

(No Model.)

J. C. GROUT.
BOTTLE STOPPER.

No. 521,649.

Patented June 19, 1894.

Fig. 1.

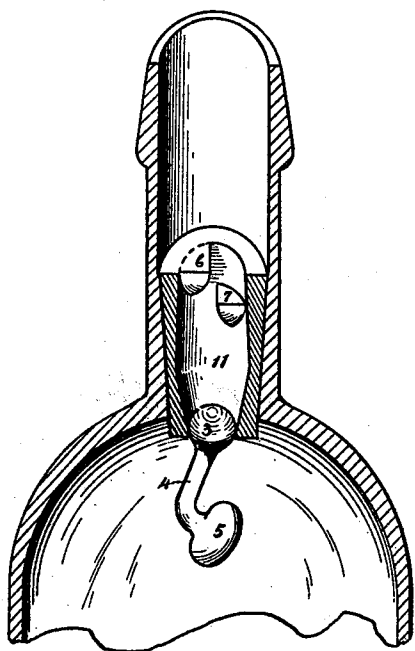


Fig. 2.

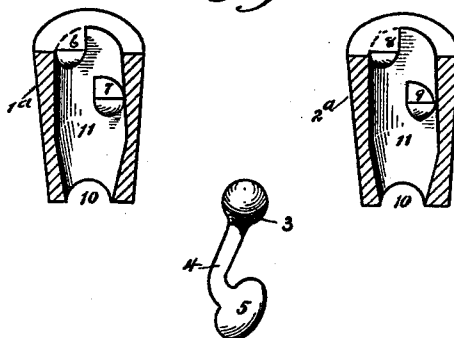


Fig. 3.

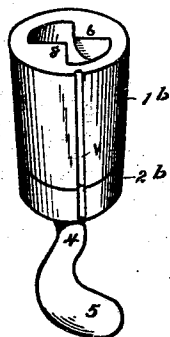
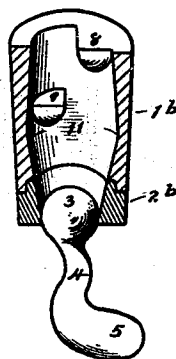


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN C. GROUT, OF DETROIT, MICHIGAN.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 521,649, dated June 19, 1894.

Application filed April 30, 1894, Serial No. 509,612. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. GROUT, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Bottle-Stoppers; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to bottle stoppers, and has for its object an improvement in a stopper to be used at the interior of a bottle for the purpose of preventing the refilling of the bottle after the contents first placed in it have been used out of it. This is especially desirable in connection with that class of merchandise which is manufactured by persons who have acquired a reputation for particular classes of merchandise, and whose merchandise is apt to be counterfeited by other manufacturers who procure the original bottles and refill them; and the object of this device is to prevent such refilling and to produce a device which will entirely prohibit the refilling of the bottle unless the device itself is removed from the bottle or broken, in either of which cases the fraudulent second filling would be patent to any observer.

In the drawings, Figure 1 shows in section the neck of a bottle with the stopper in place. Fig. 2 shows the parts of the stopper disassembled. Fig. 3 shows the stopper in perspective, as it would appear before it is inserted, and when in condition to be inserted in a bottle that has been filled. Fig. 4 shows the stopper made in two parts, which separate across the axis instead of along the axis.

The stopper consists essentially of a case made preferably in two parts, which separate either along the axis, as indicated in Fig. 2, or across the axis, as indicated in Fig. 4; and within this case is received the globular-end of a ball valve 3, from which projects outward through the opening 10 at the lower end of the case a stem 4 curved in form and terminating at its lower or free end in a weight 5. The end 3 of the valve is globular in form, and seats itself accurately within the lower end of the conical chamber within the case

composed of the two parts 1^a and 2^a, or 1^b and 2^b (Fig. 4). The chamber between the two parts of the case is in the form of a double cone, largest at the middle, and smaller at both the lower and upper ends. The lower end of the chamber 11 forms the seat for the ball valve 3, and into the upper end of the chamber 11 project a number of lugs, 6, 7, 8 and 9. These are arranged in staggered form around the chamber, so that a projection of them would show the entire chamber closed up; but, from the fact that they are at different altitudes, there is a tortuous passage between them, through which liquid can flow out from the bottle, and through which liquid could also flow into the bottle were its progress not stopped by the ball valve 3. The curved form of the stem 4 which projects from the ball valve 3 into the bottle, and the heavy weight 5 terminating the end of the curved stem 4, cause the ball valve 3 to seat itself at the smaller part of the opening from the chamber 11 in whatever position the bottle may be placed, and it will effectually prevent the introduction of liquid into the bottle, while it will yield before the weight of escaping liquid. The valve will seat itself even when the bottle is reversed and the neck is held vertically downward, if the shoulders from the neck of the bottle are sufficiently sharp, or if the case projects into the body of the bottle, as shown in the drawings.

The case is preferably made in two parts, 1^a and 2^a, or 1^b, 2^b; and, before the case is inserted in the neck of the bottle, these two parts are joined by some suitable cement. The outside of the case is then coated with a suitable cement, and the assembled stopper forced into a position near the bottom of the neck of the bottle, with the end of the case preferably projecting into the bottle. The case should be made to fit the neck of the bottle at this place, and the bottle itself should be made with a narrower aperture just at the junction between the neck and the shoulders than the general opening through the neck of the bottle.

Provision is made for giving suitable vent to escaping liquid by a small channel *v* alongside of the case, and this channel is left open when the case is cemented into the bottle. A small passage way of this kind, not large

enough to permit the passage of liquid into the bottle against the air confined in the bottle, will permit the ingress of air sufficient to cause the liquid to flow freely out.

5 What I claim is—

1. In a stopper for bottles, the combination of a case having a passage way therethrough, tortuous at its upper end and coned at its lower end, a ball valve adapted to seat itself
10 in the conical opening and provided with a curved stem terminating with a weight, substantially as described.

2. The combination of a bottle having a neck contracted at its lower part, a case

adapted to seat in the contracted part of said neck and having an opening therethrough at the upper end and contracted in cone form at the lower end, a ball valve provided with a weighted stem adapted to seat itself in the conical passage way through the case, substantially as described. 15 20

In testimony whereof I sign this specification in the presence of two witnesses.

JOHN C. GROUT.

Witnesses:

WM. MCGOWER,
JOHN M. QUINLAN.