SANITARY NAPKIN

FIELD OF THE INVENTION

The present invention relates to a sanitary napkin which is worn on a female body to absorb body fluid, more specifically to a sanitary napkin having a forward portion made wider than a rearward portion.

BACKGROUND OF THE INVENTION

Sanitary napkins have been used as conventional means which are worn on female bodies for absorbing body fluid. Typically the conventional sanitary napkins have constant widths from the front of the body of a wearer to the back thereof. Such napkins, because of their shape, because of their constant widths, have high production efficiency and are advantageous in material saving. It cannot be said, however that such napkins are not sufficiently preventive for fluid leakage at the rear portions. That is, for a long time use of such napkins in sleeping at night, prevention of fluid leakage at the backward portion of the lying body is a significant problem. To solve this problem, sanitary napkins having portions thereof corre-sponding to the backward portion of the body of a wearer of the sanitary napkins made wider than the forward portions thereof are used.

Such sanitary napkins have problems that the sanitary napkins cannot be secured stable to underwear because of the wider rearward portions, the side portions of the rearward portions are turned up in use and jeopardize the long-time leakage prevention. In packaging the individual sanitary napkins, the wider portions make the individual packages large, and in packaging the individual napkins with the wider portions folded, it is necessary that the wider portions are kept folded until the packages are completed, which makes their production difficult.

An object of the present invention is to provide a sanitary napkin which has a wider rearward portion to thereby prevent fluid leakage.

Another object of the present invention is to provide a sanitary napkin a wider rearward portion of which is stable to effect fluid leakage prevention.

Further another object of the present invention is to provide a sanitary napkin a wider rearward portion of which can be folded stable.

SUMMARY OF THE INVENTION

The sanitary napkin according to the present invention comprises a fluid permeable topsheet disposed on a side of the sanitary napkin, which is to be opposed to the body of a wearer, a fluid impermeable backsheet disposed on a side of the sanitary napkin, which is to be opposed to underwear of the wearer, and an absorbent core disposed between said both sheets, the backsheet having a shape which agrees with a contour of the sanitary napkin and which is substantially elongate from the front to the back of the body of the wearer, and being wider at a rearward portion thereof corresponding to a rearward part of the body of the wearer than at a forward portion thereof corresponding to a forward part of the body of the wearer, the absorbent core being narrower than the forward portion of the backsheet, a first adhesive layer being disposed on a side of the backsheet to be opposed to the underwear in a region where the absorbent core is present, second adhesive layers being disposed on the side of the backsheet to be opposed to the underwear in portions of the rearward portion of the backsheet, which is on both sides of the absorbent core and in which the absorbent core is absent, and the first adhesive layer securing the sanitary napkin to the inside of the underwear, and the second adhesive layers securing the rearward portion of the backsheet spread wider inside the underwear.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG.1 is a top view of the sanitary napkin according to one embodiment of the present invention.

FIG. 2 is a sectional view of the sanitary napkin of FIG. 1 along the line II-II.

FIG. 3 is a top view of the sanitary napkin of FIG. 1 in its folded state.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A preferred embodiment of the present invention will be explained with reference to the drawings. FIGs. 1 to 3 show the sanitary napkin according to a first embodiment of the present invention. A napkin generally represented by reference number 1 comprises a fluid permeable topsheet 4, a fluid impermeable backsheet 6 and an absorbent core 8. It is important that fluid discharged by the body of a wearer and does not excessive unpleasant touch to the wearer when the topsheet 4 directly contacts the skin of the wearer. The topsheet 4 is suitably made of, woven or unwoven fabric of natural fibers or synthetic fibers, thermoplastic synthetic resin film having a number of pores formed in, porous synthetic resin foam, net synthetic foam, net thermoplastic synthetic resin film, thermoplastic synthetic resin scrim or others. It is important that the backsheet 6 has the function that fluid absorbed by the absorbent core 8 flows out of the napkin to smear the wearer herself and/or her clothes, and is

