



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
25.04.2012 Bulletin 2012/17

(51) Int Cl.:
B65D 41/46 (2006.01) B65D 41/62 (2006.01)

(21) Application number: **10460040.8**

(22) Date of filing: **28.09.2010**

(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 SE SI SK SM TR
Designated Extension States:
BA ME RS

(72) Inventor: **Klopocki, Marek**
81-554 Gdynia (PL)

(74) Representative: **Lazewski, Marek**
LDS Lazewski Depo & Partners
ul. Myslowicka 15
01-612 Warszawa (PL)

(71) Applicant: **CEDC International sp. z o.o.**
64-600 Oborniki Wielkopolskie (PL)

(54) **Safety bottle cap**

(57) The invention is related to a safety bottle cap, in particular for bottles containing alcoholic beverages. The cap is provided with elements that during first opening are destroyed in a visible manner, thereby preventing a bottle containing certain liquid from being refilled with a substitute amount of other liquid of characteristics and quality possibly differing from the original content. Further, the cap also ensures sufficient sealing and protection against accidental opening. The cap according to the invention comprises a metal cover 1 connected to a plastic body 2 consisting of two parts connected by a plurality of tearable bridges 3, whereby the upper part of

the body 2 comprises a sealing element 4 to be introduced into the bottle head opening, a sealing lip 5, a plurality of peripherally located outer ribs 7, and the lower part of the body 2 is in a form of a cut tearable control ring comprising a protecting collar 10 directed at an angle to the inside of the ring, the collar 10 engaging into and snapping at an annular groove respectively formed in the bottle head outer surface. In the safety bottle cap of the invention the upper part of the body 2 is provided with a plurality of inner ribs 6 located peripherally at the inner side of the body 2 contacting the outer peripheral bottle head surface.

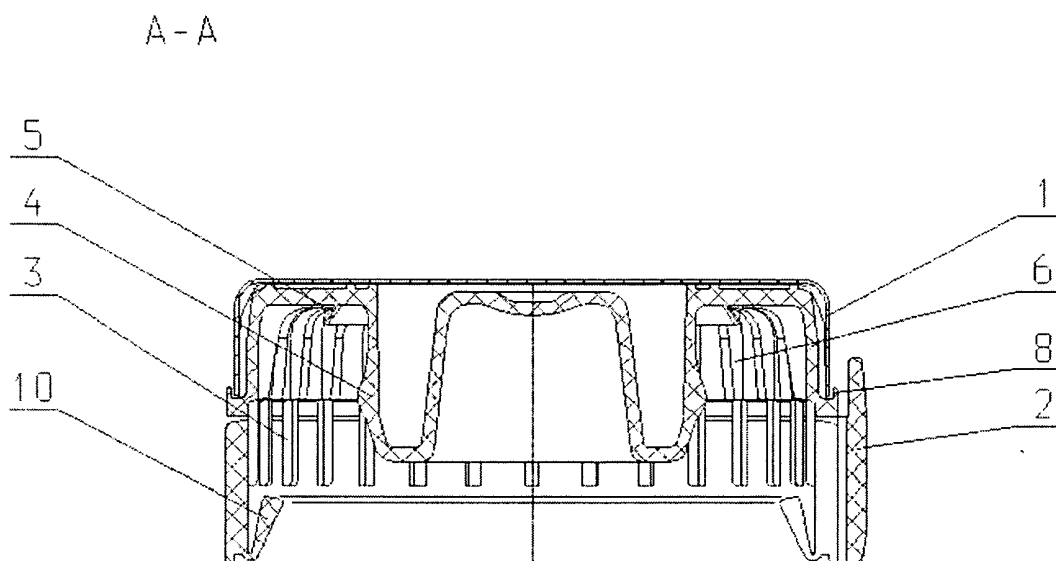


FIG. 1A

Description

[0001] The present invention is related to a safety bottle cap adjusted for closing bottle head opening. The cap according to the invention is provided with a control element that is partially destroyed in a visible manner after being opened for the first time. This prevents a bottle containing certain liquid (such as alcoholic beverage) from being refilled with a substitute amount of other liquid of characteristics and quality possibly differing from the original content. At the same time the safety bottle cap still realises its primary function of closing the bottle head opening.

[0002] Many different types of bottle closures are known in the prior art including threaded caps, covers or more complex closures provided with various types of valves.

[0003] For example, in EP 1574450 B1 a safety bottle cap is disclosed comprising a screw cap threadedly engaged with an external sleeve connected to an internal sleeve by means of ribs in such a way that through channels are formed. The cap is provided i.a. with two-part metal enclosure, while the protection against refilling is realised by a combination of protection band and hydraulic interlocking.

