

[DESCRIPTION]

[Title of Invention]

Absorbent Article

[Technical Field]

[0001]

The present invention relates to an absorbent article including an absorber, a main body sheet overlapping the absorber, and a fastening member joined to the main body sheet.

[Background Art]

[0002]

Patent Literature 1 discloses an absorbent article including an absorber, a side panel as a main body sheet arranged at a skin contact surface side of the absorber, and a fastening member joined to the side panel. The side panel of the absorbent article in Patent Literature 1 is folded up widthwise inwardly in an unused state, and joined releasably, via an adhesive, to a gather sheet (main body sheet). The fastening member and a side flap are arranged in a rear waistband region.

[0003]

When the absorbent article in Patent Literature 1 is worn, the side panel is peeled off from the gather sheet, and the side panel is developed. Next, the disposable diaper is arranged around a body of a wearer, and the fastening member is drawn to a front waistband region and fastened to the front waistband region.

[Citation List]

[Patent Literature]

[0004]

[PTL 1]

Publication of Patent No. 3878920

[Summary of Invention]

[0005]

However, the above-described disposable diaper has the below problems.

[0006]

A portion where the side panel and the gather sheet, in Patent Literature 1, are joined is arranged on the fastening member. Therefore, in an unused state, the fastening member is joined to a topsheet via an adhesive. The fastening member itself is joined to the topsheet, and thus, even when inserting a finger between the fastening member and the topsheet is attempted in order to hold the fastening member upon development, it is not possible to insert the finger. Thus, it is not possible to easily develop the side panel and the fastening member, and therefore, it is not possible to improve a handling

when the disposable diaper is put on.

[0007]

Therefore, an object of the present invention is to provide an absorbent article including an absorber, a main body sheet overlapping the absorber, and a fastening member joined to the main body sheet, in which it is possible to easily develop the main body sheet and the fastening member and it is possible to improve a handling when the absorbent article is put on.

[0008]

In order to solve the problems described above, an absorbent article according to present disclosure, is summarized as the following, comprising: an absorbent main body including an absorber and a main body sheet overlapping the absorber; and a fastening member that is joined to a widthwise outer end of the main body sheet and is fastened to a surface at a non-skin-contact side of the absorbent main body; wherein the fastening member comprises: a fastening distal end overlapping the main body sheet; a fastening extending unit extending from the main body sheet; and a fastening engagement unit that is arranged in the fastening extending unit and is fastened to the absorbent main body, a widthwise outer end of the main body sheet is folded back starting from a fold line along a longitudinal direction of the absorber, and is temporarily fixed releasably, via a temporarily joined unit, to the main body sheet arranged widthwise inwardly of the fold line, and the temporarily joined unit is arranged longitudinal outwardly of a widthwise region extending from the fastening distal end in the widthwise direction and longitudinal inwardly of the widthwise region, respectively.

[Brief Description of Drawings]

[0009]

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

[Fig. 2] Fig. 2 is a cross-sectional view taken along A-A in Fig. 1.

[Fig. 3] Fig. 3 is a plan view of a state in which a side flap of the absorbent article shown in Fig. 1 is folded up.

[Fig. 4] Fig. 4 is a cross-sectional view taken along B-B in Fig. 3.

[Fig. 5] Fig. 5 is an enlarged view of a side flap portion shown in Fig. 3.

[Fig. 6] Fig. 6 is a diagram schematically showing a method of manufacturing an absorbent article.

[Fig. 7] Fig. 7 is an expanded plan view of a side flap portion of an absorbent article according to a first modification.

[Fig. 8] Fig. 8 is an expanded plan view of a side flap portion of an absorbent article

according to a second modification.

[Fig. 9] Fig. 9 is an expanded plan view of a side flap portion of an absorbent article according to a third modification.

[Description of Embodiments]

[0010]

Hereinafter, an absorbent article according to the present invention will be described with reference to drawings. Specifically, (1) Configuration of absorbent article, (2) Method of manufacturing absorbent article, (3) Operation and effect, and (4) Other embodiments are described.

[0011]

In the following description of the drawings, the same or similar reference numerals are used to designate the same or similar parts. However, it will be appreciated that the drawings are schematically shown and the ratio and the like of each dimension are different from the real ones. Therefore, a specific dimension or the like should be determined in view of the following description. Of course, among the drawings, the dimensional relationship and the ratio may be different.

[0012]

(1) Configuration of absorbent article

First of all, a configuration of an absorbent article 1 according to the present embodiment is explained with reference to drawings.

Fig. 1 is a plan view showing the absorbent article 1 according to the present embodiment. Fig. 2 is a cross-sectional view taken along A-A in Fig. 1. Fig. 3 is a plan view of a state in which a side flap of the absorbent article shown in Fig. 1 is folded up. Fig. 4 is a cross-sectional view taken along B-B in Fig. 3. It is noted that the plan view shown in Fig. 1 indicates a state where the main body sheet, etc. is extended until a wrinkle of a leg gatherer, etc., arranged in the absorbent article is not seen. In the present embodiment, the absorbent article 1 is an open-type disposable diaper.

[0013]

In the present embodiment, the open-type diaper is defined as not a diaper that is already formed in the shape of pants, but defined as a diaper in an expanded state before use, and worn by the wearer by fastening predetermined portions of the product with a fastening member or the like.

