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SANITARY NAPKIN HAVING IMPROVED FLAP DISPOSITION
MONATSBINDE MIT VERBESSERTER FLÜGELANORDNUNG
SERVIETTE HYGIÉNIQUE A AGENCEMENT DE VOLETS AMÉLIORE

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Description

FIELD OF THE INVENTION

This invention is directed to sanitary napkins, and particularly to sanitary napkins having flaps. More particularly, this invention is directed to the packaging of such sanitary napkins prior to first use by the wearer.

BACKGROUND OF THE INVENTION

Sanitary napkins having flaps extending outwardly from the longitudinal side margins are well known in the art. For example, U.S. Patents 4,589,876 issued May 20, 1986, to Van Tilburg and 4,687,478 issued August 18, 1987, to Van Tilburg disclose preferred sanitary napkins with flaps and illustrates particularly preferred flapped sanitary napkin constructions.

To conserve space during packaging, i.e., the period between manufacture of the sanitary napkin and its intended first use by the wearer, the flaps of such sanitary napkins are typically folded to overlay the backsheets. At the time of the first use by the wearer, the flaps are usually unfolded to facilitate installation of the sanitary napkin into the wearer's undergarment. Typically adhesive, interposed between the backsheet and the flap adhesive release paper, is used for maintaining the flaps in the folded disposition prior to the wearer's first use of the sanitary napkin.

Several attempts have been made to provide alternative means for maintaining the flaps in the desired disposition prior to first use of the sanitary napkin by the wearer. For example, U.S. Patent 4,759,754 issued July 26, 1988, to Korpman discloses an adhesive tab which can be used for maintaining the flaps in the desired disposition overlaying the backsheet during packaging. U.S. Patent 4,701,178 issued October 20, 1987, to Glaug et al. discloses a sanitary napkin having a single release strip which covers the centrally located adhesive of the backsheet and over which release strip the flaps are folded.

WO-A-8804546 discloses a folding pattern for sanitary napkins having wings in order to facilitate disposal. This document forms the preamble of independent claim 1. GB 1-377-575 discloses sanitary napkins without wings having an adhesive panty fastening means. The method for application of the adhesive is to transfer the adhesive from a release strip to the napkin.

However, none of these attempts to improve packaging prior to the first use by the wearer have proven entirely satisfactory. For example, the wearer is typically concerned with maintaining the cleanliness, sanitary condition and appearance of the sanitary napkin's body contacting topsheet, rather than that of the sanitary napkin's garment contacting backsheet.

Further, when the wearer installs the sanitary napkin into her undergarment, the sanitary napkin is typically in the wearing position, with the topsheet facing the wearer, while she manipulates the flaps and release strip. There can be an inconvenience associated with manipulating flaps and any associated release strip which are folded over the backsheet. Flaps folded over the backsheet are behind and obscured by the sanitary napkin, so that the flaps cannot be seen while the wearer is attempting to install the sanitary napkin to her undergarment. Also, flaps folded over the backsheet have a tendency to become adhered to the adhesive of the backsheet, unless held apart.

Accordingly, it is an object of this invention to overcome certain problems of the prior art. Particularly, it is an object of this invention to provide a flap disposition which promotes the cleanliness of the topsheet of the sanitary napkin during packaging and handling by the wearer prior to the first use of the sanitary napkin. Additionally, it is an object of this invention to provide a convenient means for manipulating the flaps from the packaged arrangement to the disposition which the flaps will be used during wear. Finally, it is an object of this invention to provide an efficient process for making a sanitary napkin according to this invention.

BRIEF SUMMARY OF THE INVENTION

This invention comprises a sanitary napkin having and generally bounded by two longitudinal and two lateral side margins. The sanitary napkin has a liquid pervious topsheet, a liquid impervious backsheet that is at least partially peripherally joined to the topsheet, and an absorbent core between the topsheet and the backsheet. A flap extends laterally outwardly from each longitudinal side margin of the sanitary napkin and is folded over to the topsheet prior to the first use of the sanitary napkin by the wearer.

Several means are available for maintaining the flaps in this disposition. For example, flaps are typically provided with adhesive on the face of the flaps which is generally coextensive of the backsheet, and which adhesive is used to releasably affix the flaps to the undergarment of the wearer. A very suitable means for maintaining the flaps in the folded disposition having a topsheet facing relationship is a unitary release strip bridging such adhesive of the flaps.

BRIEF DESCRIPTION OF THE DRAWINGS

While the Specification concludes with claims particularly pointing out and distinctly claiming the present invention, it is believed the invention will be better understood from the following description taken in conjunction with the accompanying drawings wherein like parts are given the same reference numeral, analogous parts are designated with a prime symbol, related parts are designated by alphabetic characters, adhesive is shown in phantom and:

Figure 1 is a top plan view, shown partially in cutaway, of a sanitary napkin according to the present invention;
Figure 2 is a top plan view of a sanitary napkin according to the present invention having a unitary release strip bridging the flaps;

Figure 3 is a top plan view of a sanitary napkin having an H-shaped release strip bridging the flaps and shown partially unwrapped for clarity;

Figure 4 is a vertical sectional view taken along line 4-4 of Figure 3;

Figure 5 is a vertical sectional view of a sanitary napkin according to the present invention having overlapping flaps; and

Figure 6 is a schematic view of one apparatus which may be utilized to make a sanitary napkin according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

As shown in Figure 1, the invention comprises a disposable absorbent article, particularly a sanitary napkin 20. The sanitary napkin 20 is used to collect vaginal discharges, such as menses, and prevent soiling of the wearer's clothing by such discharges. The sanitary napkin 20 features a liquid pervious topsheet 22, a liquid impervious backsheet 24, an absorbent core 26 intermediate the topsheet 22 and the backsheet 24 and at least one flap 28 extending from a longitudinal side margin 30 of the sanitary napkin 20, and preferably two symmetrically opposite flaps 28, one extending from each longitudinal side margin 30 of the sanitary napkin 20. The perimeter of the sanitary napkin 20 is defined by two longitudinal side margins 30 and two lateral side margins 32.

