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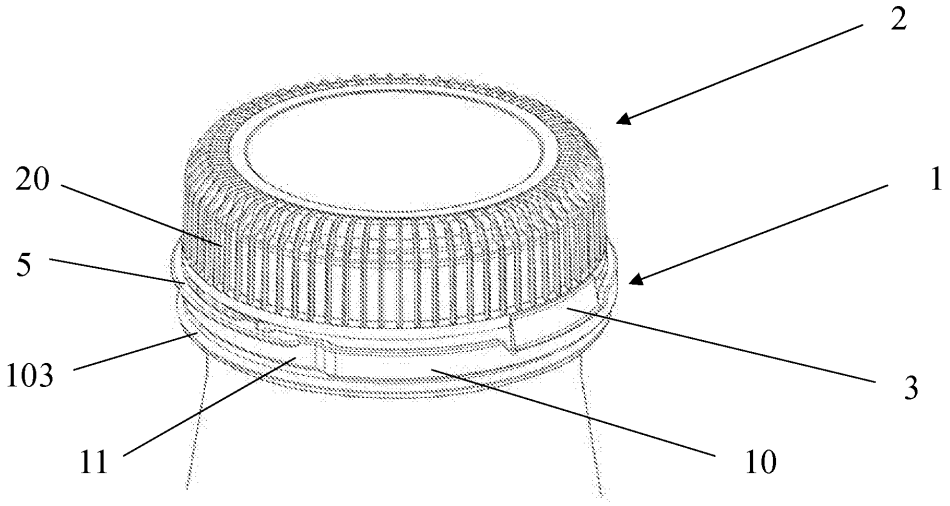
(54) **CLOSING CAP FOR CONTAINERS**

(57) The invention relates to a closing cap for containers, particularly intended for containers that have an opening in a neck provided with an outer threaded portion, comprising a lower ring intended for being coupled to the neck of the container and an upper cap having an inner threaded region configured for being coupled to the outer threaded portion of a container neck, the upper cap and the lower ring being articulated to each other by means of a hinged portion, such that the lower ring is formed by an annular-shaped body. Said lower ring has a section with a diameter larger than the remaining section of the annular-shaped body, wherein the hinged portion is located in the section with the larger diameter.

FIG. 1



EP 4 129 853 A1

Description

OBJECT OF THE INVENTION

[0001] The object of the present application is to provide a closing cap for containers.

[0002] More specifically, the invention proposes the development of a closing cap for containers with environmental advantages as regards the recycling of containers with a cap, as well as advantages in the manufacturing process thereof.

BACKGROUND OF THE INVENTION

[0003] In the sector of packaging food products (solid, liquid, viscous substances, etc.), closing caps made from plastic material have been used for many years, which are provided with an inner thread able to be threaded in a cut formed in the neck of the container itself, enabling the contents inside the container to be kept airtight, for example, in the case of a bottle of the type used for bottling beverages, such as mineral water, soft drinks or the like.

[0004] Although this system used is very practical for the user and relatively inexpensive for manufacturers of containers and beverages, it is not so attractive from an environmental point of view since on many occasions the user discards the body of the bottle independently of the cap, which implies that the cap is not properly recycled, generating a waste that is non-degradable and harmful to the environment. Document no. ES 1217541 is known in the state of the art, which describes a closing cap for containers that satisfactorily solves the problem raised above.

[0005] However, in practice it has been observed that it is complex to manufacture as it requires more complex tools, for example, the incorporation of slides in the injection moulds for shaping the closing caps, which also implies an increase in the manufacturing and maintenance costs.

[0006] Furthermore, the applicant is currently unaware of an invention that has all the features described in this specification.

DESCRIPTION OF THE INVENTION

[0007] The present invention has been developed with the aim of providing a closing cap which is configured as a novelty within the field of application and solves the previously mentioned drawbacks, further contributing other additional advantages which will be obvious from the description below.

[0008] An object of the present invention is therefore to provide a closing cap for containers, particularly intended for containers that have an opening in a neck provided with an outer threaded portion, comprising a lower ring intended for being coupled to the neck of the container and an upper cap having an inner threaded region configured for being coupled to the outer threaded portion of a container neck, the upper cap and the lower ring being articulated to each other by means of a hinged portion, such that the lower ring is formed by an annular-shaped body, characterised in that the lower ring has a section with a diameter larger than the remaining section of the annular-shaped body, wherein the hinged portion is located in the section with the larger diameter.

