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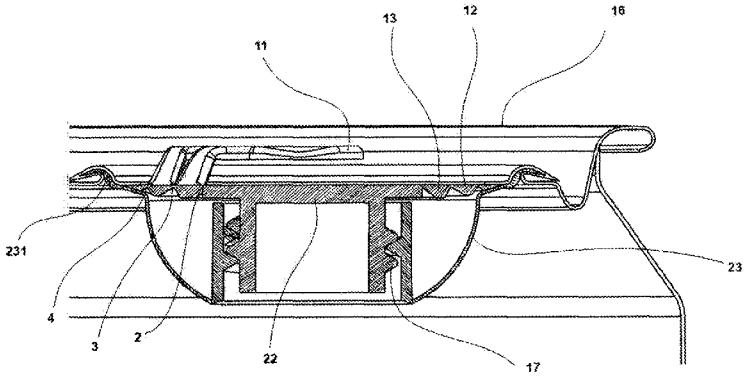

FIGURE 1

(57) Abstract: A closure made of plastic for a beverage can made of metal, comprising a tearing ring (11) and a plastic upper lid (22). The plastic upper lid is connected to the metal can at a bellows mounting section (231). The mounting frame (221) of the upper lid is connected to the metal can between the metal upper piece (16) and the bellows mounting section (231). The tearing ring allows tearing of the outer connection element (12) and the inner connection element (13), the outer connection element remaining connected to the mounting frame (221) at connection point (9) and the inner connection element remaining connected to the lid (22) at connection point (8).

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CLOSURE FOR A METAL BEVERAGE CAN

Technical Field

The invention relates to a lid embodiment made of plastic which is developed for the beverage cans made of metal.

State of the Art

In the applications that have been made so far, the drinking and opening section in the upper section of the metal can are generally made of metal and do not comprise a separate plastic lid.

Although some embodiments comprise plastic lid, they have differences in terms of opening method and thus have drawbacks during the use thereof. Some of the drawbacks are that as the lid is integrated to the can surface, mouth of the user contacts with the can during drinking. Moreover, it is not possible to drink the beverage by putting the straw into such cans when desired. Besides, leakage problems are likely to occur in some these lids.

In some of the plastic upper lid embodiments, however, for instance in US Patent Application No. US5088614, it is obvious that the cover made of plastic which is positioned in the upper section of the can creates quite a big protrusion before the use which in turn results in disadvantages in case of transporting and storing the products or setting the same on the shell.

Another embodiment, on the other hand, is disclosed in US Patent Application No. US5816428A. The invention is a can lid comprising a plastic pop-out-spout, which is secured by being folded on the underside of a metal can lid conventionally roll-seamed onto the can body. In this embodiment, the foldable spout hidden into the metal can is mounted to the metal can lid from the inside by using an adhesive. In this embodiment, there is a risk for the beverage to be contaminated by the adhesive. Moreover, there is also a risk for the adhesive to lose its effect in time and to break. Therefore, it is

obvious that such a mounting will not be favorable. Furthermore, as the metal piece which is opened from the upper lid by breaking remains on the can it may cause unwanted wounds and cuts.

Other similar embodiments relating to this subject in the state of the art are disclosed in EP Patent Applications No. EP0269499 and EP0417453. In the embodiment disclosed in said applications, the cap section is screwed outside of the bellows neck. In the embodiment according to the invention, on the other hand, the lid section is screwed into the bellows neck. The underlying object is to keep the neck of the bellows and the drinking section wide. Another disadvantage in the embodiments disclosed in said applications is that a sabotage lock is not provided. Moreover, the inner connection element and the outer connection element in the form of strand, which are provided in the embodiment according to the invention and interconnect the lid and body, are not available in these embodiments.

To conclude, due to the aforementioned drawbacks and the inadequacy of the existing solutions regarding the subject, a development is deemed necessary to be made in the related technical field.

Objects of the Invention

Developed by being inspired of the current conditions, the invention aims to solve the aforementioned drawbacks.

An object of the invention is to provide a 100% impermeability as the mounting is performed in the inner section of the metal can by riveting method during the production process.

Another object of the invention is to provide a great advantage in terms of transportation, storage and setting on the shell thanks to the fact that plastic upper lid is bi-level with the can surface and does not create a protrusion.

Another object of the invention is to provide the user to use the can by contacting his/her mouth with the bottleneck structure protruding from inside the can without

contacting his/her mouth with the metal can after the upper lid is opened and bellows structure is protruded. Thus, hygiene rules will not be broken.

Another object of the invention is to allow drinking the liquid in the can by putting the straw into the can.

Another object of the invention is to re-screw the upper lid to the can by means of the strand mechanism to which said lid is connected after the product is used. This allows keeping the product to be reused without being exposed to external factors and also prevents extra waste as the upper lid is not separated from the can thanks to the strand.

Another object of the invention is to use the strand embodiment design, which is disposed in both sides of the tearing ring around the upper lid made of plastic, as the first opening lock since it is made integrated with the lid during the production. Inner connection element and outer connection element in the form of strand, which are connected to the tearing ring, have the feature of being a sabotage lock and are important for the first user in some way and prove that the can is not used by another person previously.

Another object of the invention is to prevent a negative situation such as mouth and hand cuts as the mouth of the user does not contact with the metal upper piece.

Liquid drinks put into the beverage can made of metal are generally carbonated drinks and the gas applies pressure to the outside of the can. As the mounting frame of the plastic lid in the plastic upper lid section according to the invention is mounted between the bellows and the metal upper piece by pressing and is disposed inside the metal upper piece, it shows resistance against the pressure inside the beverage can. Said resistance process continues until the tearing ring is pulled and tearing is achieved.

To achieve the aforementioned objects, the invention is a lid embodiment which is used in the metal beverage cans and comprises bellows which is fixed to the metal upper piece positioned in the upper section of said metal beverage can by means of bellows mounting section and metal upper piece bellows connection housing, wherein said lid embodiment is developed. Said lid embodiment comprises the following:

- plastic upper lid covering the open upper end of the bellows;
- lid screw threads which are formed in the outer surface of the plastic upper lid and in the inner surface of the bellows and interconnect the plastic upper lid and the bellows;
- tearing ring which is connected with the plastic upper lid and provides the plastic upper lid and bellows to be pulled toward the upper section of the metal beverage can;
- inner connection element in the form of strand which connects the plastic upper lid to the tearing ring; has the feature of being a sabotage lock; is torn from the plastic upper lid along the inner section tearing line; and is connected with the plastic upper lid by means of the inner connection element-lid connection point;
- mounting frame of the plastic lid which is disposed as compressed between said metal upper piece and bellows;
- outer connection element in the form of strand which connects the mounting frame of the plastic lid to the tearing ring; has the feature of being a sabotage lock; is torn from the inner connection element along the middle section tearing line and from the mounting frame of the plastic lid along the outer section tearing line; and is connected with the mounting frame of the plastic lid by means of the outer connection element-mounting frame connection point;
- said plastic upper lid, said inner connection element, said tearing ring, said outer connection element and said mounting frame of the plastic lid are all plastic and form an integrated structure together in said embodiment.

In a preferred embodiment of the invention, the lid embodiment comprises a plastic sealing baffle which is positioned under the plastic upper lid and lid screw threads within said bellows, prevents the leakages likely to occur in the open upper section of the bellows; and plastic sealing baffle tearing ring which provides said sealing baffle to be torn from the bellows.

The structural and characteristic features and all the advantages of the present invention will be more clearly understood thanks to the figures below and the detailed

description written with reference to those figures; therefore, the evaluation needs to be done by taking said figures and the detailed description into consideration.

Figures for a Better Understanding of the Invention

Figure 1: The cross-sectional view of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention before the lid is opened.

Figure 2: The perspective view of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention before the lid is opened.

Figure 3: The cross-sectional perspective view of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention when the lid is closed.

Figure 4: The perspective detailed cross-sectional view of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention when the lid is closed.

Figure 5: The perspective cross-sectional view of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention when guard ring of the lid is torn.

Figure 6: The perspective view of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention when guard ring of the lid is torn.

Figure 7: The side opening view of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention.

Figure 8: The perspective opening view of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention.

