

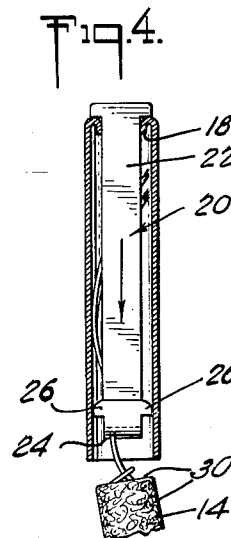
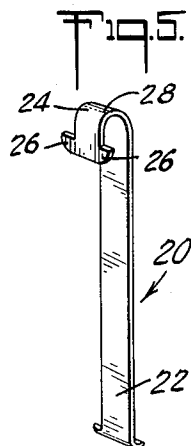
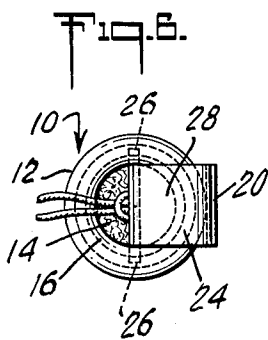
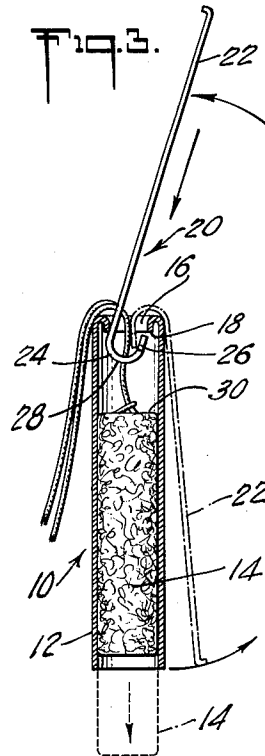
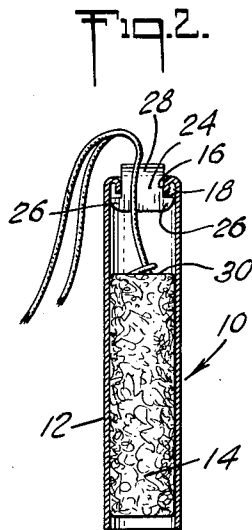
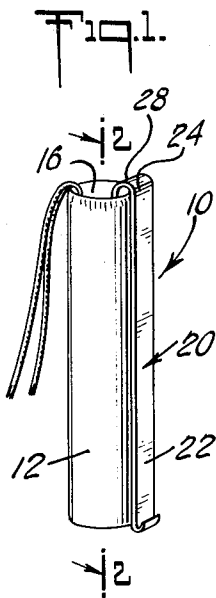
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I. J. GERSHEN
CATAMENIAL DEVICE

