rear hinge (3), a flexible protrusion (5), located in its part closest to the pouring element (1), which contacts the pouring element (1) in the open position, and two lateral flanges (7). The lid comprises a first opening indicator element located in the space delimited between both flanges (7), consisting of a flange comprising a first sector (12) attached to the pouring element (1), a second sector (13) attached to the closure cap (2), and a breakable central sector (14) that allows a break and separation of the flange when a first opening of the lid occurs and a subsequent torsion deformation of the first sector (12) and the second sector (13) of that flange.

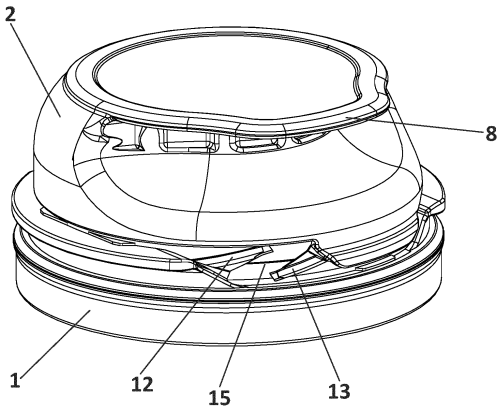

FIG. 7

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Description

OBJECT OF THE INVENTION

[0001] The present invention is fitted within the technical field of closures with a discharge device that have articulated or hinged closures, as well as that belonging to installations of closures with outer protective caps similar to lids or with two or more conjugated closures, combined with auxiliary devices for purposes other than closing, and it refers in particular to a safety lid for bottles equipped with elements that visually show a first opening of the cap.

[0002] The lid comprises a pouring element assembled with a hinged closure cap, the closure cap being able to be placed in an open position and a closed position. The lid also incorporates, as already indicated, a first opening indicator system consisting of elements indicating that the lid has been opened at least once, which are made up of bridges or frangible flanges molded into the front face of the cap, identifiable by the user quickly and without visual effort.

BACKGROUND OF THE INVENTION

[0003] It is common to use lids to close bottles. One type of these lids is formed by a pouring element assembled with a hinged closure cap that is coupled to the neck of the bottle and a closure cap that serves to close the bottle. This pouring element and the closure cap are hinged to each other by means of a hinge, so that the user can open and close the bottle with one hand by hinging the cap backwards from the pouring element to open the bottle and articulating the cap forward to close the bottle again. This type of lids serves so that the user can easily open and close the bottle several times without the possibility of the lid being lost, since the pouring element remains permanently attached to the neck of the bottle. These lids also work in the event that it is not attached to the neck.

[0004] It is usual that, when using this type of lids, the user drinks directly from the bottle, but the closure cap hinged to the pouring element can be uncomfortable to do so. This is because the lid does not comprise any means to retain the closure cap in its open position.

[0005] Various lids of this type are known in the current state of the art. For example, the international PCT application with publication number WO2019110853, owned by this same applicant, refers to a cap for bottles, which comprises a pouring element attached to a hinged closure cap, allowing the closure cap to be placed in an open position and in a closed position, characterized in that in said closing the cap comprises a protrusion in its part closest to the pouring element and which comes into contact with the pouring element in the open position of the closure cap.

[0006] In the same sense, document US2010065589 describes a closure body having a closure platform with a dispensing orifice. A lower peripheral skirt is dependent on the closure platform and is configured to be mounted on a container. A closure cap has a top wall and a wall flange that depends on the top wall. A hinge structure joins the wall flange to the lower peripheral skirt. A closure recess is defined within the lower peripheral skirt. A protrusion of the latch is located on the flange of the cap wall and is respectively positioned over the recess of the latch when the closure cap is in a closed position. The latch protrusion and latch recess define mating formations that fit together and engage to secure the cap to the closure body when the closure cap is in an open position.

[0007] On the other hand, different lids with opening indicators formed by a base adapted to be coupled to the neck of a container and a cap attached to said base by means of a hinge and opening indicators are also known in the current state of the art. These opening indicators are detachable joints that are attached to the base and the cap and are provided with a tear zone that breaks up, falls off or changes position after the first opening of the cap. With these indicators the aim is to obtain a visible and unequivocal proof that the container has not been opened prior to its purchase by the consumer.