Figure 9: The perspective view of the upper metal lid and bellows section of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention when they are mounted from the bottom.

Figure 10: The top corner perspective view of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention.

Figure 11: The top corner perspective view of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention from another angle.

Figure 12: The view of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention when the bellows therein is protruded to the outside.

Figure 13: The view of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention when the bellows therein is protruded to the outside from another angle.

Figure 14: The view of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention when its upper lid is opened.

Figure 15: The open and detailed view of the upper plastic lid embodiment of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention.

Figure 16: The detailed perspective view of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention on the upper metal piece.

Figure 17: The view showing the ready-to-use state when the first opening lock is turned into a strand providing the connection of the lid to the can, which is the second function thereof, after the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention is opened.

Figure 18: The cross-sectional view of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention when the bellows section thereof is mounted to the metal upper piece.

Figure 19: The cross-sectional view of the metal piece before mounting so as to provide the mounting of the bellows section of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention to the metal upper piece.

Figure 20: The opened view of the sealing baffle and tearing ring in the lower section of the upper plastic lid in the inner section of the bellows section of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention.

Figure 21: The cross-sectional view of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention.

Figure 22: The bottom perspective view of the weakened sections in the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention.

Figure 23: The bottom cross-sectional perspective view of the weakened sections in the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention.

Figure 24: The view showing the connection detail of the mounting of bellows section of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention to the upper metal piece.

Figure 25: The top corner perspective view of the bellows section of the upper lid embodiment, which comprises guard ring that can be torn and bellows and which can be screwed, according to the invention.

Description of the Part References

110. Metal beverage can

2. Inner section tearing line
3. Middle section tearing line
4. Outer section tearing line

8. Inner connection element-lid connection point

9. Outer connection element-mounting frame connection point

11. Tearing ring
12. Outer connection element
13. Inner connection element

14. Sealing baffle
15. Sealing baffle tearing ring
16. Metal upper piece

17. Lid screw threads
18. Metal upper piece bellows connection housing

20. Metal upper piece lid fitting slot line

22. Plastic upper lid
221. Mounting frame of the plastic lid
23 Bellows
231. Bellows mounting section

Scaling of drawings is not absolutely required and details, which are not needed for understanding the present invention, might have been neglected. Furthermore, elements, which are at least substantially identical or have at least substantially identical functions, are indicated with the same number.

Detailed Description of the Invention

In this detailed description, the preferred embodiments of the lid embodiment of the invention are described only for a better understanding of the subject.

This application of the lid embodiment to be described below is made as the additional patent application of Turkish Patent Application No. 2014/04245 titled "Bellows type bottle mouth embodiment hidden under the upper lid for the metal beverage cans and the production method thereof".

The lid embodiment according to the invention comprises tearing ring (11), outer connection element (12), inner connection element (13), sealing baffle (14), sealing baffle tearing ring (15), metal upper piece (16), plastic upper lid (22), mounting frame of the plastic lid (221) and bellows (23) as main components. The lid embodiment further comprises inner section tearing line (2), middle section tearing line (3), outer section tearing line (4), inner connection element-lid connection point (8), outer connection element-mounting frame connection point (9), lid screw threads (17), metal upper piece bellows connection housing (18), metal upper piece lid fitting slot line (20) and bellows mounting section (231). In the embodiment according to the invention, the tearing ring (11), outer connection element (12), inner connection element (13), sealing baffle (14), sealing baffle tearing ring (15), plastic upper lid (22), mounting frame of the plastic lid

(221) and bellows (23), which are mentioned above, are all made of plastic. Likewise, inner section tearing line (2), middle section tearing line (3), outer section tearing line (4), inner connection element-lid connection point (8), outer connection element-mounting frame connection point (9), lid screw threads (17) and bellows mounting section (231) are all made of plastic. Besides, the tearing ring (11), outer connection element (12), inner connection element (13), plastic upper lid (22), mounting frame of the plastic lid (221) all form an integrated structure. Features and function of all the components will be described below.

- Tearing ring (11): Tearing ring (11) also referred to as guard ring is positioned on the upper section of the plastic upper lid (22) at a height to be held by hand (Figure 1). Tearing ring (11) such a structure that a finger can be fitted thereinto. One end of the tearing ring (11) is connected with the outer connection element (12) while the other end is connected with the inner connection element (13). Function of the tearing ring (11) is to pull the plastic upper lid (22) upwards by means of the outer connection element (12).
- Outer connection element (12): Outer connection element (12) is in the form of a strand (Figure 5). One end of the outer connection element (12) is connected to the tearing ring (11) while the other end is connected to the mounting frame of the plastic lid (221). Function of the outer connection element (12) is to connect the tearing ring (11) to the mounting frame of the plastic lid (221).
- Inner connection element (13): Inner connection element (13) is in the form of a strand (Figure 5). One end of the inner connection element (13) is connected to the tearing ring (11) while the other end is connected to the plastic upper lid (22). Function of the inner connection element (13) is to connect the tearing ring (11) to the plastic upper lid (22).
- Sealing baffle (14) and sealing baffle tearing ring (15): Sealing baffle (14) and sealing baffle tearing ring (15) are positioned under the plastic upper lid (22) and lid screw threads (17) in the inner section of the bellows (23) (Figure 20). Function of the sealing baffle (14) is to prevent the leakages likely to occur in the open upper section of the bellows (23). Function of the sealing baffle tearing ring (15), on

the other hand, is to tear the sealing baffle (14) from the bellows (23) after the upper lid (22) is removed.

- Metal upper piece (16): Circular metal upper piece (16) covers the metal beverage can (110) from the top (Figure 1, Figure 19).
- Plastic upper lid (22): Plastic upper lid (22) covers the open upper end of the bellows (23). Plastic upper lid (22) is connected with the inner connection element (13) and also serves as the first opening seal (Figure 1, Figure 7 and Figure 12).
- Mounting frame of the plastic lid (221): Mounting frame of the plastic lid (221) is positioned between the metal upper piece (16) and bellows (23) (Figure 4, Figure 6 and Figure 7). Mounting frame of the plastic lid (221) is annular. Mounting frame of the plastic lid (221) is connected with the outer connection element (12). Function of the mounting frame of the plastic lid (221) is to fix the outer connection element (12) to the metal beverage can (110).
- Bellows (23): Bellows (23) is positioned under the uppermost end of the plastic upper lid (22) (Figure 3, Figure 4). Function of the bellows (23) is to provide the open end of the bellows (23) to protrude out of the metal beverage can (110) when the tearing ring (11) is pulled upwards by means of the plastic upper lid (22) (Figure 12).
- Inner section tearing line (2): Inner section tearing line (2) is the line which is disposed between the inner connection element (13) and plastic upper lid (22) and where tearing is performed (Figure 1).
- Middle section tearing line (3): Middle section tearing line (3) is the line which is disposed between the inner connection element (13) and outer connection element (12) and where tearing is performed (Figure 1).
- Outer section tearing line (4): Middle section tearing line (4) is the line which is disposed between the outer connection element (12) and mounting frame of the plastic lid (221) and where tearing is performed (Figure 1).
- Inner connection element-lid connection point (8): Inner connection element-lid connection point (8) is the area where the inner connection element (13) and plastic upper lid are connected (Figure 23).

- Outer connection element-mounting frame connection point (9): Outer connection element-mounting frame connection point (9) is the area where outer connection element (12) and mounting frame of the plastic lid (221) are connected (Figure 23).
- Lid screw threads (17): It is disposed both on the outer surface of the plastic upper lid (22) and on the inner surface of the bellows (23) (Figure 25). Lid screw threads (17) are used for fixing the bellows (23) to the plastic upper lid (22) and separate the plastic upper lid (22) from the bellows (23).
- Metal upper piece bellows connection housing (18) and bellows mounting section (231): Metal upper piece bellows connection housing (18) and bellows mounting section (231) are used to mount the bellows (23) to the metal upper piece (16) (Figure 24).
- Metal upper piece lid fitting slot line (20): Metal upper piece lid fitting slot line (20) is the line where metal upper piece (16) is fitted on the mounting frame of the plastic lid (221) (Figure 5).

