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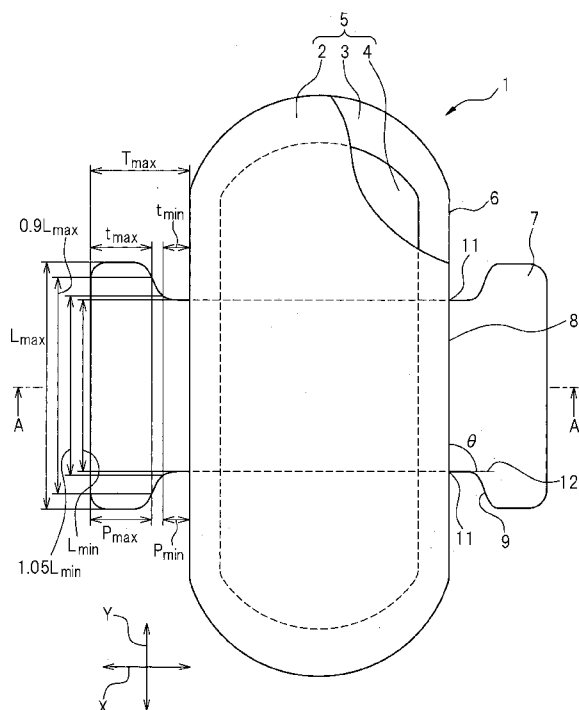
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(54) Title: ABSORBENT ARTICLE

Fig.1



(57) Abstract: In an absorbent article with wings fixed to a crotch portion of an undergarment, such as an incontinence pad or a sanitary napkin, wings shaped so as to allow for stable fixation to the undergarment is provided. A portion having a largest wing longitudinal length is distant from each side edge of an absorbent main body. When L_{min} represents a wing longitudinal length of a portion having a smallest wing longitudinal length between the portion having the largest wing longitudinal length and the side edge of the absorbent main body, a portion having a wing longitudinal length that is 1.00 to 1.05 times as long as L_{min} extends for 10 to 90% of a transverse length T_{max} of a portion having a largest wing transverse length between the portion having the largest wing longitudinal length and the side edge of the absorbent main body. The wing longitudinal length at the side edge of the absorbent main body is larger than or equal to L_{min} .



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DESCRIPTION

Title of Invention

ABSORBENT ARTICLE

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TECHNICAL FIELD

The present disclosure relates to an absorbent article.

10 BACKGROUND ART

Absorbent articles, such as incontinence pads, sanitary napkins, and panty liners, include for example absorbent articles with wings extending at both side edges of an absorbent main body and adapted to be folded back onto an outer surface side of an undergarment. For example, Japanese Examined Patent Publication No. 7-112481 discloses trapezoidal and rectangular wings. Japanese Unexamined Patent Publication No. 11-192262 discloses wings having a roughly reversed trapezoidal shape.

Regarding wings having trapezoidal shapes as disclosed in Japanese Examined Patent Publication No. 7-112481, there has been a problem in which, although the absorbent article is produced in a flat design, when in use, the article tends to bend along an axis of a three-dimensional coordinate system formed by a centerline in a longitudinal direction of the article, a centerline in a transverse direction thereof, and a line perpendicular to both of the centerlines. Thus, in an attempt to solve the problem, as a method for reducing the deformation, Japanese Unexamined Patent Publication No. 11-192262 employs wings having a shape almost reverse to those of Japanese Examined Patent Publication No. 7-112481, (a shape whose width constantly increases as it proceeds from its proximal end to its distal end).

SUMMARY OF INVENTION

TECHNICAL PROBLEM

The inventor(s) has recognized the following points. However, in the example of Japanese Unexamined Patent Publication No. 11-192262, a dimension of the wing in a longitudinal direction of the article increases continuously from the proximal end toward the distal end. Thus, upon detachment of the wings of the absorbent article from the undergarment, due to the shape as described above, a force is intensively applied to the roots of the wings (the boundary line between the wings and the absorbent main body, especially at both ends of the boundary line) which might result in tearing or detachment of the wings from the absorbent main body.

Additionally, upon attachment of the absorbent article to an undergarment, due to variations in the width of the crotch portion of different items of undergarment, if the undergarment's width is larger than that of the absorbent main body, the undergarment may also be folded back when folding starts from the roots of the wings, thereby causing discomfort. Further, it might be difficult to fold the wings at a position other than the roots of the wings according to the width of the crotch portion of the undergarment.

