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 MEANS FOR ADMINISTERING PRESSURIZED
 MEDICAMENTS, GASES, COMBINATION
 THEREOF AND LIQUIDS INTO
 BODY CAVITIES
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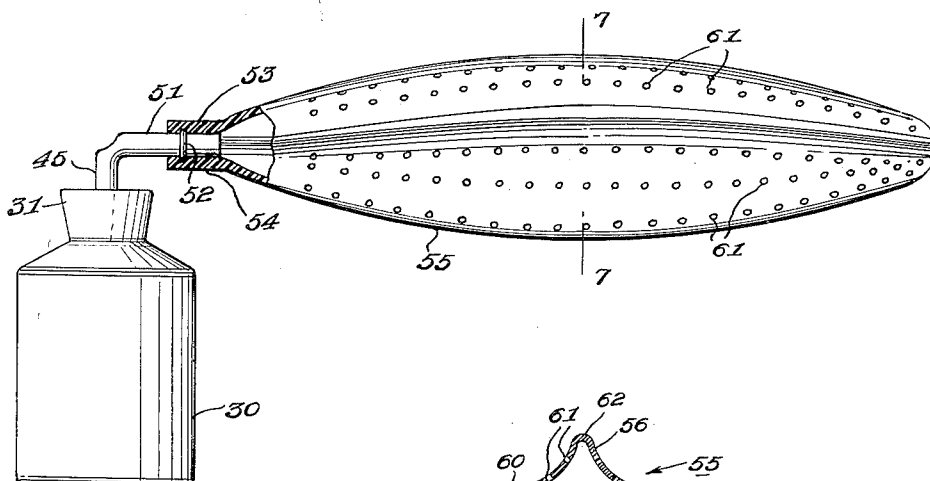


Fig. 1.

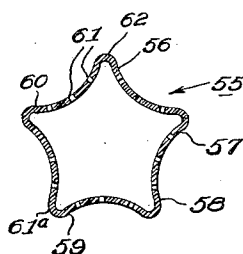


Fig. 2.

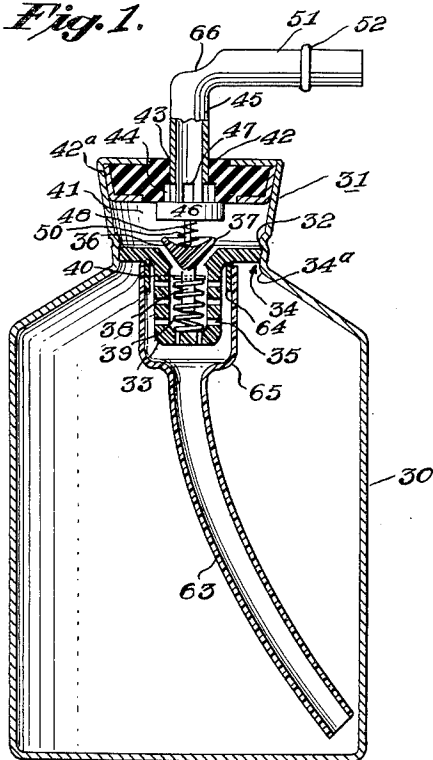


Fig. 3.

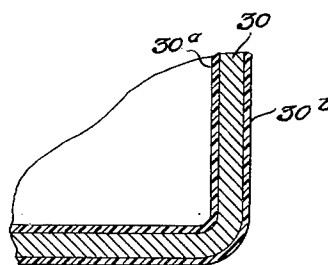


Fig. 4.

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MEANS FOR ADMINISTERING PRESSURIZED MEDICAMENTS, GASES, COMBINATION THEREOF AND LIQUIDS INTO BODY CAVITIES

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Original application Mar. 20, 1957, Ser. No. 647,352, now Patent No. 2,872,923, dated Feb. 10, 1959. Divided and this application May 21, 1958, Ser. No. 736,751

7 Claims. (Cl. 128—203)

The present invention relates to means for administering prescribed medicaments, gases, combinations of gases and medicaments, gases and micronized powders, and liquids into a body cavity and is a division of our prior co-pending application Serial No. 647,352, Patent No. 2,872,923, for Means for Administering Pressurized Medicaments, Gases, Combination Thereof and Liquids Into Body Cavities, filed March 20, 1957.

Such pressurized administration of drugs, gases, liquids and the like into various body cavities eliminates the old fashioned rubber pressure bulbs, bulky pressure tanks and gages, to thereby greatly facilitate the use and economy in use of such drugs and gases.

It is an object of this invention to provide pressurized containers in combination with a suitable metering valve arrangement and means adapted to conform to or fit any body cavity and is a further development and continuation-in-part of our prior patent application Serial Number 530,072, filed August 23, 1955, now Patent No. 2,788,784, issued April 16, 1957.

