March 11, 1952 A. R. GOW ET AL 2,588,381

SYRINGE

Filed June 13, 1947

Fig. 1.

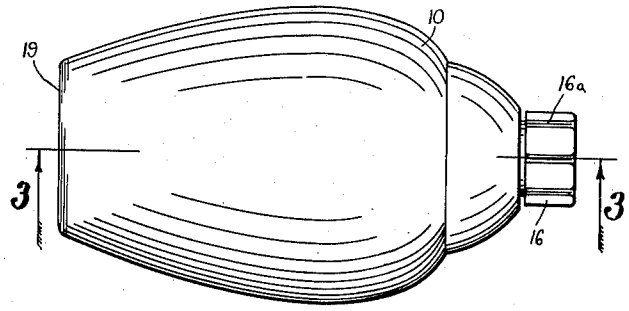


Fig. 2.

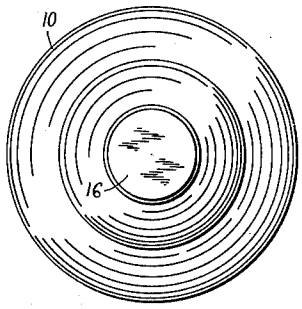


Fig. 3.

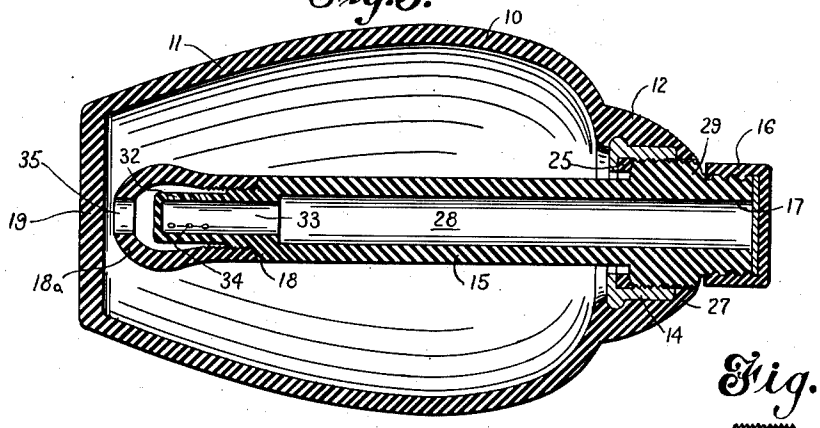


Fig. 6.

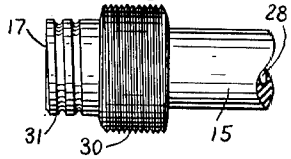
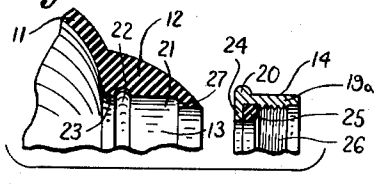


Fig. 4.

Fig. 5.



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SYRINGE

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10 Claims. (Cl. 128—232)

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This invention relates to syringes, and more particularly to vaginal syringes of the type in which the article comprises a compressible bulb, a douche pipe, and a shield limiting the insertion of the douche pipe.

One of the objects is to provide an improved vaginal syringe.

Another object is to provide an article of this class which can be packed in a small space, this being of advantage in merchandising the article and in the carrying of the article by the user in traveling.

Another object is to provide an article which, in being carried about, as in traveling, may be filled with liquid and can be quickly readied for use in a convenient manner.

Another object is to furnish an article of this kind in which manipulation by the user is easy and convenient.

In the accompanying drawing:

Fig. 1 is an elevation of a syringe embodying the invention, the same being in convenient form for transportation, the douche pipe being extended into the interior of the bulb;

Fig. 2 is an end view of the article as shown in Fig. 1;

Fig. 3 is an enlarged section on line 3—3 of Fig. 1;

Fig. 4 is a view similar to Fig. 3, but showing the douche pipe reversed so as to extend outwardly, the outer end portion of the douche pipe being broken away;

Fig. 5 is an exploded sectional view showing the discharge end of the bulb and the bushing or nipple which receives the douche pipe; and

Fig. 6 is an external view of a portion of the douche pipe.

