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F. E. CLARK.

BOTTLE STOPPER AND STOPPERED BOTTLE.

APPLICATION FILED NOV. 5, 1906.

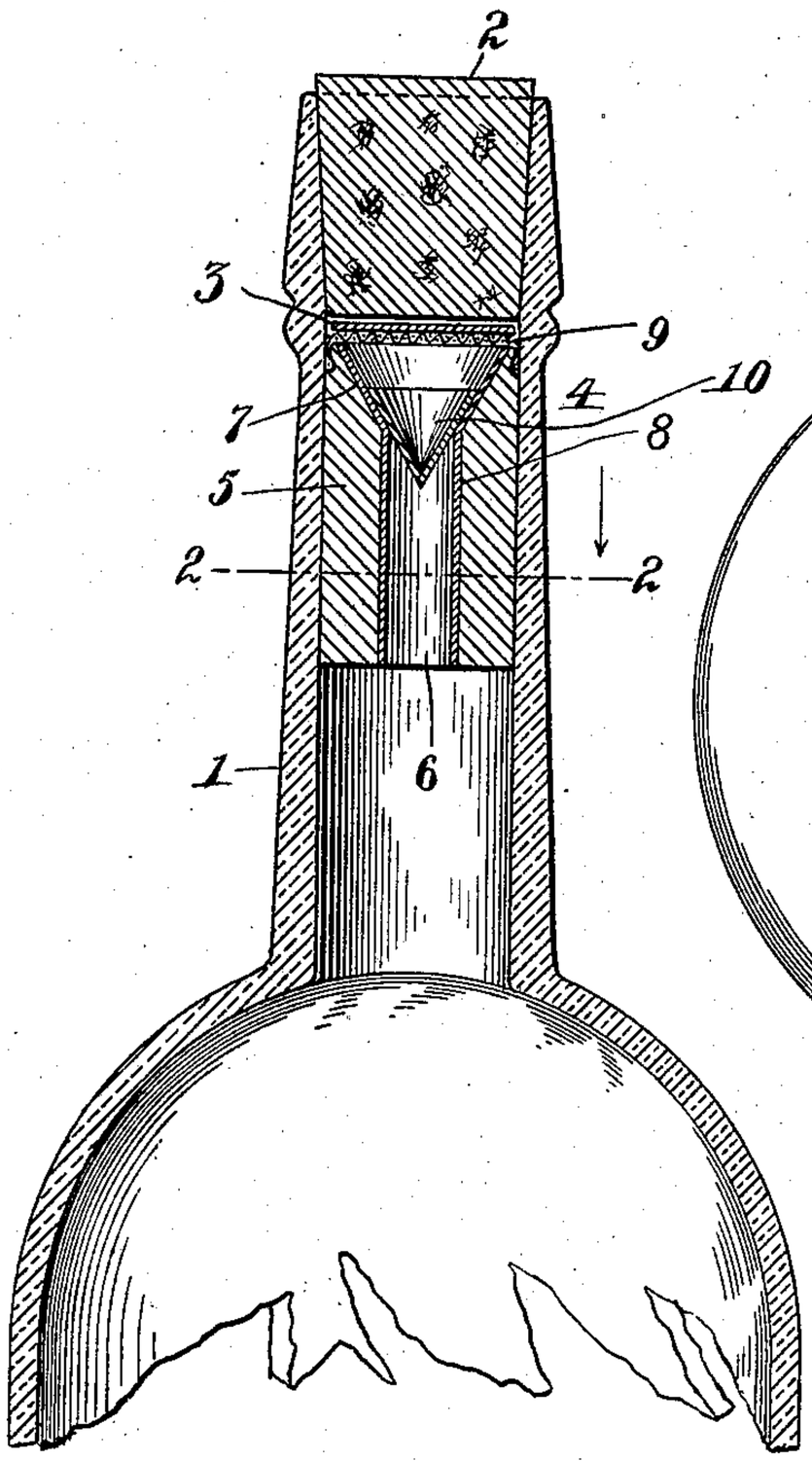

Fig. 1.

