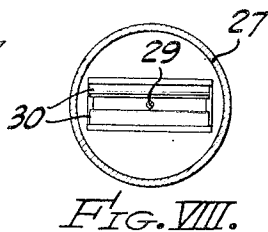
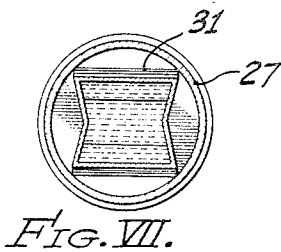
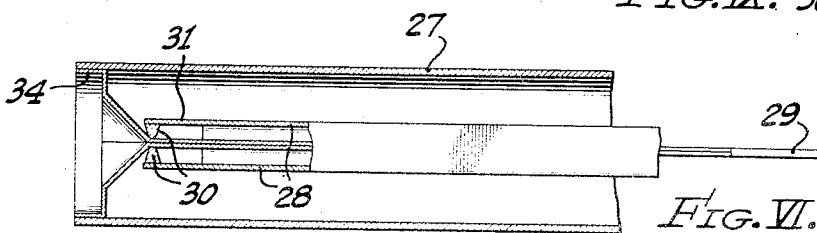
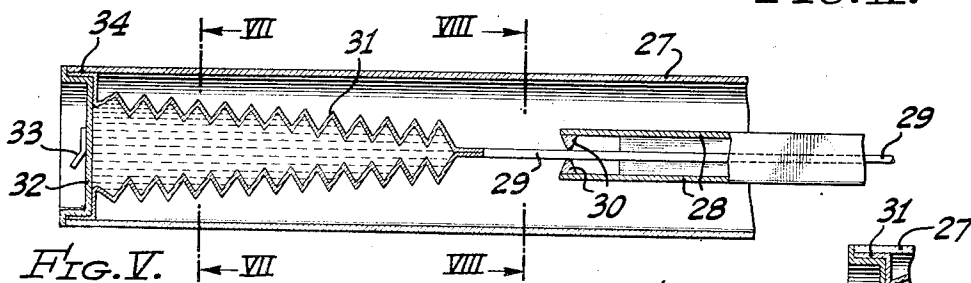
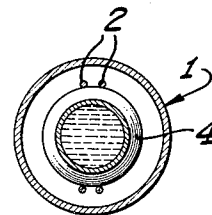
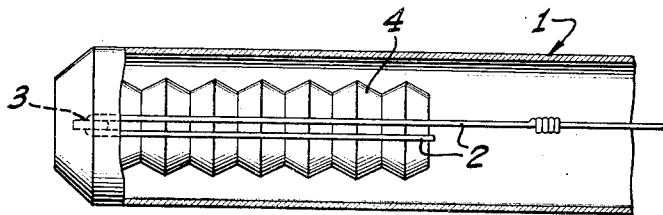
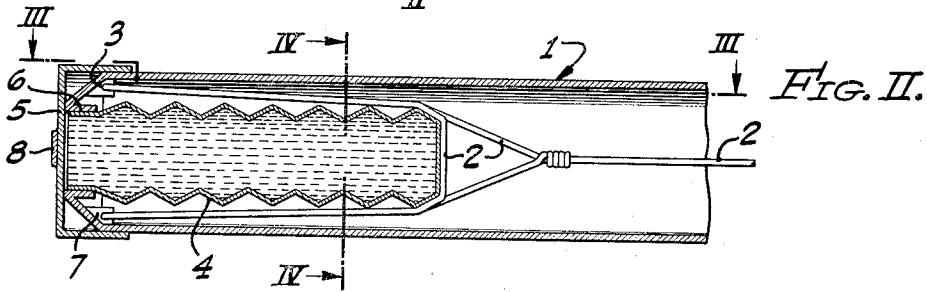
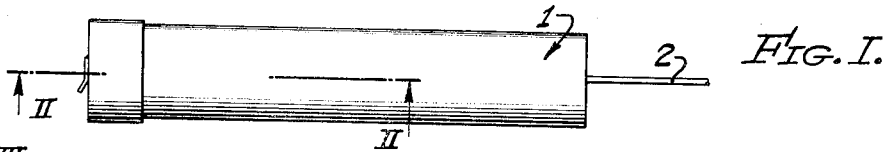


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VAGINAL APPLICATOR
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VAGINAL APPLICATOR

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12 Claims. (Cl. 128—260)

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This invention relates to a new and useful device for applying fluid compositions of matter to mammalian vaginas.