[0008] As an example of the state of the art, reference document ES2084159 can be mentioned, in which a tamper-evident closure for a container is defined, comprising an annular closure ring that has a closure cap and an annular seal band releasably attached to the cap by frangible means. Furthermore, it comprises a plurality of flexible projections on the band, extending circumferentially inward, and interference means associated therewith that cooperate with them to break up the frangible means during removal of the closure from the container.

[0009] In this case, it is observed that the closure has, as in most closures of this type of the state of the art, frangible means formed by a plurality of joining flanges between the cap and the annular band, which are capable of being broken up upon a first container opening.

[0010] However, this type of lids, as is the case with the majority existing in the state of the art, has certain drawbacks, due to the fact that these joining flanges must have a small section in order to be able to yield easily and quickly upon the opening of the container, which generates a complicated or impossible detection thereof to perform a visual check of the inviolability of the closure. Furthermore, precisely due to this reduced section of the flanges, the existence of a plurality of said flanges is necessary so that at the same time they are capable of ensuring resistance of the lid closure against manipulations and pressures, both internal and external.

[0011] Therefore, there is a need to have a bottle lid that allows the closure cap to be placed in its open position in a stable manner and with the widest possible opening angle and that also includes handling indicators that offer a clear view of whether they have been or not tampered with, while ensuring a closing resistance prior to the first opening.

DESCRIPTION OF THE INVENTION

[0012] The object of the invention consists of a safety lid for bottles comprising a pouring element assembled with an articulated closure cap, the closure cap being able to be placed in an open position and a closed position. Said closure cap comprises a protrusion in its part closest to the pouring element, which protrusion contacts the pouring element in the open position of the closure cap.

[0013] The presence of this protrusion allows a cap opening of even more than 180°. In addition, the protrusion also provides information for the user that it has been placed in its open or closed position, as it causes an acoustic signal, such as a click, when the cap is placed in either of these positions. Furthermore, the protrusion prevents the closure cap from unintentionally returning to its closed position, keeping the closure cap stably in its open position.

[0014] The lid also incorporates a first opening indicator system consisting of elements indicating that the lid has been previously opened, located at the front to be more easily visible by the user and thus to be able to identify more quickly if the lid has been previously manipulated. In the preferred embodiment of the lid, the indicator element is formed by a breakable and deformable flange.

[0015] In the usual state of the art these indicator elements are not usually located in the front part of the cap, since it is the sector to which the user approaches his mouth to drink the liquid contained in the bottle, and therefore any tab, bridge or similar element could interfere with the spill or rub against the user's anatomy, with consequent discomfort. There is even the possibility that they could become detached and enter the user's mouth or get lost in the natural environment. Thus, the opening indicators are generally located on lateral areas, which, on the other hand, makes it difficult to see them.

[0016] The safety lid object of the invention makes it possible to locate the visible opening indicator on the front, thanks in part to the specific geometry of the pouring element. Likewise, said opening indicator comprises, as already mentioned, a flange molded into the front face of the lid and which in its sealed arrangement and prior to the first opening of the lid is in a horizontal position.

[0017] After opening the closure cap, which is performed in a single movement by the user and using a single hand, the flange breaks and deforms, which remains embedded in the spout without protruding, avoiding risks mentioned above. The cross section and profile of the flange are very precise in terms of cross section, angle and length, so that they deform when opened. Likewise, the resistance that the user shall overcome for the first opening of the lid can still be achieved with the single movement indicated since in this flange the break is produced by a combination of torsion and traction (stretching) forces, while standard bridges break only by stretching.

[0018] When the cap is closed again on the spout after the first opening, the deformed flange has a different arrangement than it had in the sealed arrangement, generating a hollow surface that allows a quick and easy view that an opening has occurred, contrary to what happens with elements such as vertical frangible bridges or even if there is a deformation, in which the two sections overlap without creating an opening, which makes visibility almost impossible as the stretch is produced only vertically.

[0019] The safety lid for bottles thus described supposes a solution that allows solving the aforementioned issues in a simple and economical way, giving rise to a lid that allows an easy and clear visualization of a previous opening without involving a discomfort for the user from the point of view of comfort and effort of opening and closing.

DESCRIPTION OF THE DRAWINGS

[0020] To complement the description that is being made and in order to help a better understanding of the features of the invention, according to a preferred example of practical embodiment thereof, a set of drawings is attached as an integral part of said description, wherein, for illustrative and non-limiting purposes, the following has been represented:

Figure 1.- Shows a perspective view of the lid in the closed position and prior to its first opening.

Figure 2.- Shows a front top perspective view of the lid in a completely open position.

