July 12, 1938. P. A. SCHULZ 2,123,750

CATAMENIAL TAMPON

Filed May 19, 1934

FIG. 1.

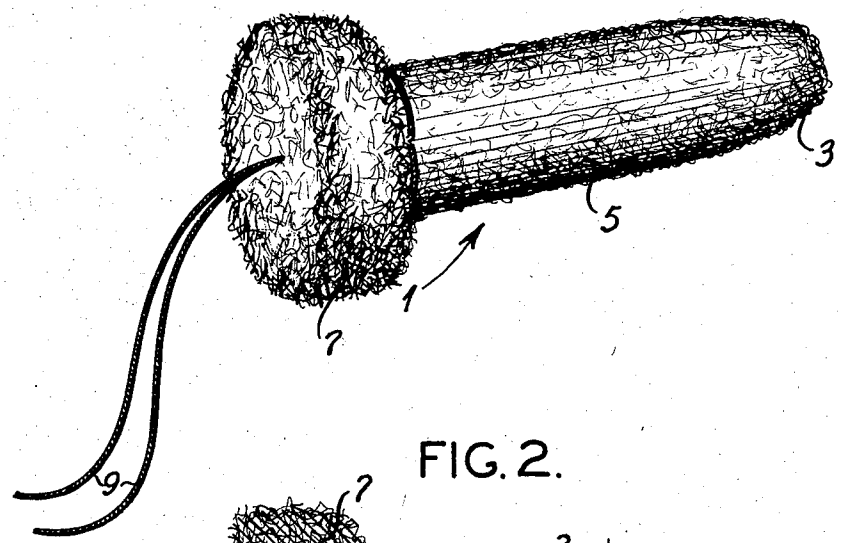


FIG. 2.

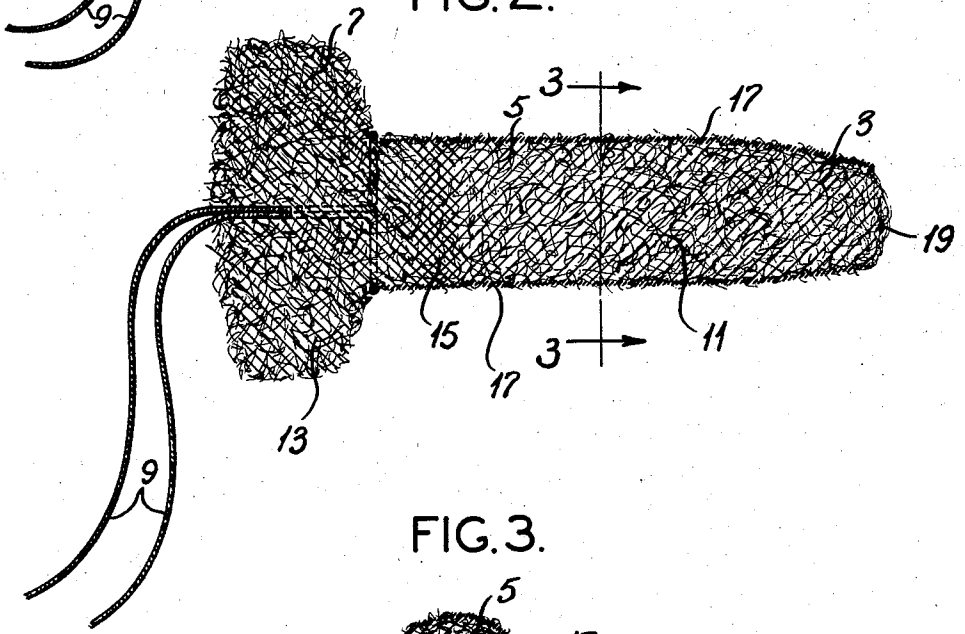
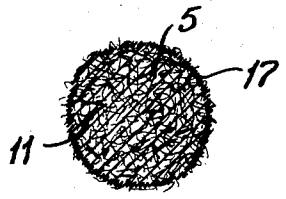


FIG. 3.



