No. 826.906. PATENTED JULY 24, 1906.

W. A. STATTMANN.

NON-REFILLABLE BOTTLE.

APPLICATION FILED APR. 16, 1906.

Fig. 1.

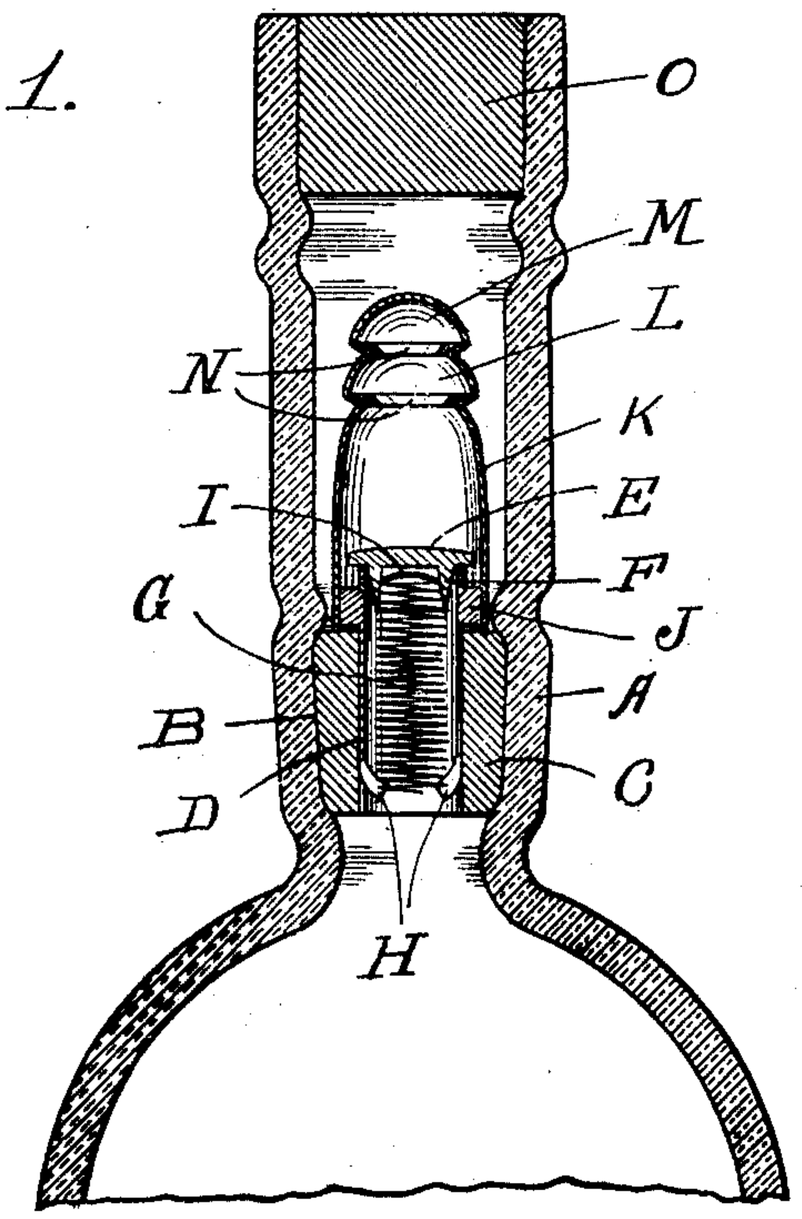
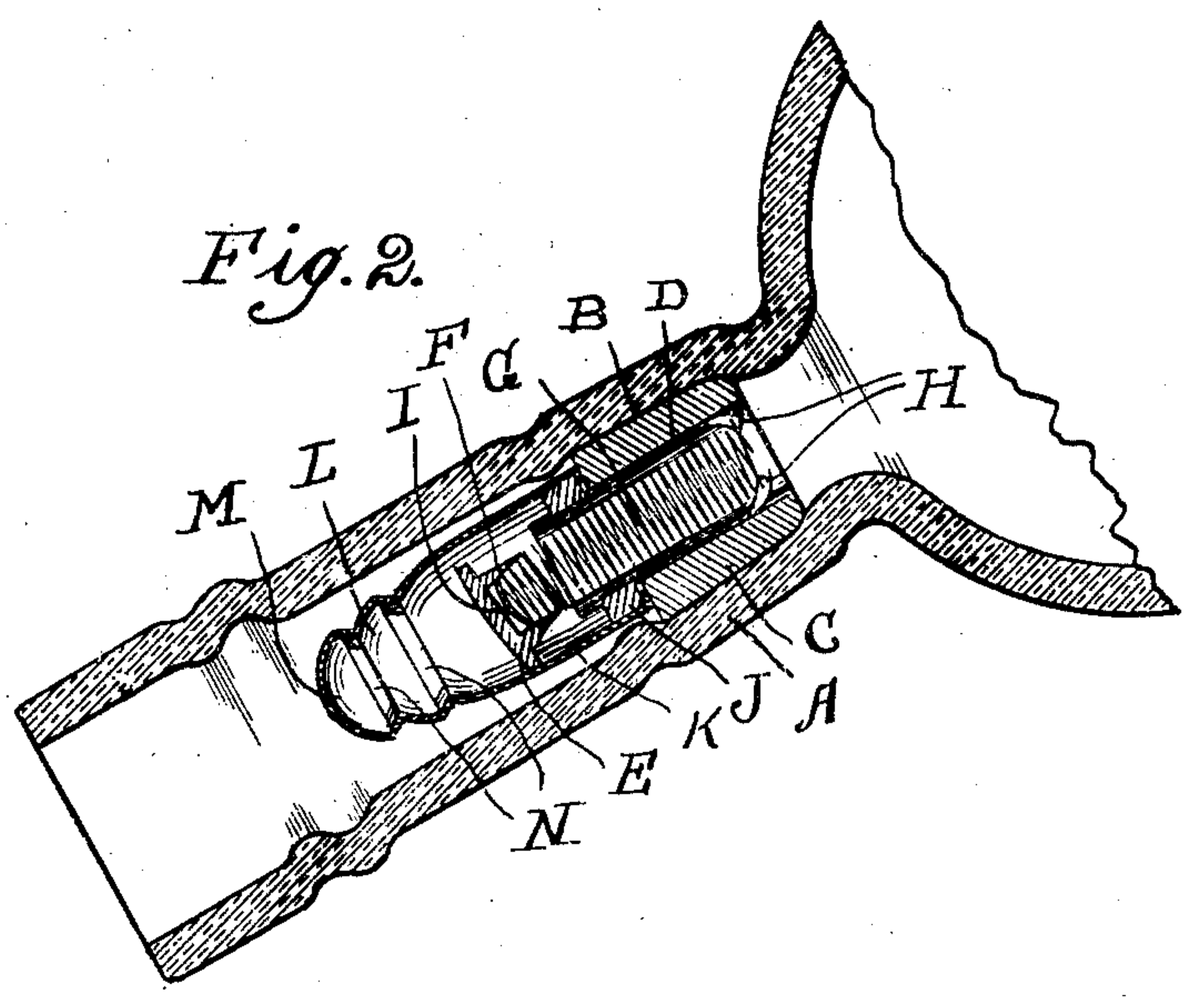