[0004] Further, in FR 2908746 A1 a cap for being forced onto a bottle head is disclosed, the the cap being provided with a lateral tubular skirt. The lower part of the skirt is formed as a band which on its internal side has a peripheral protrusion maintaining this element around the bottle neck, in particular when the cap is being opened. On a part of the lateral skirt perimeter there is a horizontal line of weakness allowing the cap to be partially torn off and the closure to be opened. The cap comprises a special protrusion that facilitates the cap to be levered. However, the cap does not comprise a metal cover, and once the cap is taken off for the first time the control band remains as a one-piece element around the bottle neck.

[0005] Yet further, in RU 2307056 C1 a bottle closure is disclosed having a metal cover consisting of a cap connected via plurality of frangible bridges to a lateral cover and of a polymer insert. The polymer insert is shaped so as to both penetrate the bottle head opening and enclose it so as to form a screw joint with the outer thread of the bottle head. Breaking the bridges between the cap (firmly connected to the polymer insert) and the lateral cover takes place as a result of the cap being twisted with respect to the lateral cover in the direction defined by above-mentioned screw joint.

[0006] Moreover, in RU 81480 (U1) bottle cap is described with a tearable element forming the lower part of the cap. This part is connected via plurality of tearable bridges to the cap's upper part enclosing the bottle head and also is provided with a protrusion being inserted into the bottle head opening. The upper part of the cap comprises a metal cover, lower edge thereof being turned down in form of a lip that during the cap production snaps into specifically formed peripheral groove in the upper

part of the plastic cap body.

[0007] Despite numerous solutions related to closures protecting bottles against unauthorised refilling, there is a clear constant need for development of new bottle closures characterised by considerably high protection level combined with possibly simple construction, not requiring costly setting-up (as in case of multi-element valve systems), allowing for aesthetic appearance, safe use (no sharp edges or protruding elements left after the removal of a control band) and sufficient closure sealing also once the control band is removed. The aim of the invention was to provide a solution meeting these requirements and providing an attractive alternative for the existing solutions.

[0008] The safety bottle cap according to the present invention is defined in the independent claim 1. Preferred embodiments thereof are presented in subsequent dependent claims.

[0009] The invention is illustrated with drawings, wherein Fig. 1A shows a cross-section of the cap according to the invention; Fig. 1B shows an end view of the cap according to the invention; Fig. 1C shows a top view of the cap according to the invention; Fig. 2 shows an end view of a plastic body of the cap according to the invention; and Fig. 3 shows a perspective view of the cap according to the invention.

[0010] As shown in Fig. 1A, the safety bottle cap according to the invention consists of a metal cover 1 connected to a body 2 made of plastic such as polyethylene or polypropylene.

[0011] Preferably, the metal cover 1 is made of steel. Surface of the metal cover 1 is smooth which allows a decoration to be made thereon, for example in form of a print, whereby the decoration may be made on the top surface of the cover as well as on its peripheral lateral surface.

[0012] Preferably, the metal cover 1 is connected to the plastic body 2 by means of an adhesive, in particular a hot melt adhesive.

[0013] The plastic body 2 is combined of two parts connected to each other by a plurality of tearable bridges 3. The upper part of the body 2 comprises a sealing element 4 to be introduced into the bottle head opening and a sealing lip 5, directed externally at an angle with respect to the cap rotation axis B. The sealing lip 5 also compensates axial clearance of the cap on the bottle head. Further, the upper part of the body 2 comprises a plurality of inner ribs 6 located peripherally at the inner side of the body 2 contacting the outer peripheral bottle head surface, as well as a plurality of outer ribs 7 (Fig. 2). The inner ribs 6 serve for centering the cap on the bottle head and prevent the cap from rotation. The inner ribs 7 serve for centering the metal cover 1. On its lower peripheral edge the upper part of the body 2 has a ring-shaped protrusion 8 extending externally in radial direction beyond the outline of the metal cover 1. The ring-shaped protrusion 8 serves for masking the edge of the metal cover 1. As shown in Fig. 1C on the lower peripheral edge

the upper part of the body 2 comprises also a radial protrusion 9 facilitating the cap removal once the control ring is removed.

[0014] The lower part of the cap body 2 is formed as a tearable control ring, which prevents the bottle from being refilled without a visible signs of unauthorised opening of the cap. The first opening of the bottle requires complete tearing of the control ring from the upper part of the body 2. The control ring comprises a protecting collar 10 directed at an angle to the inside of the ring, the collar 10 engaging into and snapping at an annular groove respectively formed in the bottle head outer surface, thereby preventing the cap from being taken off the bottle head without tearing off the control ring.