[0014]

The absorbent article 1 has a front waistband region S1 corresponding to the front waistline of the wearer, a rear waistband region S2 corresponding to the rear waistline of the wearer, and a crotch region S3 corresponding to the crotch of the wearer, between

the front waistband region S1 and the rear waistband region S2, in a longitudinal direction L of the absorbent article 1.

[0015]

The absorbent article 1 includes an absorbent main body 2 and a fastening member 20. The absorbent main body 2 is arranged over the front waistband region S1, the crotch region S3, and the rear waistband region S2. A widthwise outer end of the absorbent main body 2 in the crotch region S3 is recessed widthwise inwardly of a widthwise outer end of the absorbent main body 2 in the front waistband region and the rear waistband region. The crotch region S3 is a region where the widthwise outer end of the absorbent main body 2 is recessed widthwise inwardly. The widthwise outer end of the crotch region S3 configures a pair of leg-surrounding opening units 41 arranged along the periphery of a leg of a wearer.

[0016]

The absorbent main body 2 at least includes: an absorber 3, a sidesheet 4, a topsheet 5, a backsheet 6, a leakage-preventing elastic member 7 which is a flexible member, a leg elastic member 8, and a side flap 10.

[0017]

The absorber 3 is provided between the topsheet 5 and the backsheet 6. The absorber 3 absorbs a bodily waste such as a bodily fluid of a wearer. The absorber 3 is configured by an absorbent core including ground pulp and superabsorbent polymer, etc. as a fiber, and a core wrap that envelops the absorbent core. In the absorber 3, a plurality of slits 3A along the longitudinal direction L of the absorbent article are formed. The slits 3A are arranged in three rows with an interval in the longitudinal direction, and arranged in three rows with an interval in a widthwise direction W of the absorbent article.

[0018]

The topsheet 5 covers a skin contact surface of the absorber. The topsheet 5 may be configured to cover at least the skin contact surface of the absorber 3. The topsheet 5 according to the present embodiment extends widthwise outwardly of the absorber 3. The topsheet 5 is formed of a liquid-permeable sheet such as a hydrophilic nonwoven cloth or woven cloth, a perforated plastic film, and a perforated hydrophobic nonwoven fabric.

[0019]

The sidesheet 4 is arranged at the skin contact surface side of the absorber 3. The sidesheet 4 covers the widthwise outer end of the topsheet 5, and extends widthwise outwardly of the topsheet 5. The sidesheet 4 may suffice to be arranged at the skin

contact surface side of the absorber 3, may be arranged so as not to overlap the topsheet 5, and may be arranged so as not to overlap the absorber 3. The sidesheet 4 may be formed by a liquid-permeable sheet, such as a hydrophilic nonwoven cloth or woven cloth, a perforated plastic film, and a perforated hydrophobic nonwoven cloth, and may be formed of a liquid-impermeable sheet.

[0020]

A widthwise inner end of the sidesheet 4 is folded up starting from a fold line along the longitudinal direction. Into the folded-up sidesheet 4, the leakage-preventing elastic member 7 is joined. The leakage-preventing elastic member 7 stretches at least in the longitudinal direction. The sidesheet 4 and the leakage-preventing elastic member 7 configure a standing leakage-preventing cuff located closer to the skin contact surface side than the absorber 3.

[0021]

The backsheet 6 is configured by a liquid-impermeable film (hereinafter, called "backfilm") formed by a waterproof film (for example, polyethylene). In the front waistband region of the backsheet, a target unit 6A to which the fastening member is fastened is arranged.

[0022]

It is noted that the backsheet 6 according to the present embodiment is a sheet that is arranged on an outer surface of the absorbent article and that contacts a clothing of a wearer; however, another configuration may be that an exterior sheet is arranged at a non-skin contact surface side of the backsheet and the exterior sheet contacts the clothing of the wearer.

[0023]

The leg elastic member 8 is arranged along the leg-surrounding opening unit 41 at least in the crotch region S3. The leg elastic member 8 stretches in the longitudinal direction. Three leg elastic members 8 according to the present embodiment are arranged, respectively, with an interval in the widthwise direction.

[0024]

The side flap 10 is a sheet material extending widthwise outwardly of the sidesheet 4. The side flap 10 is joined between the sidesheet 4 and the backsheet 6. The side flap 10 is configured by a nonwoven fabric sheet, for example. The side flap 10 is arranged in the rear waistband region S2.

[0025]

The topsheet 5, and the sidesheet 4 and the side flap 10 are arranged closer to the skin contact surface side than the absorber, and configure the main body sheet. As in the

present embodiment, the main body sheet may be configured by a separate part, that is, the topsheet 5, the sidesheet 4, and the side flap 10, and may be configured by a sheet integrated with the topsheet 5, the sidesheet 4, and the side flap 10. The main body sheet may be a sheet material that covers a surface of the absorber and extends widthwise outwardly of the absorber, and may suffice if joined by the fastening member.

[0026]

A longitudinal length of the sidesheet 4 is a length of the entire region in the longitudinal direction of the absorbent article 1. On the other hand, a longitudinal length of the side flap 10 is shorter than a length of the entire region in the longitudinal direction of the absorbent article and a length of a part in the longitudinal direction of the absorbent article. Therefore, when the absorbent article is manufactured, a sidesheet continuous body 4C (see Fig. 6) is conveyed, the sidesheet continuous body 4C being obtained so that the sidesheet 4 is continued in a conveyance direction, and the side flap 10 is intermittently arranged relative to the sidesheet continuous body 4C. It is noted that the side flap 10 according to the present embodiment is arranged in the rear waistband region S2 only; however, may be arranged not only in the rear waistband region S2 but also in the front waistband region S1.