This application is restricted to the improvements shown in Figures I, V and VI of the drawings as originally filed, and the claims herein are restricted to such improvements. The broad subject of my invention is being claimed in my co-pending application, Serial No. 55,030, filed October 18, 1948, as a continuation-in-part of this application.

Various devices have been invented for the purpose of applying a fluid composition of matter to a human vagina. Some devices embody a cotton swab fastened to a form. The cotton is treated with a composition of matter and inserted into a vagina. Irregular amounts of matter are deposited along a vaginal tract and the desired amount is not necessarily deposited at the desired position. Other devices utilize the principle of a spray or stream of liquid, usually an aqueous solution. These devices using a relatively large quantity of a liquid necessitate preparing solutions at the time of use. These devices also require facilities to dispose of the solutions after they are drained from a human vagina. Still other devices utilize a viscous fluid type of medicament which is pushed into a vaginal tract by an applicator of a cylinder and piston type. An applicator of this type must be filled immediately before use and must be cleaned immediately after use to prevent a viscous fluid type of medicament from drying between the cylinder and piston walls, adhering the two members together.

An object of this invention is to provide a sanitary disposable applicator for the treatment of a human vagina with a stored viscous fluid medicament.

Another object of this invention is to provide a sanitary disposable applicator for the treatment of a mammalian vagina with a fluid composition of matter.

Another object of this invention is to provide a hygienic, disposable applicator for the treatment of a human vagina with a fluid medicament.

Another object of this invention is to provide a hygienic, disposable device for the storage and transport of a seminal fluid and for its sanitary application to a mammalian vagina. Such a device is particularly useful in the breeding of cattle, sheep and pigs, when it is desired to fertilize a female animal with the semen of a specific male breeding animal.

Further objects and advantages of this inven-

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tion will become apparent in the following description, to be read in connection with the accompanying drawing.

Figure I is an elevational view of my vaginal applicator embodying one form of my invention. Figure II is an enlarged fragmentary longitudinal sectional view thereof taken through II—II of Figure I.

Figure III is a fragmentary partial elevational partial sectional view thereof, taken through III—III of Figure II.

Figure IV is a transverse sectional view through IV—IV of Figure II.

Figure V is a fragmentary longitudinal sectional view of another form of my invention shown before use.

Figure VI is a sectional view after use.

Figure VII is a transverse sectional view through VII—VII of Figure V.

Figure VIII is a transverse sectional view through VIII—VIII of Figure V.

Figure IX is a fragmentary sectional view of the discharge end of a further modified form of my invention designed to handle a liquid medicament.

Referring to Figures I to IV inclusive, a rigid tubular form 1 of suitable length and diameter is suitably constricted at one end 6 and cemented at 6 to a circularly pleated, fluid resistant, collapsible tubular container 4; said container 4 is closed at the end opposite the cemented joint 6. A force transmitting corded member cable means or tension element 2 passes around the pivots 3 and 7, said pivots 3 and 7 being attached to the interior of the rigid tubular form 1. A terminus of the force transmitting corded member 2 projects sufficiently beyond the open end of the rigid tubular form 1 to permit the terminus to be easily grasped by human fingers at all times. A removable cap 5 is suitably sealed to the outside of the rigid tubular form 1 by a sealant which is not shown, to prevent the evaporation of volatile portions of a composition contained in container 4. A tab 8 is affixed to the cap 5 to facilitate removal of the cap 5.

