

[54] **SANITARY NAPKIN**

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[51] Int. Cl. **A61f 13/16**

[58] Field of Search **128/290 B, 290 R, 290 W,
128/156, 286, 284, 287, 296; 156/70**

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[57] **ABSTRACT**

The sanitary napkin of the present invention includes

a pad, a sheet of liquid repellent material having an opening therein, and a sheet of absorbent material. The opening formed in the sheet of liquid repellent material is slightly smaller in dimension than the pad. The sheet of liquid repellent material is placed on the sheet of absorbent material. The pad is placed on the sheet of liquid repellent material over the opening thereof and thereby in contact with the sheet of absorbent material, which contacting position constitutes the body contact side of the sanitary napkin. The sheets of absorbent material and liquid repellent material are enveloped about the pad with the liquid repellent sheet disposed between the pad and the sheet of absorbent material. Opposite edges of the two sheets overlap one another on a garment facing side of the pad and end tab portions of the two sheets extend beyond the ends of the pad. The overlapping sheets of the end tab portions and the edges of the two sheets are sealed together. Adhesive is applied to the garment facing side of the end tab portions for attachment of the napkin to a garment. A method of making such a sanitary napkin includes the steps of placing a sheet of liquid repellent material having an opening therein on a sheet of absorbent material and placing the body facing side of a pad on the sheet of liquid repellent material confronting the opening thereof and in contact with the sheet of absorbent material, and enveloping the sheet of absorbent material and the sheet of liquid repellent material about the pad.

