

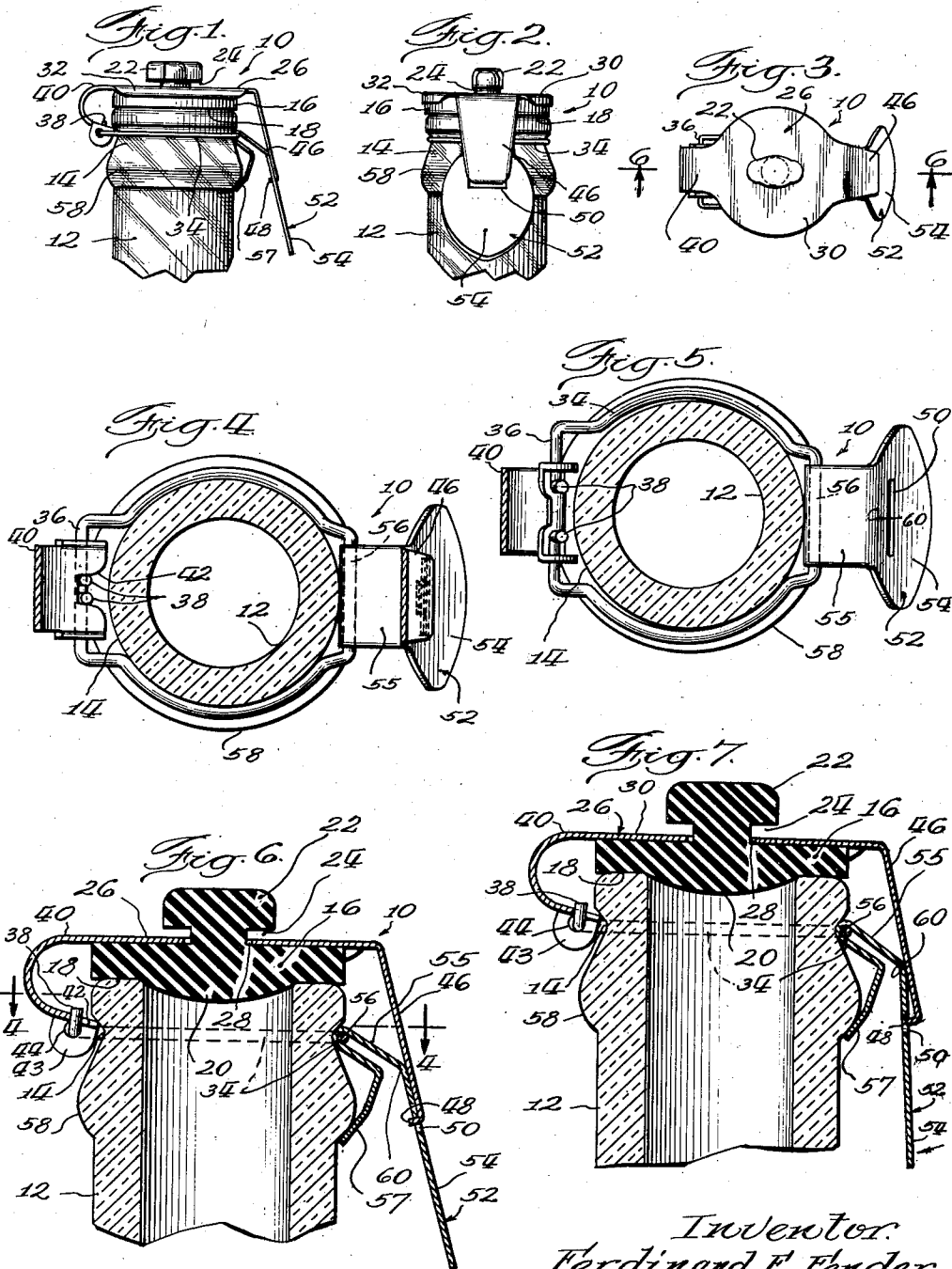
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BOTTLE STOPPER

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BOTTLE STOPPER

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This invention relates to bottle stoppers, and more particularly to a stopper for removable attachment to an ordinary ginger ale, charged water or other bottle having an annular groove around the neck such, for instance, as the usual type of bottle adapted originally to be sealed by a crown cap.

