

ABSORBENT ARTICLE

[TECHNICAL FIELD]

[0001]

The present invention relates to an absorbent article such as a sanitary napkin, and particularly relates to an absorbent article that has wing portions which extend outward of an absorber in the width direction and are folded back to a non-skin contact surface side of underwear.

[BACKGROUND ART]

[0002]

Patent Literature 1 describes a sanitary napkin that has a liquid-permeable topsheet, a liquid-impermeable backsheet, and an absorber arranged between the topsheet and the backsheet, and has wing portions extending further outward in the width direction from the absorber. In case of placing the sanitary napkin which is thus configured on underwear, the backsheet on the back of the absorber is put in contact with a crotch portion of underwear, and the wing portions are folded back to the non-skin contact surface side of underwear, so that the sanitary napkin is placed on underwear while the wing portions are wrapped around the crotch portion of underwear.

[CITATION LIST]

[PATENT LITERATURE]

[0003]

Patent Literature: Japanese Unexamined Patent Application Publication No. 2011-156034 (Fig. 5, [0004], etc.)

[SUMMARY OF INVENTION]

[0004]

However, the aforementioned sanitary napkin has the following problems.

[0005]

In case of attaching the sanitary napkin described in Patent Literature 1 to underwear, the wing portions are folded back to the non-skin contact surface side of underwear with folding lines near inside ends of the wing portions in the width direction as base points. These folding lines extend along both ends at the crotch of underwear and also from the front side edge toward the rear side edge in the longitudinal direction of the wing portions. Since the ends of the folding lines are positioned at the front edge and the back edge of the wing portions, twists are formed. These twisted portions are likely to become hard because of creases. The twisted portions at the edges of the wing portions contact skin, thus often causing irritation to the skin.

[0006]

The present invention has been achieved in consideration of the problems mentioned above, and has an object to provide an absorbent article that can reduce irritation due to folding lines which are formed by folding over wing portions to a non-skin contact surface side of underwear.

[0007]

To solve the above problem, an absorbent article according to the present invention is summarized as the absorbent article having a front-rear direction (longitudinal direction L) and a width direction (width direction W) orthogonal to the front-rear direction, the absorbent article comprising: a liquid-permeable topsheet (topsheet 10); a liquid-impermeable backsheet (backsheet 20); and an absorber (absorber 30) arranged between the topsheet and the backsheet; wherein wing portions (wing portions 43) folded back to a non-skin contact surface side of underwear of a wearer, and flap portions (flap portions 60) positioned at rear side of the wing portions, are formed at outside of the absorber in the width direction, constricted portions (constricted portions 45) are formed between the wing portions and the flap portions, the constricted portions being constricted inward in the width direction from maximum width positions which are at the outermost position in the width direction in the wing portions, and maximum width positions which are at the outermost position in the width direction in the flap portions, the flap portions and the constricted portions are formed with recessed portions (recessed portions 70) indented in a thickness direction of the flap portions and extend from the constricted portions toward the rear side, the recessed portions and the constricted portions are formed more outside in the width direction than folding lines formed at the wing portions in a state that the wing portions are folded back to the non-skin contact surface side, and the flap portions are folded back at the non-skin contact surface side of the underwear with the recessed portions as base points in a state that the wing portions are folded back to the non-skin contact surface side, and thereby, a skin contact surface side of the flap portions is arranged so as to face the wearer.

[BRIEF DESCRIPTION OF DRAWINGS]

[0008]

[Fig. 1] Fig. 1 is a plan view of an absorbent article as seen from a skin contact surface side of the absorbent article according to a first embodiment.

[Fig. 2] Fig. 2 is a reverse view of the absorbent article shown in Fig. 1.

[Fig. 3] Fig. 3 is a schematic sectional view taken along the line A-A' of Fig. 1.

[Fig. 4] Fig. 4 is a schematic view when the absorbent article shown in Fig. 1 is placed on underwear.

[Fig. 5] Fig. 5 is a schematic sectional view taken along the line B-B' of Fig. 4.