Referring to Figures V to VIII inclusive, a rigid tubular form 27 of suitable diameter and length is suitably cemented at one end 34 to a fluid resistant, pleated, wedge shaped container 31. The apex of the container 31 is affixed to a force transmitting corded member 23, whose length extends sufficiently beyond the open end of the rigid tubular form 27 to provide a terminus easily grasped by human fingers during the operation of the applicator, which is explained later. A

pair of wedges 30 are suitably affixed to a pair of plane parallel rigid sheets 28, said sheets 28 being rigidly separated a required distance and said sheets 28 being of suitable length to provide a terminus easily grasped by human fingers during the operation of the applicator. The sheets 28 and the pair of wedges 30 are the width of the said container 31 as a minimum and approach the inside diameter of the rigid tubular form 27 as a maximum. A removable plug type cap 32 is suitably sealed to the rigid tubular form 27 by a sealant, which is not shown, to prevent the evaporation of volatile portions of a composition contained in the container 31. A tab 33 is affixed to the cap 32, to facilitate removal of the cap 32.

The term, fluid resistant collapsible container, is used to designate collapsible containers made of thin, flexible materials resistant to the penetration of fluid compositions which are stored in the collapsible containers; said fluid compositions being intended for use in the treatment of mammalian vaginas. Many of the fluid compositions contain water as an important component; therefore, the collapsible containers for such compositions should be water resistant. Many of the fluid compositions contain vegetable oils as components; containers for such compositions should be resistant to the penetration of such oils. Other fluid compositions contain other fluid components and the collapsible containers for such compositions should be suitably resistant to the penetration of said components.

Examples of materials which may be used to form suitably shaped collapsible, water resistant, containers are listed in Table I.

Table I

Natural rubber
Polyethylene resin
Synthetic rubbers
Paraffin wax impregnated paper
Vinyl chloride-vinyl acetate copolymer resin
Natural rubber impregnated paper
Butyl methacrylate resin
Methyl acrylate resin

Other waxes may suitably be used to coat and impregnate paper, regenerated cellulose or textiles to form a water resistant, collapsible container. Other resinous materials, natural or synthetic, may suitably be used to coat and impregnate paper, regenerated cellulose or textiles to form a water resistant collapsible container. Other high polymeric compositions may be used alone or in combination to form a complete water resistant, collapsible container.

Examples of materials which may be used to form suitably shaped collapsible, vegetable oil resistant, containers are listed as follows:

Table II

Neoprene rubber
Polyethylene resin
Urea-formaldehyde resin impregnated paper
Melamine-formaldehyde resin impregnated paper
Vinyl chloride-vinyl acetate copolymer resin
Polyvinyl alcohol plasticized sheet

The design of a vaginal applicator for a particular use is subject to certain physical requirements. The volume of the fluid resistant, collapsible container is that required to hold the desired volume of fluid composition of matter.

It is desirable to make a device for application of single doses of a desired medicament to a human vagina. It is also desirable that such a device be inexpensive in order to justify its de-

struction after a single use. It is good hygienic practice to prepare such devices and load them with a desired medicament in a factory, where high sanitary standards can be rigidly maintained during large quantity production. My invention enables such objectives to be met readily and economically.

The rigid tubular member of form 1 of Figures I to IV inclusive and the tubular member 27 of Figures V to VIII inclusive, are economically made from paper tubing of suitable dimensions. The removable caps of plugs 5 or 32 respectively, are economically made from fluid resistant paper stock. When used to apply medicament the fluid resistant collapsible container 4 or 31 is filled with a desired viscous fluid medicament, the removable cap 5 or 32 is sealed on and the apparatus stored for later use at a required time. When an applicator is needed, the removable cap is taken off, and the rigid tubular member 4 or 31 is inserted in the human vaginal tract to the desired depth. In the arrangement shown in Figures I to IV, the cord 2 is pulled while the tubular member is held in position. In the arrangement shown in Figures V to VIII, the cord 29 is pulled and the wedges 30 simultaneously forced inwardly. In either case, the container 4 or 31 is collapsed discharging its contents into the vaginal tract. Being an inexpensive disposable device, the applicator is thrown away after a single use. No storage of an unsightly device is necessary. No washing of a dirty device is necessary. No esthetic satisfactions are marred by the necessity of using a douche device.

In the application of my invention for purposes of artificial insemination, the fluid resistant collapsible container 4 or 31 is filled with a viscous seminal preparation, said semen being obtained from a desired male breeding animal, the cap 5 or 32 is sealed to the outside of the tubular member 1 or 27, the applicator is shipped under specified temperature control to a distant farm, and the cap 5 or 32 is removed and the tubular member inserted into the vaginal tract of a female breeding animal to the required depth and the device operated as described hereinbefore; the disposable applicator is removed and destroyed. Unnecessary handling and manifold transference of the seminal preparation are avoided, with consequent minimization of contamination and loss of potency.

