

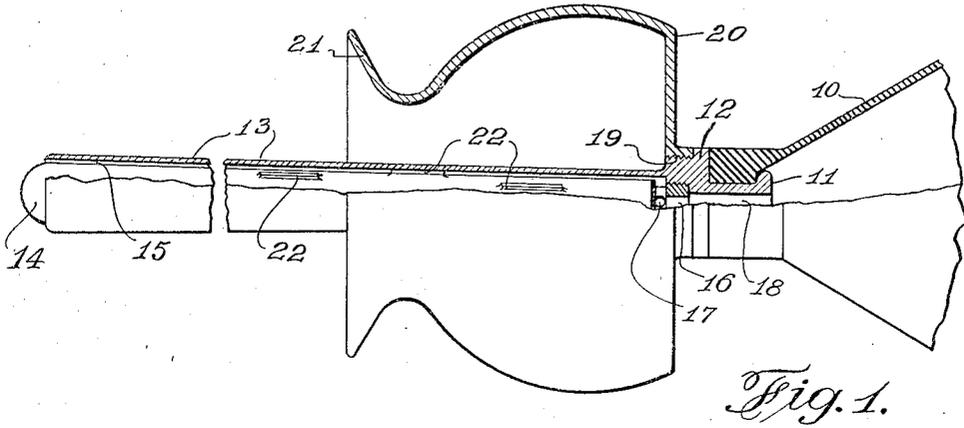
Aug. 2, 1938.

F. SCHMALZ

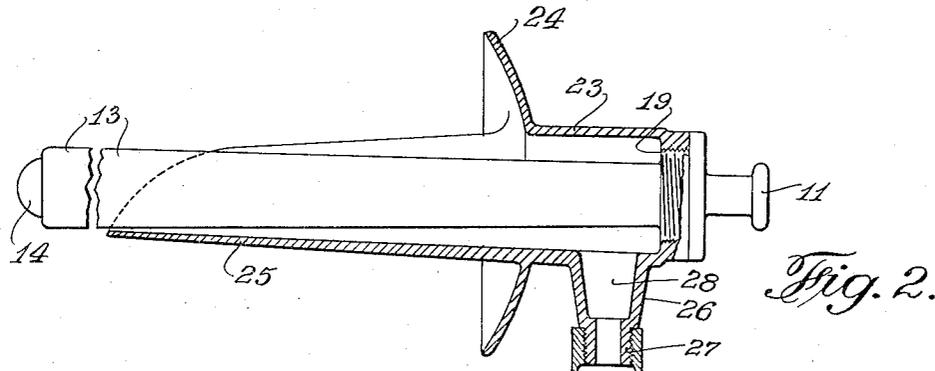
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VAGINAL SYRINGE

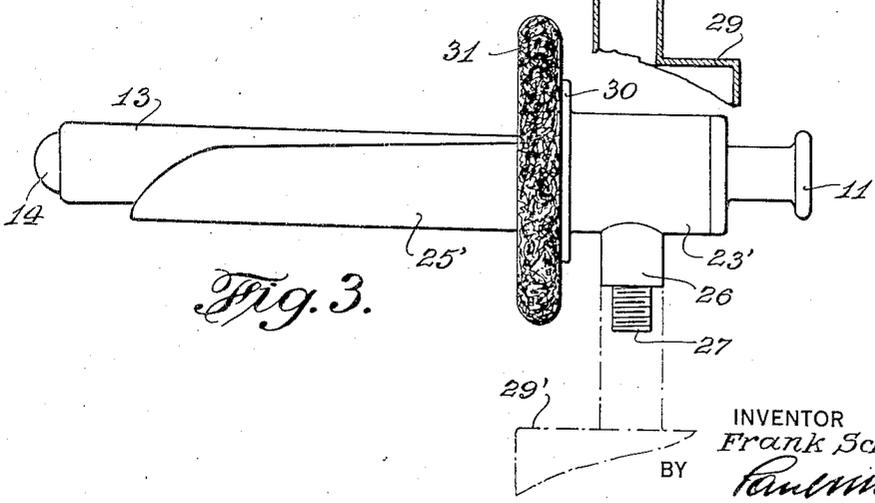
Filed April 15, 1937



*Fig. 1.*



*Fig. 2.*



*Fig. 3.*

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2,125,400

## VAGINAL SYRINGE

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Application April 15, 1937, Serial No. 136,972

3 Claims. (Cl. 128—240)

This invention relates to syringes in general, and particularly to vaginal syringes.

