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3,085,454

PRESSURIZED DEVICE FOR UNCORKING BOTTLES

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FIG. 1

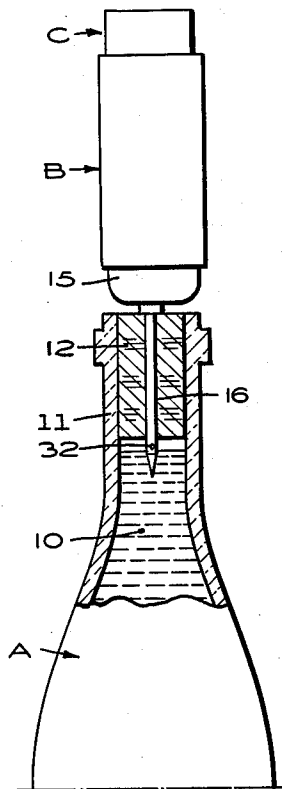


FIG. 2

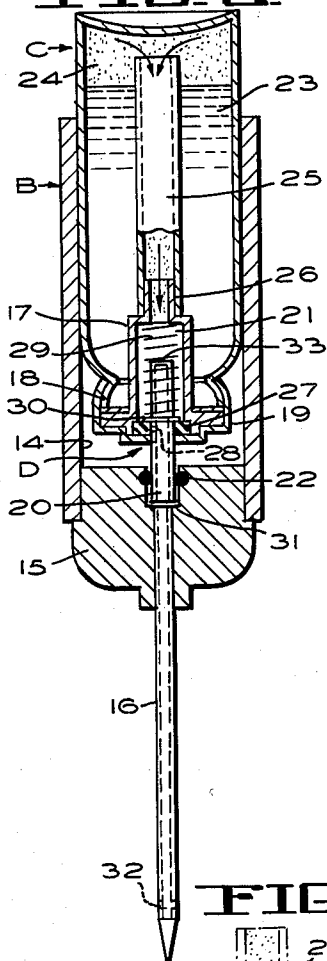


FIG. 4

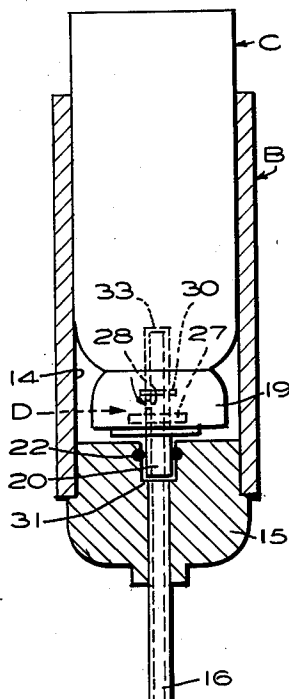


FIG. 3

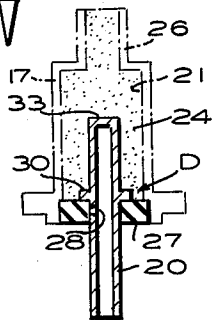
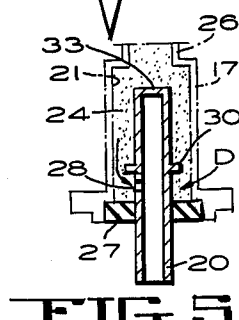


FIG. 5



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## Detailed Description

### 3,085,454 PRESSURIZED DEVICE FOR UNCORKING BOTTLES

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3 Claims. (Cl. 81—3.2)

The present invention relates to improvements in a pressurized device for uncorking bottles. It consists of the combinations, constructions, and arrangement of parts, as hereinafter described and claimed.

It has been a limited practise heretofore to inject carbon dioxide (CO<sub>2</sub>) into corked bottles of liquid so as to blow out the cork. However, experience has shown that there is a danger of bursting the bottles, since the pressure of the gas is relatively high. This presents a dangerous situation, especially when a waiter is preparing to serve the liquid to a customer.

Accordingly, it is proposed in this invention to provide a pressurized device for uncorking bottles, wherein a non-toxic gas may be injected into the interior of a bottle below the cork so as to raise the cork relative to the bottle, or to expel the cork, the pressure of the gas being sufficiently low at all times to preclude bursting of the bottle.