[0009] Thanks to these features, this design facilitates the manufacturing process since it can be carried out by using plastic injection moulds devoid of slides, which reduces investment, maintenance and manufacturing costs, since the arrangement of these two regions with different diameters enables the design of the hinged portion to be simplified.

[0010] Additionally, the closing cap includes a tamperproof seal located between the upper cap and the lower ring, which ensures that the container has not been previously manipulated before use thereof by the user.

[0011] Preferably, the tamperproof seal is made up of a plurality of breaking points located on a rim of the lower ring that protrudes outwards and attached to a lower edge of the upper cap.

[0012] Also preferably, the rim of the lower ring that protrudes outwards is located in the smaller diameter section thereof.

[0013] Advantageously, the hinged portion is formed by an extension of a substantially rectangular shape that at the upper end thereof is attached to the upper cap and at the lower end thereof is attached to the lower ring, such extension being devoid of fold lines.

[0014] Thus, the closing cap described represents an innovative structure with structural and constituent features heretofore unknown for its intended purpose, reasons which, taken together with its usefulness, provide it with sufficient grounds for obtaining the requested exclusivity privilege.

[0015] Other features and advantages of the closing cap for containers object of the present invention will be evident in light of the description of a preferred, but not exclusive, embodiment which is illustrated by way of a non-limiting example in the drawings which are attached, wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

[0016]

Figure 1 is a perspective view of the closing cap according to the invention, mounted on a container, in a closed condition;

Figure 2 is a perspective view of the closing cap of the invention, mounted on a container, in a raised position prior to the open condition thereof;

Figure 3 is a side elevation view of the upper cap shown in the preceding figures in the raised position;

Figure 4 is a side elevation view of the upper cap in a partially open condition;

Figure 5 is a side elevation view of the upper cap in a completely open condition;

Figure 6 is a schematic view of the closing cap of the invention in a partially open condition from another point of view:

Figure 7 is a perspective view of a second embodiment of a closing cap according to the present invention, mounted on a container neck, in an open condition; and

Figure 8 is a lower perspective detailed view of the cap represented in Figure 7 in a closed condition.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0017] In light of the aforementioned figures, and in accordance with the adopted numbering, one may observe therein a preferred exemplary embodiment of the invention, which comprises the parts and elements indicated and described in detail below.

[0018] As shown in the attached figures, the closing cap for containers is particularly intended for containers that have an opening in a neck (100) provided with an outer threaded portion (101), comprising a lower ring (1) intended for being coupled to the neck (100) of the container and an upper cap (2) having an inner threaded region (20) (see Figure 6) configured for being coupled to the outer threaded portion (101) of the container neck.

[0019] The upper cap (2) and the lower ring (1) are articulated to each other by means of a hinged portion (3), which makes it easier for the user to manipulate the closing cap and prevents both portions from being separated, as the entire set is made of a single piece of injectable plastic material.

[0020] An outer surface of the lateral face defined by the body of the upper cap has a non-smooth surface (21), for example, a knurled surface formed by ribs extending from the upper portion to the lower portion of the body of the upper cap.

[0021] The lower ring (1) of the closing cap is made up of an annular-shaped body and has a first section (10) with a diameter larger than a second one (11) that corresponds to the remaining section of the annular-shaped body, the hinged portion (3) being located in the section (10) with the larger diameter. As can be clearly seen in Figures 1 and 2, both sections (10) and (11) are attached by two curved sections (12) arranged diametrically opposed to each other.

[0022] It should be noted that the section with the smaller diameter has a diameter such that it is located in a region (104) defined by two circumferential rims (102, 103) provided in the lower portion of the neck of the container, so that during the operation in which the upper cap rises to separate the upper cap (2) from the upper opening of the container, the ring remains in this region at all times.

[0023] Thus, these two sections with different diameters enable a controlled stretching and subsequent return to the initial position thereof, which enables, once the upper cap has been unscrewed, the lower ring (1) to be comfortably stretched, holding from the upper cap (2), to house a portion of the section with the larger diameter (10) and the hinged portion (3) below the lowermost circumferential rim (103) of the container, as shown in Figure 5. In this way, the upper cap (2) is perfectly locked, as the inner face of the hinged portion (3) abuts the lower portion of the circumferential rim (103).

[0024] Returning again to the hinged portion (3), as can be seen in Figures 1 and 2, it is formed by an extension of a substantially rectangular shape that at the upper end thereof is attached to the upper cap (2) and at the lower end thereof is attached to the lower ring (1), such extension being devoid of fold lines, unlike other closing cap systems known in the current state of the art.

