

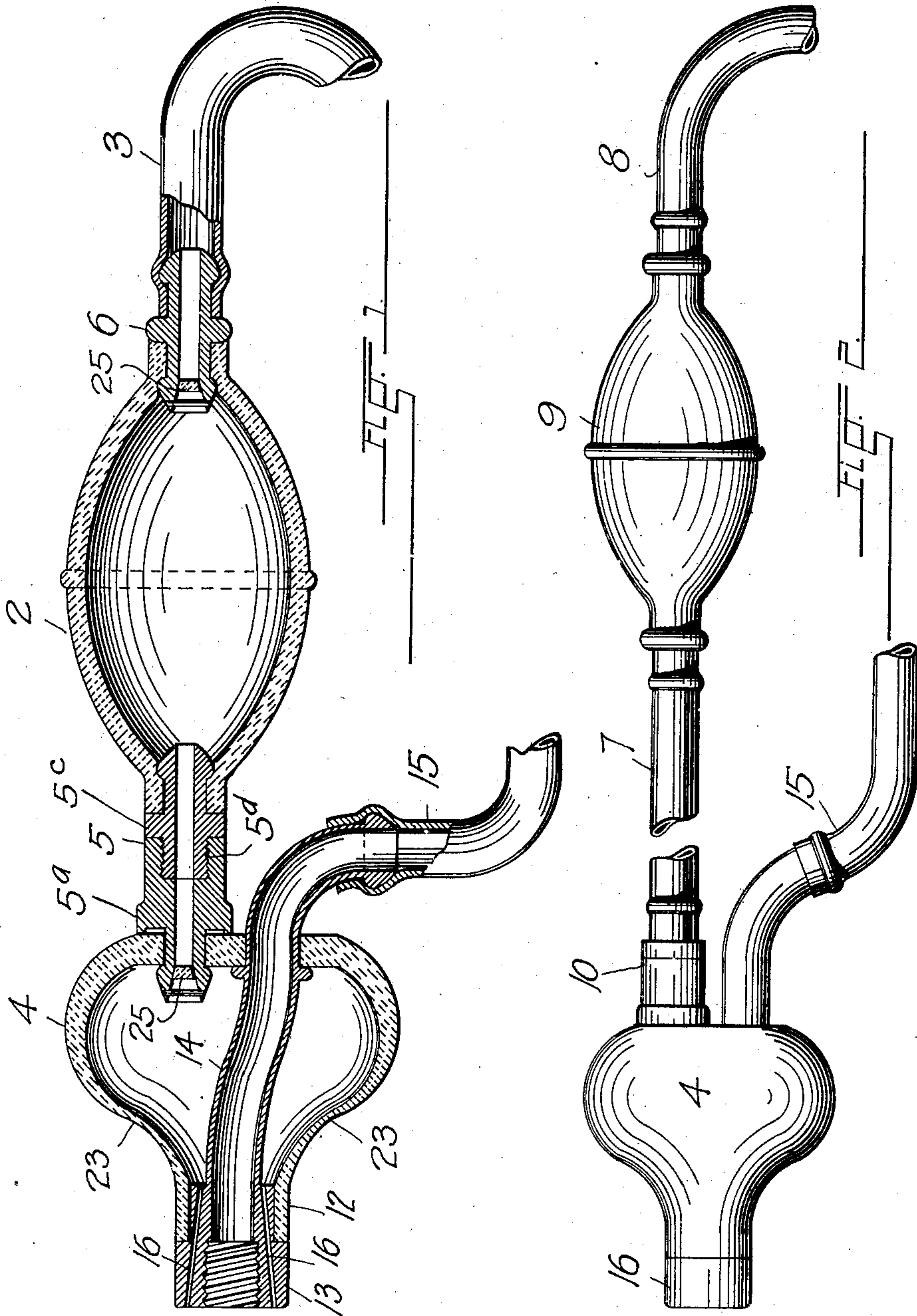
J. R. BURDICK, R. T. FULTON & B. F. WILLIAMS.
SYRINGE.

APPLICATION FILED APR. 6, 1909.

978,985.

Patented Dec. 20, 1910.

2 SHEETS—SHEET 1.



WITNESSES:
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M. L. Geary.

