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### (54) Extractable plug with screw cap and security ring

Ausziehbare Tülle mit einer Schraubverschlusskappe und einem Originalitäts-Sicherungsring

Bec extensible muni d'un capuchon à vis et d'un anneau d'inviolabilité

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## Description

**[0001]** This invention covers an extractable plug for cans or tins, to be applied after the can or tin has been filled.

**[0002]** Various types of extractable stoppers and plugs, mostly in plastic material, are known which in their most recent solution consist of two elements, i.e.:

a) a central element consisting of an internally threaded cap, a stiffening ring, and semicircular flaps that can be raised to handle the cap and to extract the pourout,

b) an external element including an extractable externally threaded pourout on which it is screwed the cap, an external annular locking body inside the shaped hole of the container and a thin deformable wall section connecting the extractable pourout to the external body and including a security ring connected to the external body.

**[0003]** These two elements are stably assembled by reciprocal properly shaped links which prevent the plug from being tampered with.

**[0004]** Such a plug is known, for example, from document EP 0 345 502 A.

**[0005]** These extractable plugs as they are now manufactured, are highly functional and efficient, but they have the drawback of being useful only for rather large containers featuring a bottom large enough to bore a hole in which to fit the plug.

**[0006]** The efforts to create a similar known extractable plug for small containers has not led to any significant results, on the contrary, it was found that it is impossible to reduce the plug diameter because this reduction does not leave sufficient space for the pourout since it was necessary to keep the various components adequately dimensioned.

**[0007]** In other words, the flat space of the plug was completely taken up by its components, to the detriment of the pourout.

**[0008]** A substantial modification of the known plug is therefore necessary so that it can also be used on small containers and that is the objective of this invention as set forth in the appended claims.

**[0009]** To be brief, this Patent covers a plug that consists of two elements, i.e. a central and an external element, of which the central element consists of an internally threaded cap, with one single flap, to be raised for handling, connected by means of tearable shanks to an external stiffening ring located at the upper wall level of the cap. A circular or annular zone on the upper surface of the cap is machined so as to cause friction on the thumb when opening the cap by a rotary action on the raised handling flap, and to facilitate the assembly of the two elements of the plug.

**[0010]** According to this invention, the external element of the plug is provided with a drip-catcher shaped

pourout and this pourout is externally threaded to receive the closing cap; this external element presents also a ring blocking the plug inside the hole in the container as well as an external sealing ring around the opening in the container bottom apt to receive and secure the stiffening ring and to connect the central with the external element. This external peripheral security ring is connected to the ring locking the plug inside the container hole by means of a peripheral series of tearable shanks. These tearable shanks of the handling flap and of the external peripheral security ring will form a protection against any tampering with the plug and its contents, since their rupture will immediately evidence such tampering.

**[0011]** The handling flap of the cap is also utilized, when the cap is screwed on the pourout, to extract the pourout, for facilitating the pouring of the contents after unscrewing of the cap. Other characteristics of the plug in question corroborating its efficiency for small sized containers will be described hereinafter.

**[0012]** The invention in question is illustrated for exemplification purposes in the enclosed drawings in which:

Fig. 1 shows a top view of the central element of the plug;

Fig. 2 shows a section according to I-I of the element in Fig. 1;

Fig. 3 shows the section according to II-II of the element in Fig. 1;

Fig. 4 shows the section according to III-III of the element in Fig. 1;

Fig. 5 shows a top view of the external element of the plug;

Fig. 6 shows the section according to IV-IV of the element in Fig. 5;

Fig. 7 shows the section of the complete plug according to III-III in Fig. 1;

Fig. 8 shows the section of the complete plug according to V-V in fig. 5;

Figures 9, 10 and 11 show various solutions of the outer security ring of the external element based upon various shapes of the edge of the hole in the container.

**[0013]** With reference to these drawings, Figures 1 to 4 refer to the central element, the cap 1 being provided with an internal thread 2 and an annular projection 3 acting as a seal. The upper face of the cap features a machined circular or annular zone with shapings to facilitate the assembly of the two elements of the plug and this shaping is exemplified in the drawing by an annular saw toothing 4.

**[0014]** A flap 5 is located on the outside of this cap 1 to which this flap 5 is connected by a zone 6 and it can be raised by means of a tooth 7 opposite to the connecting zone 6. useful to screw the cap down or to unscrew it.

**[0015]** A stiffening ring 8 with a lower external swell 9

is located outside the flap 5. This stiffening ring 8 is lowered in the zone 10 where it is present the tooth 7 so that it will be possible to slip a nail under the tooth 7 to raise the handling flap 5.

