

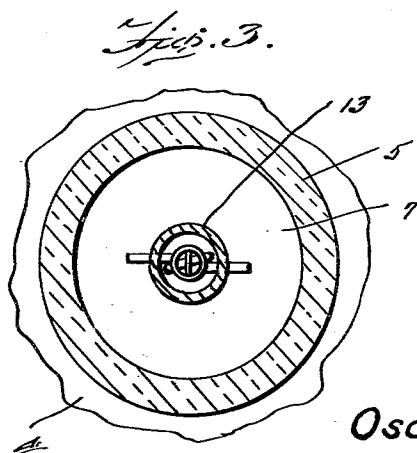
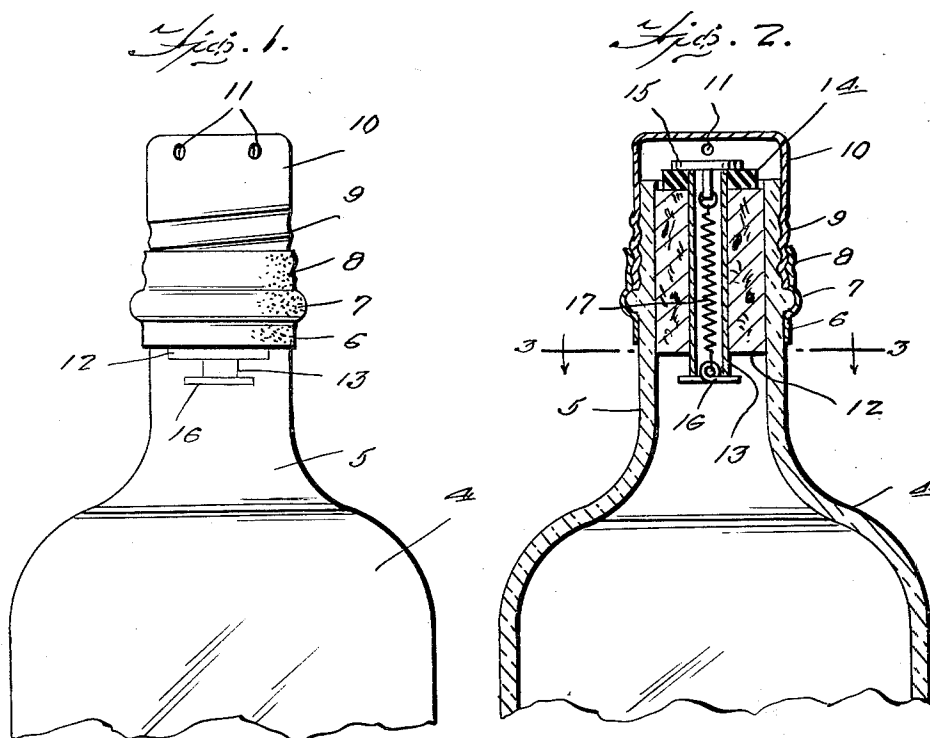
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O. N. LEUTZ

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AUTOMATIC GAS PRESSURE RELIEF BOTTLE CAP

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Inventor

Oscar N. Leutz

By

Clarence A. O'Brien
and Harvey B. Jacobson
Attorneys

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AUTOMATIC GAS PRESSURE RELIEF
BOTTLE CAP

Oscar N. Leutz, Port Clinton, Ohio

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2 Claims. (Cl. 215—56)

1

This invention relates to bottle closures and particularly caps and has more specific reference to a novel and improved structure characterized by a safety pressure relief valve, said structure being especially, but not necessarily, adapted for use on bottles and analogous containers for gas producing unfermented wines and the like.

More specifically, the preferred embodiment of the invention is characterized by a suitably vented closing and protecting cap and an associated automatic pressure actuated valve arrangement, the latter being normally closed but being momentarily opened to relieve excessive gas pressures generated within the interior of the bottle, whereby to at all times preserve the contents of the bottle while overcoming the likelihood of its bursting from abnormal or excessive internally developed pressure.

In carrying out the principles of the invention, I have evolved and produced a simple and expedient construction which is substantially fool-proof, highly effective, capable of accomplishing desired results and otherwise aptly fitted for the intended purposes.

Other features and advantages will become more readily apparent from the following description and the accompanying illustrative drawing.

In the drawing, wherein like numerals are employed to designate like parts throughout the same—

Figure 1 is a side elevational view of a portion of a conventional wine or equivalent bottle showing the improved valved closing cap, constructed in accordance with the principles of this invention, attached to the discharge neck.

Figure 2 is a central longitudinal sectional and elevational view.

Figure 3 is an enlarged horizontal section taken approximately on the plane of the line 3—3 of Figure 2, looking in the direction of the arrows.

The body of the bottle is denoted by the numeral 4 and the screw-threaded and beaded neck is indicated at 5. There is an annular collar 6 surrounding the exterior of the neck, this having a channel 7 anchored on the projecting bead. The upper flange of the collar, that is, the flange projecting upwardly and outwardly beyond the bead is screw-threaded to serve as a coupling lip 8. This serves to coact with a screw-threaded rim 9 of the hood-type closing cap 10. This cap is so proportioned and constructed that the crown portion thereof projects outwardly in spaced relation beyond the mouth or lip of the pouring neck, this as shown in Figure 2. This projecting

2

portion has its side walls provided with gas relief vents or ports 11.

