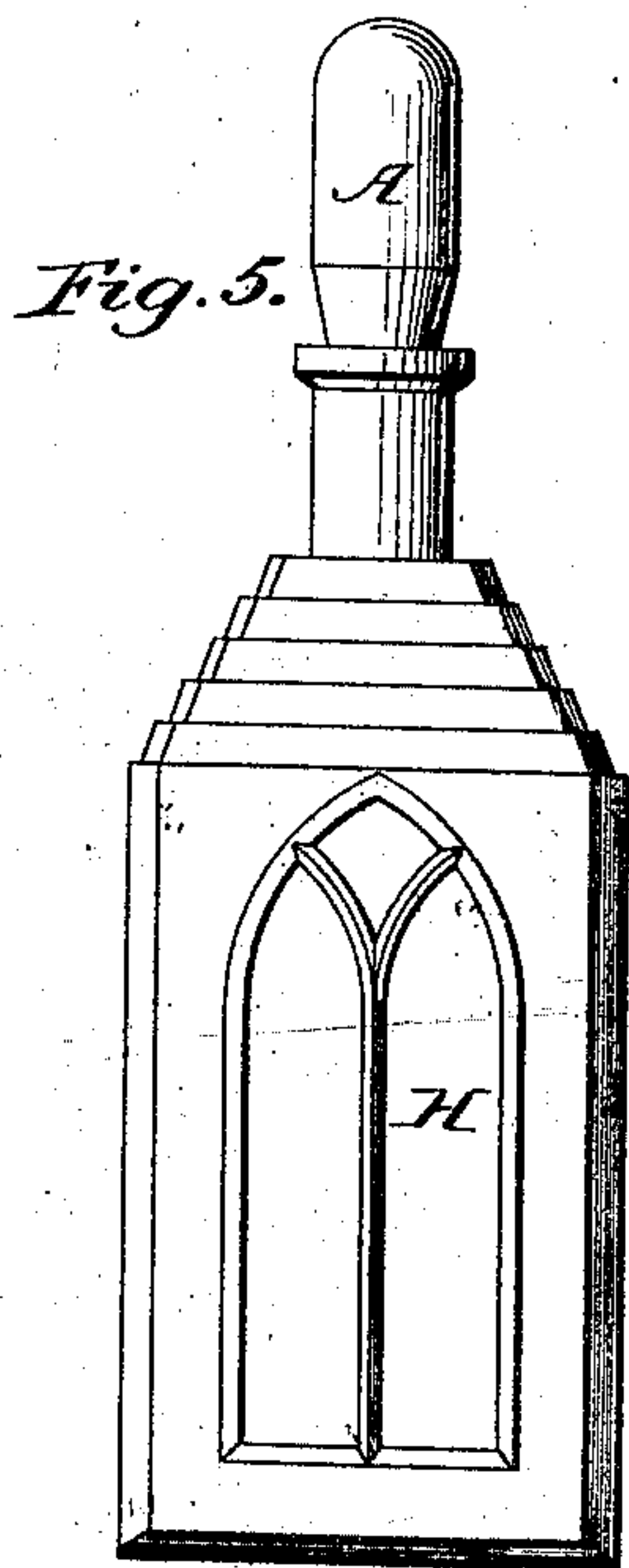
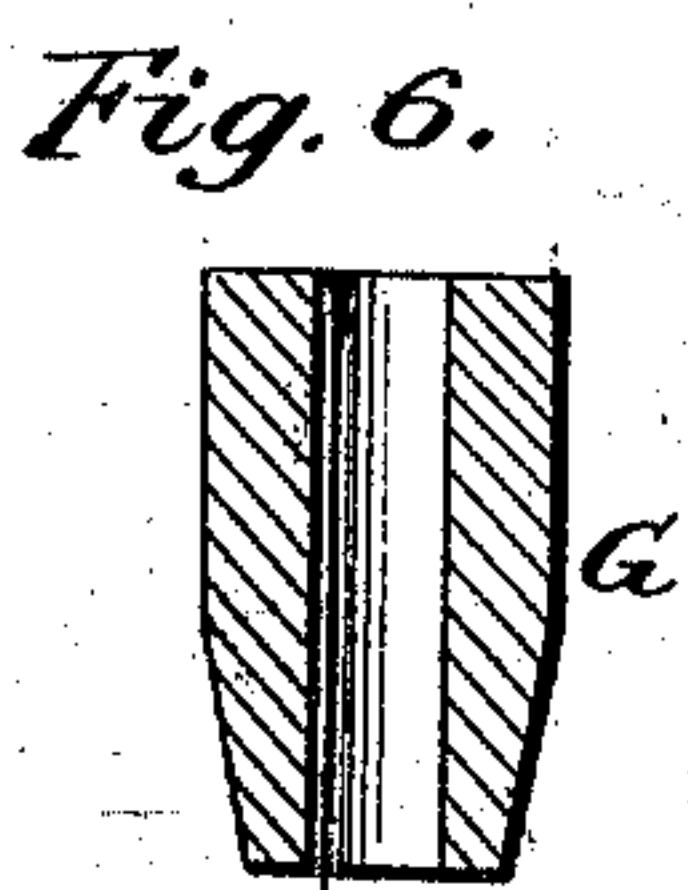
