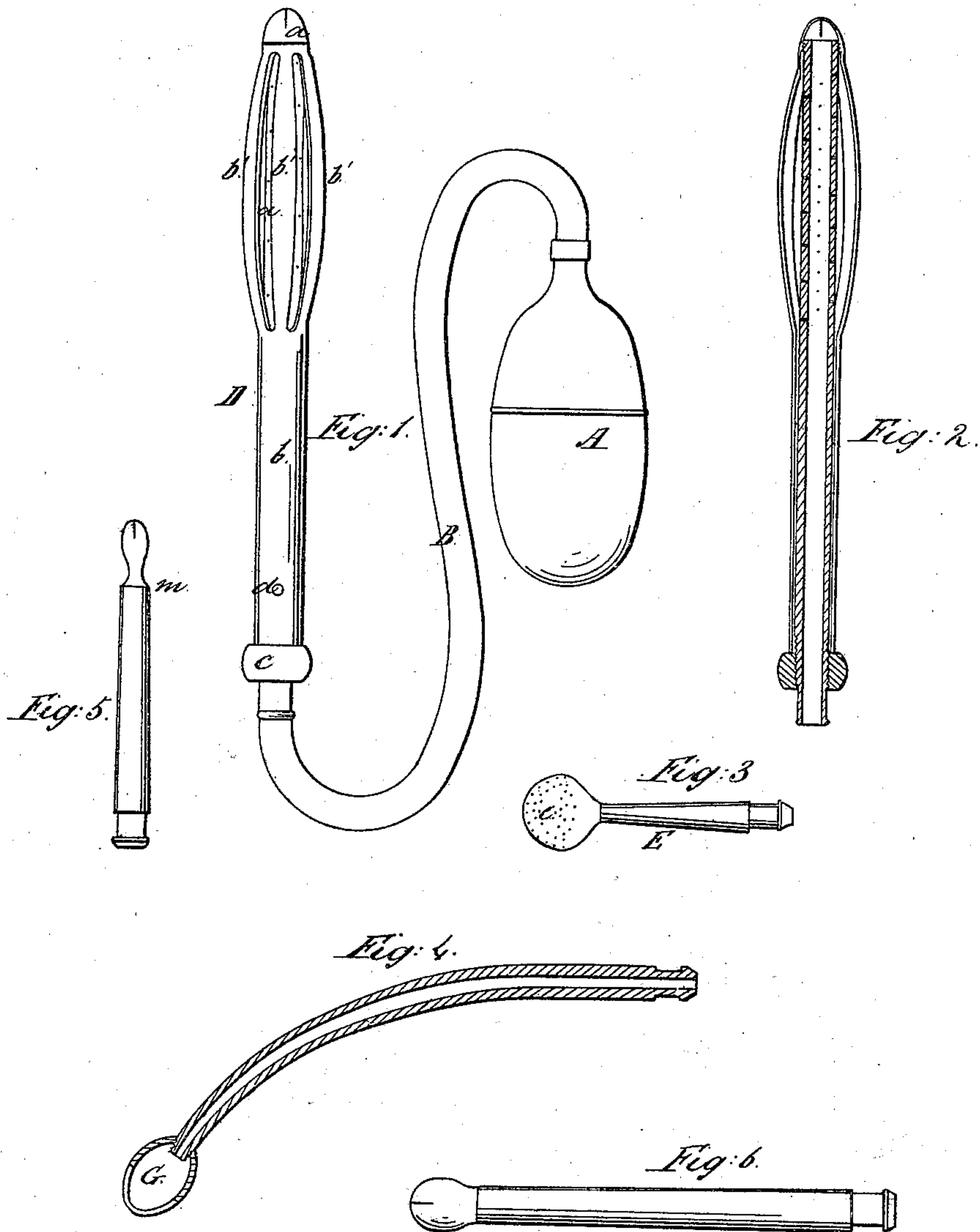


W. J. Davidson.

Syringe.

N<sup>o</sup> 88,695.

Patented Apr 6, 1869.



Witnesses  
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# United States Patent Office.

WILLIAM J. DAVIDSON, OF STAUNTON, VIRGINIA.

Letters Patent No. 88,695, dated April 6, 1869.

## IMPROVED SYRINGE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, WILLIAM J. DAVIDSON, of Staunton, in Augusta county, and State of Virginia, have invented certain new and useful Improvements in "Syringes Designed for Medical or other Purposes;" and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 represents a vaginal syringe embracing my improvement, and with the ordinary India-rubber tube and bulb.

Figure 2 is a longitudinal section of the same, without the tube and bulb.

Figure 3 is a syringe-tip, or nozzle, adapted for use under the eyelid.

Figure 4 is a sectional view of a nozzle adapted for irrigating the nostrils and upper part of the throat, or pharynx.

Figure 5 represents a nozzle adapted for use in the ear, male urethra, anus of infants, wounds, or other small openings.

