

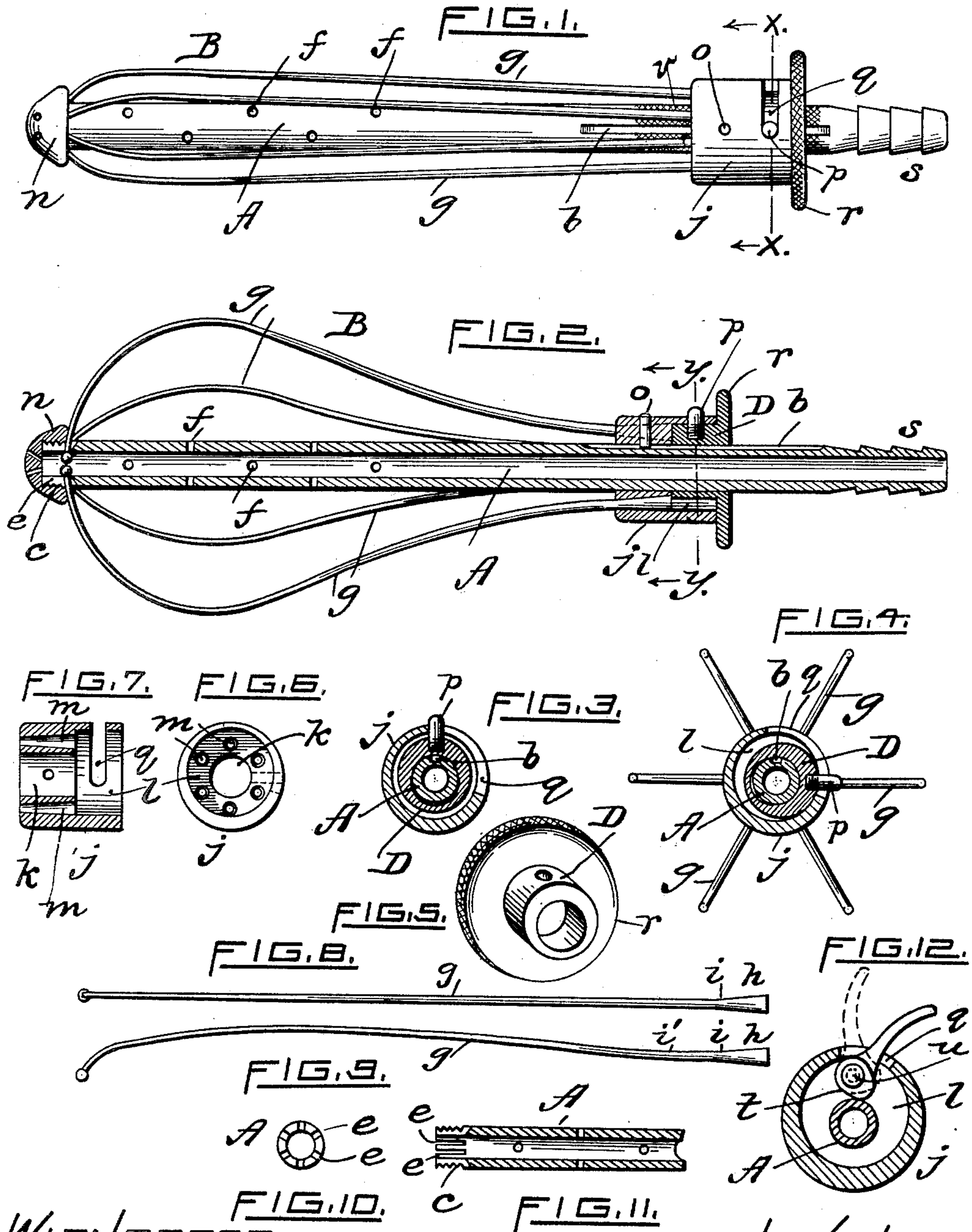
No. 679,671.

Patented July 30, 1901.

C. T. HANNIGAN.
SYRINGE NOZZLE.

(Application filed Apr. 26, 1901.)

(No Model.)



WITNESSES.

Robert L. Duncan
Augusta L. Merwin

INVENTOR.

Charles T. Hannigan

UNITED STATES PATENT OFFICE.

CHARLES T. HANNIGAN, OF PROVIDENCE, RHODE ISLAND.

SYRINGE-NOZZLE.

SPECIFICATION forming part of Letters Patent No. 679,671, dated July 30, 1901.

Application filed April 26, 1901. Serial No. 57,620. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. HANNIGAN, having post-office address at 10 Weybosset street, in the city and county of Providence, in the State of Rhode Island, have invented a new and useful Improvement in Syringe-Nozzles, of which the following is a specification.