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2,123,750

CATAMENIAL TAMPON

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5 Claims. (Cl. 128—285)

This invention relates to sanitary appliances, and with regard to certain more specific features, to catamenial tampons.

Among the several objects of the invention may be noted the provision of a catamenial tampon or plug adapted to be inserted into and retained by the female vagina during menstrual periods, for absorption of the menstrual flow; a tampon of the class described which presents an unusually great absorptive capacity, but which is so constituted that it prevents the seepage or leakage of liquids therethrough; a tampon of the class described which is so constituted as to retain its shape without substantial alteration throughout its period of use, whereby it may be removed from the vagina with ease and without danger; and the provision of a tampon of the class described which is of unusually simple construction and economical to manufacture. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts which will be exemplified in the structures hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawing, in which is illustrated one of various possible embodiments of the invention,

Fig. 1 is a perspective view of a tampon embodying the present invention;

Fig. 2 is a longitudinal section through the tampon of Fig. 1; and,

Fig. 3 is a cross-section taken substantially along line 3—3 of Fig. 2.

Similar reference characters indicate corresponding parts throughout the several views of the drawing.

Catamenial tampons of the class herein concerned have heretofore been provided in several constructions, all of which are disadvantageous in one or more respects. One common difficulty is that the tampon is absorptive throughout its length, so that, in effect, it acts as a wick when it becomes saturated, thus permitting the menstrual fluid to escape from its lower end and stain clothes, and the like. Another disadvantage is that the tampon, in absorbing the liquid, swells or increases its size to such an extent that its subsequent withdrawal from the vagina is attended by difficulty and danger to the vaginal tissues. Attempts have been made to solve this last-named difficulty, such as by enclosing the tampon in a wrapper of such a type that the tampon is held in its initial size throughout its period of use, but such wrappers frequently loosen while the tampon is in position and become detached therefrom, and do not come out when the tampon is removed. Further, the provision of wrappers of any sort is an undesirable factor of expense in the manufacture of the tampons.

The present invention affords a complete, economical, and sanitary solution of all of the above difficulties.

Referring more particularly to Fig. 1, numeral 1 indicates broadly the tampon of the present invention, which comprises a tapered tip 3, a cylindrical portion 5, and a flared end portion 7. Secured around the cylindrical portion 5, and extending from the center of the flare 7, is a cord 9 by which withdrawal of the tampon, after use, may be effected.

The entire tampon of the present invention is made of cotton. The conical tip 3 and the cylindrical portion 5 are formed from absorbent cotton, while the flare 7 is made of non-absorbent cotton. Non-absorbent cotton is an article of trade, and comprises cotton either from which all of the natural fat has not been removed, or previously bleached cotton which has been oiled or otherwise treated to make it non-absorbent. The entire tampon is made by forming a rectangular bat of absorbent cotton and felting thereto, along one edge, a relatively narrower band of non-absorbent cotton, and then rolling the bat, with a mold or other constraining means which causes the conical tip 3 and cylindrical portion 5 to be tightly rolled, while the flare 7 is rolled only relatively loosely.

Referring to Fig. 2, the absorbent cotton region is indicated by the shaded region 11, while the non-absorbent cotton region is indicated by the oppositely shaded region 13, and the felted interlock between the two regions is indicated by the overlapping shaded region 15. It has been found desirable to form the felted region 15 in the lower end of the cylindrical portion 5, as this improves the mechanical strength of the interlock between the two types of cotton.

In order to retain the tip 3 and cylindrical portion 5 in their relatively compressed condition, a coat of adhesive material is applied along the surfaces thereof. I have found that a particularly valuable adhesive material comprises a weak water solution (strictly, a colloidal suspension) of methyl cellulose, of the order of 1½% strength. Methyl cellulose is a solid substance resembling colorless glue in appearance, when in water solution. Its particular advantage in this

connection is that it is quite sanitary, and does not constitute a breeding medium for bacteria or the like, as is the case with starchy adhesives. After the coat of methyl cellulose has been applied, the tampon is permitted to dry, possibly with the aid of heat, whereupon it constitutes a semi-rigid article that does not readily lose its shape. The adhesive is such that it is not visible as a coating on the surface of the tampon, nor does it make the surface hard, but it nevertheless prevents loosening of the tightly wrapped cotton, even during the absorption incident to its use.