suit ably formed of flexible fluid impermeable thermoplastic synthetic resin film, such as polyolefin film. Especially suitable film of which the backsheet 6 include low-density polyethylene film of 0.01 - 0.05 mm thickness, especially about 0.025 mm thickness (marketed as "MODEL XP 39385" by Ethyl Corp., Visqueen Division, and as "SOFLEXX 1401" by Clopay Corp., Cincinnati, Ohio, U.S.A.). It is important that the absorbent core 8 disposed intermediate between the topsheet 4 and the backsheet 6 absorbs and holds fluid which has been discharged by the wearer and permeated the topsheet 4. The absorbent core 8 is suitably formed of, e.g., finely pulverized pulp so called air felt, creped cellulose-filled cotton, melt blow polymer, chemically rigidified, modified or cross linked cellulose fiber, absorbent synthetic resin foam, tissue paper layer, absorbing gelling material (which absorbs fluid and gels), or suitable combinations of these materials.

In the shown embodiment, the topsheet 4 is substantially the same as the backsheet 6 in shape and dimensions. The topsheet 4 and the backsheet 6 are hot melted uninterrupted on each other along the entire boundary edges. The hot melted region 10 of the top and backsheets 4, 6 is indicated by cross slant lines and by slant lines in FIG. 2. If necessary, the topsheet 4 and the to p sheet 6 may be bonded to each other by, e.g., an adhesive. As described above, the topsheet 4 and the backsheet 6 have the same shape, and the shape is that of the napkin 2. The absorbent core 8 is laid in the direction of a length of the napkin (up to down in FIG. 1) and has substantially the same width (lateral length in FIG. 1) along the entire length.A layer 3 of an adhesive for securing the napkin to the underwear of the wearer is disposed at a position on the outside surface of the backsheet 6, which substantially corresponds to the absorbent core 8. As the adhesive, "Century Adhesive A-305-IV" by Century Adhesive Corp., Columbus, Ohio, U.S.A. is suitably used. In the case that the layer 3 of an adhesive is provided on the outside surface of the backsheet 6, preferably the adhesive is covered with a sheet of silicone coated paper for preventing the adhesive from contamination before use.

The topsheet 4 and the backsheet 6 are projected at a little forward (upward as viewed in FIG. 1) beyond the side edge 8a of the absorbent core 8 laterally outward at positions on the lengthwise edges, which are a little offset forward (upward as viewed in FIG. 1). The projected portions provide wings of the napkin 2. The wings 12 are turned onto the crotch region of underwear when the napkin 2 is used. If necessary, layers 14 of an adhesive for securing the wings to underwear may be disposed on the side of the backsheet 6 to be opposed to the underwear.

The topsheet 4 and the backsheet 6 are projected further at a rearward portion of the napkin 2 laterally outward beyond the side edge 8a of the absorbent core 8. This projection provides a wider portion 16 which prevents leakage at a longitudinally rearward portion (downward as viewed in FIG. 1). Regions of the napkin 2 corresponding to the hips of a wearer are the wider portion 16, whereby the leakage effect in these regions can be improved.

The wings 12 and the wider portions 16, which are thus formed beyond both side edge 8a of the absorbent core 8 define a neck portion 18 there between. When the napkin 2 is used, however, the wings 12 of the napkin 2 are turned back on underwear of a wearer, an d accordingly the napkin in use has substantially the same width longitudinally from the forward end 20 thereof to a base 22 of the neck portion 18 and gradually increases the width longitudinally rearward from the base 22 of the neck portion 18.

As described above, the topsheet 4 and the backsheet 6 are hot melted on each other at the hot melted region 10. This melting secures the topsheet 4 and the backsheet 6 melted on each other at parts thereof outside the forward end edge, the rearward end edge and the side edge of the absorbent core 8. The topsheet 4 and the backsheet 6 are hot melted on each other further at bases 24 of the wings 12 and bases 26 of the wider portion 16 (the hot melted regions are indicated by slant lines in FIGs. 1 and 2). The hot melting in the hot melted regions substantially secures the parts of the topsheet 4 and the backsheet 6 which lie outside the boundary edge of the absorbent core 8 therealong. Thus the absorbent core 8 is set in position inside the napkin 2.

