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SANITARY NAPKIN AND SUSPENSORY DEVICE THEREFOR

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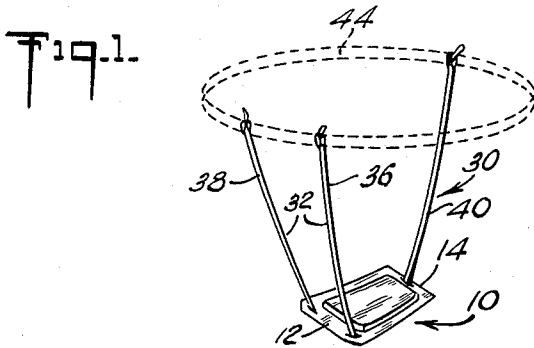


Fig. 2.

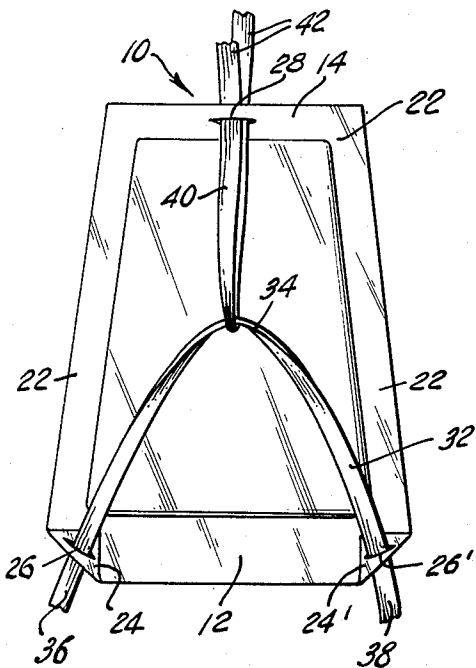


Fig. 3.

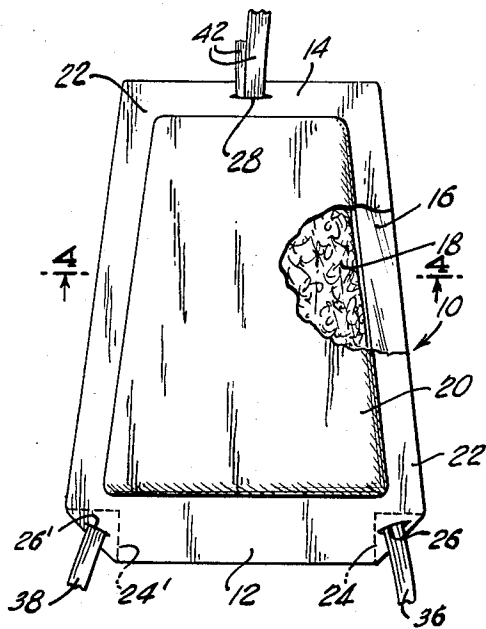
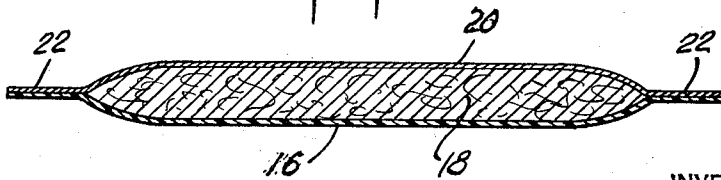


Fig. 4.



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1

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**SANITARY NAPKIN AND SUSPENSORY  
DEVICE THEREFOR**

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6 Claims. (Cl. 128-290)

This invention relates to catamenial devices and more particularly to sanitary napkins and to suspensory devices for holding the napkins in position on the body of the wearer.

A conventional sanitary napkin is generally relatively thick, bulky and elongated and usually has a rectangular shaped core of absorbent material enclosed within an outer wrapper of liquid pervious material, the ends of which extend beyond the ends of the core for attaching the napkin in position. This form of napkin is customarily maintained in position in a two-point suspension by attaching the extending ends of the outer wrapper to a supporting belt or to the undergarments.

