

[DESCRIPTION]

[Title of Invention]

DISPOSABLE DIAPER

[0001]

5 [Technical Field]

The present invention relates to an open-type disposable diaper.

[0002]

[Background Art]

10 Conventionally, an open-type disposable diaper has an absorbent body interposed between a liquid permeable sheet and a liquid impermeable sheet and is fixed to the wearer by engaging, a pair of fastening tapes extending outward in both width directions from the waist circumference part covering the back
15 side part of the wearer, to the waist circumference part covering the abdomen side part of the wearer. Further, there is a proposed a disposable diaper having the planar shape of the absorbent body in a hourglass form, that is, having the ends in the width direction of the absorbent body convexly curved inward in the width direction
20 and making the width of the absorbent body the narrowest at the center in the longitudinal direction of the disposable diaper (see for example PTL 1).

[0003]

[Citation List]

25 [Patent Literature]

[PTL 1] Japanese Patent Application Laid-open Publication No. 2002-253608

[0004]

[Summary of Invention]

30 [Technical Problem]

The absorbent body described in above PTL 1 is relatively large and easily comes along the bases of the legs of an infant lying with its legs in an extended state. However, an infant that is born relatively small takes a posture of a baby in the womb, that is, the infant has its legs pulled up forming an M form such that both of its knees would touch the abdomen part so that the bases of its legs are positioned at the abdomen part. Thus it is difficult for an absorbent body having the center in the longitudinal direction of the disposable diaper being most constricted to come along the base of the legs of an infant whose posture is that of a baby in the womb, as in above PTL 1. As a result, the highly rigid absorbent body gives a feeling of pressure to the wearer and a space between the disposable diaper and the wearer will be created so that excreted matters would leak.

[0005]

The present invention has been made in view of the above mentioned problem and an objective thereof is to provide an open-type disposable diaper that easily comes along the body of an infant with a posture of a baby in the womb.

[0006]

[Solution to Problem]

In order to address the above problem, a primary aspect of the invention is directed to a device for manufacturing an open-type disposable diaper having a longitudinal direction and a width direction intersecting with each other, having arranged a first waist-circumference part, a crotch part, and a second waist-circumference part in this order from one side in the longitudinal direction, including an absorbent body core, and a pair of fastening tapes extending outward from the first waist-circumference part in both width directions, wherein the

second waist-circumference part includes an engaging end of the fastening tapes at a location in the longitudinal direction where longitudinal ends, of the fastening tapes, on a side of the crotch part are located when longitudinal ends of the disposable diaper are aligned, the absorbent body core includes at least a pair of notch parts on both ends in the width direction, and in the longitudinal direction a portion that becomes narrowest among portions of the absorbent body core sandwiched between the pair of notch parts is located in a region, in an area between the engaging end and a product center that is a center of the disposable diaper, between a center of the area and the engaging end.

Other features of the present invention will become clear from the description of the present specification with reference to the accompanying drawings.

[0007]

[Advantageous Effects of Invention]

According to the present invention, an open-type disposable diaper that easily comes along the body of an infant with a posture of a baby in the womb can be provided.

[0008]

[Brief Description of the Drawings]

[Fig. 1]

Fig. 1 is a schematic planar view of a diaper on the wearer's skin side, in an unfolded and extended state.

[Fig. 2A]

Fig. 2A is a sectional diagram of the diaper taken along line A-A of Fig. 1.

[Fig. 2B]

Fig. 2B is a sectional diagram of the diaper taken along line B-B of Fig. 1.

[Fig. 3A]

Fig. 3A is an explanatory diagram of an infant whose weight is heavier than 3000 grams.

[Fig. 3B]

5 Fig. 3B is an explanatory diagram of a posture of an infant that has a low body weight.

[Fig. 3C]

Fig. 3C is an explanatory diagram of a posture an infant that has a low body weight.

10 [Fig. 4]

Fig. 4 is an explanatory diagram showing the position of the abdomen side notch parts provided to the absorbent body core.

[Fig. 5]

15 Fig. 5 is an explanatory diagram showing the position of the abdomen side notch parts provided to the absorbent body core.

[Fig. 6]

Fig. 6 is a table indicating the evaluation test results when the positions of the abdomen side notch parts are shifted in the longitudinal direction.

20 [Fig. 7A]

Fig. 7A is a schematic perspective view of the diaper.

[Fig. 7B]

Fig. 7B is an explanatory diagram of the shapes of the abdomen side notch parts and the back side notch parts.

25 [Fig. 7C]

Fig. 7C is an explanatory diagram of the shapes of the back side notch parts.

[Fig. 8]

30 Fig. 8 is a schematic planar diagram of the diaper in a modified example.

[Fig. 9]

Fig. 9 is a schematic planar diagram of the diaper in a modified example.

[0009]

5 [Description of Embodiments]

At least the following matters will become clear from the description of the present specification with reference to the accompanying diagrammatic drawings.

[0010]

10 An open-type disposable diaper is characterized to have a longitudinal direction and a width direction intersecting with each other, have arranged a first waist-circumference part, a crotch part, and a second waist-circumference part in this order from one side in the longitudinal direction, include an absorbent
15 body core, and a pair of fastening tapes extending outward from the first waist-circumference part in both width directions, wherein the second waist-circumference part includes an engaging end of the fastening tapes at a location in the longitudinal direction where longitudinal ends, of the fastening tapes, on a
20 side of the crotch part are located when longitudinal ends of the disposable diaper are aligned, the absorbent body core includes at least a pair of notch parts on both ends in the width direction, and in the longitudinal direction a portion that becomes narrowest among portions of the absorbent body core sandwiched between the
25 pair of notch parts is located in a region, in an area between the engaging end and a product center that is a center of the disposable diaper, between a center of the area and the engaging end.

According to such a disposable diaper, notch parts of the
30 absorbent body core (narrowed part of the absorbent body core),

that is, the part of the absorbent body core with high deforming flexibility can be provided to the location where the legs of the wearer with a posture of a baby in the womb are located so that the absorbent body core easily comes along the legs of the wearer.

5 Thus, pressure by the absorbent body core coming against the wearer is relieved so that it is difficult for a space between the disposable diaper and the wearer to be created and thus leaking of excreted matters can be controlled.

[0011]

10 The disposable diaper is characterized that the second waist circumference part has a pair of side flaps extending outward, with respect to the crotch part, on both sides in the width direction, and in the longitudinal direction the portion that becomes narrowest among portions of the absorbent body core
15 sandwiched between the pair of notch parts is located in an area on the other side with respect to a center of an area between the product center and an end on the one side in the longitudinal direction of outermost ends in the width direction of the side flaps.

