K. L. MAYERS & M. B. BENAS.

VAGINAL SYRINGE.

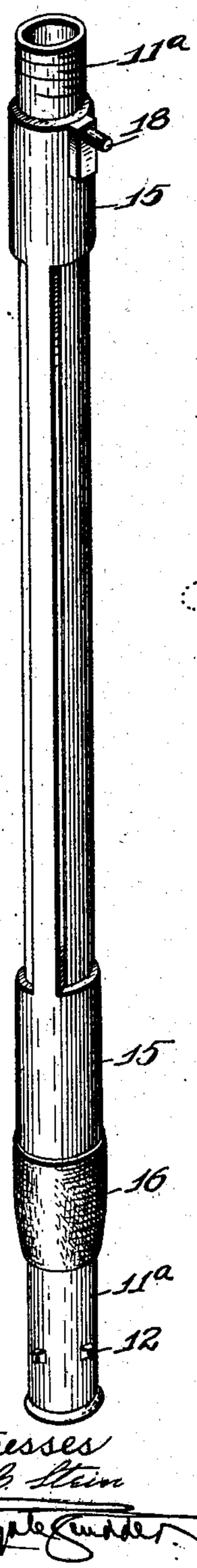
APPLICATION FILED NOV. 25, 1907.

900,565.

Patented Oct. 6, 1908.

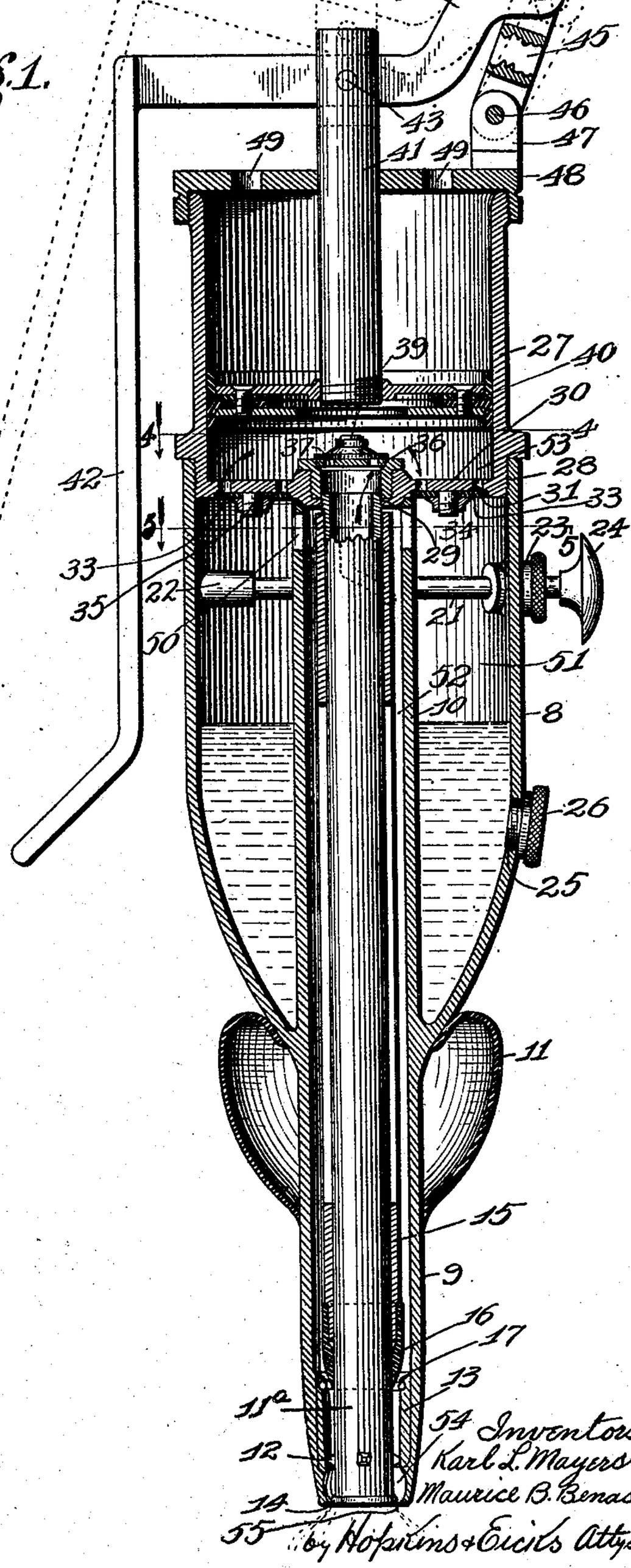
2 SHEETS—SHEET 1.

Fig. 2.



Witnesses
W. C. Stein
Edgar Snyder

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 3.