Associated with the sanitary napkin 20 is a means, such as adhesive, for releasably affixing the sanitary napkin 20 to the undergarment of a wearer. More particularly, each flap 28 may have its own adhesive patch 40. Preferentially, such adhesive 40 is associated with the face of the flap 28 which contacts the undergarment of the wearer. Also the central portion of the sanitary napkin 20 intermediate the flaps 28 may have adhesive 42 associated with the area of the central portion of the sanitary napkin 20 which contacts the undergarment of the wearer. Preferentially such adhesive 42 is joined to the outwardly oriented face of the backsheet 24.

The sanitary napkin 20 has a longitudinal centerline 34 which conceptually divides the sanitary napkin 20 into two substantially symmetrically opposite halves. As used herein the term "longitudinal" refers to an imaginary line, axis or direction of the sanitary napkin 20, which line, axis or direction is typically centered between the longitudinal side margins 30 of the napkin and is generally aligned with the vertical plane which bisects a standing wearer into left and right body halves. The term "lateral" refers to an imaginary line, axis or direction generally orthogonal the longitudinal direction, within the plane of the sanitary napkin 20, and is generally sideways aligned relative to the wearer.

Examining the components in more detail with continuing reference to Figure 1, the topsheet 22 is the component of the garment which is oriented towards and contacts the body of the wearer, and receives bodily discharges. The topsheet 22 is liquid pervious and should be flexible and nonirritating to the skin. As used herein the term "flexible" refers to materials which are compliant and readily conform to the shape of the body or respond by easily deforming in the presence of external forces. Preferably the topsheet 22 is not noisy, to provide discretion for the wearer. The topsheet 22 should be sanitary, clean in appearance and somewhat opaque to hide the bodily discharges collected in and absorbed by the core 26.

The topsheet 22 should further exhibit good strike-through and rewet characteristics, permitting bodily discharges to rapidly penetrate the topsheet 22 to the core 26, but not flow back through the topsheet 22 to the skin of the wearer. Suitable topsheets 22 may be made from nonwoven materials or perforated polyolefin films.

The topsheet 22 has a plurality of apertures to permit liquids deposited thereon to pass through to the core 26. Such apertures may, but need not, be present in the flaps 28. An apertured polyolefinic film topsheet 22 having about 5 to about 60 percent open area, typically about 25 percent open area, and a thickness of about 0.01 to about 0.05 millimeters prior to aperturing and about 0.46 to about 0.51 millimeters after aperturing is suitable.

If desired, the topsheet 22 may be sprayed with a surfactant to enhance fluid penetration to the core 26. The surfactant is typically nonionic and should be nonirritating to the skin. A surfactant density of about 0.01 milligrams per square centimeter of topsheet 22 area is suitable. A suitable surfactant is sold by the Glyco Chemical, Inc. of Greenwich, Connecticut as Pegosperse 200 ML.

A particularly suitable topsheet 22 may be made in accordance with U.S. Patent 4,342,314 issued August 3, 1982 to Radal et al. and U.S. Patent 4,463,045 issued July 31, 1984 to Ahr et al.,

A topsheet 22 made of model X-3265 or model P1552 apertured formed film sold by the Ethyl Corporation, Visqueen Division, of Terre Haute, Indiana has been found to work well.

The backsheet 24 may be any flexible, liquid resistant, preferably liquid impervious material, such as a polyolefinic film. The backsheet 24 prevents discharges collected by and contained in the sanitary napkin 20, and particularly discharges absorbed by the core 26, from escaping the sanitary napkin 20 and soiling the clothing and bedding of the wearer. Preferably the backsheet 24 is not noisy, to provide discretion for the wearer.

The backsheet 24 may also be impervious to malodorous gases generated by absorbed bodily discharges, so that the malodors do not escape and become noticed by the wearer. A low density polyethylene backsheet 24 about 0.01 to about 0.05 millimeters in thickness, preferably about 0.02 millimeters in thickness, has been found to work well. A polyethylene film,
The absorbent core 26 is the means for collecting and containing bodily discharges, particularly menses, deposited thereon or which otherwise traverses through the liquid permeable topsheet 22. The core 26 is the component of the sanitary napkin 20 which receives and retains the bodily discharges. The core 26 is conformable and nonirritating to the skin. The core 26 may be rectangularly or hourglass shaped. The core 26 preferably has two opposed faces, one oriented towards the backsheet 24 and one oriented towards the topsheet 22.

Suitable materials for the core 26 include combinations of airfelt, such as cellulose wadding, and fibrated comminution pulp; layers of tissue paper; and absorbent gelling materials. If a tissue paper core 26 is selected, tissue paper made in accordance with U.S. Patent 4,191,609 issued March 4, 1980 to Trokan. If it is desired to incorporate absorbent gelling materials into the core 26 of the sanitary napkin 20, absorbent gelling materials made in accordance with U.S. Patent Re. 32,649 issued April 19, 1988 to Brandt et al. A suitable laminate of absorbent gelling materials and tissue may be purchased from the Grain Processing Corporations of Muscaville, Iowa under Model Number LS35.

The core 26 need not have a total absorbent capacity much greater than the total amount of bodily discharges to be absorbed. The core 26 is preferably narrow and thin, to be comfortable to the wearer. For the embodiment described herein the capacity of the core 26 should be at least about 2 grams of 0.9 percent saline solution. Suitable saline solution is sold by Traverse Laboratories of Deerfield, Illinois.

The core 26 should be sized to register with the topsheet 22 and backsheet 24. The core 26 is preferably interposed between the topsheet 22 and backsheet 24 to prevent the absorbent material of the core 26 from shredding or becoming detached while the sanitary napkin 20 is worn and to ensure proper containment of bodily discharges. This arrangement also helps to provide for a unitary assembly.

