No. 825,814. PATENTED JULY 10, 1906.

G. EVANOVITCH.

NON-REFILLABLE BOTTLE.

APPLICATION FILED FEB. 20, 1906.

Fig. 1.

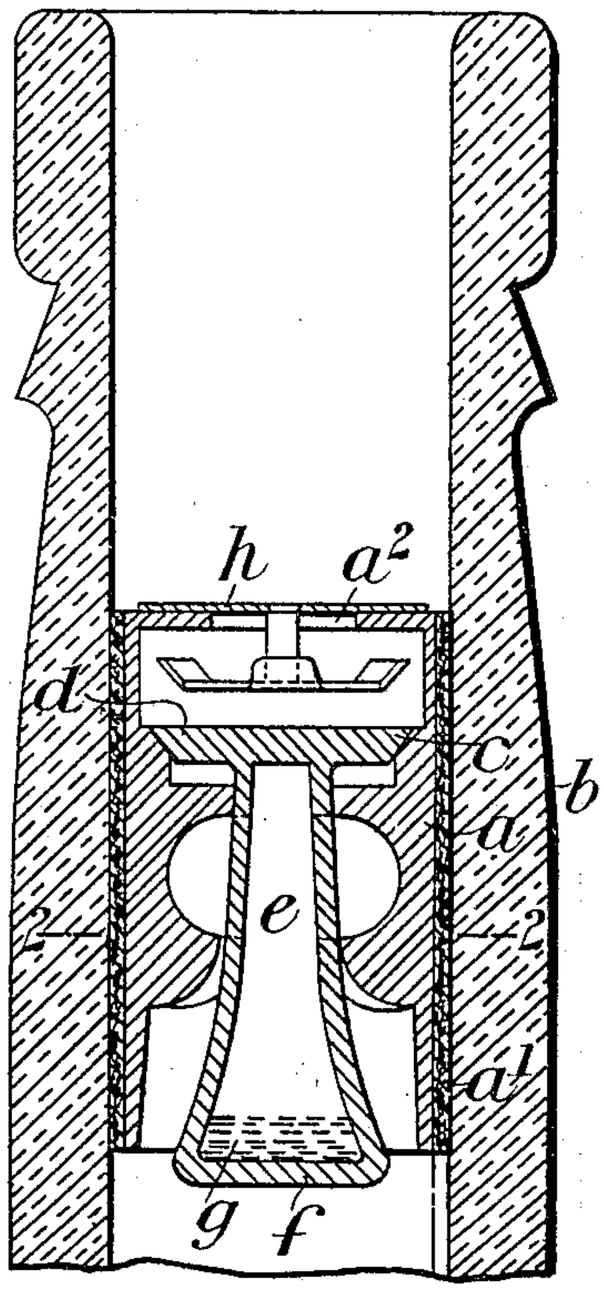
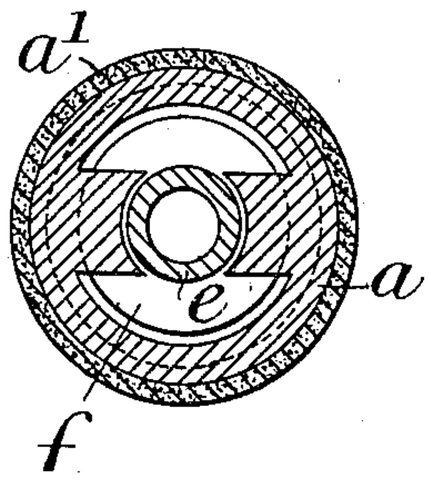


Fig. 2.



Witnesses.

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NON-REFILLABLE BOTTLE.

No. 825,814. Specification of Letters Patent. Patented July 10, 1906.

Application filed February 20, 1906. Serial No. 302,059.

To all whom it may concern:

Be it known that I, GUSSER EVANOVITCH, a citizen of the United States of America, residing at 31 Museum street, London, England, have invented new and useful Improvements in or Connected with Non-Refillable Bottles, of which the following is a specification.

My invention relates to a stopper for bottles or other receptacles carrying liquid or semiliquid substances, and has for its object to provide simple and efficient means for preventing the refilling of an empty bottle, while at the same time permitting of the liquid contents of the bottle being freely poured out.

