No. 616,963. Patented Jan. 3, 1899.

E. T. PEARL.

SYRINGE NOZZLE.

(Application filed Apr. 11, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

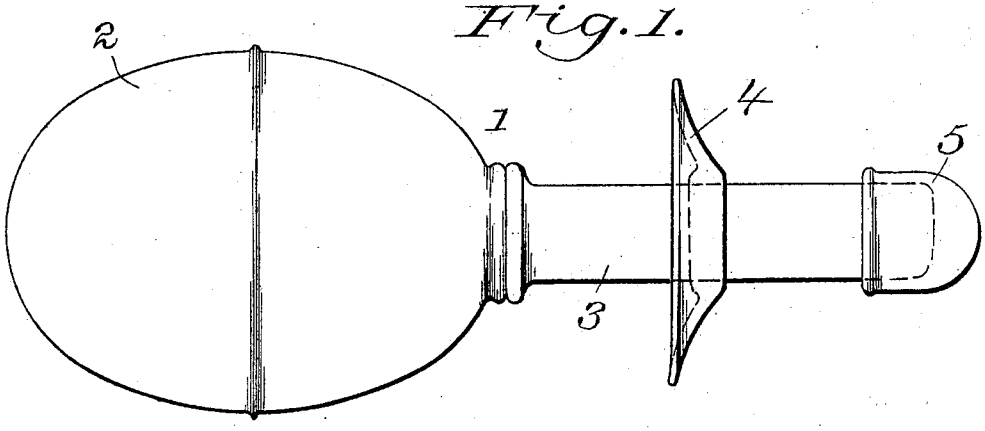


Fig. 2.

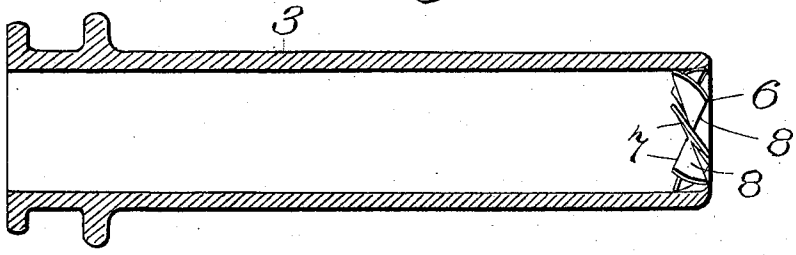


Fig. 3.

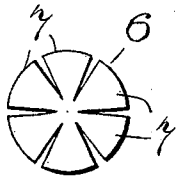


Fig. 4.

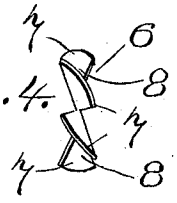
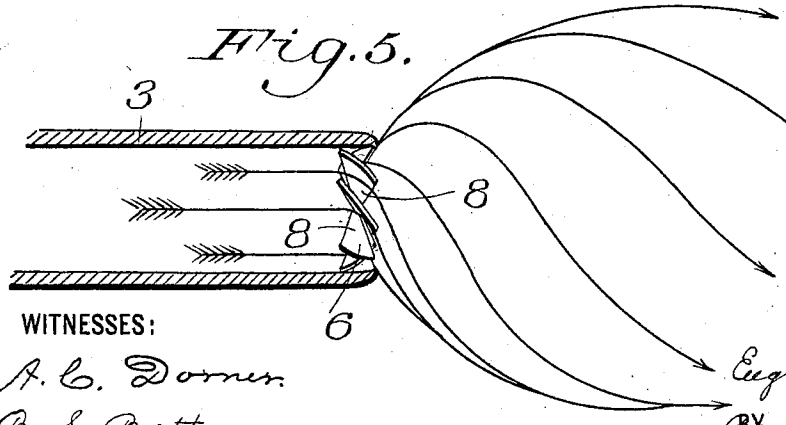


Fig. 5.



WITNESSES:

A. C. Dorner.

B. S. Bettman.

INVENTOR

Eugene Tullar Pearl

BY

Cushing & Pearl

ATTORNEYS

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

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Fig. 6.

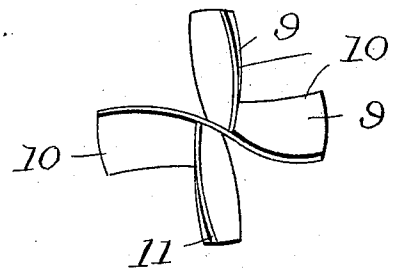
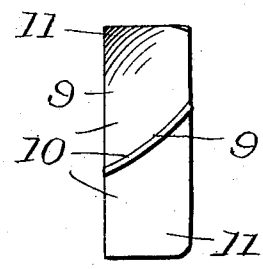


Fig. 7.



WITNESSES:

A. C. Dorner.

B. S. Bettman.

INVENTOR

Eugene Theodore Pearl

BY

Fitzgerald & Bowles

ATTORNEYS

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

UNITED STATES PATENT OFFICE.

EUGENE TULLAR PEARL, OF NEW YORK, N. Y.

SYRINGE-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 616,963, dated January 3, 1899.

Application filed April 11, 1898. Serial No. 677,253. (No model.)

To all whom it may concern:

Be it known that I, EUGENE TULLAR PEARL, residing at New York, in the county of New York and State of New York, have invented a new and useful Improvement in Syringes, of which the following is a specification.

