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(12) # EUROPEAN PATENT APPLICATION

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(54) **Container with a non-removable closure.**

(57) A tubular container with a non-removable workable cap, by means of which the cap itself is provided with a limitation in its closure on the tube. To do this, the cap is equipped with a vertical rib (7) which originates from the front internal face of the cap and from its inner side surface, which is interrupted at a certain distance from the free end of the outer skirt (9) of the cap. This cap makes contact, when it is turned in both directions, with a protrusion (8) made on the tube and is limited in the closure position by an L-shaped protrusion (3) on the tube itself.

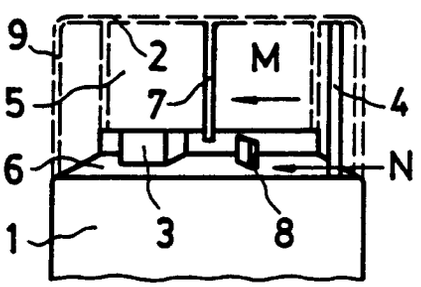

Fig.: 1

EP 0 520 118 A1

The patent deals with containers provided with tamper-proof devices with a non-removable workable cap, in which the product from the tube reaches the exterior through a hole in the front of the cap by turning the cap itself. Containers of this kind appear in EP. patent application No. 90.5000.74.1, in which a tamper-proof device was described, limiting the opening of the cap by placing a stop on the tube, which, on receiving the rib on the cap, meant breakage of the said rib on trying to force the unit for unauthorized opening of the tube.

In that container, the rib on the inside of the cap is established in terms of a helicoidal component, in which the said rib, on closing the cap, flexes onto the stop on the tube, whereas on opening the cap, it fits into the other face of the stop, thus preventing total opening.

The aim of the present patent is to approve a safety device for the cap, according to which the closure of the cap is also limited while also performing a function of safeguarding the container in optimum conditions.

In order to put the invention into practice, the cap on the container includes an internal rib which juts out from the internal face of the greater outer skirt and from its base. This internal rib is a radial component and is placed at a certain distance from the helicoidal fin which limits opening, being also somewhat shorter than the said helicoidal fin.

On the tube, and more precisely on the truncated cone shaped section from which the stop that limits turning of the cap on opening juts out, a vertical protrusion of limited thickness is placed at a certain distance from the stop that limits opening.

The radial rib of the cap makes contact with the upper end of the protrusion on the tube when the cap is turned, in such a way that the protrusion flexes because of the said turning action, making a characteristic sound. This rib is situated near the fin for the opening stop.

In the cap closed position, the radial vertical rib of the cap is situated in the space between the opening stop and the vertical protrusion. If wishing to close the cap when in this situation, the vertical rib makes contact with the face of the cap opening stop, which is flat, with which the user notices this impediment and stops turning the cap on the tube. This obviously constitutes a closing limit for the conatiner.

If the cap is in the closed position and cap opening begins, the radial vertical rib makes contact with the upper edge of the vertical protrusion on the tube and the user is informed that opening of the container is beginning. When the container is in this open position, by continuing to turn the cap, the opening stop is carried out by means of the helicoidal fin on the cap itself, which becomes housed in an L-shaped recess in the stop on the tube.

The radial vertical rib in the cap is placed at a distance in a clockwise direction in relation to its helicoidal fin. On the contrary, the vertical protrusion on the tube is situated at a distance in an anticlockwise direction in relation to the opening stop of the cap.

The sequences and operativity described here are defined in greater detail on the sheet of drawings which is attached, on which one non-restrictive option of the patent is shown.

- Figure 1 is a side elevation of the cross-section of the cap, with the cap shown by the dotted line.
- Figure 2 is a view of the above, seen from the top.
- Figure 3 is a vertical diametric cross-section of the cap at the radial vertical rib, in accordance with (M) in Figure 1.
- Figure 4 is a side view of the upper end of the tube, in accordance with arrow (N) in Figure 1.

According to figures 1 and 2 it is possible to observe a tube (1) and a cap (2) provided with an outer skirt (9) and another inner skirt into which the screw-threaded neck (5) of the upper end of the tube (1) screws. In these two figures we can clearly see the positions of the helicoidal fin (4) in the cap (2) and the stop (3) on the tube (1), which on its clockwise side is provided with a L-shaped recess which receives the said fin (4), thus controlling the opening of the cap.

In these same two figures, the position of the radial vertical rib (7) of the cap (2) can be appreciated, situated in a clockwise direction in relation to the helicoidal fin (4), as well as the anticlockwise direction of the vertical protrusion (8) on the tube (1) in relation to the stop (3).

It can be deduced from the contents of these two figures, 1 and 2, that turning of the cap (2) will make the rib (7) in the cap come into contact with the protrusion (8), which flexes and emits a characteristic noise in order to inform the user.

The rib (7) makes contact with the two skirts in the cap, the inner one and the outer one (9) and its lower end has a stepped section (11), which is illustrated in figure 3, with this section coming into contact with the upper end of the protrusion on the tube.

