DESCRIPTION

[Title of Invention] **ABSORBENT ARTICLE**

[TECHNICAL FIELD]

[0001]

The present invention relates to absorbent articles, such as sanitary napkins.

[BACKGROUND ART]

[0002]

Absorbent articles, such as sanitary napkins which absorb menstrual blood or vaginal discharge, panty liners, and incontinent pads, are known. In particular, among such absorbent articles, a sanitary napkin is pressed by the undergarment toward and fitted on the body of a wearer (Patent Literature 1). Like the sanitary napkin, the absorbent article includes a topsheet, a backsheet, and an absorber. The absorber is provided between the topsheet and the backsheet. The absorber has a hight unit projecting in a convex manner toward a skin-abutting surface side. The hight unit is a portion of the absorber having a thickness larger than the thickness of other regions than the hight unit. The hight unit is provided on both the foreside and rear side of the absorbent article. A rigid region is provided between front and rear hight units. The rigid region is formed by compressing an absorber by emboss processing. Sanitary napkins are folded and individually packaged. One of folding positions for folding each sanitary napkin extends on the rigid region where the absorber is embossed.

[CITATION LIST]

[PATENT LITERATURE]

[0003] Patent Literature 1:JP2010-115368

[SUMMARY OF INVENTION]

[Problems to be Solved by the Invention]

[0004]

The sanitary napkin, especially the sanitary napkin for nighttime, may sometimes be used in a face-up lying position. When a wearer is lying face-up, a gap is often formed between the bottom area and an absorbent article. Specifically, the bottom area of the wearer is flattened against the floor in the lying position, and such force from the bottom area may cause the rear region of the absorbent article to move a little toward the crotch region (excretion-opening facing region). This causes distortion in a front-back direction near the region between the rear region and the excretion-opening facing region. The distortion may cause deformation of the absorbent body near the region between the excretion-opening facing region and the rear region such that the absorbent article moves away from the bottom area.

[0005]

In particular, Patent Literature 1 discloses a sanitary napkin including a rigid region where the absorber is compressed by emboss processing and a folding position passing through the rigid region in a region corresponding to the region between the excretion-opening facing region and the rear region. Thus, the absorbent article is creased at this folding position to make a convex in a direction away from the skin of the wearer. As a result, the absorbent article can be easily deformed away from the bottom area near the region between the rear region and the excretion-opening facing region while the wearer is lying.

[0006]

There is a risk that a gap formed between the bottom area and the absorbent article would cause leakage of a body fluid (e.g., menstrual blood) from behind the absorbent article as the body fluid running over to the rear side of the body. Meanwhile, the wearer may feel uneasy as the wearer senses the menstrual blood running over the body.

[0007]

It is therefore desired to provide an absorbent article capable of preventing the body fluid from running over the body to the rear side of the body in the lying position to decrease the uneasy feeling of the wearer.

[Means for Solving the Problems]

[0008]

An absorbent article, comprising:
a front-back direction and a width direction which extend orthogonally;
an excretion-opening facing region facing an excretory opening of a wearer;
a rear region located on a rear side of the excretion-opening facing region;
an absorber disposed at least in the excretion-opening facing region and the rear region;
a skin-facing sheet provided on the skin surface side of the absorber; and
a non-skin-facing sheet provided on the non-skin surface side of the absorber, wherein
the absorber includes a first low basis weight region extending in the width direction between the excretion-opening facing region and the rear region,
the skin-facing sheet includes a non-bonded region which is not bonded to a member provided on the non-skin surface side of the skin-facing sheet over a region from the first low basis weight region to a region behind the first low basis weight region,
the absorbent article includes a folding line extending in the width direction in a region behind the first low basis weight region of the non-bonded region and folding the absorbent article.

[Effects of the Invention]

[0009]

According to the present invention, it is possible to provide an absorbent article capable of preventing the body fluid from running over the body to the rear side of the body in the lying position to decrease the uneasy feeling of the wearer.

[BRIEF DESCRIPTION OF DRAWINGS]

[0010]

Fig. 1 is a plan view of an absorbent article according to an embodiment.

Fig. 2 is a plan view of the absorbent article in Fig. 1 seen from the opposite side.

Fig. 3 is a cross-sectional view of the absorbent article taken along the 3A-3A line in Fig. 1.

Fig. 4 is a plan view of an absorbent article according to an embodiment.

Fig. 5 is a perspective view of the absorbent article in use.

Fig. 6 is a cross-sectional view of the absorbent article taken along the 6A-6A line in Fig. 1.

Fig. 7 is a cross-sectional view of the absorbent article taken along the 7A-7A line in Fig. 1.

Fig. 8 is a cross-sectional view of the absorbent article taken along the 3A-3A line in Fig. 1.

Fig. 9 is a plan view of the absorbent article when folded along the folding line FL of Fig. 1.

Fig. 10 is a schematic side view of the absorbent article folded along the folding lines F1 to F3 of Fig. 9.

[DESCRIPTION OF EMBODIMENTS]

[0011]

An absorbent article 1 according to an embodiment will be described by referring to Figs. The absorbent article may be any kind of absorbent article such as a pant liner (for absorbing vaginal discharges), sanitary napkin, or incontinence pad. In the following embodiments, a disposal sanitary napkin will be described as an example of absorbent article.