[DESCRIPTION OF EMBODIMENTS]

[0009]

(First embodiment)

By referring to Fig. 1 to Fig. 3, an absorbent article 1 according to a first embodiment will be explained. Fig. 1 is a plan view of the absorbent article, and Fig. 2 is a reverse view of the absorbent article. Fig. 3 is a sectional view taken along the line A-A' shown in Fig. 1. The absorbent article 1 according to the present embodiment is a sanitary napkin, for example.

[0010]

The absorbent article 1 has a topsheet 10 in contact with the skin of the wearer, a liquid-impermeable backsheet 20 that does not allow liquid to pass through, and an absorber 30. The absorber 30 is arranged between the topsheet 10 and the backsheet 20. Therefore, the absorber 30 is shown with dashed lines in Fig. 1 and Fig. 2. The absorber 30 is arranged at a central portion in a longitudinal direction L along the front-rear direction and a width direction W of the absorbent article 1.

[0011]

The absorbent article 1 includes wing portions 43 arranged at outside of an absorber 30 in the width direction, and flap portions 60 arranged at outside of the absorber 30 in the width direction and at rear side compared to the wing portions 43.

[0012]

The wing portions 43 are configured to fix an absorbent article to underwear by being folded back to a non-skin contact surface side of underwear of a wearer and being wrapped around the underwear. The wing portions 43 extend outward in the width direction from an excretion portion contact region of the absorber 30.

[0013]

Front side ends 43F and rear side ends 43R of the wing portions 43 are positioned more inside in the width direction than wing maximum width positions 43WM that are at the outermost position in the width direction in the wing portions 43. The front side ends 43F of the wing portions 43 are positioned more inside in the width direction than the rear side ends 43R of the wing portions 43. Thus, when the wing portions 43 are folded back to the non-skin contact surface side of underwear in the longitudinal direction with the folding lines that run through the front side ends 43F of the wing portions 43 as base points, the wing portions 43 that are wrapped around to the non-skin contact surface side of underwear, are wider at the rear side ends 43R of the wing portions 43 than the front side ends 43F of the wing portions 43.

[0014]

Between the wing portions 43 and flap portions 60, there are provided constricted portions 45 that are constricted more inward in the width direction than the wing maximum width positions 43WM which are at the outermost positions in the width direction in the wing portions 43, and flap maximum width positions 60WM which are at the outermost positions in the width direction in the flap portions 60.

[0015]

Fig. 1 illustrates a region RA of the wing portions 43 in the longitudinal direction L, a region RB of the flap portions 60 in the longitudinal direction L, and a region RC of the constricted portions 45 in the longitudinal direction. The constricted portions 45 in the present embodiment are regions, including narrow width positions 45WN that are at an innermost position in the width direction between the wing portions 43 and the flap portions 60. The constricted portions 45 may be regions near the narrow width positions 45WN, and can be regions of, for example, 5 mm in the front-rear direction from the narrow width positions 45WN.

[0016]

While an absorbent article is being placed on underwear, the wing portions in front of the constricted portions 45 are folded back to the non-skin contact surface side of underwear and the flap portions 60 in back of the constricted portions 45 are arranged so as to face a body of a wearer. Thus, the ends of the folding lines lie at the constricted portions when the wing portions are folded back, thus forming twists.

[0017]

The flap portions 60 are regions extending further outward in the width direction from the absorber 30, and extend toward the rear side from the rear side ends of the constricted portions 45. The front side ends of the flap portions 60 are the rear side ends of the constricted portions, and the rear side ends of the flap portions 60 are more inward constricted portions than the front and back regions near the rear side ends of the absorbent article. The rear side ends of the flap portions in the present embodiment match rear side ends 70R of recessed portions 70 which will be later described. Moreover, the rear side ends of the flap portions 60 may match the rear side ends of the absorbent article, or may not match the rear side ends of the absorbent article.

