Oct. 23, 1962 I. J. GERSHEN 3,059,642

CATAMENIAL DEVICE

Filed May 19, 1960

Fig. 1.

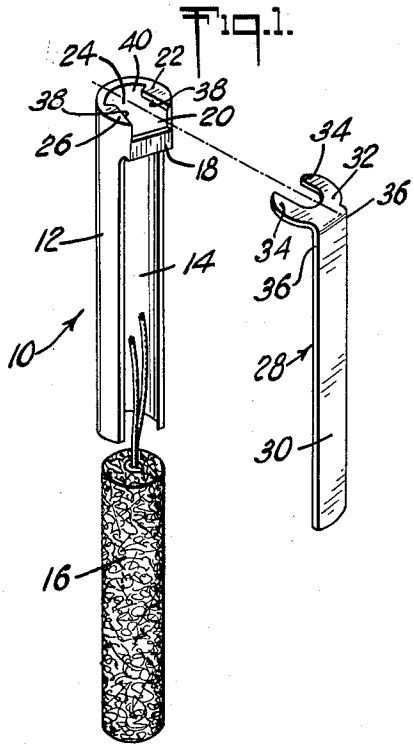


Fig. 2.

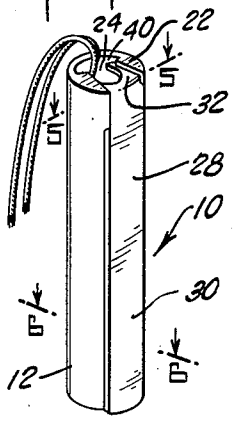


Fig. 3.

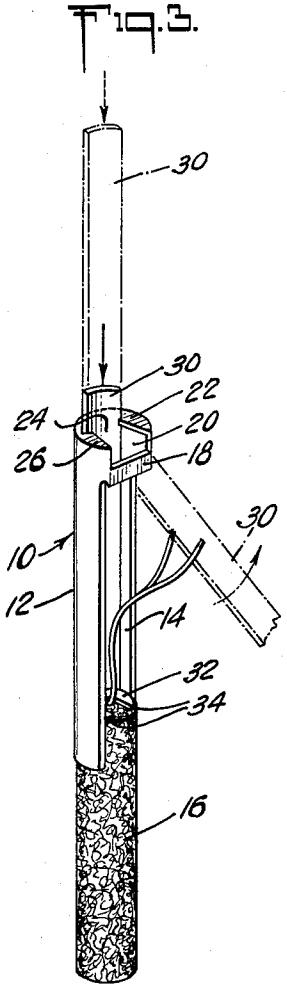


Fig. 4.

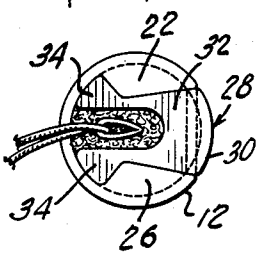


Fig. 5.

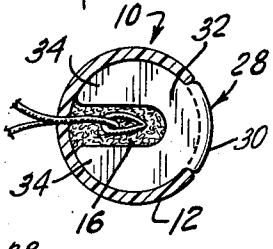
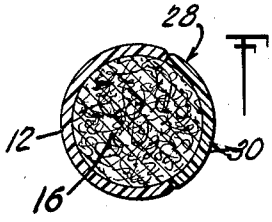


Fig. 6.



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United States Patent Office

3,059,642

Patented Oct. 23, 1962

3,059,642

CATAMENIAL DEVICE

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Filed May 19, 1960, Ser. No. 30,272
8 Claims. (Cl. 128—263)

This invention relates to applicators for tampons and more particularly to tampon applicators of reduced length.

Most conventional applicators for introducing catamenial tampons intravaginally consist of a pair of telescoped cardboard tubes, an outer tube which serves as a holder for the tampon, and an inner tube, slideably movable in the outer tube, which serves as an ejector or plunger for ejecting the tampon positioned within the outer tube. The tampon is positioned in one end portion of the outer tube and the inner tube is telescopically positioned in the opposite end with its inner end in contact with the inner surface of the tampon. The tampon is ejected from within the outer tube by moving the inner tube longitudinally into the outer tube towards the tampon.

The length of the tampon positioned in the end portion of the outer tube is usually more than half the length of the outer tube. The inner tube is usually slightly longer than the outer tube to insure complete ejection of the tampon. Therefore, when a tampon is positioned in the tubular holder of a tampon applicator, a major portion of the inner tube extends beyond the end of the outer tube. Consequently, the overall length of a conventional assembled tampon applicator and tampon is about twice the length of the tampon and slightly less than about twice the length of the outer tube.

