

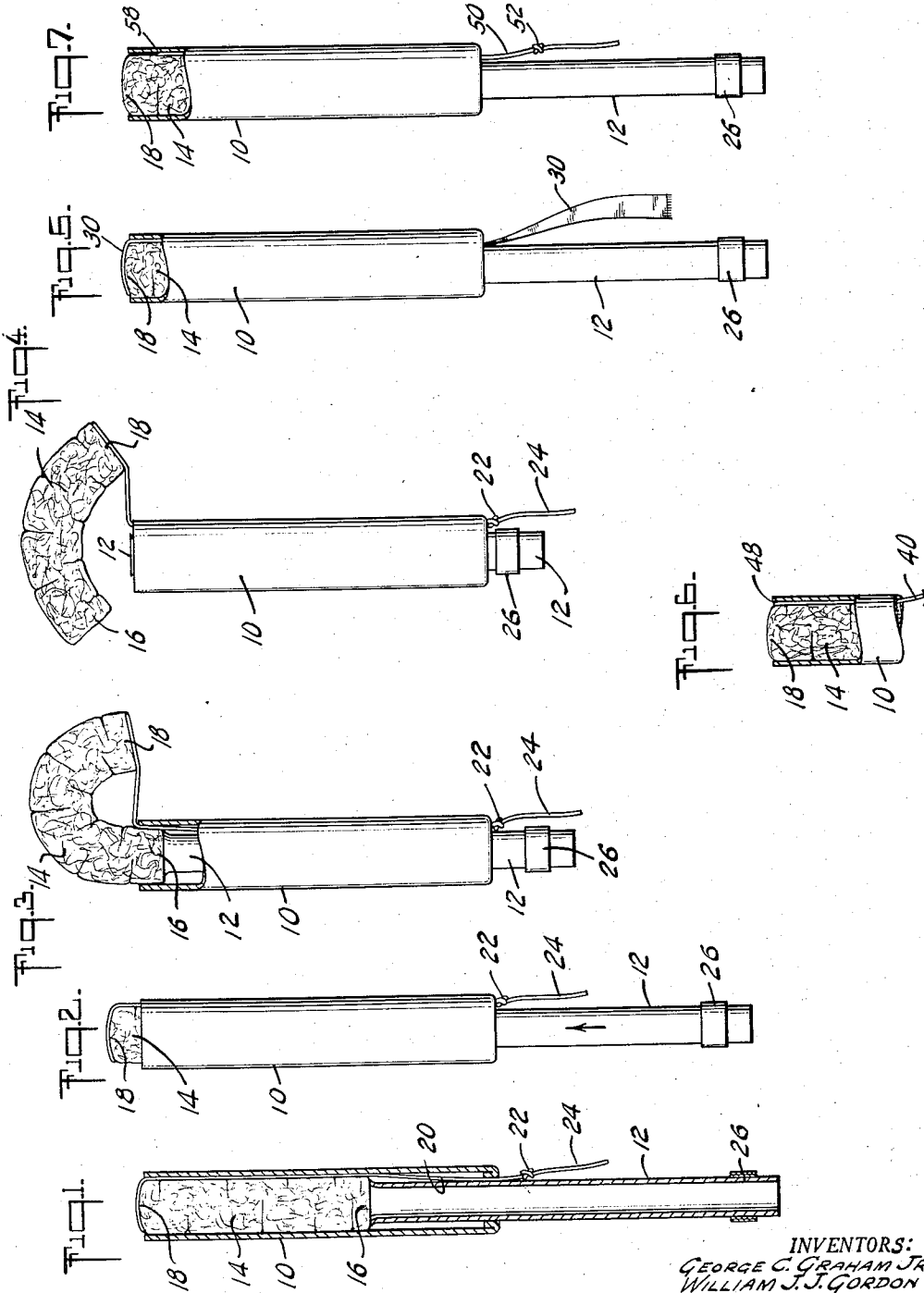
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CATAMENIAL DEVICE

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CATAMENIAL DEVICE

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5 Claims. (Cl. 128—263)

The present invention relates to improvements in catamenial devices and more particularly to catamenial tampons and insertion devices therefor. More specifically, the present invention relates to vaginal tampons and to insertion devices therefor which are capable of controllably ejecting the tampon from its container and properly positioning it in the vagina to minimize leakage of fluid therefrom.