In the article shown in the drawing for purposes of illustration, the body of the syringe is in the form of a compressible elastic bulb of round cross section having at one end a filling and discharging opening with which is associated a shield portion of soft rubber integral with the soft rubber bulb. That portion of the body upon which the shield is provided receives, in a detachable manner, a bushing or nipple which is used for securing in place the douche pipe, the latter, as usual, being constructed of hard rubber. The douche pipe can be secured in a position in which the pipe extends into the interior of the bulb, as shown in Fig. 3, under which conditions a cap is placed over the butt end of the douche pipe, as hereinafter described; or the douche pipe may be secured in a position in which the pipe extends

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outwardly, as shown in Fig. 4, which is the position for use.

In the drawing, the body of the syringe is generally indicated at 10, the same comprising, respectively, bulb and shield portions 11 and 12. The discharge portion of the body is indicated at 13, the bushing at 14, the douche pipe at 15, and the cap, previously mentioned, at 16. The butt end portion of the douche pipe is indicated at 17, and the discharge end at 18.

The body 11 is of round cross section, and the end opposite the discharge 13 has a flat or planar wall 19 enabling the syringe to be stood upright on a table or other support. From the closed end, the body 11 increases gradually in diameter up to a certain region and then decreases on a curve to provide a bulb which, in this particular case, has the shape of a vase or jar. The shield portion 12 projects from the bulb, and in this form the exterior of the shield is on a curve, the diameter increasing from the free end of the shield to the zone of juncture with the bulb portion of the body. The discharge portion 13 provided in the shield portion of the article has generally the character of a bore provided with portions of different diameters, this part of the article being adapted to be distended so as to receive and hold firmly the bushing or liner 14. The bushing 14 may be made of hard rubber or other suitable plastic. In the case shown it is made of a plastic other than rubber. It is characterized by a cylindrical ringlike body 19a having a smooth outer surface and provided at one end with an integral rounded bead 20, this end being the inner end with relation to the discharge outlet of the syringe. The body 19a is received in a portion 21 of discharge opening 13, and the bead 20 is received in a correspondingly shaped groove 22, and when the bushing is installed its inner end leaves uncovered an annular space 23 provided in the discharge portion of the body. The inner end of the bushing is provided with an inturned flange 24 against which is placed an elastic washer 25, the bushing being of cup shape to receive this washer. Forwardly of this washer (Fig. 5) the bushing is provided with interior screw threads 26. The forward end of the bushing, when the latter is in the assembled position, is overlain by a shoulder 27 integral with the syringe body. By distending the open end of the syringe body, the bushing can be inserted into place, and when in place the compressive action of the rubber in the shield portion of the body will hold the bushing very firmly against displacement.

The douche pipe 15 has an interior bore 28

which in this form extends from the butt end of the pipe to a point near the discharge of the pipe. Provided upon the pipe at some distance from the butt end is an integral enlargement 29 provided upon its periphery with screw threads 30 adapted to engage the threads of the bushing. The enlargement 29 is shaped at the respective ends in a manner to provide shoulders adapted to engage the washer 25 for the purpose of preventing leakage between the exterior of the pipe and the interior of the bushing. From what has been said above, it will be apparent that there is no leakage between the exterior of the bushing and the interior of the rubber body. Forwardly of the enlargement 29 the exterior of the douche pipe is smooth (Fig. 4), and rearwardly of the enlargement there is a pipe portion of somewhat greater diameter than the main portion of the pipe, which portion of greater diameter is provided with coarse external screw threads 31 adapted to be engaged by corresponding threads formed on the interior of the cap 16.

The cap 16 is a cup-shaped cap, and its threads are formed upon its cylindrical wall, and, when placed on the pipe in the position shown in Fig. 3, its body extends over the open butt end of the pipe and is pressed against it in a manner to prevent liquid within the pipe from having egress, the cap body being firmly pressed against the pipe end. For purposes of convenient manipulation, the cap 16 has its periphery suitably roughened, and in the form shown the roughening is provided by forming grooves 16a upon the cap.

In the form shown, the discharge end portion 18 of the pipe includes a bulbous nozzle member 18a screwed onto a pipe extension 32 that is of reduced diameter, the pipe extension being provided with a bore 33 in communication with the bore 28, the bore 33 being closed at the outer end, and the extension having a number of small side openings 34. The discharge from the member 18a is through an end opening 35 provided therein.