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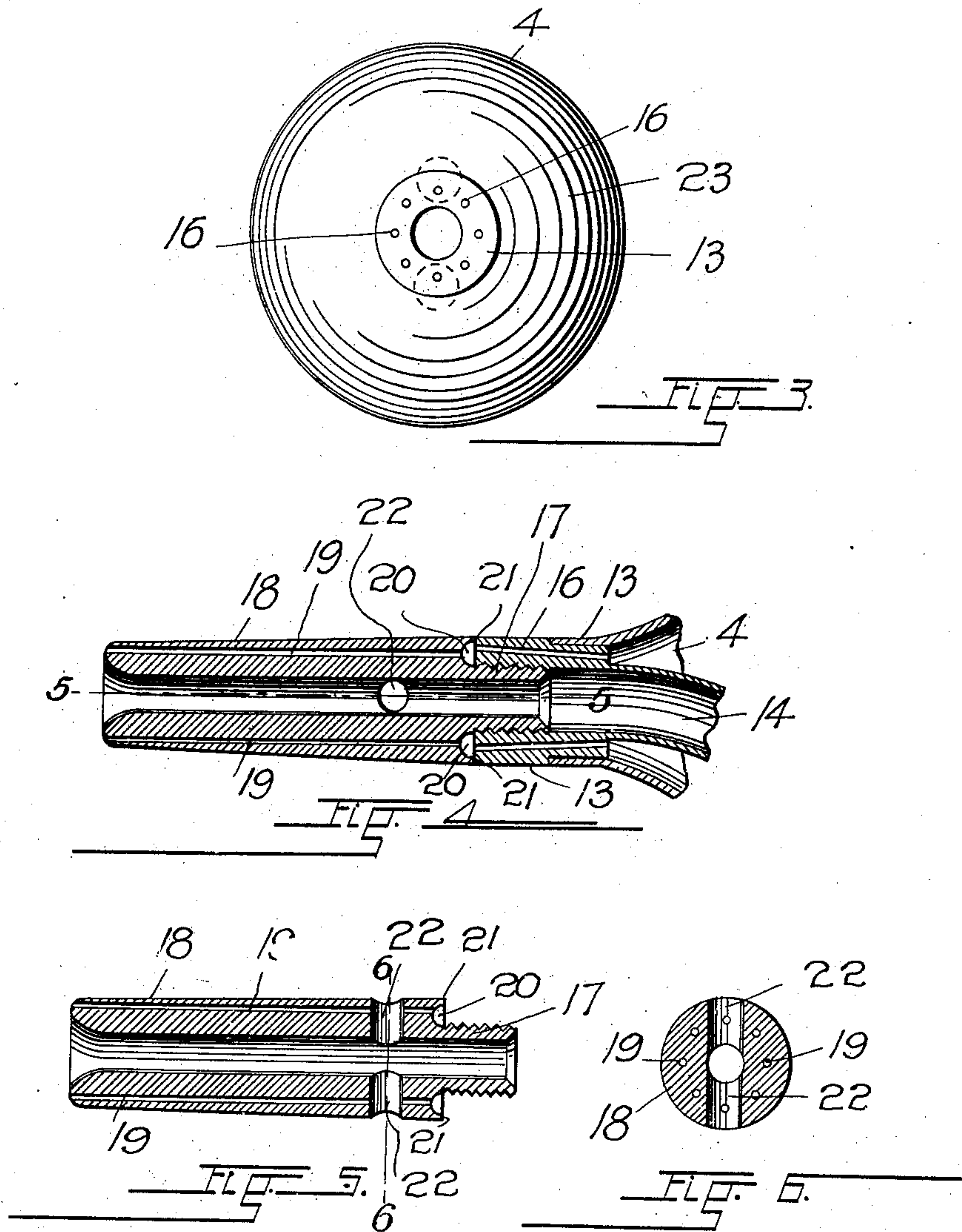
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UNITED STATES PATENT OFFICE.

JESSE R. BURDICK AND RICHARD T. FULTON, OF BOULDER, COLORADO, AND BENJAMIN F. WILLIAMS, OF LINCOLN, NEBRASKA, ASSIGNORS TO THE A-THEUCA-INE MEDICAL & MANUFACTURING COMPANY, OF BOULDER, COLORADO, A CORPORATION OF COLORADO.

SYRINGE.

978,985.

Specification of Letters Patent.

Patented Dec. 20, 1910.

Application filed April 6, 1909. Serial No. 488,233.

To all whom it may concern:

Be it known that we, JESSE R. BURDICK and RICHARD T. FULTON, citizens of the United States of America, residing at Boulder, in the county of Boulder and State of Colorado, and BENJAMIN F. WILLIAMS, a citizen of the United States of America, residing at Lincoln, in the county of Lancaster and State of Nebraska, have invented certain new and useful Improvements in Syringes, of which the following is a specification.