[0018]

The topsheet 10 is a liquid-permeable sheet that allows liquids such as bodily fluid to pass through. The topsheet 10 covers at least the surface of the absorber 30. The topsheet 10 is not particularly limited as long as the topsheet 10 is a sheet-like material having a structure that allows the liquids to pass through, such as a nonwoven fabric, a woven fabric, a perforated plastic

sheet, and a mesh sheet. Natural fibers or chemical fibers can be used as a woven and nonwoven fabric.

[0019]

The backsheet 20 has substantially the same length as the length of the topsheet 10. As for the backsheet 20, a polyethylene sheet, a laminated nonwoven fabric with polypropylene, for example, as the main constituent, an air-permeable resin film, or a sheet in which an air-permeable resin film is joined with a nonwoven fabric such as spun bond or spun lace can be used. The backsheet 20 is desired to be of a material having flexibility to an extent such that an uncomfortable feeling is not felt at the time of wearing. The backsheet 20 is desired to have liquid impermeability and moisture permeability, and for example, can be configured from a microporous sheet obtained by melt-mixing inorganic filler in an olefin resin such as polyethylene and polypropylene, and then performing stretch processing.

[0020]

The absorber 30 includes hydrophilic fibers and pulp. The absorber 30 is formed from a material that can absorb bodily fluid such as menstrual blood. The absorber 30 may be formed by layering a hydrophilic fiber or powder with an air-laid method, or the absorber 30 may be an air-laid sheet in which a hydrophilic fiber or powder is shaped into a sheet with an air-laid method, or the absorber may be formed by arranging a ground pulp mixed with a highly absorbent polymer on a tissue (for example, 15 g/m² basis weight), and then wrapping it up with the tissue.

[0021]

The absorber 30 according to the present embodiment is configured by wrapping the pulp, which is formed by layering cotton-like pulp and synthetic pulp at a basis weight of approximately 100 to 300 g/m², with a protective sheet (not shown in the figure). Note that the absorber 30 may have a substantially uniform thickness on the entire surface, or may have a non-uniform thickness. The protective sheet is used to retain the shape of the pulp, and for example, a crepe paper and tissue paper can be used.

[0022]

The absorber 30 has a shape extending in the front-rear direction and is smaller by substantially one size than the backsheet 20. The length of the absorber 30 in the width direction W corresponds to the crotch gap of an adult female, and is generally between 50 and 80 mm. The absorber 30 is bonded to the backsheet 20 by an adhesive such as a hot-melt adhesive. In the present embodiment, the absorber 30 and the topsheet 10 are bonded by the hot-melt adhesive.

[0023]

The absorber 30 is provided so as to include the center of an excretion portion contact region where at least an excretion portion of a wearer is in contact. The center of the excretion portion contact region is the center of the longitudinal direction and the width direction of a region where the excretion portion of a wearer is in contact. For example, in an absorbent article having wing portions, the center of the wing portions in the longitudinal direction is the center of the excretion portion contact region in the longitudinal direction. Furthermore, in an absorbent article that does not have wing portions, the position where the width length dimension of the absorber is the shortest is the center of the excretion portion contact region in the longitudinal direction. Additionally, the excretion portion contact region is included in a region which is in contact with a crotch portion of a wearer and is positioned between both legs of the wearer.

[0024]

Furthermore, the absorbent article 1 has sidesheets 41 provided at the outside of the absorber 30 in the width direction W. The sidesheets 41 are provided at the skin contact surface of the flap portions 60 and the wing portions 43.

[0025]

The sidesheets 41 are arranged on both sides of the topsheet 10. Similar to the topsheet, the sidesheets 41 are arranged closer to a skin contact surface side than the absorber 30, and configure a portion of the topsheet in the present invention. The sidesheets 41 may be selected from the same materials as those of the topsheet 10. In order to prevent menstrual blood from flowing across the sidesheets 41 to the outside of the absorbent article 1, it is preferable that the sidesheets have hydrophobicity or water repellency. The sidesheets 41 cover a portion of the side edges of the absorber 30, the wing portions 43, and the flap portions 60.

[0026]

The sidesheets 41 according to the present embodiment are configured by an air-through nonwoven cloth. The air-through nonwoven cloth has a tenderness and fine texture. As the texture of the flap portions is improved with arranging the flap portions along a body, comfortable feeling of wearing may be improved.