SOLUTION TO PROBLEM

An absorbent article in accordance with some embodiments comprises an absorbent main body and a pair of wings extending from both side edges of the absorbent main body. The absorbent main body comprises a fluid-permeable top sheet, a fluid-impermeable back sheet, and a fluid-retaining absorber interposed between the top sheet and the back sheet. Each of the wings has a wing longitudinal length in a longitudinal direction of the absorbent main body, and a wing transverse length in a transverse direction orthogonal to the longitudinal direction of the absorbent main body. In each of the wings, a portion having a largest wing longitudinal

length $L_{\max}$ is distant from the respective side edge of the absorbent main body. Further, a portion having a smallest wing longitudinal length $L_{\min}$ is located between the portion having the largest wing longitudinal length $L_{\max}$ and the respective side edge of the absorbent main body. In addition, a portion having a wing longitudinal length that is 1.00 to 1.05 times as long as $L_{\min}$ is present by 10 to 90% of a largest wing transverse length $T_{\max}$ between an outermost side edge of the wing and the respective side edge of the absorbent main body.

ADVANTAGEOUS EFFECTS OF INVENTION

An absorbent article according to the present invention is easily attached to undergarments having different crotch widths, and tearing at roots of the wings does not easily occur.

BRIEF DESCRIPTION OF DRAWINGS

Fig. 1 is a partially cut-away plan view of an absorbent article according to an embodiment of the present invention.

Fig. 2 is a schematic cross-sectional view taken along line A-A of Fig. 1.

Fig. 3 is a bottom view of the absorbent article of Fig. 1.

Fig. 4 is a partially cut-away plan view of an absorbent article according to another embodiment of the present invention.

Fig. 5 is an enlarged plan view showing the shape of a wing of an absorbent article according to another embodiment of the present invention.

Fig. 6 is an enlarged plan view showing an example of a fixing adhesive portion provided on the wing.

Fig. 7 is a schematic cross-sectional view similar to Fig. 2 and showing an absorbent article according to another embodiment of the present invention.

DESCRIPTION OF EMBODIMENTS

Hereinafter, some embodiments of the present invention will be described with reference to the drawings, but the invention is not limited to the
5 embodiments illustrated in the drawings and/or details specifically described below.

Fig. 1 is a partially cut-away plan view of an absorbent article according to an embodiment of the present invention. Fig. 2 is a schematic cross-sectional
10 view taken along line A-A of Fig. 1. Fig. 3 is a bottom view of the absorbent article of Fig. 1. An absorbent article **1** comprises an absorbent main body **5** and a pair of wings **7**, **7** extending from both side edges **6**, **6** of the absorbent main body. The absorbent main body **5** comprises
15 a fluid-permeable top sheet **2**, a fluid-impermeable back sheet **3**, and a fluid-retaining absorber **4** interposed between the top sheet and the back sheet.

Each of the wings **7** has a wing longitudinal length L in a longitudinal direction Y of the absorbent main body **5** and a wing transverse length T in a transverse
20 direction X of the absorbent main body **5** which is orthogonal to the longitudinal direction Y . A portion having the largest wing longitudinal length $L_{\max}$ is distant from the respective side edge **6** of the absorbent
25 main body **5**. In other words, in the shape of the wing **7**, a root of the wing **7** (a portion near the side edge of the absorbent main body) is constricted (narrowed).

To stably fix an absorbent article to an undergarment, increasing the size of the wing fixed by
30 folding it back onto the outside of the undergarment is preferable. However, when a longitudinal length at the root of the wing is increased together with an increase in the largest longitudinal length of the wing, the root shape may not fit to the curve of a crotch portion of the
35 undergarment, resulting in unstable fixation. Thus, in each wing, although the portion wrapping around the outside of the crotch portion of the undergarment and

fixed thereto by means of an adhesive agent is preferably larger, the folded and bent portion is preferably narrower. This observation is particularly noticeable in mild incontinence pads often used for longer hours compared to sanitary napkins.

Herein, $L_{\min}$ represents the wing longitudinal length of the portion of the wing having the smallest wing longitudinal length and located between the portion having the largest wing longitudinal length $L_{\max}$ and the respective side edge of the absorbent main body.

$T_{\max}$ represents the largest (or entire) wing transverse length of the wing between the outermost side edge of the wing and the respective side edge of the absorbent main body.

A portion having a wing longitudinal length that is 1.00 to 1.05 times as long as $L_{\min}$ extends for 10 to 90% of the largest wing transverse length $T_{\max}$. In other words, "the portion having the wing longitudinal length that is 1.00 to 1.05 times as long as $L_{\min}$ " refers to a portion of $L_{\min}$ plus a portion where a wing longitudinal length deviation from $L_{\min}$ is within 5%, and is hereinafter represented by $P_{\min}$. That is, $P_{\min}$ is present not at a single point but throughout the range of 10 to 90% of $T_{\max}$.