The prime object of this invention is to provide a relatively simple syringe with improved sanitary features for permitting a ready disassembly and assembly of the parts for the purpose of cleaning them, with the added advantage of providing means for catching the return flow of injected liquid after the latter has served its purpose.

Another object of this invention is to provide a vaginal syringe of the kind designated, which is intended for temporary or repeated douching operations, and wherein means are provided for alternately absorbing or sucking up water or medicated liquid and discharging it through the nozzle of the syringe, and wherein the syringe is composed of a substantially solid interior and a hollow exterior member, so arranged that a passage for the irrigating liquid is formed between the two members, whereby a substantially cylindrical or conical spray is produced when liquid is squirted through the nozzle.

The foregoing and still further objects of this invention will become more fully apparent from the ensuing description, in connection with the accompanying drawing showing a few presently preferred forms of my invention, but which drawing is primarily intended to illustrate the principle of my discovery, without limiting me to the actual showing.

In the drawing, Fig. 1 illustrates one of the preferred forms of my invention, shown partially in section, and with a fragmentary illustration of a bulb;

Fig. 2 illustrates another embodiment of my invention; and

Fig. 3 is a side elevation of still another modified form of my invention similar to that illustrated in Fig. 2.

Referring now specifically to the drawing, numeral 10 denotes a hand bulb, made preferably of rubber or the like, which is secured to suitably formed attaching end 11, forming the base 12 of the exterior or tubular member 13 of my syringe. Within this exterior member there is secured an interior member 14, which is made preferably of solid or completely enclosed hollow material, and which is so shaped and set into exterior member 13 that an annular passage 15 is formed between the two members. The base end of interior member 14 is preferably threaded and engages with its thread the internally threaded portion of base 12 of the exterior member. The rounded insert-

able end of interior member 14 projects beyond the rounded-off edges of the exterior member.

The attached end of the interior member is preferably provided with a central passage 16, and radial passages 17, which connect bore 18 of bulb attaching end 11 with passage 15 of the nozzle formed by the two members 13 and 14. To the exteriorly threaded portion 19 is attached a suitably threaded cup or vessel 20, which is preferably shaped in the form of a short jar or bottle, and which is provided with a flared flange or lip 21. The latter is intended to be set against the body of the user. Vessel 20 is so connected with the outer nozzle member 13 as to provide a liquid-tight seal between the two instrumentalities, so that when irrigating liquid is forced through the nozzle by means of compressing bulb 10, the liquid thus discharged will be gathered in the vessel which may be emptied after each douching operation.

The construction of the device illustrated in Fig. 1 readily demonstrates its simplicity. For the purpose of cleansing the device, and particularly the end of the nozzle which is intended to be inserted into the body, interior member 14 may be readily removed by unscrewing it, whereby the inner surface of exterior tubular member 13 may be easily reached with a round brush or other suitable cleansing means. Obviously the removed interior member 14 can be wiped off and the separated parts may be readily sterilized and kept in sanitary condition. In order to assure proper alignment of the interior member within the exterior member, I may provide upon the interior member spacers, such as indicated at 22.

In operation, the device is used as follows: The free nozzle end is dipped into water or medicated liquid with the bulb upwards; bulb 10 is depressed and released, whereby the liquid is sucked up or absorbed by the bulb through passage 15. When sufficient liquid is held in the bulb, the device is inverted and in this position inserted in the vagina and the bulb is compressed, whereby the liquid is squirted into the organ. Flange 21, at the time of the discharge of the liquid, is held tightly against the body, and the used-up returned liquid is caught by lip 21 and is returned into vessel 20, from which it is eventually discharged. It is to be noted that each part of the device, including vessel 20, may be separately cleansed or sterilized, in that it may be removed from the assembled device. The same applies to bulb 10.

Referring now to Fig. 2, in this modification the construction of the nozzle remains the same

as described in connection with Fig. 1, and consists again of an exterior tubular member 13 and an interior, substantially solid, or closed hollow member 14. To the recessed threaded end 19 of the exterior member is attached a return-liquid catching device consisting of a relatively short vessel formation 23, provided with a flange or lip 24, from which extends over a substantial portion of the nozzle, a trough-like formation 25, which is intended to pass into the vagina together with the nozzle. This trough-like formation 25 is so arranged that its bottom preferably slopes downwards into vessel 23.