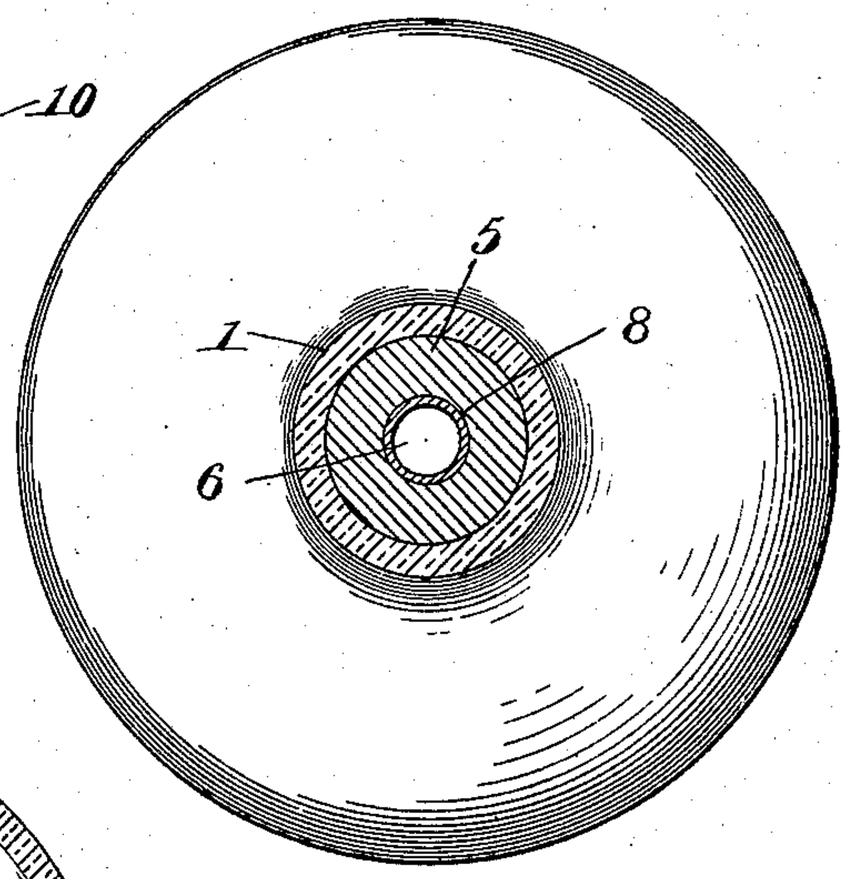

Fig. 2.

Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

FRANK EDWARD CLARK, OF NEW YORK, N. Y.

BOTTLE-STOPPER AND STOPPERED BOTTLE.

No. 867,793. Specification of Letters Patent. Patented Oct. 8, 1907.

Application filed November 5, 1906. Serial No. 341,962.

To all whom it may concern:

Be it known that I, FRANK EDWARD CLARK, a citizen of the United States, residing in Brooklyn, in the county of Kings, city and State of New York, have invented a new and useful Improvement in Bottle-Stoppers and Stoppered Bottles, of which the following is a description.

My invention relates to stoppered bottles that cannot be readily refilled without removal or mutilation of part of a stopper which is new with me, such removal or mutilation serving to warn purchasers or users of the bottle that it has been tampered with.

The object of my invention is to produce a low-cost, practical stopper for said purposes, without the necessity of using in connection therewith bottles having any special exterior or interior formation.

Referring to the accompanying drawings, Figure 1 is a central vertical section of the neck and upper portion of an ordinary bottle containing my new stopper and also containing a loose protecting disk therefor, and an ordinary cork in the mouth of the bottle-neck; the cork, loose protecting disk and my new stopper being shown in central vertical section; Fig. 2 is a transverse section of the bottle-neck and my new stopper on line 2—2 of Fig. 1. Fig. 3 is a vertical sectional view of a solid valve.

In the drawings, 1 is the bottle-neck; 2 a stopper of any suitable material, usually of cork, in the mouth of the bottle-neck; 3 a loose protecting disk of metal or other strong material mounted loosely between the lower end of stopper 2 and my new stopper 4, the preferred construction whereof is as follows: An elastic plug 5 of any suitable material, such as cork or rubber, for examples, and adapted to be forced tightly into the lower portion of the bottle-neck, is formed with a lengthwise extending central passage 6 for outflow of the bottle contents. The upper or outer end of this passage 6 communicates with a chamber 7 in the upper or outer end of the plug. Passage 6 and chamber 7 preferably have an aluminium or hard rubber lining, which is preferably funnel-shaped and mounted with its large end 8 outwards as shown.