[0027]

Further, in the wing portions 43 and the flap portions 60, intermediate sheets 35 are provided between the sidesheets 41 and the backsheet 20. The outside ends of the intermediate sheets 35 in the width direction are arranged at outside of the outside ends of the absorber 30 in the width direction. Note that the intermediate sheets 35 are adhered to the absorber 30 by an adhesive

or the like, so that the visual effect of showing the area of the absorber 30 wider can be obtained by integrating the absorber 30 with the intermediate sheets 35.
[0028]

The intermediate sheets 35 are arranged at a portion of the wings portions 43, a portion of the flap portions 60, and the constricted portions 45. The constricted portions, as described above, are likely to have twists while the wing portions are folded back to the non-skin contact surface side of underwear. The intermediate sheets are arranged at the constricted portions where such a twist is to be formed, thus preventing the hardening of the flap portions 60 due to the twists and reducing irritation to the skin.
[0029]

The intermediate sheet 35 is configured from an air-through nonwoven cloth. The air-through nonwoven cloth regains its volume as hot air is blown on the nonwoven cloth and the blown hot air passes therethrough, and thus has a soft and good texture. Since the intermediate sheet 35 is configured from an air-through nonwoven cloth, comfortable feeling of wearing may be improved when the flap portions 60 are arranged along a body.
[0030]

By arranging the intermediate sheets 35, a difference in thicknesses and stiffness is formed at a boundary between a region where the intermediate sheets are arranged and a region where the intermediate sheets are not arranged. For example, the flap portions 60 can be easily deformed at ends of the intermediate sheets as the base points.
[0031]

The absorbent articles are individually wrapped with a film or a nonwoven fabric while being folded up at folding lines along the longitudinal direction and folding lines along the width direction as base points. The absorbent articles that are folded up as described above, have remaining creases from being folded up, and it is often difficult to spread the absorbent articles flat.
[0032]

However, as the intermediate sheets 35 are configured from, for example, an air-through nonwoven cloth in which fibers have a relatively high degree of freedom, creases are unlikely to be formed and the articles can be easily placed. Based on this aspect, it is desirable that the intermediate sheets 35 straddle the folding lines that are formed when the absorbent articles are folded up.
[0033]

The intermediate sheets 35 are intermittently joined to at least the sidesheets 41 by an adhesive. The intermediate sheets according to the

present embodiment are bonded to the topsheet 10 and the backsheet 20 by the hot-melt adhesive arranged in a spiral pattern. As the intermediate sheets 35 and the topsheet 10, for example, are intermittently joined together, the intermediate sheets 35 can be partially shifted relative to the topsheet, and the soft texture of the material can be maintained.

[0034]

For the absorbent article 1, the absorber 30 is enclosed as the topsheet 10, the sidesheets 41, and the backsheet 20 are joined at their fringes. As for the method of joining the topsheet 10 and the backsheet 20, any one of heat embossing, supersonic waves, or a hot-melt adhesive, or a combination of a plurality of methods can be used.

[0035]

At the backsheet 20, an adhesive portion where an adhesive is coated in a plurality of regions is provided at a surface which is in contact with underwear (see Fig. 2). The adhesive portion is provided on the back surface of the main body, and includes a central adhesive portion 51 so as to fix the absorbent article 1 to a crotch unit of underwear, wing adhesive portions 52 that are provided on the back surface of the wing portions 43 and are wrapped around the crotch unit so as to fix the wing portions 43, and flap adhesive portions 53 that are provided on the back surface of the flap portions 60 so as to fix the flap portions in the open state to the rear side of underwear.

[0036]

Before use, an adhesive is in contact with a release sheet not shown in the figures. The release sheet prevents the adhesive from deteriorating before use. At the time of use, the release sheet is peeled off by a wearer.