20 According to such a disposable diaper, the absorbent body core can easily come along the wearer's legs that are lifted to a location much closer to the side flaps.

[0012]

The disposable diaper is characterized that the portion that
25 becomes narrowest among portions of the absorbent body core sandwiched between the pair of notch parts is located in an area on the other side with respect to a center of an area between the product center and an end on the other side of the absorbent body core. According to such a disposable diaper, the absorbent body
30 core can easily come along the wearer's legs that are lifted to

a location much closer to the ends on the other side of the absorbent body core.

[0013]

The disposable diaper is characterized that when a length
5 of the disposable diaper in the longitudinal direction is set as
a first length, and a length in the longitudinal direction from
an end on the other side in the longitudinal direction of the
disposable diaper to an end on the other side in the longitudinal
direction of the portion that becomes narrowest among portions
10 of the absorbent body core sandwiched between the pair of notch
parts is set as a second length, a ratio of the second length to
the first length is greater than or equal to 22% and less than
or equal to 26%.

According to such a disposable diaper, the absorbent body
15 core can easily come along the legs of the wearer with a posture
of a baby in the womb.

[0014]

The disposable diaper is characterized that the absorbent
body core includes another pair of notch parts on the one side
20 in the longitudinal direction with respect to the pair of notch
parts.

According to such a disposable diaper, parts of the
absorbent body core between two pairs of the notch parts, that
is, the parts of the absorbent body core with high flexibility
25 can be provided to the crotch of the wearer with a posture of a
baby in the womb so that the crotch fastening force of the wearer
can be relieved by the deformation of the absorbent body core.
Further, each pair of the notch parts becomes the starting point
where the disposable diaper is folded in the longitudinal
30 direction and thus the disposable diaper can be formed into a three

dimensional shape so to come along the wearer's body.

[0015]

The disposable diaper is characterized that a portion that becomes narrowest among portions of the absorbent body core sandwiched by the other pair of notch parts is located in an area within a distance, equal to 10% of the length of the disposable diaper in the longitudinal direction, from the product center to both sides in the longitudinal direction.

According to such a disposable diaper, the other pair of the notch parts is positioned at the back side portion of the bases of the legs of the wearer with a posture of a baby in the womb and thus the disposable diaper can be formed in a three dimensional shape so to come along the body of the wearer with a posture of a baby in the womb.

15 [0016]

The disposable diaper is characterized that a stretchable material that stretches in the longitudinal direction is provided at both end parts in the width direction and in at least a range in the longitudinal direction from the pair of notch parts to the other pair of notch parts, and shapes of the notch parts have lengths in the longitudinal direction at portions on outer sides in the width direction longer than portions on inner sides in the width direction, and positions of tip parts in the longitudinal direction are located between two ends along the longitudinal direction of ends at outer sides in the width direction.

According to such a disposable diaper, creases along the width direction is formed between each pair of the notch parts and thus the disposable diaper can be further easily formed into a three dimensional shape so to come along the body of the wearer with a posture of a baby in the womb.

[0017]

The disposable diaper is characterized that creases along the width direction between each of the pair of notch parts and the other pair of notch parts are formed to the disposable diaper
5 in a natural state.

According to such a disposable diaper, the disposable diaper can be further easily formed into a three dimensional shape so to come along the body of the wearer whose posture is that of an infant in the womb and the helper that puts the disposable diaper
10 on the low body weight infant can put the disposable diaper on the infant with a posture of a baby in the womb by confirming the creases by sight.

[0018]

The disposable diaper is characterized that a width of the
15 absorbent body core between the pair of notch parts and the other pair of notch parts is equal to a width of the absorbent body core on the other side with respect to the pair of notch parts in the longitudinal direction.

According to such a disposable diaper, an amount of excreted
20 matters can be secured while the absorbent body core is brought along the legs of the wearer with a posture of a baby in the womb.

[0019]

=== General Configuration of the Disposable Diaper ===

The disposable diaper of the present embodiment is an
25 open-type disposable diaper (hereinafter called diaper) suitable for an infant whose weight is not more than 3000 grams (hereinafter called low-body weight infant), in particular. And specifically, the diaper is suitable for a low-birthweight infant whose weight is not more than 2500 grams, a very-low-birthweight infant whose
30 weight is not more than 1500 grams and an ultralow-birthweight

infant whose weight is not more than 1000 grams.

[0020]

Fig. 1 is a schematic planar view of a diaper 1 on the wearer's skin side (inside), in an unfolded and extended state and Figs. 2A and 2B are respectively sectional diagrams of the diaper 1 taken along lines A-A and B-B of Fig. 1. The diaper 1 includes a longitudinal direction, a width direction and a thickness direction that intersect with each other (orthogonal in the present embodiment), and a first waist circumference part 1a, a crotch part 1b and a second waist circumference part 1c are arranged from the one side in the longitudinal direction. Generally, the diaper 1 is worn so that the first waist circumference part 1a covers the back side part of the wearer and the second waist circumference part 1c covers the abdomen side part of the wearer, however, the diaper 1 may be worn the other way around.

[0021]

As illustrated in Figs. 2A and 2B, the diaper 1 includes the absorbent body 4 between the liquid permeable top sheet 2 and the liquid impermeable back film 3. The absorbent body 4 extends in the longitudinal direction from the first waist circumference part 1a to the second waist circumference part 1c and includes an absorbent body core 41 that is configured with absorbent material (e.g., pulverized pulp and high-absorbent polymer) that absorbs and retains excreted matters, and a liquid permeable covering material 42 (e.g., tissue sheet and spunbond nonwoven fabric) that covers the absorbent body core 41. Further, an outer covering sheet 5 (e.g., nonwoven fabric) that forms the outer covering of the entire diaper 1 is provided on the non-skin side of the back film 3. Note that, although not shown, a stretchable

member (e.g., a stretchable sheet member and a string form stretchable member) that is capable of stretching can be provided in the width direction of, for example, the first waist circumference part 1a for improving the fitting around the waist
5 circumference.

[0022]

As shown in Fig. 1, the planar shape of the absorbent body 4 (covering material 42) is rectangular. Meanwhile, the absorbent body core 41 has a part of each ends in the width direction
10 constricted, and includes a pair of small chevron abdomen side notch parts 43 and a pair of small chevron back side notch parts 44 to the constricted part, that is, a pair a large notch parts. The abdomen side notch parts 43 and the back side notch parts 44 are areas where the absorbent material that configures the
15 absorbent body core 41 does not exit. And the pair of abdomen side notch parts 43 is formed to be in line in the width direction at the same position along the longitudinal direction, and the pair of back side notch parts 44 is located to the one side (back side) in the longitudinal direction with respect to the pair of
20 abdomen side notch parts 43 and is formed to be in line in the width direction at the same position along the longitudinal direction. In other words, the absorbent body core 41 has a shape that is symmetric in the width direction. Note that the depth of the abdomen side notch parts 43 and the back side notch parts
25 44 in the width direction are substantially the same in the present embodiment, however, the depth of the two in the width direction may be differentiated.