It is an object of the present invention to provide a novel stopper of the above type that can be secured to a bottle neck after removal of the crown cap, and which while secured to the bottle neck can be used repeatedly to cap or uncap the pouring opening of the bottle.

It is a further object of my invention to provide such a stopper with provisions to enable its ready removal from one bottle and transference to another.

Another object of the present invention is to provide a novel stopper having the above features and which will automatically spring open when a latch release button is pressed.

An additional object is to provide a stopper adapted to fulfill the above objectives and which may be manufactured at relatively low cost.

Other objects and advantages will become apparent from the following description of a preferred embodiment of my invention and the accompanying drawing, in which:

Fig. 1 is a side view of the upper portion of what may be considered as a representative ginger ale, charged water or other crown cap sealed bottle with a stopper embodying my invention attached thereto;

Fig. 2 is a view similar to Fig. 1, excepting that it shows the upper portion of the bottle with the stopper thereon from the front;

Fig. 3 is a plan view of the stopper shown in Figs. 1 and 2;

Fig. 4 is a transverse sectional view taken along the line 4-4 of Fig. 6;

Fig. 5 is a sectional view similar to Fig. 4, but showing the arrangement assumed by the parts when the closure portion of the stopper is tilted backwardly to open the bottle for pouring;

Fig. 6 is an enlarged vertical medial sectional view through the stopper and upper portion of the bottle, and may be considered as taken in the direction of the arrows along the line 6-6 of Fig. 3;

Fig. 7 is a view similar to Fig. 6, excepting that it illustrates the positions assumed by the parts as the opening button is being depressed.

In the drawing in which similar characters of reference refer to similar parts throughout the several views, the stopper indicated generally by

the numeral 10 is shown secured to the neck of a soft drink bottle 12.

The upper portion of the neck of a crown cap sealed bottle is ordinarily provided as shown with a constricted portion or annular groove 14, which is used in carrying out the present invention to secure the stopper 10 to the bottle.

The stopper comprises a soft rubber plug or cap 16 which, when placed over the opening in a bottle and pressed downwardly, serves effectively to seal the bottle. The lower surface of this plug is shaped to provide a flat annular surface 18 to be pressed against the top edge of the bottle and a downwardly projecting spherical portion 20 to extend into the bottle opening.

An oval knob 22 having an annular groove 24 therearound extends upwardly from the top surface of the plug and serves to secure the plug to a strip steel clamping member 26. During the assembly operation, the soft rubber plug is attached to the clamping member 26 by passing one of the wings of the oval knob 22 upwardly through a round hole 28 in the central portion of the clamping member 26. This wing is then grasped from above and pulled to stretch the knob sufficiently to permit the other wing to pass through the opening 28. After being released, the knob 22 assumes the position shown and prevents the plug from being accidentally separated from the clamping member 26, while the annular groove 24 permits a small amount of relative movement between the plug 16 and the remainder of the mechanism to enable better seating of the plug in the bottle opening.

The strip 26 is provided with a circular central portion 30 to overlie the rubber plug 16 and evenly distribute the downward pressure thereon when the bottle is sealed. Preferably, the edges of this circular central portion are turned downwardly to form a flange 32 to embrace the peripheral edges of the plug.

A loop of spring wire 34 extends around the groove 14 in the bottle and has its opposite end portions bent outwardly away from the bottle, so that for a portion of their length they extend parallel to each other. The extreme ends of the wire are bent toward each other to form bearing surfaces 36 and then extend upwardly at right angles to form camming fingers 38.

The spring metal of the clamping member 26 has an elongated arm 40 extending rearwardly from the circular central portion 30. This arm 40 is curved downwardly and inwardly to such a position that a wedge shaped re-entrant opening 42 in the end thereof straddles the camming

fingers 33, as best illustrated in Fig. 4, when the plug 16 is in closing position relative to the bottle 12. The side edges of the end of the arm 40 are bent downwardly to form wings 43 having apertures 44 therethrough to serve as bearings to journal the clamping member for pivotal movement around the straight bearing surfaces 36 of the wire 34.

