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(54) Title: CLOSURE

(57) Abstract: A non-removable flip-top sports closure.

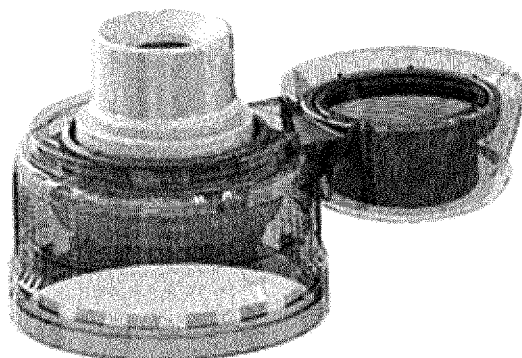


Figure 1



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## CLOSURE

The present invention relates generally to a tethered closure cap and particularly, although not exclusively to a tamper-evident tethered closure.

5

According to an aspect of the present invention there is provided a non-removable flip-top sports closure.

The closure may comprise a base and a lid, the base and lid being connected by a hinge.

10

The base may include a side skirt and the side skirt includes means for non-removable engagement with a container neck.

The non-removable engagement means may comprise one or a plurality of upturned flaps, an annular bead or sectorial or solid chicanes for example being provided at or towards the interior of the free end of an open end of the skirt.

15

The non-removable engagement means may comprise a snap bead (a complete annulus or a segmented annulus) or the like.

20

The closure may comprise a dispensing spout. The spout may be a separate member or may be formed as an integral part of a base component.

The closure may comprise tamper-evident means.

25

The closure may comprise a base and a lid, the closure comprising tamper-evident means, in which the tamper-evident means comprise an upper and lower ring, prior to opening the rings are joined together and upon first opening of the lid the ring are split apart, with the upper ring being retained by the lid and the lower ring being retained by the base.

30

The present invention also provides a closure as described herein in combination with a container.

Other aspects and embodiments of the present invention are listed below by way of non-limiting examples.

35

Sport Cap Concept:

Snap-on to existing neck finish or dedicated neck

No slitting operation of the base TE band

Hinged sports closure not removable

5 Hinged closure

- One hand opening
- Stay opened at 180°
- Automatic TE at the opening
- Colour change effect TE band

10

Requirements :

- No slitting of the body part
- Application torque of the cap > 30lbf.inch
- Anti-sabotage (snap-on or strip torque)

15

Secure Flip concept not removable

Secure Flip concept:

- Hinged closure
- One hand opening
- 20 - Stay opened at 180°
- Automatic TE at the opening
- Colour change effect TE band
- RPC Patent

25 Requirements:

- No slitting of the body part
- Application torque of the cap > 30lbf.inch
- Anti-sabotage (snap-on strip torque)

30 Eccentric Disk

Is disc is pivoted to allow access to the product. The disc is attached to the body of the closures and to the bottle.

Slider

35 Closure opening is generated through displacement of a slide.

No detachable parts, closure stays on bottle.

#### Push & Open

A flip-top-cap with a tab that shows visible tamper evidence after being pushed in to allow the top to open.

5

#### Beer Bottle Cap

A screw cap that can be rotated into a “park” position during drinking. The closure is attached by two straps 180° opposite that allow the closure to be rotated to its “park” position.

10 “Lasso double” with different pivot positions:

- 1-piece closure
- to requalify THE
- to perform ejection
- consumer convenience

15

#### Seal Disk

A spout closure with a seal disk that is pushed vertically upwards through rotation of the outer body. This allows a passage for the liquid to pass through the seal disk and spout.

20 The Nail

Overcap with piercing element to break through membrane on base spout and release product for drinking.

25 The present invention also provides a closure as described herein in combination with a container.

The container may, for example, comprise a screw threaded or snap bottle neck.

Different aspects and embodiments of the invention may be used separately or together.

30

Further particular and preferred aspects of the present invention are set out in the accompanying independent and dependent claims. Features of the dependent claims may be combined with the features of the independent claims as appropriate, and in combination other than those explicitly set out in the claims. Each aspect can be carried out independently of the other aspects or in combination with one or more of the other aspects.

35

The present invention will now be more particularly described, by way of example, with reference to the accompanying drawings.

5 The example embodiments are described in sufficient detail to enable those of ordinary skill in the art to embody and implement the systems and processes herein described. It is important to understand that embodiments can be provided in many alternative forms and should not be construed as limited to the examples set forth herein.

10 Accordingly, while embodiments can be modified in various ways and take on various alternative forms, specific embodiments thereof are shown in the drawings and described in detail below as examples. There is no intent to limit to the particular forms disclosed. On the contrary, all modifications, equivalents, and alternatives falling within the scope of the appended claims should be included. Elements of the example embodiments are consistently denoted by the same reference numerals throughout the drawings and detailed description  
15 where appropriate.

Unless otherwise defined, all terms (including technical and scientific terms) used herein are to be interpreted as is customary in the art. It will be further understood that terms in common usage should also be interpreted as is customary in the relevant art and not in an idealised or  
20 overly formal sense unless expressly so defined herein.

In the following description, all orientational terms, such as upper, lower, radially and axially, are used in relation to the drawings and should not be interpreted as limiting on the invention.

25 Although illustrative embodiments of the invention have been disclosed in detail herein, with reference to the accompanying drawings, it is understood that the invention is not limited to the precise embodiments shown and that various changes and modifications can be effected therein by one skilled in the art without departing from the scope of the invention as defined by the appended claims and their equivalents.

30

Figure 1:

Sport Cap Concept:

Snap-on to existing neck finish or dedicated neck

No slitting operation of the base TE band

35

Figures 2 to 5:

Hinged sports closure not removable

Hinged closure

- One hand opening
  - Stay opened at 180°
  - Automatic TE at the opening
- 5 - Color change effect TE band

Requirements :

- No slitting of the body part
  - Application torque of the cap > 30lb.inch
- 10 - Anti-sabotage (snap-on or strip torque)

Figures 6 to 8:

Secure Flip concept not removable

Secure Flip concept:

- 15 - Hinged closure
  - One hand opening
  - Stay opened at 180°
  - Automatic TE at the opening
  - Colour change effect TE band
- 20 - RPC Patent

Requirements:

- No slitting of the body part
  - Application torque of the cap > 30lb.inch
- 25 - Anti-sabotage (snap-on strip torque)

Figure 18:

Eccentric Disk

- Is disc is pivoted to allow access to the product. The disc is attached to the body of the
- 30 closures and to the bottle.