In use, a sanitary napkin is subjected to squeezing and compressive forces which tend to deform and distort it. Distortion resulting from these forces causes the napkins to assume an inverted U shape. Deformation and distortion is undesirable because it decreases the amount of menstrual fluid which can be absorbed and retained by the napkin. Further, it tends to cause menstrual fluid to penetrate through the napkin and also to flow over the top of the napkin, down the sides and beyond the side edges.

To minimize deformation and distortion and to overcome the resultant effects, conventional napkins have customarily been made relatively thick and bulky to impart resistance to such deformation. Such attempts have included the provision of napkins made from a plurality of plies of absorbent and nonabsorbent materials and reinforcing layers arranged in various laminar relationships to impart form and structural stability to the napkin so that it will resist deformation and be effective in use. In view of their disposable nature, napkins containing a variety of components are uneconomical to some women who must therefore rely upon makeshift devices.

It is apparent that an inexpensive napkin can be obtained by using less components and less expensive materials than are used in conventional napkins. It is also apparent that a napkin which may be made relatively thin would be economical, more comfortable to wear and would be less conspicuous because it would conform more readily to body contours. However, a napkin containing a minimum of components, as contrasted to a conventional napkin, usually collapses readily in use, especially transversely. Such a napkin readily tends to crease in a lengthwise direction with the result that the napkin is not maintained in intimate contact with the public area of the body. As a consequence, menstrual fluid bypasses the napkin beyond its side edges resulting in napkin failure. In addition, fluid will often strike through the napkin quickly.

It is an object of this invention to provide an economical, effective sanitary napkin which has good absorbent capacity.

It is another object of this invention to provide an inexpensive sanitary napkin which contains few components.

It is still another object of this invention to provide a sanitary napkin which can be maintained in a flat, conforming position on the body of the wearer so that its absorbing effectiveness will be fully utilized.

It is a further object of this invention to provide a flat sanitary napkin which is constructed to fit in intimate contact with the body of the wearer in a three-

2

point suspension whereby leakage over the side edges thereof is minimized.

It is a still further object of this invention to provide a sanitary napkin and a suspensory device for holding the napkin in position on the body of the wearer.

Other and further objects will become apparent from a consideration of the attached drawings and the following specification.

In the accompanying drawings, wherein a preferred embodiment of the invention is illustrated;

FIG. 1 is a perspective view of the napkin and a suspensory device for attaching the napkin in position on the body of the wearer illustrating the flat position assumed by the napkin;

FIG. 2 is a bottom view of the napkin and a portion of the suspensory device illustrating the manner in which the device and napkin may be associated with each other;

FIG. 3 is a view of the opposite side of FIG. 2;

FIG. 4 is a sectional view on an enlarged scale of FIG. 3 taken along lines 4-4.

A napkin incorporating the invention is of a generally wide, elongated, oblong shape being preferably somewhat wider at the front portion 12 than at the rear 14. In the form illustrated in the drawings, the napkin is in the form of a trapezoid with the base of the trapezoid constituting the front 12 of the napkin. A napkin of this form may be in overall dimensions about 6½ inches long, ¾ inches wide at the front 12 tapering to ¼ inches in width at the rear 14. A suitable napkin in the shape of a rectangle may be about 6½ inches long and 2 inches wide. A napkin of these dimensions fits comfortably in position on the wearer and is sufficiently large to cover the portions of the body against which the napkin is placed in use.

The elements of the napkin include a liquid repellent backing sheet 16, an absorbent core 18, and a liquid pervious cover 20. The backing sheet and the cover are substantially coextensive and extend beyond the peripheral edges of the core to form marginal portions 22 around the core which are joined to integrate the respective elements.

The liquid repellent backing sheet is preferably a thin sheet of thermoplastic material, e.g., polyethylene or vinyl film 2 mils thick. The repellent backing sheet provides a barrier on the bottom of the napkin to the passage of fluid to prevent strike through of menstrual fluid. Other suitable repellent backing sheets include paper impregnated with a thermoplastic or thermosetting material, and papers or fibers coated with a liquid repellent material. The repellent backing sheet also contributes to the structural stability of the napkin as will be explained further below.