[0012]

In the drawings, the same or similar parts are indicated by the same or similar reference symbols. The drawings are illustrated schematically, and dimensional ratio and other variables differ from those of actual measurements. The actual measurements or the like, therefore, should be determined by referring to the following description. Needless to say, the drawings have different relationships or ratios of measurements.

[0013]

(1) Overall Structure of Absorbent Article

Fig. 1 is a plan view of an absorbent article. Fig. 2 is a plan view of the absorbent article in Fig. 1 seen from the opposite side. Fig. 3 is a cross-sectional view of the absorbent article taken along the 3A-3A line in Fig. 1.

[0014]
The absorbent article 1 has a front-back direction L, a width direction W, and a thickness direction T. The front-back direction L is a direction extending forward (ventral side) and backward (dorsal side) of a wearer. The width direction W is a direction extending orthogonal to the front-back direction L. The thickness direction T is a direction extending between a skin contact surface side T1 and a non-skin contact surface side T2 of the wearer and extending orthogonal to the front-back direction L and the width direction W. The skin contact surface side T1 is oriented toward the wearer's skin during use. The non-skin contact surface side T2 is opposite from the skin contact surface side T1.
[0015]
The absorbent article 1 has a excretion-opening facing region S1, a front region S2, and a rear region S3. The excretion-opening facing region S1 is located in a region coming into contact with an excretion opening (for example, a vaginal orifice) of the wearer. The excretion-opening facing region S1 is located in the crotch portion of the undergarment in a state in which the absorbent article is amounted on the underwear. That is, the excretion-opening facing region is a region disposed in a crotch of the wearer, that is, between both feet of the wearer.
[0016]
The front region S2 is in the front with respect to the excretion-opening facing region S1 in the front-back direction. A front end edge of the front region S2 defines a front end edge of the absorbent article 1. The rear region S3 is positioned at a rear side than the excretion-opening facing region S1 in the front-back direction. A rear end edge of the rear region S3 defines the rear end edge of the absorbent article 1. The length of the rear region S3 in the front-back direction L may be longer than the length of the excretion-opening facing region S1 in the front-back direction L.
[0017]
Wings 3 described below are provided in the excretion-opening facing region S1. In addition, hip flaps 4 bulging outward in the width direction W may be provided in the rear region S3.
[0018]
The front edge of each wing 3 is defined by the base of the wing 3, and corresponds to a foreside portion of two innermost concave portions of the wing in the width direction W. The front edge of each wing 3 may also define the border of the excretion-opening facing region S1 and the front region S2. The rear edge of each wing 3 is defined by the base of the wing 3, and corresponds to a rear side portion of the two innermost portions of the

wing in the width direction W. The rear edge of each wing 3 may be located between the excretion-opening facing region S1 and the rear region S3. A region between the front edge of the wing 3 and the rear edge of the wing 3 in the front-back direction L is herein referred to as a "wing region". In the absorbent article including the wings, the excretion-opening facing region S1 substantially coincides with the wing region. It is noted therefore that the term "excretion-opening facing region S1" can be referred to as the "wing region" in the specification.

[0019]

The absorbent article 1 includes a skin-facing sheet 10, a non-skin-facing sheet 20 and an absorber 30. The skin-facing sheet 10 is disposed on the skin contact surface side T1 of the absorber 30. The non-skin-facing sheet 20 is disposed on the non-skin contact surface side T2 of the absorber 30. The absorber is provided between the skin-facing sheet 10 and the non-skin-facing sheet 20.

[0020]

The skin-facing sheet 10 includes a topsheet 11, side sheets 12 and second sheet 13. The topsheet 11 is a liquid-permeable sheet that permeates liquid such as body fluids. The topsheet 11 at least covers the surface of the absorber 30. The topsheet 11 may extend from the front region S2 to the rear region S3 in the front-back direction L.

[0021]

The topsheet 11 is formed of any sheet-like material that permeates liquid, such as woven or nonwoven fabric, a perforated plastic sheet, or a mesh sheet. Woven or nonwoven fabric materials can be made of either natural or synthetic fibers.

[0022]

The side sheet 12 covers the opposing edges in the width direction W of the topsheet 11, extending outward therefrom in the width direction W. Note that, although the absorbent article 1 according to the embodiment includes the side sheet 12, the absorbent article 1 may also not have the side sheet 12. In the latter configuration, the topsheet 11 may cover the overall surface of the absorber 30.

[0023]

The side sheets 12 can be made of a material selected from similar materials of the topsheet 11. Preferably, the material of the side sheets 12 is water repelling or hydrophobic in order to prevent outward flow of menstrual blood over the side sheets 12 toward the outside of the absorbent article 1. The side sheets 12 are disposed at the outer side edge of a main body 2, which is described later, and over wings 3 and a hip flap 4.

[0024]

The second sheet 13 may be provided at least between the topsheet 11 and the absorber 30 in the non-bonded region 46 which is described later. The second sheet 13 may extend from the front region S2 to the rear region S3 in the front-back direction L. Alternatively, the second sheets 13 may only be provided in the non-bonded region 46 which is described later. Preferably, the second sheets 13 each have a width in the width direction W than the width of the absorbent core 31 which is described later.