Figure 19:

Slider

- Closure opening is generated through displacement of a slide.
- 35 No detachable parts, closure stays on bottle.

Figure 20:

Push & Open

A flip-top-cap with a tab that shows visible tamper evidence after being pushed in to allow the top to open.

5

Figures 21 to 24:

Beer Bottle Cap

A screw cap that can be rotated into a “park” position during drinking. The closure is attached by two straps 180° opposite that allow the closure to be rotated to its “park” position.

10

“Lasso double” with different pivot positions:

- 1-piece closure
- to requalify THE
- to perform ejection
- consumer convenience

15

Figure 25:

Seal Disk

A spout closure with a seal disk that is pushed vertically upwards through rotation of the outer body. This allows a passage for the liquid to pass through the seal disk and spout.

20

Figure 26:

The Nail

Overcap with piercing element to break through membrane on base spout and release product for drinking.

25

**CLAIMS**

1. A non-removable flip-top sports closure.
- 5 2. A closure as claimed in claim 1, in which the closure comprises a base and a lid, the base and lid being connected by a hinge.
3. A closure as claimed in claim 2, in which the base includes a side skirt and the side skirt includes means for non-removable engagement with a container neck.
- 10 4. A closure as claimed in claim 3, in which the non-removable engagement means comprises one or a plurality of upturned flaps.
5. A closure as claimed in claim 3, in which the non-removable engagement means  
15 comprise a snap bead.
6. A closure as claimed in any preceding claim, comprising a dispensing spout.
7. A closure as claimed in any preceding claim, comprising tamper-evident means.
- 20 8. A closure as claimed in any preceding claim, in which the closure comprises a base and a lid, the closure comprising tamper-evident means, in which the tamper-evident means comprise an upper and lower ring, prior to opening the rings are joined together and upon first opening of the lid the ring are split apart, with the upper ring being retained by the lid and  
25 the lower ring being retained by the base.
9. A closure as claimed in any preceding claim in combination with a container.
10. A combination as claimed in claim 9, in which the container comprises a screw  
30 threaded or snap bottle neck.

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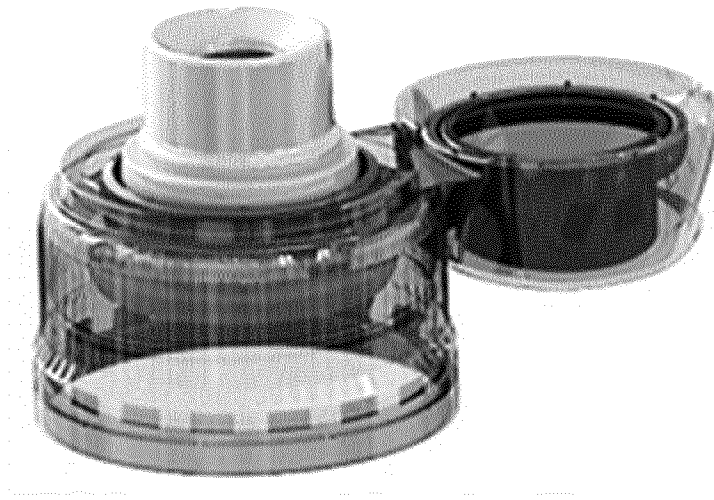


Figure 1

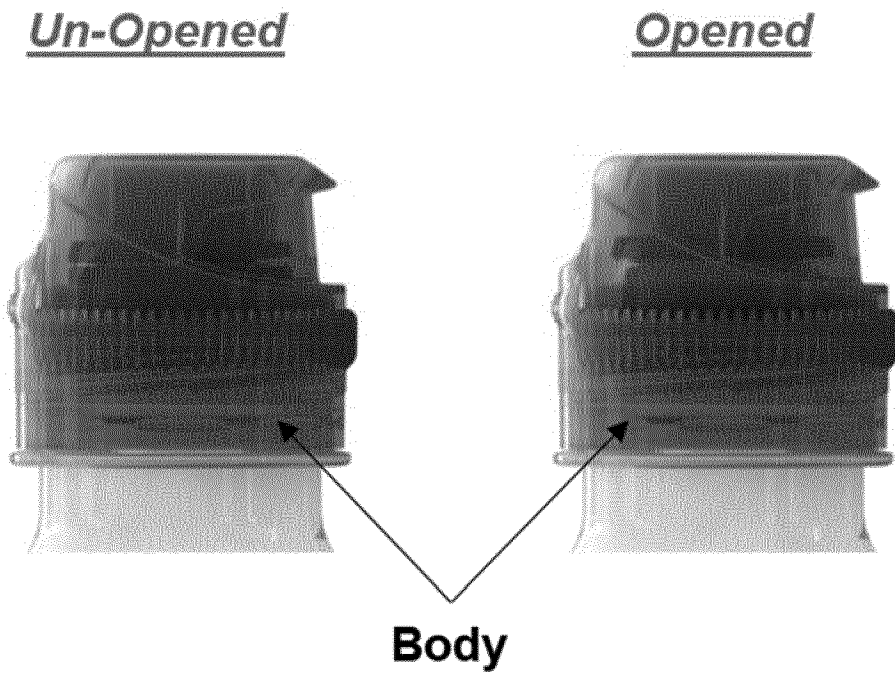
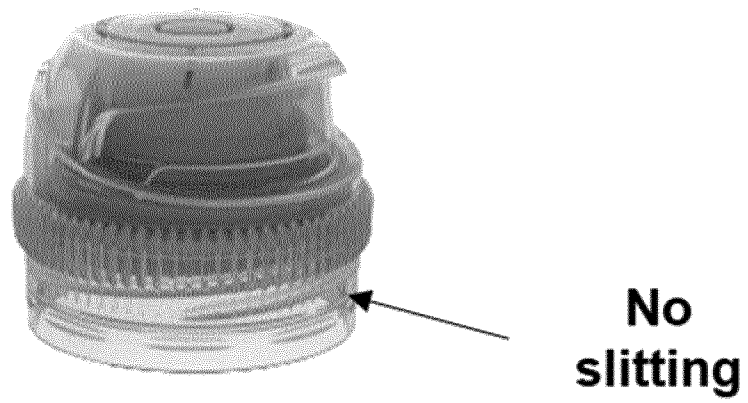
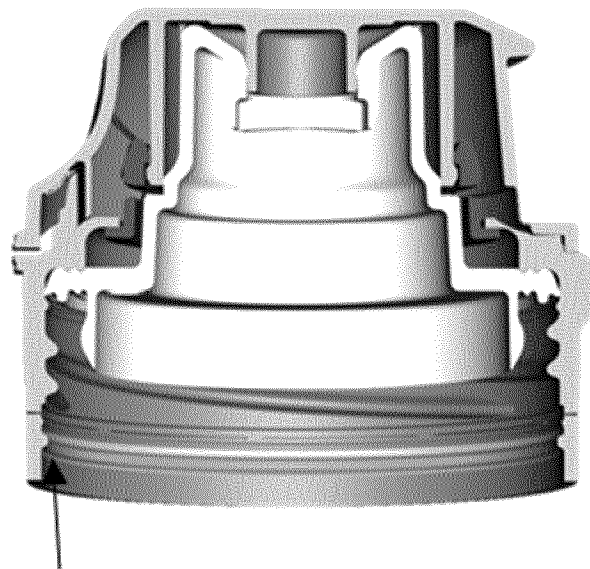