3,059,641

Filed May 19, 1960

2 Sheets-Sheet 1



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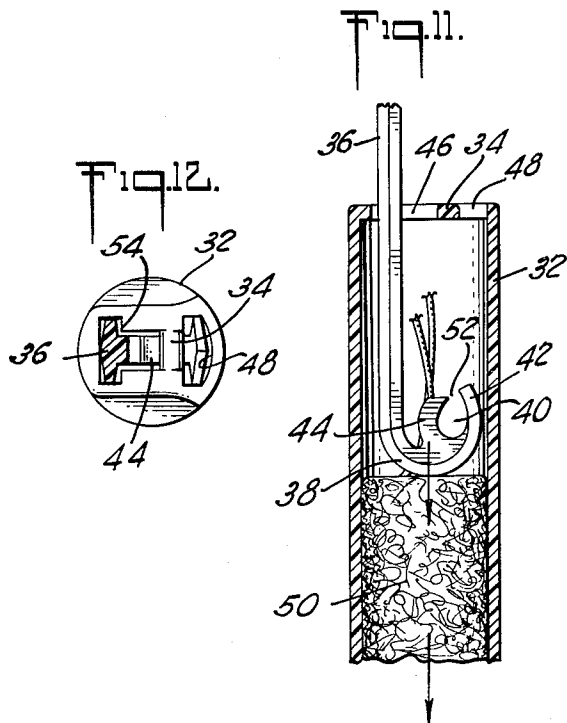
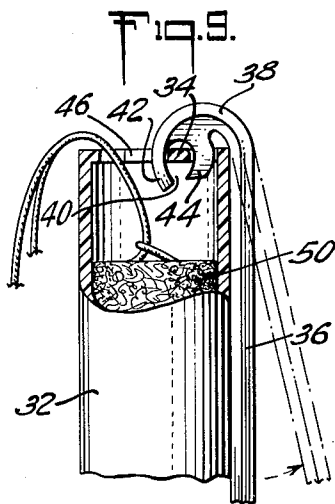
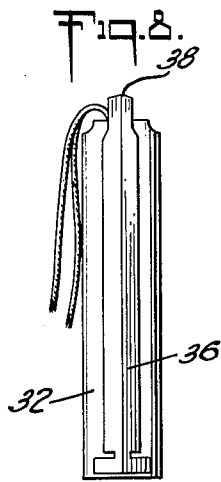
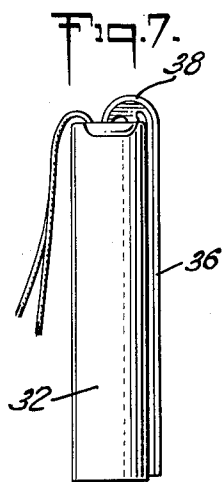
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3,059,641

CATAMENIAL DEVICE

Filed May 19, 1960

2 Sheets-Sheet 2



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CATAMENIAL DEVICE

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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, 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 over-all 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 tampon applicators 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 simple and safe 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 a 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 ejector arm is positioned on the exterior of the tubular holder and is pivotally or rotatably associated with the tubular holder whereby the ejector arm may be rotated laterally about 180° into longitudinal alignment with the holder in a line in the direction of the tubular holder's 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 isometric view of a tampon applicator incorporating the invention;

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FIG. 2 is a longitudinal sectional view of FIG. 1 taken along lines 2—2;

FIG. 3 is a view illustrating the manner in which the ejector arm component of the applicator is rotated from its position on an exterior surface of the tubular holder component into a line along its axis;

FIG. 4 is a view partly in section illustrating the manner in which the ejector arm is moved into the tubular holder to eject a tampon positioned in an end portion thereof;

FIG. 5 is an isometric view of the ejector arm component of the applicator;

FIG. 6 is an enlarged top view of FIG. 1;

FIG. 7 is a side view in elevation of another form of tampon applicator incorporating the invention;

FIG. 8 is a right side view of FIG. 7;

FIG. 9 is an enlarged view partly in section of the tampon applicator illustrating the manner in which the ejector arm and the tubular holder may be pivotally associated;

FIG. 10 is a view illustrating the rotatable movement of the ejector arm;

FIG. 11 is a view illustrating rotation of the ejector arm into a direction in a line along the axis of the outer tubular holder and moved therein towards a tampon;

FIG. 12 is a top view of FIG. 11 with the ejector arm shown in transverse section;

Referring to FIGS. 1—6, a preferred form of tampon applicator 10 incorporating the invention includes a tubular holder 12 open at both ends and adapted to contain a tampon 14 in one end portion thereof. The tubular holder may be of the illustrated cylindrical form or of other tubular forms. The end of the tubular holder opposite the end portion adapted to contain a tampon has an inwardly turned flange 16 which may be formed by turning or doubling over inwardly a short end section of the outer tube. The edge of the flange forms an inner lip 18 at a short distance from the end of the tubular holder.

The ejector arm component 20 of the tampon applicator comprises a relatively elongated flat member having a straight portion 22 and an arcuate or hook-shaped portion 24 at one end thereof. The hook-shaped portion is formed by doubling over the portion of the ejector arm beyond the straight portion into a loop of approximately 180°. The end of the hook-shaped portion is formed with transversely extending outward protuberances or nibs 26 which, in conjunction with the inwardly turned flange on the tubular holder, provide a means for associating the tubular holder and the ejector arm.