[0023]

The first waist circumference part 1a includes a pair of
30 back side side flaps 13 extending outward in both width directions

with respect to the crotch part 1b and the second waist circumference part 1c also includes a pair of abdomen side side flaps 14 (side flaps) extending outward in both width directions with respect to the crotch part 1b. Each of the side flaps 13, 14 are formed with the later described stand-up gathered sheet 21 overlaid on the back film 3. And a pair of fastening tapes 10 extend outward in both width directions from the pair of back side side flaps 13 (first waist circumference part 1a).

[0024]

The fastening tape 10 includes a base material 11 and a hook sheet 12 and the hook sheet 12 is provided to the skin side surface in the thickness direction of the base material 11. When the hook sheet 12 is folded to the side of the second waist circumference part 1c, the hook sheet 12 opposes the outer covering sheet 5 (non-skin side surface) of the second waist circumference part 1c to engage with the outer covering sheet 5. For this reason, the hook sheet 12 (e.g., the sheet including the male material of the surface-type fastener) is configured to be capable of being engaged and detached from the outer covering sheet 5 (e.g., nonwoven fabric). Note that, the configuration is not limited to engaging the hook sheet 12 directly to the outer covering sheet 5 and for example, an engageable target sheet (e.g., a sheet including a female surface-type fastener) to which the hook sheet 12 can be engaged may be provided to the outer covering sheet 5 for the hook sheet 12 to be engaged to the target sheet.

[0025]

And when the diaper 1 is put on the wearer, after the diaper 1 is firstly folded in the longitudinal direction while being put against the wearer, the pair of back side side flaps 13 are folded inward in the width direction and then the pair of fastening tapes

10 is engaged to the outer covering sheet 5 of the second waist circumference part 1c. And a body encircling opening and a pair of leg encircling openings are formed as a result thereof.

[0026]

5 Further, the two end parts of the diaper 1 in the width direction are provided with leg encircling stretchable members 6 that are stretchable in the longitudinal direction. The leg encircling stretchable members 6 are fixed between the top sheet 2 or the stand-up gathered sheet 21 and the back film 3 in a state
10 elongated in the longitudinal direction. Thus the diaper 1 in a natural state has the leg encircling stretchable members 6 collected to form the leg encircling gathers at the surroundings of the leg encircling openings that fit around the legs of the wearer.

15 [0027]

Note that in the present embodiment, the leg encircling stretchable members 6 use stringlike stretchable members (e.g., stringlike polyurethane stretchable fiber and stringlike natural rubber) and each end parts in the width direction of the diaper
20 1 has two leg encircling stretchable members 6 arranged in the width direction but the number of the leg encircling stretchable members 6 is not limited to such. Further, the leg encircling stretchable members 6 can use stretchable sheet members (e.g., stretchable film made by melting thermoplastic elastomer resin
25 into a film form or stretchable nonwoven fabric made with stretchable fiber).

[0028]

Further, a pair of stand-up gathers 20 that stand up on the skin side (wearer's side) is provided to the two end parts in the
30 width direction of the diaper 1. Each stand-up gathers 20 includes

a stand-up gathered sheet 21 and a stretchable member for stand-up gathers 22. As illustrated in Figs. 2A and 2B, the outer side ends in the width direction of the stand-up gathered sheet 21 and the outer covering sheet 5 are aligned. Whereas the end part of the stand-up gathered sheet 21 on the inner side in the width direction is folded toward the top sheet 2 side (non-skin side) and hereby the stretchable member for stand-up gathers 22 (a single stringlike stretchable member in the present embodiment) is fixed in a state elongated in the longitudinal direction between the two layered stand-up gathered sheet 21. Further although not shown, the two ends in the longitudinal direction of the stand-up gathered sheet 21 are connected to the top sheet 2 by adhesive and the like. And the parts of the stand-up gathered sheet 21 on the outer side in the width direction with respect to the joined end parts in the longitudinal direction are joined to the top sheet 2 along the first to the other end in the longitudinal direction and the joined part (base end part) becomes the starting point of the stand-up gathered sheet 21 that stands due to the collection of the stretchable member for stand-up gathers 22.

[0029]

Furthermore, the diaper 1 of the present embodiment is for low body weight infants. Thus it is desirable for the product measurements to take the following values or those smaller when the product is in a state extended with the wrinkles removed, specifically in a state where the diaper 1 is in a state extended until the measurement of the members (e.g., outer covering sheet 5) that configure the diaper 1 match or come close to the measurements of the unit member. It is desirable that the longitudinal product length when the product is in a state extended in the longitudinal direction is in the range of 210 to 330 mm,

to be specific, the product length is 310 mm for those for infants whose weight is less than 2500 grams, the product length is 270 mm for those for infants whose weight is less than 1500 grams and the product length is 230 mm for those for infants whose weight is less than 1000 grams. It is desirable for the waist measurement (length around the body encircling opening) to be in the range of 160 to 295 mm, to be specific, to be 273.5 mm for those for infants whose weight is less than 2500 grams and to be 220 mm for those for infants whose weight is less than 1500 grams. Note that the waist measurement is the measurement of the product in a state extended in the width direction when the body encircling stretchable member is provided in a state with the tip end of one fastening tape 10 in the width direction aligned with the stem side end part in the width direction of the hook sheet 12 that is included in the other fastening tape 10.

[0030]

=== Problems Unique to Low Body Weight Infants ===

Fig. 3A is an explanatory diagram of an infant whose weight is heavier than 3000 grams and Figs. 3B and 3C are explanatory diagrams of postures of infants that have low body weights.

For example, an infant whose weight is heavier than 3000 grams, as illustrated in Fig. 3A, often takes a posture with its legs (thighs) 7 in extended states. Thus the center part (the diagonally shaded areas in the figure) of the diaper 1 in the longitudinal direction is sandwiched between its legs 7 (crotch part). And so the absorbent body core can be made to come along the bases of the legs 7 of an infant whose weight is heavier than 3000 grams by, for example, the end in the width direction of the absorbent body core being curved so to protrude inward, that is, widening the width of the absorbent body core at the first and

second waist circumference parts 1a, 1c and making the width of the absorbent body core at the center in the longitudinal direction the narrowest at the center part of the diaper in the longitudinal direction.