A further object is to provide an emergency pocket kit, which is very economical and which may be used and discarded for a new kit after use.

Another object is to provide means in combination with a pressurized container of fountain pen size or the like adapted to administer to a body cavity, such as the nose, ears, mouth, rectum, vagina and the like of a patient, which means is under manual control of the patient with an automatic metering arrangement therefor.

A further object is to provide for special treatment of the vaginal cavity with a novel administering means.

With these and other objects in view, the invention consists in the construction, arrangement and combination of parts hereinafter described and particularly pointed out in the claims, it being understood that we do not intend to limit ourselves to the details of construction.

In the drawings like parts throughout the several views are given like numerals and are thus identified in the following detailed description:

FIGURE 1 is an embodiment of the present invention for vaginal treatment;

FIGURE 2 is a cross-section taken on line 2—2 of FIG. 1;

FIG. 3 is a sectional detail of the metering valve of the container of FIG. 1;

FIG. 4 is a sectional detail taken through one corner of the container of FIG. 1.

Referring in detail to the invention there is disclosed in FIGURES 1, 2, 3 and 4 of the drawing, a container 30 formed of metal and coated, if desired, with plastic material 30^a and 30^b, such as polyvinyl acetate, acrylic resins and any synthetic resins in combination with butadiene products known to the plastic industry, see FIGURE 4. All such coating should preferably be non-toxic. With certain drugs and medicaments, liquids and the like, it is preferable to have no metal contact therewith, therefore substantially all of the contact areas are plastic coated when metal containers or metal valve parts are used.

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A simple quick-acting and accurate metered valve arrangement is desirable for dosage measurement of the container contents. This is particularly important for highly concentrated chemical ingredients, wherein the fixed dosage prescribed by the doctor or pharmacist is critical. Accordingly, such a valve is herein devised and also such valve is made to withstand the very high internal pressures encountered for high pressurized dispensing ranges of the treating gases or gaseous propellants, which may be loaded into the container 30.

Referring to FIGURE 3, the container 30 is formed with a flared or outwardly tapered neck 31 having an internal annular bead 32 at the lower reduced or constricted portion thereof. This bead 32 is formed by pressing the neck material inwardly and serves to securely retain a perforated thimble 33 therein, which has an annular flange 34, which flange engages below the bead 32. The bead 32 is preferably formed in the neck after the flanged thimble 33 has been wedged in the lower tapered part of the bore of the neck 31. Thus the thimble is held snugly in position in the neck bore over the container main opening 34^a.

The thimble 33 is molded of plastic with openings 35 of any desired size over or less than 2.5 microns, for example, and the wall defining the opening of thimble 33 is chamfered to form a valve seat 36 for cooperation with a valve 37. The valve 37 is formed with a stem 38 concentrically positioned in the thimble and within a centering spring 39. This spring is positioned and is compressed between the interior base of the thimble 33 and a transverse pin 40 carried by the valve stem 38. Thus normally the valve 37 is unseated and held open by either the spring 39 or the pressures in the container 30, and therefore the chambered portion 41 in the container neck is maintained loaded with the contents of the container 30. The upper part of the chamber 41, that is, the meter chamber, is formed with a second upper valve arrangement, such as is illustrated and claimed in our prior United States Patent No. 2,788,784, issued April 16, 1957. This upper valve arrangement generally includes a rubber grommet 42 with an exterior ring 42^a, formed with a center aperture 43 having a slightly enlarged bore 44. In the aperture is an outlet tube 45 formed with a valve head 46, which is seated against the under surface of the grommet 42 over the counter bore 44 inside the meter chamber 41. Above the head 46 the tube 45 is formed with rectangular openings 47. The valve is held seated by pressure within the meter chamber 41 and is provided with a peg or stud 48, which is normally centered in the bottom of a concave well portion 49 formed in the upper surface of the head of the first valve 37. Also, the peg or stud 48 may have a coiled spring 50 coiled around the same and slightly compressed between the respective oppositely seated valve heads. This second spring 50 is weaker than the first spring 39 mounted in the thimble 33.

The tube 45 may be bent to provide a right angled nozzle extension 51, which is formed with any suitable quick connect coupling arrangement, such as the annular ring 52. This ring 52, for example, will snap couple or frictionally fit, to thereby interchangeably couple with a complementary annular groove 53 formed in a plastic nipple 54 of any applicator to be used therewith, such as for example, the novel hollow vaginal applicator 55.

