

No. 856,902.

PATENTED JUNE 11, 1907.

G. B. OKEY.
NON-REFILLABLE BOTTLE STOPPER.
APPLICATION FILED MAR. 22, 1907.

Fig. 1.

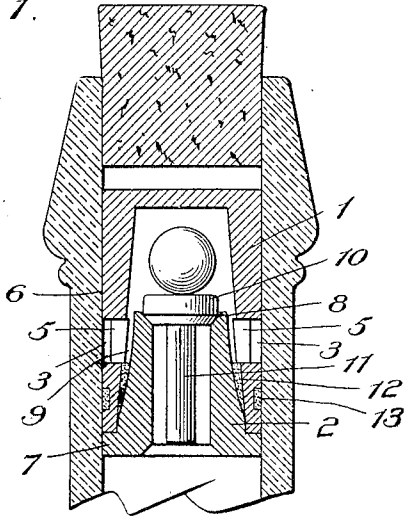


Fig. 2.

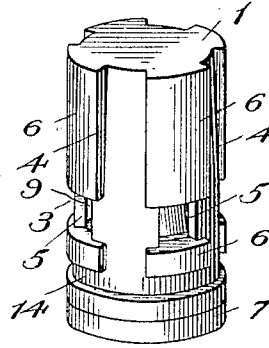


Fig. 3.

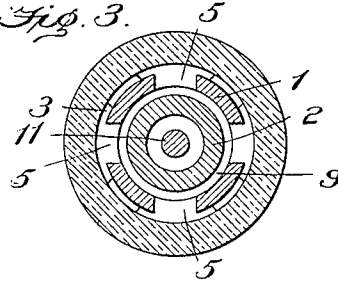


Fig. 4.

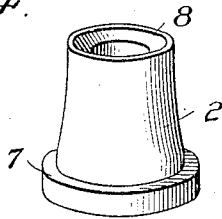


Fig. 5.

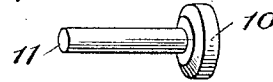


Fig. 6.

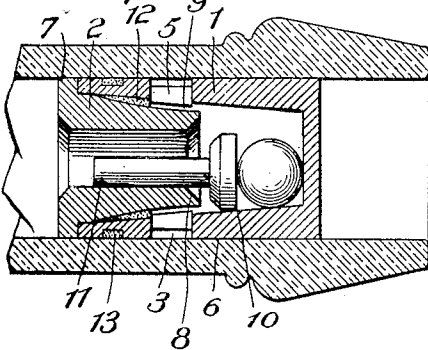
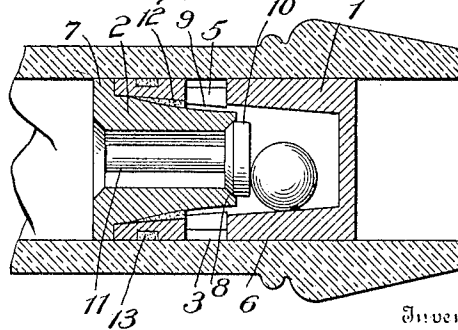


Fig. 7.



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UNITED STATES PATENT OFFICE.

GEORGE B. OKEY, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF FOUR-NINTHS
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NON-REFILLABLE-BOTTLE STOPPER.

No. 856,902.

Specification of Letters Patent.

Patented June 11, 1907.

Application filed March 22, 1907. Serial No. 363,908.

To all whom it may concern:

Be it known that I, GEORGE B. OKEY, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Non-Refillable-Bottle Stoppers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

I have produced a stopper for bottles adapted to prevent refilling and in the claim appended hereto I will point out the novel construction whereby, when the stopper is secured, the bottle can neither be refilled nor access had to its valved member and no special construction of bottle is required for the stopper.

In the accompanying drawings: Figure 1 shows the neck portion of a bottle having my improved stopper to prevent refilling shown in section. Fig. 2 is a view in perspective of the stopper complete as an article of manufacture. Fig. 3 is a horizontal section of the same taken through the exit openings. Fig. 4 is the valve seating member of the stopper. Fig. 5 is the float-valve. Fig. 6 shows in section so much of the bottle laid on its side with the valve open in illustration of an attempt to refill it. Fig. 7 is an identical view showing the valve in the position having been floated and closed by the inflow to prevent re-filling.

The stopper consists of two parts the body 1 adapted to be driven into the mouth of the bottle and a valve seating part 2, adapted to be secured and inclosed within the lower end of the stopper. The body is hollow and closed at its upper end and is formed with a horizontal circumferential channel 3, preferably below the middle of the length of the stopper and intersected by a plurality of vertical wall channels 4, which open at the outer end of the stopper. In the horizontal channel are openings 5, not in line with the vertical channels so that the stopper fitting walls 6, are between the vertical channels and the upper edges of the openings and below the openings.

The valve seating part is tubular open at

both ends and formed with a circumferential shoulder 7, at its lower end with its valve seating part extending up within the body and terminating at its upper inner end in a flaring valve-seat 8, while its shouldered end fits and closes the open end of the stopper. The valve seating part extends above the wall openings and by its form which is preferably conical leaves an annular space 9, between it and the inner walls of the stopper by which communication is made with the external exit wall channels, the interior of the stopper and the hollow valve seating part. A valve 10, having a stem 11, is movable within the valve seating part the end of which forms the valve seat, while the stem forms a guide for seating the valve.