[0037]

As for an absorbent article having no release sheet, the absorbent article may be configured to prevent an adhesive from deteriorating before use by a wrapping sheet that is to wrap an individual absorbent article. When the adhesive is in contact with a wrapping sheet, it is desirable to treat the surface of the wrapping sheet so as to make the adhesive releasable without reducing the adhesive strength of the adhesive.

[0038]

Moreover, wing adhesive portions 52 and flap adhesive portions 53 are provided in regions where the intermediate sheets 35 are arranged. By providing the intermediate sheets 35, the backsheet 20 can be reinforced. Thus, even when the backsheet 20 is configured by a material having a low basis weight, the strength of the backsheet is easily kept and the backsheet is prevented from being torn when the absorbent article 1 is peeled off from underwear after use.

[0039]

The absorbent article 1 is formed with compressed portions 80 where the topsheet 10 and the absorber 30 are compressed in the thickness direction. Note that as long as the compressed portions are formed by compressing at least the topsheet 10 and the absorber 30 in thickness direction T, various configurations can be adopted. For example, the compressed portions may be formed by pressing and embossing, and the shape may be a lattice network and a honeycomb shape.

[0040]

The flap portions 60 are formed with a plurality of flap constricted portions where the length in the width direction is shorter than the length in the width direction in the front-rear regions. The flap constricted portions have first flap constricted portions 61 positioned in the front side and second flap constricted portions 62 positioned at rear side.

[0041]

The flap portions 60 have first flap portions 63 positioned in front of the first flap constricted portions 61, second flap portions 64 positioned at rear side compared to the first flap constricted portions 61 and at front side compared to the second flap constricted portions 62, and third flap portions 65 positioned at rear side compared to the second flap constricted portions 62.

[0042]

The first flap portions 63 are regions from rear side ends 45R of the constricted portions 45 to the first flap constricted portions 61, extending towards the rear side, from the rear side ends 45R outward in the width direction. First maximum width positions (outside ends) 63WM positioned at the outermost position in the width direction in the first flap portions 63 are positioned more outside in the width direction than the first flap constricted portions 61. The first maximum width positions 63WM are positioned in back of the center in the front-rear direction of the first flap portions 63.

[0043]

The second flap portions 64 are regions from the first constricted portions 61 as the rear side ends of the first flap portions 63 to the second flap constricted portions 62, extending outward of the first flap constricted portions 61 in the width direction as going to the rear side. Second maximum width positions (outside ends) 64WM positioned at the outermost position in the width direction in the second flap portions 64 are positioned more outside in the width direction than the second flap constricted portions 62. The second maximum width positions 64WM are positioned in back of the center in the front-rear direction of the second flap portions 64.

[0044]

The third flap portions 65 are regions from the second constricted portions 62 as the rear side ends of the second flap portions 64 to the rear side ends of the flap portions 60, extending outward of the second flap constricted portions 62 in the width direction as going to the rear side. Third maximum width positions (outside ends) 65WM positioned at the outermost position in the width direction in the third flap portions 65 are more outside in the width direction than the second flap constricted portions 62. The third maximum width positions 65WM are positioned at rear side of the center in the front-rear direction of the third flap portions 65. The third maximum width positions 65WM are the maximum width at the flap portions.

[0045]

The flap portions 60 and the constricted portions 45 are formed with recessed portions 70 that are indented in the thickness direction T. For the recessed portions 70, as shown in Fig. 3, the sidesheets 41, the intermediate sheets 35, and the backsheet 20 are compressed in the thickness direction from the topsheet side the backsheet side. In the present embodiment, compression is carried out from the side of the sidesheets 41, configuring the topsheets, toward the backsheet side. As the recessed portions 70 are formed by being compressed from the topsheet side towards the backsheet side, the backsheet made of a film is prevented from being torn in the process of forming the recessed portions.

[0046]

The recessed portions extend from the narrow width positions 45WN of the constricted portions towards the rear side. The front side ends 70F of the recessed portions 70 are the narrow width positions 45WN of the constricted portions, and the rear side ends 70R of the recessed portions are the rear side ends of the flap portions. Noted that as long as the front side ends of the recessed portions are provided at the constricted portions, they may or may not match the narrow width positions. The rear side ends of the recessed portions may or may not match the rear side ends of the flap portions.