The absorbent core 18 of the napkin may be a pad or bat of absorbent fibers, such as a bat of comminuted wood pulp fibers, cotton fibers, or other suitable absorbent material positioned on top of the repellent backing sheet and having generally the configuration of the backing sheet but being somewhat smaller in overall dimensions. Preferably, the absorbent core is made of such size that the repellent backing sheet extends beyond the periphery of the absorbent core to form a marginal area around the core, which in the case of the trapezoidal form of napkin described above is about ¼ inches wide in the front of the napkin and about ¾ inch wide at the sides and rear. An absorbent core of about 100 grains of comminuted wood pulp fibers equally distributed to a thickness of about ⅜ inch on the surface of the backing sheet is satisfactory. The amounts of absorbent material used are desirably consistent with the purposes for which the napkin is intended.

The cover of the napkin may be any suitable liquid

permeable material, including a non-woven fabric, or a woven fabric such as gauze, having adequate tear and abrasion resistance to withstand the conditions normally imposed during use. The cover is preferably coextensive with the repellent backing sheet, and also has marginal portions extending beyond the periphery of the absorbent core.

To retain the absorbent core component of the napkin in position and to integrate the various elements of the napkin, the repellent backing sheet and the cover are joined to each other at their respective contiguous marginal portions 22 extending beyond and around the periphery of the absorbent core. Thermoplastic films, such as polyethylene and vinyl films are particularly suitable as a repellent backing sheet and may be easily bonded to the cover by application of heat and pressure to the marginal portions. Other suitable materials may be satisfactorily employed for the different napkin elements and for joining the marginal portions of the cover and backing material, as by adhesive means, by the use of thermoplastic materials in the backing member or cover, and by other well known methods. In the embodiment illustrated in FIG. 4, the backing sheet and the cover each extend partially around the sides of the core and are joined at the approximate mid-point of the edges. If desired, the backing sheet may be maintained flat and the cover extended down the sides of the core to the backing sheet to provide a relatively flat bottomed napkin. The resultant structure comprises a liquid repellent backing sheet, a confined absorbent core of somewhat smaller size, and a cover over the core having dimensions substantially those of the backing member, the backing sheet and cover being joined at their contiguous marginal portions.

The napkin, as described above, is effective, inexpensive and simple to use. It may be satisfactorily used in such form and particularly in the elongated rectangular form, by placing it into a sanitary panty, by attaching it to the underclothing with pins, or by attaching it to a sanitary napkin belt. The front and rear marginal portions of the backing sheet and cover may be made sufficiently long to provide tabs for pinning the napkin in position, or by providing such front and rear marginal portions with holes for attaching the napkin to a supporting device, such as a sanitary napkin belt.

Due to its structure and configuration however, the napkin of the invention performs more satisfactorily when it is maintained in position on the body of the wearer in such a manner as to retain it in substantially a flat shape. To this end, the napkin may be formed with means for suspending it at two points in the front portion and by one point at the rear portion. The front corners 24, 24' of the marginal portion of the napkin may be folded back to form a double thickness and each provided with a small spaced hole or slit 26, 26', respectively, which extends through the cover and the liquid repellent backing member. A similar slit 28 is provided at the rear marginal portion of the napkin at the approximate midpoint thereof. The napkin may be supported in a flat position on the body of the wearer by threading a suspensory device through the respective slits provided in the front and rear portions of the napkin in any suitable manner or by attaching the napkin to a device by means of the slits provided. One form of suitable suspensory device 30 includes a flat tape or ribbon of fabric formed in two parts. One part 32 is doubled upon itself to form a half loop 34 and one end 36 of the looped ribbon passed from the bottom of the napkin through slit 26 in the front of the napkin and the other end 38 passed through the other slit 26' with the looped portion 34 of the ribbon positioned approximately at the center of the napkin and at the underside thereof. A second ribbon 40 is then doubled upon the looped portion 34 of the first ribbon 32 at the approximate midpoint of the underside of the napkin and the free extending

ends 42 thereof passed together through the rear slit 23 and beyond.