5 [0031]

Meanwhile for example, a low body weight infant whose weight is not more than 3000 grams often takes a posture of a baby in the womb, in other words, a posture with its legs 7 pulled up in an M form such that both of its knees would touch the abdomen part
10 (hereinafter, positioning posture) for reasons of steady breathing and the like, as illustrated in Figs. 3B and 3C. Thus the area (the diagonally shaded areas in the figure) on the abdomen side with respect to the center part of the diaper 1 in the longitudinal direction, in other words, the second waist
15 circumference part 1c that covers the abdomen part is sandwiched between the legs 7.

[0032]

Being the case, the aforementioned diaper (i.e., a diaper having the width of the absorbent body core of the second waist
20 circumference part 1c made wide and the width of the absorbent body core at the center in the longitudinal direction made narrowest) appropriate for the posture of an infant whose weight is heavier than 3000 grams would not have the absorbent body core come along the bases of the legs 7 when put on the low body weight
25 infant that takes a positioning posture. And the portion of the absorbent body core whose width at the second waist circumference part 1c is wide would be sandwiched between the legs 7. Thus the highly rigid absorbent body core would press against the wearer's legs or the absorbent body core would be bended to create a space
30 between the disposable diaper and the wearer so that excreted

matters would leak easily. Further, there is a possibility that the portion of the absorbent body core whose rigidity is low due to having the notch parts would come to the center of the crotch part of the wearer, that is, the position of the part under strong
5 crotch fastening force so that the absorbent body core would be easily distorted in also this case.

[0033]

Under such circumstances, an objective of the present embodiment is to provide a diaper 1 that easily comes along the
10 body of a low body weight infant that takes a positioning posture.

[0034]

=== Absorbent Body Core ===

Figs. 4 and 5 are explanatory diagrams showing the positions of the abdomen side notch parts 43 provided to the absorbent body
15 core 41. Fig. 6 is a table indicating the evaluation test results when the positions of the abdomen side notch parts 43 were shifted in the longitudinal direction. Fig. 7A is a schematic perspective view of the diaper 1 and Fig. 7B is an explanatory diagram of the shapes of the abdomen side notch parts 43 and the back side notch
20 parts 44.

[0035]

The fastening tape 10 (hook sheet 12) is usually engaged to the periphery of the portion of the second waist circumference part 1c that opposes the fastening tape 10 as a result of the two
25 ends 1A, 1B in the longitudinal direction of the diaper 1 being arranged and the fastening tapes 10 being folded parallelly inward in the width direction. Thus in the present embodiment, the location (location a in Fig. 4) in the longitudinal direction where the end 10a (12a) on the center side (crotch part 1b) in the
30 longitudinal direction of the fastening tape 10 (hook sheet 12)

is located when the two ends 1A and 1B of the diaper 1 in the longitudinal direction are aligned, is set as the engaging end 1c1 of the fastening tape 10 in the second waist circumference part 1c. In other words, when the longitudinal length from the end 1A on the one side in the longitudinal direction of the diaper 1 to the center side end 10a (12a) along the longitudinal direction of the fastening tape 10 (hook sheet 12) is set to L3, the location that is distant by a length L3 toward the center side along the longitudinal direction from the end 1B on the other end side in the longitudinal direction of the diaper 1 becomes the engaging end 1c1 of the fastening tape 10.

[0036]

And when the ends 10a, 12a on the center side along the longitudinal direction of the fastening tape 10 and the hook sheet 12 do not match, the location of the center side end 12a along the longitudinal direction of the hook sheet 12 is set as the engaging end 1c1. Further, the shape of the hook sheet 12 (fastening tape 10) is not limited to a rectangular shape and can be, for example, a trapezoid or the like. And in such case, the center side end 12a along the longitudinal direction of the hook sheet 12 is inclined with respect to the width direction. Thus the location of the portion at the outermost side in the longitudinal direction of the center side end 12a along the longitudinal direction of the hook sheet 12 is set as the engaging end 1c1.

[0037]

And as illustrated in Fig. 4, the diaper 1 of the present embodiment has a the tip part 43a of the abdomen side notch part 43 located in the second area A2 between the center (location c) in the longitudinal direction of the first area A1 and the engaging

end 1c1 (location a), within the first area A1 between the product center (location b) being the center of the diaper 1 in the longitudinal direction and the engaging end 1c1 (location a).
[0038]

5 In other words, the narrowest portion of the part (the diagonally shaded area in Fig. 7B) of the absorbent body core 41 sandwiched by the pair of abdomen side notch parts 43 is positioned in the second area A2. Note that in the present embodiment, the tip points 43a of the pair of abdomen side notch parts 43 have
10 the positions aligned in the longitudinal direction, however, they may be shifted. In such case, the part of the absorbent body core 41 sandwiched by the pair of abdomen side notch parts 43 is the portion of the absorbent body core 41 that is located in the area where the region in the longitudinal direction where the two ends
15 43b, 43c (see Fig. 7B) along the longitudinal direction of one of the abdomen side notch parts 43 are located overlays the region where the two ends 43b, 43c along the longitudinal direction of the other of the abdomen side notch parts 43 are located.
[0039]

20 The abdomen side notch parts 43 of the diaper 1 in the present embodiment is located closer to the engaging end 1c1 of the fastening tape 10 with respect to the product center (location b) in the above manner. The diaper 1 is fixed to the wearer with mainly the fastening tape 10 (hook sheet 12). And so the bases
25 of the legs of the wearer that takes a positioning posture are lifted up to a location close to the engaging end 1c1 of the fastening tape 10. Thus the abdomen side notch parts 43 can be provided to the location of the bases of legs of the wearer that takes a positioning posture by providing the abdomen side notch
30 parts 43 to the second area A2 that is closer to the engaging end

1c1 of the fastening tape 10.

[0040]

The absorbent body core 41 at the periphery of the abdomen side notch parts 43 has a narrow width and is highly flexible as well since having low rigidity compared to the other portions. For this reason, the absorbent body core 41 can easily come along the bases of the wearer's legs by providing the abdomen side notch parts 43 to the positions of the bases of the legs of the wearer taking a positioning posture. Thus the pressure by the absorbent body core 41 on the wearer's legs is reduced allowing the wearer to easily take a positioning posture. In other words, the diaper 1 fixed to the wearer with the fastening tape 10 can relieve the force applied by the legs (force that attempts to push the diaper 1 toward the abdomen side) that effort to take the positioning posture with the deformation of the abdomen side notch parts 43 so to reduce the pressure on the wearer. Hereby, the comfortability when wearing the diaper 1 can be improved and swelling of the wearer can be restrained. Additionally, leaking of excreted matters can be restrained since space between the diaper 1 and the wearer is unlikely to be created with the distortion of the diaper 1 being restrained.