[0027]

The widthwise outer end of the side flap 10, that is, the widthwise outer end of the main body sheet, is folded back starting from a fold line along the longitudinal direction of the absorber, and temporarily fixed releasably, via a temporarily joined unit, to the main body sheet that lies widthwise inwardly of the fold line. The temporarily joined unit is a second joined unit 32 described later.

[0028]

The side flap 10 includes: a side distal end 11 overlapping the widthwise outer end of the absorbent main body 2; a side extending unit 12 extending widthwise outwardly of the absorbent main body 2; and a side folded unit 13 obtained as a result of the side extending unit 12 being folded back widthwise inwardly from a fold line along the longitudinal direction.

[0029]

The side distal end 11 is a portion overlapping the absorbent main body 2 in a state where the side flap 10 is developed (state shown in Fig. 1 and Fig. 2). The side extending unit 12 is a portion extending widthwise outwardly of the absorbent main body 2 in a state where the side flap 10 is developed (state shown in Fig. 1 and Fig. 2). The side folded unit 13 is a portion folded back widthwise inwardly, in a state where the side flap is folded back (state shown in Fig. 3 and Fig. 4). The side folded unit 13 is

part of the side extending unit 12.

[0030]

The fastening member 20 is joined to the widthwise outer end of the side flap, and fastened to the target unit 6A that is a surface at the non-skin-contact side of the absorbent main body. The fastening member 20 includes a fastening distal end 21 overlapping the side flap, a fastening extending unit 22 extending from the side flap, and a fastening engagement unit 23 arranged on the fastening extending unit and fastened to the target unit 6A.

[0031]

The fastening distal end 21 is arranged at the skin-contact side and the non-skin-contact side of the side flap 10, and arranged to sandwich the side flap 10. The fastening extending unit 22 is a portion extending widthwise outwardly of the side flap 10, in a state where the fastening member 20 described later is developed. The fastening engagement unit 23 is fastened, when used, to the target unit 6A of the front waistband region S1. The fastening member 20 is formed of a hook-and loop fastener, an adhesive agent, etc. The fastening member 20 according to the present embodiment is configured by an adhesive agent.

[0032]

In the absorbent article 1 thus configured, the side flap 10 and the fastening member 20 are folded up in an unused state. Specifically, the fastening member 20 in an unused state is folded up widthwise inwardly. In Fig. 1 and Fig. 2, the fastening member on the right-hand side is developed widthwise outwardly. In Fig. 1 and Fig. 2, the fastening member on the left-hand side is folded up widthwise inwardly. When the fastening member is folded up, the fastening engagement unit 23 is arranged to face the fastening distal end 21. The fastening engagement unit 23 is exposed when the extending unit is developed when used.

[0033]

The side flap 10 before use is folded up widthwise inwardly. The side flap 10 shown in Fig. 1 is in a developed state. The side flap 10 shown in Fig. 3 is in a folded-up state. Specifically, the side extending unit 12 is folded back widthwise inwardly from a fold line FL along the longitudinal direction. A portion folded along the fold line, out of the side extending unit 12, is the side folded unit 13.

[0034]

The side folded unit 13 of the side flap 10 is temporarily fixed releasably to the absorbent main body 2 via the second joined unit 32. The side distal end 11 of the side flap 10 is joined, via a first joined unit 31, between the sidesheet 4 and the backsheet 6.

[0035]

The second joined unit 32 is to be peeled off when a diaper is used, and is used to ensure temporary fixation so that the absorbent main body 2 and the side flap 10 are not dislocated during a manufacture process or so that the diaper is made compact in an unused state. Therefore, in this case, a small tuck force may suffice. Specifically, an adhesive intensity preferably is equal to or smaller than 7 N. On the other hand, the first joined unit 31 is not peeled off even when the diaper is used, and is used to fix the absorbent main body 2 and the side flap 10 so as not to be separated even when in use. Therefore, the tuck force is larger than that of the second joined unit 32.

[0036]

The joining strength can be measured according to the following method. Firstly, a test sample to be measured is prepared. The test sample is cut out so that the second joined unit is included in a state where the side folded unit 13 of the side flap 10 is temporarily fixed, via the second joined unit 32, to the absorbent main body 2. The dimension of the test sample is that a longitudinal length of the absorbent article is 25 mm and a widthwise length of the absorbent article is about 50 mm. The width of the test sample of 25 mm is a joint length of the second joined unit. The length of the test sample of 50 mm can be changed, where appropriate.

[0037]

Next, on an upper fixation unit of a tensile testing machine (manufactured by Instron Japan Company Limited, tensile testing machine, type 5543), a side flap, i.e., a test sample, is fixed. A portion to be fixed is a portion of 10 mm from the end of the opposite side of the second joined unit, out of the end of the side flap. To a lower fixation unit of the tensile testing machine, the absorbent main body of the test sample is joined. A portion to be fixed is a portion of 10 mm from the end of the opposite side of the second joined unit, out of the end of the absorbent main body. Therefore, at a substantial middle portion between the upper fixation unit and the lower fixation unit, the second joined unit where the side flap and the absorbent main body are joined is located. The deformation speed of the tensile testing machine is set to 100 mm/min, and the maximum load point while the second joined unit is peeled off is the adhesive intensity.

