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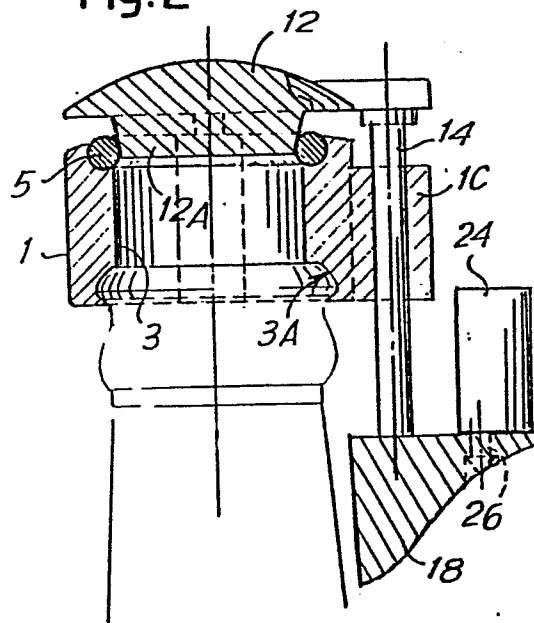
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54 Closing device with spring obturator, applicable to bottles for beverages even if aerated.

57 Closing device - applicable to bottles having shaped orifice for the application of a "crown cap" or a screw cap - comprising: a body (1) applicable to the shaped orifice and forming, in turn, a supplementary orifice (3); an obturator (12) axially guided on said body (1) and elastically urged to close said supplementary orifice (3); and an appendix (18) oriented to develop along the bottle neck with the end portion being expanded and shaped in order to consent the automatic opening manoeuvre by a hand holding the bottle neck, owing also to reaction to the bottle weight.

**Fig. 2**



DESCRIPTION

The invention relates to an obturator to be used for closing - during consumption - the bottles of beverages (even of aerated beverages) after the sealing cap, like the crown cap or the screw cap, has been removed.

Substantially, the closing device of this invention comprises: a body applicable to the shaped orifice and forming in turn a supplementary orifice, an obturator axially guided on said body and elastically urged to close said supplementary orifice; and an appendix oriented for development along the bottle neck with its end portion being expanded and shaped so that to consent the automatic opening manoeuvre by a hand holding the bottle neck, owing also to the reaction to the bottle weight.

Practically, the expanded end portion of the manoeuvring appendix is approximately developed as a semicone, with the vertex turned towards the bottle body.

The obturator is axially guided by one or more columns (or rods), around which springs operate for the closing action; the guiding action for the slide movement may be operated by the manoeuvring appendix or only by said appendix, provided with a guide stem.

The supplementary obturator and orifice are so shaped as to cooperate with an interposed elastic washer or seal in order to obtain a long lasting sealing action in a

forcing condition and/or for the presence of a sealing lip.

The body with the guide means, the obturator and the manoeuvring appendix are all contained in the overall dimensions of the bottle body.

The invention will be better understood by the following specification and accompanying drawing which shows a practical non limitative exemplification of the same invention. In the drawing:

Fig.1 shows a perspective view;

Fig.2 shows a section along II-II of Fig.1;

Fig.3 shows the way of use;

Fig.4 shows a section similar to Fig.2, with the obturator in full closing condition;

Figs.5 and 6 show a section along V-V of Fig.4 and the delivery arrangement, in open condition;

Fig.7 shows a modified embodiment.

According to what is illustrated in the accompanying drawing, numeral 1 indicates the body of the closing device, which presents an orifice 3 with a through hole for delivery; this orifice 3 is shaped as indicated in 3A for the application to the traditionally shaped edge of the bottle neck, of traditional caps like screw caps or the so-called crown caps. The body 1 presents - at the end of hole 3, opposite to the end presenting the profile

