

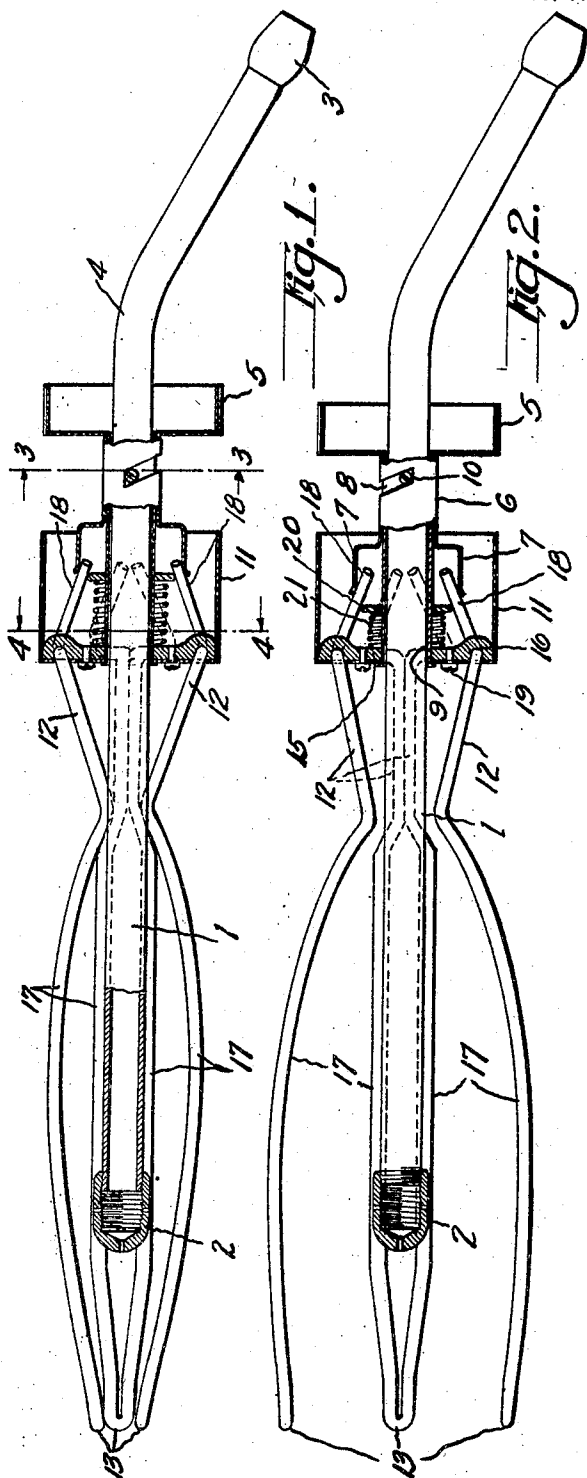
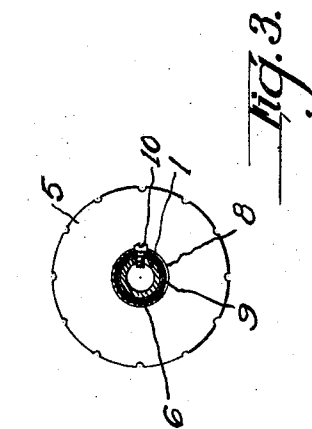
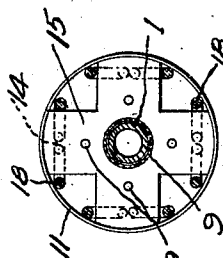
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SPRAY DEVICE

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UNITED STATES PATENT OFFICE.

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SPRAY DEVICE.

Application filed September 1, 1921. Serial No. 497,677.