9 Claims, 4 Drawing Figures

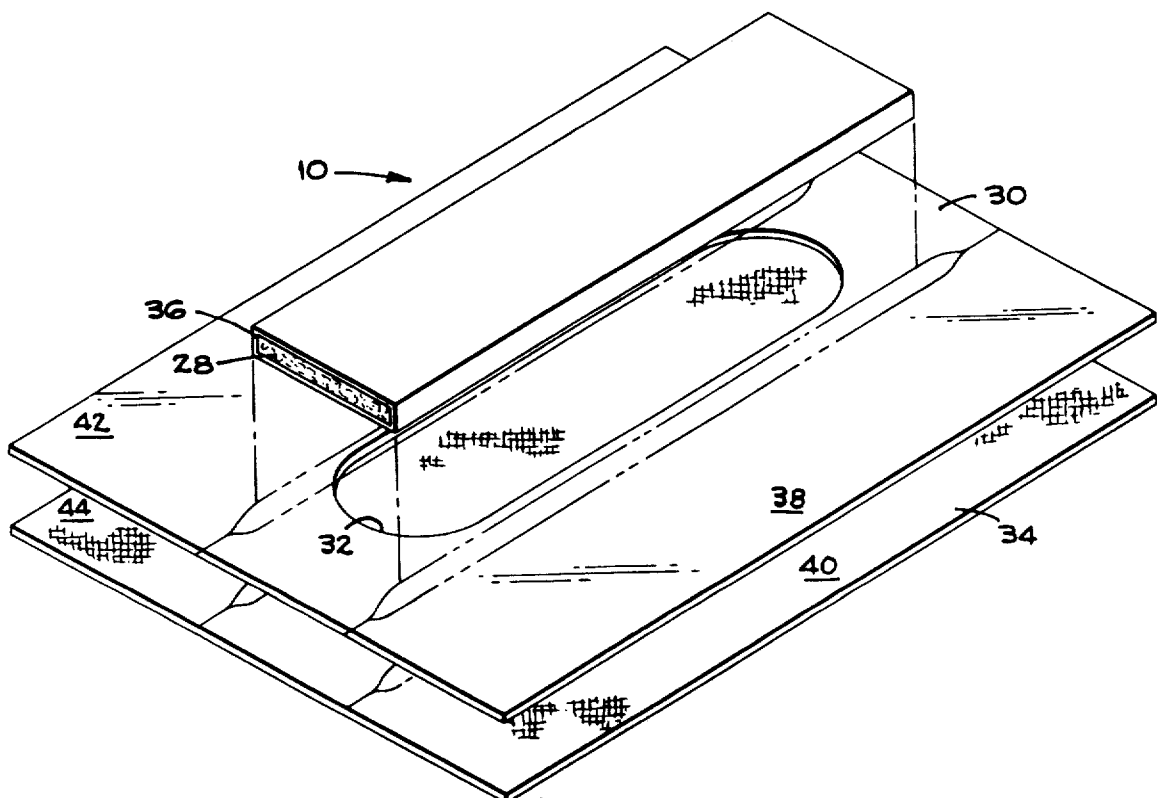


Fig-1

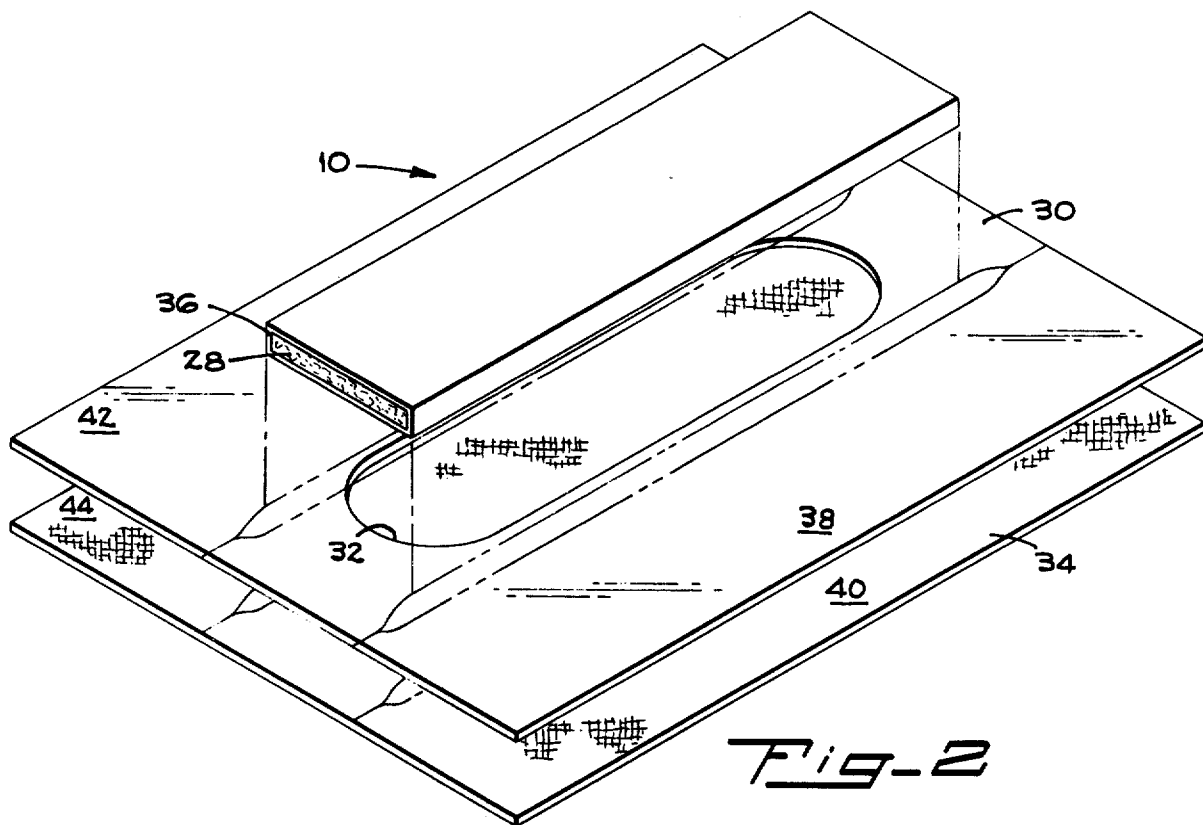
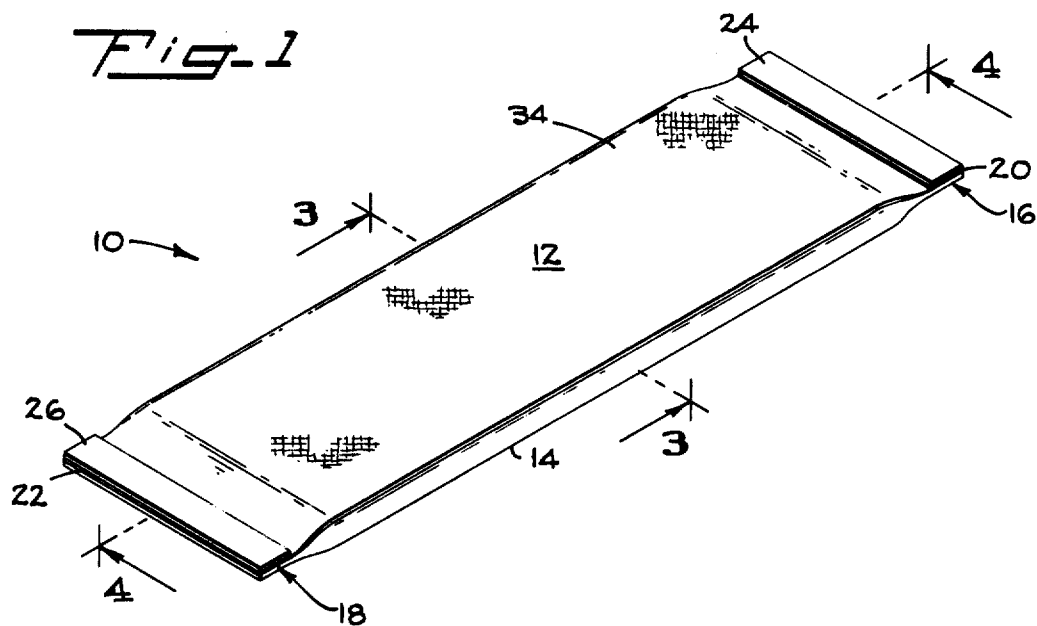


