

(No Model.)

A. D. COLE.

ATTACHMENT FOR PREVENTING REFILLING OF BOTTLES.

No. 571,968.

Patented Nov. 24, 1896.

Fig. 1.

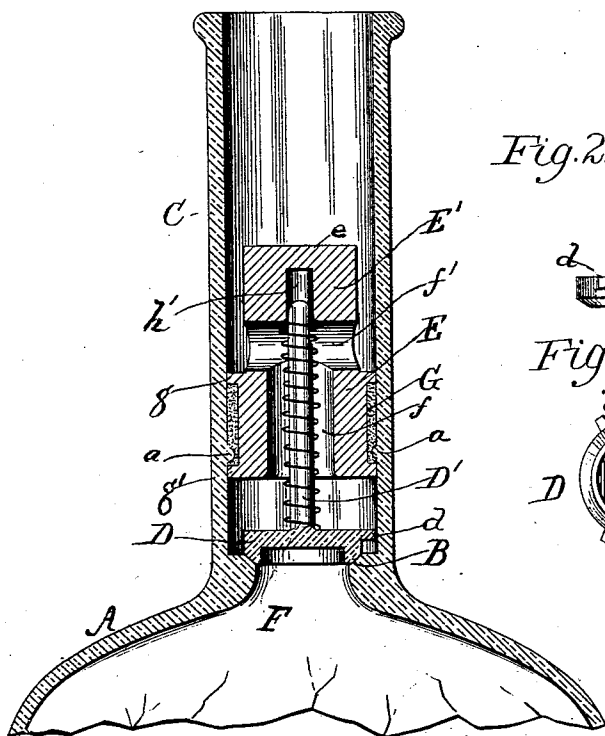


Fig. 2.

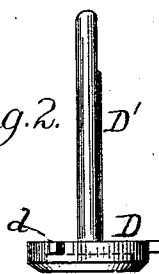


Fig. 4.

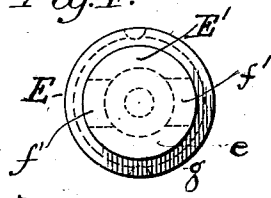


Fig. 3.

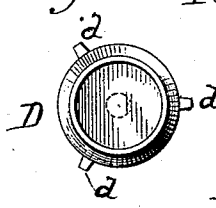


Fig. 5.

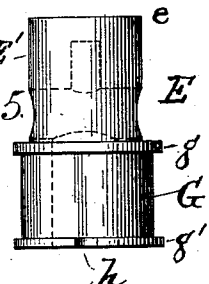


Fig. 6.

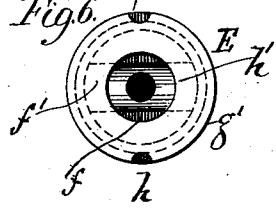
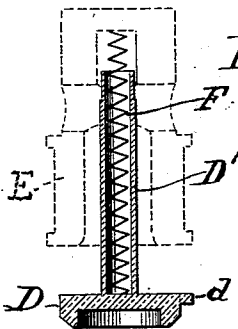


Fig. 7.



Witnesses:

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UNITED STATES PATENT OFFICE.

ANSON D. COLE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO BARCLAY S. SMITH, OF SAME PLACE.

ATTACHMENT FOR PREVENTING REFILLING OF BOTTLES.

SPECIFICATION forming part of Letters Patent No. 571,968, dated November 24, 1896.

Application filed May 26, 1896. Serial No. 593,148. (No model.)

To all whom it may concern:

Be it known that I, ANSON D. COLE, a citizen of the United States, residing in Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Attachments for Preventing Refilling of Bottles; 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.

My invention relates to certain improvements, as hereinafter claimed, in that class of attachments for bottles in which valves are employed which admit of emptying the bottles, but prevent the refilling thereof. My application Serial No. 589,495, filed April 29, 1896, shows an attachment of this class comprising certain features to which my present improvements are especially applicable.

In the accompanying drawings, Figure 1 is a central longitudinal section showing a portion of a bottle with my improvements applied thereto. Fig. 2 is a view in elevation of the valve, and Fig. 3 a bottom view thereof. Figs. 4, 5, and 6 show, respectively, a top view, an elevation, and a bottom view of the valve guard or protector. Fig. 7 is a view representing in vertical section a modification of the valve with the valve-protector in dotted lines.

The bottle A is provided with a valve-seat B at the lower end of its neck C, and the neck has inward projections or lugs *a* and is of a length adapting it to receive an ordinary cork above the valve-protector E, as in my said prior application. The valve D, together with its stem D', used in accordance with my present invention is of suitable non-corrosive material—glass, for instance—and the valve is centered and properly guided in its movements toward and away from its seat by being laterally shouldered or provided with guide-lugs *d*, radiating as shown, so as to approach close to the inner surface of the bottle-neck. The valve-stem projects from the solid or disk-like upper surface of the valve centrally thereof and is cut away at one side or reduced in lateral dimension at and near its upper end, which is tapered or rounded off, as plainly shown.