The portion of the pipe which projects into the interior of the syringe body, as shown in Fig. 3, may be straight, as in the form shown, or it may be bent, if desired, so as to be disposed at a slight angle to the axis of the syringe body.

In the use of the syringe, the parts are in the position shown in Fig. 4, the butt end portion 17 of the pipe extending into the bulb portion to a certain degree, and the pipe being firmly held in the discharge end of the syringe body in a leak-proof manner. The liquid is forced out by compressing the bulb, and is drawn back into the bulb by releasing the pressure. The shield portion 12 is interiorly supported by the pipe and by the bushing or liner, and this shield portion, with its curved outer surface, acts as a stop member to limit the insertion of the pipe, and a shoulder portion of the enlargement 29 is in this position in line with the curved surface of the shield or stop so as to form in effect a continuation thereof, all of the exterior surfaces in this region being smooth and without projections.

In packing the article, for example in traveling, the douche pipe can be placed in the position shown in Fig. 3. The discharge portion 18 of the douche pipe is of a diameter such that it can be introduced into the interior of the bulb. With this in view, sufficient clearance is provided between the discharge end of the pipe and the bushing 14. That part of the bushing which has the smallest diameter is the perforated bottom portion of the bushing that provides the inwardly extending flange 24, and the end of the douche pipe will pass through the opening provided in this part of the bushing. Also it will be noted that in the form shown the discharge end of the douche pipe, in the position of Fig. 3, will extend close to the wall 19 of the bulb. In placing the pipe in the position shown in Fig. 3, the cap 16 may be screwed onto the butt end of the pipe, and the pipe screwed into the bushing, using the cap as a manipulating member; or the pipe may be screwed into the bushing, using the butt end of the pipe with its coarse threads as a manipulating member, the cap being applied afterward. In removing the pipe from the position of Fig. 3, the same is screwed out of its securing socket, making use of the cap 16, or making use of the butt end of the pipe, whichever is more convenient.

When in the position of Fig. 3, the article will carry liquid in a leakproof manner, the liquid being introduced through the open end of the bulb, and the pipe being then screwed into the position shown and the cap 16 being used to seal the butt end of the pipe. The bulb may be in a filled condition as carried about, and can be quickly readied for use in a convenient manner, inasmuch as it is only necessary to unscrew the pipe, withdraw it from the receptacle, and place it on the receptacle in the reversed position, the cap 16 being removed before the pipe is reversed. As shown in Fig. 4, the extension on the pipe carrying the screw threads for the cap is of slightly greater diameter than the main portion of the pipe, but will clear the bushing, and the extension projects to a slight extent within the body of the bulb.

Preferably when the article is in the position shown in Fig. 3, there is only a small clearance between the inner edge of the cap 16 and the outer edge of the shield, the two being in close proximity to each other.

In the form shown, the bushing is fully covered by the rubber or rubberlike material of the syringe body, so as to be concealed, and in the reversed position of Fig. 3 the extension on the douche pipe extends longitudinally out of the body to a substantial degree, so as to provide for ready application of the closing cap, which will close the pipe.

The article can be readily sterilized, as will be apparent, it being unnecessary in doing this to remove the bushing or insert, which, for all practical purposes, is a permanent part of the body.

The syringe as herein described comprises a minimum number of parts and can be readily packed in a small space, which is a great convenience, and may be carried about when filled with liquid, thereby considerably increasing its scope and utility.

It is a matter of distinct advantage that the article can be filled with liquid before going on a trip so as to be easily available for use, and it is also distinctly advantageous that, as carried about from place to place, the article not only takes up a minimum of space but is devoid of cumbersome or projecting parts, and is compact so as to be conveniently portable. Moreover, as traveling equipment the article has an attractive appearance. Another advantage arises from the fact that the wall of the receptacle may be of relatively thick and tough rubber so as to possess a high degree of strength. When of such a structure, the receptacle, if subjected to any reasonable amount of pressure, will offer ample re-

sistance so that rupture, with consequent leakage of liquid, will be avoided.