Fig. 2.



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NON-REFILLABLE BOTTLE.

No. 826,906. Specification of Letters Patent. Patented July 24, 1906.

Application filed April 16, 1906. Serial No. 311,848.

To all whom it may concern:

Be it known that I, WALTER A. STATTMANN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Non-Refillable 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 a novel construction in a non-refillable bottle, the object being to provide a device of this character which is simple, efficient, and relatively inexpensive; and it consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a central vertical section of the neck portion of a bottle provided with devices for rendering the same non-refillable constructed in accordance with my invention. Fig. 2 is a similar section showing the bottle canted as in the act of pouring contents therefrom.

My said invention comprises the neck portion A of the bottle provided adjacent the base thereof with an annular recess B in its inner face, in which the cork or other flexible stopper C is adapted to be forced and held. The said stopper C is provided with a central opening in which a tube or sleeve D is received, the upper end of which constitutes a valve-seat upon which the valve E seats. The latter comprises a flat cap or button provided on its lower face with a tapered hollow shank F, the largest diameter of which is substantially equal to the inner diameter of said tube D. The lower edge of said shank F is sharp, and the recess in said shank corresponds in diameter at its mouth substantially with the diameter of a light spiral spring G, secured at one end to said valve E and at its other end to projections H, disposed in the lower end portion of said tube or sleeve D. The said spring is secured to said valve E in any suitable manner, but preferably by means of a cap I, forced into the recess in said shank and firmly held therein by friction. The said sleeve or tube D is provided adjacent its upper end with an annular flange J, over which the lower end of a cap K is adapted to be forced, the extreme lower end of said cap being turned over inwardly to engage the bottom or lower face of said flange J, thereby holding said cap against removal. The lower end portion of said cap K is substantially cylindrical and is of greater diameter than the said sleeve or tube D and likewise than the head of said valve E, the increase in diameter over the latter being, however, relatively slight and is particularly less than the difference in diameter between the said tube or sleeve D and said spring G. The said head of said valve E is relatively heavy, so that in canting the bottle to discharge its contents the tendency of said valve will be to tip in a direction to invert the same. Such inversion is prevented by said spring G, which serves to maintain said valve balanced, so that in its movements from and toward its seat it is held substantially against canting relatively to the said sleeve D and cap K and is guided by the cylindrical wall of the latter. The difference in diameter between the valve and said cylindrical portion of said cap K being less than the difference in diameter between the sleeve or tube D and spring G, it will be apparent that since said valve cannot cant appreciably with relation to said parts it will serve to support said spring at its outer end portion and prevent contact thereof with the edge of the valve-seat, and thus render its action much freer than would otherwise be the case. This is important to the attainment of proper operation of the device. The said cap K is preferably tapered toward its upper end, and on said end are disposed two relatively superimposed hoods L and M, the lower end of each of which is respectively larger in diameter than the upper end of the next lower hood and cap K. Said hoods are preferably integral with said cap, but may, if desired, be mounted thereon in any suitable manner to maintain the same rigid. Between the upper end of the cap K and lower end of the hood L and between the upper end of the latter and the lower end of the hood M, I provide slots N, through which liquid from the bottle is adapted to pass outwardly. To seal the bottle for shipment, a cork O is disposed in the upper end of the neck above said hood N.