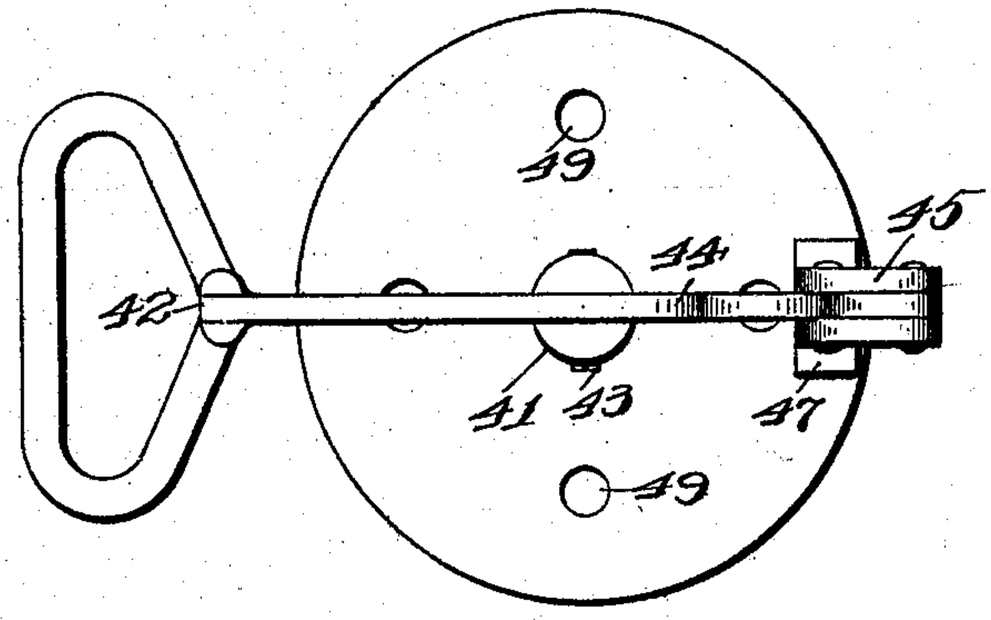
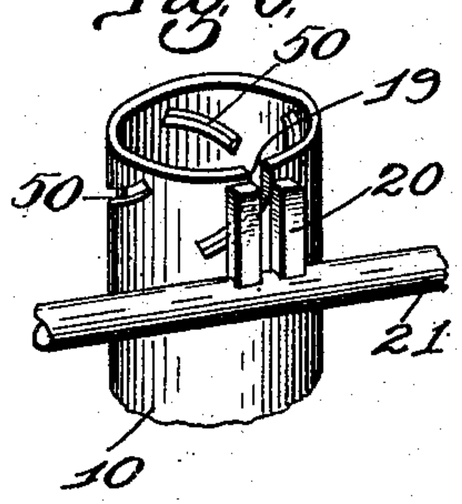


Fig. 4

Fig. 6.



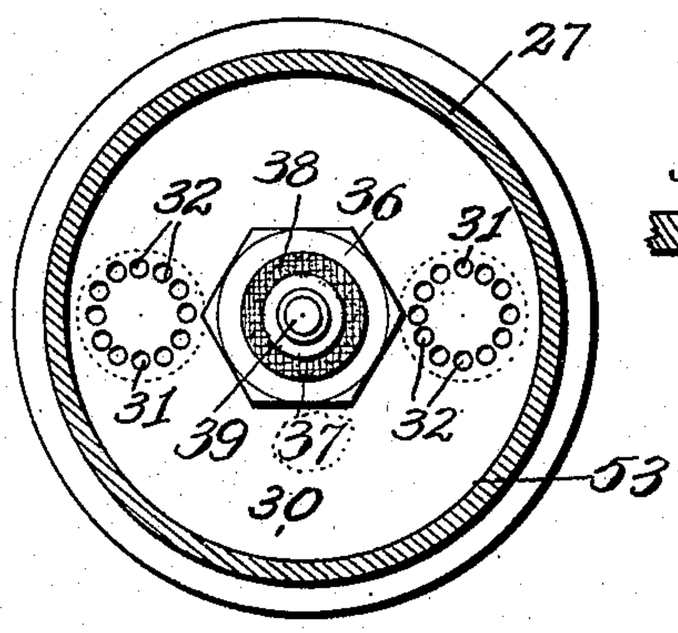


Fig. 7.