To complete attachment of the napkin in position on the body of the wearer, the ends 36 and 38 of ribbon 32 extending through the slits in the front of the napkin are attached to a waist encircling band 44 in spaced relationship and the ends 42 of the rear strap 40 are attached together to the rear of the waist encircling band. The napkin will then be maintained in a relatively flat position by a three-point suspension with the suspensory device in the form of the respective ribbons underlying the bottom of the napkin to hold it in a hammock like fashion and extending through the respective slits. The above described means of suspending the napkin provides a Y or yoke-shaped support on the bottom of the napkin. It is contemplated, however, that other means of suspension may be used. For example, instead of the Y shaped suspension described above and illustrated in the drawings, one piece of ribbon may be passed through one front slit and thence through the rear slit and another ribbon passed through the other front slit and also through the rear slit to form a V shape. The extending ends of the ribbon may then be attached to a waist encircling band in the manner described above.

It is to be understood that other suspensory devices or arrangements thereof for supporting the napkin in three-point suspension may be used satisfactorily and that the foregoing embodiments of the invention may be varied and modified without departing from its spirit and scope.

What is claimed is:

1. The combination comprising a catamenial napkin having an elongated core of absorbent material, a liquid repellent backing member underlying said core, a liquid pervious cover overlying said core, the marginal edges of said backing member and said cover extending beyond the periphery of said core to form marginal portions around said core, said marginal portions of said backing member and said cover being attached to confine said core, spaced connecting means on the front portion and connecting means on the rear portion of said napkin, and a suspensory device including straps underlying said napkin and connected to said connecting means suspending said napkin in a three-point suspension on the body of the wearer.

2. The combination according to claim 1 wherein the napkin is generally trapezoidally shaped.

3. The combination comprising a catamenial napkin having an elongated core of absorbent material, a liquid repellent backing member underlying said core, a liquid pervious cover overlying said core, the marginal edges of said backing member and said cover extending beyond the periphery of said core to form marginal portions around said core, said marginal portions of said backing member and said cover being attached to confine said core, spaced openings in the front corners and in the rear of said napkin, and a suspensory device including straps underlying said napkin and threaded through said openings suspending said napkin in a three-point suspension on the body of the wearer.

4. The combination comprising a catamenial napkin having an elongated core of absorbent material, a liquid repellent backing member underlying said core, a liquid pervious cover overlying said core, the marginal edges of said backing member and said cover extending beyond the periphery of said core to form marginal portions around said core, said marginal portions of said backing member and said cover being attached to confine said core, spaced openings in the front marginal portion and a centrally positioned opening in the rear marginal portion of said napkin, and a suspensory device including a pair of straps underlying said napkin and threaded through said openings suspending said napkin in a three-point suspension on the body of the wearer.

5. The combination comprising a catamenial napkin having an elongated core of absorbent material, a liquid

5

repellent backing member underlying said core, a liquid pervious cover overlying said core, the marginal edges of said backing member and said cover extending beyond the periphery of said core to form marginal portions around said core, said marginal portions of said backing member and said cover being attached to confine said core, spaced openings in the front marginal portion and a centrally positioned opening in the rear marginal portion of said napkin, and a suspensory device including a pair of looped, interconnected straps underlying said napkin, one end of one of said straps extending through one of said openings in said front marginal portion, the other end extending through the other said opening in said front marginal portion, the ends of said other strap extending through the opening in said rear marginal portion, said ends being attachable for suspending said napkin in a three-point suspension on the body of the wearer.

6. The combination comprising a catamenial napkin having an elongated core of absorbent material, a liquid repellent backing member underlying said core, a liquid pervious cover overlying said core, the marginal edges of said backing member and said cover extending beyond the periphery of said core to form marginal portions

6

around said core, said marginal portions of said backing member and said cover being attached to confine said core, spaced openings in the front marginal portion and a centrally positioned opening in the rear marginal portion of said napkin, and a suspensory device including a pair of straps underlying said napkin, each of said straps being threaded through one of said openings in said front marginal portion and through said opening in said rear marginal portion, the ends of said straps being attachable for suspending said napkin in a three-point suspension on the body of the wearer.

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