[0038]

The second joined unit 32 and the first joined unit 31 are formed by applying hot-melt-type adhesive to the side flap, for example. Examples of the method of coating a hot-melt adhesive may include a spiral coating, an omega coating, a control seam coating, a bead coating, a slot coater coating, and other general coating methods.

[0039]

The method of coating a hot-melt-type adhesive may adopt a direct coating or an indirect coating. It is noted, however, that the indirect coating is preferable because this coating does not easily generate coating unevenness resulting from an external factor such as the irregularities on the sheet surface to be coated or an inclination of a line on which the sheet is conveyed. Further, the viscosity of the hot-melt-type adhesive preferably is equal to or less than 11000 cps (110 pa/S) in order to stably coat the hot-melt-type adhesive.

[0040]

A coating temperature of the hot-melt-type adhesive can be 140°C to 160°C. A coating width of the direct coating can be 2 mm, for example, and a coating width of the indirect coating can be 5 to 10 mm, for example. A basis weight of the adhesive of the indirect coating can be 12.5 g/m<sup>2</sup> to 25 g/m<sup>2</sup>, for example, and a basis weight of the adhesive of the direct coating can be 100 g/m<sup>2</sup>, for example. When the second joined unit is formed under these conditions, it is possible to maintain the temporary fixed state during manufacture and peeling off is easily achieved when in use.

[0041]

It is noted that the basis weight of the adhesive can be measured according to the following method. A test sample to be measured is prepared, and the area of the hot-melt-type adhesive coated to the test sample is calculated. Next, the weight of the test sample is measured. The weight is assumed to be X. Next, the test sample is soaked into a toluene solution to as to dissolve the hot melt. After the dissolution, the test sample is dried and the weight is measured. The weight is assumed to be Y. The weight Y is subtracted from the weight X so as to calculate the weight of the hot-melt-type adhesive. On the basis of the weight of the calculated hot melt and the area of the hot-melt-type adhesive coated to the test sample, the basis weight of the hot-melt-type adhesive in terms of 1 m<sup>2</sup> is calculated.

[0042]

Fig. 5 is an enlarged view of a side flap portion shown in Fig. 1. The second joined unit 32 is arranged so as not to overlap the fastening member. The second joined unit 32 is located longitudinal outwardly of a widthwise region WR extending in the widthwise direction from the fastening distal end 21 and longitudinal inwardly of a widthwise region WR in the side flap 10. That is, the second joined unit does not overlap the widthwise region. Further, the second joined unit 32 is located in a longitudinal region LR extending in the longitudinal direction from the fastening distal end 21, in the side flap. That is, the second joined unit is located not to overlap the fastening distal end 21 in the longitudinal direction and to overlap the fastening distal end 21 in the widthwise

direction.

[0043]

It is noted that the widthwise region WR is a region that includes the fastening distal end 21 and extends in the widthwise direction from the fastening distal end. Further, the longitudinal region LR is a region that includes the fastening distal end 21 and extends in the longitudinal direction from the fastening distal end. In Fig. 5, the widthwise region WR and the longitudinal region LR are indicated by a different diagonal line.

[0044]

The first joined unit 31 is arranged in the side distal end 11. The first joined unit 31 is arranged substantially all across the side distal end 11.

[0045]

The absorbent article thus configured is worn by a wearer as follows, for example. A wearer peels off the first joined unit and develops the side folded unit. When the side flap is developed, the front waistband region S1 of the absorbent article 1 abuts a ventral side of the wearer, and when the rear waistband region S2 of the absorbent article 1 abuts a dorsal side of the wearer, the side flap 10 is drawn to the front waistband region S1. Next, the fastening extending unit of the fastening member is developed to expose the fastening engagement unit 23. When the adhesive face of the fastening member 20 is joined to the target unit 6A of the front waistband region S1, it is possible to keep the absorbent article 1 at the body of the wearer.

[0046]

Further, as described above, when worn, the side flap and the fastening member are not developed, and after the side flap is drawn to the front waistband region S1 side, the fastening member is developed. In this way, it is possible to restrain inconvenience such as the fastening engagement unit is stuck to an unintended location and the fastening engagement unit is felt against the skin of a wearer.

[0047]

## (2) Method of manufacturing absorbent article

Next, an example of the method of manufacturing the absorbent article according to the present embodiment will be described with reference to Fig. 6. It is noted that in Fig. 6, for the sake of convenience of explanation, only one of the side sheets and the side flaps arranged on the both right and left is shown. Further, as far as the method that is not described in the present embodiment is concerned, the existing method can be used. Furthermore, the manufacturing method explained below is only an example, and the absorbent article can also be manufactured by other manufacturing methods. The

method of manufacturing the absorbent article includes at least: a step S11 of joining the side flap 10 and the fastening member 20, a step S12 of joining the sidesheet 4 and the topsheet 5, a step S13 of joining the side flap 10 and the sidesheet 4, a step S14 of folding up a side flap, and a step S15 of joining an absorber.