The sanitary napkin 20 preferably has a caliper of less than about 4 millimeters and more preferably less than about 2 millimeters, as measured with a comparatgage having an approximately 80.0 gram test weight, an approximately 10.0 gram comparator foot having a diameter of about 2.54 centimeters and a contact surface area of approximately 5.1 square centimeters. Also, the sanitary napkin 20 of the present invention should have a topsheet 22 surface area of at least about 100 square centimeters to prevent discharged fluids from missing the target area.

The core 26 is preferentially joined to the topsheet 22, and may be joined to the backsheet 24. Joining is preferentially accomplished by adhesive bonding the core 26 to the topsheet 22 or the backsheet 24. Such adhesive (not shown) may be applied in any suitable spray pattern, such as a spiral or longitudinally oriented beads. The adhesive should be surfactant resistant and
of low pressure sensitivity, so as not to stick to the skin of the wearer.

The sanitary napkin 20 also comprises a flap 28 extending from a longitudinal side margin 30 of the sanitary napkin 20, and preferably one flap 28 extending from each longitudinal side margin 30 of the sanitary napkin 20. The flaps 28 have a proximal end 36 which is typically coincident with the juncture of attachment of the flap 28 to the longitudinal side margin 30 of the sanitary napkin 20 or, alternatively, the proximal end 36 of the flap 28 may be joined to the sanitary napkin 20 at any other location juxtaposed with the longitudinal side margin 30. The flaps 28 extend laterally outwardly from the sanitary napkin 20 and terminate at a distal end 38 which represents the point of the flap 28 furthest from the longitudinal axis 34 of the sanitary napkin 20. The flaps 28 may be of any shape desired, with one preferred shape being shown in Figure 1.

The flaps 28 are laterally outboard of the longitudinal centerline 34 and central portion of the sanitary napkin 20. As used herein the phrase "central portion" refers to that part of the sanitary napkin 20 intermediate, particularly laterally intermediate, and defined by the proximal ends 36 of the flaps 28.

The flaps 28 may be comprised of an integral and contiguous extension of the topsheet 22, the backsheet 24, or a laminate of both. Alternatively, the flaps 28 may be made of a separate and independent piece of material joined to the longitudinal side margin 30 of the sanitary napkin 20.

Each flap 28 has one face generally coextensive of the topsheet 22 and a mutually opposed face generally coextensive of the backsheet 24. Faces are considered to be coextensive of the topsheet 22 or backsheet 24 if a line having a lateral component can be drawn from the central portion of the topsheet 22 or the backsheet 24 respectively, crosses a side margin 30 or 32 at the perimeter of the sanitary napkin 20, and intercepts such face.

The flaps 28 preferably have a means 40 for attaching one face of the flap 28 to the wearer's undergarment or to the other flap 28. The attachment means may be pressure sensitive adhesive 40. If pressure sensitive adhesive 40 is selected, it should be disposed on the face of the flap 28 generally coextensive of the backsheet 24 so that when the flaps 28 are wrapped around the crotch portion of the wearer's undergarment, the adhesive 40 will contact the outside of the wearer's undergarment. A generally rectangular patch of adhesive 40 on each flap 28, about 25 millimeters x 20 millimeters in size works well. Suitable pressure sensitive adhesive 40 is sold by the Anchor Continental, Inc., 3 Sigma Division of Covington, Ohio as 0.02 millimeter pass with Century Adhesive A305-4.

For packaging, including shipment and sale, the flaps 28 are folded over the topsheet 22 so that the flaps 28 are in a disposition having the topsheet facing relationship of Figures 1 - 5. The flaps 28 are considered to be in a topsheet facing relationship if a line generally perpendicular to the plane of the sanitary napkin 20 is drawn outwardly from the topsheet 22 and intercepts either face of the flap 28. The flaps 28 are preferably folded about the longitudinal lines generally coincident the proximal edges 36 of the flaps 28, so that the maximum area of the topsheet 22 may be covered by the flaps 28. This provides a larger area of the topsheet 22 which is protectively overlaid by the flaps 28, and particularly the area of the topsheet 22 which is generally registered with the wearer's vagina, so that a sanitary and clean appearance and condition of the topsheet 22 is maintained. It is not necessary that the flaps 28 be folded about the line generally coincident the proximal edge 36, that the flaps 28 be in contacting relationship with the topsheet 22, or that no other folds between the distal and proximal ends 36 and 38 of the flaps 28 occur.

Folding the flaps 28 in the configuration of Figure 1 exposes the patch 40 of adhesive on the face of the flaps 28 generally coextensive of the backsheet 24. To prevent contamination and blocking of this patch 40, the adhesive patch 40 of each flap 28 may be covered with a separate and dedicated piece of release strip 46.

The various embodiments of release strips 46 described herein may be advantageously made of kraft paper, calendered paper, or any other materials well known in the art for such purpose. Machine glazed or machine finished paper having a basis weight of about 40.7 x 10⁻³ kilograms per square meter (25 pounds/3,000 square feet) works well. However, the invention disclosed and claimed herein is by no means limited to any particular material selection.

Preferably the face of the release strip 46 which contacts the adhesive patches 40 has a release coating, such as silicone, to easily facilitate the removal of the release strip 46 from the flaps 28. Suitable release coatings are marketed by Akrosil of Menasha, Wisconsin as Silox 4R/O and as Silox C15.

If desired, the outwardly oriented face of the release strip 46 may further comprise indicia, such as advertising or wearer instructions, thereon. The use of indicia is even more advantageous with the unitary release strip 46 of Figure 2, because of the increased visual impact presented by the larger surface area of such unitary release strip 46'.