When wrapping the wings around the outside of the crotch portion of the undergarment to fix the wings to the outside of the undergarment, the wings tend to bend at the portion of $P_{\min}$. Accordingly, in the case of a shape in which the wing longitudinal length increases uniformly from the root 8 of the wing (i.e., the portion of $L_{\min}$ is present only at a single point at the wing root), when the width of the crotch portion of the undergarment is larger than the width of the absorbent main body, the wings are folded at a point other than at the portion of $L_{\min}$, or are folded at the portion of $L_{\min}$ but causing furrows to be formed on the crotch portion of the undergarment in order to narrow the width of the

crotch portion. In either case, stable fixation is difficult to obtain. In absorbent article **1**, the portion of $P_{\min}$ is present not only at a single point but throughout the specified range. Thus, even if the width of the crotch portion of the undergarment is slightly larger than the width of the absorbent main body **5**, the wings can be folded at $P_{\min}$, allowing for stable fixation. In other words, since the folding position can be made at a point other than the side edge of the absorbent main body, the position for folding the wings is easily fitted to the crotch width of the undergarment. This can reduce discomfort, such as folding back of the crotch portion of the undergarment during use.

A length $t_{\min}$ in the transverse direction X of $P_{\min}$ is 10 to 90% of $T_{\max}$, and more preferably, 30 to 60% of $T_{\max}$. If the length $t_{\min}$ in the transverse direction X of $P_{\min}$ is too small, conformability to variations in the width of the crotch portion of the undergarment decreases. Conversely, if the ratio of $t_{\min}$ is too large, the area of the portion wrapping around the outside of the crotch portion of the undergarment for fixing the undergarment decreases. The length $t_{\min}$ in the transverse direction X of $P_{\min}$ is, as a specific example, preferably 5 to 20 mm, although it depends on the size of the entire absorbent article.

In addition, an angle θ is formed by a tangential line **12** of the outline **9** of each wing with the respective side edge of the absorbent main body at the intersection **11** between the outline **9** of the wing and the side edge **6** of the absorbent main body and the side edge **6** of the absorbent main body, and the angle θ appears inside the wing. Preferably, the angle θ is 90° or smaller, more preferably 10° to 80° , still more preferably 20° to 70° . In the case of a reversed isosceles trapezoid in which the wing longitudinal length increases uniformly from the root **8** of the wing, the angle θ is larger than 90° . In

this case, force is intensively applied to both ends **11** of the root **8** of the wing **7** (the intersection between the outline **9** of the wing and the side edge **6** of the absorbent main body). Tearing is likely to start from the points **11**. By setting the angle θ to 90° or smaller, tearing of the wings **7** from the absorbent main body **5** can mostly be prevented or at least less likely to occur. Additionally, when pulling the pair of wings to the right and left upon wearing, a force is not imposed on one spot but can be distributed. This makes it unnecessary to use a high basis weight material and/or perform any laminating processing for only ensuring strength. As a result, a low basis weight material can be selected. Selecting a low basis weight material allows the wings to be easily folded and thereby achieve improved feeling when wearing.

Preferably, a portion $P_{\max}$ having a wing longitudinal length that is 0.9 to 1.0 times as long as the largest wing longitudinal length $L_{\max}$ extends for 30 to 80% of $T_{\max}$. That is, preferably, the length $t_{\max}$ in the transverse direction X of $P_{\max}$ is 30 to 80% of $T_{\max}$. Preferably, in order to obtain stable fixation, the area of the portion wrapping around the outside of the crotch portion of the undergarment to be fixed thereto is large. More preferably, $t_{\max}$ is 50 to 70% of $T_{\max}$. If $t_{\max}$ is too small, the area of the portion wrapping around the outside of the crotch portion of the undergarment to be fixed thereto decreases. Conversely, if the ratio of $t_{\max}$ is too large, $t_{\min}$ becomes small, which reduces conformability to variations in the width of the crotch portion of the undergarment. As a specific example, $t_{\max}$ is preferably 10 to 20 mm, although it depends on the size of the entire absorbent article. The sum of $t_{\max}$ and $t_{\min}$ is preferably smaller than or equal to $T_{\max}$.

Preferably, $L_{\min}$ is 40 to 90% of $L_{\max}$, and more preferably 50 to 80% of $L_{\max}$. If $L_{\min}$ is too small, strength of the portion having the wing longitudinal

length of $L_{\min}$ becomes insufficient, whereas if $L_{\min}$ is too large, the length does not fit to the curve of the crotch portion of the undergarment. As a specific example, $L_{\min}$ is preferably 30 to 70 mm, and more preferably, 40 to 60 mm, although it depends on the size of the entire absorbent article.