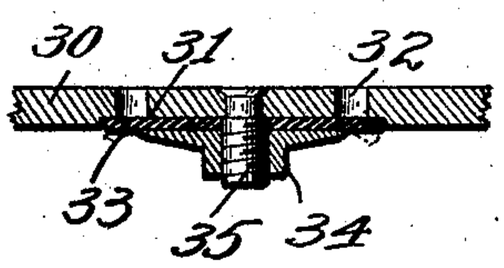
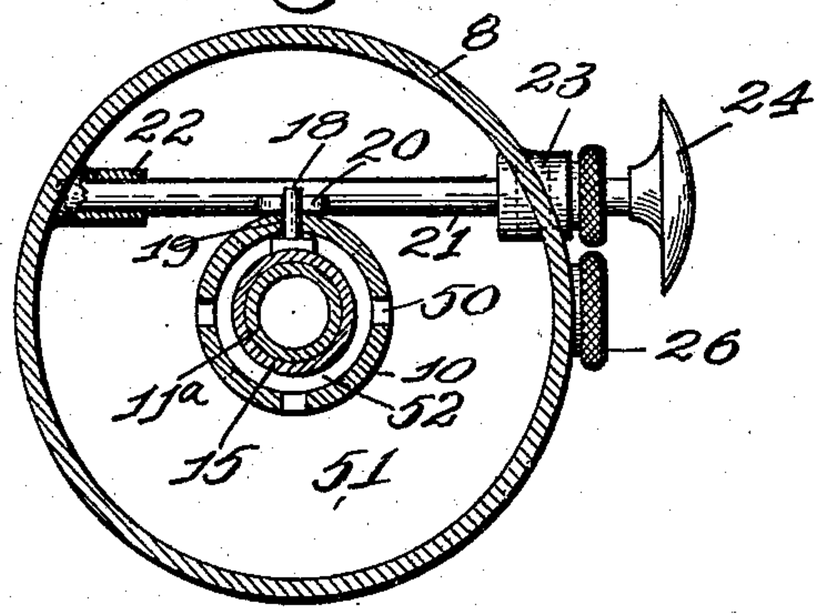


Fig. 5.



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UNITED STATES PATENT OFFICE.

KARL L. MAYERS AND MAURICE B. BENAS, OF ST. LOUIS, MISSOURI.

VAGINAL SYRINGE.

No. 900,565. Specification of Letters Patent. Patented Oct. 6, 1908.

Application filed November 25, 1907. Serial No. 403,820.

To all whom it may concern:

Be it known that we, KARL L. MAYERS and MAURICE B. BENAS, citizens of the United States, and residents of St. Louis, Missouri, have invented certain new and useful Improvements in Vaginal Syringes, of which the following is a specification.

Our invention relates to an improvement in vaginal syringes, and has for its object to provide a syringe wherein air and liquid may be thoroughly combined and wherefrom the resulting compound may be ejected in the form of a thin spray.

As shown in the drawings—Figure 1 is a longitudinal transverse view in section of a syringe embodying our invention. Fig. 2 is a perspective view of the central shaft employed in our invention and the sleeve mounted thereon. Fig. 3 is a bottom plan view of a device embodying our invention. Fig. 4 is a transverse sectional view of the same taken along the line 4—4 of Fig. 1. Fig. 5 is a transverse sectional view of the cylinder employed in our invention, showing the means whereby the sleeve is actuated, taken along the line 5—5 of Fig. 1. Fig. 6 is an enlarged perspective view of the base of the tube employed in our invention, showing in detail the manner in which it is slotted. Fig. 7 is an enlarged view in longitudinal section of one of the valves employed in our invention.

As shown in the drawings, we employ a cylinder 8 terminating in the projecting stem 9 and containing a concentric tube 10, which terminates in the stem 9. About the stem 9 and its base we provide a soft rubber bulb 11. Within the concentric tube 10 is mounted the inner concentric tube 11[a] provided near its outer extremity with the projecting lugs 12 adapted to contact with the collar section 13 mounted within the stem 9 near its mouth 14. Upon the inner tube 11[a] the sleeve 15 is mounted provided with the valve 16 at its lower extremity, which is adapted to be seated in the valve-seat 17 formed at the inner end of the collar 13. The sleeve 15 is provided at its inner end with the outwardly projecting pin 18. The pin 18 extends through the slot 19 extending through the tube 10 and its base. At its outer extremity the pin 18 is engaged with the fork 20 mounted on the sliding rod 21. The sliding rod 21 is mounted within the cylinder 8 as shown in Fig. 5; its inner end being seated in the socket 22, its outer end extending through the shoulder 23 and being provided with the push-button 24. The cylinder 8 is also provided with the opening 25 which is screw-threaded to receive the stopper 26. Liquid is fed to the interior of the cylinder 8 through the opening 25. By means of the push-button 24 the rotation of the sleeve 15 is accomplished, and such rotation, by means of the curvature of the slot 19, serves to raise or lower the sleeve 15 in position upon the tube 11[a], to seat or unseat the valve 16.

