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

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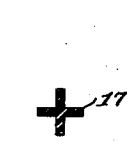


Fig. 5.

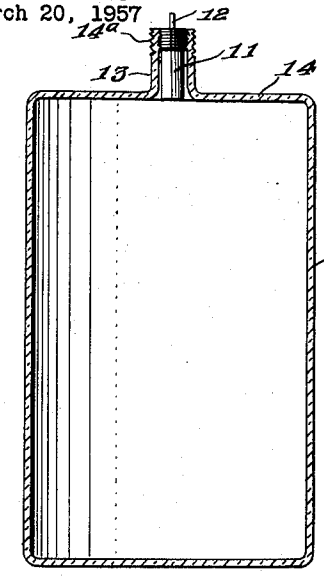


Fig. 1.

Fig. 2.

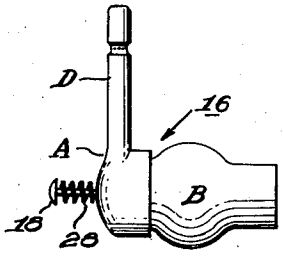


Fig. 4.

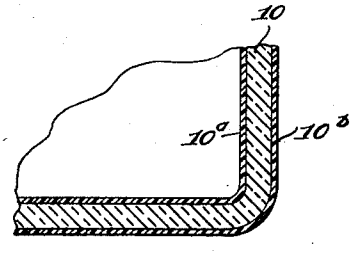


Fig. 3.

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

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10 Claims. (Cl. 128—184)

The present invention relates to means or administering pressurized medicaments, gases, combinations of gases and medicaments, gases and micronized powders, and liquids into a body cavity.

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 a cross section view of one form of pressurized container as used in combination with a body cavity administering means.

Figure 2 is a cross section view of an assembled apparatus showing a mask and metering arrangement for treating the respiratory organs by way of the mouth and nose.

Figure 3 is a cross section taken through a corner of one of the pressurized containers showing the plastic coating thereof.

Figure 4 is a cross section of an embodiment disclosing a combined metering valve and body cavity insert tube, such as a nasal, mouth, ear, vaginal or rectal insertable tube.

Figure 5 is a cross section view of the valve shaft.

Referring in detail to the drawings and first with reference to Figures 1, 2 and 3, there is shown a container 10. This container may be plastic coated with substance 10^a and 10^b both interiorly and exteriorly, as desired, and is formed with an unloading or loading valve 11, such as the usual well known Schrader valve.

A valve stem 12 and a tube means 13 project beyond the top 14 of the container and the tube 13 is exteriorly

threaded at 14^a to receive the complementary threads 15 of a medicament administering means 16, see Figures 2 and 3.

The means 16 is formed as by molding the same from translucent or transparent plastic material, such as acrylic resin compounds, or the like known to the plastic industry to provide a housing B, which houses a metering valve system. This valve system comprises a valve shaft 17 with a manual operator end 18 projecting beyond the housing dome A. The shaft 17 is centered and guided by the aligned annular surfaces 19 of the dome of the housing A, and is centered in the respective annular openings of the valve seat partitions 22 and 23. On the shaft 17 and spaced apart for the proper predetermined valve seating operation are valves 24 and 25, respectively for their valve seats 24^a and 25^a in partitions 22 and 23, respectively. The lower valve 25 is formed with a flat or cam surface 26, which is adapted to engage with the tip of valve stem 12 of pressure container 10 when it is moved to open position by manually depressing the shaft 17 by means of button 18. This action also opens valve 11 and the pressurized contents of container 10 flow into a meter chamber B defined below partition 22 and valve seat 24^a. As valves 25 and 11 open, valve 24 seats and closes chamber B off from the upper chamber C and the outlet nozzle D, which is made to conform and coact with any cavity of the body, such as the mouth, nose, ears, vagina or rectum. Various medicaments, gases, powders, liquids and anti-biotics may be used for whichever body cavity is to be treated.

Thus in operation chamber B becomes filled and pressurized equally with the container contents, when the valve shaft 17 is manually held down momentarily against the expanding force of a spring 28 engaged between the knob 18 and the exterior of the dome A of chamber B. Then when the knob 18 is released, the valves 11 and 25 are forced closed and valve 24 opens to dispense a metered amount from the chamber B and the nozzle D into the desired body cavity. This operation may be repeated as often as desired, until the contents of container 10 are exhausted, whereupon another full container may be positioned to replace the empty container.

In some instances a tube E may be desirable, particularly if the container is dispensing certain liquids or powders and is held erect, that is, with the valve in the uppermost position.

In Figure 2 another embodiment of the system is illustrated for use as an emergency metered oxygen administering arrangement and includes a mask 29 with a friction coupling 30 and an annular ring 31 for snap-on connection with the tip D of Figure 2. This mask is similar to that shown in our prior patent No. 2,788,784, issued April 16, 1957.