[0025] Additionally, the closing cap is provided with a tamperproof seal located between the upper cap (2) and the lower ring (1). As can be seen, this tamperproof seal is made up of a plurality of breaking points (4) located on a rim (5) of the lower ring (1) that protrudes outwards and attached to a lower edge of the upper cap (2).

[0026] As can be seen in the attached figures, the rim (5) that protrudes outwards is located only in the smaller diameter section (11).

[0027] Figures 7 and 8 show a second preferred embodiment of the closing cap, wherein the same portions or parts are indicated with the same numerical references as in the example described above. In this second embodiment, the upper cap (2) advantageously includes an abutment means configured for being in contact with the circumferential rim (103) of the neck (100) in the open position of the upper cap with respect to the lower ring, so that it is ensured that the upper cap (2), when it is in the open position, does not rotate in an undesired way by effect of the hinged portion (3) to return to the rest position thereof, that is, when the upper cap (2) is on top of the lower ring (1).

[0028] As can be seen, the abutment means consists of a flange (22) that extends outwardly from the inside of the body that makes up the upper cap (2) and parallel to the hinged portion (3). As can be seen in Figure 7, said flange (22) takes a position practically or completely parallel to a longitudinal axis of the neck itself (100) and the hinged portion (3) is housed below the circumferential rim (103).

[0029] Lastly, it should be mentioned that the smaller diameter section (11) of the lower ring includes a circumferential projection (13) that protrudes outwards.

[0030] The details, shapes, dimensions and other accessory elements, used to manufacture the closing cap of the invention, may be suitably substituted for others which do not depart from the scope defined by the claims which are included below.

Claims

1. A closing cap for containers, particularly intended for

containers that have an opening in a neck provided with an outer threaded portion, comprising a lower ring (1) intended for being coupled to the neck of the container and an upper cap (2) having an inner threaded region configured for being coupled to the outer threaded portion of a container neck, the upper cap (2) and the lower ring being articulated to each other by means of a hinged portion (3), such that the lower ring (1) is formed by an annular-shaped body, **characterised in that** the lower ring (1) has a section with a diameter larger (10) than the remaining section of the annular-shaped body wherein the hinged portion (3) is located in the section with the larger diameter.

2. The closing cap for containers according to claim 1, **characterised in that** it includes a tamperproof seal between the upper cap (2) and the lower ring (1).

3. The closing cap according to claim 2, **characterised in that** the tamperproof seal is made up of a plurality of breaking points (4) located on a rim (5) of the lower ring (1) that protrudes outwards and attached to a lower edge of the upper cap (2).

4. The closing cap according to claim 3, **characterised in that** the rim that protrudes outwards is located in the smaller diameter section.

5. The closing cap according to any of the preceding claims, **characterised in that** the hinged portion (3) is formed by an extension of a substantially rectangular shape that at the upper end thereof is attached to the upper cap (2) and at the lower end thereof is attached to the lower ring (1), such extension being devoid of fold lines.

6. The closing cap according to any of the preceding claims, **characterised in that** the upper cap (2) includes an abutment means configured for being in contact with a region of the neck of a container in the open position of the upper cap (2) with respect to the lower ring (1).

7. The closing cap according to claim 6, **characterised in that** the abutment means consists of a flange that extends outwardly from the inside of the body that makes up the upper cap (2) and parallel to the hinged portion.

8. The closing cap according to any of the preceding claims, **characterised in that** it is made of a single piece of injection moulding plastic material.