[0048]

In the step S11 of joining the side flap 10 and the fastening member 20, the fastening member 20 is joined to a side flap continuous body 10C in which the side flap is continued in the longitudinal direction. Specifically, the fastening member 20 is joined to the widthwise outer end of the side flap continuous body 10C. Next, when the side flap continuous body 10C is cut into a product length of the side flap, it is possible to manufacture each side flap 10 to which the fastening member 20 is joined.

[0049]

It is noted that in the present embodiment, the fastening member 20 is joined to the side flap continuous body 10C; however, the fastening member 20 may be joined to the widthwise outer end of the side flap 10 cut into each product length, for example.

[0050]

Further, when the side flap 10 and the fastening member are joined, various methods may be used, and for example, the use of an adhesive may be adopted. Further, the fastening member according to the present embodiment, which is joined to the surface at the skin-contact side of the side flap 10 and the surface of the non-skin-contact side thereof, may be joined to at least one of the surface at the skin-contact side of the side flap 10 and the surface of the non-skin-contact side thereof.

[0051]

Next, in the step S12 of joining the sidesheet 4 and the topsheet, the sidesheet 4 and the topsheet are joined. In particular, the sidesheet continuous body 4C in which the sidesheet 4 is continued in the longitudinal direction and a topsheet continuous body 5C in which the topsheet is continued in the longitudinal direction are joined. The sidesheet continuous body 4C and the topsheet continuous body 5C are conveyed in a conveyance direction MD along the longitudinal direction. The sidesheet continuous body 4C is folded up starting from the fold line along the longitudinal direction, and the leakage-preventing elastic member 7 is arranged into the folded-up sidesheet continuous body 4C. The surface at the non-skin-contact side of the sidesheet continuous body 4C and the surface at the skin-contact side of the topsheet continuous body 5C, thus continued in the conveyance direction, are joined.

[0052]

It is noted that the order of the step S11 of joining the side flap 10 and the fastening

member 20 and the step S12 of joining the sidesheet 4 and the topsheet 5 is not limiting. For example, configuration may be such that after the step S12 of joining the sidesheet 4 and the topsheet 5, the step S11 of joining the side flap 10 and the fastening member 20 is performed.

[0053]

Next, in the step S13 of joining the side flap 10 and the sidesheet 4, the side flap 10 to which the fastening member 20 is joined is joined to the sidesheet 4. In particular, the side flap 10 is temporarily joined to the surface at the skin-contact side of the sidesheet continuous body, intermittently in the conveyance direction. The temporary fixation is a fixation allowing for peeling off. Specifically, it may suffice that the side flap 10 is joined to the sidesheet 4 before use and the side flap 10 can be peeled off from the sidesheet 4 when in use. A temporarily fixed portion between the skin contact surface of the sidesheet continuous body 4C and the side flap 10 is a second joined unit.

[0054]

Next, in the step S14 of folding up a side flap, the side flap 10 is folded up along the widthwise end of the side sheet. Specifically, the outer end in a cross direction CD that crosses the conveyance direction of the side flap 10 is folded back to the non-skin contact surface side of the sidesheet continuous body 4C. At this time, to the non-skin contact surface of the sidesheet continuous body 4C is fixed to a folded-back portion of the side flap 10. A portion where the non-skin contact surface of the sidesheet continuous body 4C and the folded-back portion of the side flap 10 are fixed is the first joined unit 31.

[0055]

Next, in the step S15 of joining an absorber, the sidesheet 4 and the absorber are integrated. In particular, the skin contact surface of the absorber 3 and the sidesheet 4 to which the topsheet continuous body 5C and the side flap 10 are joined, are joined. By the step, the absorber 3, the topsheet continuous body 5C, the side flap 10, the fastening member 20, and the sidesheet 4 are integrated. Further, it may be possible that before the absorber joining step, the absorber and the backsheets 6 are joined, and in the absorber joining step, the absorber and the backsheets, and the sidesheet 4 to which the topsheet continuous body and the side flap 10 are joined, are joined. Alternatively, after the absorber joining step, the backsheets 6 may be joined. When the backsheets are joined to the absorber, the sidesheet 4, etc., the side flap 10 is arranged between the sidesheet 4 and the backsheets.

[0056]

It is noted that a well-known manufacturing method may be employed for a step of arranging another constituent member such as a leg elastic member and a step of

forming a leg-surrounding opening, for example.

[0057]

### (3) Operation and effect

The side folded unit 13 of the absorbent article is joined, via the second joined unit 32, to the absorbent main body 2, and thus, it is possible to position the side flap 10 and the absorbent main body 2 during manufacture. Further, in an unused state, the side flap 10 of the absorbent article is folded up, and thus, it is possible to store the absorbent article in a compact manner, allowing for easy transportation.

[0058]

When in use, the side flap 10 of the absorbent article is developed. At this time, the second joined unit 32 for temporarily fixing the side flap 10 is located longitudinal outwardly of the widthwise region WR and longitudinal inwardly of the widthwise region WR, and is not arranged in the widthwise region WR. Therefore, when the side flap 10 is developed, it is possible to develop the side flap 10 by inserting a finger into the widthwise region 10R, more preferably, from beneath the fastening member 20.