Moreover, it is proposed herein to provide a tubular holder for slidably receiving a container which encloses a pressurized non-toxic gas, the holder having a tubular needle that is made to be pushed through a cork in a bottle. The needle communicates with an outlet tube of the container, and dispensing valve means are provided that normally prevent flow of the gas from the container into the needle. However, this valve means may be opened by merely pushing the container inwardly of the holder to a predetermined position, thereby automatically causing the gas to flow into the bottle to remove the cork therefrom.

Another object of the invention is to provide a device of the character described, which is simple in construction, durable and efficient for the purpose intended, and which may be manufactured at a relatively low cost.

## Drawing

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

FIGURE 1 is a fragmentary view of a corked bottle, partially in section, and disclosing my pressurized device in operative position for removing the cork from the bottle;

FIGURE 2 is an enlarged vertical sectional view taken through my device, the dispensing valve means being illustrated as being in closed position;

FIGURE 3 is an enlarged vertical sectional view taken through the dispensing valve means, the latter being closed as in FIGURE 2;

FIGURE 4 is a view similar to FIGURE 2, but showing the pressurized container in elevation, and with the container moved into a position so as to open the valve dispensing means and;

FIGURE 5 is a vertical sectional view taken through the dispensing valve means, with the latter opened, and corresponding with the position of the valve means in FIGURE 4.

While I have shown only the preferred form 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.

Referring now to the embodiment of my invention, as illustrated in FIGURES 1 to 5, inclusive, I have shown a bottle A containing liquid 10, the neck 11 of this bottle having a cork 12 pressed thereinto. It will be observed that my pressurized device for uncorking bottles comprises two main component parts: a tubular holder B and a pressurized container C.

As clearly shown in FIGURES 2 and 4, the tubular holder B defines a bore 14 and a base 15. The pressurized container C is slidably disposed in the bore of the holder, and is movable toward and away from the base. Moreover, a tubular needle 16 has its upper end anchored to the base, with this needle projecting below the base so that it may be pushed through the cork 12.

In its structural details, the pressurized container C has a fitting 17 mounted on its rim 18 and held in place by a cap 19 that is crimped to the rim of the container (see FIGURE 2). Also, the container is provided with an outlet tube 20 that projects upwardly into a chamber 21 formed in the fitting 17. The outlet tube 20 is slidable inwardly and outwardly relative to the fitting 17. The needle 16 communicates with the outlet tube 20 so as to receive gas therefrom in the manner hereinafter described. It will be seen that an O ring is provided in the base 15 and through which the outlet tube 20 may telescope with a gas-tight fit to thus preclude escapement of the gas into the bore 14 of the holder B. This ring is designated by numeral 22.

The container C encloses a pressurized non-toxic gas, which is available on the market at the present time. The gas utilized is of the low pressure type, which has sufficient pressure to expel or raise the cork 12 relative to the bottle A, but with the pressure of the gas being sufficiently low at all times to preclude bursting of the bottle into which the gas is injected. The pressure of the gas recommended is about 100 pounds per square inch at average room temperature. For example, "Genetron" manufactured by Allied Chemical (General Chemical Division) is suitable for my purpose, but I do not wish to be limited in this respect. Also, "Freon" made by du Pont, may be used. These are only two examples of gases that are available for my purpose. Both are non-toxic and suitably low in pressure.

In FIGURE 2, the container C has a liquid product 23 therein, which produces a gas 24 in the headspace of the container. This gas will flow downwardly through a dip tube 25 that is connected to an upper reduced end 26 of the fitting 17 so that the gas will be delivered to the chamber 21 of the fitting. As the gas 24 is withdrawn from the headspace of the container, additional liquid 23 will change into gas, thus maintaining substantially uniform pressure within the container at room temperature.

The container C is provided with normally closed dispensing valve means D sealing the outlet tube 20 against escapement of the gas from the container. The valve means D consists of a gasket 27 that coacts with an opening 28 which is formed in a side wall of the outlet tube 20. This gasket is resilient and is clamped in place between the cap 19 and the lower end of the fitting 17. A compression spring 29 is mounted in the chamber 21 so as to surround the upper section of the outlet tube, and the bottom of this spring bears against an annular flange 30 that is formed on the exterior of the outlet tube 20. This arrangement is such that the spring 29 urges the outlet tube 20 downwardly until the opening 28 is sealed by the gasket 27 (see FIGURES 2 and 3). At this time, the dispensing valve means D are closed.