FIG. 1

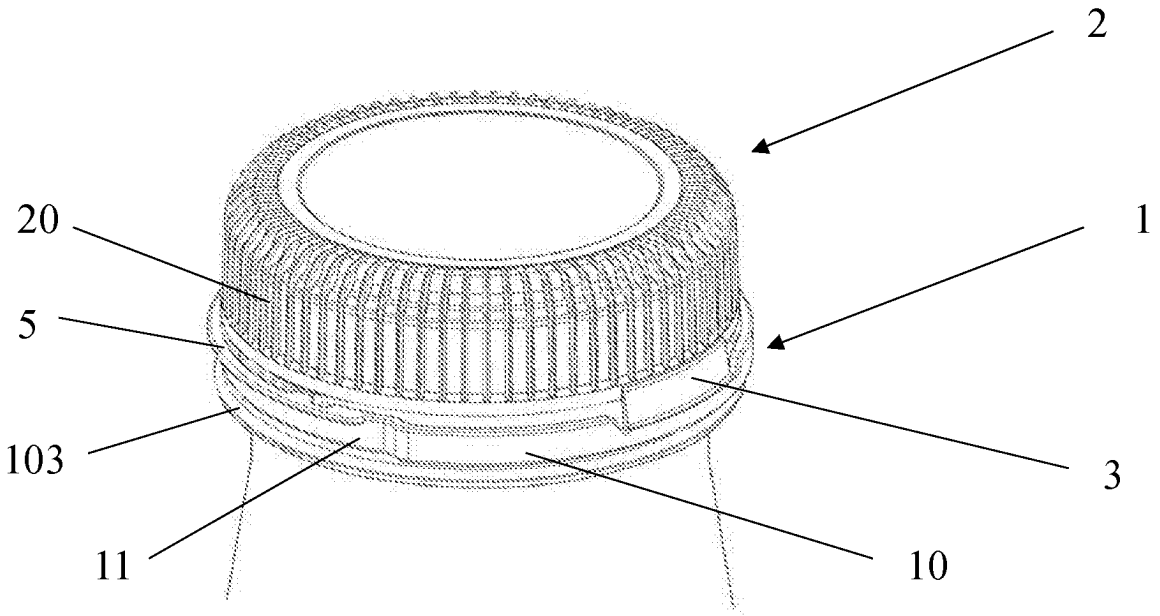


FIG. 2

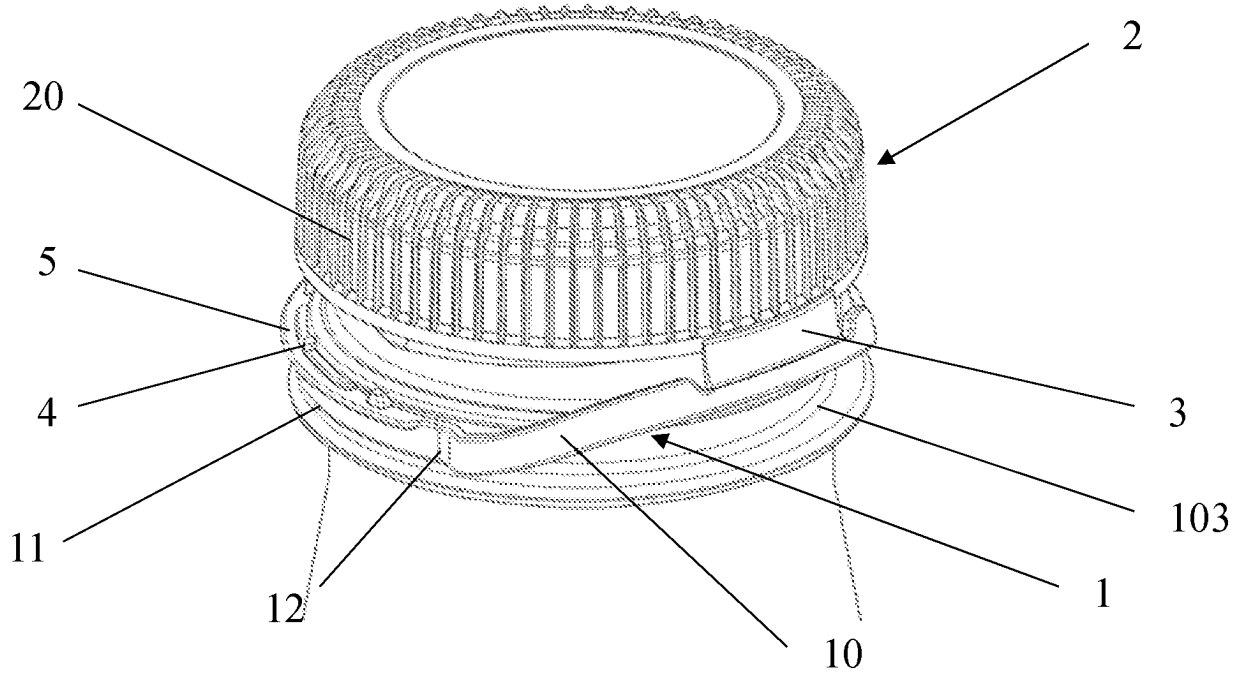


FIG. 3

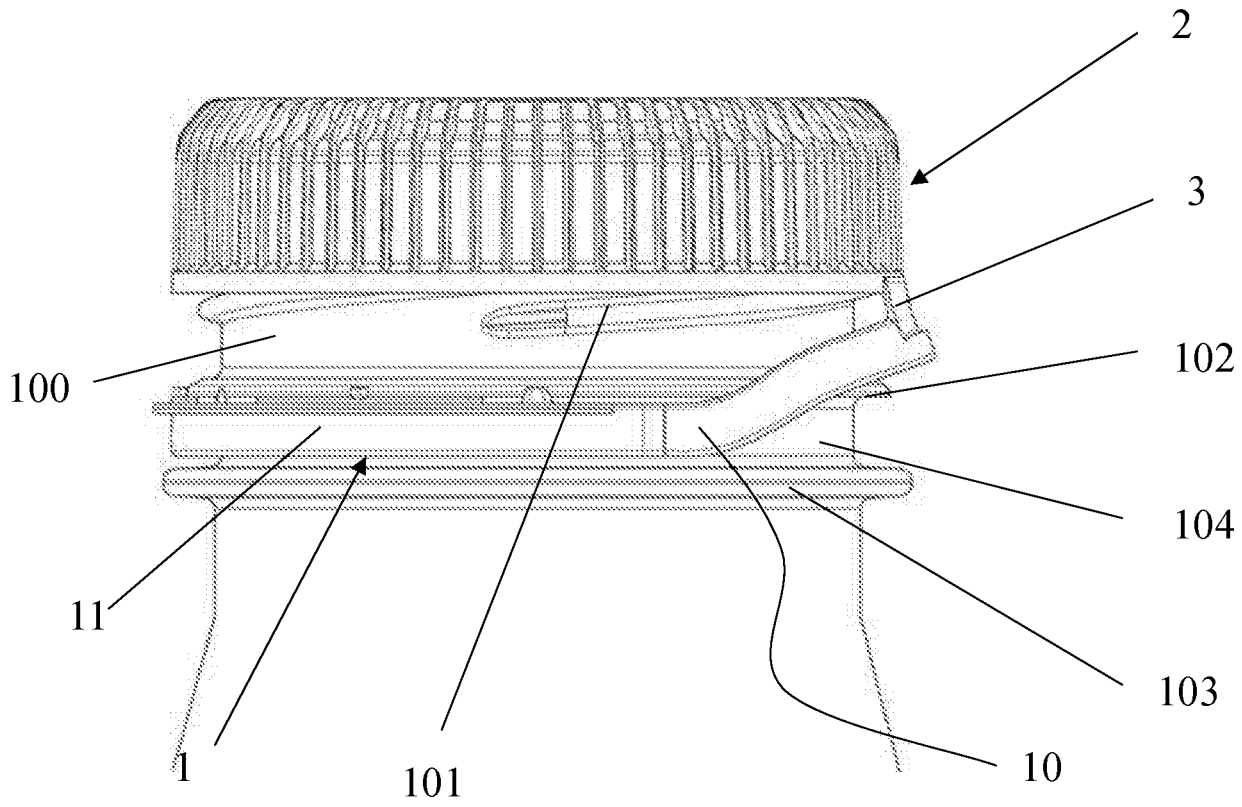


FIG. 4

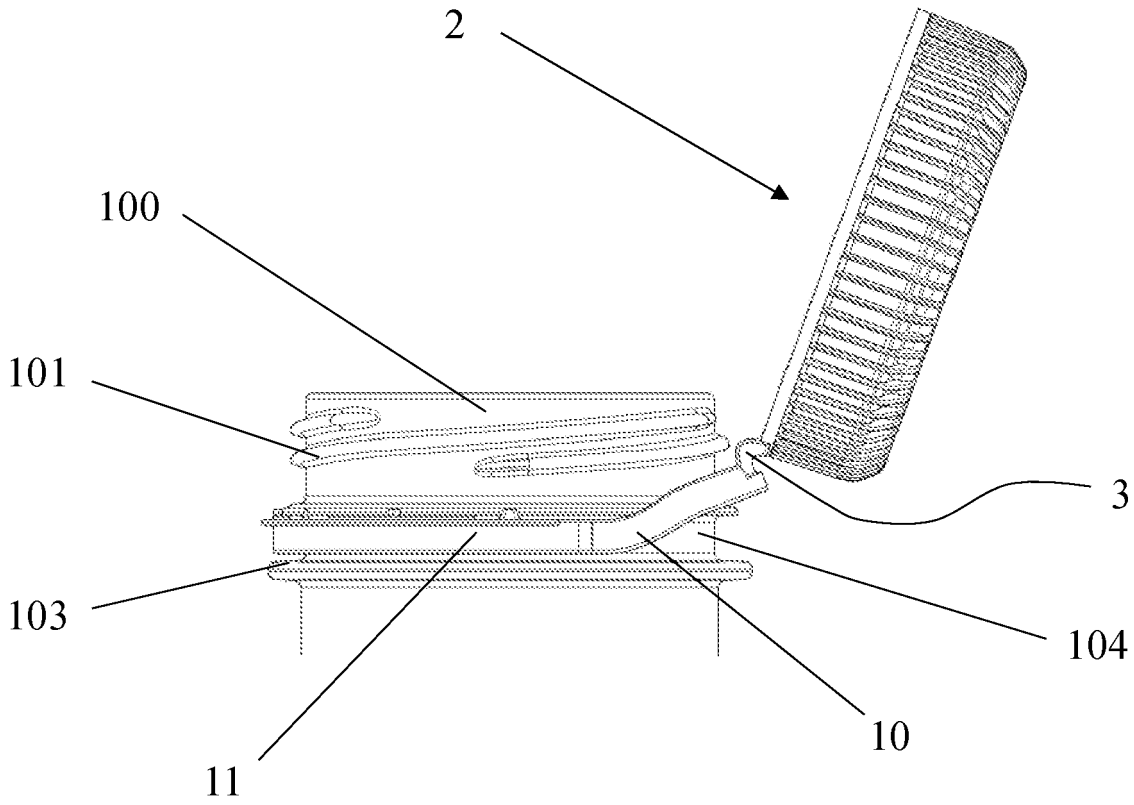


FIG. 5

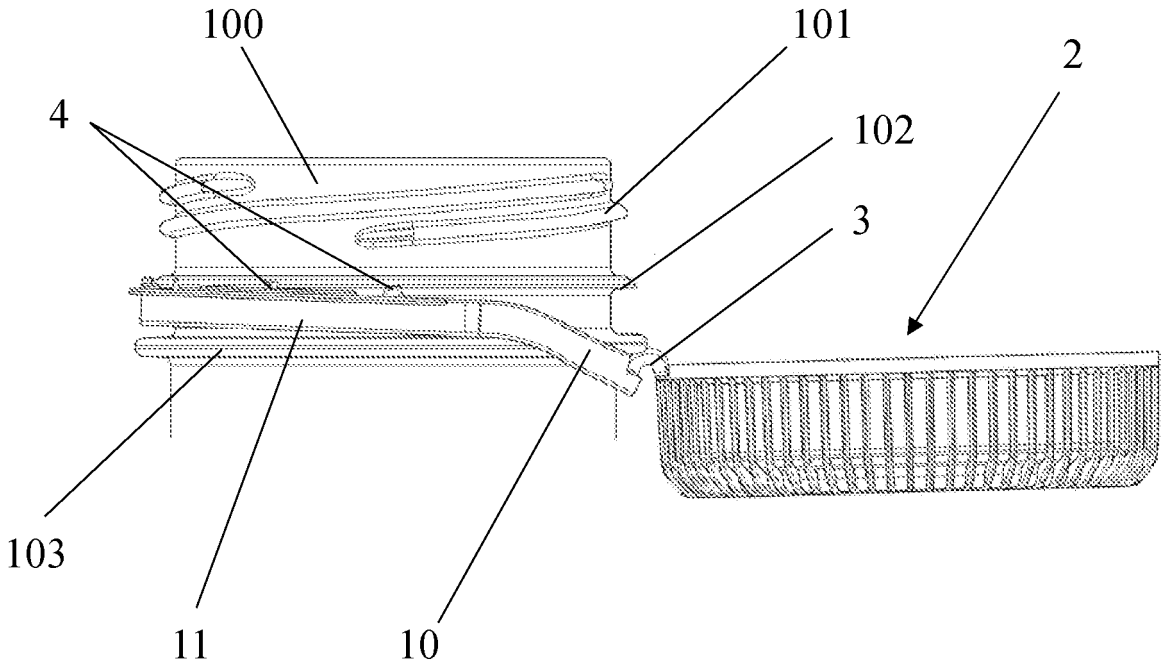


FIG. 6

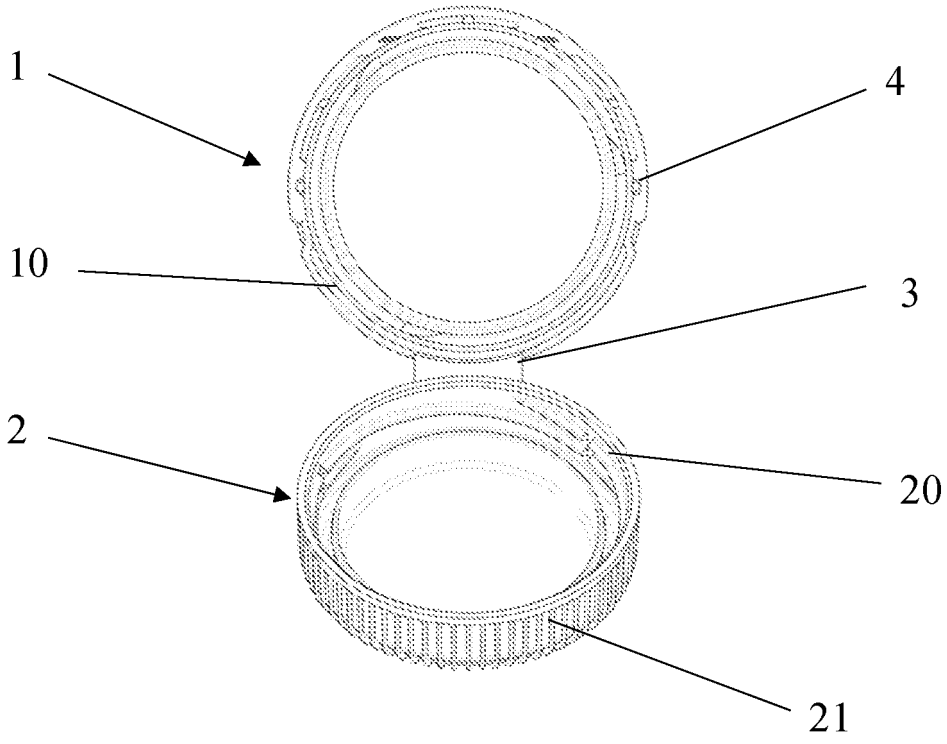


FIG. 7

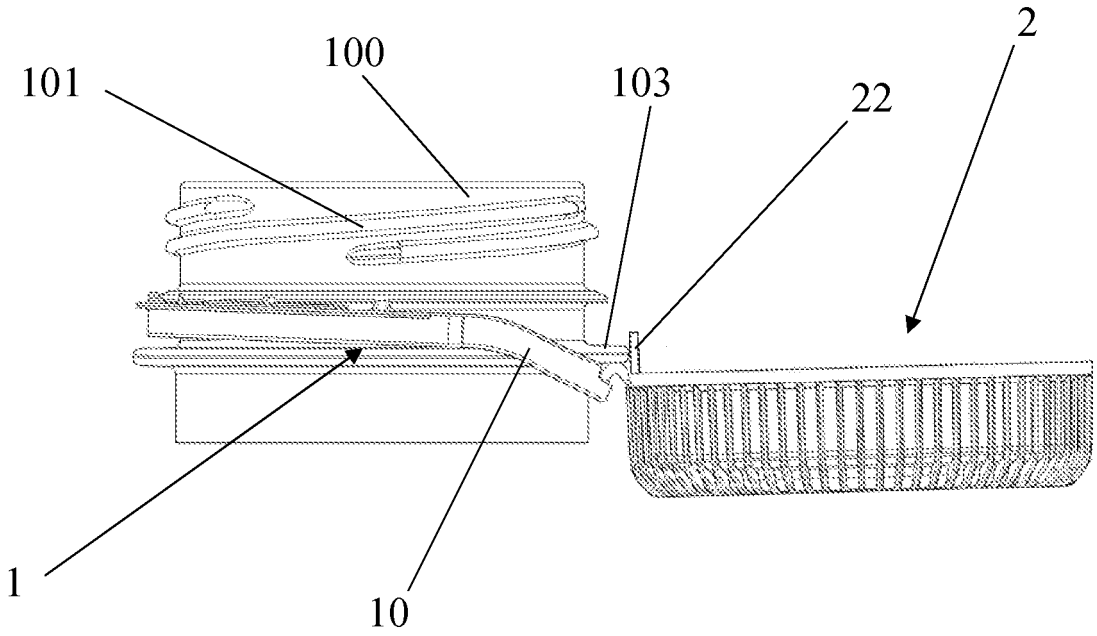
