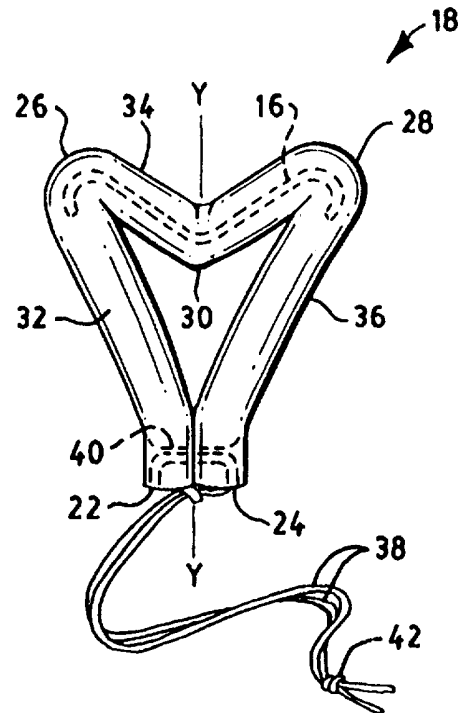


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(54) Title: TAMPON HAVING A RESILIENT MEMBER AND A METHOD OF FORMING THE TAMPON

(57) Abstract

A tampon is disclosed which is useful in preventing premature leakage of body fluid from a woman's vagina especially during her menstrual period. The tampon includes an absorbent and a resilient member. The resilient member is positioned on or within the absorbent and both members are rolled or formed into an elongated softwind having a first end and a second end. The softwind is folded upon itself such that the first and second ends are aligned adjacent to one another and the softwind contains at least two folds therebetween. The softwind is compressed into an elongated pledget having an insertion end and a trailing end. The resilient member is capable of expanding at least a portion of the pledget so as to prevent premature leakage of body fluid when inserted into a woman's vagina. The tampon further includes a withdrawal string for removing the tampon from a woman's vagina. The withdrawal string is attached to the first and second ends of the softwind. The method includes the steps of assembling a resilient member and an absorbent to form a structure having a central longitudinal axis X-X. The resilient member can be either aligned with or offset from the central longitudinal axis X-X. The absorbent and the resilient member are rolled or folded up into an elongated softwind which has a first end and a second end. The softwind is folded upon itself such that the first and second ends are aligned adjacent to one another and the softwind contains at least two folds therebetween. The softwind is then compressed into a pledget having an insertion end and a trailing end. A withdrawal string is secured to the pledget to form a tampon. The withdrawal string facilitates removal of the tampon from the woman's vagina.



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TAMPON HAVING A RESILIENT MEMBER AND A METHOD OF FORMING THE TAMPONFIELD OF THE INVENTION

This invention relates to a tampon having a resilient member. The invention also
5 relates to a method of forming the tampon. More specifically, this invention relates to a
catamenial tampon having a resilient member which is designed to prevent premature
leakage of body fluid from a woman's vagina when the tampon is initially inserted into the
woman's vagina. The invention also promotes more efficient material utilization during the
use of the tampon.

10

BACKGROUND OF THE INVENTION

Currently, there are two basic types of catamenial tampons used for feminine
hygiene. The first type is a digital tampon which is designed to be inserted into a woman's
vagina directly by the user's fingers. The second type is a tampon which is designed to be
15 inserted with the aid of an applicator. Both types are usually made by folding or rolling a
loosely associated strip of absorbent material into an elongated shape often referred to as a
"softwind." The softwind is then radially and/or biaxially compressed into a pledget. The
pledget may or may not include a cover. In both types of tampons, a withdrawal string is
attached to the softwind, either before or after compression, to facilitate removal of the
20 tampon from the user's vagina after it has absorbed a certain quantity of body fluid, such as
menses, blood, etc.

It has been found that many tampons, both digital as well as those delivered by an
applicator, are unable to prevent premature leakage of body fluid. Premature fluid leakage
can result from a number of factors. One factor is that the tampon does not properly fit
25 above the introital region of the vagina. A second factor is that the tampon has been
compressed to such an extent that it is unable to open or radially expand rapidly enough
after initial insertion into a woman's vagina to absorb the body fluid which comes into contact
with it. A third factor is that the tampon is not shaped correctly to intercept fluid
flow through the vaginal canal. A fourth factor is that the folds and convolutions of the
30 vagina are not in contact with the tampon and therefore body fluid is able to bypass the
tampon.