As described above, the absorbent core 8 has substantially the same width in the longitudinal direction of the napkin 2. This shape of the absorbent core 8 decreases portions thereof to be cut off in producing the napkin 2, which contributes to lower production costs. The absorbent core 8 is absent in the wings 12 and the portions of the wider portion 16 projected beyond both side edges of the absorbent cores 8. The absence of the absorbent core 8 in the wings 12 advantageously makes the wings 12 flexible enough to be folded. In the projected portions of the wider portion 16, however, the absence of the absorbent core 8 lowers rigidity of the projected portions of the wider portion 16. To compensate the disadvantage of the insufficient rigidity, layers 28 of an adhesive a reprovided on portions of the side of the backsheet 6 to be opposed to underwear of a wearer, which (portions) are in the wider portion 16. When the napkin 2 is used, the projected portions of the wider portion 16 are spread inside the underwear of a wearer and adhered to the inside surface of the underwear by the adhesive layers 28. The adhesive layers 28 hinder the projected portions of the wider portion 16 from peeling off in contact with the body of the wearer.

FIG. 3 shows the sanitary napkin according to the embodiment of FIG. 1 with the wing 12 and the projected portions of the wider portion 16 folded. As shown in FIG. 3, the wing 12 and the projected portions of the wider portion 16 are folded on the topsheet 4 . The adhesive layers 14 on the wings 12 are covered with a release sheet 30 with a release agent, such as silicone or others applied to the surface, and the left and the right wings are interconnected with each other by the release sheet 30. The adhesive layers 28 on the projected portions of the wider portion 16 are also

covered with a release sheet 32 with a release agent, such as silicone or others, applied to the surface, and the left and the right projected portions of the wider portion 16 are interconnected with each other by the release sheet.

Thus, the portions which are projected laterally outward beyond the absorbent core 8, i.e., the wings 12 and the projected portions of the wider portion 16, are folded onto the topsheet 4 towards the transverse center of the absorbent core 8 along the side edges 8a, whereby the napkin 2 can have a small width. An individual package of t he napkin 12 can be accordingly small. The wings 12, and the projected portions of the wider portion 16 can be interconnected by their respective release sheets, whereby it is not necessary to press the wings 12 and the projected portions of the wider portions 16 folded, and the production line can be simple.

In the above-descried embodiment, the adhesive layers 3 for securing the napkin body 2 to underwear, and the adhesive layers 16 for preventing the projected portions of the wider portion 16 from peeling off the underwear are separately provided, but in place, the adhesive layers 3 and the adhesive layers 28 may be connected. In any case, it is necessary that adhesive layers are provided on the backside of the backsheet in the projected portions of the wider portion 16, where the absorbent core 8 is absent. Various design changes are possible with the scope of the present invention.

In the sanitary napkin according to the present invention, the projected portions of the wider portion of the sanitary napkin, which are positioned at rearward portions of the napkin are to be secured to the inside of underwear by means of the adhesive layers, whereby the projected portions of the wider portion are hindered from peeling off the underwear, and stably long contribute to the leakage prevention. Even in a case that because of no absorbent core in the projected portions of the wider portion positioned at t he rearward portion of the sanitary napkin, the projected portions of the wider portion have no sufficient rigidity, there is no risk that the projected portions of the wider portion may peel off.

WHAT IS CLAIMED IS

1. A sanitary napkin comprising a fluid permeable topsheet disposed on a side of the sanitary napkin, which is to be opposed to the body of a wearer, a fluid impermeable backsheet disposed on a side of the sanitary napkin, which is to be opposed to underwear of the wearer, and an absorbent core disposed between said both sheets,

the backsheet having a shape which agrees with a contour of the sanitary napkin and which is substantially elongate from the front to the back of the body of the wearer, and being wider at a rearward portion thereof corresponding to a rearward part of the body of the wearer than at a forward portion thereof corresponding to a forward part of the body of the wearer,

the absorbent core being narrower than the forward portion of the backsheet,

a first adhesive layer being disposed on a side of the backsheet to be opposed to the underwear in a region where the absorbent core is present,

second adhesive layers being disposed on the side of the backsheet to be opposed to the underwear in portions of the rearward portion of the backsheet, which is on both sides of the absorbent core and in which the absorbent core is absent, and

the first adhesive layer securing the sanitary napkin to the inside of the underwear, and the second adhesive layers securing the projected portions of the rearward portion of the backsheet spread wider inside the underwear.

