No. 889,203. PATENTED JUNE 2, 1908.

J. A. CLIFTON.

MEDICINE DROPPER.

APPLICATION FILED JAN. 23, 1908.

Fig. 1.

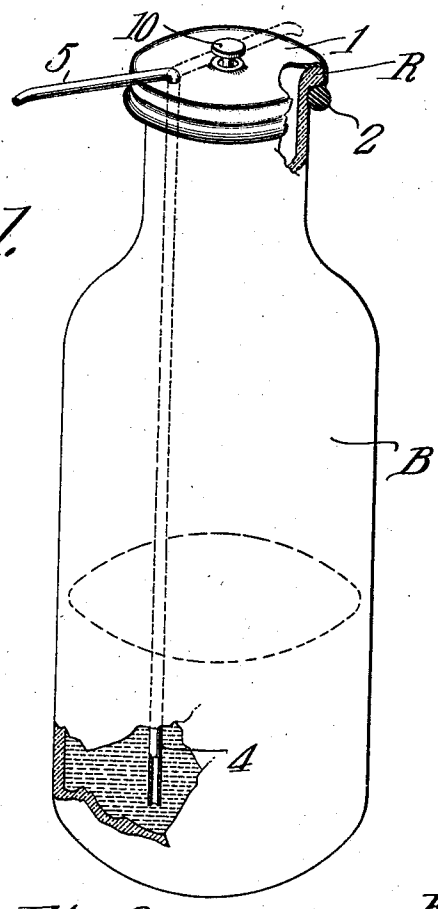


Fig. 2.

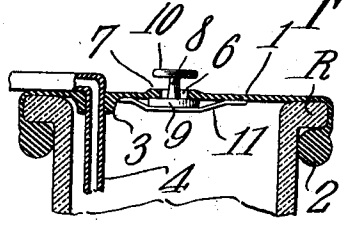


Fig. 3.

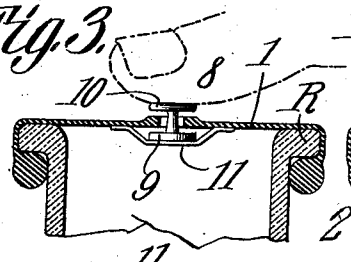
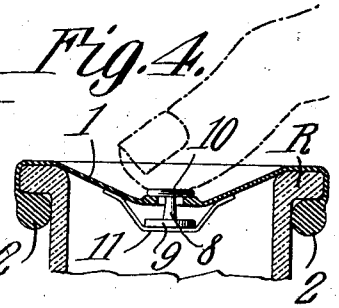


Fig. 4.



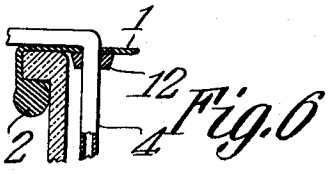


Fig. 6

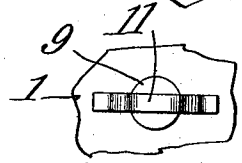


Fig. 5.

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MEDICINE-DROPPER.

No. 889,203. Specification of Letters Patent. Patented June 2, 1908.

Application filed January 23, 1908. Serial No. 412,311.

To all whom it may concern:

Be it known that I, JESSE ALEXANDER CLIFTON, a citizen of the United States, residing at Orangeburg, in the county of Orangeburg and State of South Carolina, have invented a new and useful Medicine-Dropper, of which the following is a specification.

This invention relates generally to medicine droppers, and particularly to one of that class adapted for distilling medicine into the eyes in the treatment of various diseases of those organs.

The object of the invention is to provide a simple, thoroughly efficient, and easily operated implement of the character stated, in which the medicine may be distilled accurately and in small or large quantities, as may be desired, and in which the loss of the medicine, should the bottle or container be inverted, or any injury occur to the delivery tube, will be prevented. Furthermore, to provide, as an article of manufacture, an attachment or cap adapted to be assembled with bottles having necks of various sizes, said cap having combined with it a delivery tube and an air-inlet controlling valve.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists, generally stated, in a medicine dropper embodying a flexible or elastic cap adapted for connection with a neck of a suitable bottle or container, the cap having combined with it a delivery tube adapted for rotation relatively thereto, whereby to bring its discharge end into operative and inoperative positions, the cap having combined with it, further, a self-seating valve that is adapted upon initial compression to permit air to pass to the holder and upon further compression to cut off the ingress of air and effect flexing of the cap, whereby to cause a pressure to be exerted upon the contained liquid, thus to cause the same to be expelled in desired quantities through the delivery tube.

The invention consists further in the various novel features of construction of a medicine dropping attachment for bottles, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts: Figure 1 is a view in perspective, partly in section, of a bottle displaying the medicine dropper constituting the present invention applied thereto. Figs. 2, 3 and 4 are detailed views, in section, through the attachment showing the various positions assumed by the valve and by the cap or cover in distilling the contents of the bottle or holder from the delivery tube. Fig. 5 is an inverted plan view, showing more particularly the construction of the valve seating member. Fig. 6 is a detail view, partly in section, of a slightly modified form of the invention.