The side positions of the vertical protrusion (8) and of the stop (3) on the tube (1) are defined in the view through (N) in figure 1, which is shown in figure 4. Both protrusions (8) and (3) jut upwards from the trunco-conical area (6) of the tube (1).

The movements of the units have therefore been described, one corresponding to the technique of previous technologies mentioned at the

beginning of this specification and the other that of the present invention.

According to the former, turning the cap on opening makes a helicoidal fin (4) become housed in a recess in the L-shaped section of the stop (3), thus limiting the opening of the cap (2) and preventing it from being opened without making it unusable.

According to the movements of the present invention, the action of opening the cap causes the radial rib (7) to contract and flex on the protrusion (8) and in the opposite closing position, it flexes again on the protrusion (8) and comes up against the stop (3) itself on the tube (1), thus preventing excessive or forced closure which might make the container unusable.

Claims

1. Tubular container with a non-removable workable safety cap, of the type which are provided with an L-shaped protrusion (3) that originates from the trunco-conical section (6) of the tube and which goes from the outlet neck to the side of the said tubular container, with a helicoidal fin (4) that comes from the internal base of the cap and from its inner side surface, occupying a position of an anticlockwise direction in the space that is between the outer skirt of the cap and another skirt in the same cap which screws onto the neck of the tube, which is essentially characterised because at a certain distance from the L-shaped protrusion (3), and in an anticlockwise position, a vertical protrusion (8) is arranged on the trunco-conical section (6) of the tube, separated a certain distance from the neck and from the edge of the tube, in that this protrusion is lower in height than the L-shaped protrusion and of limited thickness, having at the same time, in the cap and in the space between the skirts that is occupied by the helicoidal fin, another vertical rib (7) which also comes from the internal base of the cap and from its inner side surface, with this rib being vertical and straight and interrupted at a certain distance from the free end of the outer skirt of the cap, and in that this vertical rib is situated in a clockwise position in relation to the helicoidal fin (4) and its lower end is stepped in such a way that the said stepped area comes into contact with the vertical protrusion when the cap is turned in one direction or the other, with the closing position of the cap being limited by stopping against the flat face of the L-shaped protrusion.

2. Tubular container with a non-removable workable safety cap, in accordance with claim 1, characterized because the vertical protrusion (8) of the trunco-conical area of the tube flexes by contact with the vertical rib (7) of the cap when this is turned in one direction or the other.

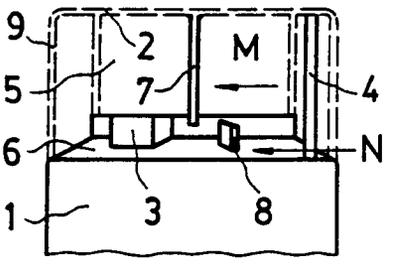

Fig.: 1

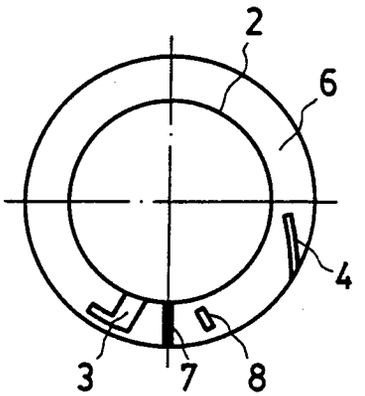

Fig.: 2

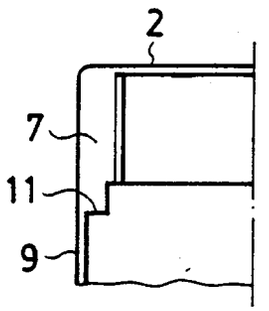

Fig.: 3

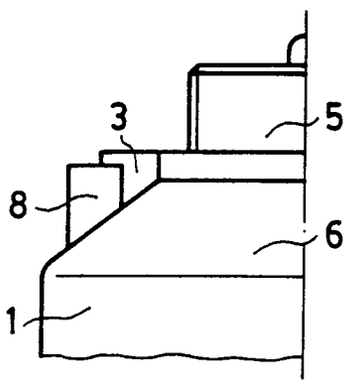

Fig.: 4

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EUROPEAN SEARCH REPORT

Application Number

EP 91 50 0129

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
D,Y	EP-A-0 410 922 (TUBOPLAST HISPANIA) * the whole document *	1,2	B65D41/34 B65D47/24
Y	EP-A-0 265 243 (POLTEC TECNOLOGIA) * column 2, line 4 - line 35; figures 1-4 *	1,2	
A	GB-A-1 035 476 (A. FISCHBACH) * page 1, line 62 - page 2, line 7; figures 1-4 *	1,2	
A	US-A-4 630 743 (D. WRIGHT) * column 1, line 65 - column 2, line 63; figures 1-4 *	1,2	
A	GB-A-1 526 229 (ROCKWARE PLASTICS LTD) * page 2, line 10 - line 60; figures 1,2,4,5 *	1,2	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	24 SEPTEMBER 1992	PERNICE C.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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