

Aug. 4, 1936.

M. DORMAN  
NONREFILLABLE BOTTLE  
Filed Sept. 18, 1934

2,050,168

Fig. 1.

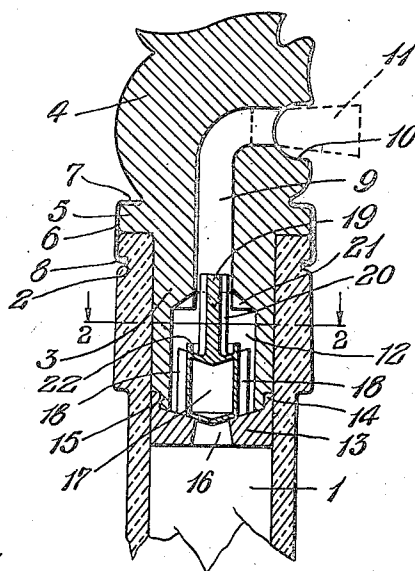


Fig. 2.

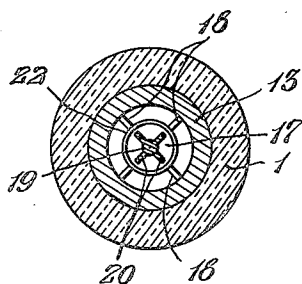
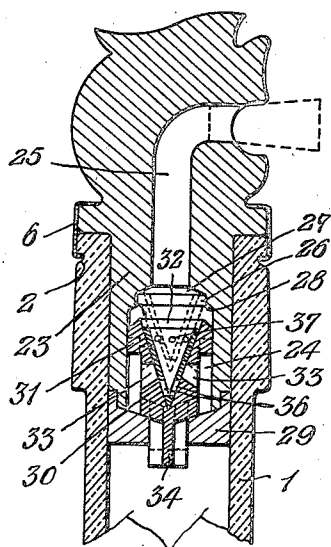


Fig. 3.



By

Inventor  
Morris Dorman,

E. M. Bond  
Attorney

## UNITED STATES PATENT OFFICE

2,050,168

## NONREFILLABLE BOTTLE

Morris Dorman, Baltimore, Md.

Application September 18, 1934, Serial No. 744,567

3 Claims. (Cl. 215—25)

This invention relates to a non-refillable bottle and one object of the invention is to provide a stopper adapted to be firmly secured in the neck of a bottle, the stopper being of such construction that while liquid in the bottle may be freely poured out through the stopper and bottle can not be refilled by pouring liquid inwardly through the passage of the stopper.

Another object of the invention is to provide a stopper having an improved valve member slidably mounted in a chamber formed in the stopper for movement into and out of position to close a passage at the inner end of the stopper and to so form the stopper that while the valve can be easily inserted before applying the stopper, it will be impossible to remove the valve or hold it in an open position when attempting to pour liquid through the stopper into the bottle.

Another object of the invention is to provide a device of this character, which is simple in construction and not liable to get out of order.

The invention is illustrated in the accompanying drawing wherein

Fig. 1 is a sectional view taken vertically through a portion of a bottle neck having a stopper of the improved construction applied thereto.

Fig. 2 is a sectional view taken along the line 2—2 of Figure 1.

Fig. 3 is a view similar to Figure 1 showing a modified form of stopper applied to the bottle.

The bottle to which the improved stopper is applied may be of any size desired and has a neck 1 formed with an externally thickened outer or upper end portion having a circumferentially extending groove 2 near its upper end. The stopper 3 may be formed of metal or any other desired material and has an enlarged outer or upper end portion 4 which may be of plain or fanciful design, and has a circumferentially extending flange 5 at its lower end bearing against the neck of the bottle when the stopper is thrust into the bottle neck. The flange also serves as a shoulder for engagement by a securing band 6 which extends about the collar and upper portion of the bottle neck and has upper and lower flanges 7 and 8 for engagement with the upper face of the flange and the upper wall of the groove 2. By this arrangement, the stopper will be securely held in place and prevented from being removed in order to refill the bottle.