[0041]

But if the tip parts 43a of the abdomen side notch parts 43 were provided to the other side (abdomen side) in the longitudinal direction with respect to the engaging end 1c1 of the fastening tape 10, there would be a high possibility of a level difference (difference in thickness) in the absorbent body core 41 being created by the abdomen side notch parts 43 at the engaging position of the fastening tape 10. In such case, the engaging force of the fastening tape 10 would weaken or the fastening tape

10 would easily come off due to deformation of the absorbent body core 41 at the periphery of the abdomen side notch parts 43. Whereas the diaper 1 of the present embodiment has the tip parts 43a of the abdomen side notch parts 43 provided to the one side in the longitudinal direction with respect to the engaging end 1c1 of the fastening tape 10 so that the fastening tape 10 can be engaged to the portion of the absorbent body core 41 with high rigidity without a level difference being created. Hereby the fastening tape 10 can be tightly engaged which prevents the fastening tape 10 from coming off due to deformation of the absorbent body core 41.

[0042]

Further, the diaper 1 has leg encircling openings created at the portion between the abdomen side side flaps 14 and the back side side flaps 13 when worn. Thus the bases of the legs of the wearer that takes a positioning posture would easily be caught at the edge (hereinafter, abdomen side side flap edge 141 (location d)) of the one side (center side) in the longitudinal direction of the outermost edge 14a in the width direction of the abdomen side side flap 14 so to be lifted up to a location much closer to the abdomen side side flap edge 141, at particularly the portions that do not have the fastening tape 10 (hook sheet 12) engaged in the second waist circumference part 1c.

[0043]

For such reason, the diaper 1 of the present embodiment provides the tip parts 43a of the abdomen side notch parts 43 (provides a narrowest portion in the portions of the absorbent body core 41 sandwiched by the pair of notch parts) to an area that is on the other side in the longitudinal direction with respect to the center of the third area A3 (location e) that is

between the product center (location b) of the diaper 1 and the abdomen side side flap edge 141 (location d), in other words, the area that is in the fourth area A4 between the center of the third area A3 (location e) and the engaging end 1c1 (location a) and that is more to the abdomen side in the second area A2 as well. And hereby the absorbent body core 41 will easily come along the wearer's legs that are lifted up much close to the abdomen side side flap edge 141. Additionally, the portion of the diaper 1 (absorbent body core) that is close to the abdomen side side flap edge 141, being applied the force by the wearer's legs (force that efforts to shift the diaper 1 toward the abdomen side) can be relieved by the deformation of the abdomen side notch parts 43 thereby allowing to reduce the pressure on the wearer.

[0044]

Further, the diaper 1 is fixed to the wearer by the end 41a on the other side (abdomen side) in the longitudinal direction of the absorbent body core 41 being caught on the abdomen part of the wearer. And thus the portion of the second waist circumference part 1c to which the fastening tape 10 (hook sheet 12), in particular, is not engaged allows the bases of the legs of the wearer that takes a positioning posture to be lifted up to a location closer to the end 41a of the other side in the longitudinal direction of the absorbent body core 41.

[0045]

For such reason, the diaper 1 of the present embodiment provides the tip parts 43a of the abdomen side notch parts 43 (provides a narrowest portion within the portions of the absorbent body core 41 sandwiched by the pair of notch parts) to an area that is on the other side in the longitudinal direction with respect to the center of the fifth area A5 (location g) that is

between the product center (location b) of the diaper 1 and the end 41a of the other side in the longitudinal direction of the absorbent body core 41, in other words, the area that is in the sixth area A6 between the center of the fifth area A5 (location g) and the engaging end 1c1 (location a) and that is more to the abdomen side in the second area A2. And hereby the absorbent body core 41 will easily come along the wearer's legs that are lifted up to a location much close to the end 41a of the other side in the longitudinal direction of the absorbent body core 41. Additionally, the portion of the diaper 1 (absorbent body core) that is close to the end of the other side in the longitudinal direction 41a of the absorbent body core 41, being applied the force by the wearer's legs (force that efforts to shift the diaper 1 toward the abdomen side) can be relieved by the deformation of the abdomen side notch parts 43 thereby allowing to reduce the pressure on the wearer.

[0046]

Further the length (product length) of the diaper 1 in the longitudinal direction was set to the first length L1 and the length from the end 1B on the other side in the longitudinal direction of the diaper 1 to the tip part 43a of the abdomen side notch part 43 was set to the second length L2 ($L2/L1 \times 100$) as indicated in Fig. 5. And evaluation tests while changing the ratio of the second length L2 to the first length L1 in various ways were performed, as shown in Fig. 6. In other words, the diaper 1 having the values indicated in Fig. 6 with regard to the ratio of the second length L2 to the first length L1 was actually put on a low body weight infant that takes a positioning posture and tests on the fitting property of the diaper 1 were performed and evaluated by visual inspection. And when the fitting property

was favorable the evaluation was set to "fair", for example, when the absorbent body core 41 did not apply pressure on the wearer's legs and the absorbent body core 41 at the periphery of the wearer's legs were not distorted or when a space between the diaper 1 and the wearer was not created, and in contrast the evaluation was set to "poor" when the fitting property was bad.

[0047]

As a result as shown in Fig. 6, the evaluation results showed favorable fitting properties when the ratios of the second length L2 to the first length L1 were 22%, 24% and 26%. And thus in the diaper 1 of the present embodiment, the tip parts 43a of abdomen side notch parts 43 were provided (a narrowest portion within the part of the absorbent body core sandwiched by the pair of the notch parts was provided) to a location where the ratio of the second length L2 to the first length L1 was 22% or greater and 26% or less and that is closer to the engaging end 1c1 of the fastening tape 10 with respect to the product center (location b) within the second area A2. Hereby, the absorbent body core 41 will easily come along the legs of the wearer that takes a positioning posture and thus can have the fitting properties of the diaper 1 improved.

[0048]

Further, the absorbent body core 41 includes a pair of back side notch parts 44 (other pair of notch parts) in addition to the pair of abdomen side notch parts 43 (pair of notch parts) in the diaper 1 of the present embodiment. Thus the deforming flexibility can be increased at the portion of the absorbent body core 41 between the abdomen side notch parts 43 and the back side notch parts 44, that is, the portion of the absorbent body core 41 that is sandwiched between the legs (crotch part) of the wearer that takes a positioning posture. Hereby, the clamping force by

the crotch of the wearer that takes a positioning posture can be relieved with the deformation of the absorbent body core 41 and thus can reduce the pressure (repulsion force) on the wearer to improve the fitting comfortability.