My invention relates to improvements in vaginal syringes of that class in which the nozzle is provided with an expansible frame adapted to dilate the walls of the vaginal canal; and one object of my invention is to provide a syringe-nozzle with an inclosing frame that will fold close to the nozzle to facilitate the introduction and is adapted to be expanded after insertion.

A further object of my invention is to provide means whereby the frame is quickly expanded and held in a fixed position upon the nozzle.

My invention consists in the combination, with a nozzle provided with a groove extending longitudinally thereof, of a frame comprising a sleeve loosely mounted upon the said nozzle and provided with means to engage in the groove of the same, said sleeve provided with a series of conical perforations at one end thereof and longitudinally disposed around the nozzle, the opposite end of said sleeve provided with a circular recess eccentric to the center of the nozzle, a series of tapering wire arms having their larger ends secured in the perforations of the said sleeve and longitudinally disposed around the nozzle, means for securing the opposite ends of said arms rigid to the nozzle, with an eccentrically-shaped collar loosely mounted upon the nozzle and carried by the said sleeve within the circular recess thereof adapted to give frictional contact between said sleeve and said nozzle, whereby the frame is held in a fixed position when expanded, all as hereinafter fully described and claimed.

In the accompanying sheet of drawings, Figure 1 represents an elevation view of the nozzle and frame with the frame contracted. Fig. 2 is a central sectional view of the nozzle with the frame expanded. Fig. 3 is a cross-sectional view taken in line *xx* of Fig. 1, showing the eccentric collar as disengaged from the nozzle. Fig. 4 is a cross-sectional view taken in line *yy* of Fig. 2, showing the

eccentric collar as turned to frictional contact with the nozzle. Fig. 5 is a perspective view of the eccentric collar. Fig. 6 is a rear end elevation of the sleeve which carries the eccentric collar. Fig. 7 is a central longitudinal sectional view of the sleeve. Fig. 8 is a top plan view of one of the wire arms of the frame. Fig. 9 is a side elevation of the arm. Fig. 10 is a front end view of the nozzle. Fig. 11 is a partial longitudinal section of the front end portion of the nozzle. Fig. 12 is a cross-sectional view of the sleeve, showing a modified means for holding the frame by frictional contact upon the nozzle.

Similar letters of reference indicate corresponding parts in the different views of the drawings.

A indicates the nozzle, of a tubular form, provided with an exterior groove *b*, extending longitudinally in one portion of the nozzle. The front end of the nozzle is circumferentially screw-threaded, as at *c*, and a series of slotted openings *e e* extend longitudinally through the said end of the nozzle and terminate slightly back of the said screw-threaded portion thereof, and these slots are divided equidistant around the nozzle, as shown in Fig. 10. The nozzle is further provided with a series of perforations *f f* at divers points in its length.

B indicates the frame for the nozzle, comprising a series of round wire arms *g g*, preferably made of soft-steel metal, and, referring to Fig. 8, each arm has a shank *h*, tapering inwardly from one end thereof to a point *i*, from whence it continues in a straight taper to near the opposite end of the arm, where an enlarged ball is formed thereon of a diameter equal to the size of the wire at the said point *i*. From the point *i* the center of the wire extends parallel with the center of the said shank portion to a point *i'*, from whence it curves over in the approximate arc of a circle to the ball formed upon its front end, in the manner illustrated in Fig. 9.

j is a circular-shaped sleeve having a central circular opening *k* of the size of the nozzle, said opening extending longitudinally through the sleeve and terminating in a circular-shaped recess *l*, formed concentric with the center of the said sleeve, as shown in Figs. 6 and 7, and a series of conical perforations

m m extend longitudinally through the sleeve from the circular recess thereof. Said perforations are divided equidistant around the opening *k*, and in these conical perforations of the sleeve are secured the wire arms, the ball end portions of which are first drawn through until prevented by the shank portions, which are finally driven into the perforations, thus securing the arms rigidly to the sleeve. The sleeve is loosely mounted upon the nozzle, and the opposite or front end portions of the arms are made to enter the slots *e e*, where they are prevented from withdrawing by the ball end of the arms, after which a cone-shaped nut *n* engages upon the threaded portion of the nozzle and holds the arms in a fixed position upon the same.

The sleeve *j* is prevented from rotative movement upon the nozzle by a pin *o*, which is secured transversely through the circular wall of the sleeve and engages in the groove *b*, thus keeping each and all of the wire arms lying in a horizontal plane radially disposed with reference to the nozzle.