In order that liquid may flow from the bottle through the stopper, there has been provided a passage 9 which extends axially through the stopper and has its upper end portion curved to extend transversely and open through a side of the upper end of the stopper. If the upper portion of the stopper is of fanciful design, it may have the form of an animal's head, in which case the upper horizontally extending portion of the passage 9 will open through the mouth 10 and a

cork 11 will be inserted through this mouth to close the upper end of the passage as indicated by dotted lines. When the cork is removed, the contents of the bottle will be discharged through the mouth by tilting the bottle in the usual manner to cause the liquid to flow through the passage 9.

The lower portion of the stopper is formed with a chamber 12 from which the passage 9 leads and in order to form a bottom for the chamber there has been provided a cap 13 having a marginal flange 14 which fits tightly about the reduced lower end 15 of the stopper and is firmly held thereon by frictional grip or in any other desired manner. At its center the cap is formed with an opening 16 constituting a port through which liquid flows from the bottle neck into the chamber for passage through the chamber and out through the passage 9 when the bottle is tilted towards an inverted position.

Flow of liquid through the stopper is to be controlled and in order to be so there has been provided a valve 17 having a hollow body which is cylindrical in shape and formed with radiating ribs 18 of sufficient width to have their edges in contact with walls of the chamber 12 when the valve is in place, and guide sliding movement of the valve from a position in which it rests upon the cap or bottom 13 in closing relation to the port 16 to a position at the upper end of the chamber to permit flow of liquid from the bottle. The stem 19 extends upwardly from the body of the valve into the passage 9 and carries vanes or ribs 20 to bear against walls of the passage and retain the stem axially of the passage, as well as to provide space about the stem for passage of the liquid. It is essential that liquid be permitted to flow from the chamber 12 into the passage 9 when the bottle is tilted and therefore the portions of the upper wall of the chamber have been serrated about the lower end of the passage 9 as shown at 21 and the valve has the upper end of its body formed with an annular flange 22 to engage the upper wall of the chamber and to prevent the valve body from moving upwardly to a position in which it can block flow of liquid through the serrations 21.

When this stopper is inserted into the neck of a filled bottle and the cork 11 is in place, contents of the bottle will be protected, and as the stopper is held in place by the band 6, it cannot be removed without destroying the band and thus indicating that the stopper has been tampered with. In order to dispense liquid from the bottle, the cork is withdrawn and the bottle tilted in the usual manner. When the bottle is so tilted, the valve slides towards the upper end of the chamber and liquid flows from the bottle into the chamber and around the valve body out through the serrations 21 and through the passage 60

9 into a glass or other receptacle placed under the side extension of the passage. When the bottle is again set in an upright position the valve slides back to the lower end of the chamber and the lower end of the valve body rests upon the bottom of the chamber in closing relation to the port 16. Therefore if it is attempted to refill the bottle by pouring liquid in through the passage, 9, only the chamber and the passage can be filled and refilling of the bottle will be prevented. It will thus be seen that the bottle can not be refilled after the original contents have been dispensed and also diluting of the original contents will be prevented.