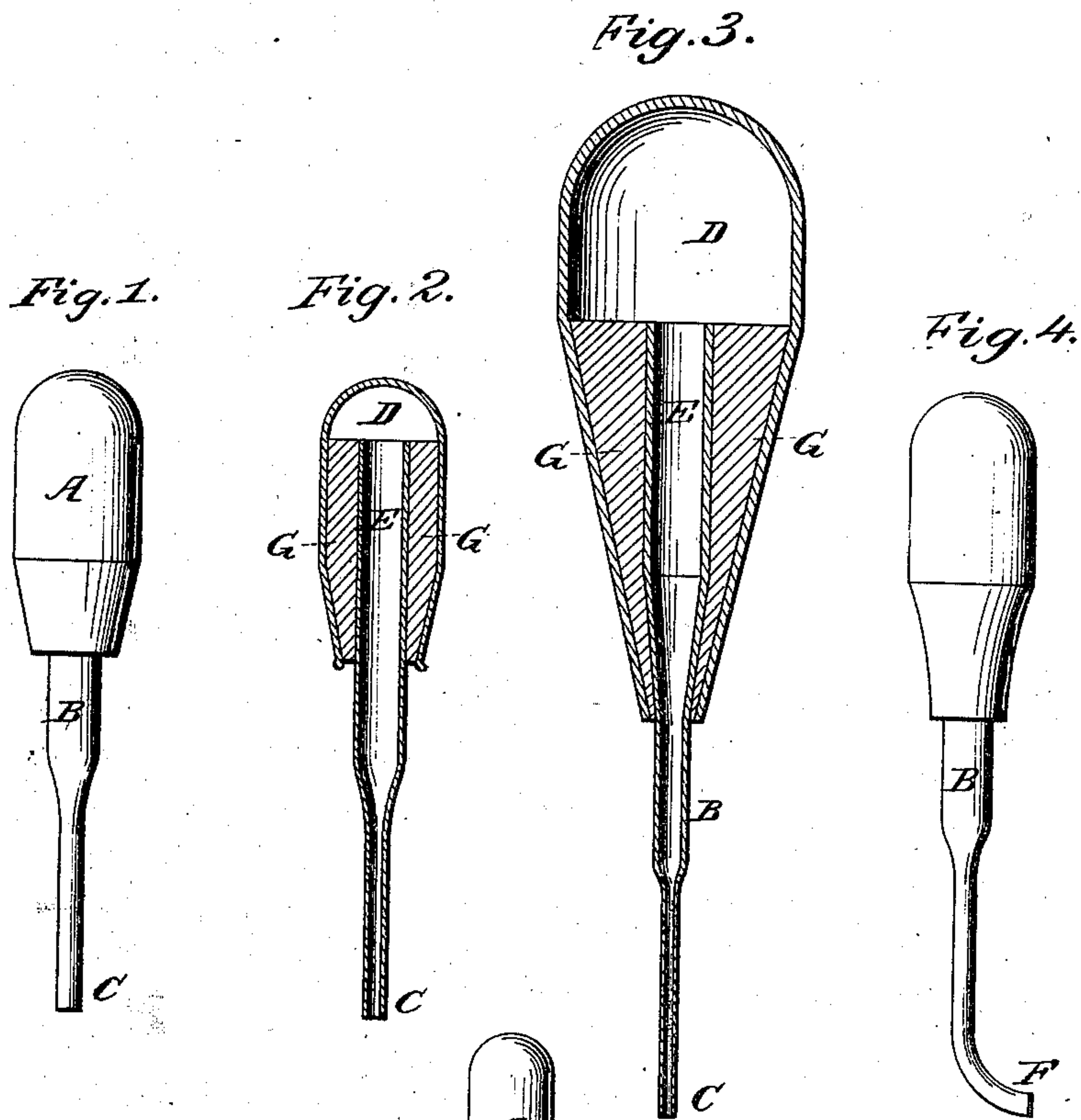