In Figures 2 and 3, the penetrating coating of methyl cellulose is indicated by numeral 17, but it will be understood that the thickness of said coating has been greatly exaggerated for illustrative purposes. It will also be noted that the tip 19 of the tampon is left uncoated. In use, the tip 19 is located at the region where most of the absorption is to take place, and it is desirable to leave it uncoated in order not to impede the absorption process in any way. It will be understood that while the surfaces of the conical portion 3 and cylindrical portion 5 are absorptive, they are not quite as absorptive as the tip 19, on account of the coating 17.

The string 9 is affixed by looping it about the lower end of the cylindrical portion 5, and then passing the two ends inwardly through the flare 7 and out at the lower center thereof. The ends may then be knotted if desired. By affixing the string in the manner shown, it may be subjected to quite a pull without any danger of detaching it from the tampon.

When in use, the absorptive cotton portion 11 absorbs the menstrual fluid, but passage of the fluid through the length of the tampon, and out of the lower end thereof, is prevented by the non-absorbent cotton portion 13. Inasmuch as the string 9 is secured in the non-absorbent region 13, it may be made of absorbent material without danger of its acting as a wick and conducting the fluid out of the vagina; but for further security, it is sometimes desirable to make the string itself of a relatively non-absorbent material, such as silk, or oiled cotton.

The flare 7 aids in the retention of the tampon in position in use, by the muscular walls of the vagina, by reason of its increased diameter over that of the cylindrical portion 5.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in carrying out the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A catamenial tampon comprising a substantially cylindrical body portion of highly absorbent cotton for absorbing the catamenial flow and having an enlarged outer end portion forming a terminal head, said head being composed of soft non-absorbent cotton adapted to seat against the interior of the vagina and thereby forming a closure portion to prevent leakage and adapted to insure retention of the tampon, said cylindrical body being provided at its inner end with a tapered trunco-conical portion having a soft absorbent end face, and a string attached to said enlarged terminal head for withdrawal of the tampon.

2. A catamenial tampon comprising a substantially cylindrical body portion of highly absorbent cotton for absorbing the catamenial flow and having an enlarged outer end portion forming a terminal head, said head being composed of soft cotton adapted to seat against the interior of the vagina and thereby forming a closure portion to prevent leakage and adapted to insure retention of the tampon, said cylindrical body being provided at its inner end with a tapered trunco-conical portion having a soft absorbent end face, a coating of methyl cellulose on the walls of said cylindrical body portion and said trunco-conical portion retaining said cylindrical and trunco-conical portions in relatively compressed condition, and a string attached to said enlarged terminal head for withdrawal of the tampon.

3. A catamenial tampon comprising a substantially cylindrical body portion of highly absorbent cotton for absorbing the catamenial flow and having an enlarged outer end portion forming a terminal head, said head being composed of soft non-absorbent cotton adapted to seat against the interior of the vagina and thereby forming a closure portion to prevent leakage and adapted to insure retention of the tampon, said cylindrical body being provided at its inner end with a tapered trunco-conical portion having a soft absorbent end face, a coating of methyl cellulose on the walls of said cylindrical body portion and said trunco-conical portion retaining said cylindrical and trunco-conical portions in relatively compressed condition, and a string attached to said enlarged terminal head for withdrawal of the tampon.

4. A tampon adapted to be inserted in the vagina for absorbing the menstrual flow, comprising an elongated body portion of a highly absorbent cellulosic material adapted to absorb the catamenial flow, and an enlarged part of non-absorbent cotton at the outer end of the tampon for sealing the vagina against leakage and forming a seat for retaining the tampon in its proper position and prevent accidental removal thereof.

5. A tampon adapted to be inserted in the vagina for absorbing the menstrual flow, comprising an elongated body portion of fibrous absorbent material, and an enlarged outer end part of non-absorbent fibrous material adapted to seal the vagina against leakage and form a seat for retaining the tampon in its proper position.

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