3A - the seat for an annular washer or seal 5. The body 1 also presents two opposite projections 1B and a side projection 1C. In the projections 1B seats are formed having the axis parallel to the axis of orifice 3, with a portion of greater diameter 7A in which a spring 9 is housed; this spring reacts between the bottom of the portion 7A of the through seat and the head 10A of a corresponding stem 10 guided in the inside of said seat. The two stems 10, housed in the two seats 7A of the diametrically opposite projections 1B, serve to guide an obturator 12 to which the stems 10 are solid. The obturator 12 extends above the body 1 with a portion 12A able to enter the orifice 3 for cooperating with the washer or seal 5. An other stem 14 is provided solid with the obturator 12, 12A and slidly guided in a seat 16 formed in the projection 1C of the body 1 of the obturator. At its end, the stem 14 has an appendix 18, approximately shaped as a semicone, which develops along the neck of the bottle into the zone in which the bottle is held for handling. By means of the appendix 18 it is possible to operate - with the hand holding the bottle neck or with a finger of the same hand - in the direction of the arrow fA, for opening, that is, for lifting the obturator 12, 12A from the seal 5 towards which the obturator is normally urged by springs 9. The obturator 12, 12A, owing to the action of springs 9, is

made to rest with its portion 12A on the seal 5 for a temporary and partial sealing action, sufficient to keep the bottle closed between one delivery and another, the opening being spontaneously effected when one acts - as above mentioned - on the appendix 18 while holding the bottle. For a more stable and effective closing, the obturator 12 or 12A can be urged by hand in the direction of arrow fC in order to force the part 12A more deeply inside the seal 5. In these conditions the bottle remains closed until one acts in the direction of arrow fA with a force greater than that spontaneously obtainable by holding the neck of the bottle. The body 1 remains, in any case, steadily engaged to the neck of the bottle on which it is forced by the shaping 3A.

The obturator according to the Model permits to plug, in a substantially effective way - as in the case of the crown cap closure - an uncorked bottle. Once the obturator has been drawn out from the seal 5, the springs 9 maintain the obturator closed, and the latter may be spontaneously lifted as soon as one holds the bottle neck.

In the modified embodiment of Fig.7, the seal 5 has a flexible lip 5A which cooperates with the appendix 12C of the obturator 12, being advantageously step-like shaped. A sealing condition is thus obtained even at elevated gaseous pressures without need of efforts for the opening.

According to a modified not illustrated embodiment, the obturator is operated by a single guide being represented by the stem 14, to which a single spring may be associated. The load of this spring may be won even by the mere weight of the bottle when this is lifted reacting on the appendix 18 in the upwards vertical direction. This further facilitates the opening manoeuvre.

A possible pawl 24, eccentrically rotating in 26 on the appendix 18, serves to block the obturator in the closing arrangement (Fig.2) and may be also -- offset relative to part 1C for the opening (Fig.4).

The drawing shows only a non limitative exemplification of the invention.

C L A I M S

1. A closing device applicable to bottles having the orifice shaped for application of the "crown cap" or of the screw cap, characterized by the fact of comprising: a body (1) applicable to the shaped orifice and forming in turn a supplementary orifice (3); an obturator (12) axially guided on said body and elastically urged to close said supplementary orifice (3); and an appendix (18) oriented for development along the bottle neck with the end expanded and shaped in order to consent the automatic opening manoeuvre by the hand holding the neck of the bottle, owing also to the reaction to the bottle weight.

2. A device according to the preceding claim, characterized by the fact that the expanded end of the manoeuvring appendix (18) is approximately developed as a semicone with the vertex turned towards the bottle body.

3. A device according to the preceding claims, characterized by the fact that the obturator (12) is axially guided by one or more columns (or rods) (10), around which springs (9) operate for the closing action; a guide for the sliding movement being possibly operated also by the manoeuvring appendix (18).

4. A device according to the preceding claims, characterized by the fact that the supplementary obturator

(12) and orifice (3) are so shaped as to cooperate with an interposed elastic washer or seal (5) in order to obtain a long lasting sealing action in a forcing condition and/or for the presence of a sealing lip (5A).

5. A device according to the preceding claims, characterized by the fact of comprising a blocking pawl (24) which stabilizes the closing position and can be displaced to permit the manoeuvre.

6. A device according to claim 5, characterized by the fact that said pawl (24) may be inserted between the manoeuvring appendix (18) and the body (1) of the device in order to stabilize the closing, and may be offset to permit the manoeuvre, being articulated on said appendix.

7. A device according to the preceding claims, characterized by the fact that the body (1) with the guide means, the obturator (12) and the manoeuvring appendix (18) are contained in the overall dimensions of the bottle body.

8. A closing device with spring obturator, applicable to bottles for beverages even if aerated; all as above described and represented for exemplification in the accompanying drawing.