Figure 3.- Shows a front view of the lid of figure 2

Figure 4.- Shows a rear view of the lid of figure 2.

Figure 5.- Shows a left side view of the lid of figure 2.

Figure 6.- Shows a rear bottom perspective view of the lid of figure 2.

Figure 7.- Shows a perspective view of the lid in the closed position after a first opening thereof.

PREFERRED EMBODIMENT OF THE INVENTION

[0021] A detailed explanation of a preferred embodiment of the object of the present invention is provided below, with the aid of the aforementioned figures.

[0022] The safety lid for bottles that is described is made up of a pouring element (1) that can be coupled to the neck of a bottle, and a closure cap (2) attached to the pouring element (1) through a rear hinge (3).

[0023] In this way, the pouring element (1) is coupled to the neck of the bottle by means of a thread, draw cord or similar element that allows it not to separate from the

bottle during normal use. By virtue of the hinge (3), the closure cap (2) can be arranged in a closed position as shown in Figures 1 and 7 or in an open position as represented in Figures 2-6. Said hinge (3) is formed, according to the embodiment shown, by two parallel arms (4) that extend between the pouring element (1) and the closure cap (2) and delimit a space between them.

[0024] The lid for bottles also comprises a protrusion (5) located in its part closest to the pouring element (1), which contacts the pouring element (1) in the open position of the closure cap (2). This protrusion (5), which is housed in the space delimited between the arms (4) of the hinge (3), is intended to provide the user with an indication that the closure cap (2) has been placed in its open or closed position, since it generates an acoustic information signal by means of a click. For this, the protrusion (5) is made of a flexible plastic material. Furthermore, the protrusion (5), which is preferably semicircular in shape, acts as a stop for retention of the closure cap (2) in its open position, preventing its collapse and accidental closing.

[0025] The pouring element (1) comprises a central mouthpiece (6) for pouring the liquid housed in the bottle, as well as to allow the user to drink directly from the bottle through said mouthpiece (6). The pouring element (1) further comprises two lateral flanges (7) that extend from the hinge (3) towards an opposite front face of the cap, in which a free space is delimited between both flanges (7). These flanges (7) are intended to facilitate manual manipulation of the cap, as will be explained later (7), as well as to act as a support area for the lips in case the user drinks through the mouthpiece (6).

[0026] For its part, the closure cap (2) comprises a cantilevered cover (8) that allows a manual opening of the cap, below which reinforcement ribs (9) are located. The closure cap (2) also comprises a rear cavity (10) next to the protrusion (5), to prevent the closure cap (2) from abutting the pouring element (1) before reaching the open position.

[0027] The lid for bottles also includes a first opening indicator element located in its front area delimited between both flanges (7). As can be seen in the attached figures, said indicator consists of a flange, which when the lid is sealed (that is, it has not been opened for the first time) is kept in an essentially horizontal position. The flange has a first sector (12) attached to the pouring element (1), a second sector (13) attached to the closure cap (2), and a breakable central sector (14) that allows the separation of the flange into two halves when the cap is first opened.

[0028] When the flange is separated by its breakable central sector (14), the first sector (12) remains attached to the pouring element (1) and slightly deforms, while the second sector (13) also remains attached to the closure cap (2) and is also slightly deformed.

[0029] From the closed position of the lid shown in figure 1, when a user wishes to open the lid according to the present invention, he shall move the closure cap (2) from its closed position to its open position. To do this, he shall push up the cantilevered cover (8), so that the closure cap (2) rotates around the hinge (4) until the protrusion (5) abuts the pouring element (1). Upon abutting, the protrusion (5) flexes and provides an acoustic signal by clicking, to inform the user that it has reached the open position shown in Figures 2 to 6. In this open position, preferably with an opening degree greater than 180°, it shall remain stable due to the presence of the protrusion (5), facilitating the pouring of the liquid contained in the bottle or drink directly from the bottle.

[0030] The thrust of the cantilevered cover (8) of the closure cap (2) exerts a traction on the flange of the first opening indicator element that causes the breakage of the breakable central sector (14), leaving the flange separated in the first sector (12), which remains attached to the pouring element (1), and the second sector (13), which remains attached to the closure cap (2).

[0031] As already mentioned, both sectors (12, 13) slightly deform when separated, due to a torque, which also causes them to deform in opposite directions, which also positions them so that they do not interfere at any time in the pouring of the liquid, either to another container or for direct consumption through the mouthpiece (6).