J. BARNES.  
Medicine-Droppers.

No. 158,564.

Patented Jan. 12, 1875.



Witnesses.  
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# UNITED STATES PATENT OFFICE

JOSHUA BARNES, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN MEDICINE-DROPPERS.

Specification forming part of Letters Patent No. **158,564**, dated January 12, 1875; application filed July 21, 1874.

*To all whom it may concern:*

Be it known that I, JOSHUA BARNES, of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Medicine-Droppers; and I do hereby declare that the following specification, taken in connection with the drawings forming a part of the same, is a clear, true, and accurate description thereof.

Pipettes have heretofore been so combined with bottle-stoppers that the contents of a bottle might be discharged drop by drop. In most instances these pipettes have been duplicated in one stopper or employed singly, and provided with a vent-passage, whereby air was permitted to enter the bottle as the fluid was discharged. No combined stopper and pipette of this class performs the true function of a stopper, as the continually-open pipettes admit of constant evaporation. Evaporation of a remedial solution gradually increases its power in proportion to the decrease of its bulk, and for that reason additional stoppers or caps have necessarily been employed, either for inclosing both of the pipette-apertures and the neck of the bottle, or for closing the two pipette-openings separately. Pipettes with a closed upper end and an open lower end have also been combined with stoppers, but in such, an opening has been provided, located about midway between the two ends of the pipe, or at least always below the stopper, in order that air may circulate in the pipette, and allow the liquid to freely enter at its lower or submerged end, and as freely to leave it in drops when removed from the bottle. In all of these forms of pipettes there exists a liability to clog internally, as the evaporated portion of the solution leaves a solid residuum therein.

My invention consists in providing the well-known compressible bulb and "pipette-dropper," with a bottle-stopper, whereby the pipette-tube may be charged with fluid to the extent of the last drop in the bottle, the dropper always maintained in a position ready for use, be protected by the bottle during intervals of use, the interior of the tube guarded against the introduction of air, and the liability of internally clogging the tube practically obviated.

Figure 1, the simple stopper in elevation in its customary form; Fig. 2, vertical section of the same; Fig. 3, vertical section of one adapted for bottles of several sizes; Fig. 4, stopper, with a bent tube that will take out the last drop in the bottle that it fits; Fig. 5, bottle in elevation, with the stopper applied; Fig. 6, vertical section of the cork, perforated to receive a tube, and before the india-rubber involucre is put on.

A, the india-rubber involucre; B, the glass or metallic tube; C, end of the tube, which, in some cases, would be quite small, as in the case of dispensing medicines drop by drop; D, the air-chamber; E, the reservoir of the tube; F, the curved end of the tube; G, the cork of the stopper; H, a bottle, to which the stop is adapted. The said stopper is made, first, by shaping a cork, and making through it a hole of the proper size; a tube is then put in, and over all an india-rubber involucre is put, the top of which extends above and leaves an air-chamber. (See Fig. 2.)

To extract liquor from any receptacle, the stopper is put in and the air-chamber pressed; then withdrawing the pressure the liquor flows up into the reservoir B of the tube. The stopper being withdrawn the liquor can be discharged from the tube in a stream, or by drops.

The stopper is best if made all of india-rubber, with the proper hole to receive the tube B.

If a cork be used, then the involucre of india-rubber need only partially cover it.

An important use of this when made large enough is to take samples of liquor from a cask or vat.

This invention is intended to be a practical bottle-stopper, as well as a medicine-dispenser, or dispenser of other fluids.

As already herein stated I am aware that it is not broadly new to combine a bottle-stopper with a medicine-dropper, but prior to my invention I know of no combined stopper and dropper, whereby the last drop in a bottle could be withdrawn; nor do I know of any pre-existing device of this character which would be a practicable one to employ in connection with compounded medicines put up in bottles and kept on sale. When tube-droppers, having a closed end, an open end, and a more or less centrally located vent, are em-



ployed, the vent, in the handling of the bottle and in placing it in different positions, is liable to, and does in practice frequently, get clogged by the solidification of matter in solution, requiring frequent clearance in order to admit fluid to the tube, or to discharge it therefrom. It is obvious that an open-mouthed dropping pipette would not have practicable value in this connection, as additional stoppers at each pipette would be requisite for the proper closure of the bottle. I am also aware that medicine-droppers have long been made and used, which were composed of a glass tube and compressible bulb, of the character herein described. These are extremely fragile, and are liable to be broken during intervals of use. Solid matter accumulates within said tubes during these intervals, as a result of evaporation of the solvent, and they are, therefore, not only liable to become clogged, but in practice are liable at times to discharge in a given number of drops a much greater quantity of the active matter than would be contained in the same number of drops in the original solution. This feature, under some circumstances, is liable to result in serious effects. By combining with the well-known pipe and compressible bulb a neck, which has the characteristics of a bottle-stopper, as herein described, the pipe may be inclosed in an

empty bottle during intervals of use, and result in complete protection thereto, the bottle not only serving as a sheath or guard, but also as a means whereby the dropper may be maintained in a vertical position for effectual clearance from adhering matter, and also as a means for effectually secluding the dropper from the air and dust.

In practical use, my combined stopper and pipette is less liable to be forced from a bottle containing volatile matter than those which do not embody the compressible bulb, for the reason that the readily-expanded vapors, induced by heat, instead of acting with direct pressure on the cork, are free to first exert themselves in expanding said bulb, which, in most cases, will relieve the cork from such a degree of direct pressure as would be liable to force it from the bottle if the bulb were not employed.

Having thus described my invention, I claim—

The combined stopper and drop-discharger, consisting of a dropping-tube, a compressible bulb, and a bottle-stopper, substantially as described.

JOSHUA BARNES.

Signed in presence of—

A. G. WARREN,  
W. E. BARNES.