No. 619,845. Patented Feb. 21, 1899.

W. P. SHATTUCK.

SYRINGE.

(Application filed May 15, 1896.)

(No Model.)

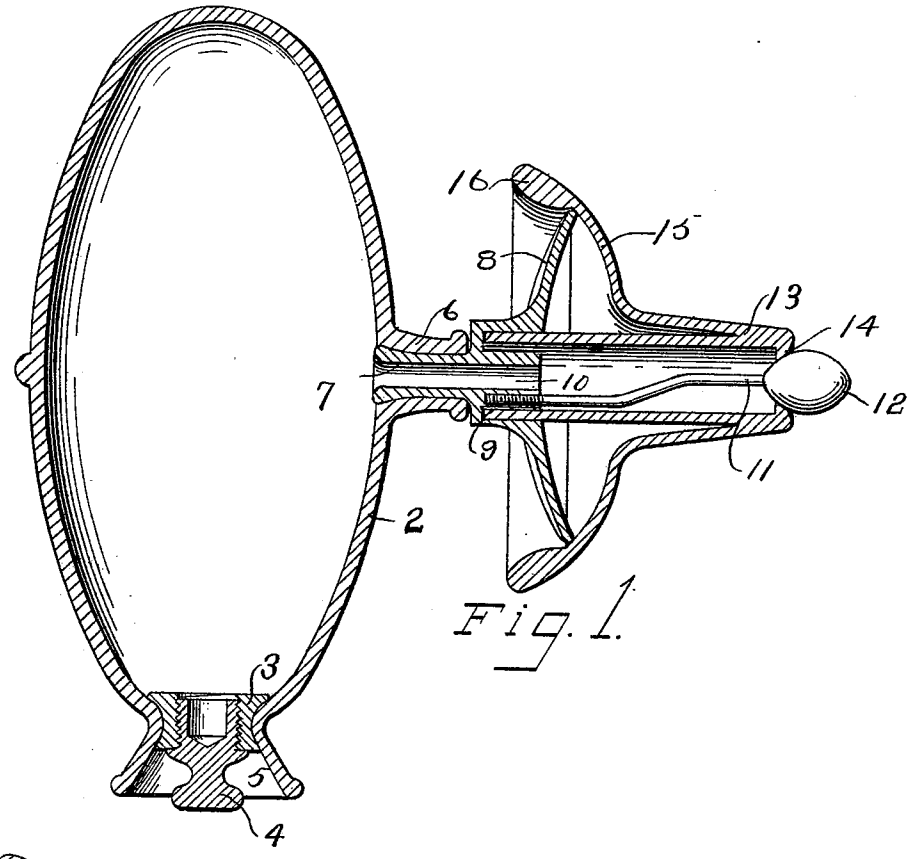


Fig. 1.

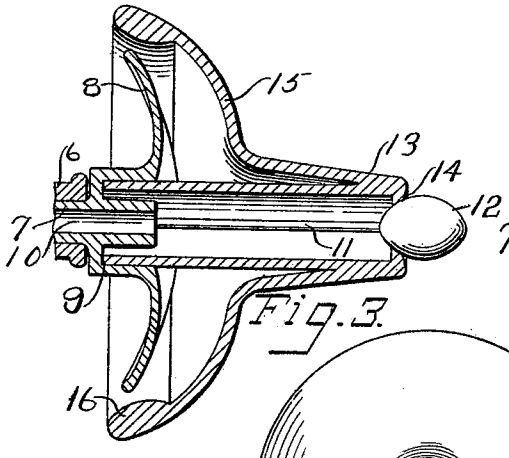


Fig. 3.

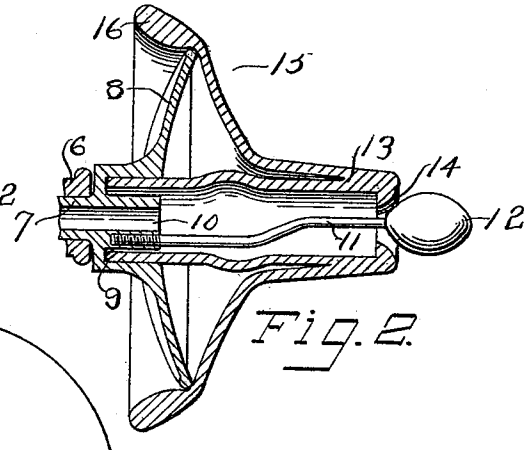


Fig. 2.

