

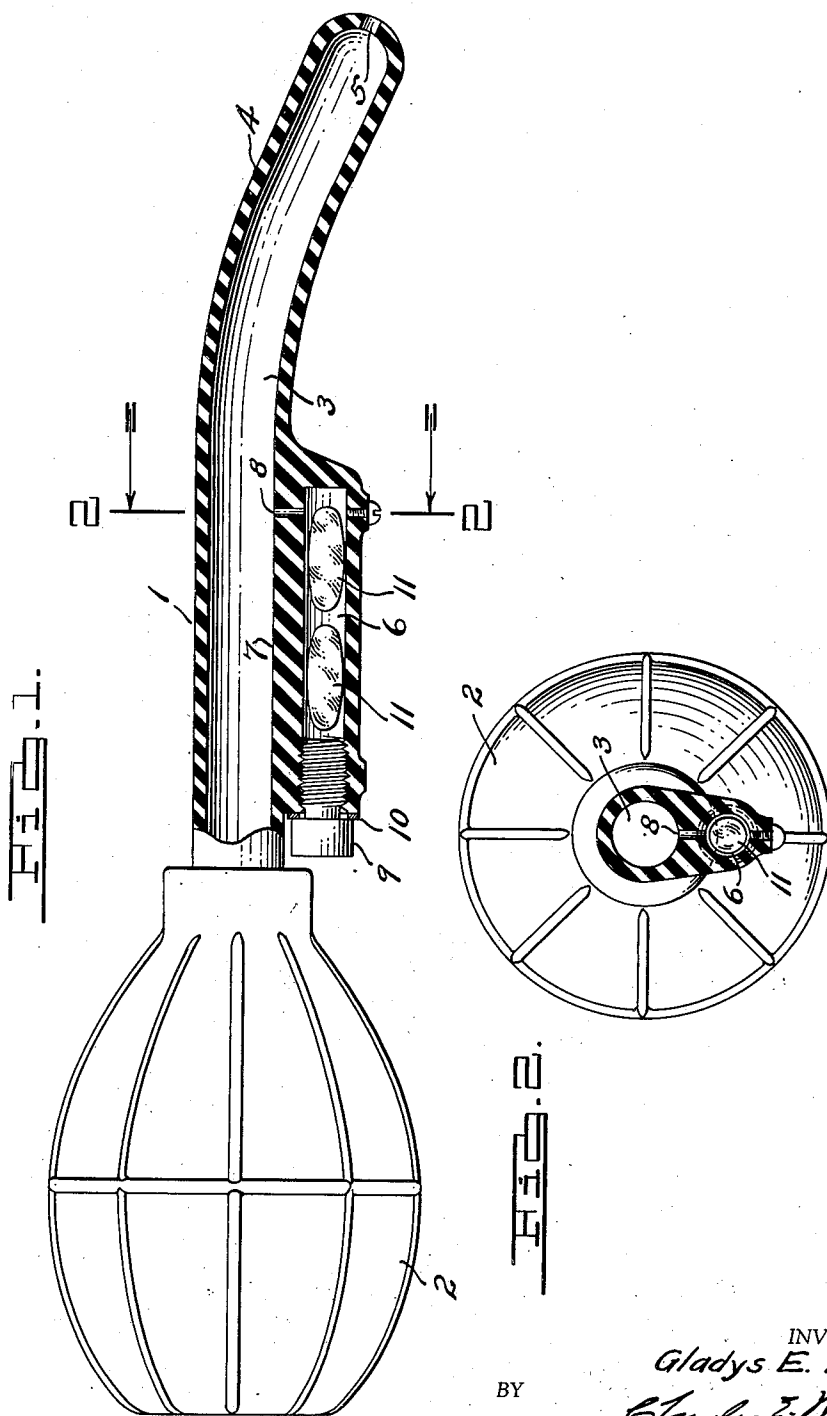
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SYRINGE

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BY

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SYRINGE

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3 Claims. (Cl. 128—231)

This invention relates to syringes, more particularly to that type of syringe utilized to irrigate and convey a medicated liquid directly to an internal part of the human body such as the rectum, bowels, or vagina.

An object of the invention is to provide a syringe of the character described that is of simple and comparatively inexpensive construction and is of the bulb type wherein, in the act of filling with water and expelling the same by pressure on the bulb, water during the expelling of the liquid is forced into a chamber containing a medicine in a compressed form which, in the compression and expansion of the bulb, will cause a definite amount of the medicine to be discharged into the liquid being expelled.

The invention further consists in the structure and arrangement of the parts whereby the apparatus is caused to function at each operation of the syringe.

As previously stated, the syringe is adapted for irrigating and applying a medicine of a desired character such, for instance as permanganate of potash, dioljen, mentholine blue etc., or other type of medicine as may be required for the parts being treated.

These and other objects and novel features of the invention are hereinafter more fully described and claimed, and the preferred form of construction of a syringe embodying my invention is shown in the accompanying drawing in which—

Fig. 1 is a partial section showing the operative parts of my improved syringe in the preferred form of construction.

Fig. 2 is a section taken on line 2—2 of Fig. 1.

The syringe consists of a nozzle portion 1, to the end of which is secured a compressible bulb 2. The nozzle portion 1 may be of any desired material such as hard rubber and the bulb itself may be of flexible rubber. The nozzle has a channel 3 therein which opens to the bulb and may be of any desired form here shown as having an end portion 4 extending on a curve to the remaining portion of the nozzle and at the end or tip, the nozzle is provided with a discharge aperture 5.