[0025]

The second sheets 13 are liquid-impermeable sheet to allow liquid such as a body fluid. Preferably, the second sheets 13 have a hydrophyllic degree higher than the hydrophyllic degree of the topsheet 11. Specifically, the hydrophyllic degree of the second sheets 13 is needed to be higher than the hydrophyllic degree of the topsheet 11 in the non-bonded region 46 which is described later. The second sheets 13 can be made of a material similar to the material of the topsheet 11.

[0026]

The non-skin-facing sheet 20 is a non-liquid-permeable sheet. The non-skin-facing sheet 20 may be made of, for example, a polyethylene sheet, laminated nonwoven fabric mainly including polypropylene or the like, an air-permeable resin film, spun bond, or a sheet formed by bonding an air-permeable resin film to nonwoven fabric such as spun lace.

[0027]

The absorber 30 is disposed at least in the excretion-opening facing region S1 and the rear region S3. In addition, the absorber 30 may extend from the excretion-opening facing region S1 to the front region S2. The absorber 30 includes an absorbent core 31 including an absorbent material for absorbing liquid, and a core wrap 32 enclosing the absorbent core 31. The core wrap 32 is at least needed to cover the absorbent core 31 on the skin surface side of the absorbent core 31. Specifically, in one example, the core wrap 32 may include a sheet disposed on the skin surface side of the absorbent core 31, and a sheet disposed on the non-skin surface side of the absorbent core 31. The sheet disposed on the skin surface side and the sheet disposed on the non-skin surface side, which form the core wrap 32, may be formed by the same sheets. The absorbent material forming the absorbent core 31 is, for example, hydrophyllic fibers, pulp, or high absorbent polymers (SAP). The core wrap 32 can be formed of, for example, non-woven fabric or a tissue sheet.

[0028]

Unlike the above-described embodiment, the absorber 30 may not include the core wrap 32. In this case, the absorbent core 31 only needs to be covered by the skin-facing sheet

10 and the non-skin-facing sheet 20.

[0029]

As was described earlier, the absorbent article 1 has the wings 3 and the hip flaps 4. The wings 3 and the hip flaps 4 extend outward in the width direction W with respect to the outer side edges of the absorbent core 31 in the excretion-opening facing region S1.

[0030]

The wings 3 and hip flaps 4 may have the side sheet 12 and the non-skin-facing sheet 20. The wings 3 are foldable over the non-skin-facing sheet 20. Hence, the wings 3 are foldable onto a non-skin-facing surface of the crotch region of underwear at the time of being used.

[0031]

The hip flaps 4 are positioned at a rear side than the wings 3 and are disposed in the rear region S3. The hip flaps 4 are not foldable at the time of use but are placed between the wearer's bottom and the underwear. In this embodiment, the hip flaps 4 are not provided with the absorbent materials. Alternatively, the hip flaps 4 may be provided with the absorbent materials.

[0032]

(2) Detailed Structure of Absorber

Next, referring to Figs. 1 to 4, a detailed structure of the absorber 30 is described. Fig. 4 is a plan view of the absorber 30 of the embodiment. The absorber 30 includes a hight unit 33 at least in the excretion-opening facing region S1. The hight unit 33 may extend from the excretion-opening facing region S1 to the front region S2. The hight unit 33 is disposed over the center line CL in the excretion-opening facing region S1. The hight unit 33 represents a region having a thickness larger than the thickness of the absorbent core 31 located in the region surrounding the hight unit 33. A basis weight of the hight unit 33 may be higher than the basis weight of the absorbent core 31 in the region other than the hight unit 33 in the excretion-opening facing region S1. The hight unit 33 may be adjacent to a first low basis weight region 41 which is described later. Preferably, the absorbent core 31 located in the rear side of the first low basis weight region 41 is thinner than the hight unit 33. More preferably, the absorbent core 31 over the entire rear region S3 is thinner than the hight unit 33. The hight unit 33 includes the top portion having the largest thickness and a tilted portion connecting to the top portion. The tilted portion may be disposed between the top portion and a front compressed unit described later and between the top portion and the first low basis weight region 41.

[0033]

The absorber 30 may include first, second, and third low basis weight regions 41, 42, and 43. The term “low basis weight region” as used herein represents a region made of the absorbent core 31 having a basis weight lower than the basis weight of the surrounding absorbent core 31, or a region that includes no absorbent core 31. Thus, the concept of the “low basis weight region” includes a region in which the absorbent core 31 has zero basis weight.

[0034]

The basis weight of the absorbent core 31 in the low basis weight regions 41 to 43 is preferably equal to or smaller than 150 g/m2, and more preferably equal to or smaller than 100 g/m2. Still more preferably, the basis weight of the absorbent core 31 in the low basis weight regions 41 to 43 is substantially 0 g/m2. Meanwhile, the basis weight of the absorbent core 31 in the low basis weight regions 41 to 43 is preferably equal to or smaller than 60%, and more preferably equal to or smaller than 50% of the basis weight of the absorbent core (excluding the hight unit) around the low basis weight regions 41 to 43.