D indicates an eccentric collar, which is loosely mounted upon the nozzle and is carried within the recess of the sleeve by the pin *p*, made rigid to the eccentric collar and projecting through a transverse slotted opening *q*, formed in the circular wall of the sleeve, said collar having an enlarged annular flange *r* integral therewith and adjoining the rear face of the sleeve and is provided with a milled edge for the purpose of turning the collar into frictional contact between the said sleeve and said nozzle, respectively, in the position shown in Fig. 4. When the nozzle is introduced in the vaginal canal, the sleeve is then drawn forward upon the nozzle and which movement causes the arms to expand and present an approximately pear-shaped exterior within the vagina. The milled flange of the eccentric collar is then given about a quarter-turn to make frictional contact between the interior circular recess of the sleeve and the exterior surface of the nozzle, thus holding the frame in a rigid position during the operation of flushing the canal.

To obtain a greater frictional contact with the means employed, that portion of the nozzle upon which the sleeve moves may be roughened, as at *v*.

s indicates that part of the nozzle for connection therewith of the rubber tube of the ordinary syringe which supplies the water or other liquid, this injected liquid passing through the perforations of the nozzle and washing the foreign or injurious matter downwardly and out of the vaginal orifice.

This instrument is of a sufficient length that when introduced in the canal the neck or narrow portion of the frame forward of the sleeve projects from the vaginal orifice and allows of an exit for the discharge of fluid.

In this class of syringe-nozzles it is impor-

tant that the frame will lie close to the nozzle to prevent irritation when inserting the instrument, so that by having the frame constructed of tapering wire arms and mounted upon the nozzle, as described, the frame permits of not only ready insertion, but expands from the forward part of the nozzle, which is an essential feature. Furthermore, the arms present a smooth surface for contact with the walls of the vagina, so that in performing the washing the douche will get at the most remote parts.

In referring to Fig. 12, which shows another means for holding the frame in position upon the nozzle when expanded, *t* indicates a cam pivoted on a stud *u*, secured to the aforesaid sleeve within the recess thereof, said cam having an arm integral therewith and projecting through the slot of said sleeve to throw the said cam in frictional contact with the nozzle.

Having described my invention, what I claim is—

1. In a syringe, the combination with a nozzle provided with an exterior longitudinal groove, of a frame comprising a circular sleeve loosely mounted upon the nozzle, a pin rigidly secured in the said sleeve and entering the groove of said nozzle, said sleeve provided with a circular aperture concentric with the center of the nozzle and a series of conical perforations extending longitudinally through from said aperture and surrounding the nozzle, a series of tapering wire arms longitudinally disposed around the nozzle having their larger ends rigidly secured in the perforations of the said sleeve, means for securing the opposite or smaller ends of said arms rigidly to the nozzle, with an eccentric collar loosely mounted on the nozzle and carried by said sleeve within its aperture adapted to give frictional contact between the sleeve and nozzle, respectively, in holding the frame in an expanded condition, substantially as shown and described.

2. In a syringe, the combination with a nozzle having a groove extending longitudinally through one portion thereof, said nozzle circumferentially screw-threaded at one end and provided with a series of slotted openings extending longitudinally through the said threaded end thereof, a sleeve mounted upon the nozzle and provided with a series of conical perforations extending longitudinally through and surrounding the nozzle, a pin rigidly secured in the said sleeve and entering the groove of the said nozzle, a series of wire arms, made of resilient material, longitudinally disposed around the nozzle, each of said arms tapering from a larger end to its opposite or smaller end terminating in a ball integral therewith, said arms having their larger ends rigidly secured in the perforations of said sleeve and their ball end portions connected in the slots of said nozzle, a cone-shaped nut to engage upon the threaded end

of said nozzle, to hold said arms to the same, with means carried by said sleeve for giving frictional contact in holding the arms in an expanded condition upon the nozzle, substantially as shown and described.

5 3. In a syringe, the combination with a nozzle provided with a groove extending longitudinally thereof, of a frame comprising a sleeve mounted upon the nozzle and adapted
10 to move longitudinally thereon, said sleeve provided with conical perforations extending through and surrounding said nozzle, a circular aperture in said sleeve concentric with the center of said nozzle, a series of tapering
15 wire arms longitudinally disposed around the nozzle and having their larger ends rigidly

secured in the perforations of said sleeve and their smaller ends rigidly secured in the end of said nozzle, so constructed that a sliding movement of the sleeve will expand the said
20 arms from their smaller end portions on the nozzle, with means carried by said sleeve, within the aperture thereof, to hold the frame by friction upon the nozzle, substantially as shown and described.

25 Signed by me at Providence, Rhode Island, this 25th day of April, 1901.

CHARLES T. HANNIGAN.

Witnesses:

ROBERT W. BURBANK,
AUGUSTA S. MEREWETHER.