In some instances it is desired to employ a very fluid or liquid medicament. For this purpose, as shown in Figure IX, an orifice plate 35 is suitably sealed in the discharge end of the tubular member 27 of the arrangement shown in Figures V and VIII, after the collapsible container 31 has been filled with a physiological salt solution containing a medicament. The cap 32 is sealed in place, ready to use, to employ in the manner of the first described structure. By the use of my invention very fluid solutions and suspensions of desired materials may be inserted into a vaginal tract in a desired dosage. Similarly an orifice plate may be employed in conjunction with the construction shown in Figures I to IV.

Although specific embodiments of this invention have been shown and described, it will be understood they are illustrative and that various modifications may be made therein without departing from the scope and spirit of this invention as defined in the appended claims.

I claim:

1. A vaginal applicator, involving: a rigid tubular member having a discharge end; a col-

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lapsible container within said tubular member and having a discharge end secured to the discharge end of said tubular member; a tension element extending from said tubular member; and means operatively associated with said tension element to collapse said container and discharge its contents from the end of said tubular member.

2. A vaginal applicator, involving: a rigid tubular member having a discharge end; a collapsible container within said tubular member and having a discharge end secured to the discharge end of said tubular member; and means including a tension element protruding from the opposite end of said tubular member to discharge the contents of said container.

3. A vaginal applicator, involving: a rigid tubular member; a pleated collapsible container within said tubular member and disposed with its discharge end coinciding with an end of said tubular member; and means including a tension element protruding from the opposite end of said tubular member to discharge the contents of said container.

4. A vaginal applicator, involving: a rigid tubular member; a collapsible container within said tubular member and having a discharge end secured thereto at one end thereof; a tension member protruding from the remote end of said tubular member; and cable means attached to said tension means threaded through loops at the attached end of said container member and forming a portion longitudinally embracing said container whereby upon pulling said tension member said container is collapsed axially.

5. A vaginal applicator, involving: a rigid tubular member; a pleated collapsible container within said tubular member and disposed with its discharge end coinciding with an end of said tubular member; pivoted means between said container and tubular member adjacent their attached ends; a cable threaded through said pivoted means and forming a pair of loop portions overlying the sides and extended end of said container; and a tension element attached to one of said loop portions to pull said loop portion thereby to contract the other loop portion and collapse said container.

6. A vaginal applicator, involving: a pleated container adapted to collapse axially; a rigid tubular member encompassing said container and attached by one end to the discharge end of said container; a tension member protruding from the opposite end of said container; and means attached to said tension element and so engageable with said container to effect axial

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crushing of said container upon application of tension to said tension member.

7. A vaginal applicator, involving: a pleated container adapted to collapse axially; an orifice plate closing said container, said container being adapted to contain a liquid substance; a rigid tubular member encompassing said container and attached by one end to the discharge end of said container; a cap initially covering and sealing said tubular member to confine the contents of said container; a tension member protruding from the opposite end of said container; and means attached to said tension element and so engageable with said container to effect axial crushing of said container upon application of tension to said tension member.

8. A vaginal applicator as set forth in claim 3, wherein said tension element involves a cable looped over said container threaded through guide means at the discharge end of said container, doubled upon itself, and extending from said tubular member at its end opposite from the discharge end of said container.

9. A vaginal applicator as set forth in claim 3, wherein said tension element extends axially from said container and fingers are slidable along said tension member and against the sides of said container to eject the contents thereof.

10. A vaginal applicator as set forth in claim 1, wherein said tension element involves a cable looped over said container threaded through guide means at the discharge end of said container, doubled upon itself, and extending from said tubular member at its end opposite from the discharge end of said container.

11. A vaginal applicator as set forth in claim 1, wherein said tension element extends axially from said container and fingers are slidable along said tension member and against the sides of said container to eject the contents thereof.

12. A vaginal applicator as set forth in claim 3, wherein an orifice plate is provided in the discharge end of said collapsible container.

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