In the lid embodiment according to the invention, metal upper piece bellows connection housing (18) is formed in the inner surface of the metal upper piece (16) covering the upper section of the metal beverage can (110). Bellows mounting section (231) is fitted into said metal upper piece bellows connection housing (18) and metal upper piece bellows connection housing (18) is pressed from the top. Furthermore, plastic upper lid (22) is screwed on the bellows (23). Thus, thanks to both pressing and screwing a leak-proof structure is obtained. Mounting of the mounting frame of the plastic lid (221) designed as circular is performed by compressing the same between the metal upper piece (16) and bellows (23) in the outer edge of the plastic upper lid (22).

Use of the lid embodiment is performed as follows:

Tearing ring (11) is pulled upwards. Meanwhile, both the outer connection element (12) and the inner connection element (13), which are integrated with the tearing ring (11), move upwards. Outer connection element (12) is torn from the outer section tearing line (4), which is the weakened area, but is still connected to the mounting frame of the plastic lid (221) from the outer connection element-mounting frame connection point (9) (Figure 5). Inner connection element (13), on the other hand, is torn from the inner section tearing line (2), which is the weakened area, but is still connected to the plastic

upper lid (22) from the inner connection element-lid connection point (8) (Figure 5). At the same time, outer connection element (12) and inner connection element (13) are torn and separated from each other from the middle section tearing line (3), which is the weakened area. After the outer connection element (12) is torn from the outer section tearing line (4) and the inner connection element (13) is torn from the inner section tearing line (2), only inner connection element-lid connection point (8) and outer connection element-mounting frame connection point (9) remain as the sections which are not torn. After said tearing processes are completed, plastic lid (22) is disengaged. Then, plastic upper lid (22) continues to be pulled upwards and the bellows (23) is protruded out of the metal beverage can (110) (Figure 12, Figure 13). Thanks to the screw threads (17), plastic upper lid (22) is opened by being turned in the opening direction over the bellows (23) (Figure 14). Thus, when plastic upper lid (22) is disengaged, it tilts to the side section of the metal beverage can (110) (Figure 17). After opening:

- as the connection to the inner connection element (13) is maintained by means of the inner connection element- lid connection point (8),
- also as mounting frame of the plastic lid (221) is mounted between the bellows (23) and metal upper piece (16), and
- as the inner connection element (13), tearing ring (11), outer connection element (12) mounting frame of the plastic lid (221) are integrated,

plastic upper lid (22) remains connected to the metal beverage can (110) (Figure 17). Thus if desired later, plastic upper lid (22) can again be screwed to the bellows (23).

CLAIMS

1. A lid embodiment which is used in the metal beverage cans (110) and comprises bellows (23) which is fixed to the metal upper piece (16) positioned in the upper section of said metal beverage can (110) by means of bellows mounting section (231) and metal upper piece bellows connection housing (18), characterized in that said lid embodiment comprises

- plastic upper lid (22) covering the open upper end of the bellows (23);
- lid screw threads (17) which are formed in the outer surface of the plastic upper lid (22) and in the inner surface of the bellows (23) and interconnect the plastic upper lid (22) and the bellows (23);
- tearing ring (11) which is connected with the plastic upper lid (22) and provides the plastic upper lid (22) and bellows (23) to be pulled toward the upper section of the metal beverage can (110);
- inner connection element (13) in the form of strand which connects the plastic upper lid (22) to the tearing ring (11); has the feature of being a sabotage lock; is torn from the plastic upper lid (22) along the inner section tearing line (2); and is connected with the plastic upper lid (22) by means of the inner connection element-lid connection point (8);
- mounting frame of the plastic lid (221) which is disposed as compressed between said metal upper piece (16) and bellows (23);
- outer connection element (12) in the form of strand which connects the mounting frame of the plastic lid (221) to the tearing ring; has the feature of being a sabotage lock; is torn from the inner connection element (13) along the middle section tearing line (2) and from the mounting frame of the plastic lid (221) along the outer section tearing line (4); and is connected with the mounting frame of the plastic lid (221) by means of the outer connection element-mounting frame connection point (9);
- said plastic upper lid (22), said inner connection element (13), said tearing ring (11), said outer connection element (12) and said

mounting frame of the plastic lid (221) are all plastic and form an integrated structure together.

2. The lid embodiment according to Claim 1, characterized in comprising:

- a plastic sealing baffle (14) which is positioned under the plastic upper lid (22) and lid screw threads (17) within said bellows (23), prevents the leakages likely to occur in the open upper section of the bellows (23);
- and plastic sealing baffle tearing ring (15) which provides said sealing baffle (14) to be torn from the bellows (23)