Furthermore, the sanitary napkin 20 is preferably provided with a means for maintaining the flaps 28 in the topsheet facing relationship of Figure 1 during packaging and prior to first use by the wearer. As used herein the "first use by the wearer" refers to the initial installation of the sanitary napkin 20 into the undergarment, so that the sanitary napkin 20 may begin to perform the intended function of collecting vaginal discharges.
One suitable means (not shown) for maintaining the topsheet facing relationship comprises a small patch of adhesive disposed on the face of each flap 28 generally coextensive of the topsheet 22. By contacting this face of the flap 28 against the topsheet 22, the adhesive will adhere the flap 28 to the outwardly oriented face of the topsheet 22 until the flap 28 is detached by the wearer or premature, undesired separation occurs. Any adhesive FDA approved for contact with human skin is suitable. The adhesive may be either hot melt or preferably water based latex. Suitable adhesives are sold by the Findley Adhesive Company of Columbus, Ohio under the Model Nos. L8082-02 and H2128-01.

Referring to Figure 2, a more preferred means for maintaining the flaps 28 in the topsheet facing relationship is a unitary release strip 46 adhered to each patch 40 of adhesive on the flaps 28 and bridging both flaps 28. A component, such as a release strip 46, is considered "unitary" if it cannot be divided or disassembled without tearing or unintended gross separation. It is not necessary that a unitary component be made of a single material but, rather that such component cannot disassembled from and subsequently reassembled into the original configuration. Components are considered to be "bridged" if they do not overlap and are connectively spanned by an independent component.

This unitary arrangement provides the advantage that the flaps 28 cannot be unfolded from the topsheet-facing relationship without detaching the unitary release strip 46 and, concomitantly advantageously, the adhesive patches 40 of the flaps 28 are covered.

Preferably, but not necessarily, the release strip 46, or at least the portion of the release strip 46 which bridges the flaps 28, is longitudinally bounded by the flaps 28. As used herein, a component or portion thereof is considered to be "longitudinally bounded" by the flaps 28 if such component or portion does not extend longitudinally outward, i.e., away from the lateral centerline, of the flaps 28. By being longitudinally bounded by the flaps 28, the release strip 46 is prevented from having substantial contact with the topsheet 22 where adhesive attachment means are typically not disposed, and an economically advantageous conservation of material occurs.

It is important that the release strip 46 be conveniently and easily manipulated by the wearer. This is because the sanitary napkin 20 is frequently attached to the crotch of the wearer's undergarment when the release strip 46 is to be removed. With a sanitary napkin 20 having a unitary release strip 46, according to this invention, the wearer can see the flaps 28 in the advantageous topsheet facing relationship of Figures 1 and 2, can see the release strip 46 while it is being removed and can further see the flaps 28 and adhesive patches 40 thereon while they are being manipulated into the wearing arrangement to which the wearer is accustomed. The wearer attaches the central adhesive 42 to the crotch of her undergarment, peels off the release strip 46, typically starting at either lateral edge, folds the flaps 28 around the edges of the crotch of the undergarment, and attaches the flaps 28 to the outside of the undergarment using the flap adhesive 40.

In yet another embodiment (not shown) a tricomponent release strip 46 may be utilized. Such a release strip 46 has components made from a first material and which components are in contact relationship with each adhesive patch 40. The first material components are then joined by a different second material which bridges the first material components and thus the flaps 28. This arrangement provides the advantage that less expensive materials may be utilized in the release strip 46.

In a variant embodiment of Figure 2 (not shown) the unitary release strip 46 may further comprise a means for initiating removal of the release strip 46 at or near its center, preferably at the longitudinal centerline 34, rather than initiate removal at either lateral edge of the release strip 46. This may be accomplished, for example, by any appendage to the release strip 46 which enables it to be grasped near the longitudinal centerline 34 of the sanitary napkin 20. For example, the release strip 46 may be T-shaped in cross section having a tab which the user may grasp, or the release strip 46 may be looped upon itself to provide a double thickness of material which is not joined near the longitudinal centerline 34, and only joined near the lateral edges of the release strip 46.

Referring to Figure 3, one nonlimiting variation of the aforementioned invention is a sanitary napkin 20 having a unitary H-shaped unitary release strip 46x. This release strip 46x is preferably generally symmetric about the longitudinal centerline 34, and the lateral centerline of the sanitary napkin 20. The H-shaped release strip 46x has two substantially longitudinally oriented legs 46xa joined by a crossbar 46xb. The crossbar 46xb, as described relative to Figure 2, bridges and is longitudinally bounded by the flaps 28 and covers the adhesive patches 40 joined to the outwardly oriented face of the flaps 28 generally coextensive of the backsheet 24. Either the crossbar 46xb or the legs 46xa may wrap the longitudinal side margins 30 of the sanitary napkin 20.

As illustrated by Figure 4, this arrangement allows the legs 46xa of the release strip 46x to overlay the outwardly oriented face of the backsheet 24 and cover the adhesive strips 42 joined to the central portion of the backsheet 24. In this manner, a unitary release strip 46x performs the functions of maintaining the flaps 28 in the topsheet facing relation, covering the adhesive patches 40 of the flaps 28, and covering the adhesive patches 42 of the central portion of the backsheet 24.

To install the sanitary napkin 20, the wearer merely unwraps the legs 46xa of the release strip 46x, exposing the backsheet 42 and the adhesive thereon. The wearer may then attach the central portion of the sanitary napkin 20 to the crotch of her undergarment, then detach the crossbar 46xb so that the flaps 28 are free to be unfolded. The sanitary napkin 20 may then be installed in the manner described above.
Referring to Figure 5, in yet another embodiment, the means for maintaining the flaps 28 in the topsheet facing relationship comprises mutually overlapping flaps 28 which are releasably affixed to each other. Disposed on the face of one flap 28, which face is generally coextensive of the backsheets 24, is a patch of adhesive 40. The flap 28 having such adhesive 40 is the first flap 28 of the two flaps 28, to be folded over the backsheets 22 and is generally adjacent the topsheet 22 while folded. The second flap 28 is folded over the first flap 28.

In this configuration, the adhesive 40 of the first flap 28 may contact the face of the second flap 28 generally coextensive of the topsheet 22. It will be apparent that such adhesive 40 should be disposed on a portion of the first flap 28 which is overlapped by the second flap 28. In this manner, the opposed faces of each flap 28 are mutually releasably affixed by such adhesive 40 and the flaps 28 are maintained in the mutually overlapping, topsheet facing relationship. If desired, the adhesive 40 may be partially covered by a release strip (not shown).

