

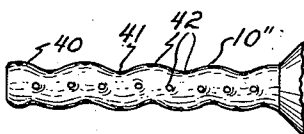
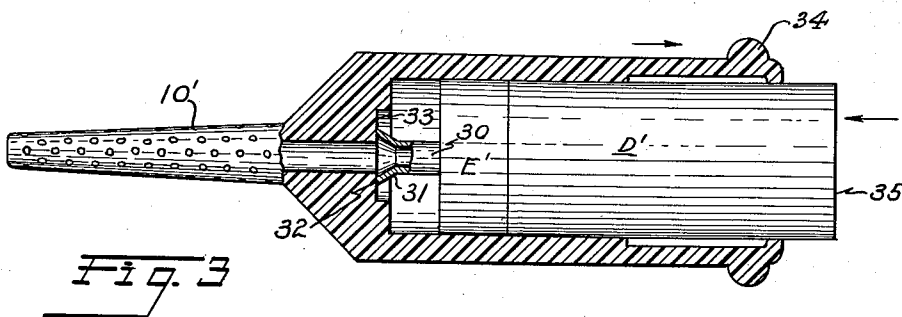
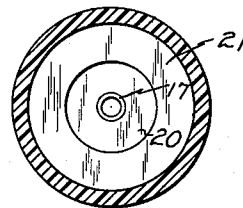
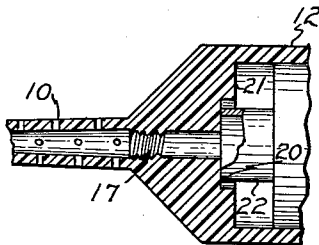
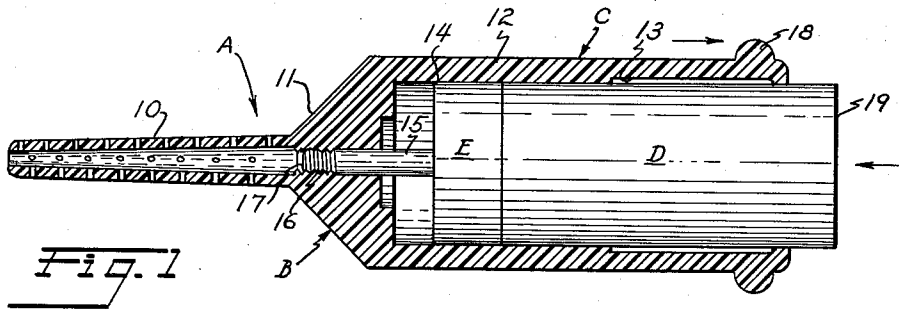
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PRESSURIZED MEANS FOR BODY CAVITY TREATMENT

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PRESSURIZED MEANS FOR BODY CAVITY TREATMENT

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Continuation of application Ser. No. 6,400, Feb. 3, 1960, now Patent No. 3,086,524, dated Apr. 6, 1963. This application Apr. 22, 1960, Ser. No. 23,962
6 Claims. (Cl. 128-224)

My present invention relates to administering means adapted for use with pressurized units and is a continuation of my prior co-pending application Serial No. 6,400, filed February 3, 1960, now Patent No. 3,086,524 for Pelvic Cavity Treating Device and Medicament Therefor.

The administering means of my prior co-pending application is formed for effective pelvic cavity treatment, while the present novel applicator is formed for rectal cavity treatment in combination with standard pressurized units and valves now mass produced by the "Aerosol Industry." The containers and valves used are optional. For example, the propellants used will determine the type of container and valve to be used and will also determine the particular formulation to be loaded in the container. Thus liquid propellants may require the usual dip tube from the valve, which valve is either metered or non-metered as desired, or when the propellant is in the form of compressed gases the dip tube may be eliminated, but in any event as far as this invention is concerned, standard valves and containers are preferably used.

An object of this invention is to provide a novel body cavity administering means, whereby the same may be coupled with standard aerosol units for treatment of the body cavities of humans or animals.

Another object is to provide a particular novel coupling arrangement for connecting the novel administering means with the valve stem or the like of a pressurized container loaded with a prescribed formulation.

A further object is to provide a novel manually actuated arrangement, whereby formulations in aerosol containers may be utilized in every instance wherein the old type squeeze bulbs and the like were heretofore used.

The foregoing and other objects and advantages of my present invention will appear more fully hereinafter from a consideration of the detailed description which follows, in conjunction with the accompanying drawings wherein several embodiments of my applicator are illustrated. It is to be expressly understood, however, that the drawings are for the purpose of illustration only and are not to be construed as a definition of the limits of the invention. Reference for this latter purpose should be had to the appended claims.