The dispensing tube E when used is attachable over the end of the Schrader valve body and the coupled end of the tube E is held in position between the walls of the interior bore of the valve holding tube 13 and the exterior wall of the valve body 11. Thus the dispensing tube E is attachable or detachable as may be desired.

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. Means for supplying medicament from a pressurized container into the respiratory system of the human body, said means comprising a mask having an air inhalation valve means, an exhalation valve means, a medicament

inlet having the bore formed with an annular coupling ring, and manually opened and pressure closed valve means in said container having a tubular extension with an exterior groove adapted to receive the said coupling ring of said mask inlet, said valve means being a metered valve.

2. Means for supplying medicament from a pressurized container into the respiratory system of the human body, said means comprising a mask having an air inhalation valve means, an exhalation valve means, a medicament inlet, and manually opened and pressure closed valve means in said container coupled to said mask inlet, a valve housing for said valve connectable to said mask, said valve means comprising a shaft having two valves thereon adapted to alternately open and close with respect to each other, to thereby alternately fill and empty a metering chamber into the confines of said mask.

3. In combination, means so shaped and so proportioned as to conform to a cavity of the body for administering the content of a pressurized container into the cavity, and a pocket size container for holding the said pressurized contents; said means having a detachable coupling connection, and said container having a coupling connection adapted to cooperatively connect with said detachable coupling of said administering means, said container having an opening in a wall thereof, a pressure closed valve mounted in the opening, a valve stem movable axially and connected to said valve, and a manually operated meter valve operating said first valve, whereby the pressurized contents of the container by axial movement of said stem releases the contents of said container into the meter chamber of the meter valve and into the said administering means.

4. Means for manually administering medicaments, gases, powdered drugs and the like into a body cavity by pressure from a valved pocket size disposable container comprising in combination a valved administering means adapted to conform to a body cavity and to couple to said container, said means including a valve controlled metering chamber, means adapted to release the pressurized contents of the valved container into said metering chamber, and manually opened and closed valve means being adapted to move with said release means to control the dispensing of said pressurized contents in metered amounts into the body cavity from said metering chamber, said means adapted to release the pressurized contents comprising a surface engageable with the valved portion in the opening of the pressurized container.

5. In combination with a pressurized disposable container for storing medicaments, gases, combinations of gases, powdered drugs and the like, a metering system comprising a transparent plastic housing, said housing being divided into a meter chamber for receiving metered amounts from the container and into a connected discharge chamber for administering the contents from said meter chamber into a cavity of the body, and valve means controlling said metered amounts, said discharge chamber including means adapted to conform to the body cavity and exhaust the said medicaments, gases, combinations of gases, powdered drugs and the like.

6. The combination set forth in claim 5, wherein the said valve means in said transparent housing comprises a manually controlled valve shaft, a pair of spaced valves secured to the shaft, one of said valves controlling the supply from the container into the meter chamber when the valve shaft is manually depressed and the other of said valves controlling the discharge of the contents from said meter chamber when the valve shaft is released.

7. In combination, a pressurized pocket size throw-away container having a reduced neck portion, a pressure closed valve in said neck portion, and a body cavity conforming administering device, a metering chamber connecting with said body cavity administering device mounted above said valve adapted to be loaded by said pressure closed valve, and manually operated valve means operatively associated with said pressure closed valve and the metering chamber adapted to control the opening and closing of said pressure valve, said manually operated valve means being mounted in the walls of said metering chamber and opening alternately with respect to said pressure valve to discharge the said metering chamber after each loading thereof by opening said pressure closed valve while said manual valve means remains closed.

8. The combination described in claim 7, wherein the said metering chamber is made of transparent material.

9. The combination described in claim 7, wherein the said manually operated valve means includes pressure valve engaging means adapted to cam operate said pressure valve.

10. The combination described in claim 7, wherein the said manually operated valve means comprises a pair of spaced upper and lower valves adapted to alternately open and close, said lower valve serving to cam open said pressure valve when it is opened and said upper valve simultaneously closing when said lower valve is opening, and spring means for opening said upper valve and permitting said lower valve and said pressure valve to simultaneously close when said upper valve is opened to discharge the meter chamber.

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CERTIFICATE OF CORRECTION

Patent No. 2,872,923 February 10, 1959

Herbert M. Birch et al.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 1, line 15, for "means or" read -- means for --; column 2, line 3, for "2 and 3" read -- 2 and 4 --.

Signed and sealed this 2nd day of June 1959.

(SEAL)

Attest:

KARL H. AXLINE

Attesting Officer

ROBERT C. WATSON
Commissioner of Patents