[0015] The tearable bridges 3 connecting the upper and lower part of the body 2 can be elongated - respectively - in form of a plurality of inner ribs 6 in the upper part of the body 2 and in form of a plurality of corresponding ribs located peripherally at the inner side of the control ring above the protecting collar 10. Such elongated bridges 3 may also protect the cap from rotating on the bottle head.

[0016] As shown in Fig. 1B the control ring is provided with a tongue 11 facilitating tearing off the control ring from the upper part of the cap body 2. During the formation process the control ring is vertically cut so as to allow it to be torn off by pulling the tongue 11 using considerably little force, thereby eliminating the probability of a complete cap being reused for closing a bottle refilled with non-original content. The tongue 11 is protected from protruding too much and the associated risk of uncontrolled tearing off or straining the bridges 3 by the fact that in its lower part the tongue 11 has tearable bridges 12 (preferably two) connecting the tongue 11 with the lower part of the control ring, and by the fact that in its upper part the tongue 11 has a tearable bridge 13 connecting the tongue 11 with the upper part of the cap body 2. The bridges 12 also prevent the tongue 11 from being torn or strained during the application of the complete cap onto the bottle head realised by pressing the cap against the bottle head using the force directed vertically downwards.

[0017] The tongue 11 is formed in mould slides being opened perpendicularly to the cap rotation axis B. Further, the formation of incision of the bridges 3 in the cap of the invention is realised by means of slides being opened perpendicularly to the cap rotation axis B.

Claims

1. A safety bottle cap comprising a metal cover 1 connected to a plastic body 2 consisting of two parts connected by a plurality of tearable bridges 3, whereby the upper part of the body 2 comprises a sealing element 4 to be introduced into the bottle head opening, a sealing lip 5, a plurality of peripherally located outer ribs 7, and the lower part of the body 2 is in a

form of a cut tearable control ring comprising a protecting collar 10 directed at an angle to the inside of the ring, the collar 10 engaging into and snapping at an annular groove respectively formed in the bottle head outer surface, whereby the control ring further comprises a tongue 11 for tearing off the control ring, and whereby in its lower part the tongue 11 is provided with tearable bridges 12 connecting the tongue 11 to a lower part of the control ring, **characterised in that** the upper part of the body 2 is provided with a plurality of inner ribs 6 located peripherally at the inner side of the body 2 contacting the outer peripheral bottle head surface.

2. The safety bottle cap according to claim 1, **characterised in that** the metal cover 1 is connected to the plastic body 2 by means of an adhesive.
3. The safety bottle cap according to claim 1 or 2, **characterised in that** the upper part of the body 2 on its lower peripheral edge has a ring-shaped protrusion 8 extending externally in radial direction beyond the outline of the metal cover 1.
4. The safety bottle cap according to any of the claims 1 to 3, **characterised in that** the upper part of the body 2 on its lower peripheral edge has a radial protrusion 9 facilitating the cap removal once the control ring is removed.
5. The safety bottle cap according to any of the claims 1 to 4, **characterised in that** the sealing lip 5 is directed externally at an angle with respect to the cap rotation axis B.
6. The safety bottle cap according to any of the claims 1 to 5, **characterised in that** in its lower part the tongue 11 is provided with two tearable bridges 12 connecting the tongue 11 to a lower part of the control ring.
7. The safety bottle cap according to any of the claims 1 to 6, **characterised in that** in its upper part the tongue 11 is provided with a tearable bridge 13 connecting the tongue 11 to the upper part of the cap body 2.
8. The safety bottle cap according to any of the claims 1 to 7, **characterised in that** the inner ribs 6 form an elongated continuation of tearable bridges 3 in the upper part of the body 2, and that a plurality of peripherally located ribs forming an elongated continuation of tearable bridges 3 is provided at the inner side of the control ring above the protecting collar 10.