To provide sufficient tampon applicators and tampons for a menstrual period, it is customary to package a number of them, e.g., ten, in a single package. The tampon applicators and the packages used to contain them and tampons are comparatively large with respect to the size of the article, i.e., the tampon, ultimately used by the consumer. Since most tampon applicators are intended for a single use and then discarded, it is apparent that it is desirable to reduce the costs of such products by reducing the size of tampon applicators and their packages while still providing an effective device which is safe and simple to operate.

It is also desirable to reduce the size of tampon applicators so that they may be conveniently carried, especially in a woman's purse, without taking up too much space. From an aesthetic viewpoint, a reduction in size would make them less noticeable.

In accordance with the present invention, the above and other advantages may be obtained by providing a tampon applicator which comprises an outer tubular holder and an ejector for the tampon in the form of an arm so associated with the tubular holder that, prior to use, their over-all length is substantially no greater than the length of the longest component. The tubular holder is provided with a longitudinal slot in its side wall which extends throughout most of its length. The ejector arm is removably positioned in or over the slot to cover it to form a closed container. The arm may be rotated laterally about 180° into longitudinal alignment with the holder in a line in the direction of the tubular holder axis and then moved therein along such line towards a tampon positioned in the opposite end of the tubular holder to eject the tampon.

Reference is made to the attached drawing and the following description wherein various illustrative embodiments of the invention are shown and described by way of example.

In the drawings:

FIG. 1 is an exploded view of a tampon applicator incorporating the invention illustrating the components thereof, and of a tampon adapted to be removably positioned therein;

FIG. 2 is an isometric view of the assembled tampon applicator;

FIG. 3 is a view illustrating the manner in which the ejector arm component of the applicator is moved in a line in the direction of the axis of the tubular holder component to eject a tampon contained therein, the dotted lines representing movement of the ejector arm component from its normal position as illustrated in FIG. 2;

FIG. 4 is a top view of FIG.2 ;

FIG. 5 is a view of FIG. 2 taken along lines 5—5;

FIG. 6 is a view of FIG. 2 taken along lines 6—6.

A tampon applicator 10 incorporating the invention includes a tubular holder 12 having a longitudinal slot 14 extending through its side wall and having a width slightly less than the diameter of the holder. The slot extends throughout a major portion of the length of the tubular holder but terminates short of one end. The opposite end portion of the tubular holder is adapted to contain a tampon 16. The longitudinal slot forms an opening in the side wall of the holder and imparts to it a generally U-shaped configuration in transverse section. The width of the slot is slightly less than the diameter of the holder so that a tampon positioned within the holder will be retained therein and not fall out readily. The tubular holder illustrated has a generally preferred semi-circular transverse section; holders having transverse sections of other configurations may be suitably employed, e.g., oval, angular, and the like.

The end of the holder opposite the end adapted to contain a tampon has an integral transverse bar 18 forming the terminal of the longitudinal slot and extending in the direction of a chord with respect to the holder. A second slot 20 in alignment with the longitudinal slot 14 is provided in the holder above the bar and extends upwardly to the end thereof.

The end of the tubular holder adjacent the transverse bar has an inwardly extending flange 22 which is shaped to define a keyhole-shaped opening 24 in the top of the tubular holder. The part of the keyhole-shaped opening defined by the flared leg portion 26 of the flange meets the second slot 20 above the bar and in conjunction with the slot forms an opening or recess for receiving the ejector arm, as explained below.

The ejector arm 28 which is adapted to be removably associated with the tubular holder to eject a tampon positioned in an end portion thereof has a straight portion 30 and end portion 32 disposed at an angle, preferably a right angle, with respect to the straight portion. The angularly disposed end portion 32 is bifurcated or yoke-shaped to form curved, spaced tines or fingers 34 extending at right angles to the straight portion. As illustrated, the outer periphery of the fingers may have the general arcuate configuration of the inner periphery of the tubular holder in transverse section.

The angularly disposed end portion may be of other forms, including a solid disk. However, the bifurcated configuration is preferred because it provides a resilience permitting the ejector arm and tubular holder to be manipulated as will be apparent below.

In transverse section, the straight portion 28 of the ejector arm has the general configuration of the cross section of tubular holder with which it is associated. In the applicator illustrated, the tubular holder is circular in transverse section. According, the ejector arm would be similarly shaped and would have the arcuate configuration of the tubular holder. The width of the straight portion of the tubular holder is about equal to the width of the longitudinal slot 14 in the holder so that the ejector

arm and holder may be associated to form a substantially closed container by positioning the ejector arm lengthwise into or on top of the longitudinal slot in the tubular holder.