Preferably, the outline of the wing does not have any break point, except for the intersections **11** between the outline **9** of the wing and the respective side edge **6** of the absorbent main body. Herein, the break point refers to a point where the outline discontinuously changes its direction. That is, the corners of the outline of the wing are rounded and do not have any apex. If there is any angular portion, the skin of the user may come in contact with the angular portion during use, which may result in discomfort. Thus, rounding off the corners can contribute to reducing discomfort. Additionally, since tearing is more likely to start from an apex (a break point) having an interior angle larger than 180° , preferably, such an apex is not formed. Furthermore, upon wearing, a force imposed when pulling the pair of wings to the right and left can be distributed rather than being concentrated on a point or two, whereby tearing can mostly be prevented or is at least less likely to occur.

The wings **7** may be formed by transversely extending the top sheet **2** and/or the back sheet **3** used in the absorbent main body **5**, by using a separate member other than the members forming the absorbent main body **5**, or by using a member that is formed in one piece with a member forming the absorbent main body **5**. For example, a shape including both the back sheet **3** and the wings **7** may be cut out from a single sheet to form a single member in which the back sheet **3** and the wings **7** are integrally continued. Alternatively, a shape including both the top sheet **2** and the wings **7** may be cut out from a single sheet to form a single member in which the top sheet **2**

and the wings 7 are integrally continued. On both sides of the top sheet 2 separate side sheets (not shown) may be provided, and the side sheets and the back sheet 3 may be transversely extended and integrated to form the wings 7. When the wings 7 and the absorbent main body 5 are formed from separate members, it is preferable to combine them such that fiber alignments of the members intersect each other. In the case of the wings 7 made of a nonwoven fabric, by attaching the wings 7 such that a fiber alignment direction of the nonwoven fabric is orthogonal to the longitudinal direction of the absorbent main body, strength of the wing in the transverse direction can be increased, which allows the wings to not be easily torn off the absorbent main body. Fig. 1 shows an absorbent article produced by adhering together the absorbent main body 5 and the wings 7 formed from separate members. Fig. 4 shows an absorbent article of an embodiment in which the wings 7 are formed from a sheet in which the top sheet 2 and the back sheet 3 are transversely extended and integrated together.

Herein, the term "fiber alignment" means a fiber orientation direction as viewed on a nonwoven fabric surface. Regarding a nonwoven fabric, the expression "fiber alignment is in a specific direction" means that fibers that form from 50% to 100% of a total fiber weight of the nonwoven fabric have fiber alignment within a range of -45° to $+45^{\circ}$ with respect to the specific direction.

Thus, fiber alignment in the top sheet 2 is in the longitudinal direction Y of the absorbent main body 5 when fibers that form 50% or more of a total fiber weight of the top sheet 2 have fiber alignment within a range of -45° to $+45^{\circ}$ with respect to the longitudinal direction Y of the absorbent main body 5. Likewise, fiber alignment in the wings 7 is in the transverse direction X of the absorbent main body 5 when fibers that form 50% or more of a total fiber weight of the wings 7 have fiber

alignment within a range of -45° to $+45^{\circ}$ with respect to the transverse direction X of the absorbent main body 5.

As a method for measuring the fiber alignment of a nonwoven fabric, a commonly used measurement method can be used. For example, there can be exemplified a measurement method equivalent to a fiber alignment property test method based on zero-span tensile strength in the TAPPI Standard T481. Additionally, as a quick and easy method, the fiber alignment may be measured using a tensile strength ratio (MD/CD) of a nonwoven fabric between a production line direction (MD - machine direction) of the nonwoven fabric and an orthogonal direction (CD - cross direction) thereof. As specific procedures of the quick and easy measurement method, with an autograph testing machine (AGS-G100N) manufactured by SHIMADZU Corporation, test pieces having a length of 200 mm and a width of 50 mm are subjected to testing under conditions with a cross-head speed of 500 mm/min and an inter-chuck distance of 150 mm to obtain tensile strength from a maximum load under tension and also calculate a degree of elongation from elongation at the maximum load. When the tensile strength ratio (MD/CD) is larger than 1, the nonwoven fabric has fiber alignment in the MD direction. When the tensile strength ratio (MD/CD) equals 1, the nonwoven fabric has no fiber alignment.

A nonwoven fabric is produced by forming fibers into a sheet form to obtain a web and bonding or entangling the fibers within the web to form the non-woven fabric, with or without further finishing processes. When producing nonwoven fabric in an industrial scale, a continuous production apparatus is used to produce a long nonwoven fabric sheet. In that case, unless specially treated, fibers forming the nonwoven fabric tend to be aligned in the longitudinal direction of the long sheet, namely, the machine direction or production line direction MD in which the web or the sheet proceeds in the production apparatus. Accordingly, ordinary nonwoven

fabrics industrially produced as long sheets have better fiber alignment. In some embodiments of the present invention, when the top sheet **2** is cut from a nonwoven fabric having such fiber alignment, cutting is performed such that the fiber alignment in the nonwoven fabric forming the top sheet **2** is in the longitudinal direction of the absorbent main body **5**. On the other hand, when producing the wings **7** from a nonwoven fabric, cutting is performed such that the fiber alignment in the nonwoven fabric forming the wings **7** is in the transverse direction of the absorbent main body **5**. This makes the fiber alignment in the top sheet **2** orthogonal to the fiber alignment in the wings **7**.