[0059]

Further, generally, the wearer holds the fastening members 20 or its surrounding area and develops the side flap 10. At this time, when the fastening member 20 and the second joined unit 32 overlap, the joined portion itself is pulled, and thus, are difficult to be peeled off. On the other hand, when the fastening member 20 and the second joined unit 32 do not overlap, it is possible to develop the side flap 10 starting from the second joined unit 32 while holding the fastening member 20. A distance between point (fastening member) to which the force is applied and a fulcrum (second joined unit) when the side flap is developed is near, and thus, peeling off is easy.

[0060]

Further, in a mode in which the second joined unit 32 is formed by an adhesive, when the second joined unit 32 is arranged on the fastening member 20, the adhesive may be left on the fastening member even when the temporary fixation is canceled (when the fastening member is developed).

[0061]

The fastening member 20 is a member held by the wearer when the absorbent article is worn. When the adhesive is left on the fastening member 20, the adhesive may adhere to a finger of a wearer, etc., during handling, resulting in a discomfort. Further, when the adhesive is left on the fastening member 20, the fastening member 20 may be attached to an unintended portion during handling, and as a result, it may not be possible to wear at the correct location.

[0062]

Further, when the adhesive is arranged on the fastening member, a force may apply in a direction in which the fastening member is opened when the temporary fixation is released. Contrary thereto, in the absorbent article according to the present embodiment, the second joined unit is not arranged on the fastening member, and thus, it is possible to restrain an application of force in a direction in which the fastening member is opened when the temporary fixation is released, and it is possible to restrain an unintended open/close of the fastening member.

[0063]

The second joined unit 32 is located in the longitudinal region LR extending in the longitudinal direction from the fastening distal end 21, in the side flap. The second joined unit 32 is arranged in this way, only a portion to which the fastening distal end 21 is joined rises over the absorbent main body, and it becomes easier for the wearer to comprehend a location into which the finger is inserted. As a result, the handling when in use is improved. Further, when the fastening member held by a wearer when the side flap is developed and the second joined unit 32 are too far from each other, it becomes difficult to apply a force to the side flap starting from the second joined unit 32. However, the second joined unit 32 is arranged in the longitudinal region adjacent to the fastening distal end 21, and thus, it is easy to apply a force to the side flap starting from the second joined unit 32, and it is easy to develop the side flap.

[0064]

The second joined unit 32 is distant from a region where the fastening extending unit 22 and the side flap 10 overlap. For example, when the region where the fastening extending unit 22 and the side flap 10 overlap is temporarily fixed by the second joined unit 32, it is difficult to peel off the second joined unit 32 while holding the fastening extending unit 22 itself. However, the second joined unit 32 is distant from the region where the fastening extending unit 22 and the side flap 10 overlap, and thus, it is possible to ensure a distance between a point to be held during the development and a fulcrum when the side flap is developed, resulting in an easy development.

[0065]

The fastening member 20 is arranged in plural in each side flap. The plurality of fastening members 20 are spaced apart in the longitudinal direction. Between the plurality of fastening members, the second joined unit 32 is arranged. The second joined unit 32 is arranged longitudinal outwardly of the fastening distal end 21, between the fastening distal ends 21, and longitudinal inwardly of the fastening distal end 21. The second joined unit 32 is arranged in this way, in the side of the side folded

unit 13, only a region where the fastening distal end 21 is arranged rises over the absorbent main body 2. Therefore, it becomes easy for the wearer to comprehend the location into which the finger is inserted.

[0066]

The second joined unit 32 is arranged to overlap a leakage-preventing cuff. Therefore, the side folded unit 13 is temporarily fixed, via the second joined unit 32, to the sidesheet 4 configuring the leakage-preventing cuff. When the side flap 10 is developed, the side folded unit 13 is pulled in a direction away from the absorbent main body 2. At this time, the sidesheet 4 and the side flap 10 configuring the leakage-preventing cuff are not peeled off immediately, but peeled off after moving in a direction in which the leakage-preventing cuff and the side flap are leaving from the absorbent main body. When the sidesheet 4 and the side flap 10 are pulled to the wearer side in this way, it is possible to make the leakage-preventing cuff stand.

[0067]

The second joined unit 32 includes a longitudinal joined region 32A extending in the longitudinal direction and a widthwise joined region 32B extending in the widthwise direction, and the longitudinal joined region 32A and the widthwise joined region 32B are alternatively continuously arranged. The shape of the second joined unit 32 in plan view is of waveform. For example, when the adhesive is applied to all across the first joined unit, an amount of adhesive to be coated is larger and the adhesive tends to be harder as compared to a case where the adhesive is coated in waveform. Further, when the adhesive is applied linearly, for example, in order to reduce an amount of adhesive to be coated, the area of the first joined unit is decreased, and thus, it is not possible to provide a stable temporary fixation between the side flap and the absorbent main body. When the longitudinal joined region 32A extending in the longitudinal direction and the widthwise joined region 32B extending in the widthwise direction are provided, the second joined unit is imparted with a constant range in the widthwise direction and the longitudinal joined region. It is possible to ensure the area of the second joined unit and it is possible to provide a stable temporary fixation between the side flap and the absorbent main body.

[0068]

The second joined unit that is a temporarily fixed unit is arranged to be deviated forwardly or rearwardly of a longitudinal center of the of the main body sheet. For example, in the configuration where the second joined unit is deviated forwardly of a longitudinal center of the main body sheet, the length of the second joined unit arranged rearwardly of the longitudinal center of the main body sheet is shorter than the length

of the second joined unit arranged forwardly of the longitudinal center of the main body sheet. Therefore, the temporarily fixed length rearward of the longitudinal center of the main body sheet is short, and thus, it is possible to easily cancel the temporary fixation from an area rearward of the longitudinal center of the main body sheet.