Hitherto, tampons have been positioned by insertion devices on the basic principle of ejecting the tampon substantially axially in a straight line direction from its elongated tubular container. Such an ejection leaves the tampon in a cylindrical form maintained in position in the vagina by the pressure exerted by the upper and lower vaginal walls. The vagina, however, is not similarly cylindrical but gradually increases in width from the vaginal orifice to the cervix whereby a flat, pear-shaped cavity is formed which is increasingly wider than the vaginal orifice itself through which the tampon is inserted. As a consequence therefore, a cylindrical tampon positioned by a straight line insertion would be normally somewhat more or less centrally located in the vagina contacting the upper and lower vaginal walls but not contacting the diverging side walls whereby leakage of fluid could occur around the tampon.

Efforts to avoid such undesirable leakage by means of thicker or longer tampons or tampons having a front end which flares or becomes thicker after positioning have not met with commercial success inasmuch as discomfort and even distress have resulted from such efforts. A more recent attempt has been aimed at positioning the tampon more or less across the vagina by the use of ribbons and cords operating exteriorly of the applicator. Such an improved positioning is greatly desirable but it is believed that there still remains considerable room for improvement, particularly with regard to the withdrawal of such positioned tampons which has occasionally been found to be difficult.

It is therefore a principal object of the present invention to provide a tampon and insertion device therefor whereby the tampon can be positioned so as to minimize the leakage of fluids.

It is a further principal object of the present invention to provide a tampon and insertion device therefor whereby the tampon can be positioned so as to be capable of contacting the side walls as well as the upper and lower walls of the vagina.

It is a still further principal object of the present invention to provide a tampon and insertion device therefor whereby the tampon can be controllably positioned by means operating interiorly of the applicator.

It is another principal object of the present invention to provide a tampon and insertion device therefor whereby the tampon can be ejected from its container in an arcuately concave-downwardly bent fashion so as to be positioned partially across the vagina to prevent the leakage of fluid therefrom and be capable of being easily withdrawn after use.

It has been discovered that such objects may be accomplished by providing a tampon and insertion device therefor whereby the tampon can be ejected and positioned in an arcuately concave-downwardly bent fashion by exerting a sideways force on the front end thereof during the insertion. Such can be effected by a proper selection of lengths of the cooperating parts of the tampon container and the tampon, itself, and the use of an anchoring device which is initially positioned within the tampon container and exerts the sideways force on the front end of the tampon.

In the accompanying drawings and following specification, there is illustrated and described a preferred design of tampon and insertion device therefor but it is to be understood that the invention is not to be construed as limited to the construction disclosed except as determined by the scope of the appended claims.

Referring to the accompanying drawings, Fig. 1 is a side elevational view of the tampon and insertion device therefor;

Fig. 2 is a side elevational view showing the tampon partially ejected;

Fig. 3 illustrates the tampon almost completely ejected;

Fig. 4 illustrates the tampon fully ejected;

Fig. 5 illustrates a modification of the tampon illustrated in Figs. 1-4;

Fig. 6 is a fragmentary view of a modification of the tampon shown in Figs. 1-4; and

Fig. 7 is another modified tampon.

In the embodiment of the invention shown in the drawings, the tampon and insertion device therefor comprise an elongated tubular container or applicator 10 and an elongated tubular ejector or plunger 12 slidably disposed within the applicator 10. The total length of the plunger 12 is greater than the length of the applicator whereby it may slide the full length of the applicator and still have a portion outside the applicator for holding and/or withdrawal purposes. The circumference or girth of the plunger 12 is slightly less than that of the applicator whereby it frictionally slides within the applicator in a manner to be described more fully hereinafter.

As shown in Fig. 1, the plunger 12 normally has a short portion disposed inside the lower or rear part of the applicator 10 and a somewhat longer portion extending outside the applicator. A bendable tampon 14 is disposed within the applicator and normally lies directly against the upper end of the plunger. It is apparent from Fig. 1 that upward movement of the plunger will force the tampon upwardly to be ejected from the applicator.