[0032] To close the cap, the user pushes the closure cap (2) upwards so that it rotates around the hinge (3) again, overcoming the resistance of the protrusion (5) against the pouring element (1) and causing the closure cap (2) to couple again on the pouring element (1) in its closed position, as seen in figure 7.

[0033] In this closed position, the prior deformation of both sectors of the flange causes it to have a different arrangement than the one it had in the initial sealed arrangement, thus generating a discontinuity (15) on the front face of the lid which is a clear indication that it has already been previously opened.

Claims

1. Safety lid for bottles, which comprises:

- a pouring element (1) attachable to the neck of a bottle,
- a closure cap (2) attached to the pouring element (1) through a rear hinge (3), the closure cap (2) being able to be placed in an open position and a closed position,
- a flexible protrusion (5), located in its part closest to the pouring element (1), which contacts the pouring element (1) in the open position of the closure cap (2), and
- two lateral flanges (7) located on the pouring element (1), which protrude from said pouring element (1) and extend from the hinge (3) towards an opposite front face, to delimit a free space between both flanges (7) on the front face

of the cap, the lid being **characterized in that** it comprises a first opening indicator element located in the space delimited between both flanges (7).

2. Safety lid according to claim 1 **characterized in that** the first opening indicator element consists of a flange comprising:

- a first sector (12) attached to the pouring element (1),
- a second sector (13) attached to the closure cap (2), and
- a breakable central sector (14) that allows a break and separation of the flange when a first opening of the lid occurs and a subsequent deformation by torsion of the first sector (12) and the second sector (13) of said flange.

3. Safety lid according to any of the preceding claims, **characterized in that** the hinge (3) comprises two parallel arms (4) that extend between the pouring element (1) and the closure cap (2) and delimit a space between both in which the protrusion (5) is located.

4. Safety lid according to any of the preceding claims, **characterized in that** the closure cap (2) comprises:

- a cantilevered cover (8) for manual opening of the cap,
- reinforcement ribs (9) below the cantilevered cover (8), and
- a rear cavity (10) next to the protrusion (5), to prevent the closure cap (2) from abutting the pouring element (1) before reaching the open position.

5. Safety lid according to any of the preceding claims **characterized in that** the pouring element (1) comprises a central mouthpiece (6) for pouring the liquid contained in the bottle.