Preferably, the wings **7** are made of a separate member from the absorbent main body **5**, and the fiber alignment in the top sheet **2** is in the longitudinal direction Y, whereas the fiber alignment in the wings **7** is in the transverse direction X.

Fluid tends to spread along fiber alignment. Thus, on the absorbent main body side, fluid spreads in the longitudinal direction and can be efficiently absorbed. In addition, since the wings are provided as a separate member, lateral leakage is rarely induced on the top side. As a result, the absorbent main body does not need to have an extra absorbing function and thus can be thinner.

By arranging the fiber alignment of the nonwoven fabric forming the wings to be orthogonal to the longitudinal direction of the absorbent main body, the strength of the wings against tension upon pulling the wings to the left or right is increased. Therefore, to ensure the strength of the wings, using a high basis weight material for the wing member and lamination of the coating of the wing member, or the like, is not necessary. In other words, the wing member can be made of a low basis weight material or a highly air-permeable material.

As the wing member, a low basis weight member may be selected. Accordingly, upon use of the absorbent article, the portion of the absorbent article wrapping around the undergarment can be made less stiff and uneven texture can be reduced, allowing for comfortable wearing even for long hours.

Additionally, using a highly air-permeable material for the wing member can also improve the air permeability of a portion where the absorbent main body and the wings overlap each other upon wearing. Thereby, a wet feeling can also be reduced.

Therefore, good absorption efficiency in the absorbent main body and a good fit feeling of the wings can be both satisfied.

Furthermore, a member forming the absorbent main body has fiber alignment in the longitudinal direction of the absorbent main body, whereas the wing member has fiber alignment in the transverse direction of the absorbent main body. Accordingly, upon wearing, the wing member reacts against force imposed from the transverse direction at the crotch portion which results in the wings not being easily twisted.

When the wing member is configured as a separate body from the absorbent main body, the bonding strength between the absorbent main body and the wing member is a consideration. Thus, by making the fiber alignment in the nonwoven fabric forming the absorbent main body and bonded to the wings orthogonal to the fiber alignment in the nonwoven fabric forming the wings, a number of intersecting points of respective fibers are increased compared to parallel fiber alignment, thereby increasing the bonding strength. In other words, bonding conditions with orthogonal alignment can be set lower than with parallel alignment. As a result, since conditions for a bonding method (such as a heat seal or an adhesive agent) are mitigated, stiffening of the interface portion between the absorbent main body and the wings is

avoidable. Thereby, discomfort at the crotch portion upon wearing is reduced, allowing for comfortable wearing even in long hours of use.

5 When the top sheet **2** and the wings **7**, and/or the back sheet **3** and wings **7** are configured in one piece as exemplarily illustrated in Fig. 4, regarding the side edges **6** of the absorbent main body at portions where the wings **7** are continued to the absorbent main body **5**, a line connecting an upper side edge **6a** of the absorbent
10 main body and a lower side edge **6b** of the absorbent main body present at upper and lower portions where the each wing **7** is not continued to the absorbent main body **5** is regarded as both the side edge **6** of the absorbent main body and the root **8** of the wing.

15 At the intersection **11** between the outline **9** of the wing and the respective side edge **6** of the absorbent main body, the tangential line **12** of the wing outline may be made coincident with the side edge **6** of the absorbent main body. Particularly, when the wing **7** is made of a
20 member that is one piece with a member forming the absorbent main body **5** (the top sheet **2** and/or the back sheet **3**), as shown in Fig. 4, at the intersection **11** between the outline **9** of the wing and the side edge **6** of the absorbent main body, the tangential line **12** of the
25 outline of the wing preferably coincides with the side edge **6** of the absorbent main body. In this case, at both ends **11** of the root **8** of the wing, there is no break point and both ends **11** of the root of the wing are rounded. This can prevent the concentration of force on
30 one spot, allowing the wings to be hardly torn off the absorbent main body.

Fig. 5 is an enlarged plan view showing a wing shape of an absorbent article according to another specific embodiment of the present invention. The shape shown in
35 Fig. 5 is formed by rounding off the corners of a figure obtained from two different-sized rectangles connected by an isosceles trapezoid. Although sizes of respective

portions of the shape depend also on an entire size of the absorbent article, L_1 is preferably 30 to 100 mm, and more preferably 40 to 90 mm. L_2 is preferably 40 to 90% of L_1 , and more preferably 50 to 80% of L_1 .

