Jan. 20, 1959 E. B. CANTOR 2,869,546

VAGINAL APPLICATOR

Filed Nov. 12, 1957

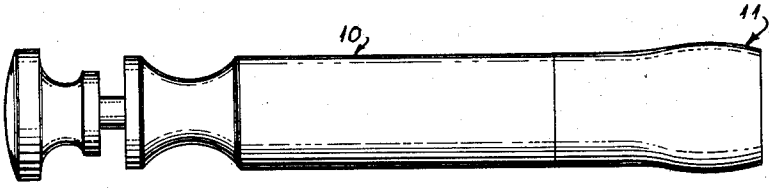


Fig. 1

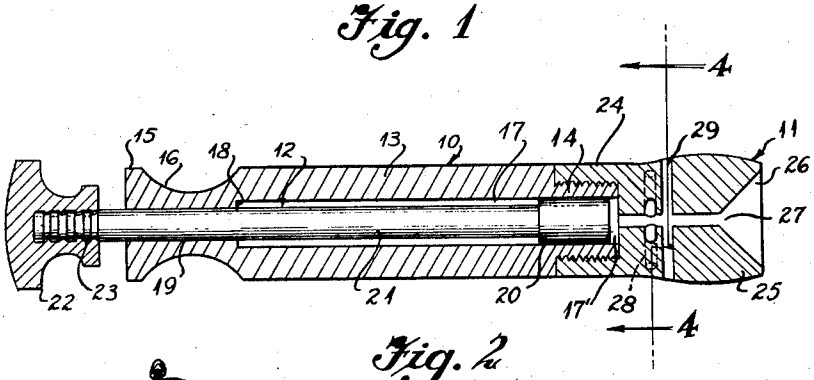


Fig. 2

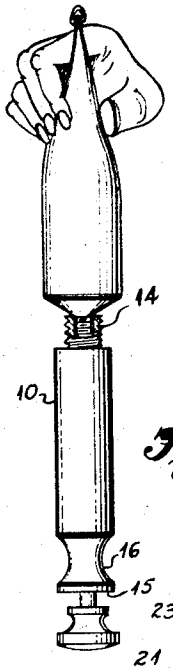


Fig. 5

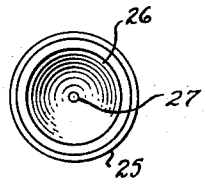


Fig. 3

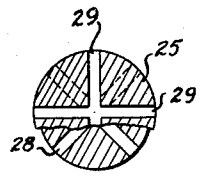
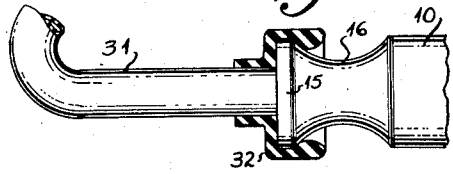


Fig. 4

Fig. 6



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VAGINAL APPLICATOR

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4 Claims. (Cl. 128—261)

This invention relates to vaginal applicators and has as its general object to provide an improved applicator for the injection of vaginal jelly, medicaments, cleansing fluids etc.

The invention deals particularly with the problem of effectively treating a cervix that is displaced from a normal position in the vagina, and in this respect the invention aims to provide an applicator having a bell mouth outlet especially adapted for accurate centering location over a normally positioned cervix but having in addition a plurality of lateral outlets for discharging medicant or jelly in an annular pattern completely encircling the vaginal cavity so as to provide a plurality of discharges one of which will register with a misplaced cervix sufficiently closely to provide for effective application of medicaments or jelly thereto.

Another object is to provide an applicator which is especially adaptable for use either in the application of medicaments such as a salve or jelly and which is as readily applicable to the delivery of a cleansing solution from a douche can. In this respect, the invention contemplates particularly a sectional applicator including a nozzle or tip, a cylinder detachably connected thereto and a piston. The applicator is used in the manner of a syringe for injecting a salve or jelly, the piston being removable upon separation of the cylinder and nozzle and the rear end of the cylinder being particularly adapted for attachment thereto of a rubber hose for connection to a douche bottle or can.

Other objects and advantages will become apparent in the ensuing specifications and appended drawings in which:

Fig. 1 is a side view of an applicator embodying the invention;

Fig. 2 is an axial sectional view of the applicator;

Fig. 3 is a front end view of the applicator nozzle;

Fig. 4 is a sectional view through the nozzle taken on the line 4—4 of Fig. 2;

Fig. 5 is a view showing the filling of the applicator with a medicament or jelly; and

Fig. 6 is a fragmentary sectional view showing the connection of a rubber hose to the applicator cylinder.

Referring now to the drawing in detail, I have shown therein, as an example of one form in which the invention may be embodied, an applicator comprising, in general, a cylinder **10**, a nozzle **11** and a plunger **12**. In the form shown, the parts are fabricated from a suitable synthetic resin plastic material by injection molding and machine finishing techniques. The cylinder **10** includes a cylindrical main body portion **13**, a reduced, externally threaded tip **14** on the forward end thereof, and a knob **15** on the rear end thereof, knob **15** being defined by an annular external groove **16** of crescent-shaped cross section. Extending through the body portion **15** and the tip **14** is a cylindrical bore **17** terminating at its rear end in an annular shoulder **18** adjacent the forward extremity of annular groove **16**. A smaller diameter bore **19** extends from shoulder **18** through the knob **15**.