The top of the chamber is covered with an easily-destructible cover 9, which is best made of a light wire mesh, but which may be made of other material, to permit a copious outflow when the filled bottle is tilted. Cover 9 incidentally serves as a strainer, and also to limit the movements of the hollow, cone-like valve 10, which is loosely mounted, base upwards, in said chamber. The main purpose of cover 9, however, is to serve, if mutilated, as a visible sign that the bottle has been tampered with or refilled. As stated, this cover is easily destructible, and is readily mutilated by any implement that may be used in an attempt to hold the valve 10 off its seat for the purpose of refilling the bottle.

Disk 3 is of a diameter less than the interior diameter of the bottle-neck, so that it is loose therein, and overlies cover 9 and protects the latter from the point of a corkscrew or other implement used to extract stopper 2. After stopper 2 is withdrawn, disk 3 falls out when the bottle is tilted to pour out its contents through the reticulated or otherwise perforated cover 9, the subsequent integrity of which denotes that the bottle has not been tampered with or refilled.

When my new stopper is upright, the apical lower end of the valve closes passage 6, the outer wall of the valve fitting the wall of chamber 7 or its lining.

It is extremely difficult, if not practically impossible, to refill bottles provided with my new stopper 4, after being first filled, except by mutilating or removing the screen, guard or cover 9, the margin of which is bent over and rigidly fixed to the upper end of plug 5. When it is attempted to refill the bottle, after my new stopper is in place, the liquid presses the cone-like valve home. Of course this valve may be solid, if preferred, but it is also shown hollow, and is preferably so made because it thus presents a greater surface for receiving the pressure or weight of any liquid poured or injected into the bottle after stopper 4 is in place, and therefore acts more efficiently to close passage 6 and to prevent the refilling of the bottle. The hollow, cone-like valve is also lighter and cheaper than a solid cone-like valve would be. If desired, lining 8 may be omitted, in whole or in part; and a valve of some other form may be substituted for the hollow, cone-like valve shown. The interior configuration of the valve chamber may also be varied.

It is desirable that plug 5 should be of some yielding or elastic material, so that it may be compressed when it is driven down into the bottle-neck and therein rigidly keep its place. It is desirable that the lengthwise perforation of the plug should be lined, and that the lining should be of pressure-resisting material, so that the lengthwise perforation of the plug may not be contracted or restricted by compression of the plug when it is driven into the bottle-neck.

It will be observed that a bottle provided with my new stopper is always stoppered sufficiently to prevent evaporation and keep out dust, even after the cork or stopper 2 is withdrawn.

I have hereinbefore set forth my invention with particular reference to approximate non-refillability of bottles containing my new stopper; but my invention may be availed of, whenever desired, without reference to the question of non-refillability. Thus, cover 9, if made of light wire mesh as preferred, may be bent down against the upper end of the valve 10 so as to clamp the valve on its seat for stowage or transportation, and be subsequently lifted to unclamp the valve from its seat and permit the contents of the bottle to be shaken or dropped out. For such a mode of use, the valve is best

made solid, as shown in Fig. 3 and designated by 10′. The light wire mesh is quite flexible, and can be readily bent back and forth as suggested. My new stoppers are thus well adapted for use in bottles containing perfumery, dentifrices and other fluid preparations.

My invention may be embodied in various forms other than that illustrated, if desired.

What I claim is:

1. The herein-described bottle stopper, comprising a lengthwise perforated plug having in its outer end a valve-receiving chamber communicating with said lengthwise perforation; an easily destructible cover of meshed material for said chamber; and a valve freely movable in said chamber.

2. The herein-described bottle stopper, comprising a lengthwise perforated plug having in its outer end a valve-receiving chamber communicating with said lengthwise perforation; an easily destructible cover of meshed material for said chamber; a valve freely movable in said chamber; and a tubular lining for the lengthwise perforation in the plug.

3. The combination of a bottle neck with a stopper mounted at its mouth, another stopper mounted in the lower part of the bottle neck and comprising a lengthwise perforated plug having in its upper end a valve-receiving chamber which communicates with said perforation; an easily destructible cover of meshed material for said chamber; a valve freely movable in said chamber; and a loose protecting disk between said cover and the stopper which is at the mouth of the bottle neck.

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

FRANK EDWARD CLARK.

Witnesses:
FLORENCE ATEN IVES,
M. HERSKOVITZ.