Fig.1

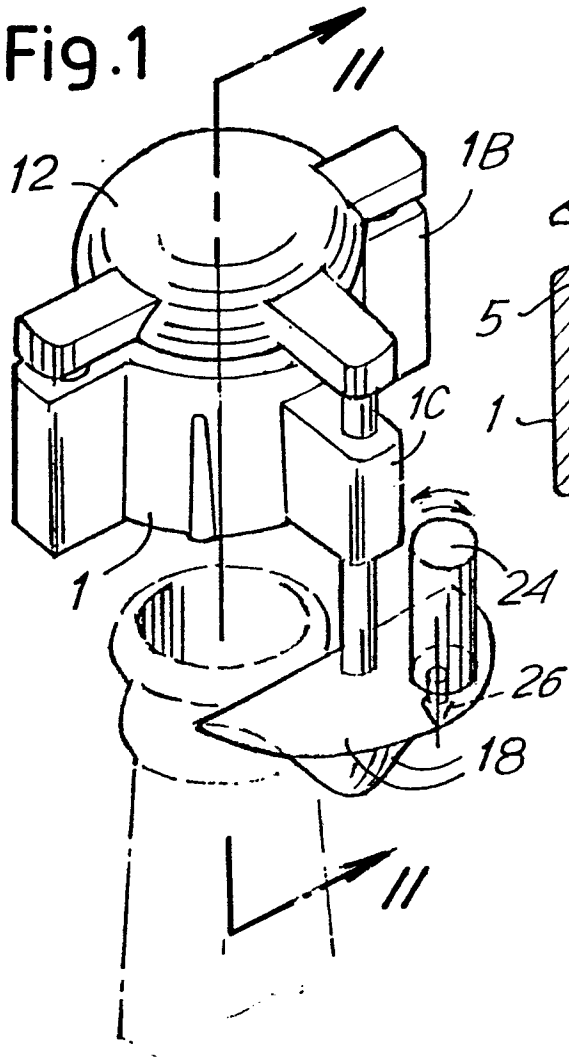


Fig.2

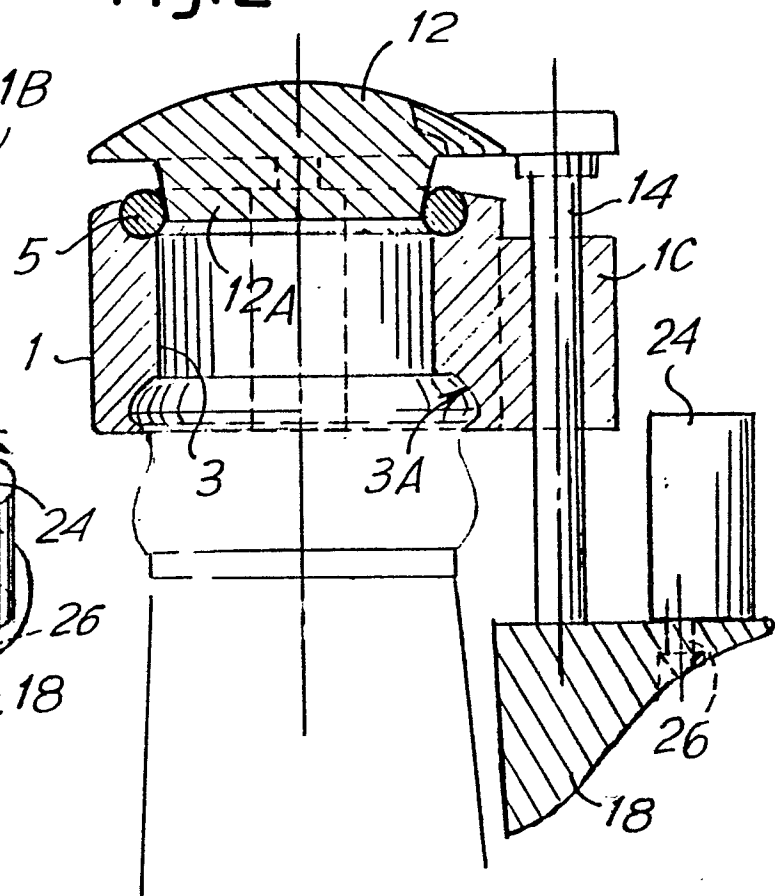