Fig-3

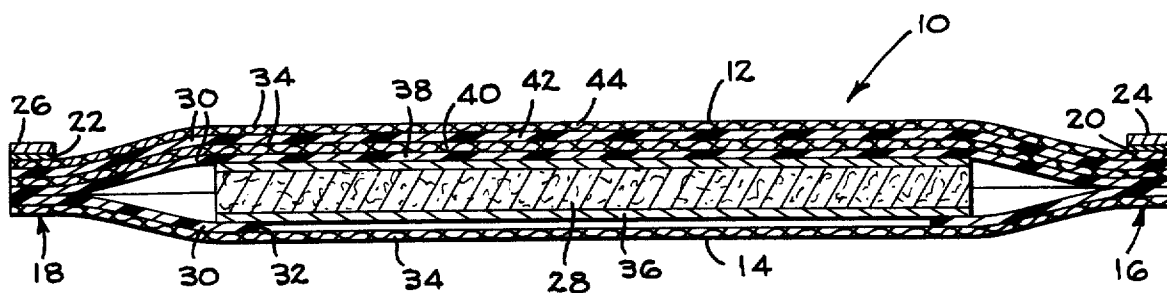
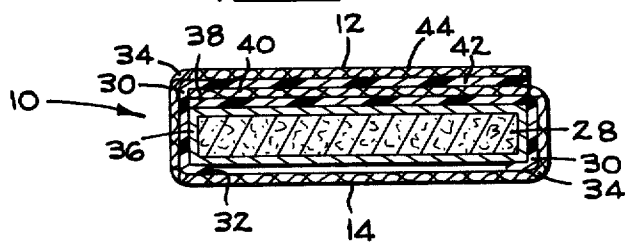


Fig-4

SANITARY NAPKIN

BACKGROUND OF THE INVENTION

This invention relates generally to a sanitary napkin and the like, more particularly to a sanitary napkin and the like which is releasably securable to a garment and to a method of making such an article.

PRIOR ART

Commonly known sanitary napkins had included a moisture barrier for retaining liquid, such as menstrual discharge, within a highly absorbent pad and for preventing the menstrual discharge from soiling the undergarments of the wearer. Generally, such a liquid barrier has been in the form of a sheet of vinyl or polyethylene material which is disposed on the garment contacting side of the sanitary napkin. Due primarily to the desirability of reducing manufacturing costs, such a moisture barrier is provided only on the garment contacting side of the sanitary napkin and does not extend over the edges or the ends of the associated absorbent pad. Since the edges of the sanitary napkin are also susceptible to contacting the undergarments of the wearer of the napkin, such prior known moisture barriers are not always sufficient to prevent the contained liquid from soiling the wearer's undergarments.

Another problem associated with some of these prior known sanitary napkins is that the moisture barrier tends to shift out of its intended position during its use. It can be readily appreciated that such a shifting of the moisture barrier reduces its effectiveness to prevent any contained liquids from soiling the undergarments of the wearer of the sanitary napkin.