[0047]

The recessed portions 70 are the base points for folding back the flap portions at the non-skin contact surface side of underwear while the wing portions 43 are folded back to the non-skin contact surface side of underwear. By folding back the flap portions 60 at the recessed portions 70 as the base points, the skin contact surface side at the flap portions which is more outside in the width direction than the recessed portions, is arranged so as to face a wearer. As the recessed portions 70 are compressed from the topsheet side toward the backsheet side, they are indented from the topsheet side toward the

backsheet side. Accordingly, it is easy to fold back the flap portions 60 at the recessed portions 70 as base points.

[0048]

Moreover, the recessed portions 70, from the constricted portions 45 towards the rear side, extend to the inside in the width direction. With such recessed portions, the area that is arranged on the non-skin contact surface side becomes smaller when the wing portions 43 are folded back and the flap portions are folded back at the recessed portions as base points.

[0049]

The recessed portions 70 are arranged in a pair with the absorber 30 therebetween. A distance between a pair of recessed portions is the shortest in the front than at the maximum width positions of the flap portions. After a distance between a pair of the recessed portions becomes short, the recessed portions 70 extend to the outside in the width direction towards the rear side. Thus, the flap portions can be configured to easily spread out in the back regions.

[0050]

Furthermore, it is desirable for the absorbent articles that are individually wrapped, to form the recessed portions so as to straddle the folding lines that are formed from folding up an absorbent article. Since the recessed portions 70 are provided so as to straddle the folding lines that are formed from folding up an absorbent article, the absorbent article deforms as if its creases extend along the recessed portions 70 in case of folding up the flap portions at the recessed portions 70 as base points. Thus, the recessed portions can be stable and functional at the flap portions 60 as deformation base points.

[0051]

At the flap portions 60, flap recessed portions are formed where the sidesheets 41, the intermediate sheet 35, and the backsheet 20 are compressed in the thickness direction. The flap recessed portions have the first flap recessed portions 72 that are branched off from the recessed portions 70 and reach the first flap constricted portions 61, the second flap recessed portions 73 that are branched off from the recessed portions 70 and reach the second flap constricted portions 62, and the third flap recessed portions 74 that are branched off from the recessed portions 72 and reach the vicinity of the third maximum width positions 65WM positioned outside in the width direction of the third flap portions 65.

[0052]

The first flap recessed portions 72, the second flap recessed portions 73, and the third flap recessed portions 74 are configured to extend, towards the rear side, from inside to outside in the width direction. As the flap recessed

portions are formed so as to extend, towards the rear side, from inside to outside in the width direction, the flap recessed portions are aligned along the direction where the force is added, so that the flap portions are naturally folded up at the flap recessed portions as starting points for folding. Accordingly, the flap portions 60 can easily fit not only to a body but to underwear. As a result, it is unlikely to form irregular wrinkles at the flap portions, and the article is deformed without uncomfortable feeling and is worn with clear feeling.

[0053]

Fig. 4 is a schematic view, showing the state in which the absorbent article 1 is placed on underwear. Fig.5 is a sectional view taken along the line B-B' shown in Fig. 4. When the wing portions of an absorbent article are folded back to the non-skin contact surface side of underwear, the portions are folded back more outside in the width direction than an absorber. At this time, folding lines FL formed at the wing portions are positioned more inside in the width direction than the recessed portions and the constricted portions and extend in the longitudinal direction along the sides of the absorber in a state before being folded back.

[0054]

Since the constricted portions are arranged more outside in the width direction than the folding lines FL that are formed at the wing portions in a state in which the wing portions are folded back to the non-skin contact surface side, the constricted portions as the root of the wing portions are arranged at the non-skin contact surface side of underwear in a state in which the wing portions are folded back to the non-skin contact surface side, thereby preventing the constricted portions from directly contacting skin. Accordingly, the twisted portions formed at the constricted portions are prevented from directly contacting skin, thereby reducing irritation to the skin.