The applicator comprises a hollow body 55 so shaped, so proportioned and so perforated as to be insertable in a body cavity, such as the vagina and is formed with projecting elongated ribs 56, 57, 58, 59 and 60 having rounded tip portions 22 to engage and spread the walls of the cavity and gently stretch the tissues sufficiently, whereby medicaments, liquids or gaseous carried powders or the like in the container 30 and ejected from the appli-

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cator body by the pressurized container contents when the meter valve means is manually actuated, will thoroughly penetrate into the stretched tissue areas. The treating medium from the container 30 flows into the hollow applicator body 55 and is ejected therefrom through orifices 61 formed in the walls of the applicator between the respective elongated ribs 56, 57, 58, 59 and 60. As the treating medium is ejected the gaseous propellant due to the reduced diameter at the coupling end of the applicator will exhaust from the body cavity being treated around the reduced exterior coupling end of the applicator body 55, and thereby prevent a condition, such as air embolism or the like, as often results with the old type rubber bulb applicators.

In some instances it may be desirable to provide a dispensing tube 63. This tube is readily coupled by the loader to a collar 64 formed from and depending from the under side of the flange 34. The collar 64 is spaced around the thimble 33 in the form of a ball 65 to permit the full effect of the orifices 35 during the dispensing operation from the container when the tube is used. The tube and the bell portion are preferably of molded plastic material.

The operation of the device shown in FIGURE 3 is very simple and requires only the slightest lateral movement of the tube 45 to open the valve 46. This movement is facilitated by the thumb surface 66 and causes the peg or stud 48 to swing from its center position in the well of valve 37, to thereby engage the curved cam surface of the valve head 37, to thereby provide cam action and force the valve 37 closed. This obviously seals off the container contents from the meter chamber 41 and only the contents in the meter chamber will be discharged. Immediately upon release of the tube 45, the valves 46 and 37 return to their normal position, and the chamber 41 is again loaded from the container for the next metered discharge.

When the container 30 is made of glass, plastic or any transparent material, then the contents of the meter chamber 41 are visible. Therefore, in some instances it may be desirable to form windows in the neck 31 adjacent the meter chamber 41. This could be done by glass lining the neck and forming openings in the metal of the neck portion.

Although only two embodiments of the invention have been illustrated and described in detail, it is to be expressly understood that the invention is not limited thereto. Various changes may be made in the design and arrangement without departing from the spirit and scope of the invention, as will now likely occur to others skilled in the art. For a definition of the limits of the invention, reference should be had to the appended claims.

What is claimed is:

1. In combination with a pressurized disposable container filled with dispensable medication having a hollow neck portion with a metering valve arrangement and a meter chamber in said neck, said metering valve arrangement including a hollow valve stem, and an administering means comprising an elongated tubular extension so shaped and so proportioned as to conform to a cavity of the body, said extension being coupled to said valve stem in sealed relation with respect to the meter chamber, said valve stem having a manual operator means which when moved dispenses a metered amount of medication from the container into the administering means in the body cavity and the said metering valve arrangement comprising a first valve held open by pressure in

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the container and a second valve held closed by pressure in the meter chamber, said second valve being manually opened from outside the container and said first valve being closed by the opening movement of said second valve, to thereby discharge the contents of the meter chamber only.

2. A pressurized pocket size medicament container for body cavity treatment including a main contents portion and an upper relatively smaller metering contents portion with a connecting opening from the main portion, a pressure opened valve mounted in a flange transverse said opening formed with a seat for said valve, said flange serving as the bottom of said metering contents portion, said valve having a head with an upper curved cam surface, a discharge tube extending from said metering portion, said tube having a valve normally closed by the pressure in said container and the metering portion, and cam follower means carried by said valve of the said tube adapted to ride over said curved cam surface of said head of the pressure opened valve to close the same as said last-named valve is opened.

3. The pressurized container described in claim 2, wherein the said flange is wedged into the said metering portion below an annular retainer ring.

4. The pressurized container described in claim 2, wherein said flange is an integral part of a perforated thimble, said thimble enclosing a valve stem depending from said pressure opened valve and a spring coiled around said stem compressed between the bottom of said thimble and a stop member carried by the stem below the said valve.

5. The device described in claim 4, wherein the underside of said flange is formed with a depending collar, and a dispensing tube is coupled to said collar.

6. Means to administer a medicament, such as micronized powder into a cavity of the body from a disposable pressurized container loaded with said medicament, said container having a manually controlled valve having a hollow valve stem projecting from said container to provide an outlet nozzle, said administering means comprising a hollow and perforated body means, a coupling member formed on an end of said hollow valve stem adapted to couple directly to said valve outlet nozzle, said nozzle extending from said container for coupling with said hollow and perforated body means, said perforated body being so shaped, so proportioned and so perforated with respect to the cavity as to spread and stretch the tissues in the cavity and to permit forcible injection of the container contents under pressure into the cavity from the interior thereof through said perforations to the tissues and permitting exhaust of air or gas from the body cavity around the exterior of the applicator during treatment after each injection operation.

7. The means described in claim 6, wherein the said hollow body is elongated and reduced at each end, said body having elongated longitudinal spaced ribs formed with rounded tip portions, and a series of openings formed through the walls of the body between the said ribs.

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