Referring to Figure 6, disclosed is an apparatus 100 and the associated process for carrying out the claimed invention. It is to be recognized that similar apparatus and processes are known and have been used in the art of applying adhesive 42 to the backsheet 24 of a sanitary napkin 20 having a conventional packaging disposition. More particularly, disclosed herein is a process for applying the adhesive 40 and release strip 46 to a sanitary napkin 20 provided in a generally flat, nonwinkled disposition, with the flaps 28 prefolded into the aforementioned topsheet facing relationship, and the face of the flaps 28 generally coextensive of the backsheets 24 exposed to the apparatus 100.

The apparatus 100 comprises a conveyor 110, a means 112 for unwinding a roll of material 116; a means for cutting such material 116, such as a rotary knife 102 and a stationary avnil 104; and a means for transferring segments 118 of material 116 cut from the roll, such as a rotary vacuum head 106. The rotary knife 102 and rotary vacuum head 106 may be associated by and mounted on a rotating assembly 108. All of such components are synchronized to and used in conjunction with a production assembly line having a conveyor 110 that transports the sanitary napkins 20.

The apparatus is provided with a longitudinally tri-sectioned roll (not shown). As used herein a roll which is "longitudinally tri-sectioned" has three distinct zones, each laterally offset from the other. It will be apparent that the longitudinal direction of the roll of material 116 need not be coincident with the longitudinal direction of the sanitary napkin 20 to which a discrete segment 118 of the material from the roll is later applied.

The material 116 of the roll comprises any suitable release strip material 40 and adhesive 46, such as those described above. Preferably the parent material component of the roll comprises a release strip material 46 having mutually opposed first and second faces. The first face has two outboard trisections 122, each with a release coating, such as the aforementioned silicone, thereon. The two outboard trisections 122 are separated by a central trisection 124 intermediate the outboard trisections 122. The central section 124 may or may not have a release coating, as desired.

Each outboard trisection 102 is further provided with longitudinally oriented adhesive 40. The adhesive 40 may be continuous throughout the outboard trisections 122 or may be intermittent, as desired. The adhesive 40 may be applied by hot melting onto the roll 116 as it is unwound or, alternatively, the roll 116 may be precoated with the adhesive 40 prior to being wound into the rolled configuration. If the latter arrangement is selected, the release strip material 46 of roll 116 should be further release coated on the second face, so that the roll 116 does not stick to itself when the roll 116 is attempted to be unwound. Under either configuration, the release strip-adhesive combination 46 and 40 is unitary as provided by the roll 116.

Preferably, the discrete segments 118 have a pitch corresponding to the longitudinal dimension of the sanitary napkin 20. As herein "pitch" refers to the longitudinal distance between corresponding points of adjacent sanitary napkins 20 as they are transported on the conveyor 110. The conveyor 110 may be provided with a vacuum means (not shown) for temporarily holding the sanitary napkins 20 to the underside of conveyor 110. In this configuration, the flaps 28 of the sanitary napkins 20 may be downwardly folded over the topsheets 22 so that the faces of the flaps 28 generally coextensive of the backsheets 24 are exposed.

It is to be recognized a sanitary napkin 20 may be joined to or separated from the adjacent sanitary napkins 20 while on the conveyor 110. Thus, depending upon the final trimming of the sanitary napkin, the segments 108 cut from roll 116 may have a pitch less than or equal to that of the pitch of the sanitary napkin 20.

The process of supplying and segmenting material 116 from the roll may be accomplished by using the disclosed apparatus 100 as follows. The material 116 is fed from the roll (not shown) through the tracking and V-rolls 126 to the stationary avnil 104. The rotating assembly 108 comprises two oppositely disposed rotary knives 102 and two oppositely disposed rotary vacuum heads 106, so that for each one-half rotation of the rotary assembly 108, a sanitary napkin 20 may be manufactured according to the present invention.

Each rotary knife 102 and rotary vacuum head 106 is geared to the rotary assembly 108 in a known fashion, so that the rotary knife 102 and rotary vacuum head 106 face towards the conveyor 110 throughout the entire cycle. As the material 116 is fed to the stationary avnil 104, one rotary knife 102 cuts a segment 118 from the material 100. The segments 118 are cut to a predetermined length by the rotary knife 102 dependent upon the rotation frequency of the rotary knife 102 and speed at which the material 116 is fed from the roll through the stationary avnil 104. The length of a segment 118 cut from the tri-sectioned roll 116 preferably corresponds to
the length of the segment 118 desired to be applied to the finished product, as illustrated in Figure 2.

The cut segment 118 is held in the proper longitudinal orientation relative to the sanitary napkin 20 and transported from the stationary anvil 104 to the conveyor 110 by the rotary vacuum head 106. The segment 118 of adhesive 40 and release strip 46 is then generally contemporaneously applied to the exposed faces of the flaps 28 generally coextensive of the backsheet 24, so that the adhesive 40 of the cut segment 118 is in contacting relationship with such faces.

It will be apparent to one skilled in the art that several variations may be made without departure from the scope of the claimed invention. For example, asymmetric structures are possible, single flap sanitary napkins 20 are known in the art, and combinations of the aforementioned embodiments are feasible.

Claims

1. A sanitary napkin (20) having two longitudinal (30) and two lateral (32) side margins, said sanitary napkin (20) comprising:
   a liquid pervious topsheet (22);
   a liquid impervious backsheet (24) at least partially peripherally joined to said topsheet (22);
   an absorbent core (26) intermediate said topsheet (22) and said backsheet (24); and
   two flaps (28), one extending outwardly from each longitudinal side margin (30) of said sanitary napkin (20),
   said sanitary napkin (20) being characterized in that
   said flaps (28) being folded over said topsheet (22) prior to first use of the sanitary napkin (20) by the wearer, and further comprising a means for maintaining said flaps (28) in said topsheet (22) facing relationship.