Previous attempts to provide a moisture barrier which covers all of the garment contacting side of the sanitary napkin and which will retain its position during its use have required complicated manufacturing techniques, thereby resulting in increased manufacturing costs.

Examples of sanitary napkins which include a moisture barrier are disclosed in U.S. Pat. Nos. 3,454,008; 3,508,549; 3,724,466; 3,059,644; 3,397,697; 2,295,416; 2,896,626; 3,315,677; 3,643,662; 2,742,903; 2,973,760; 3,085,575; 3,575,175 and 3,595,237. Attempts to provide a moisture barrier which extends over the edges or the sides of the associated absorbent pad are disclosed in British Pat. Specification No. 1,018,093 and Australian Pat. No. 253,548, wherein the resulting moisture barrier layer is in the form of a trough. U.S. Pat. No. 3,294,090 discloses a sanitary napkin in which the moisture barrier is in the form of a tray which is disposed for receiving the associated absorbent pad. Each of these articles, although approaching a solution to certain problems, do not solve all of the above-mentioned problems.

SUMMARY OF THE INVENTION

Accordingly, it is a primary object of the present invention to provide a sanitary napkin having a relatively high degree of protection for the undergarments of the wearer thereof.

Another object of the present invention is to provide a sanitary napkin having a moisture barrier for the protection of the undergarments of the wearer thereof which will not attempt to shift from its intended position.

A further object of the present invention is to provide a sanitary napkin having a highly effective moisture barrier and which can be fabricated with ease and relatively uncomplicated manufacturing techniques.

Still a further object of the present invention is to provide a method of making a sanitary napkin which includes a highly effective moisture barrier in the resultant article.

A related object of the present invention is to provide a sanitary napkin which can be worn without the employment of sanitary belts or similar devices.

These and other objects of the present invention are obtained by placing a sheet of liquid repellent material having an opening therein on a sheet of liquid absorbent material and placing an absorbent pad over the opening in the sheet of liquid repellent material and confronting the liquid absorbent sheet with opposite edges of the sheets being coextensive. Then, the sheets of liquid absorbent material and the liquid repellent material are enveloped about the pad with the opening in the liquid repellent material disposed on the body contact side of the sanitary napkin.

A feature of the present invention resides in the provision of a layer of liquid absorbing material disposed over the overlapping edges of the sheet of liquid repellent material and on the garment-facing side of the pad.

Another feature of the present invention resides in the provision of end tab portions of at least the sheet of liquid repellent material which extend beyond the ends of the associated pad for receiving adhesive thereon for securing the sanitary napkin to the undergarments of the wearer thereof.

The present invention also encompasses the method of making such an article and generally includes the steps of providing an opening in a sheet of liquid repellent material which extend beyond the ends of the associated pad for receiving adhesive thereon for securing the sanitary napkin to the undergarments for the wearer thereof.

The present invention also encompasses the method of making such an article and generally includes the steps of placing a sheet of liquid repellent material with an opening therein over a sheet of liquid absorbent material, placing a pad over the opening in the sheet of liquid repellent material in contact with the liquid absorbent material and enveloping the sheet of liquid absorbing material and the sheet of liquid repellent material around the pad with the opening in the sheet of liquid repellent material positioned over the body contact side of the sanitary napkin and with opposite edges thereof overlapping one another over the garment contacting side of the sanitary napkin.

The above-described article and method provide several distinct advantages which are not realized by the known prior art. More particularly, a moisture barrier is provided which effectively covers all of the garment-contacting side of the associated liquid absorbent pad and is constructed to effectively retain the liquid contained therein. In addition, the resultant moisture barrier of the present invention tends to retain its intended position, thereby increasing its effectiveness. Another advantage is realized in the simplicity and ease of manufacture of the sanitary napkin constructed in accordance with the present invention.

These and other objects, features and advantages of the present invention, however, will be more fully realized and understood from the following detailed de-

scription, when taken in conjunction with the accompanying drawings wherein:

BRIEF DESCRIPTION OF THE FIGURES

FIG. 1 is a view in perspective of a sanitary napkin constructed in accordance with the principles of the present invention.

FIG. 2 is an exploded perspective view illustrating the components of the sanitary napkin of the present invention prior to their assembly.

FIG. 3 is a sectional view taken generally along line 3—3 of FIG. 1.