The tubular valve-seating part is secured within the stopper preferably by suitable cementing 12, at its end shoulder and within the space between the walls of the stopper and of the valve seating part. The stopper is sealed in the neck of the filled bottle preferably by cementing 13, applied in a circumferential groove 14, at the inner or lower end of the stopper and the valve when seated seals the stopper.

While the valve freely opens when the bottle is tipped to allow the discharge of the contents through the openings and the wall channels, the valve cannot be opened and held open by external means to allow the re-filling of the bottle because there is no means of access to the valve as it is impossible for an instrument to reach the valve through the circumferential vertical wall channels and the discharge openings because the openings are out of line with the vertical wall channels and the valve is above the openings. For aiding in closing the valve a ball is provided in the hollow of the stopper so that it rests and rolls on the head of the valve and serves to start it in closing when lifting the bottle from a horizontal to a vertical position.

I have illustrated in Fig. 6, the position of the bottle in an attempt to refill it when laid on its side in the liquid. The inflow of the liquid through the stopper channels which opens at the outer end of the stopper, will pass into the horizontal intersecting

channel and from thence through the openings into the hollow of the stopper. In this position of the bottle it will be noted the valve is caused to open by sliding out of its conical seat with its stem resting on the inner wall of the valve forming part, and its head resting on the inner wall of the section inclosing the valve, and if maintained in such position would allow the bottle to be re-filled by the liquid running in under the valve and through the valve-seating shell. This however, is prevented by the inflow of the liquid into the hollow of the stopper causing the valve thereby to be raised and is then forced to its seat and prevents any inflow into the bottle as shown in Fig. 7. In this way the valve is caused to seat itself being controlled in such seating by the action of its stem within the seating shell. If an attempt be made to re-fill the bottle by fluid under pressure it will, on entering the hollow of the stopper, drive the valve to its seat and prevent the re-filling of the bottle.

The several parts of the stopper may be molded of any suitable material that will allow the valve to have a close joint seating, such as glass, wood-pulp or porcelain; and it will be noted that the play of the ball is only sufficient to allow the valve to be opened for the free discharge of the contents of the bottle into the hollow of the stopper, out through its openings into and out of the stopper passages formed by the circumferential channels of the stopper. The ball serves as a stop to limit the outward movement of the valve the stem of which it will be noted does not have a close fitting guide but is free to allow it to have a lateral movement when the bottle is placed in horizontal position and thereby cause the valve to automatically assume a position that will cause it to be raised and seated by the inflow of the liquid to prevent it re-filling the bottle.

It is important to note that the two sections of the stopper are secured together by cement so that it will be complete as an article of manufacture with the valve seating section inclosed within the stopper section with the valve and its controlling ball free to move to allow the exit of the contents of the bottle when the ordinary cork stopper is removed. In cementing the two sections together the shoulder of the valve seating shell serves to limit its insertion into the inclosing section and to close its inner end with the valve seat extended above the openings in the inclosing section, so that the non-re-fillable stopper can be forced in the bottle the same as the ordinary cork stopper. Of course the valve and its controlling ball are properly placed in the main stopper section before the valve seating shell is cemented in place.

I claim:

1. A stopper for non re-fillable bottles comprising an interior tubular section having a circumferential base rim, and terminating at its upper end in a valve-seat, an upper hollow section closed at its top, supported upon the circumferential base rim and having a plurality of circumferential openings, a circumferential recess intersecting said openings and channels leading from said recess to the closed end, a cement filling between the inner walls of the top section and the outer walls of the valve section to close the lower end of the top section and unite them in fixed relation as a single stopper, and a float-valve within the chamber of the top section adapted to control the valve seat.

2. A stopper for non re-fillable bottles comprising an interior tubular section terminating at its upper end in a valve-seat, an upper hollow section closed at its top and having a plurality of circumferential openings and recesses intersecting said openings and channels leading from said recess to the closed end, and a cement filling around the inner walls of the valve section to close the lower end of the top section and unite them in fixed relation as a single stopper, and a float valve within the chamber of the top section adapted to control the valve-seat, the valve-seat of the said valve-section terminating above the circumferential openings in the top section whereby to support the valve above said openings for the purpose stated.

3. A stopper for non re-fillable bottles comprising an interior tubular section terminating at its upper end in a valve-seat, an upper hollow section closed at its upper end and having a plurality of circumferential openings and channels leading therefrom between said openings to the closed end, a float-valve within the chamber of the top section adapted to control said valve-seat, means for closing the lower end of the top section and for uniting the two sections in fixed relation as a single stopper, and a float valve within the chamber of the top section adapted to control the valve-seat, said valve-seat terminating above the circumferential openings in the top section whereby access to the valve through said openings is prevented.

4. A stopper for a non re-fillable bottle and in combination a base tubular section terminating at its upper end in a valve-seat, an upper hollow section closed at its upper end and having a plurality of circumferential openings, and channels leading therefrom between said openings to the closed end, a float-valve within the chamber of the top section adapted to control said valve-seat, means for closing the lower end of the top section and for uniting the two sections in fixed relation as a single stopper, a float-valve within the

chamber of the top section adapted to control the valve-seat, and a spherical body freely movable upon the head of said valve between it and the closed head of the top section, said valve being above the circumferential openings and thereby rendered inaccessible through said openings.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE B. OKEY.

Witnesses:

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G. W. DOOLITTLE.