2. A sanitary napkin (20) according to claim 1 characterized in that
   said flaps (28) have two opposed faces, a first face generally coextensive of said topsheet (22) and a second face generally coextensive of said backsheet (24), said flaps (28) being folded over said topsheet (22) so that said generally coextensive surfaces of said flaps (28) are oriented towards said topsheet (22) in a topsheet (22) facing relationship, each said second face generally coextensive of said backsheet (24) further comprising an adhesive patch (40) thereon; and

3. A sanitary napkin (20) according to Claims 1 and 2 characterized by having first and second mutually overlapping flaps (28) characterized in that a first flap (28) is generally adjacent the topsheet (22) and the second flap (28) overlays said first flap (28), and said means for maintaining said flaps (28) in said topsheet (22) facing relationship comprises adhesive (40') disposed on the face of said first flap (28) generally coextensive of said backsheet (24) and within the portion of said first flap (28) which is overlapped by said second flap (28).

4. A sanitary napkin (20) according to claim 2 characterized by having a longitudinal centerline, (34) and said backsheet (24) having opposed inwardly and outwardly oriented faces with at least one patch of adhesive (42) joined to said outwardly oriented face of said backsheet; and said
   unitary release strip (46") laterally extending around at least one longitudinal side margin (30) of said sanitary napkin (20) and being removably affixed to said adhesive patch (42) joined to said outwardly oriented face of said backsheet (24).

5. A sanitary napkin (20) according to Claim 4 characterized in that said adhesive patch (42) joined to said outwardly oriented face of said backsheet (24) comprises first and second generally longitudinally oriented strips of adhesive (42), one said strip laterally disposed on each side of the longitudinal centerline (34) of said sanitary napkin (20), and said release strip (46") laterally wraps both longitudinal side margins (30) and is releasably affixed to said first and said second strips of adhesive (42) joined to said outwardly oriented face of said backsheet (24).

6. A sanitary napkin (20) according to any of the foregoing Claims, characterized in that said napkin (20) comprises means to initiate removal of said release strip (46', 46", 46") from said sanitary napkin (20) near the center of said release strip (46, 46', 46"), and preferably characterized in that said means to initiate removal of said release strip (46, 46', 46") near the center of said release strip (46, 46', 46") comprises a tab or a loop.

7. A process for applying adhesive (40) and release strip (46', 46") to a sanitary napkin (20) having a liquid pervious
backsheet (24) at least partially peripherally joined to said topsheet (22), an absorbent core (26) intermediate said topsheet (22) and said backsheet (24), two longitudinal side margins (30), a flap (28) extending outwardly from each longitudinal side margin (30) and folded over said topsheet (22) to expose a face of said flap (28) generally coextensive of said backsheet (24), said process comprising the steps of:

providing a sanitary napkin (20) in a generally flat position with said backsheet (24) exposed;

providing a longitudinally trisectioned roll (116) comprising:

a release strip (46', 46") having opposed first and second faces, said first face having two outboard trisections (122), each with a release coating thereon, a central trisection intermediate (124) said outboard trisections (122), and two longitudinally oriented adhesive segments, one overlying each said outboard trisection (122); cutting said trisectioned roll (116) to a predetermined length, and;

generally contemporaneously applying said adhesive (40) and said release strip (46', 46") to said exposed faces of said flaps (28) generally coextensive of said backsheet (24) of said sanitary napkin (20) with said adhesive (40) in contacting relationship with said faces.

8. The process according to Claim 7 characterized in that said adhesive (40) is applied to said outboard trisections (122) of said roll by hot melting the adhesive (40) onto said roll (116), and preferably characterized in that said adhesive (40) is substantially longitudinally continuously applied to said roll.

9. The process according to Claim 7 characterized in that said adhesive (40) segments have a pitch corresponding to, and said roll (116) is cut to a length corresponding to, the longitudinal dimension of said sanitary napkin (20).

10. The process according to Claim 7 characterized in that said roll (116) is release coated on said second face.

**Patentansprüche**

1. Damenbinde (20) mit zwei Längs- (30) und zwei Quer-Seitenrändern (32), welche Damenbinde (20) umfaßt:

- eine flüssigkeitsdurchlässige Decklage (22),

- eine flüssigkeitsundurchlässige Unterlage (24), die zumindest teilweise umfangsseitig mit der Decklage (22) verbunden ist,

- einen absorbierenden Kern (26) zwischen der Decklage (22) und der Unterlage (24), und

- zwei Klappen (28), von denen sich jeweils eine nach außen von jedem Längs-Seitenrand (30) der Damenbinde (20) erstreckt, wobei die Damenbinde (20) dadurch gekennzeichnet ist, daß vor der ersten Benutzung der Damenbinde (20) durch den Träger die Klappen (28) auf die Decklage (22) Träger gefaltet sind und weiterhin Mittel zum Halten der Klappen (28) in einer der Decklage (22) zugewandten Lagebeziehung aufweisen.

2. Damenbinde (20) nach Anspruch 1, dadurch gekennzeichnet, daß die Klappen (28) zwei gegenüberliegende Seiten aufweisen, nämlich eine erste Seite, die im wesentlichen zusammen mit der Decklage (22) verläuft, und eine zweite Seite, die im wesentlichen zusammen mit der Unterlage (24) verläuft, welche Klappen (28) so auf die Decklage (22) gefaltet sind, daß im wesentlichen gemeinsam verlaufende Oberflächen der Klappen (28) in Richtung der Decklage (22) in einer Lagebeziehung orientiert sind, in der sie der Decklage (22) zugewandt sind, wobei jede zweitgenannte im wesentlichen mit der Unterlage (24) gemeinsam verlaufende Seite weiterhin einen Klebstofffleck (40) darauf aufweist; und

- einen einstückigen Ablösestreifen (46'), der die Klebstoffflecken (40) auf den zweitgenannten Seiten der Klappen (28) überbrückt.