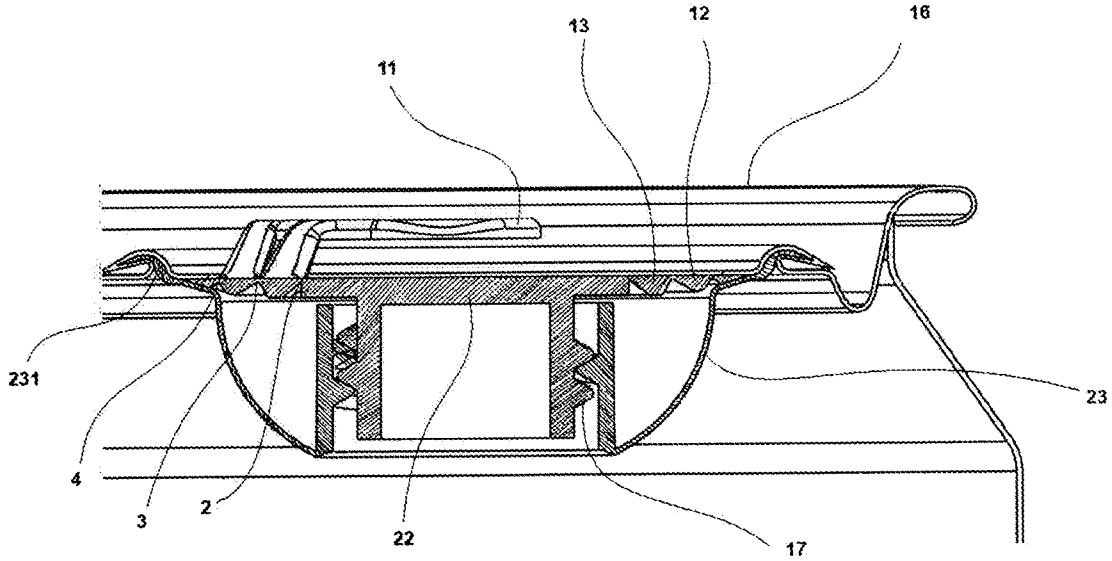

FIGURE 1

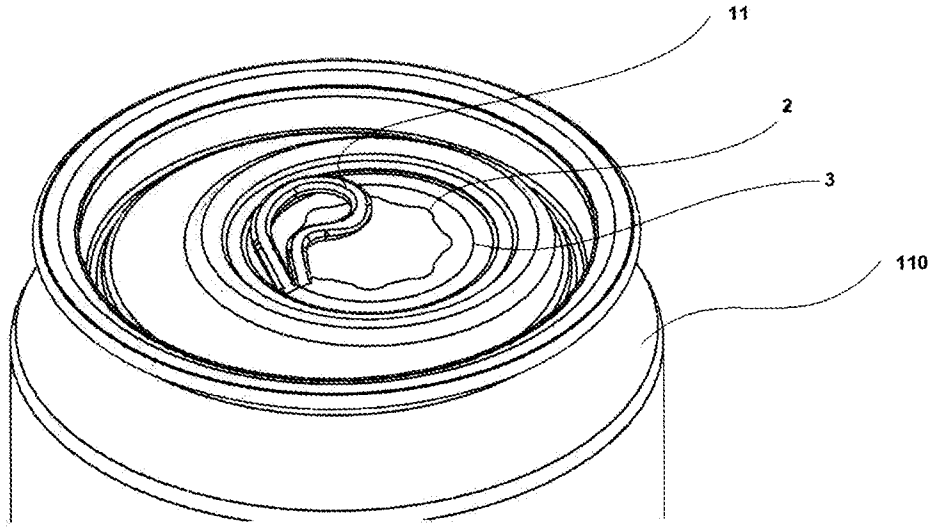

FIGURE 2

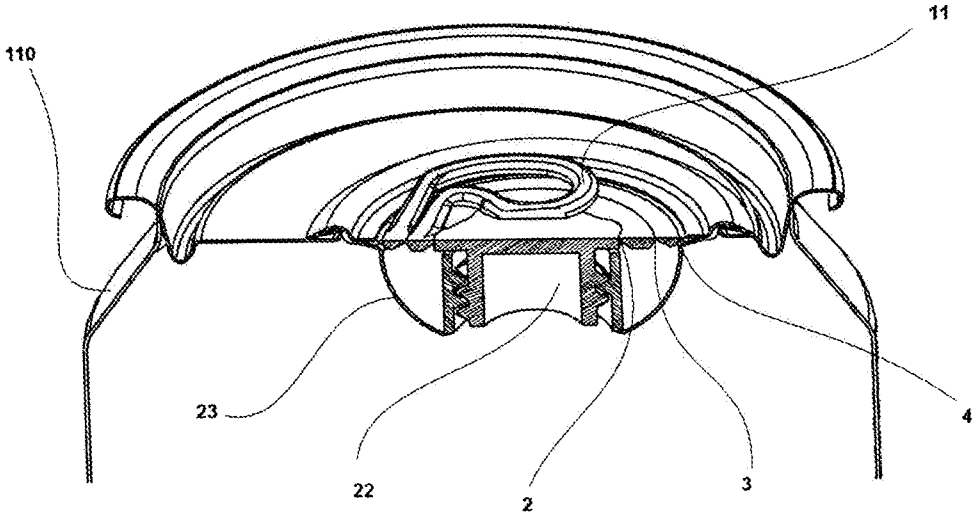

FIGURE 3

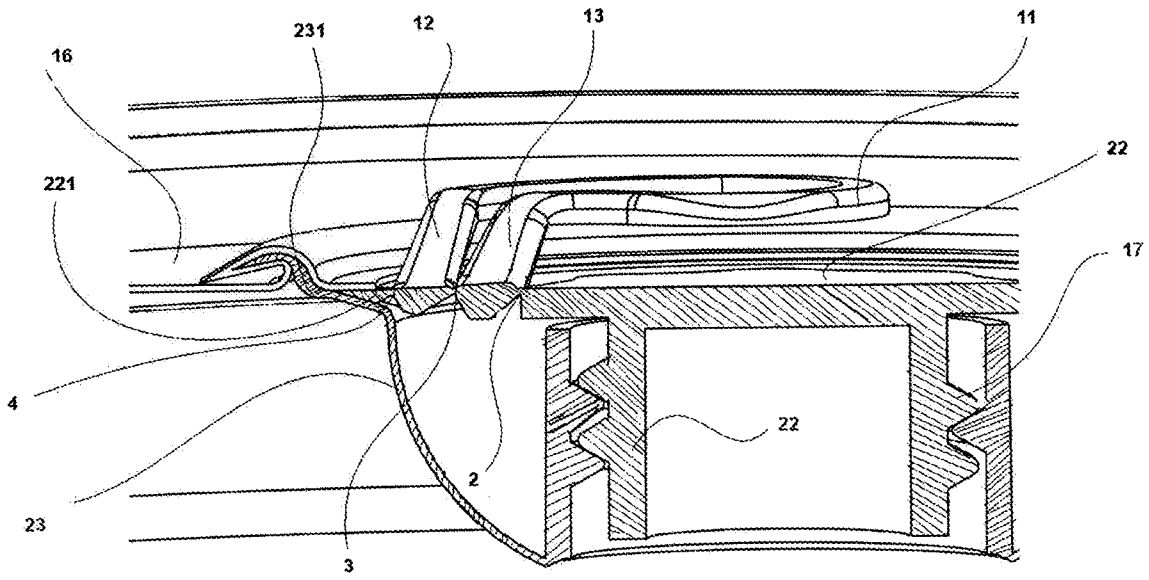

FIGURE 4

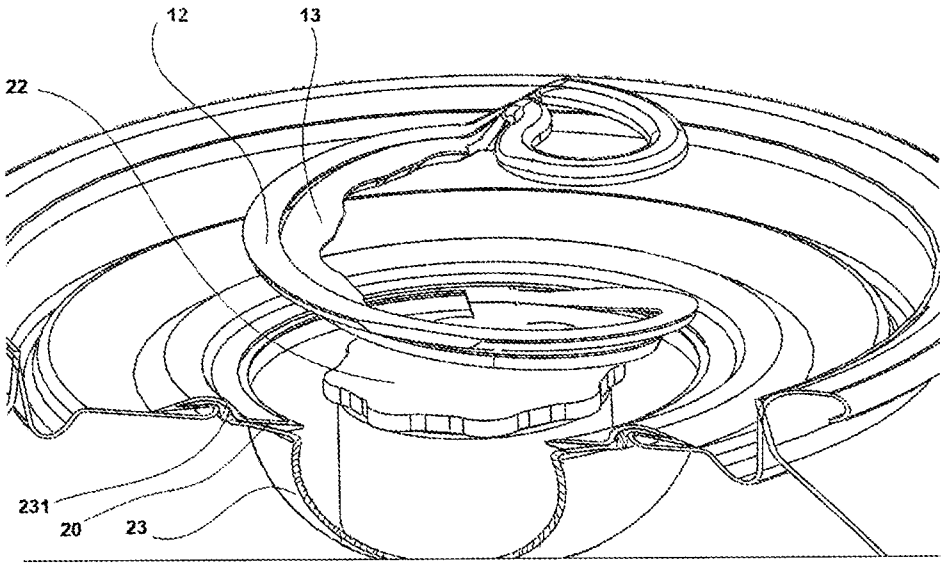

FIGURE 5

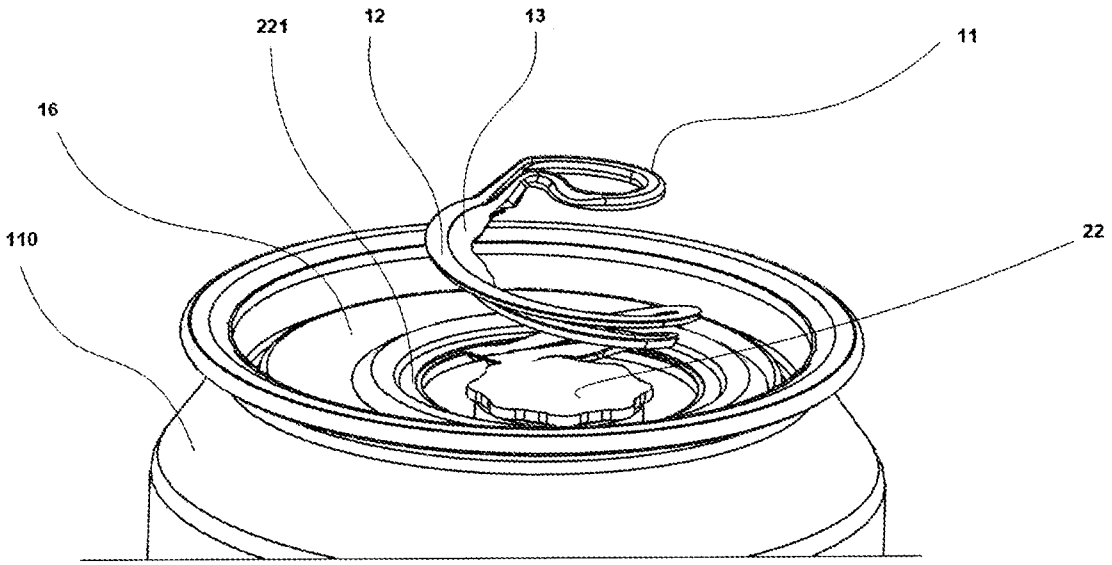

FIGURE 6

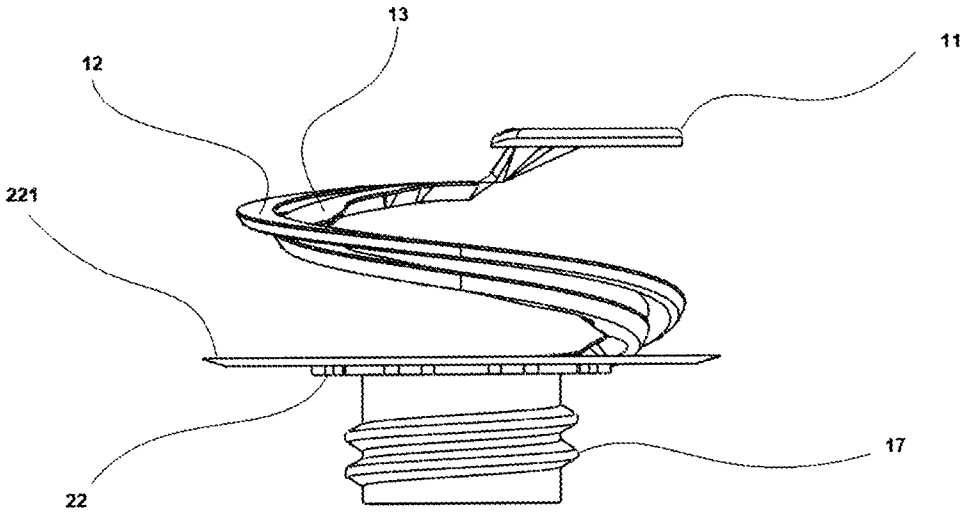

FIGURE 7

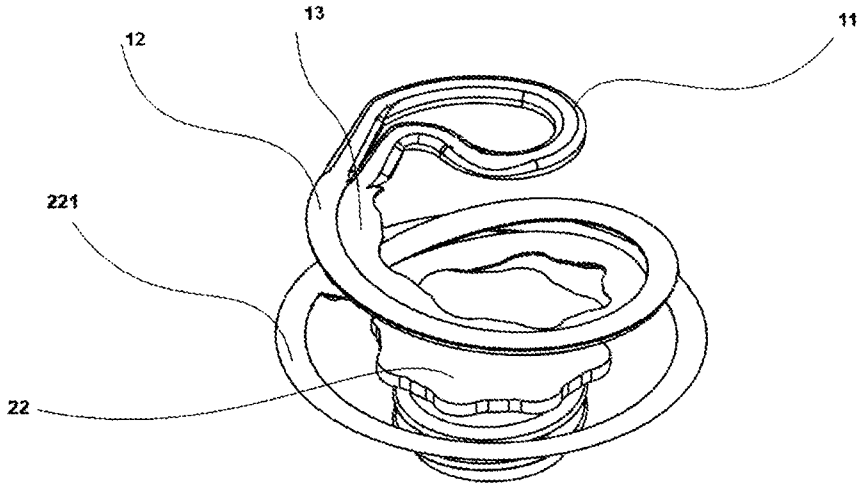

FIGURE 8

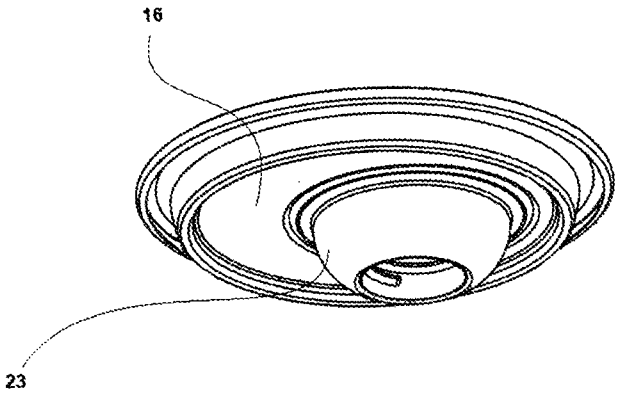

FIGURE 9

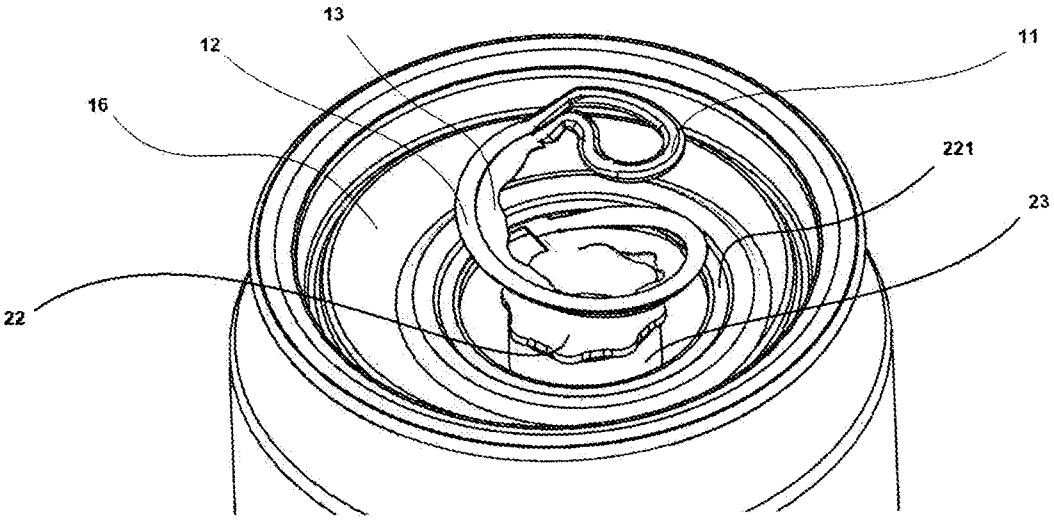