[0035]

The core wrap 32 may enclose the entire absorbent core 31 over the low basis weight region even when the absorbent core 31 is not included in the “low basis weight region”. In this case, the absorber 30 is formed integrally by the core wrap 32 if the absorbent core 31 is divided into a plurality of regions.

[0036]

The first, second, and third low basis weight regions 41, 42, and 43 are boarders where the rigidity of the absorber 30 changes. Thus, the first, second, and third low basis weight regions 41, 42, and 43 correspond to regions where the absorber 30 can deform easily.

[0037]

The first low basis weight region 41 extends in the width direction W between the excretion-opening facing region S1 and the rear region S3. The first low basis weight region 41 may extend linearly in the width direction W, or may extend in a curved manner in the width direction W.

[0038]

The first low basis weight region 41 may be provided in the rear side from the center of the wings 3 in the front-back direction L and in the foreside of the rear-side edge of the absorber 30. The first low basis weight region 41 may be provided to extend over the rear edge of the wing 3 in the front-back direction L.

[0039]

In the present embodiment, the first low basis weight region 41 is in a curved shape, with the center part of the first low basis weight region 41 in the width direction W projecting rearward. More specifically, the center of the first low basis weight region 41 in the width direction W is located in the rear side of the outer side edges of the first low basis weight region 41. The length of the first low basis weight region 41 in the front-back direction L may be fixed or not fixed.

[0040]

Preferably, the length of the first low basis weight region 41 in the width direction W is at least 25 mm. This prevents transmission of the motion of the absorber 30 in the excretion-opening facing region S1 to the rear region S3. More preferably, the first low basis weight region 41 extends from one end to the other end of the absorber 30 in the width direction W. In this case, the front edge of the first low basis weight region 41 may define the rear edge of the excretion-opening facing region S1, or the rear edge of the first low basis weight region 41 may define the front edge of the rear region S3.

[0041]

The length of the first low basis weight region 41 in the front-back direction L at the center line CL of the absorbent article 1 is preferably from 10 mm to 50 mm, and more preferably from 10 mm to 30 mm.

[0042]

The second low basis weight region 42 can extend in the front-back direction L along the center line CL of the absorbent article in the rear region S3. The second low basis weight region 42 may extend linearly in the front-back direction L. Preferably, the second low basis weight region 42 is connected to the first low basis weight region 41.

[0043]

The rear edge of the second low basis weight region 42 may be located in the rear side of the center of the rear region S3 in the front-back direction. In addition, the rear edge of the second low basis weight region 42 may be located on the rear side of a position P1 where the maximum width of the hip flap 4 is achieved. The length of the second low basis weight region 42 in the front-back direction L is preferably at least 120 mm, and more preferably at least 150 mm. Preferably, the length of the second low basis weight region 42 in the width direction W is from 1 mm to 15 mm. In the cross-section along the front-back direction L of the body of the wearer, the groove (gluteal cleft) between the bottom area exists in a region from behind the perineum to the tail bone. The second low basis weight region 42 is disposed in the region of the gluteal cleft of the wearer during use of the absorbent article.

[0044]

The third low basis weight region 43 extends outward in the width direction W from the second low basis weight region 42 in the rear region S3. The third low basis weight region 43 may be connected to the second low basis weight region 42. The front edge line of the third low basis weight region 43 may extend substantially in parallel to the width direction W inside the width direction W. In addition, the front edge line of the third low basis weight region 43 may hang over forward in the outside in the width direction W. The rear edge of the third low basis weight region 43 may be tilted forward while extending outward from inside in the width direction W.

[0045]

The outer edge of the third low basis weight region 43 in the width direction W is located inside the outer edge of the absorbent core 31 in the rear region S3. A plurality of third low basis weight regions 43 may be provided at intervals in the front-back direction L.

[0046]

The absorbent article 1 may include pressure-bonding portions 51, 52, and 53 where the sheet of the core wrap 32 on the skin surface side of the absorbent core 31 and the sheet of the core wrap 32 on the non-skin surface side of the absorbent core 31 are subjected to pressure-bonding (see Fig. 4).

[0047]

The first pressure-bonding portion 51 extends in the width direction W along the first low basis weight region 41. Preferably, the width of the first pressure-bonding portion 51 in the front-back direction L is narrower than the width of the first low basis weight region 41 in the front-back direction L. Preferably, the first pressure-bonding portion 51 extends continuously from one end to the other end of the absorber 30 in the width direction W.

[0048]

The second pressure-bonding portion 52 extends in the front-back direction L along the second low basis weight region 42. Preferably, the width of the second pressure-bonding portion 52 in the width direction W is narrower than the width of the second low basis weight region 42 in the width direction W. The second pressure-bonding portion 52 may be connected to the first pressure-bonding portion 51.

[0049]

The third pressure-bonding portion 53 extends in the third low basis weight region 43. Preferably, the third pressure-bonding portion 53 in the front-back direction L is narrower than the width of the third low basis weight region 43. The third pressure-bonding portion 53 may be connected to the second pressure-bonding portion

52.