A bendable tampon, such as described in greater detail in copending patent application, Serial Number 540,121, now Patent No. 2,815,756, filed October 12, 1955, is excellent in this use. Such a tampon varies in length from about 1½ inches to about 2 inches and from about seven-sixteenths to about five-eighths of an inch in diameter. The desirable flexibility and resiliency of such a tampon render it extremely beneficial, particularly in a use as described herein.

The tampon 14 extends for its full unfolded length within the applicator and its unfolded total length from its seat or base 16 to its tip or front end 18 is less than the length of the applicator and less than the total length of the portion of the plunger 12 outside the applicator.

A cord 20 or similar strand-like material is stitched or otherwise secured to the tip or front end 18 of the tampon and extends across its face and down inside the applicator between the applicator and the tampon and the plunger to emerge below the lower end of the applicator. A knot 22 is formed in the cord 20 at a point intermediate the ends of the outside part of the plunger, approximately ¼ inch below the lower end of the applicator. The lower end 24

of the cord is then permitted to hang freely alongside the plunger.

It is not essential that the cord extend across the face of the front end of the tampon but it may be secured at the near edge 48, as shown in Fig. 6. Similarly, it may be secured at a point 58 spaced from the front end of the tampon, as shown in Fig. 7, but in such a case the knot 22 must then be positioned correspondingly lower on the cord away from the bottom edge of the applicator, for reasons which will become clear hereinafter.

From Figs. 1 and 2, it will be observed that manual operation of the plunger 12 will initially tend to force the tampon axially out of the applicator 10 but that such movement will be retarded or opposed by the cord 20 after the ¼ inch slack has been taken up, which is the position shown in Fig. 2. Further movement of the plunger will stretch the cord to the limit of its stretch and then exert a sideward force on the front end of the tampon. As a result, the tampon is ejected in an arcuately, concave-downwardly bent fashion, as best shown in Fig. 3. As the plunger 12 is urged inwardly further, more and more of the tampon is ejected until it is completely free of the applicator, as best shown in Fig. 4.

It is to be noted that the major portion of the cord 20 remains in the applicator and relatively close to the tampon all the time and does not directly contact too much of the vagina itself. As a consequence, any sliding movement it does take during the insertion of the tampon is limited and minimizes any cutting or possible irritation to the vaginal walls.

A knob 26 or like protuberance is formed on the lower end of the plunger 12 to control the penetration of the plunger into the applicator, thereby allowing ready withdrawal and removal of the plunger, after the tampon has been inserted. The knob 26 may be simply formed on the plunger such as by wrapping a piece of tape at the desired location thereon or by otherwise forming an enlarged portion thereof.

When the plunger has been removed, the applicator may then be manually withdrawn, leaving the cord 20 extending outwardly from the tampon which remains in position in its arcuately, concave-downwardly bent fashion.

This arcuately, concave-downwardly bent configuration is particularly advantageous inasmuch as the ends thereof are capable of contacting the side walls of the vagina whereby the body of the tampon extends arch-like across the vagina, buttressed and supported by its ends. Additionally, it is to be realized that such a concave-downwardly bent configuration greatly facilitates the withdrawal of the tampon after use inasmuch as the withdrawal cord is attached to a tampon end having a curvature in the direction it is intended to go during withdrawal. If the curvature were opposite and the tampon were convex-upwardly bent, its ends would be facing upwardly in a direction opposite to that required for withdrawal and the withdrawing force would necessarily have to be greater to reverse such an inclination. Such a configuration either requires stronger or heavier withdrawal cords or else the hazards of breakage during withdrawal would be increased.

In Fig. 5, another embodiment of the invention is set forth wherein an applicator 10 cooperates with a plunger 12 to eject a bendable tampon 14 having a base 16 and a front end 18. A flat tape or ribbon 30 is secured to the front end of the tampon, extends across its front face and then is directed downwardly between the applicator and the tampon and plunger, as shown. The ribbon possesses sufficient width and thickness as to create frictional drag and resists forward motion when pulled along with the tampon during ejection. This frictional drag is sufficient to exert a sideward force on the front end of the tampon and to cause the bendable tampon 14 to become arcuately shaped similar to the form shown in Fig. 4. A knob or stop 26 limits the extent of movement of

the plunger and controls the penetration of the tampon, after which the plunger and the applicator are withdrawn, in turn, leaving the ribbon extending outwardly from the inserted, positioned tampon. The tampon, of course, remains as initially ejected, similar to the configuration previously described.

