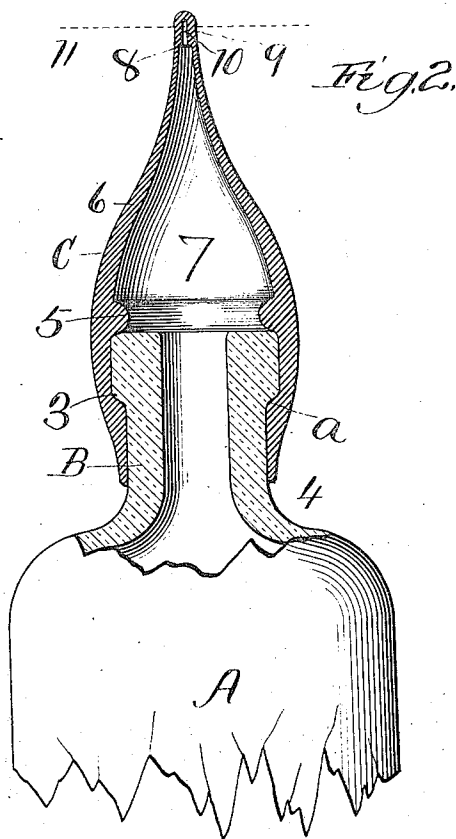
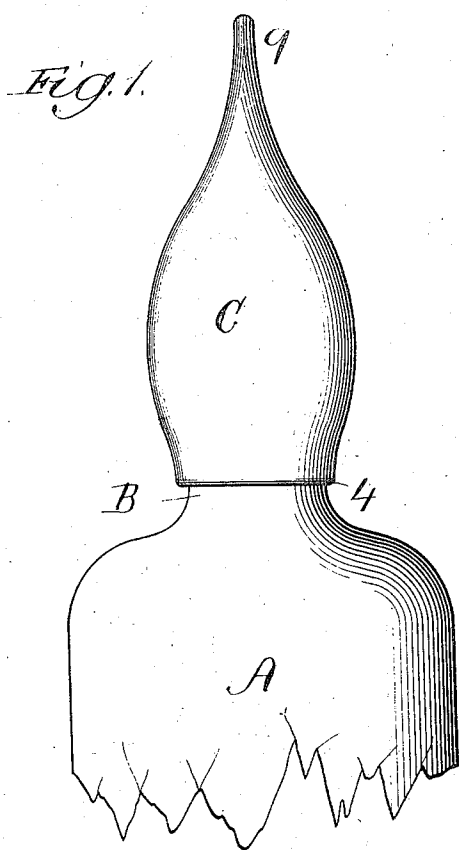


G. B. HAINES.
LIQUID DROPPER.
APPLICATION FILED AUG. 5, 1910.

996,330.

Patented June 27, 1911.



Witnesses:
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J. F. Chase.

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UNITED STATES PATENT OFFICE.

GEORGE B. HAINES, OF CHICAGO, ILLINOIS.

LIQUID-DROPPER.

996,330.

Specification of Letters Patent. Patented June 27, 1911.

Application filed August 5, 1910. Serial No. 575,782.

To all whom it may concern:

Be it known that I, GEORGE B. HAINES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Liquid-Droppers, of which the following is a specification.

This invention relates to a liquid dropping attachment; and has for its object to provide a convenient and efficient device for use in connection with medicine bottles, vials and the like in the treatment of the eye, ear and other diseased parts.

This device is more especially intended for use in the treatment of the eye, which, as well known, is an extremely sensitive organ and it is a very difficult matter to properly administer the remedy so it will reach the exact spot.

Figure 1 is an elevation showing the dropping attachment in place. Fig. 2 is a vertical longitudinal section of the same.

A may represent a bottle; B the neck-part thereof and C a dropper-cap attached thereto. The dropper-cap will ordinarily be composed of some suitable, flexible elastic material such as rubber, and is preferably of the elongated conical design shown. This device forms a combined dropper and stopper and is made to closely adhere to the neck part by frictional contact and provides a hermetically sealed closure, as best shown in Fig. 2. The figures in the drawing are somewhat exaggerated, and in this instance the upper end of the bottle-neck B is thickened to provide an annular exterior shoulder 3. The cap C is of a hollow body formation and is of a less diameter at the lower open base end 4 than in the middle portion. The normal diameter of the base attaching end of the cap will be less than that of the bottle-neck and will expand proportionately when slipped on over the same and then contract in under the shoulder 3, as at *a*, in making a tight fit. The cap is also provided with the internal annular rib 5 which overlaps and comes to a stop bearing on the top of neck B and assists in fixing the position of the cap when attached. As shown in Fig. 2 the cap closely conforms to the contour of the neck in making a tight joint as against the admission of air and in preventing the escape of the liquid contents.

The wall 6 of the cap C incloses a chamber 7 and gradually contracts from the middle portion outward to an internal shoulder 8 located back of the attenuated tip discharge end 9. From the shoulder 8 outward the tip end is provided with a diminutive passage 10 forming the discharge outlet proper and through which the liquid contents can be accurately discharged in the form of drops. The shoulder 8 reduces the diameter of the discharge passage and serves as a check to prevent too free an escape of the liquid.

In the process of manufacture the discharge end of the dropper-cap is left closed, and remains so until the contents of the receptacle is to be used, when an incision should be made with a sharp instrument in the discharge end and opening into the minute passage 10 at a point indicated by a dotted line 11. By tilting the bottle the liquid will flow into the chamber and may be discharged in the form of drops by a slight pressure on the cap with the thumb and finger.

By reason of the elastic nature of the material entering into the formation of the cap the lips or edges surrounding the incision will close automatically when the discharging pressure is relaxed, excluding the atmosphere and preventing the accidental escape of the liquid, though the bottle be inverted or placed in a horizontal position.

There will be more or less of a vacuum in the chamber 7 which together with the external atmospheric pressure will always insure a tight closure of the discharge opening.

Having thus described my invention, what I claim is:—

In a device for applying medicaments to the eye and adapted for attachment to bottles and the like, comprising a flexible, compressible body of conical form inclosing a chamber and terminating in a hollow pointed end adapted to enter the eye, and having a diminutive longitudinal discharge passage adjacent such pointed end.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE B. HAINES.

Witnesses:

A. D. STANWOOD,
G. E. CHURCH.