The valve-protector E, preferably of porcelain, is of integral construction or made complete in one piece and is in general structure substantially the same as in my aforesaid application, being formed with a closed top *e*, a central longitudinal passage *f* extending from beneath the closed top to its lower end and communicating with transverse openings or passages *f'*, passing through the upper portion E' of the protector, which is of less diameter than the lower or body portion, which has the upper and lower shoulders or flanges *g g'*, with the cement-holding groove or recess G between them. The lower flange or shoulder *g'* is provided with notches *h*, corresponding in number with the lugs *a* on the bottle-neck, and the upper portion of the protector is reduced to a diameter less than that of the body portion to leave a space for outflow of the bottle's contents, as before.

In accordance with my present invention the longitudinal passage *f* is of greater diameter than before, and the upper portion of the valve-protector is of increased length and provided with a round hole or cavity *h'* centrally over the longitudinal passage and extending from the cross-passages to near the top surface of the protector, this cavity serving as a loose bearing or socket into which the upper end of the valve-stem projects when the parts are in position, with the valve-stem passing centrally through the longitudinal passage of the protector. The valve-stem is provided with a light coiled spring F, which bears at its opposite ends against the valve and the upper portion of the protector at the outlet or mouth of the cavity *h'*. This valve-stem spring is made of suitable non-corrosive material, "phosphor-bronze" preferred.

In operation, the bottle being filled, the valve with the spring applied to its stem is dropped in place. Plastic cementing material (Portland cement is preferred) is properly applied to the recess G and the protector inserted by the aid of a suitable instrument into the bottle-neck and pushed down so that the notches in the lower flange *g'* register with the lugs on the bottle-neck and allow them to enter the cement-holding recess. The valve-stem acts as a stop to limit downward movement of the protector by coming in con-

fact with the end or top wall of the cavity h' . The protector is then given a partial turn and pulled up until the lugs come in contact with the lower flange of the protector, after which, upon the hardening or setting of the cement, the protector becomes rigidly secured in position. The valve-spring is quite sensitive in operation, being so made that its action or force exerted on the valve is nicely adjusted to adapt it to the performance of its functions, which are to yield and admit of the opening of the valve when the bottle is inverted for pouring out its contents and to close the valve when the spring is relieved from the weight thereof by turning the bottle into upright position or into a horizontal or approximately horizontal position. The spring may readily be so nicely adapted to its work that after turning the bottle-neck downward in position for emptying the spring will completely close the valve shortly before the neck of the bottle is brought to a strictly horizontal position in restoring the bottle to the upright or normal position, the friction between the properly-finished ends of the guide-lugs d of the valve and the smooth bottle-neck amounting practically to nothing.

It will be seen that by the construction shown the valve-stem serves not only as a stop to limit downward movement of the protector in inserting and adjusting it in place, but also checks movement of the valve toward the protector, so as to arrest it in position to prevent its contact with or too close approach to the bottom of the protector. In this way the valve in moving away from its seat is prevented from shutting off outlet of the bottle's contents through the protector.

If preferred, the valve-stem may be made hollow and the spring inclosed within it and protected, as shown by Fig. 7, and obviously the parts of the attachment may be so proportioned, as by increasing the length of the top portion of the protector and suitably lengthening the cavity h' therein, that the protector may be secured in the bottle-neck with the lugs a in contact with the upper instead of the lower flange of the protector. It is also obvious that feet or checks may be employed upon the bottom of the protector or top of the valve to prevent closing of the outlet through the protector by the valve in its movement against the force of its spring.

By rounding off or tapering the upper end of the valve-stem its engagement with or entrance into the socket in the protector is facilitated in event of the failure in any instance of the stem being held in proper vertical position by the guide-lugs of the valve,

and the reduction in lateral dimension of the upper portion of the stem which plays in the socket in the protector guards against the sticking of the stem in the socket and allows free escape of air from the socket as the stem moves therein.

I claim as my invention—

1. The combination with a bottle having the valve-seat formed with its neck, of the valve-protector adapted to be permanently secured in the bottle-neck above the valve-seat and having the body portion, the reduced upper portion, the closed top, the communicating longitudinal and transverse passages and the cavity or socket in its upper portion over its longitudinal passage, the valve beneath the protector having the stem passing through the longitudinal passage of the protector and entering the cavity or socket over it, and the spring carried by the valve-stem and serving to close the valve when relieved of the weight thereof, substantially as and for the purpose set forth.

2. The valve-protector formed complete in one piece having the peripheral recess, the shoulder above said recess, the notched shoulder beneath said recess, the communicating longitudinal and transverse passages, the reduced upper portion, the closed top, and the valve-stem cavity or socket in its upper portion centrally over its longitudinal passage, substantially as and for the purpose set forth.

3. The combination with a bottle having the valve-seat and internally-lugged neck, of the valve-protector of integral construction adapted to be permanently cemented in the bottle-neck above the valve-seat and provided with the recessed or grooved periphery, the notched and unnotched shoulders or flanges, the closed top, the communicating transverse and central longitudinal passages beneath its closed top, and the cavity or socket in its upper portion over its longitudinal passage, the valve beneath the protector having the stem passing through the central longitudinal passage of the protector and entering the cavity or socket over this passage, and the spring carried by the valve-stem and bearing at its opposite ends, respectively, against the valve and the protector at the mouth of the cavity therein entered by the valve-stem, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ANSON D. COLE.

Witnesses:

BARCLAY S. SMITH,
BLANCHE R. DOBBINS.