(No Model.)

O. H. R. NIENABER.

BOTTLE STOPPER.

No. 559,195. Patented Apr. 28, 1896.

Fig. 1.

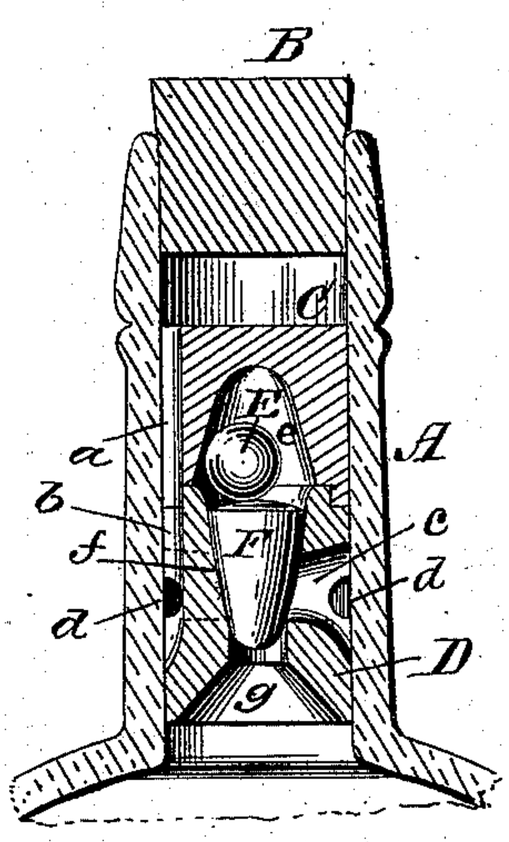


Fig. 2.

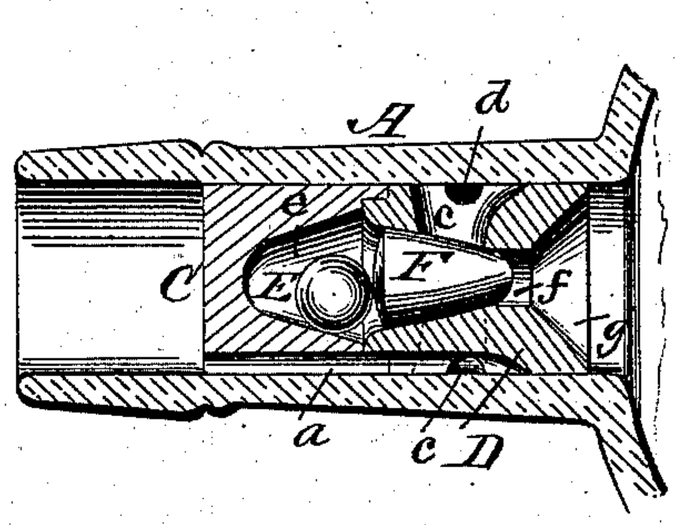
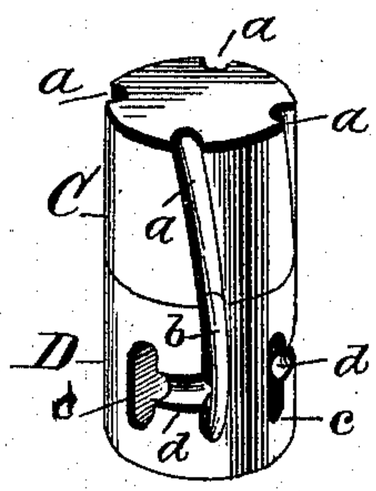


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

OTTO H. R. NIENABER, OF HOBOKEN, NEW JERSEY.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 559,195, dated April 28, 1896.

Application filed January 21, 1896. Serial No. 576,275. (No model.)

To all whom it may concern:

Be it known that I, OTTO H. R. NIENABER, a citizen of the United States, residing at Hoboken, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Bottle-Stoppers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

The present invention has relation to that class of bottle-stoppers provided with means whereby the fraudulent filling of the bottle is prevented, and is especially designed as an improvement upon my former patent, dated October 8, 1895, No. 547,497; and the invention consists in a bottle-stopper constructed substantially as shown in the drawings, and hereinafter described and claimed.

Figure 1 of the drawings is a sectional view showing the neck of an ordinary glass bottle, the stopper embodying my invention being shown in position and the ordinary cork stopper located above the valved stopper; Fig. 2, a similar view with the cork stopper removed and the neck of the bottle in a horizontal position; Fig. 3, a detail view in perspective of the improved stopper.