[0055]

Also, the flap portions are folded back through the recessed portions, so that the regions more outside in the width direction than the recessed portions at the flap portions can be arranged so as to face a wearer. Therefore, while the flap portions are arranged so as to face a wearer, the irritation caused from contacting the edge portions of the wing portions can be controlled.

[0056]

Next, The method of manufacturing the absorbent article 1 according to the first embodiment will be partially explained below. For the methods which will not be explained herein, conventional methods may be applied. In the method of manufacturing an absorbent article, a topsheet forming step is carried out as the first step. Subsequently, a topsheet joining step is carried

out as the second step. Specifically, the topsheet 10 and the sidesheets 41 are bonded to each other by, for example, thermal fusion bonding.

[0057]

An absorber molding step is carried out as the third step. Specifically, the absorber 30 is molded by a molding drum, by molding the pulp that is the raw material of the absorber. The first and the second step of manufacturing a topsheet, and the third step of molding an absorber may be reversed in order.

[0058]

In the fourth step, a joining step is carried out. Specifically, a joining step, in that an absorber molded in the third step is joined to a topsheet and sidesheets that are joined in the second step, is carried out.

[0059]

In the fifth step, a first compressing step is carried out. Specifically, the absorber 30 and the topsheet 10 are compressed in the thickness direction, thus forming the compressed portions 80. In the sixth step, the backsheet joining step is carried out. In other words, the absorber and the topsheet, for example, that are formed with compressed portions, are joined to the backsheet.

[0060]

In the seventh step, a second compressing step is carried out. Specifically, the sidesheets 41, the intermediate sheets 35, and the backsheet 20 are compressed in the thickness direction, thereby forming the recessed portions 70. After the steps mentioned above, an adhesive coating step is provided. The absorbent article according to the present embodiment can thus be manufactured by the aforementioned steps.

[0061]

In a state in which an absorbent article is being placed on underwear, the wing portions in front of the constricted portions are folded back to the non-skin contact surface side of underwear, and the flap portions 60 in back of the constricted portions 45 are arranged so as to face a body of a wearer. Thus, the ends of the folding lines lie at the constricted portions when the wing portions are folded back, thus forming twists.

[0062]

Constricted portions are arranged more outside in the width direction than the folding lines that are formed in a state in which the wing portions are folded back to the non-skin contact surface side of underwear, so that the ends of the folding lines are arranged at the non-skin contact surface side of underwear. Therefore, the twisted portions of the edges at the wing portions are prevented from directly contacting skin, thereby reducing irritation to the skin due to the folding lines.

[0063]

Also, since the flap portions are folded back through the recessed portions, the regions that are more outside in the width direction than the recessed portions at the flap portions can be arranged so as to face a wearer. Therefore, while the flap portions are arranged so as to face a wearer, the irritation caused from contacting the edge portions of the wing portions can be controlled.

[0064]

So far, the present invention is disclosed through the above embodiments. However, it should not be interpreted that the statements and drawings constituting a part of the present disclosure limit the present invention. From this disclosure, a variety of alternate embodiments, examples, and applicable techniques will become apparent to one skilled in the art.

[0065]

In the present embodiment, inside ends in the width direction of intermediate sheets are arranged more inside in the width direction than the outside ends in the width direction of an absorber, and the intermediate sheets and the absorber overlap in the thickness direction. However, for example, the inside ends in the width direction of the intermediate sheets are arranged more outside in the width direction than the outside ends in the width direction of an absorber, and the intermediate sheets and the absorber may be configured not to overlap in the thickness direction.

[0066]

When the intermediate sheets and the absorber do not overlap in the thickness direction, the regions between the absorber and the intermediate sheets have low stiffness and can be more easily deformed than the surrounding region since there are no intermediate sheets and absorber. Thus, when the wing portions are folded back to the non-skin contact surface side of underwear, the regions between the intermediate sheets and the absorber are deformed, thus preventing the wrinkles and creases formed by twists from being formed at the flap portions themselves.