[0050]

Preferably, the first, second, and third pressure-bonding portions 51, 52, and 53 are not formed on the skin-facing sheet 10. Specifically, the first, second, and third pressure-bonding portions 51, 52, and 53 are preferably formed by performing pressure-bonding only on the core wrap 32 or the absorbent core 31 and the core wrap 32. If the absorbent core is present in the low basis weight regions 41, 42, and 43, the pressure-bonding portions 51, 52, and 53 may be the portions where the absorbent core of the low basis weight regions 41, 42, 43 and the core wrap 32 are subjected to pressure-bonding. In a case there is no absorbent core in the low basis weight regions 41, 42, and 43, the pressure-bonding portions 51, 52, and 53 may be portions where only the core wrap 32 is subjected to pressure-bonding. In this case, the absorbent core 31 is divided using the low basis weight regions 41, 42, and 43 and the pressure-bonding portions 51, 52, and 53 as borders. The pressure-bonding portions 51, 52, and 53 can be formed by emboss processing. The pressure-bonding portions 51, 52, and 53 are covered by the skin-facing sheet 10, and cannot or are hardly visually recognized externally. Instead of the embodiment described above, the first, second, and/or third pressure-bonding portions 51, 52, and/or 53 may be formed on the skin-facing sheet 10 and/or the non-skin-facing sheet 20.

[0051]

(3) Non-bonded Region Between Topsheet and Absorber

The skin-facing sheet 10 includes a non-bonded region 46 that is not bonded with members provided on the non-skin surface side of the skin-facing sheet 10 in the first low basis weight region 41 (see Figs. 1 and 3). More specifically, the skin-facing sheet 10 is not bonded with the core wrap 32 in the non-bonded region 46. The non-bonded region 46 is indicated in Fig. 1 by a region enclosed by a broken line.

[0052]

The non-bonded region 46 may extend at least from one end to the other end of the first low basis weight region 41 in the width direction W. Alternatively, the non-bonded region 46 may not extend to both ends of the first low basis weight region 41 in the width direction W. The non-bonded region 46 may at least extend from the first low basis weight region 41 to the third low basis weight region 43 that is closest to the first low basis weight region 41 of a plurality of third low basis weight regions 43. This allows the skin-facing sheet 10 to float above the absorber 30 in the area of the first low basis weight region 41 and the rear-side thereof.

[0053]

(4) Compressed units

The absorbent article 1 includes compressed units formed by compressing at least the absorbent core 31 in the thickness direction T. The compressed units may include a front compressed unit 81, longitudinal compressed units 82, and a pair of rear compressed units 84(see Fig. 1 and Fig. 4).

[0054]

The front compressed unit 81 is disposed at least in the excretion-portion contact region S1. The front compressed unit 81 may extend from the excretion-portion contact region S1 into the front region S2. The front compressed unit 81 may be formed by compressing together the topsheet 11, the absorbent core 31, and the core wrap 32 in the thickness direction T. The front compressed unit 81 has sections along the front-back direction L on either side in the width direction W of the hight unit 33. The front compressed unit 81 may define the opposing edges in the width direction W of the hight unit 33.

[0055]

The front compressed unit 81 has a continuous U-shape, curving in the width direction W near the front end edge of the absorbent core 31. Alternatively, the front compressed unit 81 may be disposed in separate portions on either side in the width direction W of the hight unit 33. In other words, a pair of front compressed units 81, being independent of each other, may be discretely disposed.

[0056]

The longitudinal compressed unit 82 is provided on both sides of the center line CL, more specifically the second low basis weight region 42 in the rear region S3. The longitudinal compressed unit 82 may be formed by pressing the absorber 30 and the topsheet 11 in the thickness direction.

[0057]

The longitudinal compressed unit 82 extends in the front-back direction L. The longitudinal compressed unit 82 may extend linearly in the front-back direction L, or may be tilted and extend in a curved manner in the front-back direction L. The longitudinal compressed unit 82 may be formed in the foreside of the position P1 where the maximum width is achieved between the opposite portions of the hip flap 4.

[0058]

The pair of rear compressed units 84 is disposed on either side of the centerline CL in the rear region S3. The rear compressed units 84 may be formed by compressing the absorber 30 and the topsheet 11 in the thickness direction. The pair of rear compressed units 84 is spaced away from each other on either side of the centerline CL,

which runs through the center in the width direction W of the absorbent article. The pair of rear compressed units 84 is located positioned at the rear side than the position P1, which represents the maximum width between the opposite hip flaps 4.

[0059]

The absorbent article 1 includes a first compressed unit 85, a second compressed unit 87, and a third compressed unit 86 formed by compressing at least two sheets among sheets included in the skin-facing sheet 10 and the non-skin-facing sheet 20 in the thickness direction T(see Fig.1). The first compressed unit 85, the second compressed unit 87, and the third compressed unit 86 are formed along at least the outer edges of the hip flaps 4.

[0060]

The absorbent article 1 may include a compressed unit 88 formed by pressing the skin-facing sheet 10 at least in the first low basis weight region 41. Preferably, the compressed unit 88 is formed only on the skin-facing sheet 10 (see Fig. 1).

[0061]

The compressed unit 88 may slightly exceed the first low basis weight region 41 to reach the foreside in the front-back direction L, but preferably be present in the rear side of the hight unit 33. The compressed unit 88 may at least extend from the first low basis weight region 41 to the third low basis weight region 43 closest to the first low basis weight region 41 of a plurality of third low basis weight regions 43. The compressed unit 88 may be formed in a region substantially equivalent to the non-bonded region 46 or a region narrower than the non-bonded region 46.