When the article is being carried about in the closed, filled position, a shoulder on one end of the enlargement 29, acting as a shut-off valve co-acting with the seat provided in the bushing, effectively prevents liquid from leaking out along the external surface of the pipe. In the operative position of the article the shoulder at the opposite end of the enlargement has a similar action. The rubber at the forward end of the shield portion overlying the forward edge or end of the bushing also assists in preventing leakage of liquid. The external bead on the bushing presents a shoulder which assists in positioning the bushing longitudinally with reference to the discharge portion of the bulb body.

With regard to the resistance offered to rupturing strains, it is to be noted that the shape given to the syringe body is such as to be of distinct benefit in this connection, the wall being curved transversely of the article and also longitudinally thereof. Furthermore, the article has a flat base adapting it to rest on a table or the like, and when the douche pipe is turned inwardly the center of gravity is quite low so that when placed on a table it is supported in a stable manner.

Various modifications and changes in the details may be made without departing from the principles of the invention or the scope of the claims. The illustrated embodiment is by way of example only.

What we claim is:

1. In a syringe such as described, an elastic body having a bulb portion and a shield portion integral with each other, the shield portion being provided with a discharge passage, a bushing mounted in said passage, and a douche pipe adapted to be screwed into said bushing with the pipe in an outwardly projecting position or to be screwed into the bushing with the pipe in an inwardly extending position, and closure means for closing the butt end portion of the pipe to prevent outward leakage of liquid when the pipe is in the inwardly extending position, said pipe having between its ends an enlargement carrying screw threads which engage threads in the bushing in both positions of the pipe, said enlargement on the pipe having a shoulder at one end acting as a sealing member in connection with the bushing in one position of the pipe and having at the opposite end a shoulder which acts as a sealing member in the other position of the pipe.

2. In a vaginal syringe, an elastic bulb-like body adapted to be compressed for causing discharge of liquid and having a discharge portion, a bushing mounted in said portion, and a douche pipe adapted to be screwed into said bushing with the pipe in an outwardly projecting position or to be screwed into the bushing with the pipe in an inwardly extending position and having at its butt end portion provisions for attaching a closing cap, said bushing having associated with its inner or rear end an internal seat of less diameter than the threaded part of the bushing, and said douche pipe carrying integral shouldered valve means of less diameter than the threaded part of the bushing which in the inwardly extending position of the pipe co-acts with said seat in preventing leakage of liquid.

3. In a vaginal syringe, an elastic bulb-like body adapted to be compressed for causing discharge of liquid and having a discharge portion, a bushing mounted in said portion, and a douche pipe adapted to be screwed into said bushing with

the pipe in an outwardly projecting position or to be screwed into the bushing with the pipe in an inwardly extending position and having at its butt end portion provisions for attaching a closing cap, said bushing having associated with its inner or rear end an internal seat, and said douche pipe carrying integral shouldered valve means which in the inwardly extending position of the pipe co-acts with said seat in preventing leakage of liquid, said bushing having a forward or outer end terminating short of the forward or outer end of said discharge portion and provided with a forward edge, and said discharge portion overlying said forward edge.

4. In a vaginal syringe, a hollow elastic body adapted to be compressed for causing discharge of liquid and having a discharge portion, a bushing mounted in said discharge portion, and a douche pipe adapted to be screwed into said bushing with the pipe in an outwardly projecting position or to be screwed into the bushing with the pipe in an inwardly extending or reversed position and having at its butt end provisions for holding a closing cap, said bushing having associated with its inner or rear end an internal resilient seat, and the douche pipe carrying shouldered valve means which in the inwardly projecting position of the pipe co-acts with said seat in preventing leakage of liquid and carrying other shouldered valve means which in the reversed position of the pipe co-acts with said seat in preventing leakage of liquid, said body having at its forward end an integral shield portion with a convex outer surface overlying and extending forwardly beyond the forward edge of said bushing.