According to my invention I introduce into the neck of the bottle and below the ordinary cork a hollow plug or tubular device, which is preferably cork-covered and tightly fits the bottle-neck and the interior of which is furnished with a valve adapted to rest upon a seat on or in the tubular plug, through which the contents of the bottle must pass when being poured out, so that when the said valve is upon its seat the liquid cannot escape. The valve comprises a valve proper—that is to say, the portion which rests upon the seating—and a trumpet-shaped hollow stem connected at one side to the said valve proper and being expanded at the other end. The expanded hollow stem contains a small quantity of a liquid, preferably mercury, or of a powder—such as iron filings, sand, or the like—or shot of any kind, or a single shot acting as movable ballast. With this arrangement the mercury or the equivalent in the expanded valve-stem normally retains the valve upon its seat by its weight and holds the same in place until the bottle is turned almost upside down—that is to say, into such a position that the said mercury flows from the hollow expanded head of the stem into the said stem, thus shifting the center of gravity of the valve, which then leaves its seat and permits of the escape of the liquid.

In the accompanying drawings, Figure 1 is a vertical section of a bottle-stopper made according to the invention and shown in place within the neck of a bottle; and Fig. 2 is a horizontal section on the line 2 2, Fig. 1.

a is the hollow plug or tubular device of any suitable material, but preferably ebonite or vulcanite covered with thin cork *a'*, which fits tightly within the bottle-neck *b* in Fig. 1, and *c* is the valve-seat, which is provided within the hollow plug *a*.

d is the valve, which rests upon the seat *c*, and *e* is the trumpet-shaped hollow stem, which extends from the under side of the valve *d* and terminates at its lower extremity in the expansion *f*. The valve *d* is weighted with movable ballast—such, for example, as the liquid *g* contained in the expansion *f*. The liquid which I prefer to employ is mercury, although I may use in lieu thereof any other liquid of suitable specific gravity or a powder, such as iron filings or sand, or fine-grained shot or a single shot.

The stopper acts as follows—that is to say, the weight of the mercury or the equivalent in the expansion *f* normally holds the valve *d* upon its seat *c*, even if the bottle be placed horizontally, and retains it in this position until the bottle is turned nearly upside down when the contents thereof are being poured out. When the bottle is tilted forward to a considerable inclination, the moving ballast or mercury *g* in the expansion *f* runs into the hollow trumpet-shaped stem *e*, and so shifts the center of gravity of the valve *d*, which therefore suddenly leaves its seat and permits of the contents of the bottle *b* being poured out. The moment, however, the bottle is again brought to the horizontal position the mercury in seeking its level runs down the incline and flows back into the expansion, thereby effectually closing the valve.

It will be understood that a plug fitted with one of the aforesaid valves, as illustrated, suffices to render the refilling of an empty bottle very difficult and tedious without the employment of special appliances. In order, however, to render it practically impossible to tamper with the stopper for the purpose of refilling, I may provide the outlet a^2 at the upper part of the hollow plug *a* with a loose cap *h*, which, while it does not interfere with the pouring of the contents of the bottle, yet hinders the insertion of a device, such as a piece of wire, for mechanically holding the valve *d* from its seat.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a bottle-stopper, the combination

with a hollow plug open at one end and provided at its other end with a valve-seat, of a valve located in the end of said hollow plug, a valve-seat within said hollow plug, a valve having a portion adapted to bear upon said latter valve-seat and having a trumpet-shaped stem provided with an expanded portion and movable ballast in said stem, said valves being adapted to permit the outflow of the contents of the bottle but adapted to prevent fluid from being forced therein, substantially as described.

2. In a bottle-stopper, the combination with a hollow plug open at one end and provided at its other end with a valve-seat, of a valve located in the end of said hollow plug, a valve-seat within said hollow plug, a valve having a portion adapted to bear upon said latter valve-seat and having a trumpet-shaped stem provided with an expanded portion, movable ballast in said stem and lugs in said hollow plug adapted to guide said stem and limit the movement of said latter valve, said valves being adapted to permit the outflow of the contents of the bottle but adapted to prevent liquid from being forced therein, substantially as described.

3. The combination with a bottle, of a hollow plug located in the neck thereof, packing between said neck and said hollow plug, said hollow plug being open at one end and provided at its other end with a valve-seat, a valve having a portion adapted to bear upon said valve-seat and having a stem provided at its end with an enlarged portion provided with angularly-disposed projections adapted to engage the under side of said valve-seat, a valve-seat within said hollow plug, a valve having a portion adapted to bear upon said latter valve-seat and having a trumpet-shaped stem provided with an expanded portion, movable ballast in said trumpet-shaped stem, and lugs within said hollow plug adapted to guide said stem and limit the movement of said latter valve, substantially as described.

GUSSER EVANOVITCH.

Witnesses:

JOHN E. BOUSFIELD,

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