Fig.4

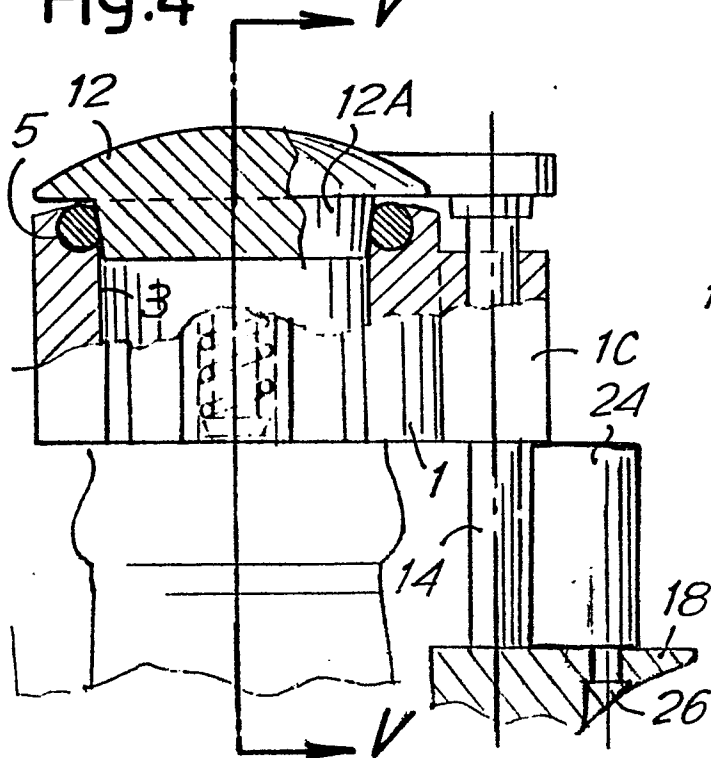


Fig.3

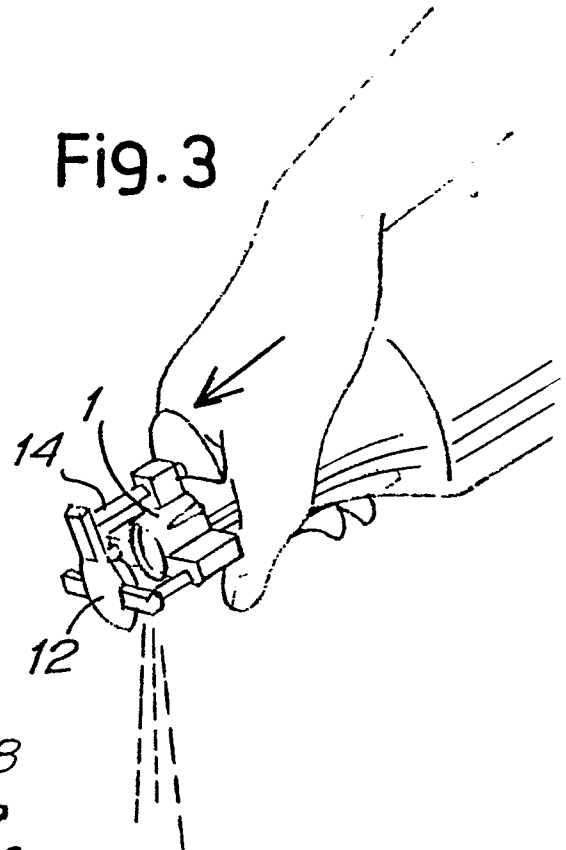


Fig. 5