[0016] The stiffening ring 8 is connected by tearable shanks 11 to the flap 5 and it is also connected by other tearable shanks 12 to the zone 6 connecting the flap 5 to the cap 1. The central element thus described is obtained in one single mold.

[0017] The external element of the plug shown in Fig. 5 and 6 is also obtained in one single mold and it features the extractable pourout 14 provided with an external thread 15 matching the thread 2 of the cap 1, it features an outer body 16 and it features a thin walled section 17 connecting the extractable pourout 14 to the outer body 16.

[0018] The outer body 16 presents an external security ring 19 connected by tearable shanks 18, this security ring being provided with an internal recess 20 in which to lodge the swell 9 of the stiffening element 8. The interaction between this recess 20 and the swell 9 guarantees assembly of the two plug elements.

[0019] The lower external zone of the outer body 16 features a swell 21 striking against the shaped edge of the hole in the container 22 thus ensuring a stable fitting of the plug.

[0020] The upper edge of the pourout 14 is turned outwards, its peripheral end being thinned to form an efficient drip-catcher 23.

[0021] The assembly of the plug and its position in the container 22 after filling are shown in Fig. 7 and 8, while Fig. 8 shows how easy it is to raise the flap 5 in its position 5 after the shanks 11 connected to the stiffening ring 8 have been torn away.

[0022] The security ring 19 has the aim to ascertain whether the plug has been tampered with.

[0023] As a matter of fact, the plug can be removed from the hole in the container 22 only by acting with a screwdriver or the like on the edge of the hole in order to flatten and change the shape of the swell 21 of the outer body 16 but this would cause the deformation of the ring 19 and would tear away the shanks 18 as an evidence of tampering.

[0024] This anti-tampering protection is partly also provided by the flap 5, since any attempt to remove the plug would result in tearing away the shanks 11 connecting the flap 5 to the cap 1.

[0025] The lower zone of the outer body 16 of the external element features numerous peripheral projections 24 turned downward to facilitate truing and assembly of the plug on the container 22.

[0026] With reference to detail A shown in Fig. 8, the Figures 8,9,10 and 11 show the various shapes 25, 25a, 25b, and 25c into which the edge of the hole in the container 22 may be bent and the matching security rings 19, 19a, 19b and 19c that are also differently shaped as can be seen in the drawings.

[0027] The handling flap 5 of the cap is also utilized,

when the cap is screwed on the pourout 14, to extract the pourout as indicated in Fig. 6 with dotted lines, for facilitating the pouring of the contents after unscrewing of the cap.

## Claims

1. \_Extractable plug for containers consisting of two elements, i.e.:

a) a central element featuring a screw cap (1), a stiffening ring (8) around the cap (1) and a cap handling flap (5) internal to the stiffening ring (8) to which the flap (5) is connected by tearable shanks (11),

b) an external element featuring an extractable pourout (14) closed by the cap (1), an outer annular body (16), a deformable thin walled section (17) connecting the pourout (14) to the outer body (16), and a security ring (19) also connected to the outer body, wherein:

c) the stiffening ring (8) is on the outside of the handling flap (5) and linked to a connecting zone (6) between flap (5) and cap (1) by tearable shanks (12) while the stiffening ring (8) also features a lower external swell (9),

d) the security ring (19) has an annular internal recess (20) in which to lodge the swell (9) of the stiffening element (8) and the action of this swell (9) inside the recess (20) ensures assembly of the two plug elements,

## characterized in that:

e) on the outside of the cap (1) the single handling flap (5) is connected to the cap by a zone (6), which flap can be raised by means of a projecting tooth (7) in opposite position to the zone (6) jointed to the cap,

f) the outer body (16) of the external element presents an external security ring (19) connected to the outer body by tearable shanks (18),

so that any attempt by ill-intentioned persons to tamper with the plug or with the security ring will immediately become obvious due to the rupture of the shanks (11,12,18).

2. Plug as described in claim 1 **characterized in that** the stiffening ring (8) features a lowering (10) in the zone corresponding to the tooth (7), to allow the opening of the cap (1) with the raised handling flap (5).

3. Plug as described in claim 1 **characterized in that** the cap (1) has at its top face a machined circular or annular zone (4) to facilitate the assembly of the

two plug elements and to facilitate the handing of the cap.