This invention relates to certain new and useful improvements in vaginal syringes and its principal object resides in the provision of a device of the class named whose nozzle, when in use, will, by hydraulic pressure, imperviously close the mouth of the vaginal cavity into which it is inserted. The consequent compression of the fluid within the vaginal tract will cause the folds in the tissue of its wall to be opened and expanded with the result that each part of the tract is thoroughly cleansed or medicated.

Another object of our invention is to provide a nozzle so constructed, that when the vagina is closed thereby, as explained in the preceding paragraph, the fluid is continuously drained from the vagina through a conduit separate from that through which it was injected, thus effectively preventing contamination of the inflowing liquid.

Further objects of the invention reside first, in the provision of an extension which is constructed to be secured upon the nozzle for the purpose of carrying the injected fluid around the neck of the womb and of applying water or medicated fluid directly to the mouth thereof, and second, in the provision of an attachment whereby the syringe may be adapted for use in injecting fluid into the rectum.

We attain the above enumerated objects by the means illustrated in the accompanying drawings in the various views of which like parts are similarly designated and in which;—

Figure 1, represents a sectional view of the syringe, Fig. 2, an elevation of the syringe adapted for use in administering enemata, Fig. 3, an end view of the nozzle forming part thereof, Fig. 4, a sectional view of the extension in position upon the extremity of the nozzle, Fig. 5, a sectional

view of said extension detached from the nozzle, taken along a line 5—5 Fig. 4. and Fig. 6, a transverse section taken along the line 6—6 Fig. 5.

As may have been deduced from the foregoing description, the novelty of the improved syringe resides principally, in the nozzle through which the fluid is injected into the vagina or rectum and although the water forcing means shown in the drawings and hereinafter to be described, are preferable by reason of its combined simplicity and effectiveness, it will be understood that the nozzle may be employed with equal results, in connection with the water bag of a so-called fountain syringe or with any other means for transferring fluid, under pressure, from a suitable receptacle to the nozzle.

Referring to the drawings by numerical reference characters, let the numeral 2, designate an elastic air bulb which, when subjected to pressure by the hand of the operator, ejects fluid drawn thereinto through a tube 3, into the nozzle 4.

The means whereby the bulb 2 is connected with the induction tube 3 and the nozzle 4, consist of unions 5 and 6 respectively inserted in its opposite ends and each provided with a check valve 25. The unions 5, which connects the bulb with the nozzle, is composed of two members 5^a and 5^c which are held in coöperative position by a screw thread 5^a. The nozzle 4 consists of a substantially pear-shaped shell preferably composed of soft rubber, vulcanized under pressure to render it durable while preserving its elasticity.

The constricted portion of the shell terminates in an internally cylindrical snout 12 for the reception of the head 13 of a tubular conduit 14 which, extending through the interior of the nozzle, projects through an opening in its wall, opposite to said snout. The outer extremity of the conduit 14 is formed with a surrounding flange, by which it is secured inside a flexible tube 15, through which the water drained from the vagina through said conduit, is conducted to a convenient receptacle.

The cylindrical hollow head 13 whose enlarged extreme portion projects beyond the outer edge of the snout 12, has in its wall a plurality of diverging channels 16 which connect its outer face with the interior of

the nozzle and which, in the operation of the device, serve to emit liquid, forced into the nozzle by means of the bulb 2, in a plurality of outwardly directed jets. The outermost
 5 portion of the interior of the head 13 is formed with a female screw thread, which, in coöperation with the male thread on the reduced portion 17 of an extension 18, serves to rigidly connect the latter with the nozzle
 10 for the purpose hereinbefore described.

The extension 18, above referred to, consists, as is shown in Figs. 4, 5 and 6 of the drawings, of a slightly tapering, longitudinally bored spout, formed with a plurality
 15 of channels 19 which, extending longitudinally through its wall, open near its outer extremity, in its circumferential surface, and at its opposite end, in an annular depression 20, in the offset 21 formed by the reduced threaded portion 17, above referred to.
 20

When the spout 18 is in its operative position upon the head 13 of the conduit 14, the bore of the former registers with the interior of the latter and the annular depression 20 communicates with the orifices of the channels 16 so as to compel liquid emitted from the latter, to continue its course through the passages 19 in the extension 18,
 25 from whose orifices it is ejected into the vaginal cavity into which said extension is inserted.
 30

To facilitate and accelerate the return flow of the liquid from the vagina into the conduit 14, the spout 18, is constructed with
 35 one or more transverse passages 22 which connect its bore with its circumferential surface in proximity to its threaded extremity.