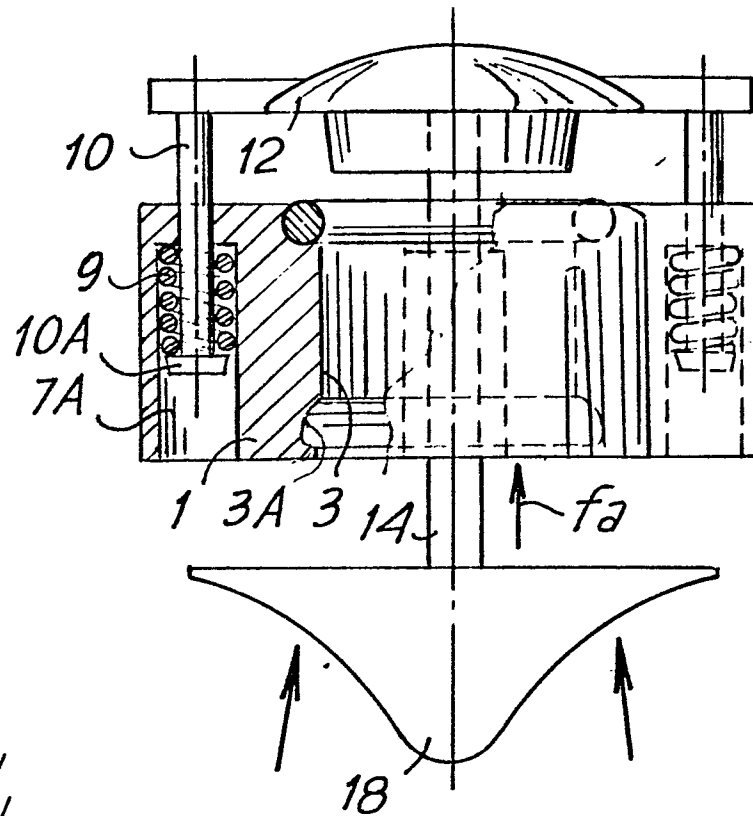


Fig. 6

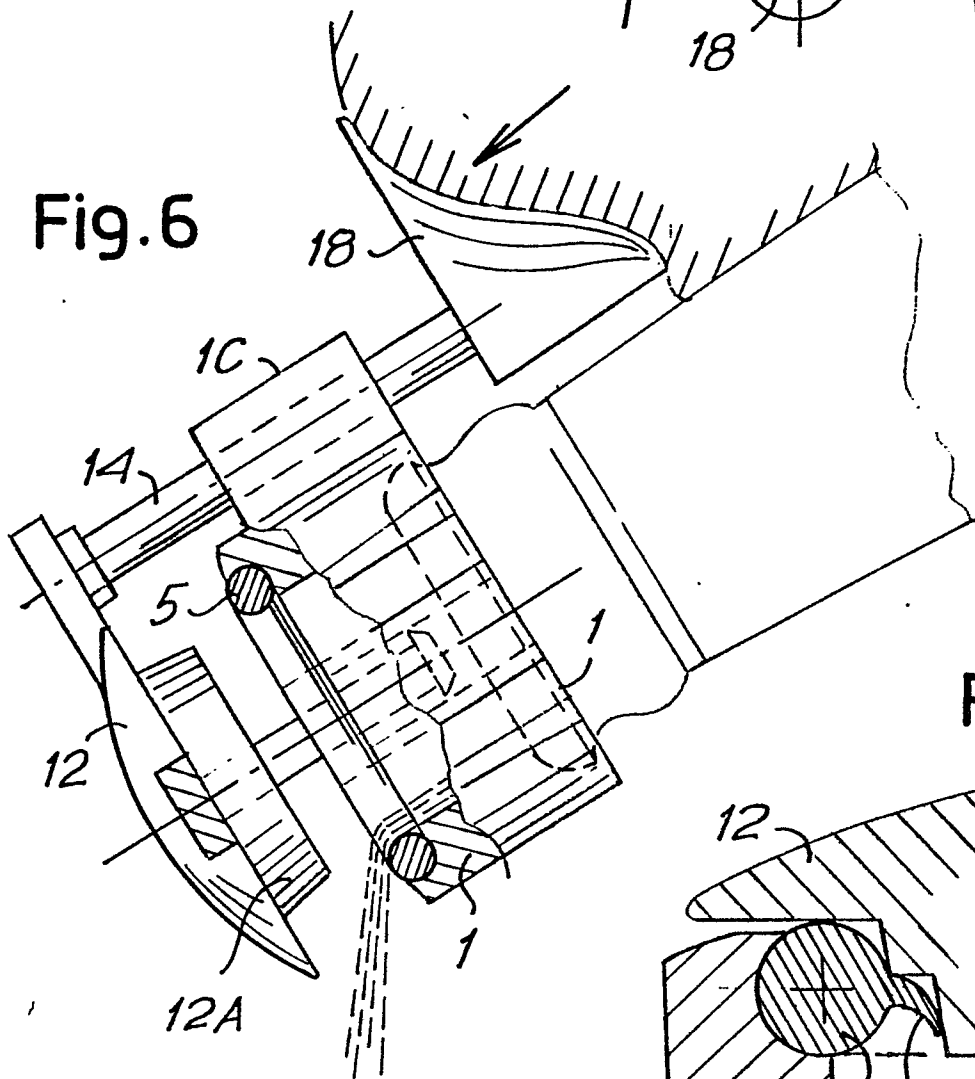


Fig. 7