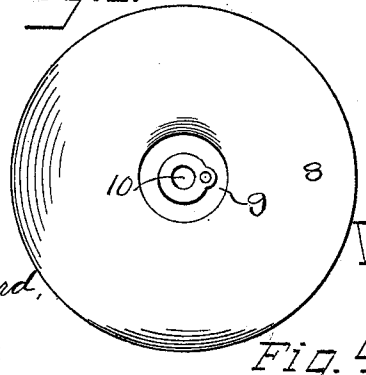


Fig. 4.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM P. SHATTUCK, OF MINNEAPOLIS, MINNESOTA.

SYRINGE.

SPECIFICATION forming part of Letters Patent No. 619,845, dated February 21, 1899.

Application filed May 15, 1896. Serial No. 591,648. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. SHATTUCK, of the city of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Syringes, of which the following is a specification.

This invention relates to improvements in syringes; and the object I have in view is to provide a syringe that will hold any desired liquid, so as to prevent any portion thereof from escaping when the syringe is not in use, and that may, after it has been inserted into the part or opening into which it is desired to inject the liquid, be opened at the end or nozzle by a simple pressure upon the nozzle or end piece, thereby causing its end to recede from the fixed valve or the valve to move from the end of the nozzle.

Another object of the invention is to provide a syringe that is especially adapted for injecting fluids into the vagina.

Other objects of the invention will appear from the following detailed description, taken in connection with the accompanying drawings, and in which—

Figure 1 is a longitudinal section of one form of my improved syringe. Fig. 2 is a section of the nozzle or end piece, showing the end open. Fig. 3 is a section of the nozzle or end piece, taken on a plane at right angles to that of Fig. 1. Fig. 4 is a front view of the disk.

In the drawings, 2 represents the receptacle of the syringe, which may be of any suitable form and size. As here shown, the receptacle is of ovoid form and is provided at one end with an opening, in which is secured a plug 3, having a threaded opening in it to receive the screw-threaded stopper 4. The walls of the receptacle preferably extend beyond the plug 3, as at 5, forming a funnel to facilitate the filling of the receptacle. When the device is in use, the receptacle may be held with the stopper end down, and any sediment in the liquid will naturally collect at this end of the receptacle. The receptacle is preferably formed of soft rubber, so as to be compressible for the purpose of forcing the liquid therefrom. The receptacle is provided with an opening, preferably centrally arranged, in its wall, surrounding which is a nipple or short tube 6. This nipple is secured to a short tube 7, preferably by being brought over the outer surface of said tube. The tube 7 is formed of gutta-percha or hard rubber or other suitable material, and at its forward end it is provided with a plate or disk 8, preferably formed integrally therewith. The walls of the tube are made thicker at the base of the disk 8, and an annular recess 9 is formed therein, surrounding the central opening 10 of the tube. The top and bottom of the disk are preferably curved forward, as shown in Figs. 1 and 2, while the sides are curved backward, as shown in Fig. 3. I consider this form of disk or plate preferable, as when used as a vaginal syringe it conforms to the shape of the portion of the body surrounding the opening of the vagina and against which the plate is pressed while the syringe is in use.

A rod or wire 11 is inserted in the end of the tube 7 inside of the annular recess 9, and at its end it carries a valve 12, forming the valve of the syringe. The rod is preferably bent so as to bring the valve 12 in line with the axis of the tube.

The nozzle or end piece is preferably formed of soft rubber, and consists of a tube 13, having a contracted end provided with a beveled or bell-shaped outer surface 14, adapted to fit against the under surface of the valve 12 and make a close or tight joint therewith. Formed integrally with or secured to the tube 13 is the flaring or bell-shaped shield or flange 15, preferably provided at its edge with the bead or rib 16, which rests against the edge of the disk 8 when the device is in use. The rear end of the tube 13 is inserted into the annular recess 9, and the nozzle is secured in position by the engagement of the tube with the under side of the valve 12, and the pressure of the liquid in the syringe tends to hold the end of the nozzle against the valve and so keep it closed.