15 In the embodiment of the invention illustrated in Figure 3, the stopper 23 is similar in its general construction to that shown in Figure 1 except that the chamber 24 from which the passage 25 leads has its upper portion reduced in diameter to form a recess 26 and valve seats 27 and 28. A cap 29 corresponding to the cap 13 forms a bottom for the chamber and has a center opening or port through which liquid flows from the bottle neck into the chamber. The valve 30, which controls flow of liquid through the chamber, has an enlarged upper end portion 31, the margins of which contact with the walls of the chamber and this valve is formed with an axially extending passage or recess 32 which is conical in shape and tapers towards the lower end of the valve body and in spaced relation to its lower end, is formed with side ports 33 through which liquid flows from the valve chamber into the passage 32 in order to pass the valve when the bottle is inverted. The stem 34 of the valve extends downwardly from the valve body through the port of the cap 29 and is formed with radiating vanes so that liquid may flow through the port about the stem into the chamber. In order to prevent liquid from flowing downwardly through the passage 32 and ports 33, there has been provided a liner or auxiliary valve member 35 which is conical in shape and fits snugly into the passage 32 and has close fitting engagement with walls thereof to block the openings 33 when the bottle is upright. This liner has openings 36 formed in its walls adjacent its lower end which are below the openings 33 when the bottle is upright. When the bottle is tilted the valve rests against the seat 28 and the liner drops into the recess to bear against the seat 27 as indicated by dotted lines, and liquid can then flow through the ports 33 into the passage 32 and through the ports 36 to the passage 25 formed through the stopper. Additional openings 37 may be formed near the upper ends of the liner so that when the bottle is tilted to an inverted position, liquid may completely drain from the chamber 24. Upon returning the bottle to an upright position the valve and liner will return to the position shown in full lines in Figure 3, and if it is attempted to refill the bottle by pouring liquid through the passage 25, the liner will prevent the liquid from passing through the ports 33. Any liquid in the lower portion of the chamber will be held therein by the lower end of the valve body closing the port in the bottom 29.

Having thus described the invention what is claimed is:

1. In a non-refillable bottle, a stopper adapted to be fitted into a bottle neck, a chamber being formed in the lower portion of the stopper and a passage leading upwardly from the chamber,

a cap at the lower end of the stopper forming a bottom for the chamber and being formed with a port, said stopper being also formed with a passage leading from the upper end of said chamber, a valve slidable in said chamber from a lowered position in closing relation to said port to a raised position, said valve having a body formed with radial ribs engaging walls of the chamber and at its upper end having an annular flange for engaging the upper wall of the chamber about the passage of the stopper when inverted, portions of the upper wall about the passage being serrated to permit flow of liquid past the valve, and a stem for the valve slidable in the passage and formed with guiding ribs.

2. In a non-refillable bottle, a stopper adapted to be fitted into a bottle neck, a chamber being formed in the lower portion of said stopper and the stopper being also formed with a passage leading from the top of the chamber, a cap at the lower end of said stopper constituting a bottom for the chamber and being formed with a port, the upper end portion of the chamber being reduced in diameter to form a recess and valve seats about the lower end of the passage, a valve in said chamber having a body formed with an enlarged upper end portion slidably engaging walls of the chamber, the valve being formed with a recess leading from its upper end and with side openings adjacent the lower end of the recess communicating with the lower portion of the chamber, a stem for said valve slidably received in said port and formed with side ribs slidably engaging walls of the port whereby liquid may flow through the port and chamber and through the valve and passage when the bottle is inverted, and a liner for the recess loosely mounted therein to bear against the walls thereof and close the side openings when the bottle is in an upright position, the liner having side openings disposed below the side openings of the valve when the bottle is upright.

3. In a non-refillable bottle, a stopper adapted to be anchored to the neck of the bottle and being formed with a reduced lower portion for extension into the bottle neck, said lower portion being formed with an inner end part of reduced outer diameter and having its remaining part of an outer diameter to snugly fit the inner face of the neck of the bottle, said stopper being peripherally shouldered at the outer end of said lower portion for seating on the edge of the neck of the bottle, said lower portion being formed with a vertical valve chamber having an open bottom, said stopper being provided with an angle shaped outlet passage opening at its inner end into said chamber through the top wall of the latter and opening at its outer end at the side of the stopper adjacent the outer end of the latter, a cap abutting against the inner ends of the said parts of said lower portion and encompassing the said inner part of the said lower portion, said cap extending across the bottom of the said chamber and having an axially arranged port, establishing communication between said chamber and the inner portion of the neck of the bottle, and a valve slidably mounted in said chamber for opening and closing said port, said cap being of an outer diameter to snugly fit the inner face of the neck of the bottle.

MORRIS DORMAN.