

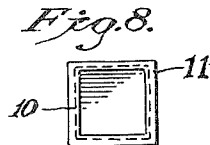
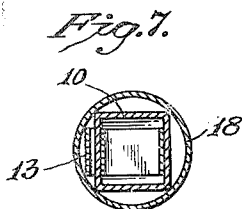
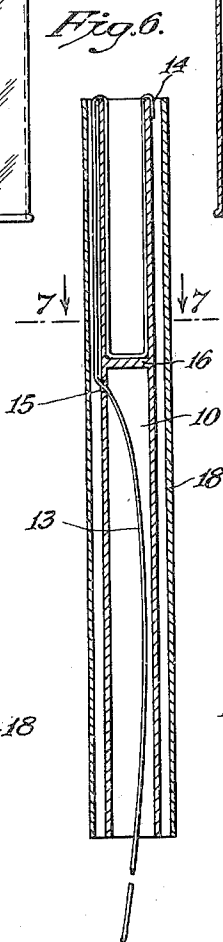
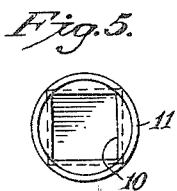
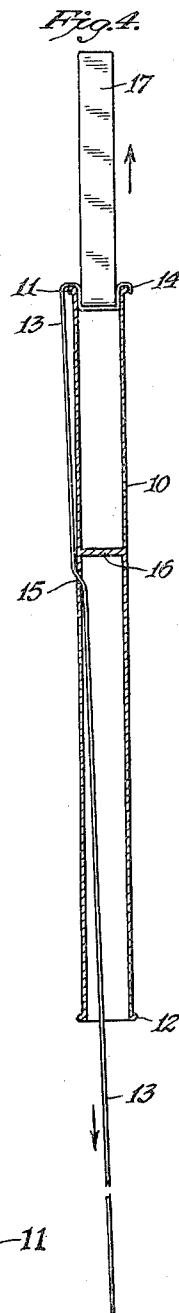
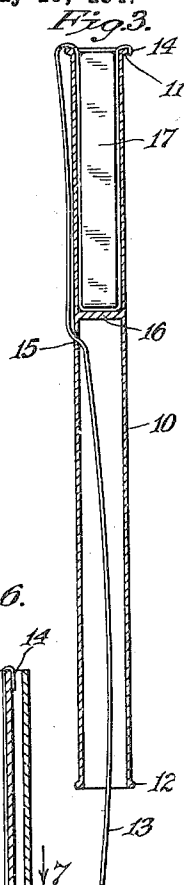
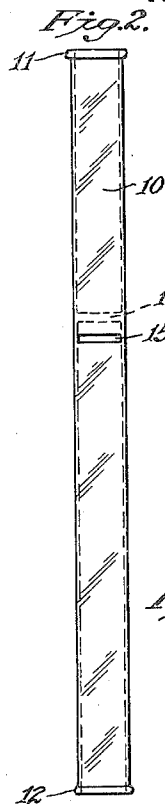
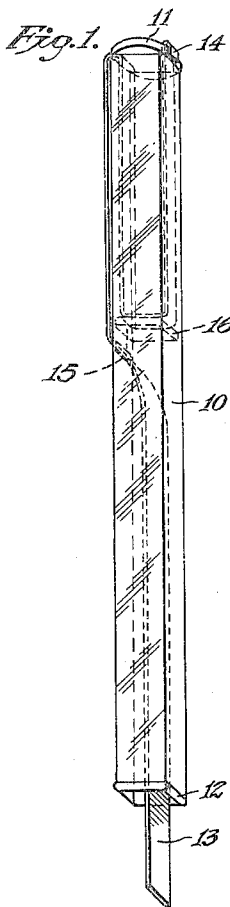
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APPLICATOR

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2,509,241

APPLICATOR

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1 Claim. (Cl. 128—270)

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This invention relates to new and useful improvements in applicators, and particularly applicators adapted to the application of medicants and catamenial devices or tampons into the vagina.

Heretofore it has been the practice to introduce suppositories, which are used for the treatment of vaginal infections or for contraception, into the vagina by digital action. Catamenial devices or tampons, however, have been introduced into the vagina by a variety of applicators. One common type of applicator has been a cardboard tube which contains the tampon at one end; the cardboard tube is inserted into the vagina, and a second cardboard tube of such size that it fits snugly inside of the first tube is used as a plunger to extrude the tampon. In other applicators the tampon is partially extruded before insertion into the vagina.