The operation of the device is as follows: The receptacle having been supplied with liquid, the nozzle or end piece is inserted into the vagina or other opening into which it is desired to inject the liquid, and slight pressure is applied to the disk or plate 8. This presses the flange 15 against the surface of the body surrounding the opening into which the nozzle or end piece is inserted and forces

its end back or away from the valve 12 and leaves the end of the tube 13 open, as shown in Fig. 2, the walls of the tube 13 bending or wrinkling sufficiently for this purpose. Then by compressing the receptacle the liquid will be ejected through the opening around the valve 12 and will be thrown against the walls of the vagina and into all the folds thereof, completely filling the vagina and opening all the folds thereof, and upon relieving the pressure from the receptacle the liquid and the material taken up by it will flow back into the open end of the nozzle. Upon removing the syringe or relieving the pressure against the plate 8 the nozzle or end piece immediately returns to its normal position, bringing its end against the valve and thereby automatically closing the opening in the end of the nozzle and preventing the escape of any liquid therefrom.

The syringe shown is especially adapted for use as a vaginal syringe. The user after inserting the nozzle or end piece into the vagina can by applying the fingers of one hand to the plate or disk 8 press the same toward the body, thereby compressing the flange 15 and moving the end of the nozzle away from the valve 12, and by compressing the receptacle with the other hand readily inject the liquid into the vagina, and upon relieving the pressure from the receptacle the liquid will be drawn back into the receptacle through the open end of the nozzle. Upon removing the syringe the end of the nozzle is instantly and automatically closed and none of the liquid escapes therefrom.

The nozzle may be readily slipped off over the valve 12 for the purpose of cleansing it, and it may be as readily replaced. The rod or wire upon which the valve is secured is preferably screwed into the end of the tube 7, and by screwing the rod in or out the position of the valve may be varied or adjusted. The valve might obviously be adjustable on the rod. The nozzle may be fixed or stationary and pressure upon the nozzle or some part connected therewith cause the valve to move to open the end of the nozzle.

I do not confine myself to the details of construction, as the same may be varied in many particulars without departing from my invention.

I claim as my invention—

1. In a syringe, the combination, with a fixed valve, of a longitudinally-compressible nozzle or end piece having its end closed by said valve when the nozzle is in a normal or closed position.

2. In a syringe, the combination, with a longitudinally-yielding nozzle, of a fixed valve against which the end of the nozzle is held with a yielding pressure when the nozzle is in its normal or closed position.

3. In a syringe, the combination, with the tube having a rigid disk or plate, of the fixed valve and the yielding nozzle arranged between said disk and said valve.

4. In a syringe, the combination, with the tube having the rigid disk or plate, of the fixed valve, the yielding nozzle arranged between said disk and said valve, and the shield upon said nozzle.

5. In a syringe, the combination, with the tube having the rigid disk or plate, of the fixed valve, and the removable yielding nozzle arranged between said disk and said valve.

6. In a syringe, the combination, with the tube having the rigid disk or plate and the annular recess in its forward end, of the fixed valve, and the yielding nozzle having its rear end inserted in said annular recess, and having a yielding flange or shield.

7. In a syringe, the combination, with the tube having the rigid disk or plate, the compressible receptacle secured to said tube, the fixed valve also secured to said tube, and the longitudinally-movable nozzle connected to said tube and having its end held by a yielding or spring pressure against said valve.

8. In a syringe, the combination, with the tube 7, having the disk 8, and having in its forward end the annular recess 9, of the fixed valve 12, the nozzle formed of the tube 13 having its rear end inserted in said recess 9 and having the shield 15; said nozzle having a beveled outer end adapted to close against the surface of said valve.

9. In a syringe, the combination, with a fixed tube, of a flexible nozzle having its inner end arranged loosely within said fixed tube and adapted to be held in position to form a tight joint by pressure of the liquid within the syringe, and a valve arranged to close the nozzle when it is in its normal position.

10. In a syringe, two meeting tubes forming a tight overlapping joint, the outer tube being rigid and the inner tube flexible, and yielding and placed loosely against the outer tube and adapted to be held thereto by pressure of the liquid within the syringe, and a valve arranged to close the end of the flexible tube when it is in its normal position.

In testimony whereof I have hereunto set my hand this 11th day of May, A. D. 1896.

WILLIAM P. SHATTUCK.

In presence of—

A. C. PAUL,

M. E. COOLEY.