[0062]

Preferably, the compressed unit 88 is formed continuously in the front-back direction L in at least the first low basis weight region 41. The compressed unit 88 need not be formed linearly so long as it extends continuously in the front-back direction L. For example, the compressed unit 88 may be provided in a zig-zag manner in the front-back direction L as illustrated in Fig. 1. Alternatively, the compressed unit 88 may be formed continuously and linearly in the front-back direction L at least in the first low basis weight region 41.

[0063]

Preferably, the compressed unit 88 is formed in a lattice, as illustrated in Fig. 1. Specifically, the compressed unit 88 includes a plurality of first linear patterns which are tilted in the front-back direction and a plurality of second linear patterns which are tilted in the front-back direction and relative to the first linear pattern. Preferably, the compressed unit 88 is provided in a region narrower than the region of the second sheet

13.

[0064]

(5) Adhesive regions

As is shown in Fig. 2, the absorbent article 1 includes first basic adhesive regions 61, second basic adhesive regions 62, wing adhesive regions 63, and hip flap adhesive regions 64 where an adhesive for fastening the absorbent article 1 to an underwear S has been applied, respectively. These adhesive regions 61 to 64 are disposed on a non-skin-facing surface of the non-skin-facing sheet 20. The adhesive regions 61 to 64 may be covered by a release sheet(s) before the time of use. Such release sheet prevents the adhesive of the adhesive regions 61 to 64 from deteriorating before the time of use. The release sheet is removed by the wearer at the time of use.

[0065]

The first basic adhesive regions 61 are disposed in the front with respect to the second basic adhesive regions 62. The first basic adhesive regions 61 and the second basic adhesive regions 62 are extending in the front-back direction L. The first basic adhesive regions 61 are spaced away from the respective second basic adhesive regions 62 in the front-back direction L. The first basic adhesive regions 61 may be disposed in the front with respect to the first low basis weight region 41 and may extend from the excretion-opening facing region S1 into the front region S2. The second basic adhesive regions 62 are disposed positioned at the rear side than the first low basis weight region 41 in the rear region S3. Preferably, the first and second basic adhesive regions 61 and 62 are not disposed on the center line CL. The wing adhesive regions 63 are disposed on the respective wings 3. The hip flap adhesive regions 64 are disposed on the respective hip flaps 4.

[0066]

Preferably, the first low basis weight region 41 is disposed in a region not overlapping the adhesive regions 61 to 64 in the thickness direction T. More specifically, the first low basis weight region 41 is provided in a region between the first and second basic adhesive regions 61 and 62.

[0067]

Preferably, the second low basis weight region 42 is disposed in a region not overlapping the adhesive regions 61 to 64 in the thickness direction T. More specifically, the second low basis weight region 42 is provided in a region between a plurality of second basic adhesive regions 62.

[0068]

Preferably, the pair of longitudinal compressed units 82 is disposed in a region

overlapping the second basic adhesive regions 62.

[0069]

(6) Absorbent article during use

Next, referring to Figs. 5 to 8, the shape of the absorbent article in use is described. Fig. 5 is a perspective view of the absorbent article in use. Fig. 6 is a cross-sectional view of the absorbent article in use taken along the 6A-6A line in Fig. 1. Fig. 7 is a cross-sectional view of the absorbent article in use taken along the 7A-7A line in Fig. 1. Fig. 8 is a cross-sectional view of the absorbent article in use taken along the 3A-3A line in Fig. 1. In Figs. 6 and 7, lines indicating the shape of the body of the wearer by a two-dot chain line.

[0070]

When the absorbent article 1 as a sanitary napkin is worn, the absorbent article 1 is fastened to the underwear S. The excretion-opening facing region S1 of the absorbent article 1 is placed between the legs of the wearer and thereby applied an external-to-internal force in the width direction W.

[0071]

The cross-sectional contours of the wearer's body along the width direction W of the absorbent article 1 differ in the crotch region and the bottom area. Specifically, the cross-sectional contours of the wearer's body in the pudendal slit area (around the vaginal orifice through which the menstrual bleeding is discharged) in the crotch region are such that the labia majus are protruded in the distal portion thereof, forming an externally protruding shape toward the absorbent article 1. The excretion-opening facing region S1 of the absorbent article is placed so that the crotch region of the wearer faces the excretion-opening facing region. The absorbent core 31, especially the hight unit 33 of the excretion-opening facing region S1 is disposed at the crotch of the wearer so as to prevent the leakage of the body fluid in the crotch (see Fig. 6).

[0072]

Further in the wearer's body, the perineum is in the rear of the labia majus, and further in the rear, the anus and the intergluteal cleft are located. Taken cross-sectionally, the wearer's body in the rear of the perineum has a recess in the medial portion along the width direction. This is the bottom area of the wearer which will face the rear region S3 of the absorbent article.

[0073]

The second low basis weight region 42 extending in the front-back direction L along the center line CL is formed in the rear region S3. The center of the rear region S3 in the width direction W tends to project toward the body of the wearer by the

external-to-internal force of the absorbent article (see Fig. 7). This allows deformation of the absorbent article 1 to fit the shape of the gluteal cleft of the wearer in the rear region S3. As a result, the wearer can obtain comfortable fit of the absorbent article 1 at the bottom area.