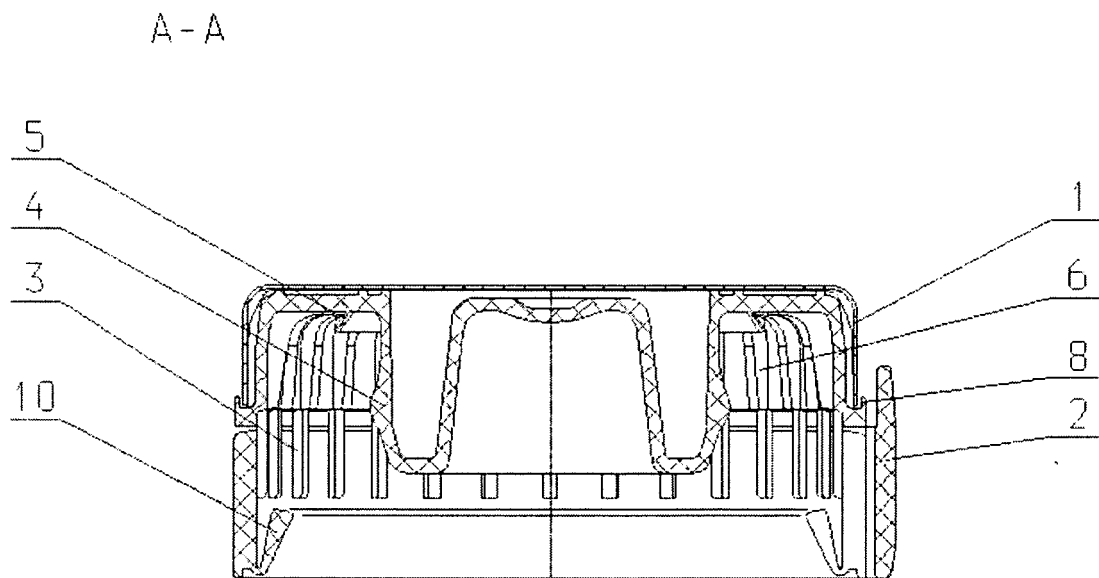


FIG. 1A

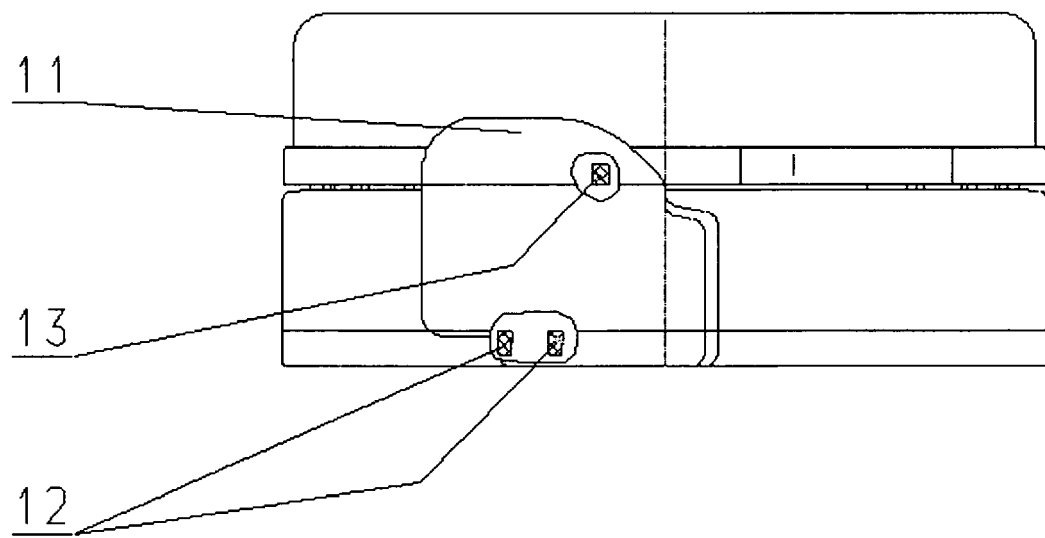
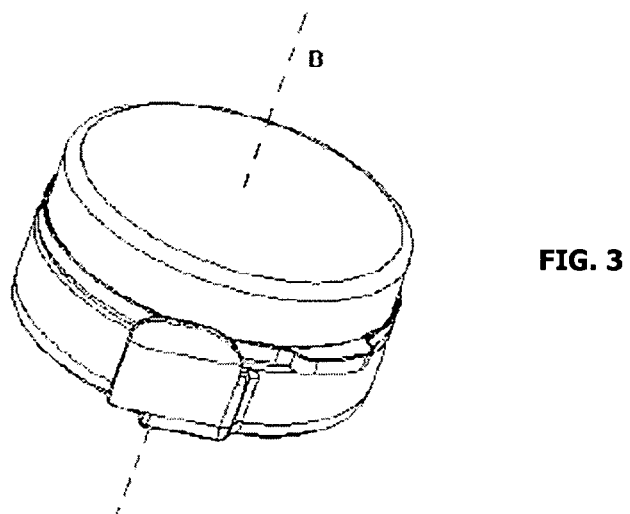
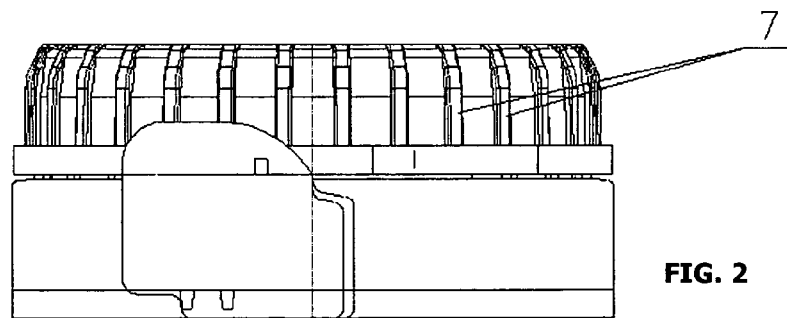
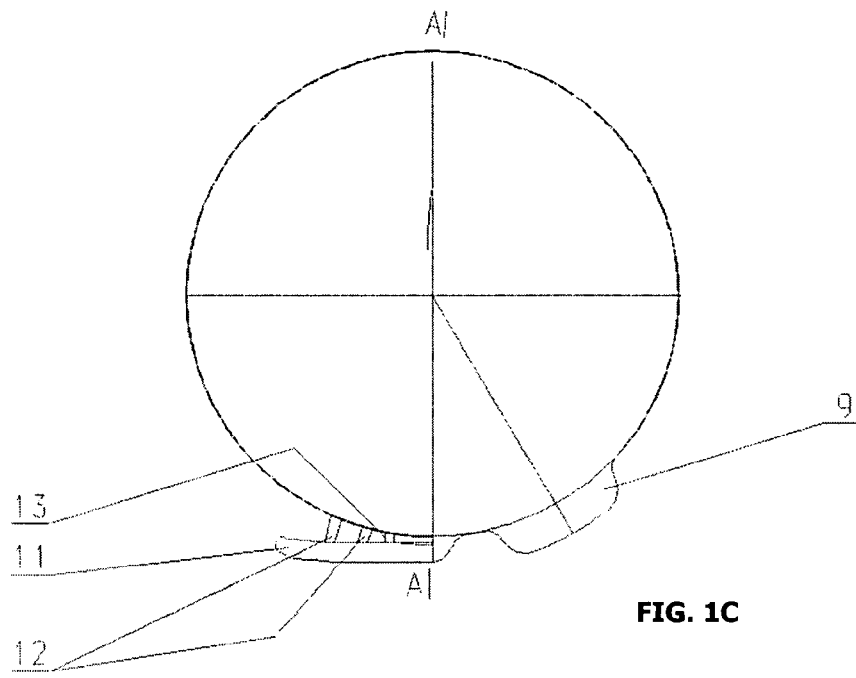