In the drawings, wherein like reference characters refer to like parts throughout the several views:

FIGURES 1 and 1A are longitudinal cross section views of one embodiment of my novel applicator, illustrating a coupled connection with standard forms of pressurized units one of which is shown with a thread coupling and the other with a non-threaded valve stem, such as are made in mass production for the aerosol industries by the valve and container companies;

FIGURE 2 is a plan view of the countersunk valve actuating and formulation releasing portion of my applicator when used with a unit having a smooth exterior

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surface on the valve stem as illustration of FIGURE 1A and such as usually is produced by the valve companies;

FIGURE 3 is a second embodiment of my applicator, wherein a countersunk annular land or surface is used to actuate the valve means of the pressurized container and wherein the standard valve stem is modified with a flared or funnel-shaped outlet tip and a smooth outer diameter.

FIGURE 4 is a third embodiment of my invention, wherein the tubular injector is undulated in the provision of convex and concave portions with the perforations arranged at such concavo-convex locations.

Generally, the present invention comprises a novel combination of a novel administering means A with a cone portion B and a skirt C and a pressurized unit D, including a valve E adapted to be nested or housed within the confines of the skirt of the administering means in operative valve actuating arrangements as illustrated in the two embodiments of FIGURES 1 and 3.

Embodiment I

(FIGURES 1, 1A and 2)

Specifically with reference to the first embodiment of my invention, the administering means A comprises an elongated injection section, such as the perforated tubular injector 10, the conical stop portion or surface 11 at the cone portion B, which is formed integrally with the injector 10, and an elongated cylindrical housing or skirt 12 having an interior bore 13, which may be of a size to frictionally contact with a portion 14 of the exterior surface of a pressurized unit D telescopically nested within the bore 13.

The applicator A for one type of valve stem, namely a valve stem 15 with coupling threads 16 thereon, has the cone portion B centrally formed with a threaded bore 17. The threads 16 and 17 are complementary and a slight turn of the means A and the valve stem 15 of the pressurized unit D couples the same together for actuating the valve E, by means of a suitable hand squeezing arrangement comprised of finger engaging means 18 formed at the free exterior end of the cylindrical housing or skirt 12 and a finger engaging surface 19 comprised of the bottom surface of the pressurized unit D, which projects from within the bore 13 beyond the free end of the cylindrical housing or skirt 12 a distance sufficient to provide for slight relative telescopic movement in reverse directions, as shown by the arrows in FIGURE 1, of the administering means A with respect to the pressurized unit D. The resultant movement of the valve stem 15, which is picked up and moved therewith by the slight movement of the administering means A, thereby opens the valve E to discharge the contents of the pressure unit D into the injector 10.

Also, in the embodiment of FIGURE 1A, there is an alternative valve actuator means provided comprising a centrally apertured countersunk surface 20 formed in the face 21 of the base of the cone portion B, see FIGURE 2. This alternative arrangement permits the use of standard pressurized units having non-threaded valve stems 22, (see FIGURE 1A).

Embodiment II

(FIGURE 3)

A second embodiment of my applicator is illustrated

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in FIGURE 3 and shows a slight modification to the usual valve stem of a pressurized unit. For example, in using non-threaded valve stems and to provide for a rapid and spreadable discharge of pressurized formulation from the unit D', a valve stem 30 is provided with a flared funnel-shaped end 31. The rim 32 of the funnel end 31 of the valve stem 30 seats on a surface 33, and upon squeezing the actuator surface 34 and the bottom surface 35 of the unit D' with the fingers of the user's or operator's hand the valve stem 30 is moved by the contacting surface 33 to open the valve E', thereby discharging the pressurized contents of the unit D' into the injector 10'.

Embodiment III

(FIGURE 4)

In the illustrated modification or embodiment of FIGURE 4, the injector tube 10' is formed with continuous undulations in the provision of annular convex and annular concave portions 40 and 41, respectively. The injector's discharge ports 42 of this arrangement are formed in the peaks and valleys of the concavo-convex portions.

By providing an undulated injector, the ejected formulation may collect in the concave annular portions, while the convex annular portions provide a spreading action of the formulation as the injector is withdrawn from the cavity after each injection.

Operation

The operation of the respective embodiments is basically identical, since the squeezing pressures applied by the fingers on the respective unit bottoms 19 and 35 and finger surfaces 18 and 34, are identical. For example, when the respective valve actuating surfaces are squeezed toward each other the valve stems 15, 22 or 30 are picked up by the fixed couple between the respective stems and the cone portions of the administering means, whereby the valve opens and discharges into the injector means 10 or 10'.

The valves used are well-known in the art and may be of any suitable standard type, such as illustrated for example in U.S. Patents 2,631,814 and 2,793,794 and British Patent No. 680,067. Thus pressure of the applicator A against the spring in these valves causes the same to unseat and allow passage of the container contents into the body cavity injector and thence to the parts of the body being treated.