Referring to the drawings, and to Figs. 1 to 5, thereof, B designates a bottle of any preferred construction and having the usual rim R. Combined with the rim is an attachment that constitutes the subject-matter of the present invention and which comprises a cap or closure 1 constructed of rubber, and provided with a marginal clamp 2 that is adapted to fit under the rim R and thus retain the cap in place. As will be seen by reference to Figs. 1 to 4, the clamp 2 is approximately circular in cross section, and contains considerable stock in order that it may impinge against the rim of the bottle with sufficient force to resist any tendency of detachment when the implement is being used. The contour in cross section of the clamp shown is that which will generally be preferred, but, as will be obvious, it may be of any other shape that will secure the objects sought without departing from the spirit of the invention, and, as this will be obvious, detailed illustration of any modification is omitted.

Adjacent to the periphery of the cap is provided an orificed downturned projecting teat or seat 3 through which passes the delivery tube 4, the lower end of which extends close to the bottom of the bottle, and the upper end 5 of which is bent at substantially right angles to the length of the tube in order to occupy a position best adapted to secure the proper application of the medicine to the eyes. The tube is revolubly mounted within the seat, and is adapted to be moved to the position shown by dotted lines in Fig. 1, thereby to facilitate shipment and carrying of the dropper, and also to protect the discharge end portion 5 thereof from liability to breakage. The cap will be made of soft rubber, and the frictional contact between the walls of the orifice of the seat 3 and the delivery tube will be sufficient to prevent the latter from creeping or having any longitu-

dinal movement in the use of the appliance, and further, of preventing any escape of the liquid contained within the bottle.

At the center, or approximately thereat, is an orifice 6 that is designed to supply air to the interior of the bottle to replace any that may be forced out or escape through the delivery tube, thus to prevent the formation of a partial vacuum. The cap, at that portion surrounding the opening 6, will preferably, though not necessarily, be reinforced, as shown at 7, in order to strengthen that portion of the cap and also to prevent any tendency of the cap to tear or break down at that point. Arranged within the opening 6 is the shank or stem 8 of a valve having two heads 9 and 10, of which the former normally bears against the under side of the cap and closes both ingress and egress through the opening 6. In order to cause the head 9 normally to occupy the position shown in Fig. 2, there is a valve seating member 11 employed, which, as clearly shown in Fig. 5, consists of a strip of rubber, the ends of which are vulcanized or cemented to the under side of the cap at points sufficiently removed from the head 9 to permit the latter readily to be depressed the full length of the stem 8, and thus permit the head 10 to assume the position shown in Fig. 4, thus to close ingress of air through the opening 6.

Instead of employing the seat 3 for holding the delivery tube against creeping, a collar 12 may be employed, as shown in Fig. 6, which will fit tightly upon the delivery tube and thus secure the same object as the seat 3.

In the use of the device, and with the parts in the position shown in Fig. 2, the finger of the operator is pressed upon the head 10, as shown in Fig. 3, and this will initially operate to flex the valve seating member 11 and permit the head 9 to move away from the cap, whereupon air will pass through the opening and into the bottle. Upon further pressure being applied to the head 8, it will be moved into contact with the upper side of the cap and thereby close ingress through the opening 6 and at the same time cause the cap to be dished, as shown in Fig. 4, and thus compress the air within the bottle which will operate to force the medicine out through the tube 5, the quantity delivered being governed by the degree of compression or flexion of the cap. With a little practice, the operator will be enabled to dispense or distil the medicine in such quantities as he may desire.

The advantage of the employment of a cap such as that shown and described, over the ordinary plug, such as in common use, is that the cap may be attached to bottles of various sizes whereby its range of usefulness will be materially extended.

It will be seen from the foregoing description that although the improvements herein defined are simple in character they will be thoroughly efficient for the purposes designed and will coact in the presentation of a highly effective and useful article.

Having thus fully described the invention what is claimed is:—

1. As a new article of manufacture, a medicine dropper comprising a flexible cap, and a delivery tube and a valve carried by the cap and extending therethrough.

2. As a new article of manufacture, a medicine dropper comprising a flexible cap having a marginal clamp, and a delivery tube and a valve carried by the cap and extending therethrough.

3. As a new article of manufacture, a medicine dropper comprising a flexible cap, a delivery tube rotatably assembled therewith, and a self-seating double-headed valve carried by the cap.

4. As a new article of manufacture, a medicine dropper comprising a flexible cap, a delivery tube rotatably assembled therewith, and a self-seating valve disposed approximately at the center of the cap.

5. As a new article of manufacture, a medicine dropper comprising a flexible cap having a reinforced opening adjacent to its periphery, a delivery tube frictionally held within the opening, and a valve carried by the cap.

6. As a new article of manufacture, a medicine dropper comprising a flexible cap, a delivery tube projecting therethrough, a double-headed valve carried by the cap, and means for holding the valve normally seated.

7. As an article of manufacture, a medicine dropper comprising a flexible cap, a delivery tube projecting therethrough, a double-headed valve carried by the cap, and an elastic member co-acting with one of the valve heads for holding the same normally seated.

8. As a new article of manufacture, a medicine dropper comprising a flexible cap having a marginal clamp and provided at its center with an air-inlet opening and adjacent to its periphery with an orifice, a delivery tube frictionally held within the orifice, a double-headed valve having its shank of less diameter than the opening and projecting therethrough, and an elastic valve-seating member co-acting with one of the valve heads to cause the same normally to seal the opening.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JESSE ALEXANDER CLIFTON.

Witnesses:
JAS. W. ZEIGLER,
S. J. HOLLADAY.