

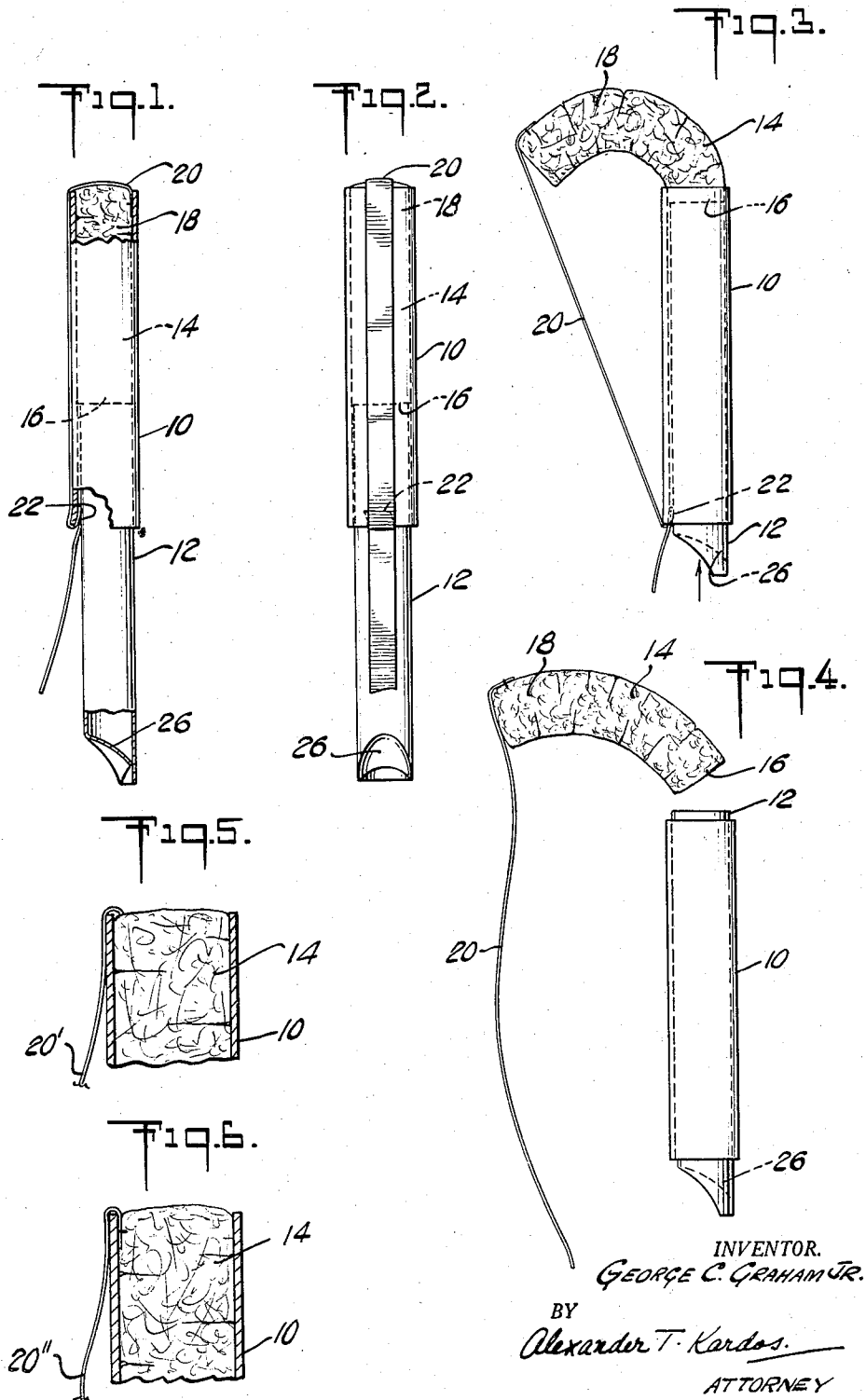
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CATAMENIAL DEVICE

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CATAMENIAL DEVICE

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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 usually somewhat more or less centrally located within 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.

Attempts to avoid such undesirable leakage by means of thicker tampons, or wider 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 across the vagina to form a better blockage thereof but such positioning has resisted or made difficult the withdrawal of the tampon after use and has not found too widespread acceptance.

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 within the vagina and can be easily withdrawn therefrom after use.

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 therefrom after use.