3. Damenbinde (20) nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß sie erste und zweite sich gegenseitig überlappende Klappen (28) aufweist, dadurch gekennzeichnet, daß eine Klappe (28) im wesentlichen bei der Decklage (20) liegt und eine zweite Klappe (28) über der ersten Klappe (28) liegt, und daß die Mittel zum Halten der Klappen (28) in der Lagebeziehung, in der diese der Decklage (22) zugewandt sind, Klebstoff (40') umfaßt, der auf der Seite der ersten Klappe (28), die im allgemeinen zusammen mit der Unterlage (24) verläuft, und innerhalb des Abschnittes der ersten Klappe (28) angeordnet ist, der von der zweiten Klappe (28) überlappt wird.

4. Damenbinde (20) nach Anspruch 2, dadurch gekennzeichnet, daß sie eine längsgerichtete Mittellinie (34) aufweist und daß die Unterlage (24) zwei entgegengesetzt nach innen und außen aufweisende Flächen mit zumindest einem Flecken von Klebstoff (42) aufweist, der mit der nach außen gerichteten Fläche der Unterlage verbunden ist; und daß der einstückige Ablösestreifen (46') sich seitlich um zumindest einen Längs-Seitenrand (30)
der Damenbinde (20) erstreckt und lösbar an dem Klebstofffleck (42) befestigt ist, der auf der nach außen gerichteten Seite der Unterlage (24) angebracht ist.

5. Damenbinde (20) nach Anspruch 4, dadurch gekennzeichnet, daß der auf der nach außen gerichteten Seite der Unterlage (24) angebrachte Klebstofffleck (42) erste und zweite im wesentlichen in Längsrichtung orientierte Klebstoffstreifen (42) umfaßt, wobei ein solcher Streifen seitlich auf jeder Seite der längsgerichteten Mitte (34) der Damenbinde (20) angeordnet ist und der Ablösestreifen (46°) seitlich beide Längs-Seitenränder (30) umhüllt und lösbar mit dem ersten und zweiten Klebstoffstreifen (42) verbunden ist, die mit der nach außen gerichteten Seite der Unterlage (24) verbunden ist.


7. Verfahren zur Anbringung von Klebstoff (40) und eines Ablösestreifens (46, 46°) an einer Damenbinde (20), die eine flüssigkeitsdurchlässige Decklange (22), eine flüssigkeitsdurchlässige Unterlage (24), die zumindest teilweise umfangs- seitig mit der Decklange (22) verbunden ist, einen absorbierenden Kern (26) zwischen der Decklange (22) und der Unterlage (24), zwei Längs-Seitenränder (30), eine sich nach außen von jedem Längs- Seitenrand (30) erstreckende und auf die Decklange (22) gefaltete Klappe (28) aufweist, um eine Seite der Klappe (28) im wesentlichen zusammen mit der Unterlage (24) verlaufend anzuordnen, welches Verfahren nachstehende Verfahrensschritte aufweist:

Schaffen einer Damenbinde (20) in einer im wesentlichen flachen Position, wobei die Unterlage (24) offenliegt.

Schaffen einer in Längsrichtung dreigeteilten Rolle (116) umfassend:

einen Ablösestreifen (46°, 46°), der gegenüberliegende erste und zweite Streifen aufweist, welche erste zwei außenseitige Dreiteilungen (122), jede mit einer Ablösebeschichtung darauf, eine zentrale Dreiteilung (124) zwischen den außenseitigen Dreiteilungen (122) und zwei in Längsrichtung orientierte Klebstoffsegmente aufweist, von denen jedes über der jeweiligen außenseitigen Dreiteilung (122) liegt;

Schneiden der dreigeteilten Rolle (116) auf eine vorbestimmte Länge, und;

im wesentlichen gleichzeitigiges Anbringen des Klebstoffes (40) und des Ablösestreifens (46°, 46°) auf den offnenden Seiten der Klappen (28), die im allgemeinen zusammen mit der Unterlage (24) der Damenbinde (20) verlaufen, wobei der Klebstoff (40) in Kontaktbeziehung mit den begrenzten Seiten steht.

8. Verfahren nach Anspruch 7, dadurch gekennzeichnet, daß der Klebstoff (40) auf die außenseitigen Dreiteilungen (122) der Rolle durch Heißschmelzen des Klebstoffes (40) auf die Rolle (116) aufgebracht wird, und vorzugsweise dadurch gekennzeichnet, daß der Klebstoff (40) im wesentlichen in Längsrichtung kontinuierlich auf die Rolle (116) aufgebracht wird.

9. Verfahren nach Anspruch 7, dadurch gekennzeichnet, daß die Klebstoffsegmente (40) eine Teilung aufweisen und die Rolle (116) auf eine Länge geschnitten wird, die dem Längenmaß der Damenbinde (20) entspricht.

10. Verfahren nach Anspruch 7, dadurch gekennzeichnet, daß die Rolle (116) auf ihrer zweiten Seite lösemittelbeschichtet ist.

Revendications

1. Serviette hygiénique (20) ayant deux lisières de côté longitudinales (30) et latérales (32), ladite serviette hygiénique (20) comprenant :

- une feuille de dessus perméable aux liquides (22) ;

- une feuille de fond imperméable aux liquides (24) réunie, au moins partiellement à la périphérie, à ladite feuille de dessus (22);

- une âme absorbante (26) disposée entre ladite feuille de dessus (22) et ladite feuille de fond (24) ;

- deux rabats (28), l'un s'étendant à l'extérieur à partir de chaque lisière de côté longitudinale (30) de ladite serviette hygiénique (20).

ladite serviette hygiénique (20) étant caractérisée en ce que lesdits rabats (28) sont repliés sur ladite feuille de dessus (22) avant une première utilisation de la serviette hygiénique (20) par l'utilisateur, et comportant, en outre, un moyen pour maintenir les-
dits rabats (28) dans ladite feuille de dessus (22) de manière à ce qu’ils soient situés en regard par rapport à celle-ci.