In the form of the invention shown in Figure 2, a cork 12 is fitted into the bottle neck, this being provided with a bore to accommodate the pressure release tube or sleeve 13. This tube has its opposite ends projecting beyond corresponding ends of the cork. The upper protruding end of the tube is surrounded by a packing ring 14. This upper end serves as a seat for a valve disk 15. The lower end projects into the interior of the bottle, or rather the bottle neck, and serves as a suitable anchoring seat for a spring retention element 16. This is a cross-pin and is preferably formed with a central eye to function appropriately for attachment of the lower end of the coiled spring 17 thereto. The coiled spring has its upper end connected to the depending shank on the valving disk 15. The spring is of a predetermined tension, this to enable the valve means to function when an abnormal or excessive predetermined gas pressure is built up in the interior of the bottle.

The uses and main advantages of the invention are as follows:

First, to preserve the contents in any container (providing the container has been thoroughly washed and sterilized) if said contents is subject to fermentation. On so many occasions the contents of a container gets sour or, as we sometimes say, "spoils." Now this is most always due to the fact that, through neglect or some unforeseen thing, the air comes in contact with the contents in the container and this is the cause of the souring or spoiling.

Second, when a container is sealed tight and its contents is subject to fermentation and when the contents begins to ferment a gas is formed by the process of fermentation and if there is no way of escape for this gas it gradually builds up a pressure so strong that it bursts the container and the contents are lost; or, should it blow the cork or bung before bursting the container, then due to the pressure in the container the contents at times sprays out of the opening (which had been sealed by the cork or bung) giving a person a good impression of a spraying hose or fountain and this too results in a loss, and again if the above just mentioned should happen and if attention is not given to the remainder of the contents (should there be any left) at once and if the air be allowed to come in contact with the remainder in the container then the same condition would exist as mentioned above, namely, sour or spoil.

3

My automatic gas release cap is an excellent solution for this problem, and this is the principle under which this automatic gas release cap functions.

After the liquid which is subject to fermentation has been put into a clean sterilized container, be sure and not fill the container full but leave a small air space and then equip this container with this automatic gas release cap and then forget about it. When the contents in the container starts to ferment and as the gas pressure starts to accumulate (due to fermentation) the gas will also accumulate in the tube of this device and when the gas pressure in the container becomes greater than the tension on the coil spring, the gas in the tube will automatically lift the valve disc at the top of the tube and escape and when the gas pressure in the container falls below the tension of the coil spring instantaneously the coil spring pulls the valve disc down and, therefore, seals the vent through which the gas escaped, thus allowing no air into the container for as long as the gas is escaping due to inward pressure, no air can enter into the container and this same procedure is carried out during the entire fermenting period. And at the close of the fermenting period the contents is automatically sealed and remains sealed as long as this automatic gas release cap is not molested or disturbed.

The material and size of parts used in the construction of this device are optional but it is advisable to use material that will not rust or corrode, and as to the size of the parts, they must be made in proportion to the size of the tube, but the size of the tube is also optional and it is also advisable that the tube be of such size as will be best adapted to the container in which it is to be inserted.

It is thought that persons skilled in the art to which the invention relates will be able to obtain a clear understanding of the invention after considering the description in connection with the drawing. Therefore, a more lengthy description is regarded as unnecessary.

Minor changes in the shape, size and arrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired.

4

Having described the invention, what is claimed as new is:

1. A wine bottle having a neck, a cork fitting tightly in said neck and formed with a longitudinal bore, a cap fitting about said neck and having an upper portion projecting upwardly from the neck and formed with a vented head at its upper end, an open-ended tube extending longitudinally through the bore of said cork and projecting beyond inner and outer ends of the cork, a packing disk fitting tightly about the projecting outer end portion of said tube and bearing against the outer end of said cork, a coil spring in said tube, a valve disc fitting against the outer end of said tube and the outer face of the packing and having an eye extending into the tube, and an anchoring element for the inner end of said spring formed from a strand of stiff wire bent to form an eye extending into the inner end of said tube and engaged with the inner end of said spring and arms extending in opposite directions from the eye and bearing against the inner end of the tube at opposite sides thereof.

2. As a new article of manufacture and as a component part of an automatic safety gas pressure relief means for wine bottles, a cork adapted to be inserted and lodged firmly in the neck of a wine bottle, said cork having a central bore formed therethrough and said bore opening through opposite ends in order to function as a passage between the container portion of the bottle and a special vented closing cap on the exterior of the neck of the bottle, a rigid open-ended tube fitted into said bore, said tube constituting a lining and valve mount, opposite ends of the tube extending beyond opposite ends of the cork, a packing ring surrounding one projecting end of the tube and resting firmly against the adjacent coacting end of said cork, said packing ring forming with the projecting end of the tube a valve seat, a valve disk simultaneously engaging the packing ring and tube, a coiled spring mounted in said tube and connected at one end to said valve disk and normally holding the disk closed under certain predetermined pressure resisting conditions, a spring anchoring pin, said spring being connected to said pin and said pin bridging the opposite projecting end of the tube.

OSCAR N. LEUTZ.