FIGURE 10

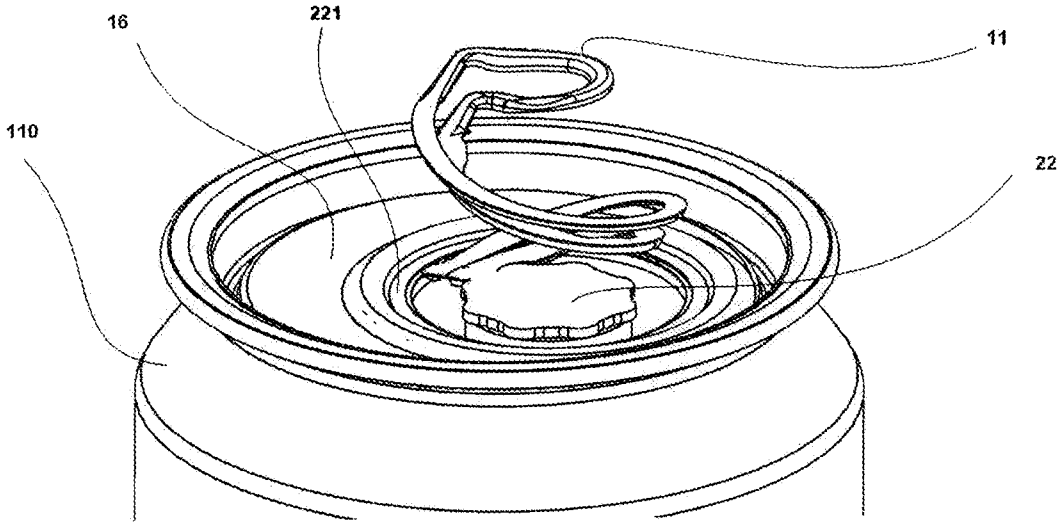

FIGURE 11

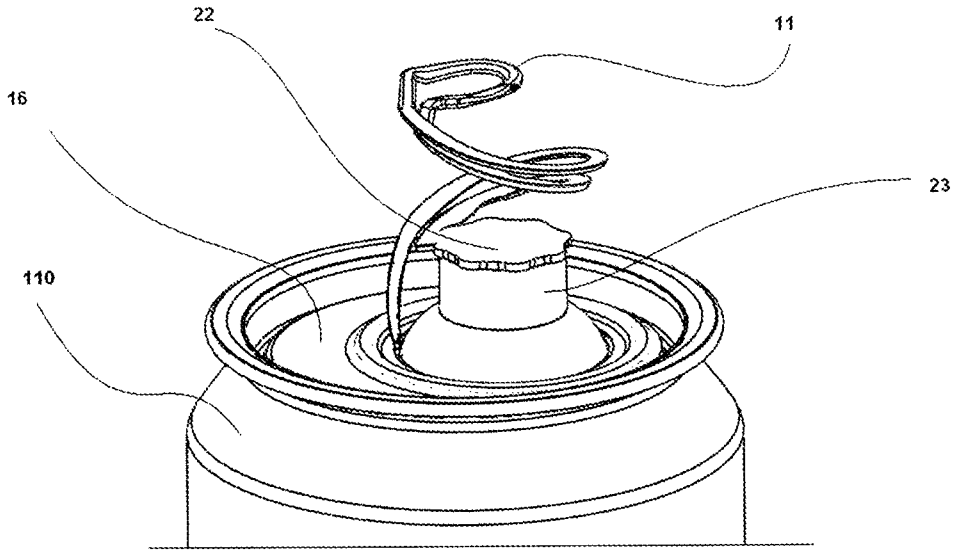

FIGURE 12

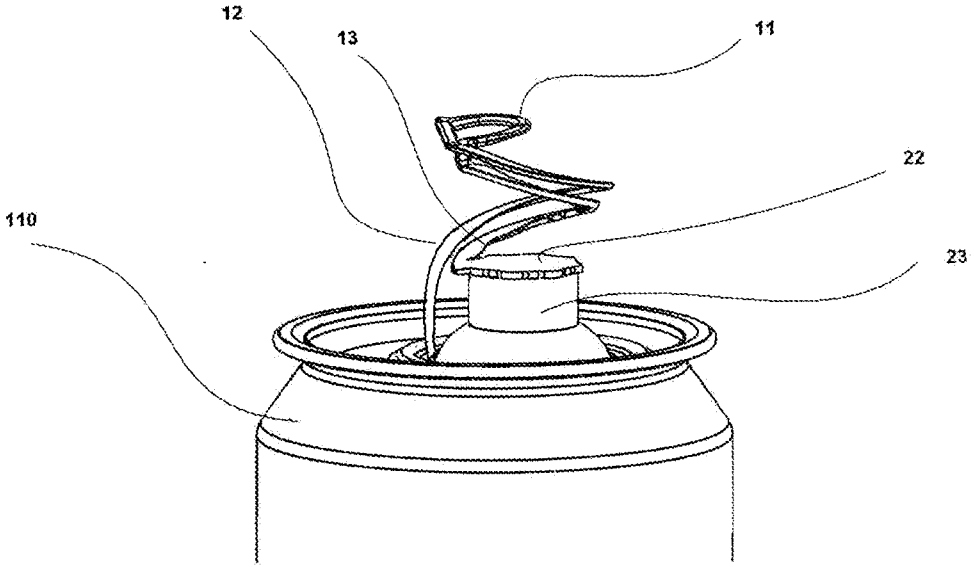

FIGURE 13

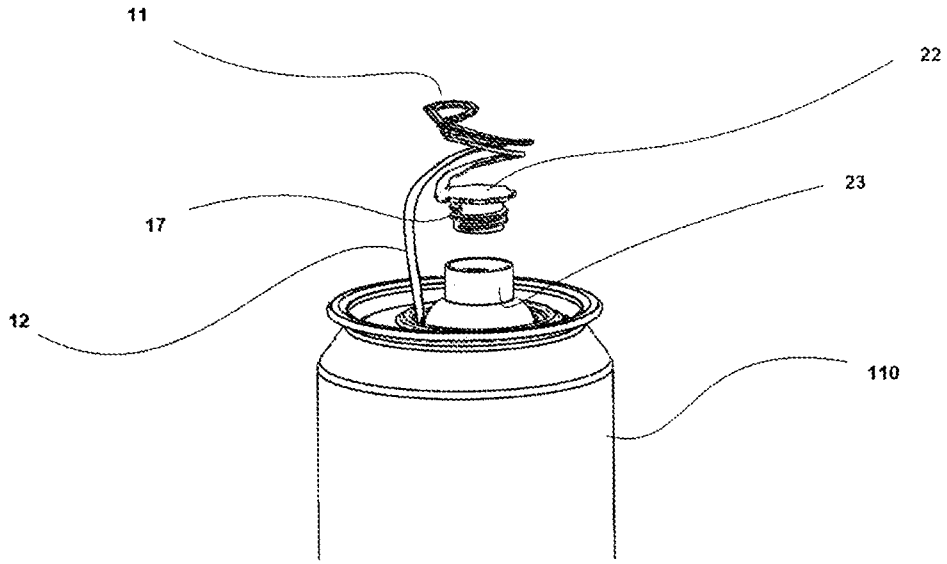

FIGURE 14

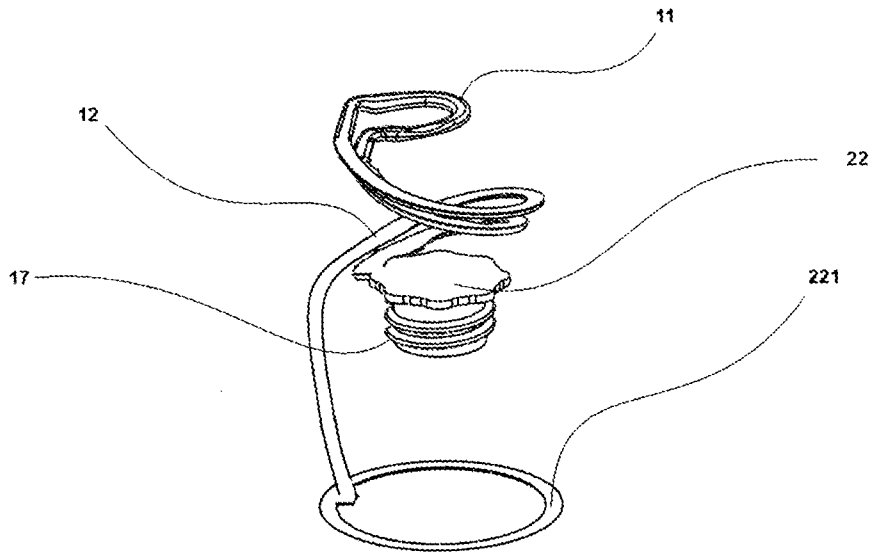

FIGURE 15

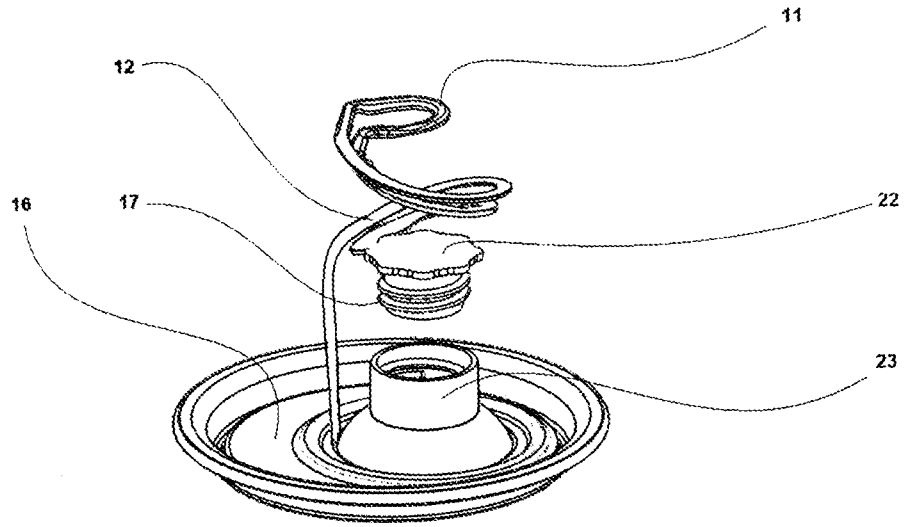

FIGURE 16

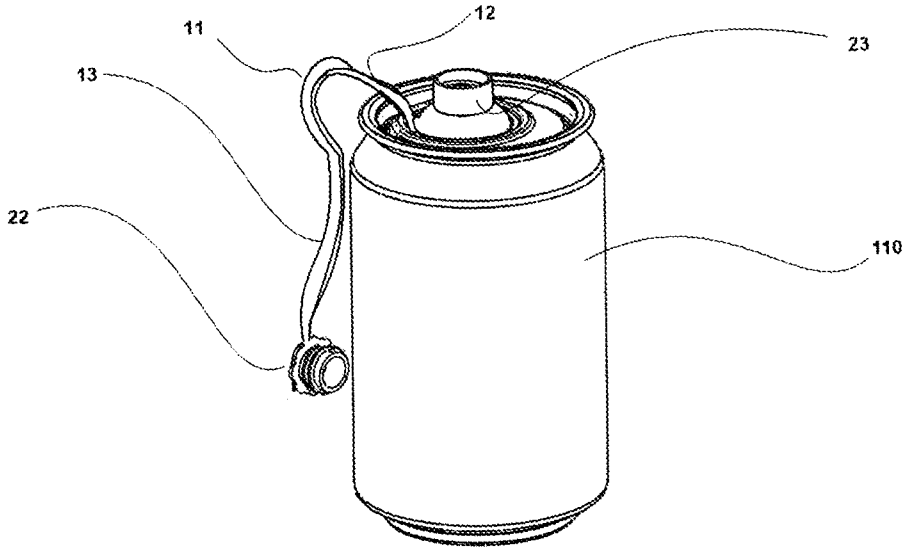

FIGURE 17

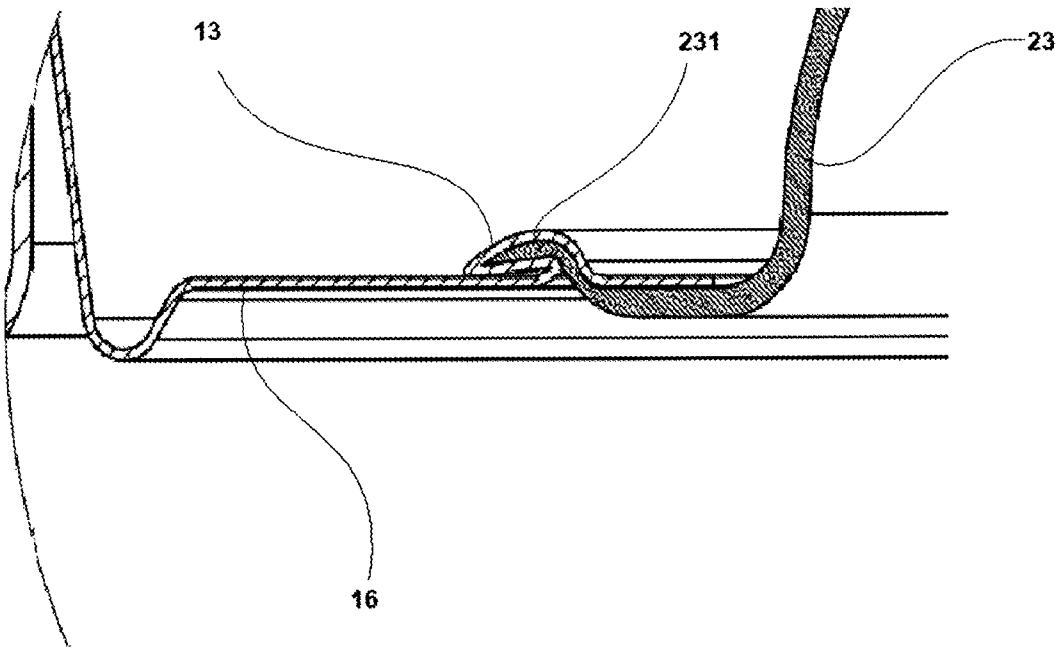

FIGURE 18

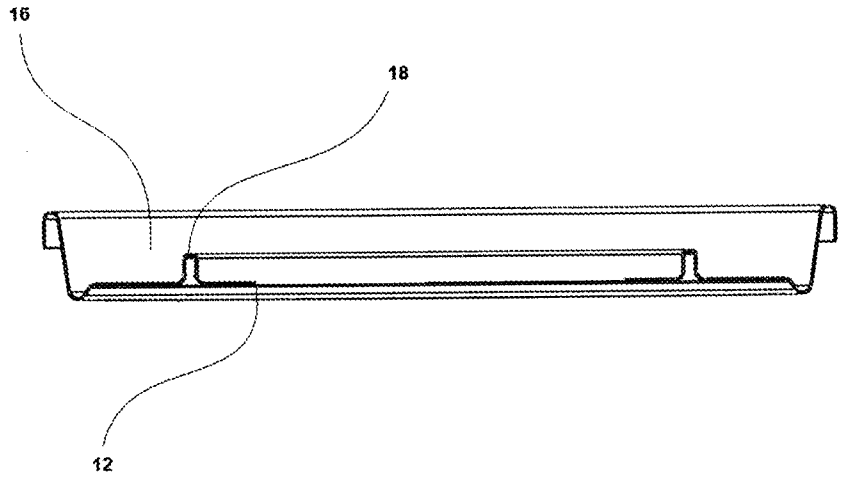

FIGURE 19