To all whom it may concern:

Be it known that I, CLARENCE M. McARTHUR, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Spray Devices, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to vaginal spray devices, and the principal object is to provide an inexpensive and efficient construction of a spray device for the cleansing of the vaginal cavity. A feature of the invention is a series of collapsible and expandible prongs or fingers for the purpose of dilating the uterus and of cleansing the same, or in the treatment of various ailments in which case a medicinal preparation may be introduced into the vaginal cavity or the uterus. One feature of the invention is in the provision of collapsible prongs formed of small wire. In devices heretofore used for this purpose and in which a prong or series of prongs are used for the expansion of the uterus, the said prongs are of considerable surface area which, by reason of close contact with the wall of the uterus, prevents cleansing of the entire wall. By provision of wire prongs as hereinafter described such defect is obviated and a feature of this invention is in the use of wire prongs of small cross section and in means for mounting the prongs and in the means employed for forcing the prongs apart and the automatic means for drawing the prongs together. These and other objects and the several novel features of the invention are hereinafter more fully described and claimed, and the preferred form of construction of a vaginal spray embodying my invention is shown in the accompanying drawings in which—

Fig. 1 is a side elevation partly in section showing my improved construction with the prongs collapsed or brought together about the spray nozzle.

Fig. 2 is a similar view showing the prongs in the expanded position.

Fig. 3 is a section taken on line 3—3 of Fig. 1.

Fig. 4 is a section taken on line 4—4 of Fig. 1.

The device consists of the central tubular member 1 having an apertured spray head 2 at the inner end thereof and at the opposite end being formed preferably with an enlarged portion 3 for the attachment of a rubber tube. The tube 1 is preferably bent at 4 in order that in the use of the device the rubber tubing will not become kinked at the point of attachment with the tube at the end 3. On the straight portion of the tube adjacent the point of bend 4 is formed the expansion device for the prongs consisting of a circular handhold portion 5 and a portion 6 of cylindrical form at the inner end of which is provided a hollow cup shaped portion 7, the purpose of which is hereinafter described. The portion 6 of the expansion device has a spiral slot 8 formed therein. On the tube 1 is another tube 9 practically fitting the tube 1 and this tube 9 extends through the cylindrical portion 6 of the expansion member. A screw 10 is provided which, as will be understood from Figs. 2 and 3, is located in the spiral slot 8 on the member 6 and passes through an aperture in the member 9 and is threaded in the tube 1. This screw 10 therefore fixedly positions the tube 9 on the tube 1 and also holds the expansion member 6. By turning the expansion member 6 to the right from the position shown in Fig. 1 the member 6 is made to move longitudinally of the tube 1.

At the forward end of the tube 9 at a distance from the expansion device is carried a hollow cylindrical shell 11 open at the rear end permitting free movement of the expansion member thereinto and closed at the opposite end except for apertures provided for the wire fingers 12. These wire fingers or prongs are preferably in the form shown being made of a wire bent upon itself at the forward end and extending backward in spaced relation as shown clearly in Fig. 1. As will be understood from the dotted lines in Fig. 4, the two prongs thereof are brought together in close relation as at 14 and extend into the mem-

ber 11. Also within this member 11 is a plate 15 having four arms and each arm is provided with a recess 16 extending about the wire at the point 14 as may be understood from Fig. 4. The two ends of each wire prong extend into the hollow casing 11 on each side of the respective arm of the plate 15, and lie normally at an angle to the longitudinal axis of the tube 1 and extend into a cup shaped member 7 as shown in Figs. 1 and 2. These wire members are mounted to rock in the socket 16 and preferably are shaped as shown in the drawing having an elongated curved portion 17 extending about the spray nozzle 2 of the tube 1 and come nearly into contact with the tube near the member 11. From these each wire extends outwardly at an angle to the axis of the tube to the socket 16. By pressing these inner ends 18 within the shell 11 toward the center the curved prongs will be expanded as shown in Fig. 2 and to press these ends 18 together the cup shaped member 7 is moved toward the left to the position shown in Fig. 2 with the edge of the tube engaging against the outer surfaces of the ends 18.