5 [0049]

Particularly, the diaper 1 of the present embodiment has the ends in the width direction of the absorbent body core 41 convexly curved inward in the width direction protrudes between the one side in the longitudinal direction with respect to the pair of abdomen side notch parts 43 and the other side in the longitudinal direction with respect to the pair of back side notch parts 44. And as a result, the absorbent body core 41 can easily come along the bases of the legs of the wearer that takes a positioning posture.

15 [0050]

The portion of the absorbent body core 41 in the periphery of the pair of abdomen side notch parts 43 and the portion of the absorbent body core 41 in the periphery of the pair of back side notch parts 44 have low rigidity and becomes the starting point for the diaper 1 to be folded in the longitudinal direction. And thus the diaper 1 of the present embodiment (absorbent body core 41) can be easily formed into a three dimensional form so to come along the body of the wearer, as shown in Fig. 7A. In other words, a form with the portion on the abdomen side with respect to the pair of abdomen side notch parts 43 and the portion on the back side with respect to the pair of back side notch parts 44 standing with the portion of the absorbent body core 41 that comes between the pair of abdomen side notch parts 43 and the pair of back side notch parts 44 as the base part can be easily achieved. And as mentioned above, the diaper 1 can be folded at the portion on the

front side of the bases of the legs of the wearer that takes a positioning posture by providing the tip parts 43a of the abdomen side notch parts 43 to the second area A2 that is closer to the engaging end 1c1 of the fastening tape 10 with respect to the product center (location b).

[0051]

Meanwhile, as illustrated in Fig. 5, it is preferable that the tip parts 44a of the back side notch parts 44 are provided (a portion that becomes the narrowest of the portions of the absorbent body core 41 that is sandwiched between the other pair of notch parts is provided) at the seventh area A7 that is distant from the product center (location b) to both sides along the longitudinal direction by a distance of $L4 (= L1 \times 0.1)$ that is 10% of the length $L1$ in the longitudinal direction of the diaper 1, in other words, at substantially the center in the longitudinal direction of the diaper 1. And thereby, the diaper 1 can be folded at the back side part of the bases of the legs of the wearer that takes a positioning posture (that is, at the portion between the buttocks, of the wearer lying on its back, that comes into contact with the ground, and where the legs start to be raised when taking a positioning posture.)

[0052]

Thereby, the diaper 1 can be formed three dimensionally so to come along the body of the wearer that takes a positioning posture. And for such reason, the diaper 1 is prevented from being put on in a manner forcibly pulled so to come along the positioning posture, and thus the pressure on the wearer by the diaper 1 can be reduced to improve the comfortability when the diaper 1 is worn and constrains swelling of the wearer. Further, a space between the diaper 1 and the wearer is unlikely to be created so that leaking

of excreted matters can be controlled. However, it is not limited to the above and the back side notch parts 44 can be provided to the area that is distant from the product center to both sides along the longitudinal direction by a distance of L4 that is 10% of the product length L1, and only the abdomen side notch parts 43 may be provided to the absorbent body core 41 without providing the back side notch parts 44.

[0053]

Further, when the leg encircling stretchable member that stretches in the longitudinal direction, that is, the leg encircling stretchable member 6 and the stretchable member for stand-up gathers 22 is provided to both end parts in the width direction, within at least the region in the longitudinal direction from the pair of abdomen side notch parts 43 (ends 43b on the other side in the longitudinal direction in Fig. 7B) to the pair of back side notch parts 44 (ends 44c on the one side in the longitudinal direction) as in the diaper 1 of the present embodiment, the diaper 1 is curved in the longitudinal direction such that the skin side surface comes to the inside with the contraction force of the stretchable member. For such reason, the diaper 1 can be formed three dimensionally in a spherical shape so to easily come along the body of the wearer that takes a positioning posture. Note that since the ends of the stretchable member are not fixed in elongated states and do not contribute to the stretchability in general, Fig. 1 only illustrates portions of the stretchable members that contribute to stretchability. And it is favorable that the portion of the stretchable member that contributes to stretchability exists across the range along the longitudinal direction not less than from the pair of abdomen side notch parts 43 to the pair of back side notch parts 44.

However, it is not limited to such and the diaper 1 can include only one of the leg encircling stretchable member 6 and the stretchable member for stand-up gathers 22 or the diaper 1 may not include a stretchable member that stretches in the
5 longitudinal direction.

[0054]

Further in the diaper 1 of the present embodiment, the shapes of the abdomen side notch parts 43 and the back side notch parts 44 are chevrons. In other words, the shapes are such that of the
10 notch parts 43, 44, the length in the longitudinal direction of the part on the outer side in the width direction is longer than the part on the inner side in the width direction, and the positions of the tip parts 43a, 44a in the longitudinal direction are located within the outer ends (between 43b and 43c and between 44b and 44c)
15 along the longitudinal direction of the outer side ends 431 and 441 in the width direction, as illustrated in Fig. 7B.

[0055]

And for such reason, the notch parts 43, 44 contract in the width direction by the contraction of the leg encircling
20 stretchable member 6 and the stretchable member for stand-up gathers 22 so that the notch parts 43, 44 are in a pinched form. As a result, a crease 45 along the width direction is formed between the pair of abdomen side notch parts 43 and a crease 46 along the width direction is formed between the pair of back side notch parts
25 44, as illustrated in Fig. 7A. To be specific, it is desirable that the positions of the tip parts 43a, 44a of the notch parts 43, 44 along the longitudinal direction are provided at the center parts in the longitudinal direction (center part between 43b and 43c, center part between 44b and 44c) of the outer side ends 431,
30 441 in the width direction of the notch parts 43, 44. In this

way, neat creases 44, 45 can be formed so to connect each of the pair of abdomen side notch parts 43 and the pair of back side notch parts 44. However, the shapes of the notch parts 43, 44 are not limited to the above.

5 [0056]

And with the diaper 1 being formed with the aforementioned creases 45, 46 in a natural state allows the diaper 1 to be folded at the creases 45, 46 as the starting points and thus can be easily formed three dimensionally so to come along the body of the wearer taking a positioning posture. And in addition, the helper that puts the diaper 1 on the low body weight infant can confirm the creases 45, 46 by sight so to realize that the diaper 1 is in a form that comes easily along a positioning posture and thus the diaper 1 can be put on to suit the positioning posture. However, it is not limited to such and the creases 45, 46 need not be formed to the diaper 1 in a natural state.