FIG. 4 is a sectional view taken generally along line 4—4 of FIG. 1.

Like reference numerals throughout the various views of the drawings are intended to designate the same elements.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to FIG. 1, there is shown a sanitary napkin, generally designated with the reference numeral 10, which is constructed in accordance with the principles of the present invention. The napkin 10 includes a garment-contacting side 12 and a body contacting side 14 opposite the side 12. End tab portions 16 and 18 of the napkin 10 support suitable and well-known adhesive strips in the form of pressure sensitive tapes, or an adhesive smear which are covered by peel-off backing strips 24 and 26, respectively (FIGS. 1 and 4). The adhesive tapes or the adhesive smear are provided on the garment-contacting side of the napkin 10, such that the napkin 10 can be releasably attached to an inner surface of a panty or other suitable undergarment in a position where it is adapted to contact the body of a woman surrounding the vaginal area to absorb the menstrual discharges. This concept is well-known and disclosed in the above-cited patents.

An end of each of the strips 24 and 26 extends along an edge of the tab portions 16 and 18, respectively, such that the strips 24 and 26 can be grasped manually and removed to expose the underlying adhesive tape strip 20 and 22 or the underlying adhesive smear. Thereupon, the napkin 10 can be secured to an undergarment with the side 14 thereof facing toward the body of the wearer thereof.

FIG. 2 is an exploded view of the components of the sanitary napkin 10 before it is assembled or wrapped. As shown therein, a core 28 is provided which is a pad of highly absorbent material, such as cotton fluff or cotton non-woven fabric and tissue. A sheet 30 of liquid repellent or moisture proof material, such as vinyl or polyethylene, is provided with an opening 32 located approximately centrally of the edges thereof. In addition, an outer cover sheet 34 is provided which is of a relatively thin, soft, absorbing, flexible material, such as cotton non-woven fabric. If desired, the core or pad 28 may be enclosed in a layer 36 of a suitable absorbent material, such as creped tissue paper, as shown in FIGS. 3 and 4.

In assembly, the sheet 30 of liquid repellent material is placed on the sheet 34 of liquid absorbent material substantially coextensive therewith, and the core 28, with or without the layer 36 of the creped tissue thereon, is placed on the sheet 30 over the opening 32, which is positioned on a body-facing side of the sanitary napkin and contacting the sheet of absorbent ma-

terial. Opposite edges of the sheets 30 and 34, as a unit, are then enveloped around the core 28 in overlapping relationship to one another with the opening formed in the sheet of liquid repellent material disposed at the body facing side of the sanitary napkin. The dotted line illustrated in FIG. 2 on the sheets 30 and 34 indicate the fold lines of the sheets when they are enveloped around the core 28. Accordingly, with the core 28 positioned on the sheet 30 and the sheet 30 in contact with the sheet 34, portions 38 and 40 of the sheets 30 and 34, respectively, are initially enveloped around the garment-facing side of the core 28 and then the portions 42 and 44 of the sheets 30 and 34, respectively, are enveloped around the portions 38 and 40. This overlapping relationship of the sheets 30 and 34 is illustrated more clearly in FIG. 3.

As shown in FIG. 3, the layer 30 of liquid repellent material extends over the edges of the core 28 to form an effective barrier for any liquid contained therein.

Furthermore, the opening 32 which is positioned on the body-contacting side 14 of the napkin 10 is disposed for receiving liquid or menstrual discharge there-through so that it can be absorbed by the core 28. On the body-contacting side 14 of the napkin 10, the opening 32 is covered by the sheet 34 of liquid absorbent material.

Clearly in FIG. 4, the dimensions of the core or pad 28 is greater than the dimensions of the opening 32. Furthermore, the ends of the sheets 30 and 34 extend beyond the ends of the core 28 to form the tab portions 16 and 18. When the sheets 30 and 34 have been enveloped around the core 28, the overlapping portions thereof are either bonded or fused together by the application of heat and pressure thereto. Accordingly, a completely sealed enclosure is provided, with the exception of the opening 32, for the core 28.