2. A sanitary napkin according to claim 1, wherein the absorbent core has substantially the same width from the front to the back of the body of the wearer.

3. A sanitary napkin according to claim 2, wherein the portions of wider rearward portion of the backsheet are folded toward a longitudinal center line of the sanitary napkin along the side edges of the absorbent core.

4. A sanitary napkin according to claim 3, wherein the portions of wider rearward portion of the backsheet are folded onto the topsheet and side release sheets are applied to the adhesive layers.

5. A sanitary napkin according to claim 4, wherein the forward portions of the backsheet corresponding to the forward part of the body of the wearer are extended laterally outward beyond both sides of the absorbent core in wings which are to be folded onto a crotch region of the underwear.

6. A sanitary napkin according to claim 5, wherein the wings are provided adhesive layers and are folded onto the topsheet side toward a longitudinal center line

of the sanitary napkin along the side edges of the absorbent core, and side release sheets are applied to the adhesive layers.

Figure 1

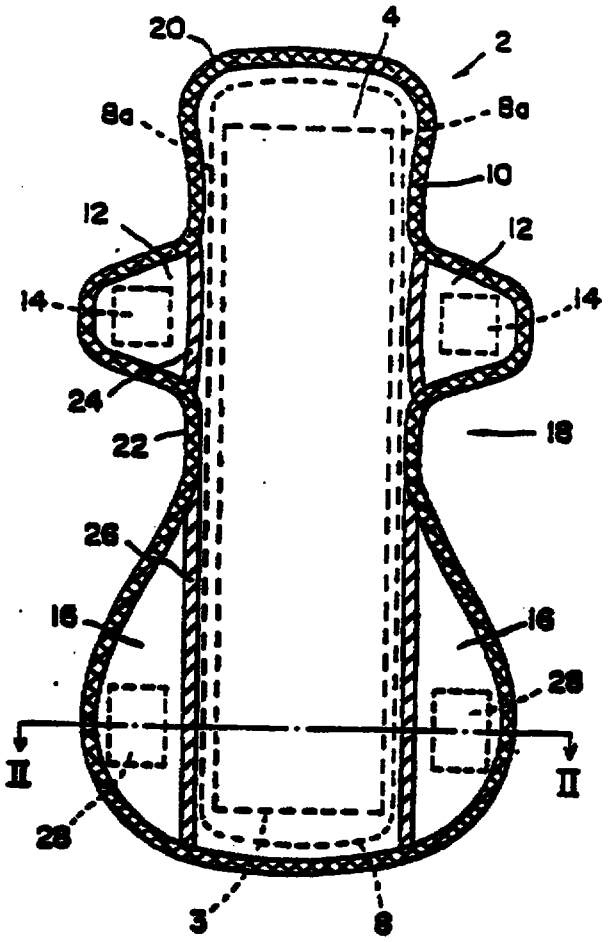


Figure 2

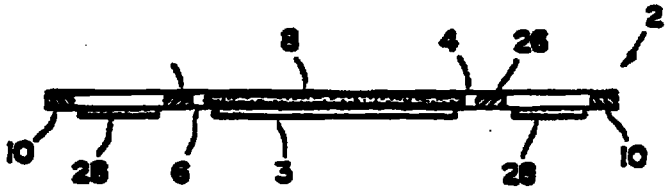
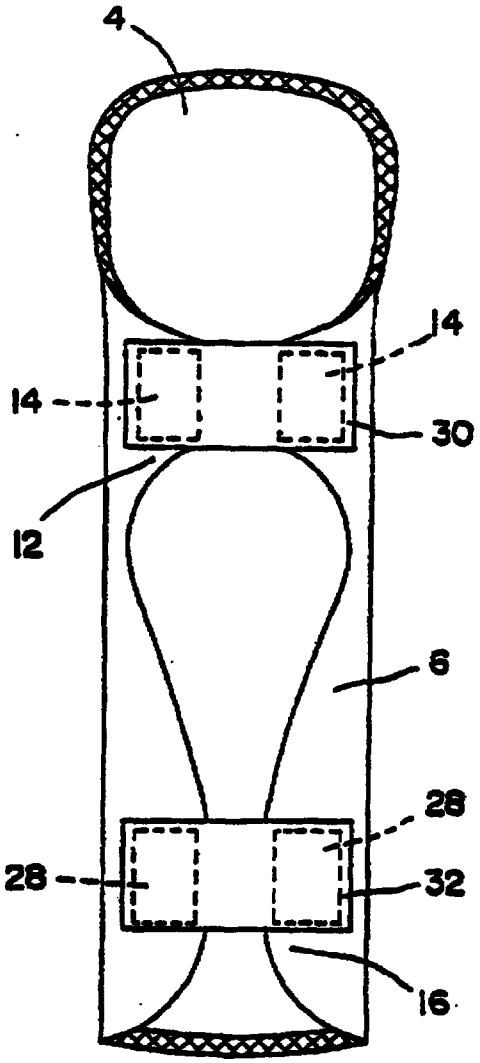


Figure 3



SG 9706030-5
RTMP
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PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : A61F 13/15 — A1

(11) International Publication Number: WO 96/38110