2. Serviette hygiénique (20) selon la revendication 1, caractérisée en ce que lesdits rabats (28) ont deux faces opposées, une première face ayant généralement les mêmes dimensions que ladite feuille de dessus (22) et une seconde face ayant généralement les mêmes dimensions que ladite feuille de fond (24), lesdits rabats (28) étant repliés sur ladite feuille de dessus (22) de telle sorte que lesdites surfaces ayant généralement les mêmes dimensions que ladite feuille de dessus (22) soit orientées vers ladite feuille de dessus (22) dans une feuille de dessus (22) située en regard par rapport à ceux-ci, chaque dite seconde face ayant généralement les mêmes dimensions que ladite feuille de fond (24) et comportant, en outre, une pièce d’adhésif (40) sur celle-ci ; et une bande de dégagement unitaire (46) reliant lesdites pièces d’adhésif (40) desdites secondes faces desdits rabats (28).

3. Serviette hygiénique (20) selon les revendications 1 et 2, caractérisée en ce qu’elle comporte un premier et un second rabats (28) se recouvrant mutuellement et caractérisée en ce qu’un premier rabat (28) est généralement adjacent à la feuille de dessus (22) et en ce que le second rabat (28) recouvre ledit premier rabat (28), et ledit moyen pour maintenir lesdits rabats (28) dans ladite feuille de dessus (22) situé en regard par rapport à celle-ci comporte un adhésif (40) disposé sur la face dudit premier rabat (28) généralement de mêmes dimensions que ladite feuille de fond (24) et dans la partie dudit premier rabat (28) qui est recouverte par ledit second rabat (28).

4. Serviette hygiénique (20) selon la revendication 2, caractérisée en ce qu’elle comporte une ligne médiane longitudinale (34) et en ce que ladite feuille de fond (24) comporte des faces opposées orientées vers l’intérieur et vers l’extérieur avec au moins une pièce d’adhésif (42) réunie à ladite face orientée vers l’extérieur de ladite feuille de fond ; et ladite bande de dégagement unitaire (46”) s’étendant latéralement autour d’eul moins une lisière de côté longitudinale (30) de ladite serviette hygiénique (20) et étant fixée, de façon amovible, à ladite pièce d’adhésif (42) réunie à ladite face orientée vers l’extérieur de ladite feuille de fond (24).

5. Serviette hygiénique (20) selon la revendication 4, caractérisée en ce que ladite pièce d’adhésif (42), réunie à ladite face orientée vers l’extérieur de ladite feuille de fond (24), comporte une première et une seconde bandes d’adhésif (42) orientées généralement longitudinalement, l’une desdites bandes étant disposée latéralement de chaque côté de ladite ligne médiane longitudinale (34) de ladite serviette hygiénique (20), et ladite bande de dégagement (46”) enveloppe latéralement les deux lisières de côté longitudinales (30) et est fixée, de façon amovible, auxdites première et seconde bandes d’adhésif (42) réunies à ladite face orientée vers l’extérieur de ladite feuille de fond (24).

6. Serviette hygiénique (20) selon l’une quelconque des revendications précédentes, caractérisée en ce que ladite serviette (20) comporte un moyen pour amorer le retrait de ladite bande de dégagement (46, 46’, 46”) de ladite serviette hygiénique (20) près du centre de ladite bande de dégagement (46, 46’, 46”) et caractérisée, de préférence, en ce que ledit moyen pour amorer le retrait de ladite bande de dégagement (46, 46’, 46”) près du centre de ladite bande de dégagement (46, 46’, 46”), comporte une patte ou une boucle.

7. Procédé pour appliquer un adhésif (40) et une bande de dégagement (46’, 46”) sur une serviette hygiénique (20) comportant une feuille de dessus perméable aux liquides (22) et une feuille de fond imperméable aux liquides (24) réunie, au moins partiellement à la périphérie, à ladite feuille de dessus (22), une âme absorbante (26), disposée entre ladite feuille de dessus (22) et ladite feuille de fond (24), deux lisières de côté longitudinales (30), un rabat (28) s’étendant à l’extérieur à partir de chaque lisière de côté longitudinale (30) et replié sur ladite feuille de dessus (22) pour exposer une face dudit rabat (28) généralement de mêmes dimensions que ladite feuille de fond (24), ledit procédé comprenant les étapes suivantes : - on dispose une serviette hygiénique (20) dans une position généralement aplatie avec ladite feuille de fond (24) exposée ; - on fournit un rouleau à trois sections longitudinalement (116) comprenant : une bande de dégagement (46’, 46”) ayant une première et une seconde faces opposées, ladite première face ayant deux trisections extérieures (122), chacune ayant un revêtement de dégagement sur celle-ci, une trisection centrale (124) intercalée entre lesdites trisections extérieures (122) et deux segments d’adhésif orientés longitudinalement, l’un recouvrant sur chacune desdites trisections extérieures (122) ; - on découpe ledit rouleau à trois sections (116) à une longueur prédéterminée, et ; - on applique généralement, en même temps, ledit adhésif (40) et ladite bande de dégagement (46’, 46”) sur lesdites faces exposées.
desdits rabats (28), généralement de mêmes dimensions que ladite feuille de fond (24) de ladite serviette hygiénique (20), l’adhésif (40) étant en contact avec lesdites faces.

8. Procédé selon la revendication 7, caractérisé en ce que ledit adhésif (40) est appliqué sur lesdites tranches extérieures (122) dudit rouleau par thermofusion de l’adhésif (40) sur ledit rouleau (116) et caractérisé, de préférence, en ce que ledit adhésif (40) est sensiblement appliqué en continu longitudinalement sur ledit rouleau.

9. Procédé selon la revendication 7, caractérisé en ce que lesdits segments d’adhésif (40) ont un pas correspondant à, et ledit rouleau (116) est découpé sur une longueur correspondant à, la dimension longitudinale de ladite serviette hygiénique (20).

10. Procédé selon la revendication 7, caractérisé en ce que ledit rouleau (116) est revêtu, de façon amovible, sur ladite seconde face.