It has been discovered that such objects may be accomplished by providing a tampon and insertion device there-

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for whereby the tampon can be positioned in such arcuately concave-downwardly bent fashion by exerting a sideways force on the entire front end thereof during the insertion. Such can be effected by a proper selection of the lengths of the cooperating parts of the tampon container and the tampon itself, and the use of a device to exert 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 front elevational view;

Fig. 3 illustrates the tampon partially ejected;

Fig. 4 illustrates the tampon fully ejected;

Fig. 5 is a fragmentary detail view of a modified front end of the tampon; and

Fig. 6 is a fragmentary detail view of another modified front end of the 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 length of the plunger 12 is at least as great as and preferably greater than the length of the applicator whereby it may slide the full length of the applicator. The circumference or girth of the plunger 12 is slightly less than that of the applicator whereby it slides therein 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 is not more than about the length of the portion of the plunger 12 outside the applicator. The cross-section of the tampon is similar to the cross-section of the applicator and substantially completely fills the applicator whereby there is efficient space utilization for the absorbent material.

A ribbon 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 the outside of the applicator. A reverse fold 22 is formed in the ribbon and is tucked in between the lower edge of the applicator and the plunger and is maintained there by frictional engagement. The lower end 24 of the ribbon is then permitted to hang freely alongside the plunger.

The ribbon 20 need not necessarily cross the front face of the tampon, as illustrated in Figs. 1-4 but may be attached directly by means of a ribbon 20' to the nearest edge, as shown in Fig. 5, or may even be secured by a

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ribbon 20" to a point on the tampon within the applicator spaced from the front end, as shown in Fig. 6.

The relative girths of the plunger and of the applicator should be such that, when the reverse fold of the ribbon 20 is tucked in between the two, a smooth sliding movement is permitted therebetween.

From Figs. 1 and 3, it will be observed that manual operation of the plunger 12 will initially tend to force the tampon axially out of the applicator. The initial movement of the tampon will occur axially, accompanied by some stretching of the ribbon due to its inherent elasticity. In the case of the modification of Fig. 6, the tampon will take up the slack equal to the spacing of the ribbon attachment point from the front end before stretching the ribbon.

In any event, the front end of the tampon will initially move axially to a slight degree and then be opposed or retarded by the ribbon, when its elastic limit is reached, at which time it will start exerting a sideways force on the front end of the tampon whereby it will begin to bend and pursue a curving path in an arcuately, concave-downwardly bent fashion, as best shown in Fig. 3. As the plunger 12 is urged inwardly still further, more and more of the tampon is arcuately ejected until it is completely free of the applicator, as best shown in Fig. 4.

A cutaway portion or indentation 26 is formed in the lower end of plunger 12 and uncovers the reverse fold 22 of the ribbon just about at the same time that the tampon is completely ejected. The ribbon is thus loosened from its frictional grip and is completely free of the applicator and plunger. The applicator and plunger may then be manually withdrawn, leaving the ribbon 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 downwardly-turned 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. Such is, of course, due to the fact that the ribbon is attached to an 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 would either require stronger or heavier withdrawing ribbons or cords or else the hazards of breakage during withdrawal would be increased.

It is to be appreciated that the ribbon 20 may be replaced by a string or cord or other strand-like material capable of retarding and directing the front end of the tampon, as desired, provided it possesses the usual stretchable characteristics of such materials, where such are required, to permit the initial ejection of the tampon.

While I have shown and described what I believe to be a preferred embodiment of my 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.

I claim:

1. A catamenial tampon and insertion device therefor

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comprising an elongated tubular applicator, an elongated tubular 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 to exert a sideways force on that end when the outside portion of said plunger is pressed into said applicator whereby said tampon is ejected and positioned in arcuately concave-downwardly bent fashion.

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

4. A catamenial tampon and insertion device therefor comprising an elongated tubular applicator, an elongated tubular plunger having a portion thereof normally disposed inside said applicator and another portion thereof normally disposed outside said applicator, an unfolded, bendable tampon slidably positioned within said applicator, and means anchored to said applicator and extending outside said applicator to the front end of said tampon, then inside said applicator and secured to said tampon at a point spaced from the front end thereof to exert a sideways force thereon 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 catamenial tampon and insertion device therefor comprising an elongated tubular applicator, an elongated tubular plunger having a portion thereof normally disposed inside said applicator and another portion thereof normally disposed outside said applicator, an unfolded, bendable tampon slidably positioned within said applicator, and means anchored to the applicator extending outside said applicator and secured to the front end of said tampon to exert a sideways force thereon when the outside portion of said plunger is pressed into said applicator whereby said tampon is ejected in arcuately concave-downwardly bent fashion.

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