5 T_1 is preferably 5 to 55 mm, and more preferably 20 to 40 mm. T_2 is preferably 10 to 60% of T_1 , and more preferably 20 to 50% of T_1 . T_3 is preferably 1 to 50% of T_1 , and more preferably 5 to 30% of T_1 . T_4 is preferably 30 to 80% of T_1 , and more preferably 40 to 70% of T_1 .

10 Radius of curvature R_1 is preferably 1 to 30 mm, and more preferably 2 to 15 mm. Radius of curvature R_2 is preferably 1 to 30 mm, and more preferably 2 to 15 mm. Radius of curvature R_3 is preferably 1 to 30 mm, and more preferably 2 to 15 mm.

15 In a specific example of the wing shape as shown in Fig. 5, L_1 is 80 mm; L_2 is 55 mm; T_1 is 32.5 mm; T_2 is 10 mm; T_3 is 7 mm; T_4 is 15.5 mm; R_1 is 7.5 mm; R_2 is 7.5 mm; and R_3 is 5 mm.

20 Fig. 3 is a bottom view of the absorbent article of Fig. 1.

Preferably, on the backside of the absorbent article **1** there is provided a fixing adhesive portion **21** by applying an adhesive agent for fixation to an undergarment. Preferably, the fixing adhesive portion **21** is provided on both the backside of the absorbent main body **5** and a backside of the each wing **7**. The fixing adhesive portion **21** provided on the backside of the absorbent main body **5** may be a single portion or may be split into a plurality of portions. Each fixing adhesive portion **21** provided on the backside of the wing **7** may be a single portion, as shown in Fig. 3, or may be split into a plurality of portions, as shown in Fig. 6. In any case, preferably, at the portion $P_{\max}$ having the wing longitudinal length that is 0.9 to 1.0 times as long as $L_{\max}$, the fixing adhesive portion **21** is provided on the outside P_{out} in the longitudinal direction Y of the portion corresponding to $L_{\min}$ or extends for a length

longer than $L_{\min}$. By providing the fixing adhesive portion **21** also to the outside P_{out} of the portion corresponding to $L_{\min}$, the wings can be fixed to a larger contact area on the undergarment, allowing the wings to be more stably fixed to the undergarment. In addition, since the wings can be fixed to the undergarment over a large contact area, the basis weight of the adhesive agent can be reduced. Furthermore, in particular, the part of the wing outside the portion corresponding to $L_{\min}$ can be prevented from folding back by providing the fixing adhesive portion **21** also to the outside P_{out} of the portion corresponding to $L_{\min}$. This can also prevent discomfort caused due to skin contact with a part folded back during use.

The pair of wings **7, 7** may be a continuous one-piece member or discontinuous separate members. However, preferably, the pair of wings is a continuous one-piece member, namely, a member made of a one-piece material. By using the pair of wings made of a one-piece material, in the production process there can be obtained a product in which the wings on the right and left are hardly displaced from the absorbent main body **5**. In addition, although bonding the wings to the main body by only the constricted roots reduces the bonding area, the wings can be bonded thereto throughout the transverse direction, so that, even if one of the wings is pulled, the wing is hardly detached from the main body. Figs. 1 and 2 show an example of a one-piece wing member in which the pair of wings **7, 7** are continued. Fig. 7 is a schematic cross-sectional view similar to Fig. 2 and showing an absorbent article according to another specific embodiment of the present invention, in which the pair of wings **7, 7** are discontinued, separate members.

When the wings **7** are a separate member from the absorbent main body **5**, the bonding points of the wings **7** to the absorbent main body **5** are not particularly restricted. For example, the wings **7** may be interposed

and bonded between the top sheet **2** and the back sheet **3**, or may be bonded to the backside of the absorbent main body **5**, namely, to an exposed surface of the back sheet **3**. Fig. 2 is an example in which the wings **7** are
5 interposed and bonded between the top sheet **2** and the back sheet **3**. Additionally, Fig. 2 is also an example in which the wings **7** are bonded to a side of the back sheet **3** opposing the top sheet. When the wings **7** are bonded to the side of the back sheet opposing the top sheet, the
10 wings are easily bent toward the backside. Since the wings are not exposed on the backside, the backside is smooth, whereby the fixing adhesive portion can be stably arranged on the back sheet. Thus, the fixing adhesive agent hardly transfers to the undergarment upon
15 detachment of the absorbent article from the undergarment.