The angularly disposed end portion of the ejector arm is dimensioned to be received within the slot in the end of the tubular holder above the bar, as illustrated in FIGS. 2–4 and 5. When so positioned, the bottom surfaces of the fingers adjacent their junction with the straight portion of ejector arm rest on the top surface of the bar with the fingers extending inwardly into the interior of the tubular holder in a radial direction. The top surface of the fingers are thus disposed below the inwardly extending flange defining the keyhole-shaped opening in the end of the tubular holder. The distance across the fingers in a diametric direction is slightly larger than the width of the slot above the transverse bar. By bifurcating the angularly disposed end portion, sufficient resilience in the fingers is obtained to enable them to be passed through the slightly smaller slot to be positioned in the tubular holder and to maintain the ejector arm and holder in assembled relationship.

The tampon applicator and the tampon are assembled by positioning a tampon in the end portion of the outer tubular holder and associating the ejector arm with the tubular holder in the manner described above. The assembled tampon applicator with the tampon contained therein may then be packaged with similar units to form a mutliple-unit package.

To use the tampon applicator, the ejector arm is removed from its position covering the longitudinal slot in the tubular holder by pulling the end of the straight portion of the ejector arm adjacent the end of the tubular holder containing the tampon outwardly and away from the holder, and then rotated approximately 180° into a line along the line of the axis of the holder, as represented by the dotted lines of FIG. 3. Due to the manner in which the angularly disposed end portion of the ejector arm is associated with the end portion of the tubular holder at the bar, the ejector arm may be pivoted around the bar in its rotation into alignment with the tubular holder. At the upper part of such movement, the sides **36** of the straight portion of the ejector arm adjacent the angularly disposed fingers engage the inner side edges **38** of the tapered portion of the inwardly extending flange defining the keyhole-shaped opening and move along the side edges until the ejector arm is substantially in alignment with the tubular holder, whereupon the straight portion of the ejector arm snaps into seating engagement within the arcuately shaped portion **40** of the keyhole-shaped opening which forms a channel or guide for the ejector arm as it is moved into the tubular holder. At such time, the fingers at the end of the ejector arm are inverted and their bottom surfaces present surfaces which may bear against the end of the tampon as it is being ejected from the tubular holder by moving the ejector arm into the tubular holder towards the tampon.

As illustrated in FIG. 3, the ejector arm may be moved in a line in the direction of the axis of the tubular holder with the straight portion of the ejector arm riding in the arcuately shaped channel or guide forming part of the keyhole-shaped opening and with the bottom surface of the fingers pressing against the inner surface of the tampon to eject the tampon from the tubular holder.

The tampon applicator is preferably made from a plastic such as polyethylene, polyvinyl chloride, styrene, cellulose acetate, cellulose butyrate and similar materials which may be readily molded by conventional molding techniques. If desired, other materials may be used; for example, cardboard and coated papers having sufficient rigidity to meet the requirements of the intended use for the article.

The parts may be readily assembled by snap engagement of the ejector arm with the holder tube and for this purpose materials having a slight degree of resilience or flexibility are desired. The over-all length of the tampon applicator of this invention is considerably shorter than the over-all length of conventional tampon applicators, thereby resulting in savings in the cost of materials and packaging.

It is apparent that variations in and modifications of the above described embodiment may be made while still remaining within the spirit of the invention.

What is claimed is:

1. A tampon applicator comprising an elongated tubular holder adapted to contain a tampon removably positioned in one end portion thereof, said tubular holder having a longitudinal slot through its side wall extending substantially the length of said holder, a second slot at the end of said holder opposite said one end portion, an ejector arm rotatably attached to said holder opposite said one end portion adapted to contain a tampon and covering said longitudinal slot, said ejector arm having a straight portion for a major part of its length and an angularly disposed end portion, said angularly disposed end portion being positioned within said second slot, said arm being laterally movable into longitudinal alignment with said tubular holder and being movable therein to eject a tampon, said angularly disposed end portion presenting surfaces for engaging a tampon during said movement.

2. A tampon applicator comprising an elongated tubular holder adapted to contain a tampon removably positioned in one end portion thereof, said tubular holder having a longitudinal slot through its side wall extending substantially the length of said holder, a transverse bar forming the terminal of said longitudinal slot, and a second slot above said bar, an ejector arm rotatably attached to said holder covering said longitudinal slot, said ejector arm having a straight portion for a major part of its length and an angularly disposed end portion, said angularly disposed end portion being at a right angle, said angularly disposed end portion being rotatably positioned within said second slot, said arm being laterally movable into longitudinal alignment with said tubular holder and being movable therein to eject a tampon, said angularly disposed end portion presenting surfaces for engaging a tampon during said movement.