[0069]

The second joined unit 32 is arranged to be wider at the front waistband region S1 side and shorter at the rear waistband region S2 side, and thus, it is possible to easily develop the side flap. Specifically, when the side flap is developed, the finger is inserted between the fastening member 20 and the sidesheet 4, the second joined unit is gradually peeled off toward the fold line FL side of the side flap from inside the widthwise end of the side extending unit 12. At this time, the peeling off starts from the rear waistband region S2 side of the side flap, and thus, easier development is possible.

[0070]

#### (4) Other embodiments

As described above, the contents of the present invention are disclosed through the embodiment of the present invention. However, it should not be interpreted that the statements and drawings constituting a part of this 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.

[0071]

Next, on the basis of Fig. 7 to Fig. 9, an absorbent article according to a first modification to a third modification will be described. In the description of the following modifications, only the configuration that is different from the above embodiment will be described, and the same components as those in the embodiment will be assigned with the same reference numerals, and redundant description thereof will not be repeated.

[0072]

Fig. 7 is an expanded plan view of a side flap portion of an absorbent article according to the first modification. The absorbent article according to the first modification includes a third joined unit 33 that temporarily fixes the side folded unit 13 of the side flap 10 and the absorbent main body 2. The side flap 10 according to the first modification is temporarily fixed, via the second joined unit 32 and the third joined unit 33, to the absorbent main body.

[0073]

The third joined unit 33 is spaced from the second joined unit 32, and is located closer to

the fold line FL side of the side flap than the second joined unit 32. The third joined unit 33 is spaced from the fastening member 20 in the widthwise direction, and spaced from the second joined unit 32. Thus, when the third joined unit is arranged, when the side flap is developed, it is possible to easily develop the side flap in the widthwise direction from the third joined unit while holding the fastening member. Specifically, the finger is inserted into a non-temporarily fixed unit (unit not temporarily fixed) that lies between a plurality of second joined units, and peeling off is gradually progressed toward the fold line side of the side flap from the widthwise end side of the side extending unit. At this time, the second joined unit 32 is peeled off, and then, the third joined unit 33 is peeled off. When the side flap is developed, the third joined unit acts as a fulcrum, and thus, it becomes easier to develop the side flap in the widthwise direction.

[0074]

Fig. 8 is an expanded plan view of a side flap portion of an absorbent article according to the second modification. In the absorbent article according to the second modification, the second joined unit 32 that temporarily fixes the side folded unit and the absorbent main body is arranged widthwise outwardly of the longitudinal region extending from the fastening distal end in the longitudinal direction. That is, the second joined unit 32 and the fastening distal end 21 are arranged at intervals in the widthwise direction.

[0075]

Thus, when the second joined unit is arranged, when the side flap is developed, it is possible to easily develop the side flap in the widthwise direction from the second joined unit while holding the fastening member. Specifically, the finger is inserted between the fastening member and the sidesheet, peeling off is gradually progressed toward the fold line side of the side flap from the widthwise end side of the side extending unit. The second joined unit that acts as a fulcrum is located in the development direction of the side flap, and thus, it becomes easier to develop the side flap.

[0076]

Fig. 9 is an expanded plan view of a side flap portion of an absorbent article according to the third modification. In the absorbent article according to the third modification, the second joined unit 32 is not arranged between a plurality of fastening members. The plurality of fastening members and a region created therebetween are non-temporarily fixed units to which the side folded unit and the absorbent main body 2 are not joined. A longitudinal length of the non-temporarily fixed unit thus configured is longer than a longitudinal length of the non-temporarily fixed unit configured such that the region between the fastening members is joined. Thus, the space into which the finger of the

wearer is inserted becomes larger. Thus, it is possible to improve the handling.

[0077]

It is noted that the second joined unit according to the present embodiment may not necessarily be arranged in the longitudinal region extending longitudinally from the fastening distal end in the side flap.

[0078]

The fastening extending unit of the fastening member may not necessarily be folded back widthwise inwardly. In a configuration such that the fastening extending unit is not folded up, it is desired that a protection cover covering the fastening engagement unit is arranged in order to prevent the fastening engagement unit from unintentionally sticking to a wearer, etc., before use. Further, in a configuration such that the fastening extending unit is folded up, the second joined unit may be arranged in a region where the second joined unit and the side flap overlap.

[0079]

Two fastening members may be each arranged on the right and left, three or more fastening members may be each arranged on the right and left, and one fastening member may be each arranged on the right and left.

[0080]

The second joined unit may be arranged to be deviated from the leakage-preventing cuff while not overlapping the leakage-preventing cuff.

[0081]

The second joined unit may not only be coated by an omega coating but also coated by other coating methods. Further, the first joined unit, the second joined unit, and the third joined unit may be configured not only by an adhesive but also by thermal welding and ultrasonic welding.

[0082]

If, when the second joined unit 32 is arranged in the longitudinal region longitudinally extending from the fastening distal end, the second joined unit 32 is arranged to be shorter in distance than a longitudinal distance of the outer end when the side flap 10 is developed, then the wearer finds it easier to develop the side flap 10. Further, when the second joined unit 32 is not arranged in the longitudinal region longitudinally extending from the fastening distal end, the second joined unit 32 is arranged to be equal to or shorter in distance than the longitudinal distance of the outer end of the side flap 10 when the side flap 10 is developed, and thus, it becomes easier to develop the side flap 10.