## Patentansprüche

1. Ausziehbarer Stöpsel für Behälter aus zwei Elementen:

a) ein Zentralelement, das einen Schraubdeckel (1) aufweist, ein Ring zur Verstärkung (8) um den Deckel (1), und ein Flügel (5) innerhalb vom Verstärkungsring (8), der den Deckel (1) betätigt, mit dem der Flügel (5) durch aufreissbare Schäfte (11) verbunden ist,

b) ein äusseres Element, das eine ausziehbare Giessöffnung (14) aufweist, die durch den Deckel (1) geschlossen wird, ein äusserer ringförmiger Körper (16), ein verformbarer dünnwandiger Abschnitt (17), der die Giessöffnung (14) mit dem äusseren Körper (16) verbindet, und ein Sicherheitsring (19), der auch mit dem äusseren Körper verbunden ist, **gekennzeichnet durch:**

c) Der Ring zur Verstärkung (8) befindet sich an der Aussenseite vom Betätigungsflügel (5) und ist verbunden mit einem Verbindungsbe-  
reich (6) zwischen Flügel (5) und Deckel (1) durch aufreissbare Schäfte (12), während der Ring zur Verstärkung (8) auch einen äusseren unteren Vorsprung (9) aufweist,

d) der Sicherheitsring (19) hat eine ringförmige innere Aushöhlung (20), in die der Vorsprung (9) des Verstärkungselement (8) gelagert ist, und die Wirkung dieses Vorsprungs (9) in der Aushöhlung (20) garantiert den Zusammenbau der beiden Elemente des Stöpsels, und ist **dadurch gekennzeichnet:**

e) an der Aussenseite des Deckels (1) ist der einzelne Betätigungsflügel (5) durch einen Bereich (6) verbunden, dieser Flügel kann durch einen hervorstehenden Zahn (7) in die entgegengesetzte Position im Bereich (6), der mit dem Deckel verbunden ist, emporgezogen werden,

f) der äussere Körper (16) des äusseren Elements weist einen äusseren Sicherheitsring (19) auf, der mit dem äusseren Körper durch aufreissbare Schenkel (18) verbunden ist, so dass jeder Versuch, den Stöpsel oder den Sicherheitsring von seiten Übelgesinnter aufzubrechen, sofort durch die aufreissbaren Schenkel (11, 12, 18) festgestellt werden kann.

2. Stöpsel wie in Anspruch 1 beschrieben, gekennzeichnet dadurch, dass der Sicherheitsring (8) eine Vertiefung (10) in dem Bereich aufweist, der Zahn (7) entspricht, um das Öffnen des Deckels (1) durch

den hochgezogenen Betätigungsflügel (5) zu ermöglichen.

3. Stöpsel wie in Anspruch 1 beschrieben, gekennzeichnet dadurch, dass der Deckel (1) an seiner Oberseite einen bearbeiteten kreisförmigen oder ringförmigen Bereich (4) aufweist, um den Zusammenbau der beiden Elemente des Stöpsels und das Handhaben des Deckels zu erleichtern.

## Revendications

1. Tampon extractible pour récipients, formé de deux éléments, c'est-à-dire:

a) un élément central comprenant un capuchon fileté (1), une bague de renfort (8) autour du capuchon (1) et une patte (5) pour manier le capuchon à l'intérieur de la bague de renfort (8) auquel la patte (5) est fixée par des pédicules d'arrachement,

b) un élément extérieur comprenant un goulot extractible (14) fermé par le capuchon (1), un corps extérieur (16) ayant une section déformable à parois mince (17) pour connecter le goulot (14) au corps extérieur (16) et une bague de sécurité (19) aussi fixé au corps extérieur, où:  
c) la bague de renfort (8) est située sur la surface extérieure de la patte de maniment (5) et qu'elle est unie à une zone (6) située entre la patte (6) et le capuchon (1), par des pédicules d'arrachement (12)

d) la bague de sécurité (19) a intérieurement une encoche (20) pour loger le renflement (9) de l'élément de renfort (8) de façon à garantir le fixage de ces deux éléments du tampon

**caractérisé par** le fait que

e) la patte unique (5) de maniment située à l'extérieur du capuchon (1) est fixée au capuchon (1) par une zone d'attache (6) et que cette patte peut être soulevée à l'aide d'une dent (7) en saillie qui se trouve du côté opposé à la zone (6) d'attache au capuchon,

f) le corps extérieur (16) de l'élément extérieur est extérieurement muni d'une bague de sécurité (19), fixé au corps par des pédicules d'arrachement (18), de façon que toute tentative de tripoter le tampon par des individus malintentionnés est mise en relief par la rupture des pédicules (11, 12, 18),

2. Tampon comme illustré dans la revendication 1), **caractérisé par** le fait que la bague de renfort (8) présente une dépression (10) dans la zone correspondant à la dent (7) pour faciliter l'ouverture du capuchon (1) à l'aide de la patte de maniment (5)

3. Tampon comme illustré dans la revendication 1),  
**caractérisé par** le fait que le capuchon (1) présente  
au sommet une zone circulaire ou annulaire (4) usi-  
née pour faciliter l'assemblage des deux éléments  
du tampon et le maniement du capuchon.