Fig. 7 shows an example in which the wings **7** are bonded to the backside of the absorbent main body **5**, namely, to the exposed surface of the back sheet **3**. When the wings **7** are bonded to the backside of the absorbent
20 main body **5**, a bonding portion between each wing **7** and the backside of the absorbent main body **5** does not need to be an entire contact surface between the wing **7** and the absorbent main body **5**. As shown in Fig. 7, a bonding portion **31** may be spaced inwardly from the respective
25 side edge **6** of the absorbent main body. By providing the bonding portion **31** between the wing **7** and the backside of the absorbent main body **5** inwardly from the side edge **6** of the absorbent main body, the absorbent article **1** can be fixed according to the crotch width of the
30 undergarment even if the crotch width is smaller than the width of the absorbent main body **5**.

The shape of the absorbent main body **5** is not specifically limited as long as it is a shape conforming to the shapes of a female body and/or a undergarment, and
35 may be rectangular, elliptic, gourd-like, or the like. Its total outline size may be for example, in the longitudinal direction, preferably 100 to 500 mm and more

preferably 150 to 350 mm, and in the transverse direction, preferably 30 to 200 mm and more preferably 40 to 180 mm.

The top sheet **2** serves to pass a bodily fluid excretion, such as urine or menstrual blood, to an absorber **4** provided under the top sheet, as well as to retain the absorber **4** by interposing the absorber **4** between the top sheet **2** and the back sheet **3**. The top sheet **2** is entirely or partially fluid-permeable, where a fluid permeation region is made of a resin film with many fluid permeation holes formed therein, a net-like sheet with many meshes, a fluid-permeable nonwoven fabric, a woven fabric, or the like. The resin film or the net-like sheet to be used can be made of polypropylene (PP), polyethylene (PE), poly(ethylene terephthalate) (PET), or the like. Additionally, as the nonwoven fabric, spunlace nonwoven fabrics made of cellulose fibers such as rayon, synthetic resin fibers or the like, air-through nonwoven fabrics made of the synthetic resin fibers, or the like, can be used. Additionally, examples of a material to be used can include biodegradable natural products such as poly(lactic acid), chitosan, and poly(alginic acid). In addition, many fluid-permeable holes may be formed and a silicone-based or fluorine-based water-repellent oil agent may be applied so that bodily fluid does not easily adhere to the outer surface of the top sheet **2**.

The basis weight of the top sheet **2** is preferably 15 to 100 g/m², and more preferably 20 to 50 g/m². Generally, if the basis weight is under about 15 g/m², the surface strength may not be sufficient and the sheet is more likely to be torn during use. Additionally, if the basis weight exceeds about 100 g/m², excessive stiffness may occur, causing discomfort during use. Furthermore, in the case of long hours of use, if the basis weight exceeds 50 g/m², fluid may be retained by the top sheet **2**, and the sheet may be continuously maintained in a sticky or wet condition, causing an uncomfortable feeling.

Generally, the density is not specifically restricted as long as it is around 0.12 g/cm^3 or smaller and the sheet is fluid-permeable. If the density exceeds this level, fluid may not smoothly permeate the fibers of the top sheet **2**.

When the fluid permeation region forming the entire part or a part of the top sheet **2** is an aperture film such as a film having many fluid-permeable apertures, a preferable aperture diameter is in a range of 0.05 to 3 mm, a preferable pitch between adjacent apertures is in a range of 0.2 to 10 mm, and a preferable ratio of a total aperture area to a total area of the fluid permeation region is in a range of 3 to 30%.

In the absorbent article **1** in accordance with some embodiments of the present invention, furthermore, a second fluid-permeable sheet may be provided between the top sheet **2** and the absorber **4**. The second fluid-permeable sheet is made of a material similar to that of the top sheet **2** (such as nonwoven fabric) and having a slightly higher density than that of the top sheet **2**. Thus, the second fluid-permeable sheet can improve fluid drainage properties and suppress the return of fluid.

The back sheet **3** serves to prevent external leakage of a fluid, such as urine or menstrual blood, that has been absorbed into the absorber **4** and is made of a material that can prevent such a fluid from externally leaking out. Alternatively, with the back sheet made of a fluid-impermeable and air-permeable material, hot and humid air during wearing can be reduced, thereby allowing for the reduction of discomfort during wearing. Examples of such a material include fluid-impermeable films, air-permeable films, which are mainly made of polyethylene (PE), polypropylene (PP) or like, and composite sheets formed by laminating a fluid-impermeable film on one side of a nonwoven fabric such as a spunbonded nonwoven fabric. Preferably, hydrophobic nonwoven fabrics, water-impermeable plastic films, laminate sheets made of

nonwoven fabrics and water-impermeable plastic films and the like can be used. Alternatively, there may be used SMS nonwoven fabrics in which a highly water-resistant melt-blown nonwoven fabric is sandwiched by a highly strong spunbonded nonwoven fabric.