FIG. 1B





EUROPEAN SEARCH REPORT

Application Number
EP 10 46 0040

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	US 2008/073382 A1 (HIGGINS CHRISTOPHER L [AU]) 27 March 2008 (2008-03-27)	1,2,4-7	INV. B65D41/46 B65D41/62
A	* paragraph [0055] - paragraph [0057]; figures 1,4,5 *	3,8	
Y	US 2005/077263 A1 (GARCIA OMAR ALCIDES [AR] ET AL) 14 April 2005 (2005-04-14)	1,2,4-7	
A	* paragraph [0031] - paragraph [0039]; figures 1-7 *	3,8	
Y	FR 1 393 366 A (M BEREZIAT) 26 March 1965 (1965-03-26)	1,2,4-7	
A	* page 1 - page 2; figures 1-4 *	3,8	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
Place of search		Date of completion of the search	Examiner
Munich		3 March 2011	Bevilacqua, Vincenzo
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

2

EPO FORM 1503 03.92 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 10 46 0040

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

03-03-2011

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2008073382 A1	27-03-2008	WO 2006066356 A1	29-06-2006
		AU 2005318877 A1	29-06-2006
		CA 2592067 A1	29-06-2006
		CN 101119900 A	06-02-2008
		EP 1833732 A1	19-09-2007
		GB 2436502 A	26-09-2007
		GB 2451775 A	11-02-2009
		JP 2008525274 T	17-07-2008
		KR 20070110000 A	15-11-2007
US 2005077263 A1	14-04-2005	AT 369300 T	15-08-2007
		DE 60315467 T2	03-01-2008
		EP 1526085 A1	27-04-2005
		ES 2289223 T3	01-02-2008
		PT 1526085 E	24-09-2007
FR 1393366 A	26-03-1965	NONE	

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- EP 1574450 B1 [0003]
- FR 2908746 A1 [0004]
- RU 2307056 C1 [0005]
- RU 81480 U1 [0006]