Figure 2



**Figure 3**



**Figure 4**



Figure 5

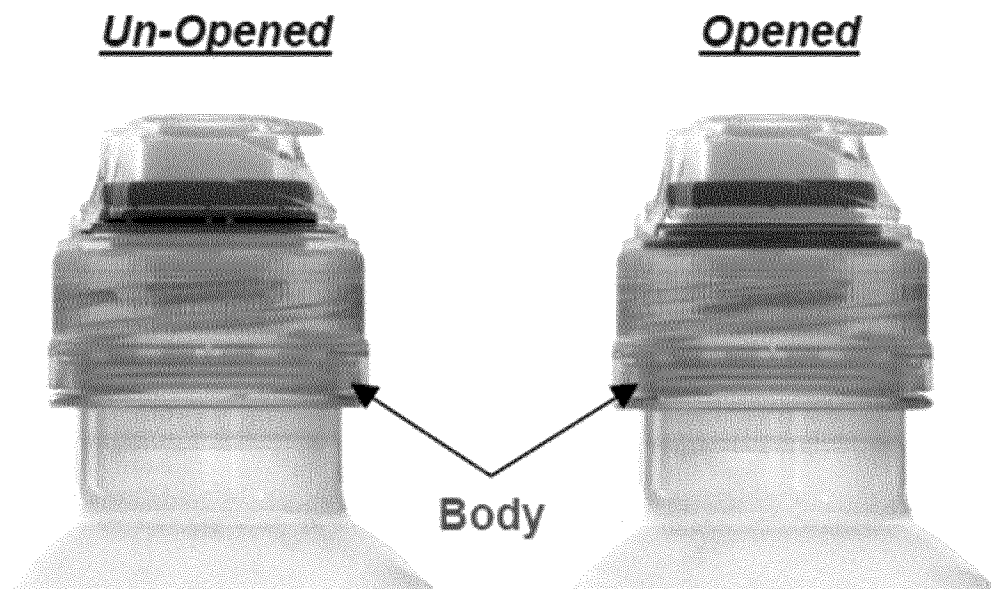


Figure 6

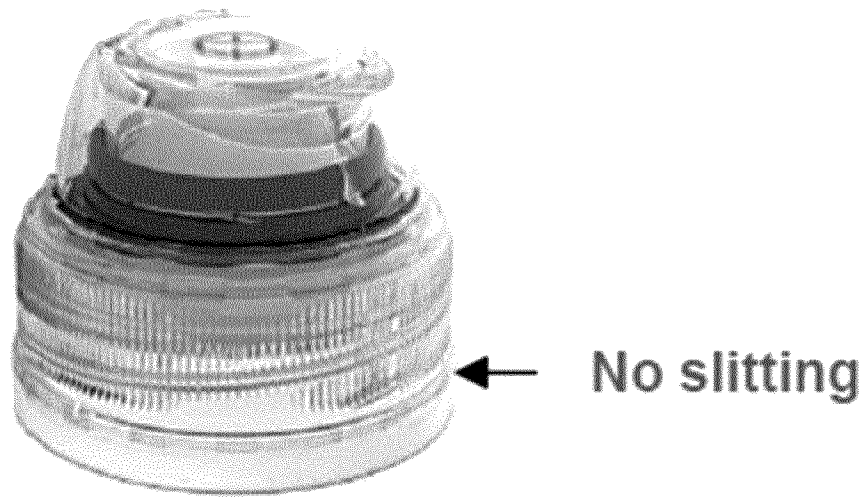


Figure 7



Figure 8

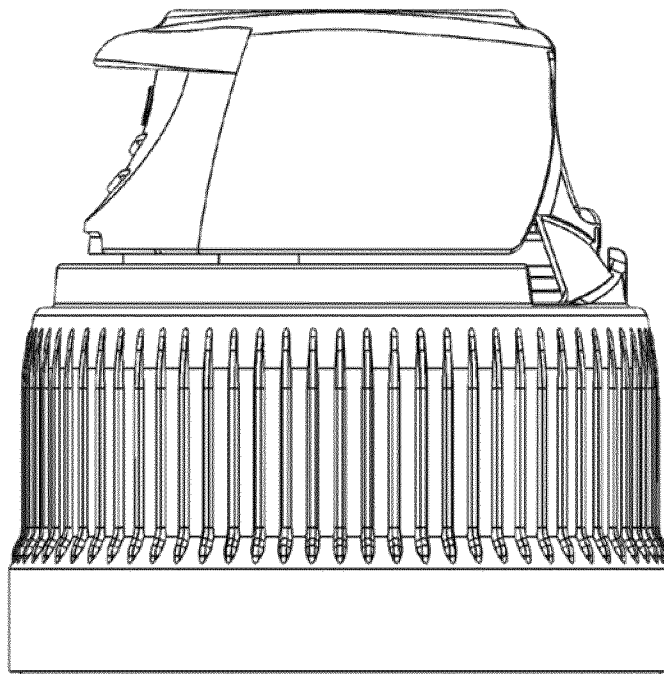


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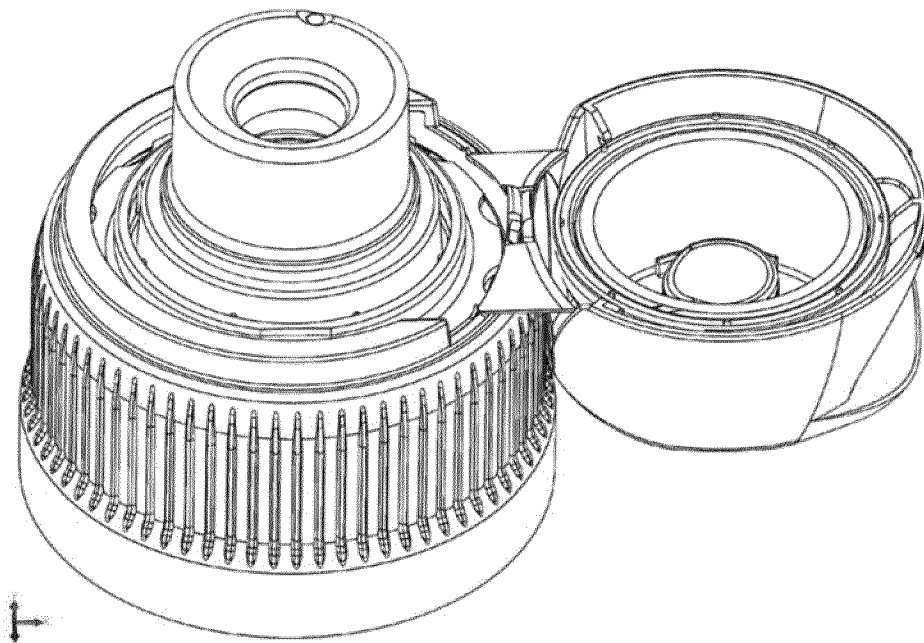