[0067]

Also, for example, the rear side ends of the recessed portions may not always be positioned at the rear side ends of the flap portions, or may deviate from the rear side ends of the flap portions. Further, the contact surface of the flap portions to a wearer may not always be configured from an air-through nonwoven cloth. Also, the intermediate sheet may not always be configured from an air-through nonwoven cloth. Furthermore, the intermediate sheet may not always be provided.

[0068]

The recessed portions according to the present embodiments are in a line shape, but may be configured by, for example, an aggregate of a plurality of dots arranged intermittently. Further, although the recessed portions according to the present embodiments are formed by being compressed from the sidesheet side configuring the topsheets toward the backsheet side, the recessed portions may be formed by being compressed, for example, from the backsheet side toward the sidesheet side.

[0069]

The entire contents of Japanese Patent Application No. 2011-217600 (filed on September 30, 2011) are incorporated in the present specification by reference.

[Industrial Applicability]

[0070]

An absorbent article which can lessen irritation due to folding lines formed when wing portions are folded back to a non-skin contact surface side of underwear, can be provided.

[Explanation of references]

[0071]

L...longitudinal direction, S...underwear, T...thickness direction, W...width direction, 1...absorbent article, 10...topsheet, 20...backsheets, 30...absorber, 35...intermediate sheet, 41...sidesheet, 43...wing portion, 43F...front side end 43R...rear side end, 43WM...wing maximum width position, 45...constricted portion, 45WN...minimum width position, 51...central adhesive portion, 52...wing adhesive portion, 60...flap portion, 61...first constricted portion, 62...second constricted portion, 63...first flap portion, 63WM...first maximum width position, 64...second flap portion, 64WM...second maximum width position, 65...third flap portion, 65WM...third maximum width position, 70...recessed portion, 70F...front side end, 70R...rear side end, 71...first recessed portion, 72...first flap recessed portion, 73...second flap recessed portion, 74...third flap recessed portion, 80...compressed portion

CLAIMS

[Claim 1]

An absorbent article having a front-rear direction and a width direction orthogonal to the front-rear direction, the absorbent article comprising:

a liquid-permeable topsheet;

a liquid-impermeable backsheet; and

an absorber arranged between the topsheet and the backsheet; wherein wing portions folded back to a non-skin contact surface side of underwear of a wearer, and flap portions positioned at rear side of the wing portions, are formed at outside of the absorber in the width direction,

constricted portions are formed between the wing portions and the flap portions, the constricted portions being constricted inward in the width direction from maximum width positions which are at the outermost position in the width direction in the wing portions, and maximum width positions which are at the outermost position in the width direction in the flap portions,

the flap portions and the constricted portions are formed with recessed portions indented in a thickness direction of the flap portions and extend from the constricted portions toward the rear side,

the recessed portions and the constricted portions are formed more outside in the width direction than folding lines formed at the wing portions in a state that the wing portions are folded back to the non-skin contact surface side, and

the flap portions are folded back at the non-skin contact surface side of the underwear with the recessed portions as base points in a state that the wing portions are folded back to the non-skin contact surface side, and thereby, a skin contact surface side of the flap portions is arranged so as to face the wearer.

[Claim 2]

The absorbent article according to claim 1, wherein the recessed portions extend from the constricted portions toward the rear side, to the inside in the width direction.

[Claim 3]

The absorbent article according to claim 1 or claim 2, wherein the wing portions have front side ends more inside in the width direction than rear side ends of the wing portions.

[Claim 4]

The absorbent article according to any one of claims 1 to 3, wherein the recessed portions are formed by compressing the topsheet and the backsheet from the topsheet side toward the backsheet side in a thickness direction.

[Claim 5]

The absorbent article according to any one of claims 1 to 4, further comprising intermediate sheets arranged between the topsheet and the backsheet, wherein the intermediate sheets are arranged at least at the constricted portions.

[Claim 6]

The absorbent article according to claim 5, wherein the intermediate sheets are arranged at least in a region where the recessed portions are formed in the flap portions, and wherein the recessed portions are formed by compressing the topsheet, the backsheet, and the intermediate sheets in the thickness direction.