3. A tampon applicator comprising an elongated tubular holder adapted to contain a tampon removably positioned in one end portion thereof, said tubular holder having a first longitudinal slot through its side wall extending substantially the length of said holder, a transverse bar forming the terminal of said longitudinal slot, and a second slot above said bar extending to the end of said holder, said end of said holder having an inwardly extending flange defining an opening, an ejector arm rotatably attached to said holder covering said first longitudinal slot, said ejector arm having a straight portion for a major part of its length and an angularly disposed end portion, said angularly disposed end portion being positioned within said holder above said transverse bar and below said inwardly extending flange, said arm being rotatable about said bar into said opening defined by said inwardly extending flange and into longitudinal alignment with said tubular holder, said arm being movable therein to eject a tampon, said angularly disposed end portion presenting surfaces for engaging a tampon during said movement.

4. A tampon applicator comprising an elongated tubular holder adapted to contain a tampon removably positioned in one end portion thereof, said tubular holder having a first longitudinal slot through its side wall extending substantially the length of said holder, a transverse bar forming the terminal of said longitudinal slot, and a second longitudinal slot above said bar extending to the end of said holder, said end of said holder having an inwardly extending flange defining a keyhole-shaped opening, an ejector arm rotatably attached to said holder covering said first longitudinal slot, said ejector arm having a

straight portion for a major part of its length and an angularly disposed bifurcated end portion, said bifurcated end portion being positioned within said holder above said transverse bar and below said inwardly extending flange, sair arm being rotatable about said bar into said keyhole-shaped opening and into longitudinal alignment with said tubular holder, said arm being movable therein to eject a tampon, said bifurcated end portion presenting surfaces for engaging said tampon during said movement.

5. A tampon applicator comprising an elongated tubular holder adapted to contain a tampon removably positioned in one end portion thereof, an ejector arm overlying said holder and rotatably attached thereto at the end opposite said one end portion, said ejector arm having a straight portion for a major part of its length and an angularly disposed end portion, said tubular holder having a slot through its side wall at said opposite end, the angularly disposed end portion of said ejector arm being positioned within said slot, the width of said angularly disposed end portion being wider than said slot, said arm being rotatable into longitudinal alignment with said holder and being longitudinally movable therein to eject a tampon.

6. A tampon applicator comprising an elongated tubular holder adapted to contain a tampon removably positioned in one end portion thereof, an ejector arm overlying said holder and rotatably attached thereto at the end opposite said one end portion, said ejector arm having a straight portion for a major part of its length and an angularly disposed end portion, said tubular holder having a slot through its side wall at said opposite end, said opposite end having an inwardly extending flange defining an opening, the angularly disposed end portion of said ejector arm being positioned within said slot and below said inwardly extending flange, said arm being rotatable into longitudinal alignment with said holder into said opening defined by said flange and being longitudinally movable therein to eject a tampon.

7. A tampon applicator comprising an elongated tubular holder adapted to contain a tampon removably positioned in one end portion thereof, an ejector arm overlying said holder and rotatably attached thereto at the end opposite said one end portion, said ejector arm having a straight portion for a major part of its length and an angularly disposed end portion, said tubular holder having a slot through its side wall at said opposite end, said opposite end having an inwardly extending flange defining an opening, said opening having a constriction narrower than the width of said ejector arm adjacent said angularly disposed end portion, the angularly disposed end portion of said ejector arm being positioned within said slot and below said inwardly extending flange, said arm being rotatable into longitudinal alignment with said holder into snap engagement within said opening defined by said flange beyond said constriction and being longitudinally movable therein to eject a tampon.

8. A tampon applicator comprising an elongated tubular holder adapted to contain a tampon removably positioned in one end portion thereof, an ejector arm overlying said holder and rotatably attached thereto at said end opposite said one end portion, said ejector arm having a straight portion for a major part of its length and an angularly disposed end portion, said tubular holder having a slot through its side wall at said opposite end, said opposite end having an inwardly extending flange defining an opening, the angularly disposed end portion of said ejector arm being positioned within said slot and below said inwardly extending flange, the width of said angularly disposed end portion being wider than said slot, said arm being rotatable into longitudinal alignment with said holder into said opening defined by said flange and being longitudinally movable therein to eject a tampon.

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