The cylinder 8 is provided at its open end with the shell 27, which is screw-threaded into the mouth of the cylinder 8 as indicated by the numeral 28, and is provided with the concentric opening 29, which is screw-threaded, to receive the base of the inner tube 11[a].

On the base 30 of the shell 27 valves 31 are provided, which valves 31 are formed in the following manner: A circular series of perforations 32 extending through the base 30 are covered by a single flap-valve 33 which is held in place upon the inner side of the base 30 by means of a cap 34 and screw 35. The base 30 is also provided with the central valve 36, which is of the same construction, being provided with a circular series of perforations 37 covered by a single flap-valve 38 held in place by means of the screw 39.

The shell 27 is cylindrical and contains the piston 40 actuated by the rod 41 and hand-lever 42, to which it is connected by the pivot 43. The arm 44 of the hand-lever 42 is pivotally connected to the bar 45 which is hinged as indicated by the numeral 46 to a lug 47 mounted upon the base 48; which base 48 is screw-threaded over the mouth of the shell 27, and is provided with the air inlets 49.

The base of the tube 10 is provided with slotted openings 50, affording access from the chamber 51 formed within the cylinder to the orifice 52 which is formed by the outer surface of the tube 11[a] and the inner surface of the tube 10.

The mode of operation of the form of our invention which is illustrated in the drawings is as follows: The valve 16 being seated in place within the valve-seat 17 by means of the push-button 24 and its connections, a small quantity of liquid is placed within the chamber 51 through the opening 25, which opening 25 is then closed by means of the

stopper 26. The piston 40 is then operated by means of the hand-lever 42; on the outward stroke of the piston 40 air being admitted to the chamber 53 through the valve 36, and on the inner stroke of the piston, the valve 36 closing, air is forced through the valves 31 to the chamber 51.

It should be understood that during the operation of the air-pump, the syringe is inverted with the stem uppermost, so that the compressed air is forced directly into the liquid contained in the cylinder 8, and is so diffused during the operation of pumping that the liquid is charged with air to any desired degree. This operation being completed, the valve 16 is unseated from the valve-seat 17 by means of the push-button 24 and its connections, and the contents of the cylinder 8 are expelled from the mouth 14 of the stem 9 in an annular spray; the stem 9 having an annular depression upon its inner surface near the mouth 14, indicated by the numeral 53, and the mouth of the inner tube 11[a] being provided with an annular enlargement 54; by reason of this formation of the mouth of the tube 11 and the mouth of the stem 9, the syringe is provided with a fine annular orifice 55 through which the contents of the syringe is ejected in a fine mist or spray, the air and liquid being in perfect admixture and the resulting vapor consisting of finely comminuted moisture-laden particles.

To those skilled in the science of gynecology, the manifold uses of the device of our invention will be obvious, and for that reason they need not be expressed at length in this specification. It will be sufficient to state that the device of the invention is intended for the immediate application of cleansing or medicinal compounds to the vagina and the adjacent parts under conditions of health or of disease; and that, the liquid being perfectly vaporized, there is no shock resultant from its use, as in the case of the impact of imperfectly vaporized liquid. Furthermore, the pressure under which the vapor is expelled distends the folds of the walls of the vagina and thus admits of the thorough cleansing and treatment of such walls.

The fluid is withdrawn from the vagina through the tube 11[a] and valve 53, by means of the piston 40; the bulb 11[a] preventing the escape of the fluid from the mouth of the vagina.

In the claims we will refer to the cylinder 8 as a liquid-container, and the shell 27 and its attachments as an air-pump.

Having fully described our invention, what we claim as new and desire to have secured to us by the grant of Letters Patent, is:

1. In a vaginal syringe, a liquid-container having a nozzle comprising inner and outer connecting tubes, an air-pump, an inlet valve connecting the inner tube to the interior of the air-pump, outlet valves connecting the air-pump with the interior of the liquid container, means for closing the nozzle of the liquid-container while forcing air from the air-pump into the fluid contents of said container, and means for opening said nozzle after the fluid has been charged with air, substantially as specified.

2. In a vaginal syringe, a liquid-container having a nozzle comprising inner and outer connecting tubes, an air-pump, an inlet valve connecting the inner tube to the interior of the air-pump, outlet valves connecting the air-pump with the interior of the liquid container, means for closing the nozzle of the liquid-container while forcing air from the air-pump into the fluid contents of said container, means for opening said nozzle after the fluid has been charged with air, and a bulb mounted about said nozzle, substantially as specified.

In testimony whereof, we have signed our names to this specification, in presence of two subscribing witnesses.

KARL L. MAYERS.
MAURICE B. BENAS.

Witnesses:
ALFRED A. EICKS,
WALTER C. STEIN.