The constricted portion of the shell of which the nozzle 4 is composed is gradually reduced in thickness from its points of coalescence with the spherical segmentally shaped part of the nozzle and the snout 12,
 40 toward its middle and this extenuated part which in Fig. 1 of the drawings, is designated by the numeral 23, serves to close the mouth of the vagina against the outflow of water while the syringe is in use.
 45

From the foregoing description, the operation and advantages of our improved syringe will be readily understood.

When, by means of the bulb 2, liquid is forced into the nozzle 4, the extenuated portion 23 will be distended and by engagement with the vaginal vulva, produce a water-tight juncture. The fluid ejected into the vagina through the divergent passages 16 of the head 13, having thus but one way of
 50 exit through the conduit 14, will accumulate in the vaginal cavity and by distention of the latter's wall, unfold the tissue of which said wall is formed. It will thus be observed that the fluid injected into the vagina
 55 is compelled to thoroughly cleanse every
 60

part and fold thereof and where medication or cleansing of the womb is required, the extension 18 serves to eject the liquid in close proximity to the latter's mouth and neck. The water after having cleansed the
 65 vaginal wall, is drained through the conduit 14, and the therewith connected tube 15, without coming in contact with the fresh liquid introduced into the nozzle 4 through the tube 3 whose open end projects into the
 70 vessel in which the fluid is contained.
 75

To adapt the instrument for use in injecting liquid into the rectum, the bulb and the therewith associated tube 3, are detached from the nozzle, and replaced by a similar
 80 bulb 9, provided at its opposite ends with tubes 7 and 8, one of which carries a connection 10, identical with the member 5^c on the bulb 2, by means of which it is attached to the member 5^a which is permanently secured
 85 to the nozzle by the use of cement or other adhesive substance.

A tip composed of hard or soft rubber and shaped in similarity to the extension 18 or in any manner adapting it for insertion into
 90 the rectum, is attached to the head 13 and, inasmuch as the construction of the body portion of the tip, with the exception of the threaded end, is arbitrary the same has not been shown in the drawings.
 95

While we have shown and described the construction of the syringe in the best form now known to us, we wish it understood that variations in the form and arrangement of the parts may be availed of within the spirit
 100 of the invention.

What we claim and desire to protect by Letters Patent is:—

1. In a syringe, a nozzle terminating in a snout and adapted to close the mouth of a
 105 vaginal tract into which said snout is inserted, by engagement therewith of its external surface, a conduit opening in said snout and extending through the interior of the nozzle to a point outside the same and terminating
 110 in a hollow head inserted in said snout, said head having a plurality of passages connecting its outer face with the interior of the nozzle and an extension detachably secured upon said head and having a plurality of
 115 passages opening in its external surface and communicating with the passages in said head, and a channel separate from said passages opening in its external surface, in communication with said conduit.
 120

2. In a syringe, a substantially pear-shaped nozzle having an outlet in its extremity and adapted to imperviously close the mouth of a vaginal tract in which said extremity is inserted, by engaging the external parts there-
 125 of, said nozzle having a passage in said extremity separate from said outlet, through which fluid may be discharged from said tract to a point without said nozzle, and an extension adapted to be secured upon said
 130

extremity and having channels respectively communicating with said outlet and with said passage.

3. In a syringe, a substantially pear-shaped
5 nozzle terminating at its constricted side in a short open snout, its portion immediately surrounding said snout being expansible and adapted to externally engage the mouth of a
10 vaginal tract into which the said snout is inserted, an open-ended discharge pipe, extending from a point without the nozzle, through its interior and terminating in an annular head fitted within the said snout, an inlet conduit opening in the said nozzle at a point
15 remote from its constricted portion and a check valve for preventing the return flow of liquid through the said conduit, the said head having a plurality of narrow passages

connecting its surface exterior of the said nozzle with the interior of the latter, where- 20 by fluid entering the nozzle through the said conduit must first completely fill the same so as to operatively affect its expansible portion, before it is discharged through the said
25 passages.

In testimony whereof we have affixed our signatures in the presence of two witnesses.

JESSE R. BURDICK.

RICHARD T. FULTON.

BENJAMIN F. WILLIAMS.

Witnesses for Burdick and Fulton:

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THOS. V. WILSON.

Witnesses for Williams:

F. B. SIDLES,

C. J. HEFFLEY.