Figure 6 is a nozzle designed for the injection of adults *per anum*.

Each of these instruments embraces one or more features of my invention.

My invention consists—

First, in so constructing the discharge-opening of a nozzle, that the fluid shall be delivered in a very thin sheet, instead of in a jet, or jets, whereby the force of the discharge is more evenly distributed over the surface to be irrigated, and, by rotating the instrument, the thin sheet of fluid is caused to strike upon every part.

Secondly, the invention embraces a novel construction, whereby the nozzle may be reduced in diameter, to facilitate its introduction, and expanded after insertion.

Thirdly, it includes a peculiar construction of nozzle for washing the under side of the eyelid, and another for bathing the pharynx, or upper part of the throat, through the nostril; also, for syringing the ear, the male urethra, and for injecting infants or adults *per anum*.

To enable others to make and use my apparatus, I will describe it by referring to the drawing.

In fig. 1 is seen an ordinary elastic bulb, A, or other injector, to which is connected, by means of a flexible tube, B, the nozzle, D, consisting of a tube, *a*, which is encased in a tube, *b*, the upper portion of which is slotted longitudinally, so as to form elastic, or expanding ribs, *b'*.

On the upper end of the tube *a* is a tip, *a'*, which is finely slit across its end, through which, when in use, is discharged a thin sheet of water, or other fluid, somewhat semicircular in form.

Said tube *a* is also finely perforated on its sides, between the ribs *b'*, from which issue lateral jets.

The tip *a'*, being of larger diameter than the tube *a*, forms a shoulder, against which the outer tube, *b*, rests, and at its opposite end is an adjusting-screw, *c*, which, traversing a male screw on the periphery of the tube *a*, presses against the end of the outer tube, and causes its ribs *b'* to expand.

The extent of this expansion may be limited, by inserting a pin, or screw, *d*, in the side of the inner tube, and passing through a slot in the outer one, the length of said slot determining the amount of motion and consequent expansion.

This screw *d* also serves to prevent the one tube revolving within or around the other.

Before inserting the instrument, the ribs are relaxed, which allows of its ready entrance, after which they may be expanded, thus distending the parts, and giving the fluid free access in a diffused and gentle manner.

When the purpose is to cleanse the vagina, a gentle rotary motion applied to the instrument will cause the ribs to detach any secretions that may be adherent to its walls, and such motion will also cause a semicircular discharge, from the tip *a'*, to more thoroughly wash the parts.

The nozzle for the eye, E, fig. 3, terminates in a hollow concavo-convex disk, *e*, adapted to the form of the eye-ball.

The convex side of this disk, and its upper edge, are pierced with minute holes, or the edge may be very finely slit, so as to discharge the fluid in a thin sheet, for the purpose of conveying any medicated or simple liquid to be diffused over the inner surface of the lid, and as far back as the reflection of the mucous membrane, from the ball to the lid.

The nozzle represented in fig. 4 is designed for conveying fluids to any part of the nares, or nostrils, and the upper part of the pharynx, or throat. Its tube is bent, for convenience of introduction and guidance, and is long enough to reach through the nares to the pharynx, and terminates in a flat heart-shaped expansion, G, the greater diameter of which is in the plane of the curve. This expansion is also slit for about half its length, as described in reference to other figures.

This instrument is introduced into the nostril. The expansion G, pointing downward, is to be guided along on the bottom of the nostril, to the spot to be cleansed or medicated, when the fluid is discharged through the slit in G, in a diffused sheet, gently bathing the part.

In figs. 5 and 6, the tip of the nozzle is similarly constructed to those already described. The former is adapted to various purposes. Its form is that of a tube, about one-fourth of an inch in diameter, and is reduced, at about half an inch from the tip, to half that diameter, terminating in a bulb, through the slit in which the fluid discharges.

The reduced diameter, forming a shoulder, as at *m*, is intended as a guide to indicate the depth to which the instrument may be inserted in the ear, without injury.



This instrument, or nozzle, may also be used for injecting the male urethra, or infants *per anum*.

The nozzle represented in fig. 6 is similar to the last-mentioned, except that it is larger, and is designed only for the injection of adults *per anum*.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The tip of a syringe-nozzle, constructed with a transverse slit, substantially as and for the purpose set forth.

2. The slotted tube *b b'*, in combination with the tube *a* and its tip *a'*, when so constructed that its ribs *b'* are capable of expansion and contraction, in the manner substantially as described.

3. The concavo-convex hollow eye-tip *E*, perforated or slit around its upper edge, substantially as and for the purpose set forth.

4. The nozzle, fig. 4, curved to correspond with the channel through the nares to the pharynx, and provided with a suitably-formed tip, *G*, for its guidance and discharge of the fluid, substantially as and for the purpose specified.

5. The nozzle, fig. 5, adapted for injecting the ear, male urethra, and anus of infants, substantially as shown and described.

Witnesses:

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