

1

2

3,135,410

EJECTIVE PRESSURIZED CORK

George J. Federighi, Belvedere, Calif. (% Stero Chemical Mfg. Co., 70 13th St., San Francisco, Calif.)

Filed Jan. 20, 1964, Ser. No. 338,654

9 Claims. (Cl. 215-55)

The present invention relates to improvements in an ejective pressurized cork. It consists of the combinations, constructions and arrangement of parts, as hereinafter described and claimed.

As the cardinal object of my invention, it is proposed to provide a cork having a compartment containing a pressurized propellant which may be released to the interior of a corked bottle so as to eject the cork. Thus the cork is self-ejecting when a person actuates the releasing means that normally confines the pressurized propellant in the cork.

Moreover, it is proposed to utilize the pressurized propellant for expanding the cork into fluid-tight relation with the wall of a pouring opening in the bottle into which the cork has been inserted.

Another object of the invention is to provide an ejective pressurized cork having means for releasing the pressurized propellant from the compartment to the interior of the bottle below the cork, this means being arranged for easy manipulation from the top of the cork while the latter is disposed in the pouring opening of the corked bottle.

Other objects and advantages will appear as the specification continues, and the novel features of the invention will be particularly pointed out in the appended claims.

Drawing

For a better understanding of the invention, reference should be had to the accompanying drawing, forming part of this specification, in which:

FIGURE 1 is a vertical sectional view taken through a corked bottle and disclosing my ejective pressurized cork inserted into the pouring opening of the bottle;

FIGURE 2 is an elevational view of a needle valve shown in FIGURE 1;

FIGURE 3 is a view similar to FIGURE 1, but illustrating the needle valve depressed so as to release the pressurized propellant from the compartment of the cork; and

FIGURE 4 is a vertical sectional view through a modified form of my ejective pressurized cork.

While I have shown only the preferred forms of my invention, it should be understood that various changes, or modifications, may be made within the scope of the appended claims without departing from the spirit thereof.

Detailed description

Referring now to the first form of my invention, as disclosed in FIGURES 1 to 3, inclusive, I have shown a conventional bottle A having a pouring opening 10 formed in its neck 11, this bottle containing liquid 12, such as wine for example. It will be noted that my ejective pressurized cork is designated generally at B and has been illustrated as being dimensioned to be inserted into the pouring opening 10 to form a closure for the bottle.

This cork has a compartment C fashioned therein that contains a suitable non-toxic pressurized propellant, for example "Genetron" manufactured by Allied Chemical (General Chemical Division), or "Freon" made by du Pont. These are only two examples of propellants that are available on the market and suitable for my purpose.

As shown in FIGURES 1 and 3 of the drawing, the pressurized propellant takes the form of a liquid prod-

uct 14 that produces a gas 15 in the headspace of the compartment C. This gas has sufficient pressure to uncork the bottle, when the pressurized propellant is conveyed to the interior of the bottle A below the cork B.

Moreover, the cork B defines an expandable circumferentially-extending wall 16 which is subjected to the pressurized propellant contained in the compartment C, and the pressure is sufficient to expand this wall into fluid-tight relation with the surrounding wall of the pouring opening 10. The cork B may be made from suitable plastic material that may be expanded and contracted. One or more annular sealing beads 17 may be formed on the exterior surface of the wall 16 so as to effect a better seal with the pouring opening of the bottle.

In order to convey the pressurized propellant from the compartment C to the interior of the bottle A below the cork B to eject the latter, a passageway 18 has been provided that leads from the compartment to the lower end of the cork for outflow of the propellant, the lower end of the cork being indicated at 19. However, this passageway is normally sealed by a membrane 20, and valve means D is operable for releasing the pressurized propellant by puncturing the membrane, as indicated in FIGURE 3 of the drawing.

The passageway 18 is provided by a dip tube 21 that extends upwardly from the bottom of the cork B to a position adjacent to the top of the compartment C, and the membrane 20 is located in this tube. As shown in FIGURES 1 and 3, the membrane 20 is disposed at the top of the dip tube, while in FIGURE 4 the membrane 20' is disposed at the bottom of the dip tube. In either event, the membrane will prevent outflow of the propellant from the compartment C through the passageway 18 and into the interior of the bottle A below the cork B until the membrane has been punctured.

As shown in FIGURES 1 to 3, inclusive, the valve means D defines a needle valve 22 having a pointed lower end 23 arranged to puncture the membrane 20, when an operating knob 24 at the top of this valve is depressed. A by-pass 25 is formed in the lower section of the needle valve 22 and through which the pressurized propellant may flow from the compartment C to the passageway 18, when the knob 24 is depressed into the position disclosed in FIGURE 3, it being noted that at this time the by-pass extends above and below the membrane 20. However, when the needle valve occupies the position shown in FIGURE 1, the by-pass will not permit the pressurized propellant to flow from the compartment C to the passageway 18, this being the position in which the needle valve is arranged when the bottle is initially corked.

Particular attention is called to the fact that the top of the cork B is provided with a depression 26 therein, and the operating knob 24 is confined in this depression so as to preclude accidental opening of the valve means D in the event that an object bears against the top of the cork B during storage, transportation or other positioning of the corked bottle.

The valve means D is disposed axially relative to the cork B so that the operating knob 24 may be readily depressed by a person, and the needle valve 22 and the dip tube 21 are likewise arranged axially with respect to the cork.