[0057]

Note that the present embodiment assumes that the absorbent body core 41 is completely notched without any absorbent material configuring the absorbent body core 41 existing at the abdomen side notch parts 43 and the back side notch parts 44, however, it is not limited to such. A notch can be set to a portion where the weight per area of the absorbent material is low compared to the surrounding areas (e.g., portions where the weight per area is 50% or less compared to the surrounding areas). And the diaper 1 (absorbent body core 41) can be made to come along the wearer taking a positioning posture since the rigidity at the surrounding portions of the notches is low with high deforming flexibility in also this case.

30 [0058]

=== Modified Examples ===

Figs. 8 and 9 are schematic planar diagrams of the diaper 1 in modified examples. Small chevron abdomen side notch parts 43 and small chevron back side notch parts 44 were provided to the narrowed part (large notch part) of the absorbent body core 41 in the aforementioned embodiment, however, it is not limited to such. For example, the absorbent body core 41 can be provided with only the small chevron abdomen side notch parts 43 and the small chevron back side notch parts 44, as illustrated in Fig. 8. In other words, the width of the absorbent body core 41 between the pair of the abdomen side notch parts 43 and the pair of back side notch parts 44 may be made the same as the width of the absorbent body core 41 on the other side in the longitudinal direction with respect to the pair of abdomen side notch parts 43, or the same as the width of the absorbent body core 41 on the one side in the longitudinal direction with respect to the pair of back side notch parts 44. The size of the absorbent body core 41 of the diaper 1 for low body weight infants is originally small and the location where the excretion takes place does not differ much even when the location of the legs differ depending on the positioning posture so that the amount of excreted matters can be secured to control the leaking of excreted matters without the absorbent body core being narrowed between the abdomen side notch parts 43 and the back side notch parts 44.

[0059]

Further, the diaper 1 can be also fixed to the wearer by the end 1B on the other side in the longitudinal direction of the diaper 1 being caught on the abdomen part of the wearer so that the bases of the wearer's legs are lifted up to a location closer to the end 1B on the other side in the longitudinal direction of

the diaper 1. And thus the tip parts 43a of the abdomen side notch parts 43 can be provided on the other side in the longitudinal direction with respect to the center of the eighth area A8 (location i) between the product center (location b) of the diaper 1 and the end 1B (location h) on the other side in the longitudinal direction of the diaper 1, that is, the ninth area A9 between the center (location i) of the eighth area A8 and the engaging end 1c1 (location a).

[0060]

Furthermore, the tip parts 43a of the abdomen side notch parts 43 can be provided to the location on the engaging end 1c1 (location a) in the second area A2 closer to the engaging end 1c1 of the fastening tape 10 with respect to the product center (location b) of the diaper 1, as illustrated in Fig. 8, or to the location on the product center (location b).

[0061]

Even furthermore, it is not limited to providing small chevron notches to the absorbent body core 41 and only a pair of notch parts 47 with a gentle slope (the diagonally shaded areas in the figure) extending in the longitudinal direction can be provided, as illustrated in Fig. 9. In this case also, it is desirable that the portion having the narrowest width W1 of the portions of the absorbent body core 41 sandwiched by the pair of notch parts 47 is provided to the second area A2 closer to the engaging end 1c1 of the fastening tape 10 with respect to the product center (location b). With the above configuration, the absorbent body core 41 can be made to come along the legs of the wearer that takes a positioning posture.

[0062]

Even further still, the diaper can be in a state 1 where

the cutoff line 50 for cutting off the part to which the fastening tape 10 is fixed in the first waist circumference part 1a is formed to the diaper 1 in an unfolded state, as illustrated in Fig. 1. Also, the diaper can be in the following states.

5 [0063]

The diaper of aspect 2 wherein the diaper described in the diaper of aspect 1 is characterized to have

the cutoff line 50 correspond to each of the fastening tapes 10 and is formed at each of positions on both sides in the width direction,

the cutoff line 50 formed extending from a section which serves as the waist circumference opening part, to a section which serves as the leg opening part, through a position in the width direction on an inner side of the section to which the fastening tape 10 is fixed, in the first waist circumference part 1a.

[0064]

The diaper of aspect 3 wherein the diaper described in aspect 1 or 2 is characterized to have

the cutoff line 50 include a plurality of through holes extending through in the thickness direction, and

the plurality of through holes placed along a direction in which the cutoff line 50 should extend.

[0065]

The diaper of aspect 4 wherein the diaper described in aspect 3 is characterized to have

the cutoff line 50 include

a first cutoff line part that is formed extending longitudinally inwardly from a section which serves as the waist circumference opening, and

30 a second cutoff line part

that is located in a position on an inner side of the first cutoff line part in the longitudinal direction and

that is located in the same longitudinal position as the fastening tape 10,

5 regarding a ratio of a length of the through holes to unit length in a direction in which the cutoff line 50 extends, the ratio in the second cutoff line part is smaller than the ratio in the first cutoff line part.

[0066]

10 The diaper of aspect 5 wherein the diaper described in aspect 4 is characterized to have

the cutoff line 50 include a curved part at a location on the inner side of the second cutoff line part in the longitudinal direction ,

15 the curved part being in a curved shape and shifting outwardly in the width direction as it goes inwardly in the longitudinal direction ,

regarding a ratio of a length of the through holes to unit length in a direction in which the cutoff line 50 extends, the ratio in
20 the second cutoff line part is smaller than the ratio in the curved part.

[0067]

The diaper of aspect 6 wherein the diaper described in any of aspects 1 to 3 is characterized to have

25 the cutoff line 50 include

a straight part that extends straight along the longitudinal direction from a section which serves as the waist circumference opening, and

a curved part

30 that is in a curved shape and

that is located on an inner side of the straight part in the longitudinal direction and shifts outwardly in the width direction as it goes inwardly in the longitudinal direction.

[0068]

5 The diaper of aspect 7 wherein the diaper described in aspect 6 is characterized to have

leg-circumference stretchable members 6 provided along the longitudinal direction in positions on both sides in the width direction,

10 each of the leg-circumference stretchable members being for shrinking a section which serves as the leg circumference opening in the longitudinal direction , and

assuming that the curved part is divided into a portion near the waist circumference opening part side and a portion near the
15 leg circumference opening part side,

when the leg-circumference stretchable member 6 is seen from the thickness direction, the leg-circumference stretchable member 6 intersects a portion of the curved part on a side of the waist circumference opening.

20 [0069]

The diaper of aspect 8 wherein the diaper described in aspect 6 or 7 is characterized to have

the diaper include a plurality of sheets stacked in the thickness direction,

25 the number of the stacked sheets in at least a portion of the curved part is smaller than the number of the stacked sheets in the straight part.

[0070]

The diaper of aspect 9 wherein the diaper described in any
30 one of aspects 6 to 8 is characterized to have

the diaper include resin film (back film 3),
a direction in which the resin film stretches at time of
manufacture is along the longitudinal direction , and
the straight part is formed in the resin film.