The internal diameter of the inwardly turned flange 16 on the end of the outer tube and the distance between the ends of the nibs 26 on the hook-shaped portion of the ejector tube are so dimensioned that the ejector arm and the tubular holder may be pivotally associated with each other with the nibs extending slightly beyond the lip 18 of the flange on either side thereof. Since the distance between the ends of the nibs is greater than the internal diameter of the inwardly turned flange, the arm and the holder are maintained together in assembled relationship.

The straight portion of the ejector arm is of substantially the same length as the length of the tubular holder. With the ejector arm and the tubular holder pivotally associated, as seen in FIG. 2, the straight portion of the ejector arm may be positioned to lie on an exterior surface of the tubular holder in longitudinal alignment therewith, as illustrated in FIG. 1. When the tubular holder and the ejector arm are so associated that the straight portion of the ejector arm is located on an exterior surface of the tubular holder, the hook-shaped portion will extend upwardly a short distance beyond the end of the tubular

holder having the inwardly turned flange and then downwardly into the tubular holder.

For packaging and prior to use, the tubular holder and the ejector arm are arranged with the straight portion of the ejector arm positioned on an outer surface of the tubular holder. To use the applicator, the ejector arm is swung outwardly and upwardly away from the outer surface of the tubular holder and rotated approximately 180° so that the straight portion of the ejector arm extends in a line in the direction of the axis of the tubular holder. During such lateral movement, the nibs on the ejector arm may ride on the lip of the inwardly turned flange of the tubular holder. However, the ejector arm may be so rotated with the nibs out of contact, or making intermittent contact, with the lip of the flange. With the ejector arm so moved into alignment with the tubular holder, the ejector arm may then be moved into the tubular holder in the direction of its axis towards the tampon positioned in its opposite end portion to eject the tampon, in much the same manner as conventionally constructed tampon applicators.

The outer peripheral surface 28 of the hook-shaped portion provides a surface which bears against the end 30 of the tampon as it is ejected by moving the ejector arm inwardly into the outer tubular holder. The size and degree of curvature of the hook-shaped portion of the ejector arm is dimensioned to permit its entry into the end of the tubular holder during and after rotation of the arm. It is also dimensioned, in a diametric direction with respect to the tubular holder, so that it will not fit too loosely therein.

Another embodiment of a tampon applicator incorporating the invention is illustrated in FIGS. 7-12. This embodiment includes a tubular holder 32 adapted to receive a tampon in one end portion thereof and having a fulcrum or pivot means for the ejector arm in the form of a bar 34 extending across the open end of the tubular holder opposite the end portion receiving a tampon. The bar may extend across the open end of the tampon in the direction of a diameter or chord.

The ejector arm has a straight portion 36 and a hook-shaped portion 38 similar to that described in the embodiment above. Pivotal association between the ejector arm and the tubular holder at the bar is obtained by providing a recess 40 in the hook-shaped portion of the ejector arm for receiving the bar. The recess is defined by the terminal portion 42 of the hook 38 and a tongue 44 spaced therefrom extending in a diametric direction with respect to the hook-shaped portion and in the same direction as the terminal portion of the hook.

As in the embodiment described above, the ejector arm is so associated with the tubular holder that, prior to use of the applicator, and for packaging, the ejector arm is positioned on the outer surface of the tubular holder. The ejector arm may be moved transversely from its position on the outer surface of the tubular holder into a line along its axis by rotating the arm approximately 180°.

An opening 46 is provided in the tubular holder between the inner periphery of the tubular holder and the bar to receive the ejector arm. It is of sufficient size so that when the ejector arm is rotated into a line along the axis of the tubular holder, the hook-shaped portion, which is correspondingly rotated, may enter into the tubular holder.