Plunger **12** includes a piston **20** which is snugly fitted for sliding movement in cylinder **17**, an integral stem **21** which is snugly fitted in and extends through the smaller bore **19** and a button **22** which is releasably attached to stem **21** by means of a series of rings **23** in the outer end of stem **21**. Button **22** may be of soft rubber or of an equivalent yieldable material with internal annular beads positioned for engagement in the grooves between the rings **23** of stem **21**. Easy removal of the button **22** may be provided for by utilizing a button of sufficiently, resilient material to provide for spreading of the neck portion thereof to accommodate pulling the ringed end of the stem **21** out of the button or pushing it back into the button as the case may be, the back portion of the button spreading to accommodate the passage of the rings **23**.

A medicament receiving chamber **17'** is defined between piston **20** and nozzle **11**. Nozzle **11** includes an internally threaded collar portion **24** having internal threads to mate with the threads of cylinder tip **14** and a bulb shaped head **25** the end of which is provided with a bell mouth **26** of frusto conical form. The bell mouth **26** is adapted to receive the protruding end of a normally positioned cervix. An axially disposed passage **27** extends from the base of collar **24** to the apex of the bell mouth **26** for discharging medicament or jelly directly against the mouth of the cervix as cupped in the bell mouth **26**.

In an annular dome at the base of nozzle head **25** where it joins collar **24**, there is provided two series of radial discharge outlets **28** and **29**. Each of these series of discharge outlets consists in four passages radiating from the axial passage **27**, 90° apart, the outlets of group **28** being displaced 45° from the outlets of group **29** as indicated by the full lines and dotted lines of Fig. 4. The two groups of outlets are located in respective planes, as close to one another as possible with a thin wall of separating material between them where they come together at the central passage **27**. Between the plane of openings **29** and the rim of bell mouth **26**, the nozzle head **25** is bulged outwardly with an external surface that corresponds to an equatorial zone of a sphere, to press the vaginal walls radially outwardly slightly beyond the diameter of the nozzle at the outer extremity of discharge outlets **28, 29**. Thus there is provided a narrow annular space between the nozzle and the vaginal wall, into which the several outlets **28** and **29** can discharge medicament or jelly.

To fill the applicator, the plunger **12** is drawn rearwardly to the point where the piston **20** stops against annular shoulder **18**. The nozzle **11** is unscrewed from the tip **14** of the cylinder. Holding the cylinder in an upright position as shown in Fig. 5, the discharge neck of a flexible tube container **30** of vaginal jelly or medicant is inserted into the tip **14** as shown in Fig. 5, and a portion of the contents of the tube are squeezed into the cylinder. The nozzle **11** is then reattached to the cylinder and the applicator is ready for use in which, after insertion full depth into the vaginal canal, the plunger **12** is pushed forwardly to the position shown in Fig. 2, ejecting the contents through the axial passage **27**, the bell mouth **26** and the discharge outlets **28** and **29**. In the event a normally positioned cervix is cupped in the bell mouth **26**, the major portion of the discharge will be directed thereagainst. However, if the cervix is displaced to a point at the top or bottom or either side of the vaginal canal, the rim of the nozzle **11** may be sealed against the end of the vaginal canal to increase the lateral discharge through the outlets **28** and **29**.

The applicator may be readily converted for use in douche applications, by removing the nozzle **11**, removing the button **22** from the stem **21**, slipping the plunger

12 out of the cylinder 10, and coupling the knob to a rubber hose 31 through a flexible coupling 32 adapted to clamp over the knob 15, as shown in Fig. 6.

I claim:

1. In a vaginal applicator, a cylinder having a bore, a plunger slidable therein, a nozzle including a bulbed head and a reduced neck portion for detachable coupling to the forward end of the cylinder, said cylinder having a bore in which is defined a medicament chamber, said nozzle having an axial passage for communication with said chamber at the forward end of the cylinder, a bell mouth at the forward end of said axial passage, for cupping reception of a normally positioned cervix, and a plurality of radial outlet passages radiating from said axial passage at the junction between said bulbed head and said neck portion of the nozzle, in equidistantly circumferentially spaced relation to one another, for discharge against an eccentrically displaced cervix.

2. An applicator as defined in claim 1, wherein said nozzle head has a convex external face of a contour corresponding to an equatorial zone of a sphere.

3. An applicator as defined in claim 2, wherein said cylinder at its forward end has an externally threaded tip of reduced diameter and wherein said neck portion of the nozzle is an internally threaded collar adapted to be threaded onto said tip.

4. An applicator as defined in claim 1, wherein said cylinder at its rear end is formed with an integral knob to which a flexible hose may be coupled for delivering an irrigating liquid through the bore of said cylinder after removal of said plunger.

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