In use, the non-adhesive backing strips 24 and 26 are removed from the napkin 10, thereby exposing the adhesive strips 20 and 22. The napkin 10 is then placed on an inner-surface of a panty or other suitable undergarment and is secured thereto by means of the adhesive strips 20 and 22. Once the napkin 10 is positioned properly on such an undergarment, it is adapted to contact the body of a woman surrounding the vaginal area to absorb the menstrual discharges. The sealed overlapping portions of the layer 30 provide a unitary, sealed enclosure for the core 28 to prevent any liquid contained therein from soiling the undergarments of the wearer of the napkin 10.

It can be appreciated that once the overlapping portions of the sheets 30 and 34 are either bonded or fused together, the resultant moisture barrier will be inhibited from shifting out of position. Furthermore, it can be appreciated that the napkin 10 of the present invention can be assembled with facility by relatively simple manufacturing techniques, thereby providing a highly desirable product at a relatively low cost. Furthermore, the arrangement of the components of the napkin of the present invention results in an article which is very durable. For example, the tab ends 16 and 18 will not separate or curl over during use when stress is placed upon the napkin as a result of normal everyday activity.

If desired, the overlapping portions of the sheets 30 and 34 which form the tab ends 16 and 18 can be bonded or fused together, and then to insure against separation the tab ends should be firmly crimped before applying adhesive means. In addition, in the manu-

facture of the article, the ends of the sheets 30 and 34 can extend beyond the desired length of the napkin and, after the wrapping has been completed, such ends can be trimmed to the desired length.

I claim:

1. A sanitary napkin comprising:
 - a. an absorbent pad having a body-facing side and a garment-facing side;
 - b. a layer of liquid repellent material having an opening therein and being disposed about said pad with said opening positioned confronting the body-facing side of said pad and with opposite end portions thereof overlapping one another over the garment-facing side of said pad; and
 - c. a layer of absorbent material disposed around said pad with said layer of liquid repellent material disposed between said pad and said layer of absorbent material, said layer of absorbent material being approximately coextensive with said layer of liquid repellent material and opposite end portions of said layer of absorbent material and said layer of liquid repellent material overlapping one another and being coextensive with the garment-facing side of said pad, said overlapping end portions of said layer of absorbent material and said layer of liquid repellent material being secured together.
2. A sanitary napkin as claimed in claim 1, and comprising adhesive means on a garment-facing surface of said layer of absorbent material for permitting the attachment of the napkin to a garment.
3. A sanitary napkin as claimed in claim 1 wherein said layer of liquid repellent material and said layer of absorbent material extend beyond the ends of said pad to form tab portions and said overlapping end portions of said layer of liquid repellent material and said layer of absorbent material being secured to one another along the width of said tab portions and along the length of said overlapping end portions.
4. A sanitary napkin as claimed in claim 3 and comprising adhesive means supported by said tab portions in a direction facing in the same direction as the garment-facing side of said pad for permitting the attachment of the napkin to a garment.
5. A sanitary napkin as claimed in claim 1 wherein said opening in said layer of liquid repellent material is

of a dimension which is less than the dimension of said pad.

6. A method of making a sanitary napkin and the like comprising the steps of:

- 5 a. providing an opening in a sheet of liquid repellent material;
- b. enveloping said sheet of liquid repellent material about an absorbent pad with the opening therein confronting the body-facing side of said pad and with opposite end portions thereof overlapping one another over the garment-facing side of said pad;
- 10 c. enveloping a sheet of absorbent material around said pad with said sheet of liquid repellent material between said pad and said sheet of absorbent material, said sheet of absorbent material being approximately coextensive with said sheet of liquid repellent material and opposite end portions of said sheet of absorbent material and said sheet of liquid repellent material overlapping one another and co-extending with the garment-facing side of said pad; and
- d. securing together said overlapping end portions of said sheet of absorbent material and said sheet of liquid repellent material.
- 25 7. A method of making a napkin as defined in claim 6 including the step of extending said sheet of liquid repellent material and said sheet of absorbent material beyond the ends of said pad to form tab portions and further comprising the step of securing overlapping end portions of said sheet of liquid repellent material and said sheet of absorbent material to one another along the width of said tab portions and along the overlapping end portions of said sheet of absorbent material and said sheet of liquid repellent material.
- 30 8. A method of making a sanitary napkin as defined in claim 7 and comprising the step of applying adhesive to the outer surfaces of said tab portions which face in the same direction as said garment-facing side of said pad.
- 35 9. A method of making a sanitary napkin as defined in claim 8 and comprising the step of crimping said tab portions before the application of adhesive to the outer surfaces of said tab portions.

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