The plate 15 is secured to the base of the shell 11 by means of several screws 19 and between this plate 15 and cup shaped member 7 is a loose washer 20 of circular form and free to move longitudinally of the tube 9. A coiled spring 21 is interposed between the washer and the plate 15 normally tending to at all times move the washer toward the inlet end of the tube 1 and this washer lies in contact with the inner surfaces of the ends 18 of the wire members and, on movement to the right, causes the wire members about the spray to be collapsed or brought toward the center to the position shown in Fig. 1. This is an automatic action and is permitted by reverse rotation of the member 5 on the tube 9.

It is thus to be seen that by rotation of the member 5 from the position shown in Fig. 1 the wire members about the spray nozzle are caused to expand assuming the position shown in Fig. 2 in which condition for instance the parts being cleansed are held in the expanded position and permit free access of the cleansing solution to the wall of the uterus or to the wall of the vaginal cavity. Subsequent to this cleansing operation the member 5 is reversely rotated drawing the member 7 backward from the position shown in Fig. 2 permitting the spring 21 to force the washer 20 between the converging ends 18 of the wire members forcing them to collapsing position shown in Fig. 1.

From the foregoing description it is evident that the device is of simple form; is comparatively cheap to manufacture; is efficient in operation, and that the operative parts of the device are so assembled as to be

readily operable and liability of disarrangement of the parts is reduced to a minimum.

Having thus briefly described my invention, what I claim and desire to secure by Letters Patent of the United States is—

1. In a spray device, a tube, a spray nozzle, a series of wire fingers or prongs positioned about the tube and having an elongated curved form in side elevation and being normally arranged in converging relation, a support for the prongs carried by the tube, said support including a socket in which the prongs may have a rocking motion in a plane parallel with the longitudinal axis of the tube, said fingers having converging end portions beyond the point of support, means movable longitudinally of the tube and engaging the last named converging ends of the prongs to rock the same away from the tube, and a spring-actuated device tending to force the last named converging ends and prongs apart to force the body of the prongs or spray device to contracted or closed relationship.

2. In a spray device, a tube, a spray nozzle, a series of wire members extending longitudinally of the tube and normally in converging relation about the spray nozzle, a rock bearing for the prongs permitting the same to rock toward or from the spray tube, said prongs having converging ends beyond the rock mounting, and means for rocking the prongs comprising an expansion device rotatably mounted relative to the tube and having a cup shaped end member engaging over the converging ends of the prongs, said expansion device having a spiral slot therein, a screw extending through the slot whereby rotation of the member causes movement thereof longitudinally of the tube, a washer movable longitudinally of the tube within the converging ends of the prongs, and a spring for moving the washer in one direction.

3. In a spray device including a tube and a spray nozzle, a series of wire prongs or fingers lying normally in converging relation about the tube and nozzle, a rock mounting for the prongs at a point distant from the nozzle, said prongs having the inner ends in converging relation, an expansion device movable longitudinally of the tube and having a cup shaped portion engaging about the inner converging ends of the prongs, and a spring-pressed member tending to automatically force the prongs to closed relationship about the spray nozzle.

4. In a spray device including a tube and a spray nozzle, a series of prongs lying normally in converging relation about the tube and nozzle, a support for the prongs comprising a member having a tubular portion fitting the spray tube and provided with rock bearings for the prongs, said prongs having converging ends beyond the said

bearing, an expansion device having a part fitting the said tubular member on the spray tube and rotatable thereon, said portion of the expansion device having a spiral slot, a screw in the said slot extending through the tube on which the expansion device is mounted and into the spray tube, said screw locking the tube and bearing member for the prongs whereby rotation of the expansion device causes movement thereof longitudinally of its mounting, a cup shaped member on the expansion device engaging about the converging ends of the prongs, and spring controlled means tending to force the said converging ends apart to collapse or contract the prongs about the spray nozzle substantially as described.

In testimony whereof I sign this specification.

CLARENCE M. McARTHUR.