The bulb on the lower side of the nozzle in the construction herein shown is formed with an enlargement providing a chamber 6 and the wall 7 between the chamber 6 and the channel 3 is provided with an aperture 8 providing for communication between the forward end of the chamber 6 and the channel 3. At the rear end, the chamber is provided with threads to receive the threaded plug 9, a flexible packing 10 being provided between the under side of the head and the face

of the enlarged portion in which the chamber 6 is provided and thus the chamber is sealed to atmosphere at the plugged end. By removal of the plug 9, the tablets 11 may be readily introduced into the chamber 6.

The medicine to be used is in the form of compressed capsule shaped tablets 11. The hard compressed tablets do not rapidly disintegrate or the grains tend to plug the outlet 8 of the chamber 6 as may be the case with a medicine of loose granular form.

The syringe functions in the following manner:

The nozzle end 4 is introduced into a container of clear water, the bulb 2 compressed to force considerable of the air out of the channel 3 through the aperture 5 but the air which is contained in the chamber 6 will not be forced out due to the fact that it is under pressure of the air caused by compressing the bulb in the channel 3 in expelling air from the nozzle. On release of the bulb, suction is produced in the channel 3 drawing the clear liquid into the channel 3 and possibly into the bulb and the air pressure in the chamber 6 is released. Now, upon expelling the clear liquid in the first instance of use, liquid pressure is developed in the channel 3 and liquid is forced into the chamber 6 and about the tablets therein and compressing the air in the chamber. Upon again introducing the nozzle end 4 into the vessel containing clear water and expelling the air, the subsequent release of the bulb will again draw clear water into the channel and the air under pressure produced in previous discharge of liquid forces the now medicated liquid through the aperture 8 into the liquid in the channel 3. Thus, after the first filling of the syringe with clear water and discharging the same, each succeeding operation of the syringe will, in expelling the liquid, carry with it medicated liquid from the chamber 6. Therefore, operation of the device subsequent to the initial operation as described, clear liquid drawn into the syringe is impregnated with a predetermined quantity of medicine.

For different medicines or for different purposes, the amount of the medicated liquid in comparison to the amount of the liquid discharged from the device can be quite carefully determined by variation in the diameter of the aperture 8 leading to the chamber 6 and the device will continue to function until the tablets have all been dissolved and discharged into the main body of liquid in the manner described.

The syringe or irrigator is of such character as to make vaginal hygiene a simple procedure, the correct amount of the medication being auto-

5 matically mixed with water at each operation. Preferably, the medication is in the form of long bars loosely fitting the chamber and these are compressed to such firmness that their solubility is limited to saturating the water coming in contact with it. The invention is not restricted to the particular size of the chamber or of the device itself as it may be made in various sizes, depending upon the amount of medicated liquid desired to be discharged at each filling of the device, the aperture between the tablet container and the nozzle being also varied, and it is further pointed out that the current of water entering the bulb by suction carries the saturated solution from the chamber 6 into the water where it is reduced in strength by mixing with the water in the bulb. By use of a medicine in a solid form, the device may be used for a long period of time without necessity of recharging the chamber.

10 It is believed evident from the foregoing description, that the device is very simple and inexpensive in construction; that the operation is automatic in the discharge of a predetermined quantity of medicated liquid into a body of water first drawn into the nozzle and bulb and then expelled, and that the various objects of the invention are attained by the structure described, it being understood that various changes may be made in the structure without departing from the spirit and scope of the invention as set forth in the appended claims.

15 Having thus briefly described my invention, its utility and mode of operation, what I claim and desire to secure by Letters Patent of the United States is—

1. A syringe comprising a nozzle having a discharge aperture at one end, the opposite end being open, a collapsible bulb attached to said open end, said nozzle being formed to provide a chamber separated from the nozzle by an intervening common wall and having a closable opening to atmosphere at one end, there being an aperture in the said wall of less cross sectional area than the cross sectional area of the container providing for communication between the nozzle and the chamber at a distance from the closable end through which liquid when under pressure in the nozzle may enter the cham-

ber to contact with the medicinal material therein.

2. A syringe comprising a nozzle having a discharge aperture at one end, means at the opposite end operable to force liquid under pressure through the discharge aperture and on reduction in pressure in the nozzle to draw liquid into the nozzle, a container for medicinal tablets provided on one side of the nozzle and extending longitudinally thereof with its axis substantially parallel with the nozzle axis, there being a restricted passageway between the nozzle and the tablet container adjacent one end thereof, said container having an opening for introduction of tablets thereinto, and removable means for sealing said opening to atmosphere, the whole providing a structure wherein, as liquid is forced from the nozzle under pressure, a portion thereof is forced into the container thereby compressing air in the container that, upon certain reduction of pressure in the nozzle, expands and discharges a medicated liquid into the nozzle.

3. A syringe comprising a nozzle having a discharge aperture at one end, means at the opposite end operable to alternately force liquid under pressure through the discharge aperture and by reduction in pressure draw liquid into the nozzle, and a tablet container having a restricted opening at one end thereof in communication with the nozzle, said restricted opening being of less cross sectional area than the cross sectional area of the discharge aperture of the nozzle and of materially less cross sectional area than the cross sectional area of the container, the length of the tablet container being greater than the distance thereacross in any direction at a right angle to its axis, said tablet container having an opening at the end opposite the end having the restricted opening for introduction of tablets therein, and removable means for closing and sealing the said opening to atmosphere, the arrangement providing that when the liquid in the nozzle is under pressure, a portion thereof is forced into the tablet container whereby, on reduction in pressure in the nozzle, liquid is forced by the air in the container into the nozzle to mix with liquid drawn into the nozzle by the said reduction in pressure.

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