Figure 10

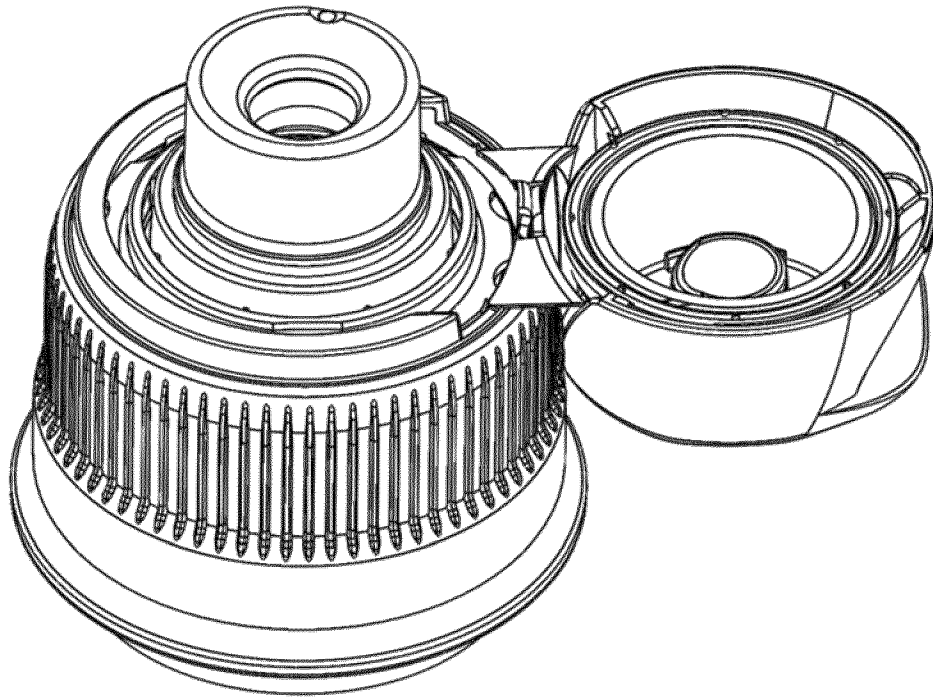


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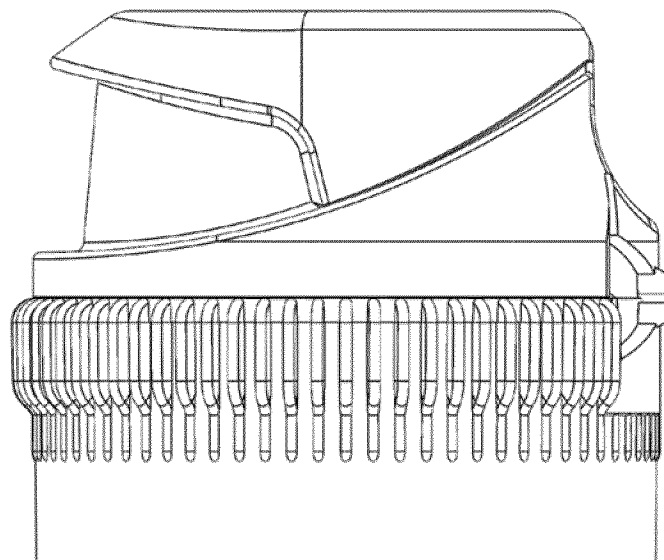


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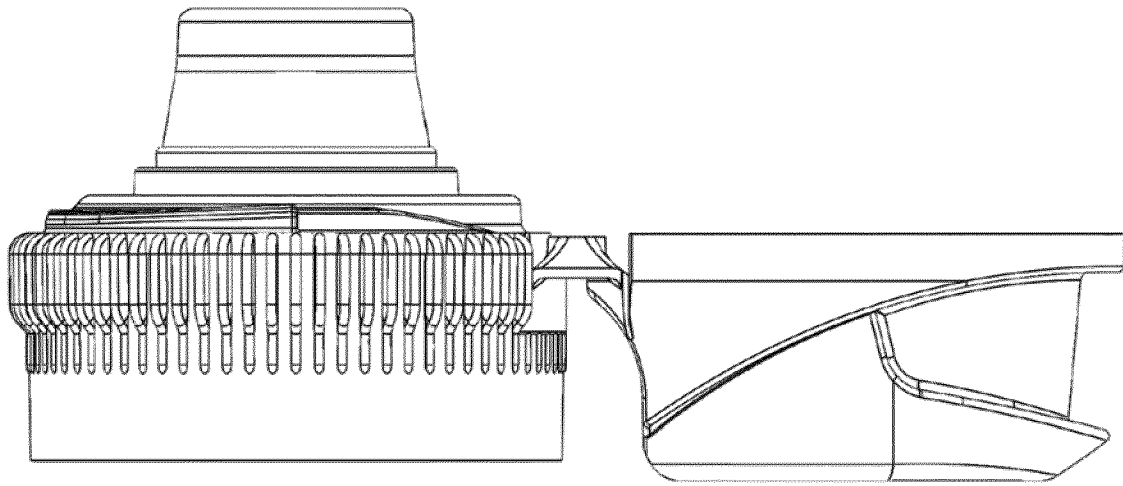