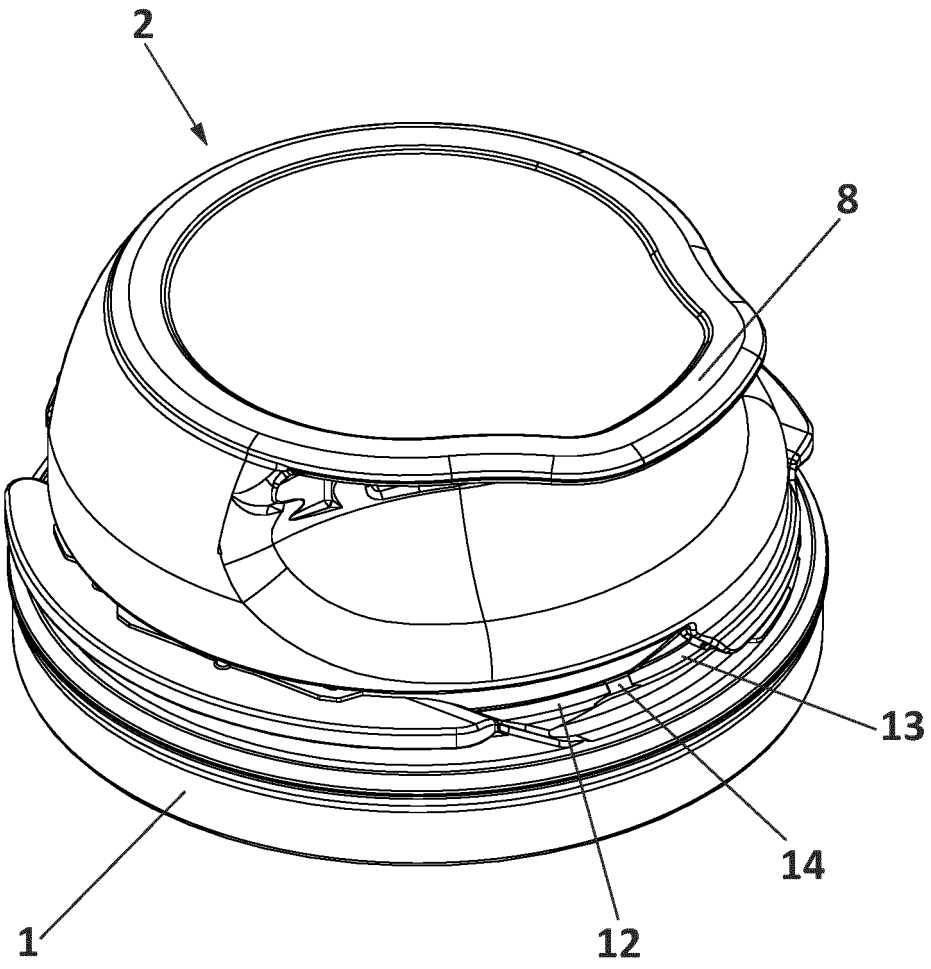

FIG. 1

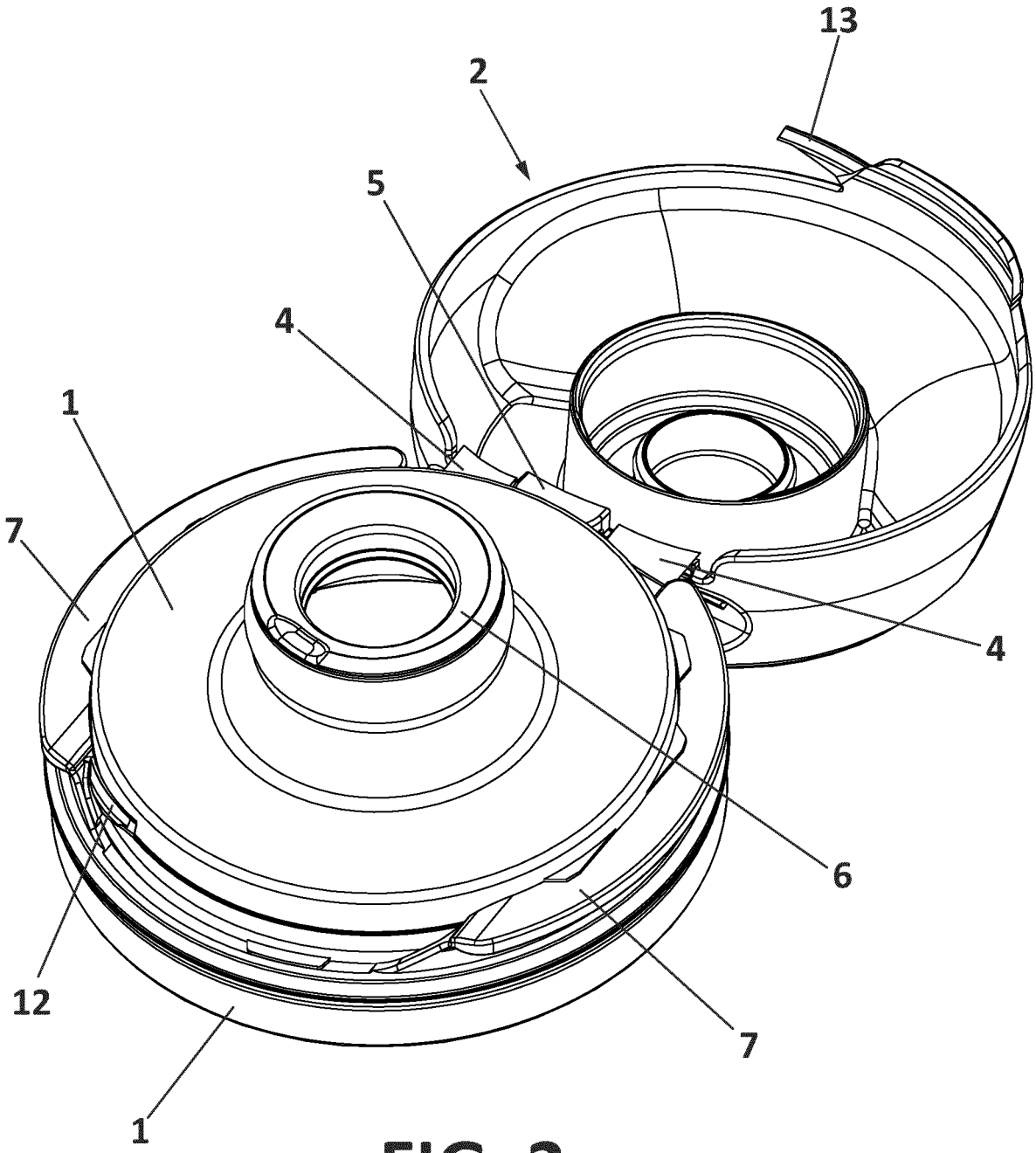

FIG. 2

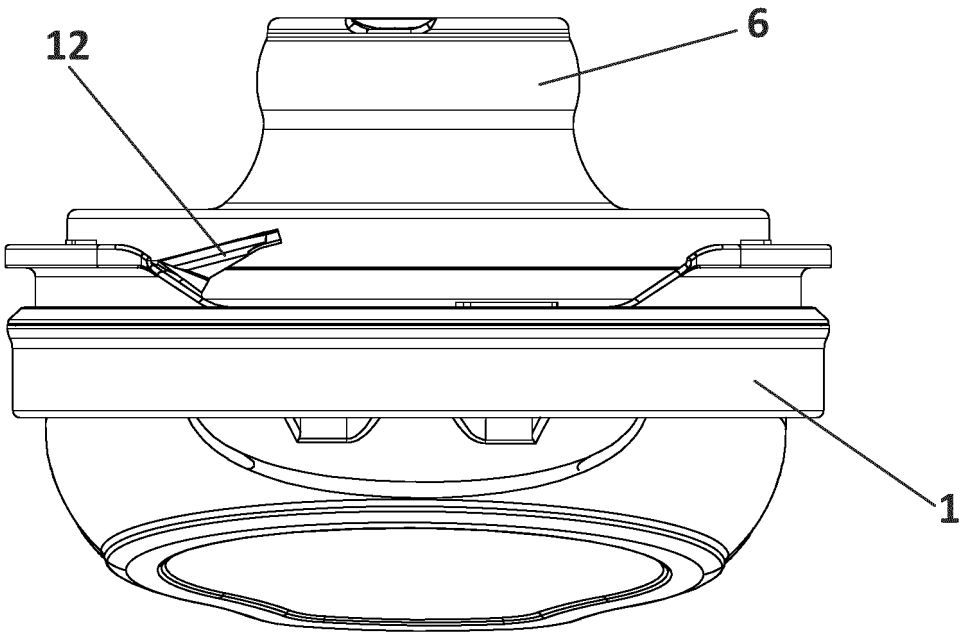

FIG. 3

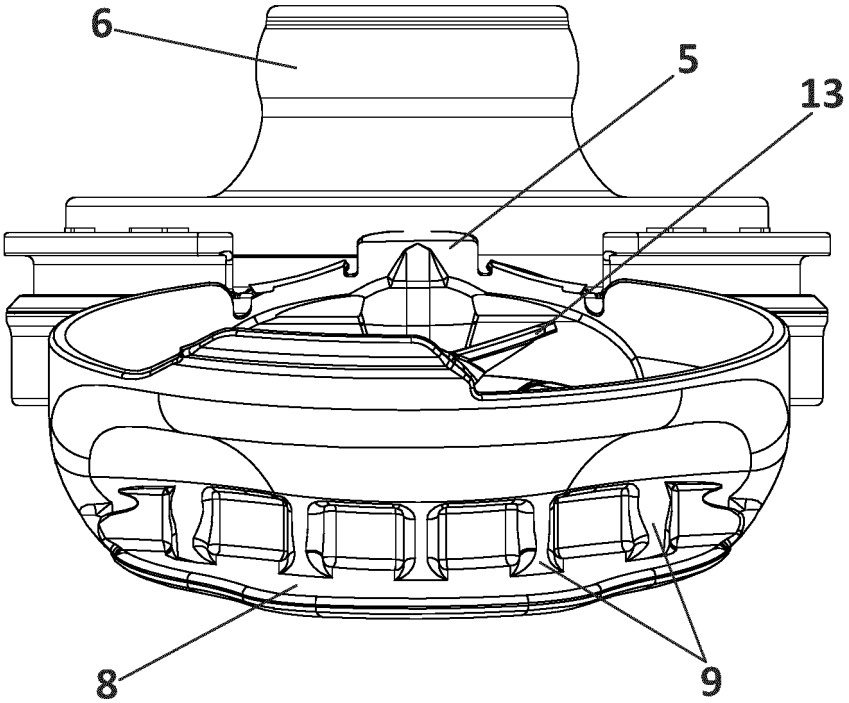

FIG. 4

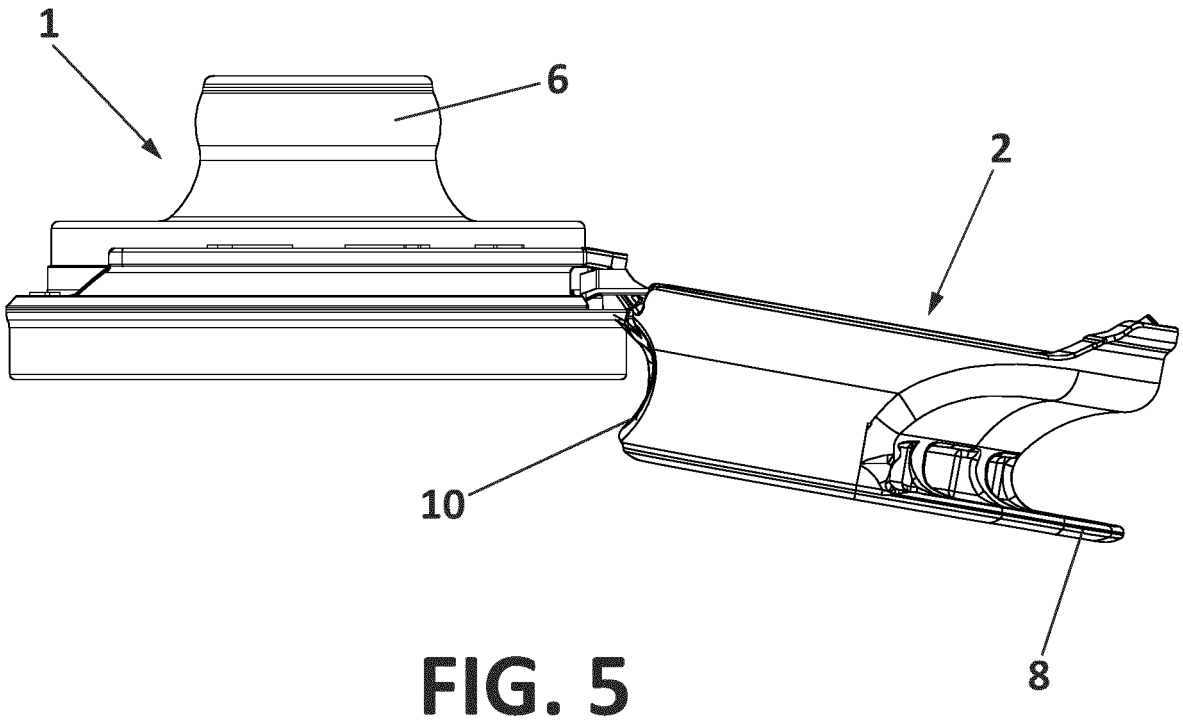

FIG. 5

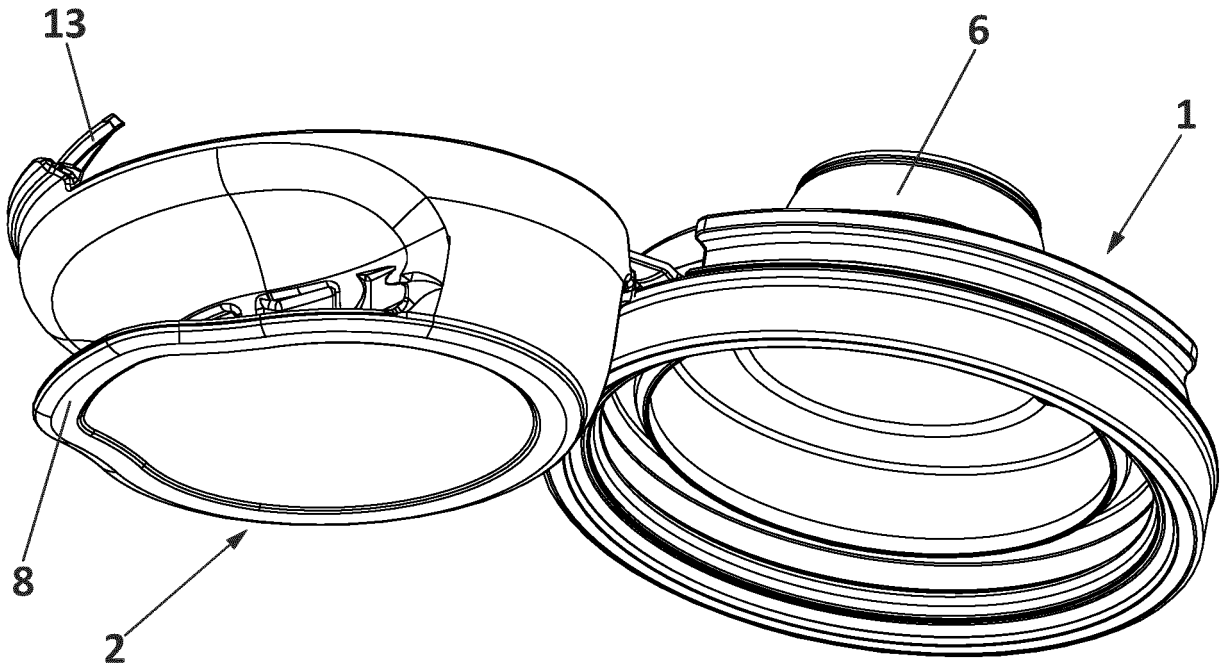