The use of digital action for the insertion of medicants or contraceptives into the vagina has several decided disadvantages; this method has the disadvantage of offending the aesthetic sensibilities of the person using the medicant or contraceptive material and the further disadvantage that the fingers are never sterile, which results in the contamination of the object which is to be inserted. The commonly accepted applicators used for the insertion of tampons either require the use of more than one tube or require that the tampon be partially extruded from the applicator before introduction; when the tampon is partially extruded before introduction, there is a possibility that it may become contaminated and that it will absorb vaginal fluid as it is inserted into the proper position, thus losing efficiency.

When medicants or contraceptive materials, which melt at body temperatures, are inserted into the vagina by digital action, there is some loss of body on the walls as the said materials pass inward. This difficulty has been overcome, in the prior art, by coating the medicant or contraceptive material with hard gelatin; this however produces the disadvantage that melting time is markedly increased. A tampon if it comes in contact with the walls of the vagina absorbs vaginal fluids and thus suffers a loss of absorbency. It is highly desirable that little or no moisture be removed from the mucous membranes during insertion of a tampon and that a medicant lose none of its body in passage to the position where it is desired that it be placed.

An object of this invention is to provide an applicator by which a core composed of a medi-

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cant, contraceptive material, or tampon may neatly, quickly, and conveniently be applied by the person receiving the treatment or by others and which appliance is so constructed that it may readily be removed from the vagina without danger of removing the material to be inserted therewith.

A further object is to provide an applicator of simple and inexpensive construction which may be readily manufactured in large quantities and which may be discarded economically or disposed of after use.

Another and further object is to provide an applicator which, in addition to providing means for applying medicants, contraceptive materials, or tampons, also serves to provide a holder or container for the above prior to its insertion into the vagina.

A still further object is to provide an applicator of the class described, which may be readily prepared of inexpensive material and which is so constructed that the medicant, contraceptive material, or tampon normally concealed therein may readily and conveniently be projected from one end of the applicator into the vagina without touching the medicant, contraceptive material, or tampon with the fingers.

Other objects of the invention will appear from the following description and accompanying drawing as well as in the appended claim.

In the accompanying drawing there has been disclosed a structure designed to carry out the various objects of the invention, but it is to be understood that the invention is not confined to the exact features in the drawing but that various changes may be made within the scope of the claim which follows.

In the drawing:

Fig. 1 is a perspective view of the improved applicator showing the flexible expulsion member projecting through the wall of the applicator and extending beyond the bottom.

Fig. 2 is a front elevation of the applicator casing.

Fig. 3 is a central vertical section of the device shown in Fig. 1 with a cartridge in place.

Fig. 4 is a view similar to Fig. 3 but showing the cartridge being elevated or extruded.

Fig. 5 is an enlarged vertical view of Fig. 2.

Fig. 6 is a central vertical section of a modified form of the invention in which the cartridge has been omitted.

Fig. 7 is an enlarged horizontal section on the line 7—7 of Fig. 6; and

Fig. 8 is an enlarged vertical view of a modi-

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fied form of the invention in which the cartridge has been omitted.

The novel applicator herein described comprises a normally tubular body 10 which is preferably open at both ends as shown. A feature of the invention resides in the simple and inexpensive construction of this tube, whereby it may be economically discarded or disposed of after use. It is, therefore, preferably constructed of paper, paper board, cardboard, or a synthetic material such as polyvinyl alcohol which readily lends itself to formation of sheets or films. The use of a synthetic material such as polyvinyl alcohol has the added advantage that it softens and swells upon short contact with water due to its water-absorbing properties, thus making it more readily disposable than paper or cardboard, since it may be discarded into a toilet hopper without clogging the said hopper. The applicator tube may have any convenient shape, but it is preferred, as illustrated in the drawing, that the tube be square on cross-section. The tube may have any convenient length, but it is necessary that it have a length such that when it is inserted the proper distance into the vagina a portion of the tube extends outside the vagina. It may be necessary in order to give strength to the tube that it be reinforced by means of a thickened portion 11 at the top and 12 at the bottom.

A flexible expulsion member 13 is attached at the top of the tube at 14. This flexible member is of such a length that it may be folded inside the tube to such a distance that a medicant, contraceptive material, or tampon when inserted at the top of the tube, to a point where it is flush with the top, rests on the flexible member, which member goes around the said material and outside the tube, along the side of the tube, and beyond the end of said tube. In the preferred embodiment, as illustrated in the drawings, the said flexible member extends along the side of the tube to an opening 15 in the tube, and extends into and the length of the tube with enough protruding from the bottom of the tube to be conveniently grasped.