In the accompanying drawings I have shown only the neck of an ordinary glass bottle sufficient to illustrate the application of my improved stopper thereto, said neck being shown at A, and B the ordinary cork stopper commonly employed to close the mouth of the bottle or open end of the neck.

My improved stopper comprises the two sections C D, which may be made of glass or of any other suitable material found best adapted to the purpose.

The upper stopper-section C has spiral grooves *a* upon its exterior, which extend the entire length thereof, said grooves forming the outlets for the liquid when pouring from the bottle. Similar grooves *b* are formed around the exterior of the lower stopper-section D, and when the two sections are together, so that the grooves in each section will be on line with each other, as shown in Fig. 3, a continuous spiral groove or grooves is or are provided nearly the length of the stopper for conducting the liquid from the body of the bottle below the stopper out through the neck thereof.

The spiral form of the grooves is of a decided advantage over the straight grooves, in that the liquid will not spurt out of the mouth of the bottle suddenly, but will pour evenly and gradually when the bottle is tipped.

The grooves *b* do not communicate directly with the discharge-openings *c*, but through branch grooves *d*, which latter grooves join the discharge-openings.

The grooves *b* and branch grooves *d* in the section D of the stopper form together "L-shaped grooves," which term I shall use in further reference thereto. The L-shaped grooves prevent the liquid from passing too suddenly from the discharge-openings *c* to the spiral grooves *a* in the upper stopper-section C, thereby aiding in preventing what the spiral form of the grooves is designed to do, to avoid any sudden discharge of the liquid when the bottle is tipped, but insure an even and regular pouring of the liquid.

The stopper-section C has a chamber *e*, in which is located a gravity-ball E, the walls of said chamber being inclined outwardly, so that the ball will be guided and roll down the incline to a position to hold the valve F in a position to close the openings *c* in the stopper-section D when the bottle is either in an upright position or laid upon its side.

The valve F is conical in shape and fits within a correspondingly-formed valve-opening *f*, in which the valve is seated when closing the discharge-openings *c*, as shown in the drawings.

The lower end of the stopper-section D is formed with a funnel-shaped mouth *g* for better conducting the liquid to the stopper and through the discharge-openings *c*.

Any number of grooves in the stopper-sections may be employed and a corresponding number of discharge-openings, and it should be understood that the gravity-ball E is much heavier than the conical valve F, in order to present a sufficient resistance to the pressure of the liquid against the valve when the bottle is in a horizontal position, as shown in Fig. 2 of the drawings, thus holding the valve securely against its seat and prevent the escape of liquid through the stopper.

Should an attempt be made to fraudulently

fill the bottle with liquid by submerging it in a vat or vessel containing said liquid, the moment the bottle is brought to an incline from a perpendicular the ball E will descend by gravity along the incline walls of the chamber *e* to the position where it will come in contact with the valve, and by the superior weight of the ball will retain and hold the valve tightly against its seat and prevent any liquid passing into the bottle, as shown in Fig. 2 of the drawings.

The gravity-ball and valve may be made of any suitable material, so long as the ball is of greater weight than the valve to operate, as hereinbefore described, and in pouring from the bottle, when the same is tipped to the required angle, the ball will roll to the outer end of the chamber in which it is located and allow the valve to be forced off its seat by the pressure of the liquid, which liquid will pass out through the openings *c* and grooves in the stopper.

A further advantage in the spiral form of the grooves *a* and the L-shaped grooves in the lower stopper-section is the difficulty it would be to insert a wire for the purpose of holding up the valve off of its seat while the bottle is being fraudulently filled with liquid, thereby possessing great advantage over the straight grooves which communicate with the interior of the stopper.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A bottle-stopper consisting of two detachable sections of uniform diameter, the upper section formed with a chamber having its walls inclined outwardly and a gravity-ball located therein, and suitable grooves for the passage of the liquid upon the exterior of said section which extends from top to bottom thereof, and the lower section of the stopper having a valve-opening extending through the same and a valve located therein, openings or passages for the liquid extending through the sides of the section and communicating with the valve-opening, and L-shaped grooves upon the exterior of the section which communicate with the openings or passages through the sides thereof and also with the lower ends of the grooves in the upper section when the two sections are together, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

OTTO H. R. NIENABER.

Witnesses:
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