As the ejector arm is rotated into alignment with the tubular holder, the hook-shaped portion 38 rotates around the bar 34. The bar 34 is spaced with respect to the adjacent inner periphery of the tubular holder to provide a space 48 of sufficient size to receive the terminal portion 42 of the hook as it is rotated around the bar and emerges beyond the end of the tubular holder, as illustrated in FIG. 10.

When the ejector arm has been rotated approximately 180° into alignment with the tubular holder, it may then be axially moved therein towards the tampon 50 posi-

tioned at the opposite end portion to eject the tampon. The recess in the hook-shaped portion of the ejector arm receives the bar in a snap fit. The opening 52 into the recess in the hook-shaped portion is slightly smaller than the width of the hook-shaped portion so that the parts may be removably associated by urging the hook-shaped portion out of the recess. To guide the ejector arm into the tubular holder, the inner periphery of the tubular holder opposite the bar 34 may be formed with a slot or channel 54 having the general configuration of the transverse cross section of the ejector arm and having a size permitting the ejector arm to move freely into the tubular holder.

The tampon applicator is preferably made from a plastic such as polyethylene, polyvinyl chloride, cellulose acetate, cellulose butyrate and like materials which may be readily molded by conventional molding techniques. If desired, other materials may be used; for example, cardboard, coated papers and the like may be suitably employed. The tubular holder portion of the embodiment illustrated in FIGS. 1-6 may be made of cardboard tubing having an inwardly turned flange while the ejector arm portion may be made of a plastic, such as styrene.

The parts may be readily assembled by snap engagement of the ejector arm with the tubular holder 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, thus resulting in savings in the cost of materials and packaging.

It is apparent that variations in and modifications of the foregoing illustrative embodiments of the invention 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, an ejector arm having a major portion of its length positioned on the exterior surface of said tubular holder, means on said arm and on said tubular holder opposite the end adapted to receive said tampon pivotally associating and maintaining said arm and said holder in assembled relationship, said arm being rotatable into longitudinal alignment with said tubular holder, and being movable therein to eject a tampon positioned in said one end portion of said tubular holder.

2. A tampon applicator comprising an elongated tubular holder adapted to contain a tampon removably positioned in one end portion thereof, an ejector arm having a major portion of its length positioned on the exterior surface of said tubular holder rotatably associated with said tubular holder at the opposite end, said ejector arm having a straight portion and a hook-shaped portion, said hook-shaped portion presenting surfaces for engaging said tampon as said arm is moved into said tubular holder, means on said hook-shaped portion and on said tubular holder for maintaining said ejector arm and said holder in assembled relationship said arm being rotatable into longitudinal alignment with said tubular holder, and being movable therein to eject a tampon positioned in said one end portion of said tubular holder.

3. A tampon applicator comprising an elongated tubular holder adapted to contain a tampon removably positioned in one end portion thereof, an ejector arm rotatably associated with said tubular holder at the opposite end, said arm having a straight portion and a hook-shaped portion, said straight portion being positioned on the exterior surface of said tubular holder, said arm being rotatably associated with said tubular holder at said hook-shaped portion, means on said hook-shaped portion and on said tubular holder for maintaining said ejector arm and said holder in assembled relationship said arm being rotatable into longitudinal alignment with said tubular holder, and

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being movable therein to eject a tampon positioned in said one end portion of said tubular holder, said hook-shaped portion presenting surfaces for engaging said tampon as said arm is moved into said tubular holder.

4. A tampon applicator comprising an elongated tubular holder adapted to contain a tampon removably positioned in one end portion thereof, said tubular holder presenting a fulcrum at the opposite end, an ejector arm having a major portion of its length positioned on the exterior surface of said tubular holder rotatably associated at one end with said tubular holder at said fulcrum, said ejector arm having a hook-shaped portion at said rotatably associated end engaging said fulcrum, means on said hook-shaped portion and on said tubular holder for maintaining said ejector arm and said holder in assembled relationship said arm being rotatable about said fulcrum into longitudinal alignment with said tubular holder, and being movable therein to eject a tampon positioned in said one end portion of said tubular holder.