From the vessel depends an attaching or connecting extension 26, which is preferably threaded at its lower end, as indicated at 27. This extension is provided with a pit-like formation 28, which forms a gathering point for the liquid caught by trough 25, and through which used-up liquid is directed to flow into a receptacle 29, which is removably attached to threaded end 27 of extension 26.

In the modified embodiment illustrated in Fig. 3, the construction of the syringe is similar to that explained in connection with Fig. 2, with the exception that diminutive vessel 23' is provided with a flange 30, against which rests a ring 31, made preferably of sponge-rubber or other absorbing material, and which serves the purpose of lip 24 of Fig. 2 or lip 21 of Fig. 1. The device of Fig. 3 is somewhat different from that shown in Fig. 2 in that trough 25' is less deep and does not extend over the top of the nozzle, formed in the usual manner of outer hollow member 13 and interior solid member 14. From vessel 23' depends again a connecting extension 26 with a threaded nipple end 27, to which is removably attached a receptacle 29', shown in broken lines.

The devices of Figs. 2 and 3 are preferably used in an inclined position, as compared with the upright use of the device shown in Fig. 1, but in all other respects, the two modified devices are similarly constructed and may be assembled or disassembled and cleansed in the same manner as the device shown in Fig. 1.

The material from which the three embodiments of my invention, illustrated in the drawing, may be made varies in accordance with their intended use and with the composition of the irrigating liquid. Thus, the device may be fabricated from transparent, translucent or opaque material, such as colored Bakelite or hard rubber, but it is also possible to construct the device of light metal, in which case solid member 14 may be made interiorly hollow so as to make the same lighter in weight. Bulb 10 is preferably made of resilient rubber or any other suitable material.

From all of the figures, and especially from Fig. 1, it will be clearly observed, that both tubular member 13 and solid interior member 14 are gradually tapered along their entire length, starting from their free ends towards their attached ends. Such construction not only facilitates the insertion of member 14 into member 13, but also aids in the practical use of the device. This latter advantage may be best ap-

preciated by a comparison with existing similar devices. A nozzle of uniform diameter will not permit a free return-flow. A nozzle with an abruptly enlarged head and a considerably reduced body will cause too rapid and too free a return-flow, thereby precluding the desired effect of a relatively slow moving, steady stream, beneficially syringing the entire wall areas surrounding the nozzle, the way it should. For correct syringing, the return flow must be guided along, and must form about the entire outer nozzle surface a liquid layer which gradually increases in thickness, until discharged from the cavity, in order that full benefit may be obtained from the fluid carried by the syringe.

The gradually tapered construction of my nozzle accomplishes these desirable effects. Furthermore, the gradual reduction of the nozzle towards its attached end provides, especially in the constructions shown in Figs. 2 and 3, a gradually increasing space adjacent to the discharge passage for the return flow.

While I have shown specific forms of my device, be it understood that the means for returning or catching used liquid may be modified to any desired shape or form, and that the general construction may be altered as to length and size, and I therefore reserve for myself the right to make such alterations or improvements in my invention without departing from the broad scope thereof, as defined in the annexed claims.

I claim:

1. In a syringe, a relatively long spray nozzle, tapering gradually from its relatively broad, free, rounded end towards its reduced fixed end, and consisting of a solid, tapered interior member and a correspondingly tapered, tubular exterior member, spaced from the former over its entire length, spacer means for the members in the form of elongated ridges, disposed in the direction of the flow of liquid intended to pass through the nozzle, and extending from the interior member, said spacer means providing a uniformly tapering, outwardly enlarging passage between said members, a nozzle base provided with bulb attaching means, the nozzle extending with its reduced end from the base opposite to said bulb attaching means, the interior member being removably secured at the reduced nozzle end, and means for receiving return-flow liquid, discharged from the free nozzle end, provided with said base and extending from the reduced nozzle and towards, but terminating short of the free end of the nozzle, while surrounding the nozzle body for a substantial distance.

2. In a syringe, as set forth in claim 1, said return-flow receiving means comprising an elongated vessel provided with an abutting flange for directing the return-flow into the vessel.

3. In a syringe, as set forth in claim 1, said return-flow receiving means comprising an elongated vessel provided with an abutting flange, the latter being adapted to direct the return-flow into the vessel, and a trough-shaped formation extending from the vessel along the nozzle and terminating a substantial distance from the end of the nozzle.

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