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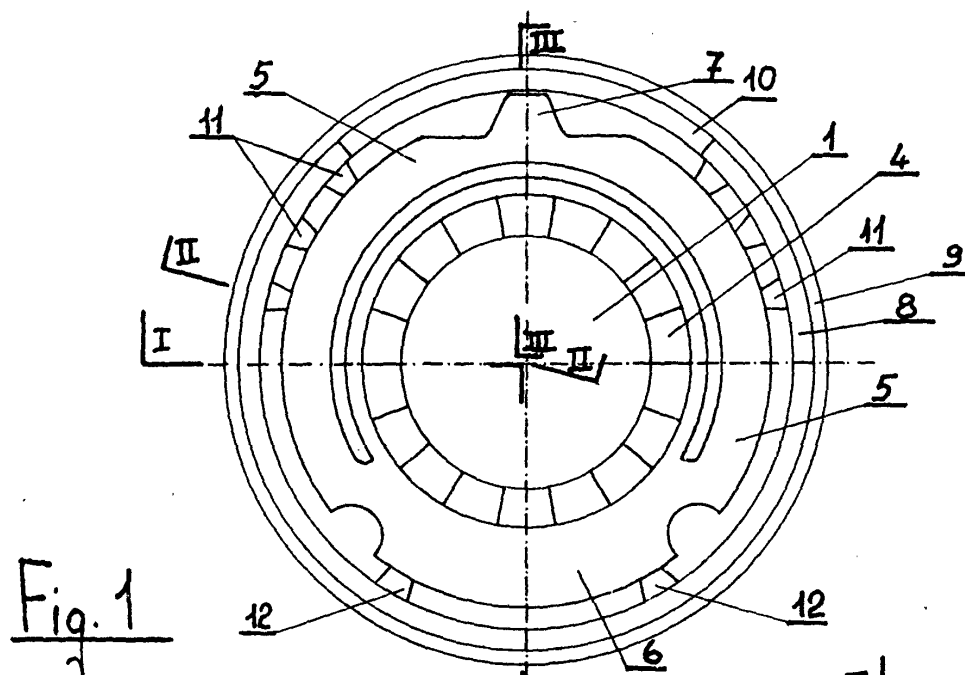


Fig. 1

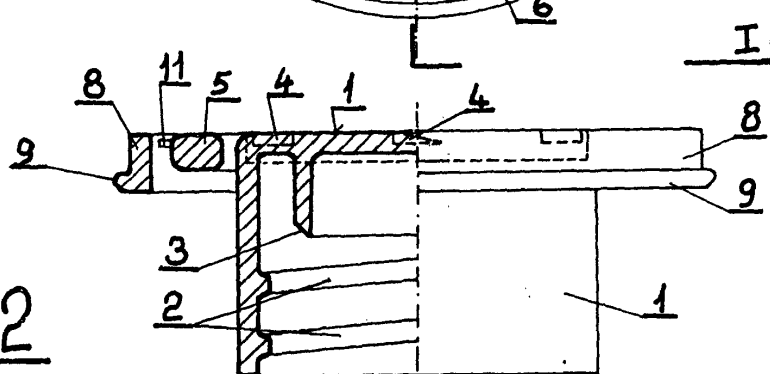


Fig. 2

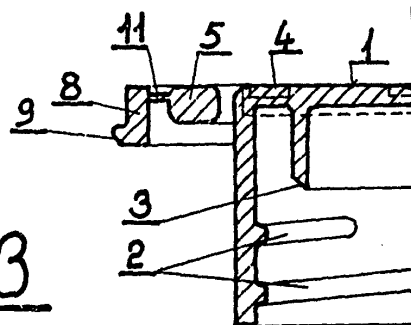


Fig. 3

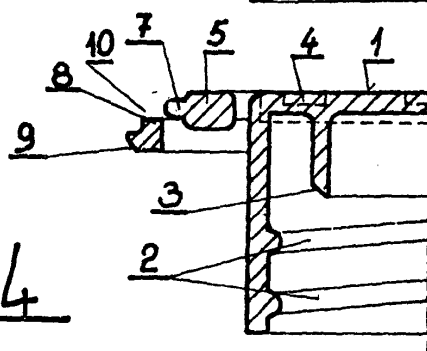


Fig. 4