[0083]

When the side flap 10 is developed, if the side flap is firmly held by a hand, then peeling off is easier. Thus, when the basis weight of the side flap 10 is equal to or more than 40 g/m<sup>2</sup>, it is easier to hold. At this time, when the side flap 10 is configured by a separate body, even when the basis weight of the side flap 10 is increased, there is no influence on the basis weight of a leakage-preventing cuff, and thus, it is possible to prevent an uncomfortable feeling and a skin trouble, when worn, resulting from a hardened leakage-preventing cuff.

[0084]

Note that the entire content of the Japanese Patent Application No. 2013-187291 (filed on September 10, 2013) is incorporated herein by reference.

[Industrial Applicability]

[0085]

It is possible to provide an absorbent article with which it is possible, when used, to easily develop a main body sheet and a fastening member and possible to improve a handling upon being put on.

[Reference Signs List]

[0086]

- 1: Absorbent article
- 2: Absorbent main body
- 3: Absorber
- 3A: Slit
- 4: Sidesheet
- 4C: Sidesheet continuous body
- 5: Topsheet
- 5C: Topsheet continuous body
- 6: Backsheet
- 6A: Target unit
- 7: Leakage-preventing elastic member
- 8: Leg elastic member
- 10: Side flap
- 11: Side distal end
- 12: Side extending unit
- 13: Side folded unit
- 20: Fastening member
- 21: Fastening distal end
- 22: Fastening extending unit

23: Fastening engagement unit  
31: First joined unit  
32: Second joined unit  
32A: Lengthwise joined unit  
32B: Widthwise joined unit  
41: Leg-surrounding opening unit  
CD: Cross direction  
FL: Fold line  
L: Longitudinal direction  
LR: Longitudinal region  
MD: Conveyance direction  
S1: Front waistband region  
S2: Rear waistband region  
S3: Crotch region  
W: Widthwise direction  
WR: Widthwise region

## [CLAIMS]

## [Claim 1]

An absorbent article, comprising: an absorbent main body including an absorber and a main body sheet overlapping the absorber; and  
a fastening member that is joined to a widthwise outer end of the main body sheet and is fastened to a surface at a non-skin-contact side of the absorbent main body; wherein the fastening member comprises: a fastening distal end overlapping the main body sheet; a fastening extending unit extending from the main body sheet; and a fastening engagement unit that is arranged in the fastening extending unit and is fastened to the absorbent main body,  
a widthwise outer end of the main body sheet is folded back starting from a fold line along a longitudinal direction of the absorber, and is temporarily fixed releasably, via a temporarily joined unit, to the main body sheet arranged widthwise inwardly of the fold line, and  
the temporarily joined unit is arranged longitudinal outwardly of a widthwise region extending from the fastening distal end in the widthwise direction and longitudinal inwardly of the widthwise region, respectively.

## [Claim 2]

The absorbent article according to claim 1, wherein the longitudinal length of the temporarily joined unit is equal to the longitudinal length of the main body sheet in a widthwise outer end of the main body sheet or shorter than the longitudinal length of the main body sheet in a widthwise outer end of the main body sheet.

## [Claim 3]

The absorbent article according to claim 1 or claim 2, wherein the main body sheet includes a side flap extending widthwise outwardly of the absorber, and  
the fastening member is joined to the side flap.

## [Claim 4]

The absorbent article according to any one of claim 1 to claim 3, wherein the temporarily joined unit is arranged in a longitudinal region extending from the fastening distal end in the longitudinally direction.

## [Claim 5]

The absorbent article according to any one of claim 1 to claim 3, wherein the fastening extending unit of the fastening member is folded back widthwise inwardly starting from a fold line along the longitudinal direction so as to overlap the main body sheet, and  
the temporarily joined unit is spaced from a region where the fastening extending unit and the main body sheet overlap.

[Claim 6]

The absorbent article according to any one of claim 1 to claim 5, wherein the fastening members are arranged in plural,  
the plurality of fastening members are spaced in the longitudinal direction, and  
between the plurality of fastening members, the temporarily joined unit is arranged.

[Claim 7]

The absorbent article according to any one of claim 1 to claim 5, wherein the fastening members are arranged in plural,  
the plurality of fastening members are spaced in the longitudinal direction, and  
between the plurality of fastening members, the temporarily joined unit is not arranged.

[Claim 8]

The absorbent article according to any one of claim 1 to claim 7, wherein the absorbent main body is arranged at a skin contact surface side of the absorber, and includes a standing leakage-preventing cuff standing toward a wearer side from the absorber, and  
the temporarily joined unit is arranged to overlap the leakage-preventing cuff.

[Claim 9]

The absorbent article according to any one of claim 1 to claim 8, wherein the temporarily joined unit includes a longitudinal joined region extending in the longitudinal direction and a widthwise joined region extending in the widthwise direction, and  
the longitudinal joined region and the widthwise joined region are alternatively arranged continuously.

[Claim 10]

The absorbent article according to any one of claim 1 to claim 9, wherein the temporarily joined unit is arranged to be deviated forwardly or rearwardly of a longitudinal center of the main body sheet.