The objective pressurized cork B shown in FIGURE 4 is substantially the same as that illustrated in FIGURES 1 and 3, except that the membrane 20' is disposed at the bottom of the passageway 18, as previously mentioned. Like reference characters have been applied to corresponding parts of the two forms of the invention. In FIGURE 4, the needle valve 22' is longer than in FIGURE 1 so that its lower pointed end 23 may puncture

3

the membrane 20' at the bottom of the dip tube 21 in FIGURE 4. Otherwise, the two forms of the invention are the same.

Of course, the needle valves 22 and 22' must be sealed against leakage of the pressurized propellant at the places where they pass through the top part of the cork into the depression 26. Gaskets or O-rings 27 are shown for this purpose.

As shown in FIGURE 1, the lower end 23 of the needle valve 22 is closely confined in a cavity formed in the membrane 20, when the cork is initially assembled, so as to prevent the pressurized propellant from blowing the needle valve out of the cork, since the force of the propellant is precluded from gaining access to the lower end of the needle valve to raise the latter. Moreover, the wall of the cavity in the membrane 20 serves to steady the needle valve 22 during downward pressing thereof when uncorking the bottle. This same arrangement is provided for the needle valve 22' and the membrane 20' in FIGURE 4.

In order to facilitate the insertion of the cork B into the pouring opening 10 of the bottle A, the cork and its pressurized propellant may be chilled prior to inserting the cork into the bottle. Subsequently, when the cork and propellant expand due to reaching room temperature, the cork will have a fluid-tight contact with the interior wall of the bottle neck.

It will be appreciated from the disclosure that each cork and its uncorking means is self-contained, and no cork-screw or other tool is required to uncork the bottle.

I claim:

1. An ejective pressurized cork comprising:
 - (a) a cork dimensioned to be inserted into a pouring opening in a bottle to form a closure for the latter;
 - (b) the cork having a compartment containing a pressurized propellant;
 - (c) and means operable for releasing the pressurized propellant from the compartment and conveying it to the interior of the bottle below the cork, and the pressure being sufficient to uncork the bottle.
2. The ejective pressurized cork, as set forth in claim 1;
 - (d) and in which the cork defines an expandable circumferentially-extending wall which is subjected to the pressurized propellant contained in the compartment, and the pressure being sufficient to expand this wall into fluid-tight relation with the wall of the pouring opening.
3. The ejective pressurized cork, as set forth in claim 1;
 - (d) and in which the means operable for releasing the pressurized propellant from the compartment includes depressible valve means operable from the top of the cork.
4. The ejective pressurized cork, as set forth in claim 3;
 - (e) and in which the top of the cork is provided with a depression therein, and the valve means includes an operating knob confined in this depression so as to preclude accidental opening of the valve means in the event that an object bears against the top of the cork.
5. An ejective pressurized cork comprising:
 - (a) a cork dimensioned to be inserted into a pouring opening in a bottle to form a closure for the latter;
 - (b) the cork having a compartment containing a pressurized propellant, the pressure being sufficient to eject the cork from the bottle when the propellant is injected into the interior of the bottle below the cork;

4

- (c) the cork having a passageway leading from the compartment to the lower end of the cork for outflow of the propellant, but this passageway normally being sealed by a membrane;
- (d) and a needle valve operable from the top of the cork, and having a lower end positioned to puncture the membrane when this needle valve is depressed, whereby the cork will be ejected from the bottle.
6. The ejective pressurized cork, as set forth in claim 5;
 - (e) and in which the passageway is provided by a dip tube extending upwardly from the bottom of the cork to a position adjacent to the top of the compartment, and the membrane being located in this tube.
7. The ejective pressurized cork, as set forth in claim 5;
 - (e) and in which the needle valve is disposed axially relative to the cork and has its upper end confined in a depression provided in the top of the cork.
8. An ejective pressurized cork comprising:
 - (a) a cork dimensioned to be inserted into a pouring opening in a bottle to form a closure for the latter;
 - (b) the cork having a compartment containing a pressurized propellant, the pressure being sufficient to eject the cork from the bottle when the propellant is injected into the interior of the bottle below the cork;
 - (c) the cork having a passageway leading from the compartment to the lower end of the cork for outflow of the propellant, but this passageway normally being sealed by a membrane;
 - (d) this passageway being provided by a dip tube extending upwardly from the bottom of the cork to a position adjacent to the top of the compartment, and the membrane being located in this tube;
 - (e) and means operable to puncture the membrane so that the pressurized propellant will be conveyed through the dip tube to the interior of the bottle below the cork to eject the latter.
9. An ejective pressurized cork comprising:
 - (a) a cork dimensioned to be inserted into a pouring opening in a bottle to form a closure for the latter;
 - (b) the cork having a compartment containing a pressurized propellant, the pressure being sufficient to eject the cork from the bottle when the propellant is injected into the interior of the bottle below the cork;
 - (c) the cork having a passageway leading from the compartment to the lower end of the cork for outflow of the propellant, but this passageway normally being sealed by a membrane;
 - (d) and a needle valve operable from the top of the cork, and having a lower end positioned to puncture the membrane when this needle valve is depressed, whereby the cork will be ejected from the bottle;
 - (e) the lower end of the needle valve being closely confined in a cavity formed in the membrane, when the cork is initially assembled, so as to prevent the pressurized propellant from blowing the needle valve out of the cork, since the force of the propellant is precluded from gaining access to the lower end of the needle valve to raise the latter;
 - (f) the wall of the cavity in the membrane serving to steady the needle valve during downward pressing thereof when uncorking the bottle.

No references cited.