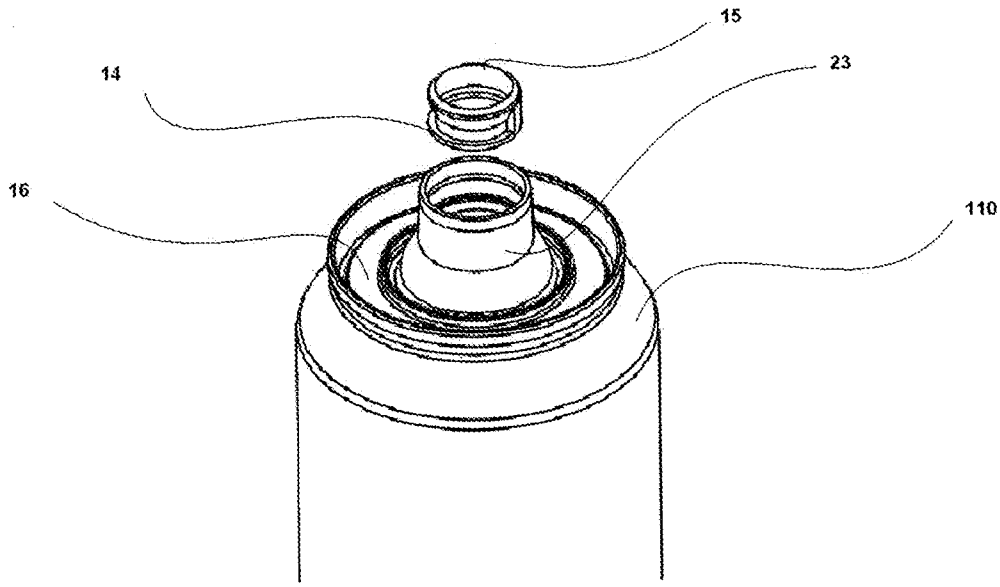

FIGURE 20

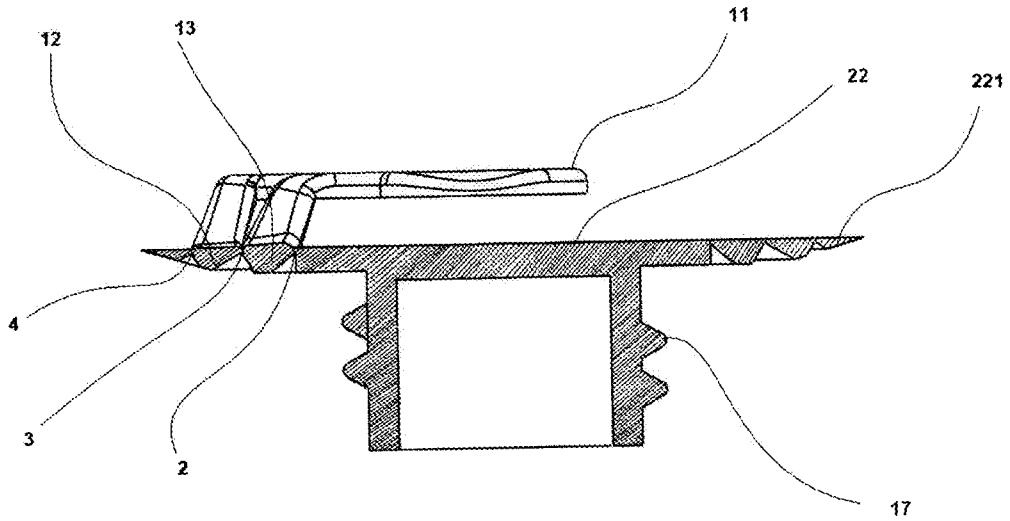

FIGURE 21

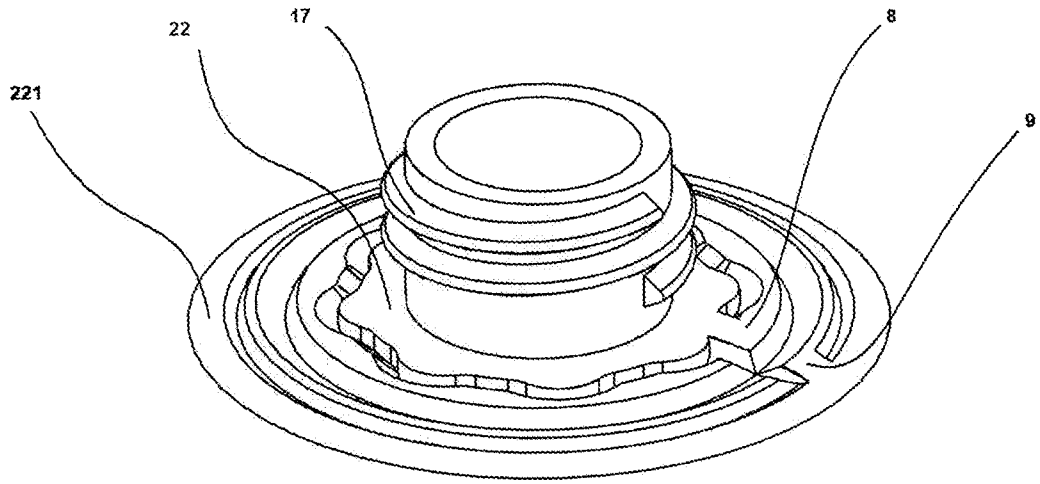

FIGURE 22

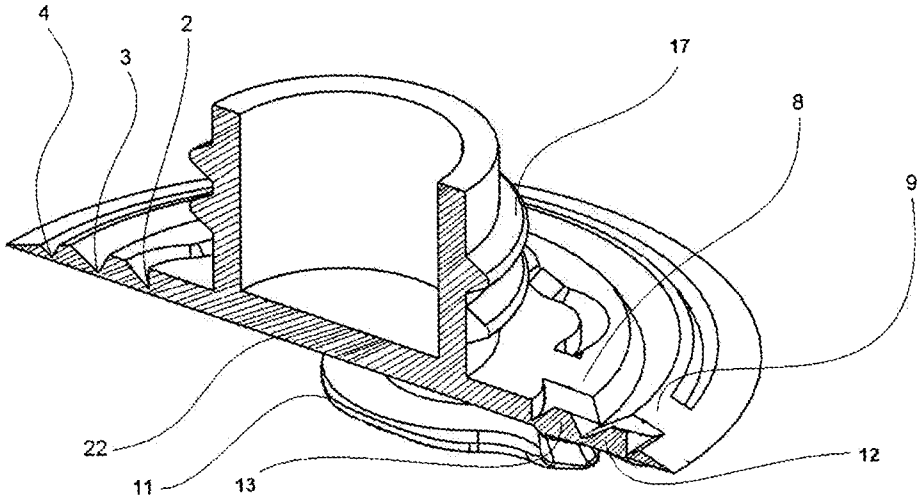

FIGURE 23

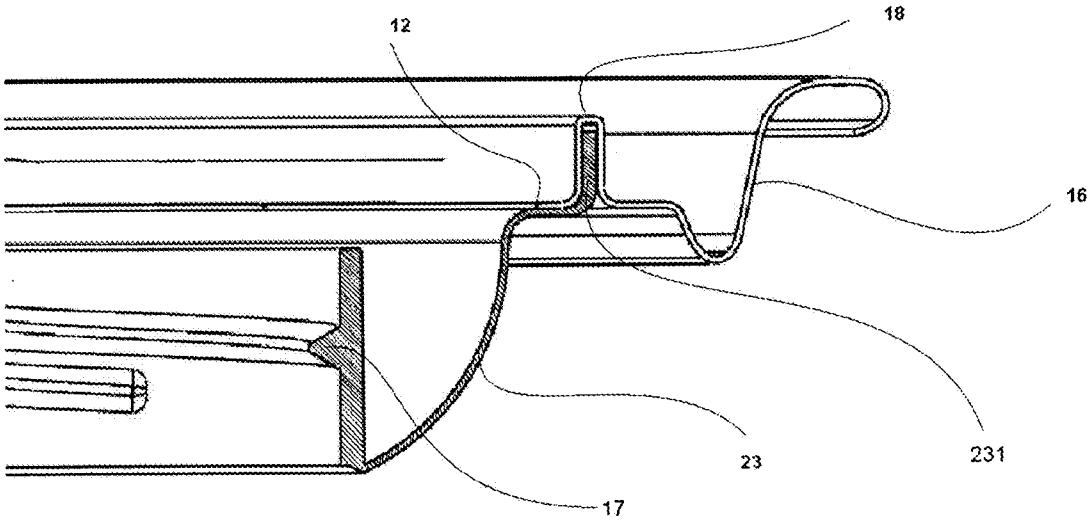

FIGURE 24

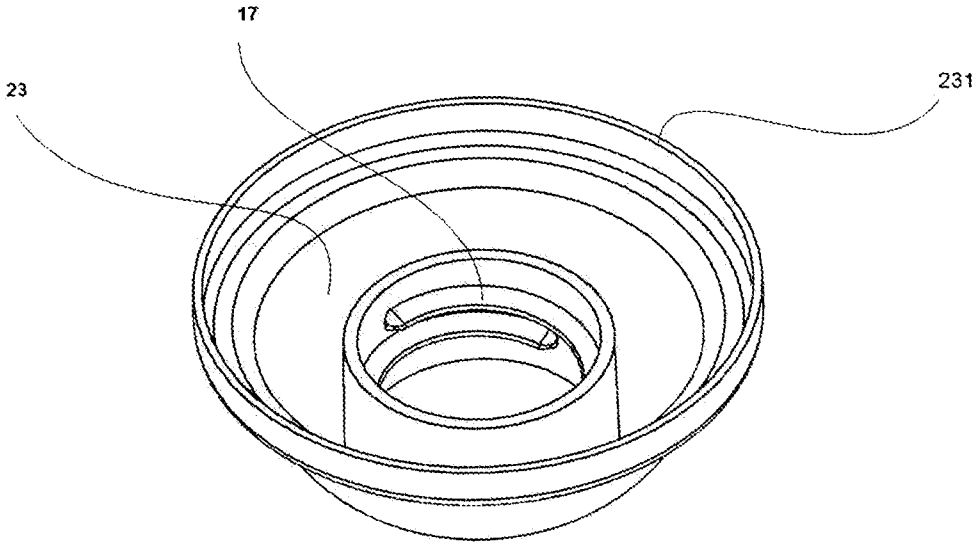

FIGURE 25

INTERNATIONAL SEARCH REPORT

International application No
PCT/TR2015/000218

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D17/50 B65D47/06 B65D47/14
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 865 993 A1 (INVEST DES CREAC MEJ PROD SL [ES]) 23 September 1998 (1998-09-23) column 4, line 57 - column 6, line 39; figures	1
A	US 3 502 246 A (KELBCH GUNTHER) 24 March 1970 (1970-03-24) page 6, line 23 - page 7, line 19; figure 3	1
A	US 5 950 876 A (MCLELLAND DOUGLAS M [US] ET AL) 14 September 1999 (1999-09-14) column 3, line 48 - column 4, line 14; figures 2,3	1
A	DE 18 53 501 U (JACOB BERG KOM GES BLECHWARENF [DE]) 14 June 1962 (1962-06-14) page 3, line 7 - line 23; figures	1

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

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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"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

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
15 October 2015	26/10/2015

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	Newell, Philip

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/TR2015/000218

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