In Fig. 6, the withdrawal cord or ribbon 40 is attached to the tampon 14 at a front edge 48 rather than crossing the face thereof and the insertion and positioning of the tampon is substantially identical to that previously described for Figs. 1-4 or 5.

In Fig. 7, the withdrawal cord 50 is attached to the tampon 14 at a point 58 spaced a distance from the front face 18 thereof. The knot 52 is positioned correspondingly lower on the cord 50 whereby more of the tampon 14 will be ejected before it begins to pursue a curved concave-downwardly bent direction. The point 58 and the position of the knot 52 may be varied whereby many variations in curvature may be obtained.

It is to be appreciated that the cord or ribbon may be replaced by a string or other strand-like material capable of retarding the front end of the tampon, as desired, provided it possess the usual stretchable characteristics and surface frictional properties of such materials to permit the initial ejection of the tampon.

While we have shown and described what is believed to be a preferred embodiment of the invention in the matter of simplicity and durability of construction, ease of utilization, etc., it will be apparent that the details of such construction may be more or less modified within the scope of the appended claims without departure from the principles of construction or material sacrifice of the advantages of the preferred design.

We claim:

1. A tampon and insertion device therefor comprising an elongated tubular applicator, an elongated tubular plunger positioned within said applicator, said plunger having a portion thereof normally disposed inside said applicator and another portion thereof normally disposed outside said applicator, an unfolded, bendable tampon positioned within said applicator, and means secured to the front end of said tampon and extending within said applicator to exert a sideward force on said front end when the outside portion of said plunger is pressed into said applicator whereby said tampon is ejected in arcuately concave-downwardly bent fashion.

2. A tampon and insertion device therefor comprising an elongated tubular applicator, an elongated tubular plunger positioned within said applicator, said plunger having a portion thereof normally disposed inside said applicator and another portion thereof normally disposed outside said applicator, an unfolded, bendable tampon positioned within said applicator, a cord secured to the front end of said tampon and positioned between said applicator and said tampon and plunger and extending to a point beyond the end of the applicator, and means on said cord preventing its movement into the applicator whereby it exerts a sideward force on the front end of the tampon when the outside portion of said plunger is pressed into said applicator whereby said tampon is ejected in arcuately concave-downwardly bent fashion.

3. A tampon and insertion device therefor comprising an elongated tubular applicator, an elongated tubular plunger positioned within said applicator, said plunger having a portion thereof normally disposed inside said applicator and another portion thereof normally disposed outside said applicator, an unfolded, bendable tampon positioned within said applicator, a cord secured to a point on said tampon spaced from the front thereof and positioned between said applicator and said tampon and plunger and extending to a point beyond the end of the applicator, and means on said cord preventing its movement into the applicator whereby it exerts a sideward force on the front end of the tampon when the

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outside portion of said plunger is pressed into said applicator whereby said tampon is ejected in arcuately concave-downwardly bent fashion.

4. A tampon and insertion device therefor comprising an elongated tubular applicator, an elongated tubular plunger positioned within said applicator, said plunger having a portion thereof normally disposed inside said applicator and another portion thereof normally disposed outside said applicator, an unfolded, bendable tampon positioned within said applicator, a cord secured to the front end of said tampon and positioned between said applicator and said tampon and plunger and extending beyond the end of the applicator, and an enlarged portion on said cord preventing its movement into the applicator whereby it exerts a sideways force on the front end of the tampon when the outside portion of said plunger is pressed into said applicator whereby said tampon is ejected in arcuately concave-downwardly bent fashion.

5. A tampon and insertion device therefor comprising an elongated tubular applicator, an elongated tubular

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plunger positioned within said applicator, said plunger having a portion thereof normally disposed inside said applicator and another portion thereof normally disposed outside said applicator, an unfolded, bendable tampon positioned within said applicator, and means secured to the front end of said tampon and extending between said applicator and said tampon and plunger whereby relative movement therebetween will induce a frictional drag to exert a sideways force on the front end of the tampon when the outside portion of said plunger is slidingly moved into said applicator whereby said tampon is ejected in arcuately concave-downwardly bent fashion.

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