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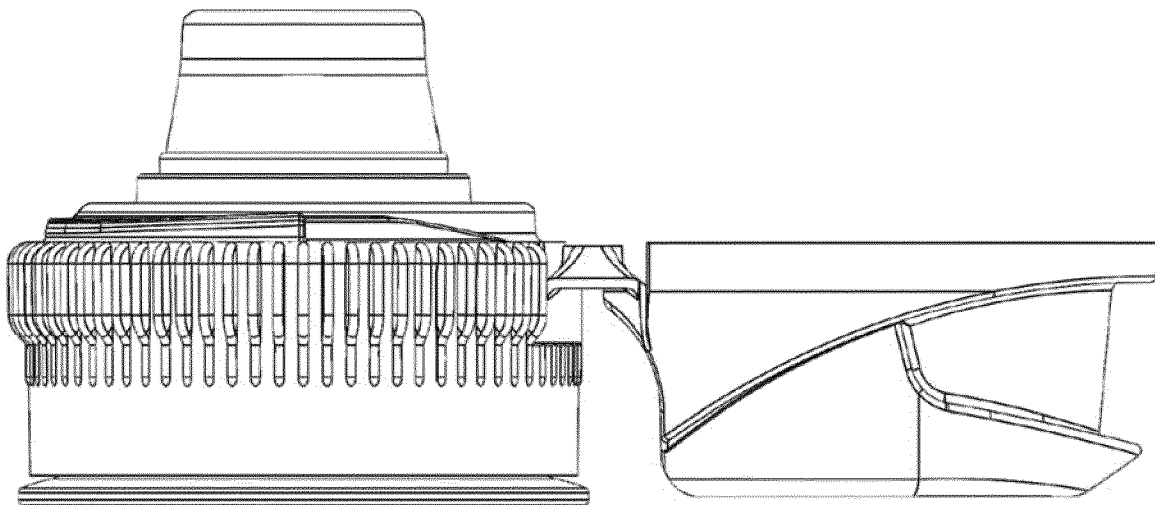