[0074]

The absorbent article 1 tends to change its shape in the excretion-opening facing region S1 and the rear region S3 to fit to the shape of the body of the wearer. The first low basis weight region 41 decreases the influence of the deformation of the absorber 30 in the excretion-opening facing region S1 on the deformation of the absorber 30 in the rear region S3. That is, the absorbent article can more easily deform independently in the excretion-opening facing region S1 and the rear region S3 by the first low basis weight region 41.

[0075]

Meanwhile, the sanitary napkin for the nighttime is often used in the face-up lying position. When the wearer lies face-up, a gap is generated easily between the bottom area and the absorbent article 1.

[0076]

Specifically, the bottom area of the wearer is flattened against the floor in the lying position, causing the rear region S3 of the absorbent article 1 to move a little to the excretion-opening facing region S1. This generates distortion in the front-back direction L in the vicinity of the region between the excretion-opening facing region S1 and the rear region S3. The distortion would cause a gap between the absorbent article 1 and the bottom area in the vicinity of the region between the excretion-opening facing region S1 and the rear region S3.

[0077]

When the gap exists between the bottom area and the absorbent article, there is a risk that the menstrual blood moves along the body toward the rear side on the dorsal side and is leaked from the rear side of the absorbent article. Meanwhile, the wearer senses the movement of the menstrual blood along the body and might feel uncomfortable.

[0078]

The absorbent article 1 according to the embodiment includes the non-bonded region 46 of the skin-facing sheet 10 corresponding to at least the first low basis weight region 41. Thus, when the rear region S3 of the absorbent article moves toward the excretion-opening facing region S1, the non-bonded region 46 of the skin-facing sheet 10 projects toward the body of the wearer (see the reference sigh “47” of Fig. 8). Such a

projecting portion 47 of the skin-facing sheet 10 fills the gap against the body of the wearer. It is therefore possible to decrease the motion of the menstrual blood running can be prevented.

[0079]

(7) Folding Absorbent Article

The absorbent article 1 may be packaged individually in a folded state. Referring to Figs. 1, 2, 9, and 10, the folding of the absorbent article 1 is described. Fig. 9 is a plan view of the absorbent article 1 folded along the folding line FL of Fig. 1. Fig. 10 is a schematic side view of the absorbent article when folded along the folding lines F1 to F3 of Fig. 9.

[0080]

The absorbent article 1 may include a front-back folding line FL extending in the front-back direction L, a first folding line F1 extending in the width direction W, and second and third folding lines F2 and F3.These folding lines FL, F1, F2, F3 are lines for folding the absorbent article 1.

[0081]

The front-back folding lines FL may be provided outside of the outer end of the absorber 30 in the width direction W. The front-back folding lines FL may be provided inside the first, second, and third compressed units 85, 87, and 86 in the width direction W.

[0082]

The first folding line F1 is provided on the rear side of the second folding line F2. The first folding line F1 may be provided on the rear side of P1 where the maximum width of the hip flap 4 is achieved. The first folding line F1 may be provided between the longitudinal compressed unit 82 and the rear compressed unit 84 in the front-back direction L. Preferably, the first folding line F1 passes through the third low basis weight region 43. The first folding line F1 may not be provided in the absorbent article 1 having a relatively short length of the rear region S3 in the front-back direction L.

[0083]

The second folding line F2 is provided between the first and third folding lines F1 and F3 in the front-back direction L. The second folding line F2 passes through the region in the rear side of the first low basis weight region 41 of the non-bonded region 46. The second folding line F2 may be disposed in the foreside of the pair of longitudinal compressed units 82. Preferably, the second folding line F2 passes through the second basic adhesive region 62.

[0084]

The third folding line F3 is provided in the foreside of the second folding line F2. The

third folding line F3 may be provided in the foreside of the maximum portion of the hight unit 33. More specifically, the third folding line F3 avoids the top of the hight unit 33 and passes through the tilted portion connecting to the top of the hight unit 33. The third folding line F3 may be provided in the front region S2.

[0085]

The absorbent article 1 is folded inward along the front-back folding line FL as the base point such that the non-skin surface side is exposed externally (see Fig. 9). From the state illustrated in Fig. 9, the absorbent article 1 is preferably folded at the first, second, and third folding lines F1, F2, and F3 in this order (see Fig. 10).

[0086]

In the folded state of the absorbent article 1, a rear-side edge 92 of the absorbent article is located inside the absorbent article. In the folded state of the absorbent article 1, a front edge 91 of the absorbent article is located outside the absorbent article. In addition, the first folding line F1 is located inside the folded absorbent article 1. The second and third folding lines F2 and F3 are located outside the folded absorbent article 1.

[0087]

(8) ADVANTAGEOUS EFFECTS OF INVENTION

According to an embodiment, an absorber 30 includes a first low basis weight region 41 extending in a width direction W between an excretion-opening facing region S1 and a rear region S3. A skin-facing sheet 10 includes a non-bonded region 46 which is not bonded to members (e.g., a core wrap 32) provided on the non-skin surface side of the skin-facing sheet 10 over the region on the rear side of the first low basis weight region 41. The absorbent article 1 includes a folding line F2 extending in the width direction W across the region behind the first low basis weight region 41 of the non-bonded region 46, and folding the absorbent article 1.