5. A tampon applicator comprising an elongated tubular holder adapted to contain a tampon removably positioned in one end portion thereof, said tubular holder presenting a fulcrum at the opposite end, an ejector arm having a major portion of its length positioned on the exterior surface of said tubular holder rotatably associated at one end with said tubular holder at said fulcrum, said ejector arm having a hook-shaped portion at said rotatably associated end presenting surfaces engaging said fulcrum, means on said hook-shaped portion and on said tubular holder for maintaining said ejector arm and said holder in assembled relationship said arm being rotatable about said fulcrum into longitudinal alignment with said tubular holder, and being movable therein to eject a tampon positioned in said one end portion of said tubular holder, said hook-shaped portion of said arm presenting surfaces for engaging said tampon as said arm is moved into said tubular holder.

6. A tampon applicator comprising an elongated tubular holder adapted to contain a tampon removably positioned in one portion thereof, said tubular holder presenting a fulcrum at the opposite end, an ejector arm having a major portion of its length positioned on the exterior surface of said tubular holder rotatably associated at one end with said tubular holder at said fulcrum, said ejector arm having a hook-shaped portion at said rotatably associated end, said hook-shaped portion having a recess receiving said fulcrum in pivotal engagement, said arm being rotatable about said fulcrum into longitudinal alignment with said tubular holder, and being movable therein to eject a tampon positioned in said one end portion of said tubular holder.

7. A tampon applicator comprising an elongated tubular holder adapted to contain a tampon removably positioned in one end portion thereof, said tubular holder having an inwardly turned flange at the opposite end, an ejector arm having a major portion of its length positioned on the exterior surface of said tubular holder rotatably associated at one end with said tubular holder at said inwardly turned flange, said ejector arm having a hook-shaped portion at said rotatably associated end presenting surfaces for engaging said flange, said surfaces and said flange cooperating to maintain said ejector arm and said holder in assembled relationship said arm being rotatable about said flange into longitudinal alignment with said tubular holder, and being movable therein to eject a tampon positioned in said one end portion of said tubular holder.

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8. A tampon applicator comprising an elongated tubular holder adapted to contain a tampon removably positioned in one end portion thereof, said tubular holder having an inwardly turned flange at the opposite end, an ejector arm having a major portion of its length positioned on the exterior surface of said tubular holder rotatably associated at one end with said tubular holder at said inwardly turned flange, means on said rotatably associated end of said ejector arm co-operating with said flange to maintain said ejector arm and said holder in assembled relationship said arm being rotatable about the edge of said flange into longitudinal alignment with said tubular holder, and being movable therein to eject a tampon positioned in said one end portion of said tubular holder.

9. 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 bar extending across the opening at the opposite end, an ejector arm having a major portion of its length positioned on the exterior surface of said tubular holder rotatably associated at one end with said tubular holder at said bar, said arm being rotatable about said bar into longitudinal alignment with said tubular holder, and being movable therein to eject a tampon positioned in said one end portion of said tubular holder.

10. 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 bar at the opposite end, an ejector arm having a major portion of its length positioned on the exterior surface of said tubular holder rotatably associated at one end with said tubular holder at said bar, said ejector arm having a hook-shaped portion at said rotatably associated end presenting surfaces pivotally engaging said bar, said arm being rotatable about said bar into longitudinal alignment with said tubular holder, and being movable out of pivotal engagement with said bar and into said holder to eject a tampon positioned in said one end portion of said tubular holder.

11. A tampon applicator comprising an elongated tubular holder adapted to contain a tampon removably positioned in one end portion thereof, an ejector arm having a major portion of its length positioned on the exterior surface of said tubular holder, said ejector arm having a straight portion and a hook-shaped portion, said tubular holder having an inwardly-turned flange at the end opposite the end adapted to receive said tampon, said hook-shaped portion having outwardly extending members presenting surfaces adapted to engage said flange to maintain said ejector arm and said tubular holder in associated relationship, said arm being rotatable into longitudinal alignment with said tubular holder, and being movable therein to eject a tampon positioned in said one end portion of said tubular holder.

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