Figure 14

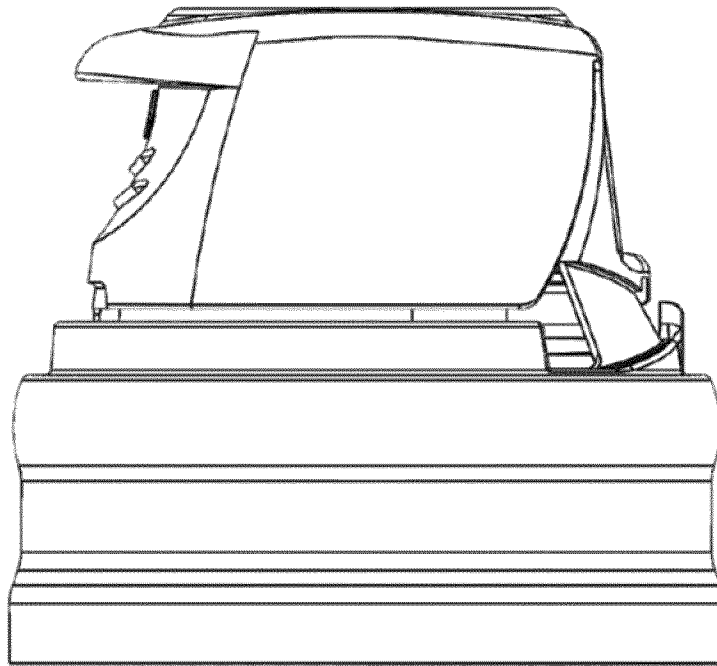


Figure 15

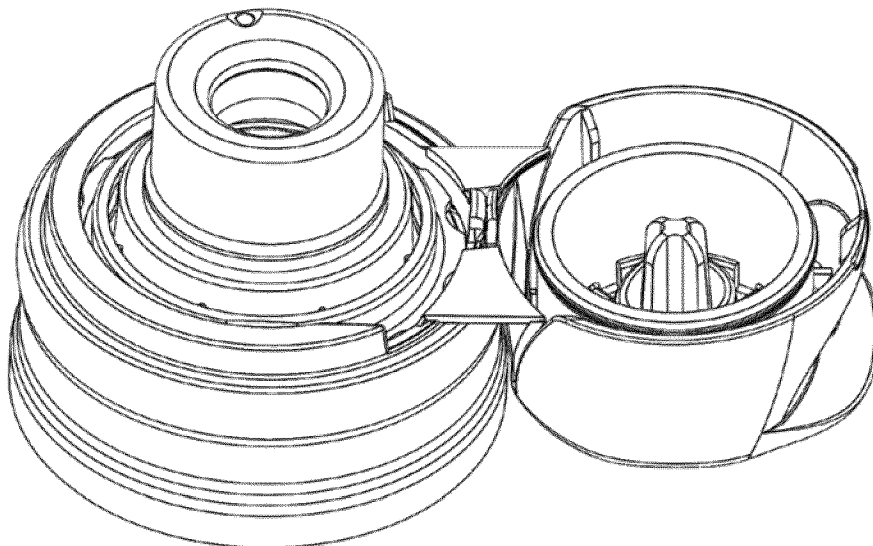


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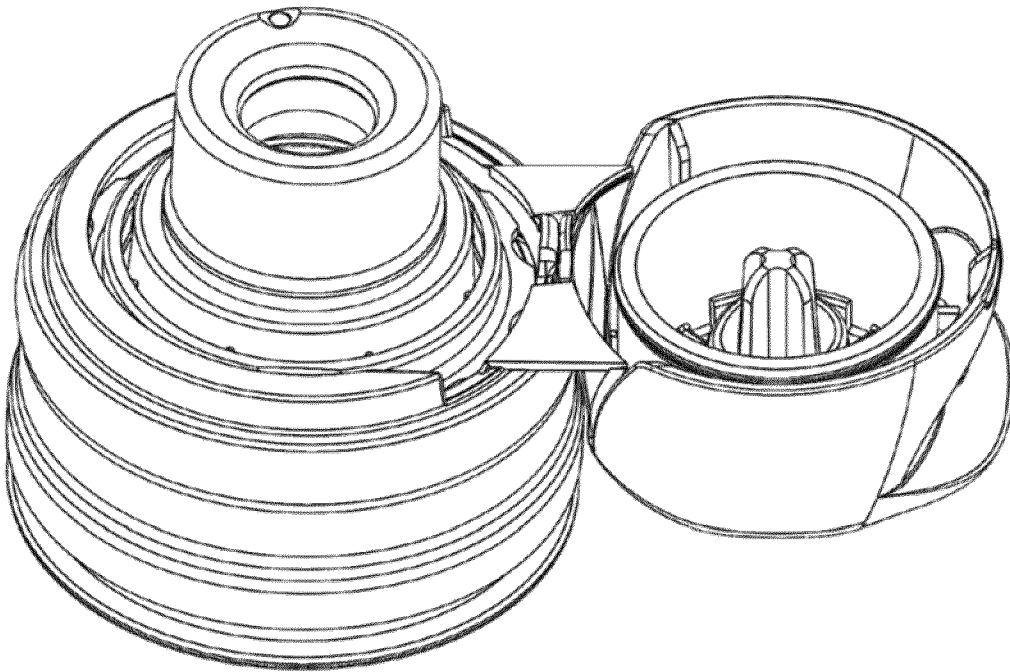