With this construction, it will be seen that the cap may be tilted backwardly to open the bottle or it may be tilted forwardly and pressed downwardly to close the bottle. It will further be seen, that when the cap is in closing position, as best seen in detail in Fig. 4, the side edges forming the re-entrant opening 42 will embrace the camming fingers 38 and draw them inwardly to close the wire loop 34 tightly about the groove 14 in the bottle neck, but that when the bottle is opened, the fingers 38 will be freed to spring outwardly slightly as shown in Fig. 5. Thus, with the cap tilted backwardly, the wire loop 34 may be slipped over the top of the bottle to install or remove the cap, but when the cap is tilted forwardly in bottle closing position, the cap will be securely clamped upon the bottle neck while the tendency of the spring wire loop 34 to pull the camming fingers 38 apart will cause the cap to spring open as soon as it is released.

In order to retain the cap in bottle closing position, the spring metal clamping member 26 has a forwardly and downwardly projecting finger 46 provided at its end with an inwardly turned hook 48 adapted to engage in a rectangular opening 50 in a latching and releasing member 52. This latching and releasing member 52 comprises a piece of spring metal having an enlarged portion or button 54 to be pressed by the thumb or finger of the user for releasing the hook 48 to permit raising of the cap. This button 54 has a projection 55 extending inwardly and upwardly, around a straight portion 56 of the wire 34 and then downwardly to bear with its end 57 against the bottle beneath the neck enlargement 58. Normally the button 54 is spaced somewhat away from the bottle neck as shown in Figs. 1, 6 and 7 by the end 57 bearing against the bottle. Thus, when the cap is turned to closed position and pressed downwardly, the hook 48 on the spring strip 46 will snap into the rectangular opening 50 and maintain the bottle closed. When it is desired to open the bottle, the button 54 is pressed inwardly until the hook 48 slips out of the opening 50 and permits the cap to spring open.

In the formation of this latching arrangement, I prefer that the outward face of the latching and releasing member 52 be so arranged relative to the finger 46 that when the button 54 is pressed inwardly, as shown in Fig. 7, a portion 60 of the latching and releasing member 52 will abut against the underside of the finger at a point above the hook 48. This prevents the hook 48 from being drawn inwardly with the latching and releasing member and failing to slip out of the

rectangular slot 50. This arrangement it will be seen provides for a positive disengagement of the hook when the button is pressed inwardly.

Having described a preferred embodiment of my invention, what I claim as new and useful and desire to secure by Letters Patent of the United States is:

1. A bottle closure comprising, a split ring of a size adapted to slip over the neck of a crown cap sealed bottle when slightly sprung, a compressing member hinged to said split ring, a resilient cap secured to said compressing member and adapted to seal a bottle when the compressing member is moved to one position, said compressing member having cam means adapted to tension said split ring when moved to said one position, latch means secured to said split ring, a detent on said compressing member cooperating with said latch means releasably to retain said compressing member in said one position, and a member on said latch means to prevent the detent on said compressing member from following the latch means when said latch means is pressed toward the bottle neck.

2. A bottle closure comprising an attachment member adapted to be releasably secured to a bottle, a sealing member hinged to said attachment member and adapted for movement to and from bottle closing position, a latching member secured to said attachment member in a position substantially opposite to said hinge, means resiliently to maintain a portion of said latching member spaced from the bottle neck, an extension on said hinged sealing member overlying a portion of said latching member when said sealing member is in bottle closing position, cooperating detent members on said latching member and said extension to retain said sealing member in closed position, and means on said latching member to prevent the detent on said extension from following the detent on said latching member when the portion of said latching member resiliently spaced from the bottle neck is pressed inwardly toward the bottle.

3. A bottle closure comprising a band to encircle the neck of a bottle, a sealing member hinged to said band for movement to and from bottle closing position, a generally downwardly inclined latching member secured to said band in a position substantially opposite to said hinge, means resiliently to maintain the lower portion of the last said member spaced from the neck of the bottle, a finger secured to said hinged sealing member and extending downwardly over said latching member when said sealing member is in bottle closing position, cooperating detent members on said latching member and said finger to retain said sealing member in closed position, and means on said latching member to prevent the detent on said finger from following the detent on said latching member when said latching member is pressed inwardly toward the bottle neck.

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