This flexible expulsion member may be in the form of a cord, a thin strip, or a tape; it is preferred that the flexible member be in the form of a thin strip, as illustrated in the drawing. The flexible member may be composed of cotton, any form of cloth, vinyl acetate, cellophane, and the like; polyvinyl alcohol being the preferred material from which the strip is fabricated.

It is of advantage to have a thickened portion 16 in the tube which is located in a position in the tube such that the material to be extruded will rest on it. Instead of a thickened portion at 16 the tube may be closed off entirely at this point by member 16. This is advantageous where a medicant which melts at body temperature is used in the tube, since if the medicant melts in storage, it will not leak into the lower part of the tube and will be re-formed into its original shape on cooling.

The device as here shown serves a dual purpose in that it serves as a container or protective covering for the material 17 which is to be extruded. The material 17, comprising a core, is thereby protected from contamination from outside sources. When packed for the trade, each applicator is provided with a core, and the applicator and material are suitably wrapped to facilitate handling and to prevent contamination.

As shown in Figs. 6 and 7, tube 10 may be en-

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closed in a second tube 18. This form of construction has the added advantage that the flexible strip 13 does not come in contact with the vaginal wall and mucus; this is of importance when the strip is fabricated from material which is softened by said vaginal mucus. The second and outer tube 18 also serves to give increased rigidity to the applicator and enables the said applicator to be constructed of lighter and thinner materials. When an outer tube is used the inner tube may extend only as far as and end with septum 16, and in this case septum 16 is of such a size as to completely close off outer tube 18 but has an opening in said septum to enable flexible member 13 to pass through.

The thickened portion 11 at the top of the tube may, where the cross-section of the tube is square, have the same shape as the tube, as shown in Fig. 8; or it may be circular, as shown as Figs. 1 and 5. When the thickened portion is circular and the tube is square, it must be of such a size that the cartridge will readily slip through. A satisfactory arrangement as to the sizes of the thickened portion and the tube is well illustrated by Fig. 5.

To apply the medicant, contraceptive material, or tampon with the novel applicator of this invention, the applicator is inserted into the vagina to the proper distance, and a pulling force is exerted on member 13. This action completely expels material 17 from the tube; the empty tube is then withdrawn and discarded. When this applicator is used for the insertion of a tampon or other material which is later to be removed from the vagina, a cord is attached to the tampon.

The applicator, as shown in the drawing, has the added advantage that a medicant or contraceptive may be poured in the molten state into the top of tube 10 and allowed to solidify. The molten material is poured into the tube after the flexible expulsion member has been properly folded into the tube at the top. It is necessary when this method of using the applicator is employed that the tube be entirely closed off at 16. Molding of suppositories in this manner eliminates handling and reduces contamination to a minimum. A sterile product may be produced by this method.

The applicator described above has a general application for use in placing a pharmaceutical composition or absorbent material in the vagina.

By utilizing the applicator as a container for a tampon, the entire assembly may be maintained in a sterile condition and neatly wrapped in cellophane or some other protective material as individual units, in which condition they may be dispersed for the trade. The device when wrapped in individual units may readily be carried in a woman's purse without inconvenience and embarrassment because of its compactness and inconspicuousness.

It is preferred that the tube 10 have the shape of a rectangle or square in cross-section and that it thus be adapted to contain a rectangular or square-shaped medicant or tampon, for by having such a shape such medicant or tampon is more firmly held by the vagina and exhibits less tendency to be expelled from the vagina after insertion.

It will be apparent to those skilled in the art that the principal objects of the invention have been accomplished, and that various changes and modifications may be made in the embodiment of the invention herein described, and that the in-

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vention is capable of use and has advantages not specifically disclosed herein; it will therefore be appreciated that the disclosures herein made are in the nature of illustration only, and that the invention is limited only by the appended claim. 5

I claim as my invention:

A disposable container and applicator device adapted to contain and inject cores contained therein into body cavities, said device comprising a first elongated tube, square in cross-section, 10 of sufficient rigidity to retain its form, one end of which is of proper size to receive a core; a second elongated tube, round in cross-section, of such a size to fit snugly over and extend the length of the first tube and positioned around said first 15 tube, and a flexible expulsion member having one end attached to the core-receiving end of said tube and being of sufficient length to pass around said core and extend externally of and beyond said tube, said flexible expulsion member being 20 adapted to completely expel said core from the

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tube by the action of a pulling force exerted on said flexible expulsion member.

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