M. W. PATTEN.
Bottle-Stopper.

No. 226,926. Patented April 27, 1880.

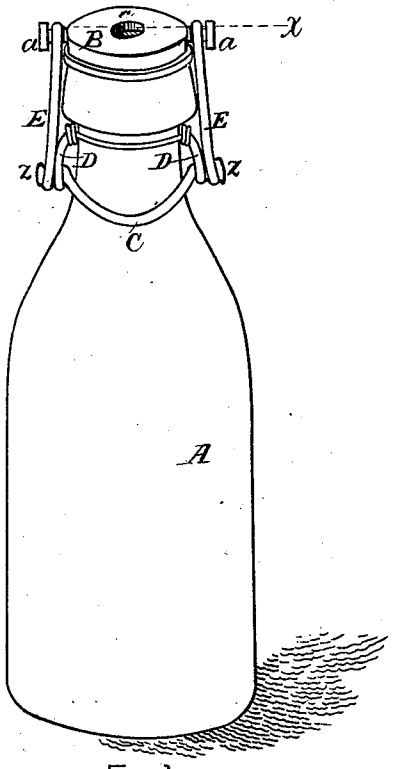

Fig. 1.

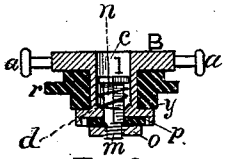

Fig. 2.

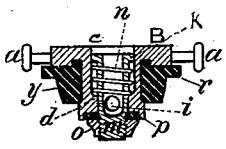

Fig. 3.

Witnesses.
H. L. Raymond
J. B. Braman

Inventor.
Mark W. Patten,
Per C. A. Shaw,
Atty

UNITED STATES PATENT OFFICE.

MARK W. PATTEN, OF SOMERVILLE, MASSACHUSETTS.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 226,926, dated April 27, 1880.

Application filed January 27, 1880.

To all whom it may concern:

Be it known that I, MARK W. PATTEN, of Somerville, county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Bottle-Stoppers, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which my invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an isometrical perspective view, showing the stopper in use. Fig. 2 is a vertical section of a modification of the stopper shown in Fig. 3; Fig. 3, a vertical transverse section of the stopper shown in Fig. 1, taken on the dotted line *x x*.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates principally to that class of bottle-stoppers used with bottles designed for containing soda, lager-beer, and other effervescing liquids; and it consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which a cheaper and more effective device of this character is produced than is now in ordinary use.

In the drawings, A represents the bottle, B the cap or stopper, and C D the levers. The levers are connected together and to the bottle in the usual manner, and provided with side rods or arms, E E, the lower ends of which are jointed to the levers at *z z*, and the upper ends to the laterally-projecting studs *a a* on the cap B.

Through the center of the cap, Fig. 2, there is a vertical perforation, *c*, enlarged or counterbored in its upper section to form the shoulder *d*, and fitted to work therein is a hollow cylinder or slide, *m*, having the lateral port or opening *i*. This cylinder is closed at its lower end, its upper end being open, and provided with an outwardly-projecting annular flange, *k*, beneath which and around the body of the cylinder there is disposed a coiled spring, *n*, resting on the shoulder *d* and pressing upwardly against said flange.

Attached to the lower end of the cylinder there is a nut, *o*, and rubber packing-ring *p*. There is also a rubber packing-ring, *y*, provided with the flange *r*, disposed in an annular groove formed in the body of the cap B, the flange *r* extending outwardly over the top of the bottle when the cap is in position, as shown in Fig. 1.

The bent levers C D and arms E E act conjointly to hold the cap B down firmly, and thus close the bottle when the lever C is depressed, as shown in Fig. 1, but permit the cap to be readily removed from the mouth of the bottle to empty its contents when the lever C is elevated, this operation of the levers, which are in extensive use, being too well understood to require a more explicit description.

In the use of my improvement, the plunger of the bottling-machine being first provided with a suitable attachment having a nozzle and an aperture for the passage of the liquid, the bottle is closed and placed in a proper position in said machine, its cap being arranged as shown in Fig. 1. The plunger of the bottling-machine is then caused to descend, bringing the lower end of the nozzle of the attachment into contact with the upper end of the slide or cylinder *m*, the nozzle continuing in its downward course until the aperture or perforation *i* falls below the lower end of the body of the cap B, the spring *n* being compressed accordingly. The soda, beer, or other fluid with which the bottle is to be filled is now caused, by proper appliances for that purpose, in connection with the bottling-machine, (not shown,) to flow through the aperture and nozzle of the attachment into the upper portion of the slide *m*, (the hole in the nozzle and upper end of the slide registering,) and thence through the perforation or port *i* into the bottle until the same is filled. The nozzle of the attachment is now elevated, relieving the spring *n*, which, by its expansive action against the shoulder *d* and flange *k*, forces the slide upwardly until the port *i* is brought above the lower end of the body of the cap B, and the packing *p* is compressed between the nut *o* and said cap, thus tightly closing the valvular opening to the bottle and confining the contents.

In Fig. 2 the arrangement of parts is substantially the same as in Fig. 3; but instead

of being hollow the slide *m* is solid and has a triangular body and head, as shown, the head *l* serving the same purpose as the flange *k*—viz., to steady and guide the upper end of the slide as it works vertically in the cap, and also as a shoulder against which the upper end of the spring *n* acts in closing the valve, as described. The slide *m*, Fig. 2, having a triangular or three-sided body and head, and working in a round hole in the cap, spaces or ports are thus formed between the slide and the interior of the cap, which spaces take the place of or serve the same purpose as the port *i* in the slide *m*, Fig. 3.

In bottles of this description provided with the levers C D a cork is sometimes employed for closing the same, the cork being secured by the arms E E, which are rigidly united or formed in one piece and extend across the top of the bottle, over the cork, to keep the same in place. On opening bottles stoppered in this manner the corks are usually thrown away, the cost of the corks and the trouble of inserting them being a large item of expense to bottlers.

One design of my invention is to obviate this objection, the cap or stopper being not only permanently attached to the bottle to prevent loss, and otherwise so constructed and arranged as to enable the bottle to be readily opened to discharge its contents, but provided with an automatic or self-closing valve designed to be opened by the bottling-machine, and through which the fluid may be introduced in filling the bottle.

Having thus explained my invention, what I claim is—

1. The combination of the tubular stopper B, provided with outward flanges at each end and an internal shoulder, *d*, near and a valve-seat at its lower end, an annular rubber packing, *y*, disposed between the said flanges of the said stopper and provided with an outward flange, *r*, and an upward flange, which latter extends into a recess or groove in the upper flange of the stopper, the internal valve-slide, *m*, located entirely within the cap, provided with an outward flange at its upper end and a nut, *o*, at its lower end, and an expansive spring, *n*, resting on the internal shoulder, *d*, and pressing upon the outward flange of the slide, and acting automatically to close the latter, substantially as described.

2. The combination of the tubular stopper B, provided with outward flanges at each end, with an annular rubber packing disposed between said flanges, and also provided with an internal shoulder, *d*, near and a valve-seat at its lower end, the internal tubular valve-slide, *m*, located entirely within the cap, provided with an outward flange at its upper end, an opening, *i*, near and a nut, *o*, at its lower end, and an expansive spring, *n*, resting on the internal shoulder, *d*, and pressing upon the flange of the slide and acting automatically to close the latter, substantially as described.

MARK W. PATTEN.

Witnesses:
C. A. SHAW,
H. L. RAYMOND.