(43) International Publication Date: 5 December 1996 (05.12.96)

(21) International Application Number: PCT/US96/06572

(22) International Filing Date: 9 May 1996 (09.05.96)

(30) Priority Data:
7/136879 2 June 1995 (02.06.95) JP

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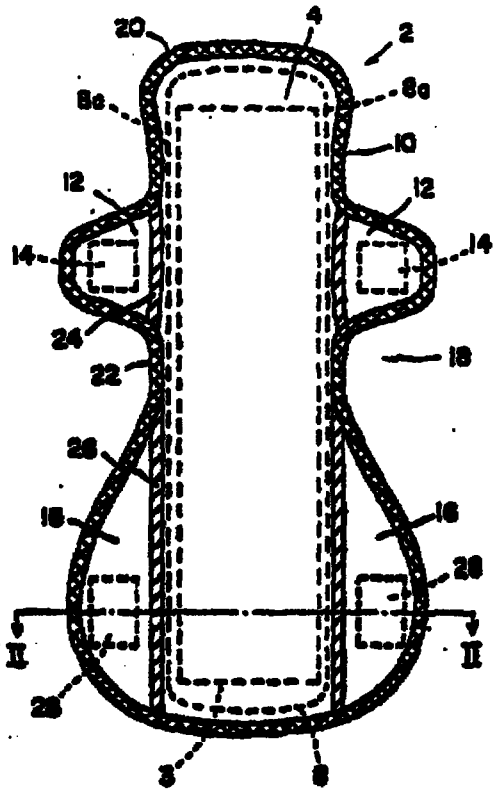
(81) Designated States: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).

Published
With international search report.

(54) Title: SANITARY NAPKIN

(57) Abstract

This invention is a sanitary napkin (2) comprising a fluid permeable top sheet (4), a fluid impermeable back sheet (6), and an absorbent core (8) disposed between said both sheets, the back sheet (6) having a shape complementary to a contour of the sanitary napkin (2), being substantially elongate, and being wider (16) at a rearward portion thereof than at a forward portion (20) thereof, the absorbent core (8) being narrower than the forward portion of the back sheet (6), a first adhesive layer (14) being disposed on a side of the back sheet (6) in a region where the absorbent core (8) is present, second adhesive layers (28) being disposed on the same side of the back sheet (6) in a rearward portion of the back sheet (6), which is on both sides of the absorbent core (8) and in which the absorbent core (8) is absent, and the first adhesive layer (14) securing the sanitary napkin to the inside of underwear, and the second adhesive layers (28) securing the rearward portion of the back sheet spread inside the underwear.