My invention relates to an improvement in nozzles, and more particularly to that class used in connection with syringes.

The injection and suction type of syringe now in general use for vaginal cleansing invariably discharge the water or other liquid in a solid stream varying from one-half to three-fourths of an inch in diameter, and when sudden or vigorous pressure is exerted in compressing the bulb a solid column of liquid is thrown or ejected with sufficient force to frequently cause injury of a more or less serious nature to the internal organs.

It is the object of my invention to avoid the objections above set forth by breaking up or spreading the liquid without materially decreasing the initial force of discharge or suction, and, further, to eject it in the form of a whirling spray. The rotary action acquired by the liquid in its discharge renders it highly effective in cleansing or treating the vaginal passage and at the same time overcomes any possibility of injury or probability of the discharge re-forming as a solid column.

The invention is illustrated in the accompanying drawings, forming part of this specification, and wherein like reference-numerals indicate corresponding parts throughout the several views, in which—

Figure 1 is a view in elevation of one embodiment of the invention applied. Fig. 2 is an enlarged sectional view of the discharge pipe or nozzle. Fig. 3 is a detail face view of the deflector. Fig. 4 is an edge view thereof. Fig. 5 is a view illustrating the device in action. Figs. 6 and 7 are views in front and side elevation, respectively, of a modified form of deflector.

In the drawings, 1 represents a well-known form of syringe consisting of a soft-rubber bulb 2, and a detachable nozzle or discharge-pipe 3, preferably of hard rubber.

As it is ofttimes desirable to retain the liquid temporarily within the vaginal canal, I provide an adjustable soft-rubber guard 4, which encircles the nozzle and serves to prevent the escape of the liquid, thereby insuring the return of the liquid into the bulb.

To facilitate carrying the syringe when filled, a soft-rubber cap 5 is provided and adapted to be forced upon the outer open end of the nozzle.

6 represents the deflector, the preferred form of which (shown in Figs. 1, 2, 3, and 4) resembles in general appearance a well-known rotary ventilating-fan. This device is rigidly fixed at or adjusted to the mouth of the nozzle and is formed from a disk of metal or other material, which is divided radially to provide a series of blades or wings 7, each of which is bent or twisted at more or less of an angle to present inclined or spiral passages 3 to the flow of liquid in its discharge from the nozzle, and being thus deflected spirally it acquires a whirling motion, as indicated in Fig. 5.

The modification illustrated in Figs. 6 and 7 is substantially a section of a regular double spiral, and as constructed is formed of twin plates 9, notched centrally and fitted together, the blades or wings 10 thereof being given a slight curvature, as at 11, to increase their action in deflecting the liquid.

The syringe is filled in the usual manner by compressing the bulb to expel the contained air and placing the nozzle in the liquid. As the bulb is released the liquid will flow freely through the nozzle without being appreciably obstructed by the interposed deflector.

The operation will be apparent from the foregoing description.

I am aware that lawn-sprinklers have been proposed in which the nozzle had a tapering discharge-orifice and a radially-slotted disk within the said nozzle, so that the water will be spread evenly as it leaves the discharge end of the nozzle, and do not seek to cover such construction. My improvement is confined to syringes, and it is deemed important that the discharge end of the nozzle be not tapered, as a tapered discharge-orifice tends to retard the rotary action of the water. It is also deemed essential that the deflector be set with a substantially square edge at the exit, so that the whirling spray will be glob-

ular, and the deflector being disposed at the extreme end of the nozzle produces an entirely different result from that attained by a slotted disk disposed at the inner end of the tapered discharge-orifice of a nozzle.

I am aware that it is not new to provide a discharge-pipe—as, for instance, that of a garden-hose or the like—with a deflector relatively fixed therein and constructed to give a rotary or whirling motion to the water delivered therefrom, and do not seek to cover such a device broadly. So far as I am aware I am the first to provide a syringe wherein the water is discharged by the compression of a bulb with a stationary deflector held in the end thereof and formed of a disk having radial slits therein extending from a point near the center and the portions between the slits bent to form wings which are disposed at such an angle as to present inclined or spiral passages to the discharge or flow of the liquid. By this means the liquid flows through the various passages simultaneously, there is no back pressure, and the inclined walls of the wings facilitate the flow of the water and of the air, the result being an easy whirling motion to the water or other liquid that is most effective in its action without being sufficiently powerful or having enough force to do injury to the parts of the person against which the liquid is directed.

Having thus fully described my invention, what I claim as new is—

As an improved article of manufacture the syringe herein described, consisting of a soft-rubber bulb, a rubber nozzle having its bore of uniform diameter throughout, and a deflector fixedly secured within the discharge end of the nozzle and consisting of a disk having radial slits and the portions between the slits bent at an angle to form wings affording spiral passages between them, with the central portion of the deflector imperforate and at right angles to the bore of the nozzle, whereby the liquid is forced in an inclined direction through the passages surrounding the central solid portion of the deflector and discharged with a whirling motion uniform throughout the whole of the discharge end of the nozzle, substantially as shown and described.

In testimony whereof I affix my signature in the presence of two witnesses.

EUGENE TULLAR PEARL.

Witnesses:
B. S. BELTMAN,
ERNEST JENTZ.