Figure 17

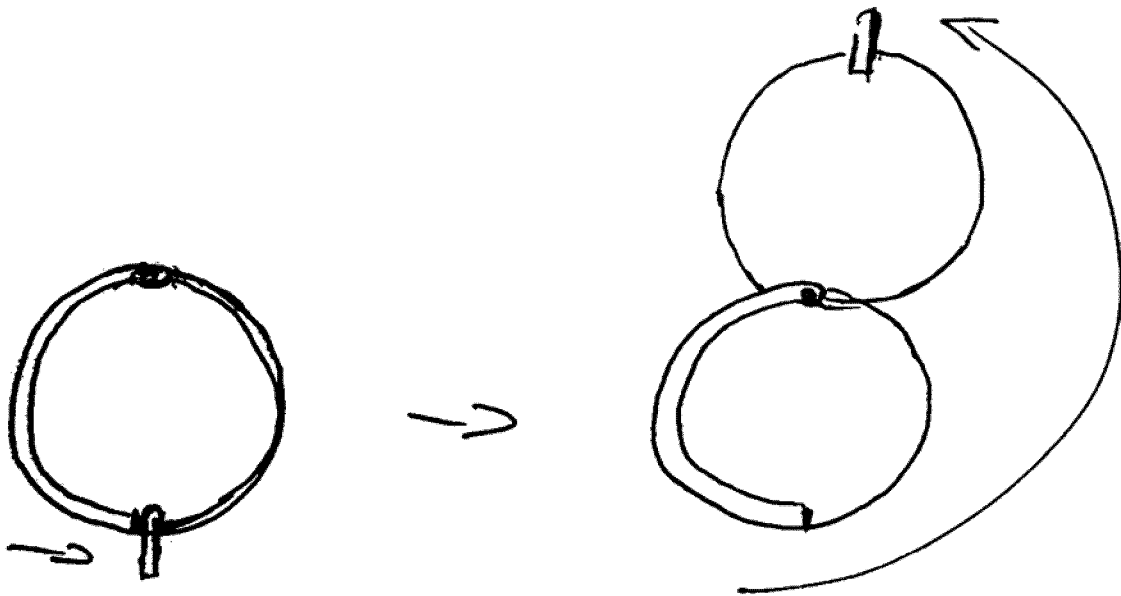


Figure 18

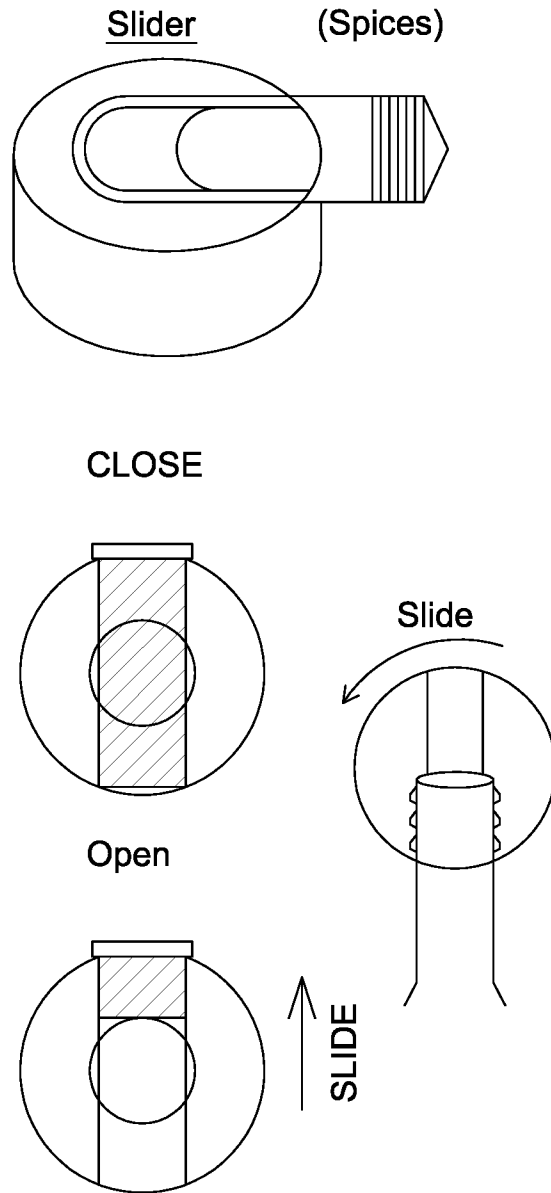


Figure 19

Sport cap 1

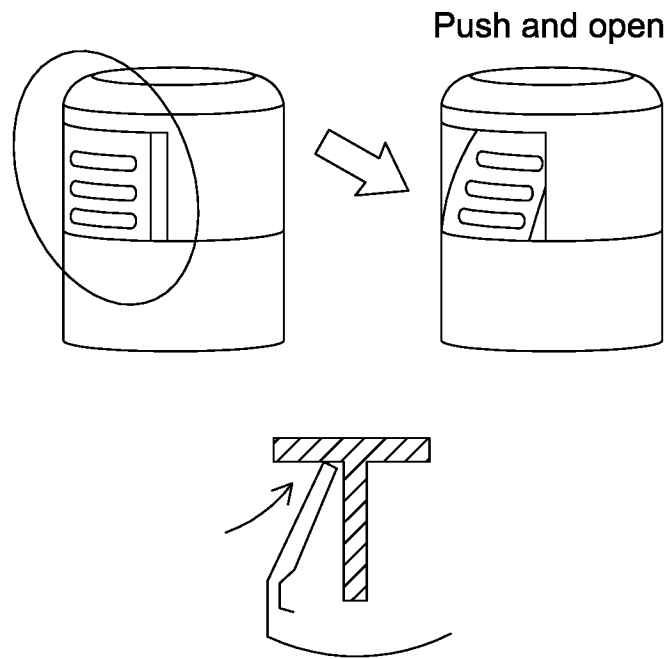


Figure 20

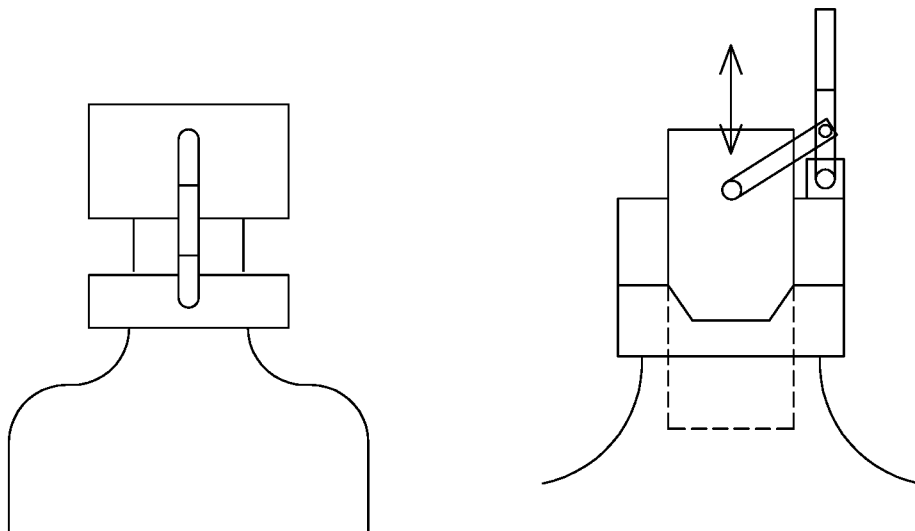


Figure 21

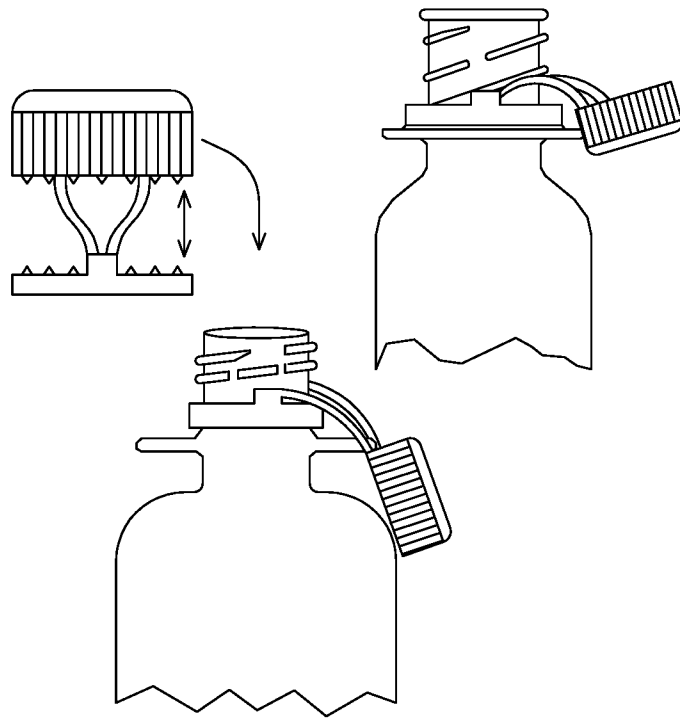


Figure 22

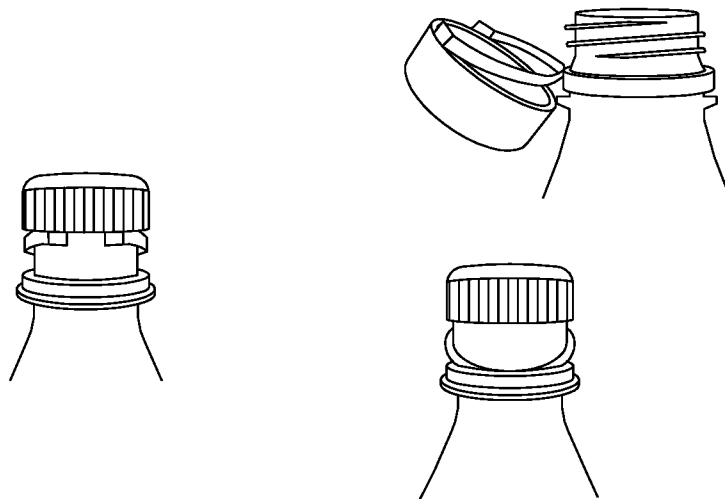


Figure 23

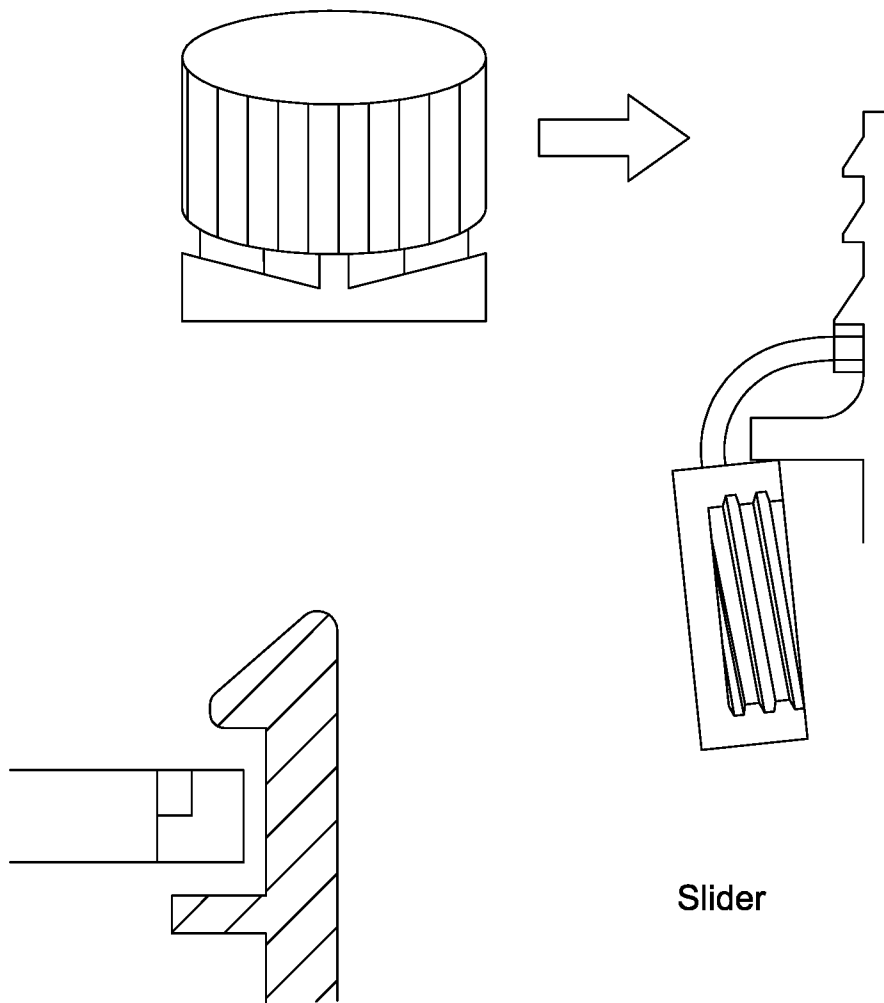


Figure 24

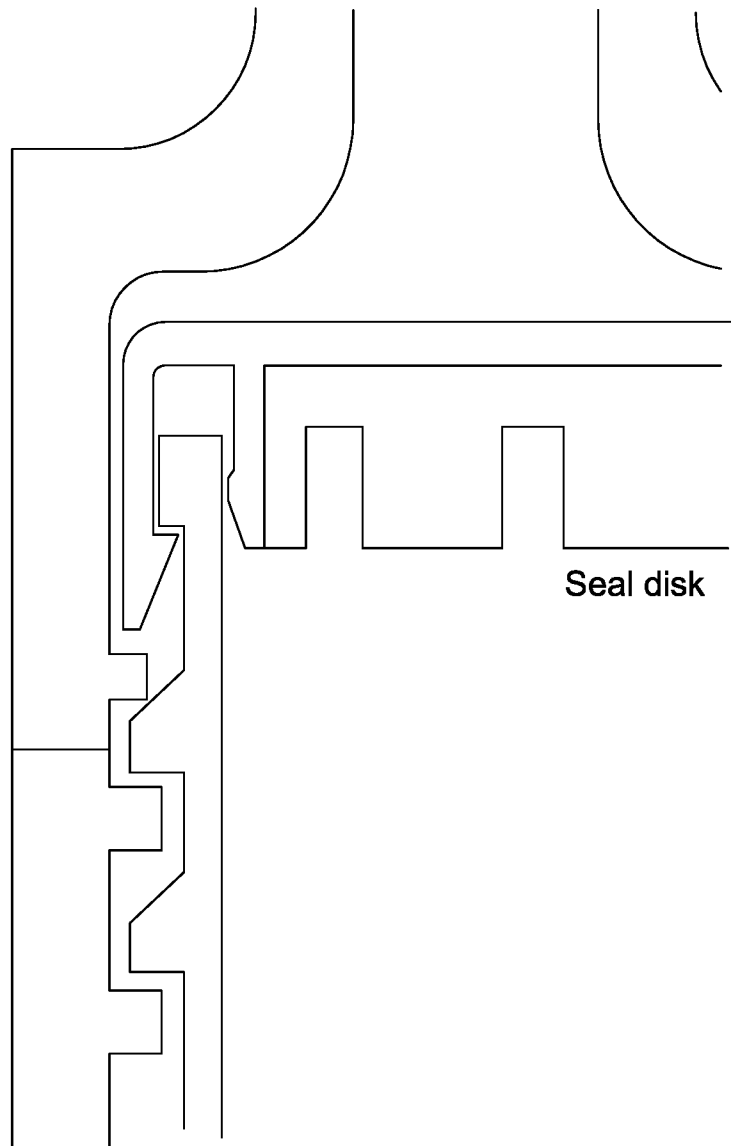


Figure 25

TWIST TO CREATE PIERCING ACTION

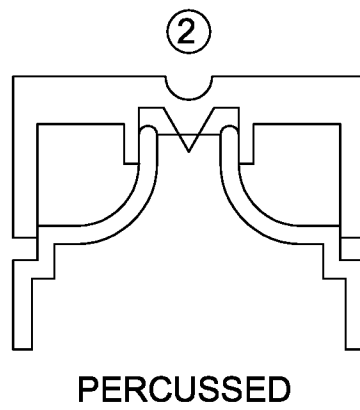
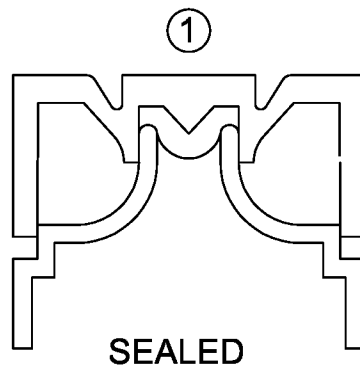
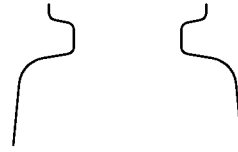


Figure 26

**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/EP2019/060821

**A. CLASSIFICATION OF SUBJECT MATTER**  
 INV. B65D47/08 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.
X	WO 2017/068151 A1 (OBRIST CLOSURES SWITZERLAND [CH]) 27 April 2017 (2017-04-27) page 2, line 19 - page 4, line 12; figures 1-15	1-4,6-10
X	WO 2014/122485 A2 (OBRIST CLOSURES SWITZERLAND [CH]) 14 August 2014 (2014-08-14) page 8, line 23 - page 9, line 19 page 16, line 22 - page 18, line 21; figures 3, 6, 7, 10, 17, 54, 60-70	1-3,5-10

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

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Date of the actual completion of the international search

6 September 2019

Date of mailing of the international search report

19/09/2019

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2  
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Authorized officer

Mans-Kamerbeek, M

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2019/060821

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