Now a catamenial tampon has been invented which has a resilient feature which will
prevent premature leakage of body fluid immediately after being inserted into a woman's
vagina. A method of forming the tampon is also described.

35

SUMMARY OF THE INVENTION

Briefly, this invention relates to a catamenial tampon. The tampon includes an absorbent and a resilient member which is positioned on or within the absorbent. The absorbent and resilient member are formed into an elongated softwind having a first end and a second end. The softwind is folded upon itself such that the first and second ends are aligned adjacent one another and the softwind contains at least two folds therebetween. The softwind is then compressed into an elongated pledget having an insertion end and a trailing end with the insertion end containing more absorbent than the trailing end. The resilient member is capable of expanding at least a portion of the pledget so as to intercept fluid flow when the tampon is inserted into a woman's vagina. The tampon further includes withdrawal means for removing the tampon from a woman's vagina. The withdrawal means is attached to the first and second ends of the pledget.

The method includes the steps of assembling a resilient member and an absorbent to form a structure having a central longitudinal axis X--X. The resilient member can either be aligned with or offset from the central longitudinal axis X--X. The absorbent and the resilient member are then rolled or folded up into an elongated softwind which has a first end and a second end. The elongated softwind is then folded such that the first and second ends are aligned adjacent one another and the softwind contains at least two folds therebetween. The softwind is then compressed into a pledget having an insertion end and a trailing end. A withdrawal string is then secured to pledget to form a tampon. The withdrawal string facilitates removal of the tampon from a woman's vagina.

The general object of this invention is to provide a tampon for absorption of menses, blood, etc. A more specific object of this invention is to provide a catamenial tampon having a resilient feature which is designed to prevent premature leakage of body fluid when initially inserted into a woman's vagina.

Another object of this invention is to provide a method of forming a tampon having a resilient member.

Another object of this invention is to provide a tampon which springs open immediately upon insertion into a woman's vagina to prevent bypass of menses and other body fluids.

A further object of this invention is to provide a tampon which contains a resilient member which has the potential to spread open at least a portion of the tampon so that the tampon will contact a larger cross-section of a woman's vagina thereby preventing the bypass of menses and other body fluid.

Still another object of this invention is to provide a tampon which has dry expansion capability.

Still further, an object of this invention is to provide a tampon which exhibits reduced slippage during use.

5 Still further, an object of this invention is to provide a tampon which is expandable to fit within the non-circular cross-section of a woman's vagina.

Still further, an object of this invention is to provide a tampon which better utilizes the absorbent during use.

10 Other objects and advantages of the present invention will become more apparent to those skilled in the art in view of the following description and the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of a resilient member positioned on an absorbent and aligned along the central longitudinal axis X--X thereof.

15 Fig. 2 is a perspective view of the absorbent and resilient member shown in Fig. 1 after being rolled or folded into a softwind.

Fig. 3 is a perspective view of an alternative embodiment depicting an absorbent, cover and resilient member being aligned such that the resilient member is offset from the central longitudinal axis X--X.

20 Fig. 4 is a perspective view of the absorbent, cover and resilient member shown in Fig. 3 rolled up into a softwind.

Fig. 5 is a side view of the softwind folded into a generally M-shaped profile with the first and second ends being aligned adjacent to one another and retained by the withdrawal string.

25 Fig. 6 is a side view of the softwind shown in Fig. 5 after it has been compressed into a pledget.

Fig. 7 is a side view of the tampon showing the configuration it attempts to acquire after it has been inserted into a woman's vagina.

30 Fig. 8 is a side view of the tampon showing one possible configuration during removal from a woman's vagina.

Fig. 9 is a side view of a two piece tampon applicator having an inner tube and an outer tube.

Fig. 10 is a cross-sectional view of the tampon applicator shown in Fig. 9 depicting the tampon being retained in the outer tube prior to insertion into a woman's vagina.

35 Fig. 11 is a flow diagram of a method of forming a tampon.

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