5. In a vaginal syringe, a hollow elastic body adapted to be compressed for causing discharge of liquid and having a discharge portion, a bushing mounted in said discharge portion, and a douche pipe adapted to be screwed into said bushing with the pipe in an outwardly projecting position or to be screwed into the bushing with the pipe in an inwardly extending or reversed position and having at its butt end provisions for holding a closing cap, said bushing having associated with its inner or rear end an internal resilient seat, and the douche pipe carrying shouldered valve means which in the inwardly projecting position of the pipe co-acts with said seat in preventing leakage of liquid and carrying other shouldered valve means which in the reversed position of the pipe co-acts with said seat in preventing leakage of liquid, said body having at its forward end an integral shield portion with a convex outer surface overlying and extending forwardly beyond the forward edge of said bushing, the two shouldered valve means carried by the pipe comprising shoulders provided at the respective ends of a cylindrical enlargement of the pipe short of its closing-cap-attaching portion, the external surface of which enlargement carries the screw threads by means of which the pipe is screwed into the bushing in the aforesaid positions.

6. In a vaginal syringe, an elastic body comprising a bulb portion and a terminal shield portion formed integrally with each other, the shield portion being of less diameter than the adjacent part of the bulb portion and having a tapering wall increasing in thickness rearwardly from the forward end and having a juncture with the bulb portion creating a shoulder, the shield portion and the forward end of the bulb portion having a longitudinal opening or bore acting as a discharge portion for the body, an internally thread-

ed liner in said discharge portion, and a douche pipe adapted to be screwed into said liner with the pipe in an outwardly projecting position or in an inwardly extending position, the forward end of said shield portion overlying the forward end of said liner so as to conceal the liner and assist in preventing leakage of liquid, said liner having an inwardly extending flange at its inner or rear end and a washer engaging said flange and providing an internal seat, said douche pipe carrying shouldered valve means which in the different aforesaid positions of the pipe co-acts with said seat in preventing leakage of liquid.

7. In a vaginal syringe, an elastic body comprising a bulb portion and a terminal shield portion formed integrally with each other, said body having a discharge opening formed partly in the bulb portion and partly in the shield portion, the shield portion having a thin wall at the forward end of the discharge opening increasing progressively in thickness and joining the bulb portion by a junction presenting an external shoulder, a bushing mounted within said discharge opening and having internal screw threads, said bushing having a forward edge overlain and concealed by the forward edge of said shield portion, and the bushing also having means intermediate of the length of the discharge opening for preventing longitudinal dislocation of the bushing with respect to said opening, and a douche pipe having external screw threads adapting it to be screwed into the bushing either in an outwardly projecting position or in an inwardly extending position, said pipe having sealing means cooperating in both of said positions with sealing means disposed intermediate the ends of the bushing to prevent leakage of liquid along the external surface of the pipe.

8. In a vaginal syringe, an elastic bulb-like body adapted to be compressed for causing discharge of liquid and having a discharge portion, a bushing mounted in said portion provided with internal screw threads, said bushing being of less length than said discharge portion and located intermediate of the ends thereof and provided with means for anchoring it in the bulb-like body, and a douche pipe having external screw threads adapting it to be screwed into the bushing either in an outwardly projecting position or in an inwardly extending position, said pipe having sealing means of less diameter than the threaded part of said bushing cooperating in both of said positions with internal sealing means provided within the bushing and disposed intermediate the ends of the bushing to prevent leakage of liquid along the external surface of the pipe.

9. In a vaginal syringe, a hollow elastic body adapted to be compressed for causing discharge of liquid and having a discharge portion interiorly threaded and provided intermediate of its ends with an internal forwardly facing seat, and a douche pipe having a series of external threads adjacent the butt end and adapted to be screwed into said discharge portion with the pipe in an outwardly projecting position or an inwardly projecting position, said douche pipe carrying shouldered valve means which in the outwardly projecting position of the pipe co-acts with said seat in preventing leakage of liquid and carrying other shouldered valve means which in the reversed position of the pipe co-acts with said seat in preventing leakage of liquid, the two shouldered valve means being located at the respective ends of a cylindrical enlargement of the pipe upon the surface of which said pipe threads are provided.

10. In a vaginal syringe, an elastic bulb-like body adapted to be pressed for causing discharge of liquid and having a discharge portion, said discharge portion being interiorly threaded and provided between its ends with a forwardly facing internal seat, and a douche pipe having an exteriorly threaded portion adapted to be engaged with the threaded discharge portion with the pipe in an outwardly projecting position or in an inwardly projecting position, said pipe having formed at one end of said exteriorly threaded portion a shoulder providing a sealing means which co-acts with said seat to prevent leakage of liquid when the pipe is in the inwardly projecting position.

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