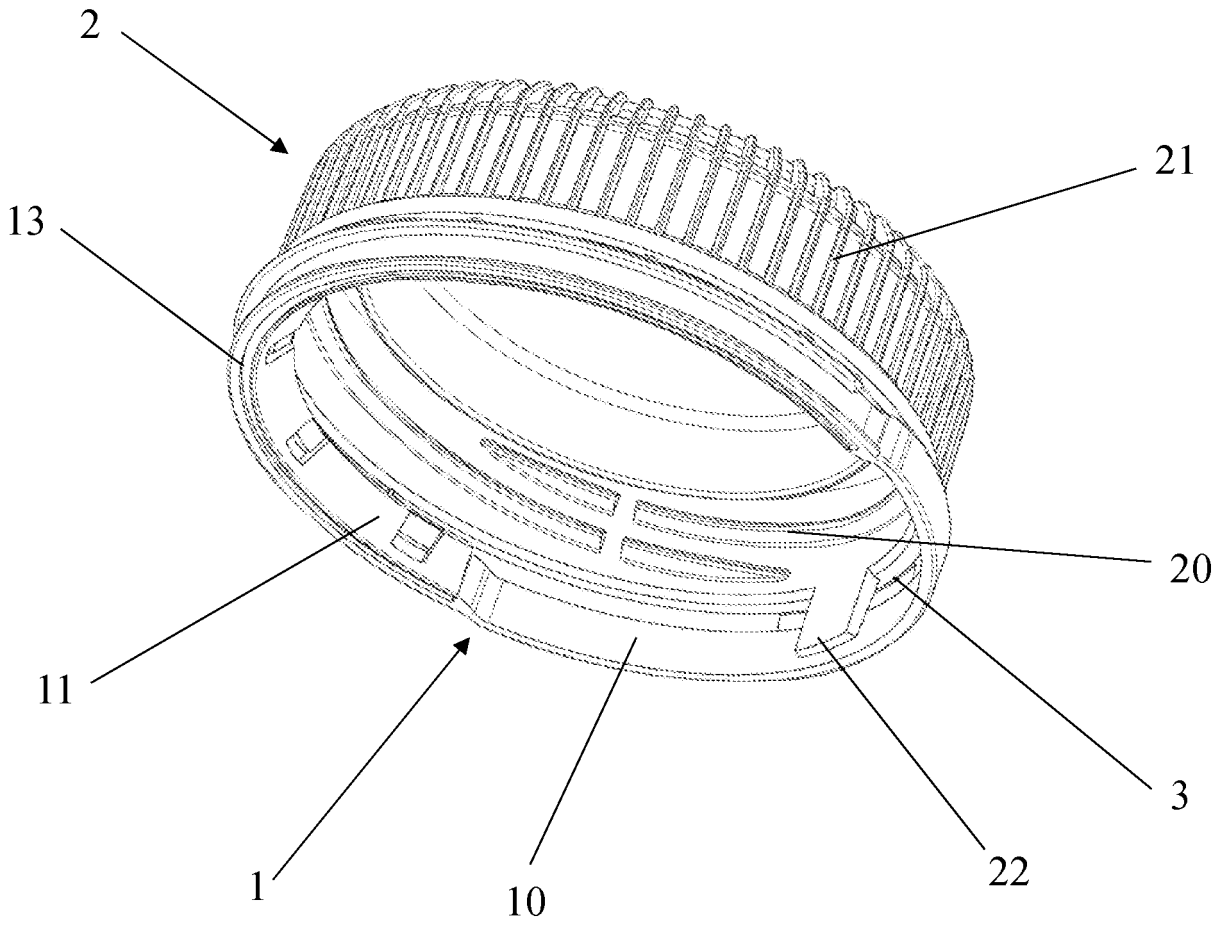


FIG. 8



INTERNATIONAL SEARCH REPORT

International application No
PCT/ES2021/070208

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D55/16 B65D41/34
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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y A	US 2019/106246 A1 (KENDALL JOHN KIRBY [US]) 11 April 2019 (2019-04-11) paragraphs [0011], [0041] - [0046]; figures 12, 13 -----	1,2,5,8 6,7 3,4
X	WO 2020/008092 A1 (GONZALEZ SANCHEZ JOSE FRANCISCO [ES]) 9 January 2020 (2020-01-09) paragraph [0036]; figures 4, 5 & ES 1 217 541 U 18 September 2018 (2018-09-18) cited in the application -----	1,2
Y	EP 1 529 736 A2 (VIROPLASTIC S R L [IT]) 11 May 2005 (2005-05-11) paragraph [0022]; figure 4 -----	6,7

☐ 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
29 June 2021	16/07/2021

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	Balz, Oliver

Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/ES2021/070208

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2019106246 A1	11-04-2019	NONE	
WO 2020008092 A1	09-01-2020	AR 116517 A4	19-05-2021
		ES 1217541 U	18-09-2018
		WO 2020008092 A1	09-01-2020
EP 1529736 A2	11-05-2005	NONE	

Form PCT/ISA/210 (patent family annex) (April 2005)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- ES 1217541 **[0004]**