It will be noted that a shoulder 31 is fashioned in the base 15 at about the top of the needle 16 against which the lower end of the outlet tube 20 bears, when the con-

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tainer C is pushed inwardly of the holder B to a predetermined position (see FIGURE 2). At this time, the valve means D are closed. However, the shoulder 31 is disposed to slide the outlet tube 20 inwardly of the container C to unseat the valve means D, when the container C is pushed further into the holder B beyond this predetermined position (see FIGURES 4 and 5). As clearly disclosed in FIGURE 5, the opening 28 is uncovered by the gasket 27, when the valve means D are opened. This will permit the non-toxic gas 24 to flow downwardly through the tubular needle 16, where the gas flows through ports 32 formed in the lower end of the needle, with this outflow of gas passing into the interior of the bottle A below the cork 12. This gas will effect a raising of the cork from the bottle. The pressure of the gas may be high enough to expel the cork by a single operation of the pressurized device, that is, by pushing the container C downwardly, without rupturing the bottle.

It is important to note that the valve dispensing means D are operable by a movement of the container C to control outflow of gas 24 from the container and into the bottle. The container C has an upper end that projects above the top of the tubular holder B so as to be exposed for being depressed by an operator so as to open the valve means D. The entire device may be readily grasped in one hand of the operator and the holder B guides the pressurized container C when the operator applies downward force by a thumb or finger of the same hand, while the other hand is used for grasping the bottle A.

As clearly shown in FIGURES 2, 3, 4 and 5, the outlet tube 20 has a wall at its upper end forming a closure thereover. Thus the gas 24 must pass through the opening 28 in order to flow through the outlet tube 20 and into the tubular needle 16, and the opening 28 must be uncovered by the gasket 27 before the gas can enter the outlet tube. The wall is designated at 33.

I claim:

1. In a pressurized device for uncorking bottles: a tubular holder defining a bore and a base; the base having a tube receiving socket, said socket defining a shoulder within said base, a container enclosing a pressurized non-medicated non-toxic gas; the container being slidably disposed in the bore of the holder, and being movable toward and away from the base; a tubular needle having an upper end anchored to the base; the needle projecting below the base, and being made to be pushed through a cork in a bottle containing liquid; the container being provided with an outlet tube for discharge of the gas; the outlet tube removably projecting into the socket of the base, the needle communicating with the outlet tube to receive gas therefrom, and being made to deliver the gas to the interior of the bottle to raise the cork relative to the bottle; the outlet tube being slidable inwardly and outwardly relative to the container; a normally closed dispensing valve means sealing the outlet tube against escape-ment of the gas from the container; the valve means being arranged to be unseated, when the outlet tube is moved inwardly relative to the container; the lower end of said

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outlet tube bearing against said shoulder, when the container is pushed inwardly of the holder to a predetermined position; said shoulder urging said outlet tube inwardly of the container to unseat the valve means, when the container is pushed further into the holder beyond said predetermined position; the container being guided by the holder for straight axial movement within the bore of said holder whereby the outlet tube will not be bent laterally during reciprocating movements of the container, said container and said outlet tube being withdrawable as a unit from the holder, whereby a replacement container and its outlet tube may be inserted into the holder.

2. The pressurized device for uncorking bottles, as set forth in claim 1; and in which the container has an upper end projecting above a top of the tubular holder so as to be exposed for being depressed by an operator so as to open the valve means.

3. In a pressurized device for uncorking bottles: a tubular holder defining a bore and a base; a container enclosing a pressurized non-medicated non-toxic gas; an outlet tube mounted on and carried by an end of said container, a dispensing valve mounted in said end of the container and operatively associated with said outlet tube for sealing said outlet tube against the escapement of gas from the container, said container and outlet tube and dispensing valve positioned as a unit within said holder and substantially enclosed by said holder with said outlet tube engaging said base, said container being guided by the holder for axial movement within the bore of said holder toward and away from said base, a tubular needle having an upper end anchored to the base; the needle projecting below the base, and being made to be pushed through a cork in a bottle containing liquid; the needle communicating with the outlet tube to receive gas therefrom, and being made to deliver the gas to the interior of the bottle below the cork to raise the cork relative to the bottle; said outlet tube engaging said base upon the inward movement of the container within the holder to unseat said dispensing valve for discharge of the gas, and means associated with said outlet tube for closing said valve when the container is moved in the opposite direction; the container having an upper end projecting above the top of the tubular holder so as to be exposed for being depressed by an operator so as to open the dispensing valve means.

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