FIG. 6

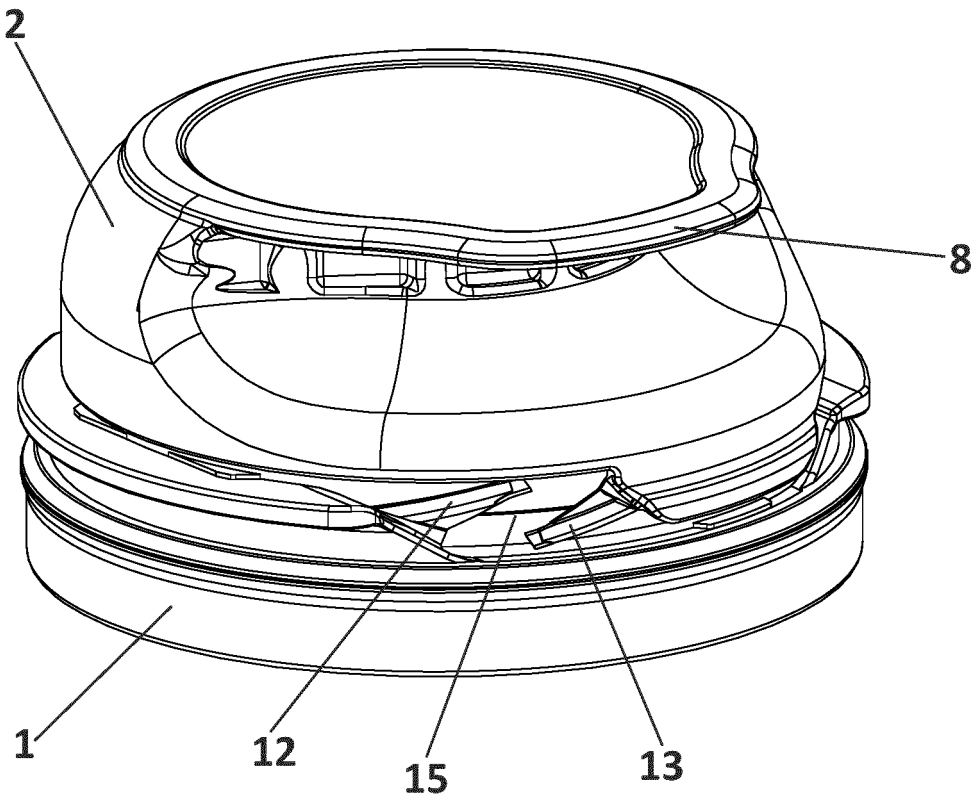

FIG. 7

INTERNATIONAL SEARCH REPORT

International application No
PCT/ES2020/070572

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D47/08 B65D51/24 B65D55/02
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.
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Y	US 2005/173368 A1 (NUSBAUM PHILIPPE [FR] ET AL) 11 August 2005 (2005-08-11) paragraphs [0080], [0081]; figure 18	1-5
A	US 5 875 907 A (LAY DIETER F [US]) 2 March 1999 (1999-03-02) figures 1-9	1-5
A	US D 877 616 S (BERROA GARCIA FRANCISCO JAVIER [ES]) 10 March 2020 (2020-03-10) figures 1-7	1-5

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
16 June 2021	25/06/2021

Name and mailing address of the ISA/	Authorized officer
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
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