5 [0071]

The diaper of aspect 10 wherein the diaper described in any
one of aspects 1 to 9 is characterized to have

a sheet-like stand-up gathers forming section 20 provided
along the longitudinal direction in positions on both sides in
10 the width direction,

the stand-up gathers forming section 20 include a base
portion and a standing portion that are arranged in this order
in the width direction,

the base portion is not able to stand in the thickness
15 direction,

the standing portion is able to stand from the base portion
on a skin side in the thickness direction, the base portion serving
as the point of support,

the standing portion stands on the skin side in the
20 thickness direction due to shrinkage of the standing portion in
the longitudinal direction by longitudinal shrinkage force that
acts on the standing portion, and

the cutoff line 50 is formed on outer sides of the base portion
and the standing portion in the width direction.

25 [0072]

The diaper of aspect 11 wherein the diaper described in any
one of aspects 1 to 10 is characterized to have

the diaper further comprise an absorbent body core 41 at
the center in the width direction,

30 the absorbent body 41 core absorb liquid and is composed

of liquid absorbent material deposited in the thickness direction,
and

the cutoff line 50 is formed on an outer side of the absorbent
body core 41 in the width direction.

5 [0073]

An open-type disposable diaper wherein the diaper described
in any one of aspects 1 to 11 is characterized to have

in a section of the second waist-circumference part 1c which
serves as the waist circumference opening, a cutting line (not
10 shown) formed along the longitudinal direction on a same width
position as the cutoff line 50.

[0074]

The foregoing embodiments are intended to facilitate the
understanding of the present invention but not to limit the
15 invention. And it is needless to say that modifications and
improvements of the present invention are possible without
departing from the scope of the invention, and equivalents thereof
are also encompassed by the invention.

20 [Reference Signs List]

[0075]

1 (open-type disposable) diaper, 1a first waist-circumference
part, 1b crotch part, 1c second waist-circumference part, 2 top
sheet, 3 back film, 4 absorbent body, 41 absorbent body core,
25 42 covering material, 43 abdomen side notch part (a pair of notch
parts) , 431 end in the width direction, 43a tip part, 43b, 43c
ends in the longitudinal direction, 44 back side notch part (other
pair of notch parts), 441 end in the width direction, 44a tip
part, 44b, 44c ends in the longitudinal direction, 45 crease,
30 46 crease, 47 pair of notch parts, 5 outer covering sheet, 6 leg

encircling stretchable member (stretchable member), 7 leg, 10
fastening tape, 11 base material, 12 hook sheet, 13 back side
side flap, 14 abdomen side side flap (side flap), 20 stand-up
gathers, 21 stand-up gathered sheet, 22 stretchable member for
5 stand-up gathers (stretchable member), b product center, a, 1c1
engaging end of fastening tape, L1 first length, L2 second
length, 50 cutoff line

[CLAIMS]

[Claim 1]

An open-type disposable diaper having a longitudinal direction and a width direction intersecting with each other, having arranged a first waist-circumference part, a crotch part, and a second waist-circumference part in this order from one side in the longitudinal direction, comprising:

an absorbent body core; and

a pair of fastening tapes extending outward from the first waist-circumference part in both width directions, wherein

the second waist-circumference part includes an engaging end of the fastening tapes at a location in the longitudinal direction where longitudinal ends, of the fastening tapes, on a side of the crotch part are located when longitudinal ends of the disposable diaper are aligned,

the absorbent body core includes a pair of notch parts on both ends in the width direction,

the absorbent body core includes another pair of notch parts on the one side in the longitudinal direction with regard to the pair of notch parts, in the longitudinal direction

in an area between the engaging end and a product center that is a center of the disposable diaper, a portion that becomes narrowest among portions of the absorbent body core sandwiched between the pair of notch parts is located in a region between a center of the area and the engaging end and in the longitudinal direction

a portion that becomes narrowest among portions of the absorbent body core sandwiched between the other pair of notch parts is located in a region, in an area on an other side opposite the one side with regard to a product center that is a center of

the disposable diaper.

[Claim 2]

A disposable diaper according to claim 1, wherein
5 the second waist circumference part has a pair of side flaps
extending outward, with respect to the crotch part, on both sides
in the width direction, and
in the longitudinal direction

the portion that becomes narrowest among portions of the
10 absorbent body core sandwiched between the pair of notch parts
is located in an area on the other side with respect to a center
of an area between the product center and an end on the one side
in the longitudinal direction of outermost ends in the width
direction of the side flaps.

15

[Claim 3]

A disposable diaper according to claim 1 or 2, wherein
in the longitudinal direction

the portion that becomes narrowest among portions of the
20 absorbent body core sandwiched between the pair of notch parts
is located in an area on the other side with respect to a center
of an area between the product center and an end on the other side
of the absorbent body core.

25 [Claim 4]

A disposable diaper according to any one of claims 1 to 3,
wherein

when a length of the disposable diaper in the longitudinal
direction is set as a first length, and

30 a length in the longitudinal direction from an end on the
other side in the longitudinal direction of the disposable diaper.

to an end on the other side in the longitudinal direction of the portion that becomes narrowest among portions of the absorbent body core sandwiched between the pair of notch parts is set as a second length,

5 a ratio of the second length to the first length is greater than or equal to 22% and less than or equal to 26%.

[Claim 5]

10 A disposable diaper according to any one of claims 1 to 4, wherein

 a portion that becomes narrowest among portions of the absorbent body core sandwiched by the other pair of notch parts is located in an area within a distance, equal to 10% of the length of the disposable diaper in the longitudinal direction, at from
15 the product center to the other side in the longitudinal direction.

[Claim 6]

 A disposable diaper according to any one of claims 1 to 5, wherein

20 a stretchable material that stretches in the longitudinal direction is provided at both end parts in the width direction and in at least a range in the longitudinal direction from the pair of notch parts to the other pair of notch parts, and

 shapes of the notch parts have lengths in the longitudinal
25 direction at portions on outer sides in the width direction longer than portions on inner sides in the width direction, and positions of tip parts in the longitudinal direction are located between two ends along the longitudinal direction of ends at outer sides in the width direction.

30

[Claim 7]

A disposable diaper according to claim 6, wherein creases
along the width direction between each of the pair of notch parts
5 and the other pair of notch parts are formed to the disposable
diaper in a natural state.

[Claim 8]

A disposable diaper according to any one of claims 1 to 7,
10 wherein

a width of the absorbent body core between the pair of notch
parts and the other pair of notch parts is equal to a width of
the absorbent body core on the other side with respect to the pair
of notch parts in the longitudinal direction.