My said device operates as follows: The said stopper C, tube or sleeve D, valve E, cap K, and hoods L and M are first assembled, and by softening said stopper C by means of

steaming or in any other suitable manner the same is forced through the narrow or contracted portion of the neck A above said annular recess B and into said recess, where it will expand and become firmly lodged, so that removal thereof without destruction of the entire parts disposed on said stopper C to render said bottle non-refillable will be impossible. The bottle will have been previously filled, and said valve E is normally maintained on its seat by means of said spring G. It will therefore be obvious that the introduction or reintroduction of other liquids after exhausting the contents of the bottle will be rendered practically impossible. It is very essential to the proper operation of my device that the said spring G be rendered so light as to practically serve simply to balance the weight of said valve E, so that the latter will open freely when the bottle is canted or inverted, as shown in Fig. 2. The said spring by reason of the practical coincidence of its diameter with the diameter of the lower edge of the shank F of said valve R will serve as a guide for the valve to return the same to its seat after each opening thereof. The said valve E being practically balanced by the spring will be easily closed by the slightest flow of fluid into the body of the bottle through the said neck A, so that inversion or partial inversion of the bottle and the creation of a partial vacuum therein in order to cause liquid to be drawn into the same will not fail to enable said bottle to be refilled, as the flow of the liquid will immediately cause said valve to close, and thus hermetically seal the bottle.

The essential features of my invention consist in the employment of the spring as a guide for the valve and in the practically balanced relation of said valve thereto.

I claim as my invention—

1. A non-refillable bottle comprising a stopper disposed in the bottle-neck and held against removal, there being a passage in said stopper, a tube disposed in said passage, a valve-seat on the outer end of said tube, a cap disposed an said stopper and having a substantially cylindrical inner end disposed concentric with said tube, a valve of greater diameter than said tube and less diameter than said inner end of said cap seating on said valve-seat, a tapered shank on said valve, a spiral spring secured at one end to said shank and disposed in said tube for holding said valve normally on its seat, said spring being of relatively less diameter than said tube to a degree greater than the difference in diameter between said valve and said cap and serving to substantially balance said valve, the latter being adapted to be guided in its movements by the inner wall of said cap and serving when open to maintain said spring out of contact with the inner edge of said valve-seat.

2. A non-refillable bottle comprising a stopper disposed in the bottle-neck and held against removal, there being a passage in said stopper, a tube disposed in said passage, a valve-seat on the outer end of said tube, a cap disposed on said stopper and having a substantially cylindrical inner end disposed concentric with said tube, a valve of greater diameter than said tube and less diameter than said inner end of said cap seating on said valve-seat, a tapered shank on said valve of less weight than the body thereof, a spiral spring secured at one end to said shank and disposed in said tube for holding said valve normally on its seat, said spring being of relatively less diameter than said tube to a degree greater than the difference in diameter between said valve and said cap and serving to substantially balance said valve and hold the same substantially against canting with relation to its seat, said valve being adapted to be guided in its movements by the inner wall of said cap and serving to support said spring to maintain the same out of contact with the inner edge of said valve-seat.

3. A non-refillable bottle comprising a stopper having a passage disposed in the bottle-neck and held against removal therein, a valve-seat at the delivery end of said passage, a valve seating thereon, a tapered shank on said valve having a central recess in its free end, and a spiral tension-spring disposed in said passage and secured at one end within said central recess in said shank, said spring being adapted to coact with the wall of said passage to guide said valve.

4. A non-refillable bottle comprising a member having a central opening disposed in the bottle-neck between the ends thereof and held against removal, a valve controlling the delivery end of said central opening, a tapered shank on said valve provided with a central recess in its free end, the mouth of said recess being substantially equal in diameter to the said free end of said shank, a spiral tension-spring disposed in said central opening and secured at one end in said central recess of said shank and corresponding substantially in diameter with said recess, said spring coacting with the wall of said central opening to guide said valve and maintaining the latter normally on its seat, and a cap disposed on said member having peripheral openings.

In testimony whereof I have signed my name in presence of two subscribing witnesses.

WALTER A. STATTMANN.

Witnesses:

RUDOLPH WM. LOTZ,

SAMUEL MYERS.