Thus there is provided a novel pressurized system for injection of many formulations to treat body cavities, wherein all old forms of squeeze bulbs and syringe devices are improved upon to the extent of making them obsolete. Furthermore, by controlling pressures in the respective units used, that is, controlling the specific formulations with the particular propellants used, these units may be used to replace enema packages, suppositories and the like. For example, with such pressure and formulation controls, units in combination with the present novel administering means may replace suppositories and the like for infants with far more efficient results and simplicity of application than heretofore possible.

From the foregoing, it is believed that the several uses and operational arrangements of my invention are clearly described, so that others skilled in the art can understand and practice the same if duly authorized to do so, and that when the term of this patent has expired the public may understand and practice the invention as described in the foregoing specification as summarized in the claims appended hereto.

What I claim is:

1. In combination, an elongated hollow applicator having a discharge end and a base with a plurality of discharge openings, a handle with a bore aligned and connected to the base of said applicator, said handle having a chamber therein open at the rear end, coupling means at the juncture of the front end of said chamber and said base of said applicator, said applicator openings exhaust-

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ing laterally with respect to said bore of the hollow applicator, and a pressurized container disposed partially within said chamber in the handle, said container having a product to be discharged into said hollow applicator and through said applicator openings, said container having a valve, said valve having a hollow valve stem, said stem having a discharge outlet tip connected by said coupling means with said hollow applicator, said valve controlling the discharge of the pressurized product from the said pressurized container through said valve stem into the said hollow applicator for discharge from said applicator openings, and said container projecting from the handle bore, whereby the said valve may be opened by forward movement of said container while said valve stem is fixed against forward movement by said coupling means.

2. Pressure injection apparatus for body cavity treatment of humans and animals comprising a pressurized cartridge with a valve having a hollow valve stem in combination with an administering means having a centrally apertured cone portion, valve stem coupling means in said cone portion, an elongated perforated body cavity injector tube extending from the front end of said cone portion, a hollow skirt extending from the cone portion and housing said cartridge therein rearwardly of said cone portion, said cartridge having the rear end thereof extending from the said skirt, and manually engageable means carried by the said skirt for coactively moving said cartridge forward with respect to said skirt to open said valve, whereby the contents of said cartridge is released through said hollow valve stem into the administering means.

3. Pressure injection apparatus for body cavity treatment of humans and animals comprising a pressurized cartridge with a valve having a hollow valve stem in combination with an administering means having a centrally apertured cone portion, a hollow skirt extending from the cone portion and housing said cartridge therein with the valve stem of the unit seated around the aperture in the cone portion, and manually engageable means carried by the said skirt for moving said valve stem while the opposite end of said cartridge is manually engaged, whereby the contents of said unit is released through said hollow valve stem into the administering means, said administering means including a perforated injector tube extending from said cone portion with the bore thereof in alignment with the cone aperture and the bore of said hollow valve stem and said injector tube being undulated in the provision of concavo-convex portions.

4. In combination, an elongated hollow applicator having a discharge end and a base with at least one discharge opening therein, a hollow handle having a front end and an open rear end; said handle providing a chamber with a bore aligned and connected to the base of said applicator, an annular shoulder defining an abutment at the juncture of the front end of said chamber and the base of said applicator and a pressurized container disposed within said chamber in the handle having a product to be discharged into said hollow applicator through said opening therein, said container having a normally closed valve, said valve having a hollow valve stem, said stem having a discharge outlet tip abutting said annular shoulder, said valve controlling the discharge of the pressurized product from the said pressurized container through said valve stem into the said hollow applicator for discharge from said applicator opening, and said container projecting from the rear end of said handle, whereby the said valve may be opened by forward movement of said container while said valve stem is in abutment with said annular shoulder.

5. Body cavity applicator means for a pressurized unit having a normally closed valve with a hollow valve stem having a discharge tip for discharge of the contents of said unit from said unit through said stem when the valve is open, said applicator means comprising an elon-

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gated perforated body cavity injector tube with a bore and a relatively larger portion for movably enveloping a portion of said unit, and an annular surface defined around the base of the injector tube at the bore thereof, said hollow valve stem at the discharge tip end thereof engaging said annular surface over the said bore at the base of the injector tube, whereby said hollow valve stem is in substantial alignment with said hollow bore of said body cavity injector tube to permit discharge of the contents from said pressurized unit through said hollow valve stem and into said hollow bore of said elongated perforated body cavity injector tube when said pressurized unit is manually moved slightly forward to open said normally closed valve for discharge of the contents

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of said unit into said hollow valve stem and into said injector tube for final discharge into a body cavity.

6. The invention as described in claim 5, wherein said tip of said valve stem engaging said annular surface is funnel-shaped.

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