[0088]

The bottom area of a wearer is flattened against the floor when the wearer is lying, and the force from the bottom area moves a rear region S3 of the absorbent article 1 a little toward the excretion-opening facing region S1. The absorbent article 1 of the present embodiment includes the non-bonded region 46 of the skin-facing sheet 10 at least in the first low basis weight region 41. This allows the non-bonded region 46 of the skin-facing sheet 10 to project toward the body of the wearer (see reference sign 47 in Fig. 8) when the rear region S3 of the absorbent article moves toward the excretion-opening facing region S1.

[0089]

Meanwhile, the folding line F2 for folding the absorbent article 1 is formed in the region on the rear side of the first low basis weight region 41 where the skin-facing sheet 10 can most easily project toward the wearer. Thus, the projection of the skin-facing sheet 10 is not disturbed by a crease formed by the folding line F2. Further, the folding line F2 hardly generates a folding line, because the folding line F2 passing through an absorbent core having a basis weight larger than the basis weight of the first low basis weight region 41. This allows the skin-facing sheet 10 to easily project toward the skin of the wearer in the first low basis weight region 41.

[0090]

The embodiment includes adhesive regions 62 provided on the non-skin surface of a non-skin-facing sheet 20 and the folding line F2 passes over the adhesive regions 62. Typically, the portion where the adhesive regions are provided has a higher rigidity than the portion where the adhesive regions are provided. That is, the folding line F2 passes through the region having a high rigidity due to the adhesive regions 62. This can further prevent the crease caused by the folding line F2. This allows the skin-facing sheet 10 to easily project toward the skin of the wearer in the first low basis weight region 41.

[0091]

The adhesive regions 62 of the embodiment are arranged in a region not overlapping the first low basis weight region 41. This allows the first low basis weight region 41 to further act as a base point of deformation. That is, the absorbent cores 31 arranged adjacently can easily move independently across the first low basis weight region 41. Accordingly, the absorber 30 can more easily fit the shape of the crotch and the bottom area of the wearer. Thus, it is possible to provide the absorbent article capable of comfortably fitting the body of the wearer and giving a good fit to the wearer.

[0092]

In the embodiment, a pair of longitudinal compressed units 82 is formed in the rear region S3 on both sides of the center line CL connecting centers in the width direction W and extends in the front-back direction L. The folding line F2 is arranged on the foreside of the pair of longitudinal compressed units 82. The region sandwiched between the pair of longitudinal compressed units 82 projects along the gluteal cleft of the wearer when the absorbent article is worn. Since the folding line F2 is disposed on the foreside of the pair of longitudinal compressed units 82, the projection of the region between the longitudinal compressed units 82 is not disturbed. Thus, the absorbent article 1 can easily project along the gluteal cleft of the wearer in the rear region S3.

[0093]

The absorbent article 1 of the embodiment is formed to be folded on the first, second, and third folding lines F1, F2, and F3 sequentially in this order. When the absorbent article 1 is folded as such, the absorbent article 1 can be packaged compactly.

[0094]

The absorber 30 of the embodiment includes a third low basis weight region 43 extending outward from the second low basis weight region 42 in the width direction W in the rear region S3. The first folding line F1 passes through the third low basis weight region 43. The third low basis weight region 43 forms a base point of deformation extending in the width direction W. The absorbent core 31 of the rear region S3 can deform with the third low basis weight region 43 acting as the base point, so that the absorbent article 1 can easily fit better along the roundness of the body in the front-back direction L. The folding line F1 is provided in the third low basis weight region 43 to allow deformation of the absorbent article 1 more easily in the rear region S3 along the roundness of the bottom area in the front-back direction L. This allows the absorbent article 1 to better fit the bottom area of the wearer, preventing the running and leakage of the body fluid.

[0095]

The third folding line F3 of the embodiment passes through a tilted portion of the hight unit 33, as described above. This prevents the generation of the crease on top of the hight unit 33. As a result, the fitting the hight unit 33 from fitting to the skin of the wearer.

[0096]

Although the embodiments have been used to describe the present invention in detail, it will be apparent to those skilled in the art that the present invention is not limited to the embodiments described herein. Modifications and variations can be made to practice the present invention without departing from the spirit and scope of the invention defined in the appended claims. Hence, the description herein is intended to be illustrative only and not limiting to the present invention.

[Reference Signs List]

[0097]

1 absorbent article
10 skin-facing sheet
20 non-skin-facing sheet
30 absorber
31 absorbent core
32 core wrap
33 hight unit
41 first low basis weight region
42 second low basis weight region
43 third low basis weight region
51 first pressure-bonding portion
52 second pressure-bonding portion
53 third pressure-bonding portion
61 first basic adhesive region
62 second basic adhesive region
81 front compressed unit
82 longitudinal compressed unit
84 rear compressed unit
L front-back direction
W width direction
T thickness direction
S1 excretion-opening facing region
S2 front region
S3 rear region
CL center line