As a material for forming the wings **7**, there can be used those previously described as the material for forming the back sheet **3** or the top sheet **2**.

Preferably, the absorber **4** serves to absorb and retain a fluid, such as urine or menstrual blood, and has high volume, which does not easily lose its shape, and is less chemically stimulant. An example of the absorber includes an absorber comprising fluff pulp or an air-laid nonwoven fabric and a super-absorbent polymer (SAP). Chemical pulps, cellulose fibers, artificial cellulose fibers such as rayon and acetate, and the like can be used instead of fluff pulp. Preferably, an absorbent fiber such as pulp has a basis weight of 100 to 800 g/m² and an amount of the super-absorbent polymer is 30 to 65 parts by weight based on 100 parts by weight of absorbent fiber. In a fluid-permeable material such as tissue covering a mixture in which an absorbent fiber and a super-absorbent polymer are entirely uniformly distributed, a preferable basis weight of the material is 12 to 30 g/m². An example of the air-laid nonwoven fabric includes a nonwoven fabric in which pulp and a synthetic fiber are thermally fused together or fixedly bonded together by a binder. The super-absorbent polymer has a three-dimensional network structure in which water-soluble macromolecules are appropriately cross-linked together, and absorbs water in the weight of 30 to 60 times as much as the weight of the super-absorbent polymer itself. However, the super-absorbent polymer is basically water-insoluble and does not release once absorbed water even if more or less pressure is applied. Examples of the super-absorbent polymer include particulate or fibrous polymers based on starch, acrylic

acid, or amino acid. The shape and structure of the absorber can be changed as required, although an entire absorption amount of the absorber needs to correspond to a designed insertion amount and an intended purpose for use as the absorbent article. In addition, the size, absorption capacity and the like of the absorber will be changed according to its purpose.

The absorber 4 may be composed of two layers, which are an upper absorber layer and a lower absorber layer. The upper absorber layer may be made of a hydrophilic sheet and a super-absorbent polymer. The hydrophilic sheet is a sheet having hydrophilic properties, which is made of a nonwoven fabric, a porous plastic sheet, or the like. In the case of a nonwoven fabric, a porous plastic sheet, or the like, hydrophilic treatment is performed as required. Examples of the nonwoven fabric to be used include spunlaced, spunbonded, thermobonded, meltblown, needlepunched, and air-through nonwoven fabrics. Examples of material fiber forming the nonwoven fabric include polyolefin-based synthetic fibers such as polyethylene or polypropylene, polyester-based synthetic fibers and polyamide-based fibers, as well as regenerated fibers such as rayon and cupra, and natural fibers such as cotton. The upper absorber layer is formed in a sheet form by distributing a super-absorbent polymer in a predetermined pattern on one side of a hydrophilic sheet, laminating another hydrophilic sheet thereon in a manner to sandwich the super-absorbent polymer, and bonding them by using a bonding method (such as a heat seal using hot-melt adhesive) at points where the super-absorbent polymer is not distributed. The super-absorbent polymer is preferably fixed to the hydrophilic sheet by an adhesive agent such as a hot-melt adhesive, although the polymer can be present as it is as a crushed substance, without being fixed, while being covered with the hydrophilic sheet. The hydrophilic sheet sandwiching the super-absorbent polymer may be formed by folding back a

single hydrophilic sheet and bonding together or by sandwiching a super-absorbent polymer between two hydrophilic sheets whose upper and lower sheets are the same or different and bonding them together. As a configuration of the upper absorber layer, an end portion and an edge of the hydrophilic sheet may be formed by folding them back toward the center of the sheet. Even if body pressure is excessively applied after absorption, folding them back eliminates a risk that the super-absorbent polymer becomes swollen and can burst out from the upper absorber layer, and folding back the end portion creates an effect of increasing the basis weight of a sheet material to further increase compression recovery properties. The lower absorber layer can be made of an absorbent material suitable for use as an absorber main body in absorbent articles such as incontinence pads, sanitary napkins, and disposable diapers. A typical absorbent material includes a mixture of an absorbent fiber and a super-absorbent polymer.

The absorbent article can be manufactured by cutting a nonwoven fabric for the wings into a predetermined shape to obtain a piece of a nonwoven fabric for the wings, and then stacking the piece of a nonwoven fabric for the wings, an absorber, and a nonwoven fabric for the top sheet successively on a nonwoven fabric for the back sheet. The wings may be bonded to the back sheet via an adhesive, and the top sheet also may be bonded to the back sheet via an adhesive. The method for the absorbent article is not limited to the above method.

The present invention is also defined by way of the following non-limiting features E1 to E20 and U1 to U14, which are not specific to the detailed embodiments described above.

E1. An absorbent article comprising an absorbent main body and a pair of wings extending from both side

edges of the absorbent main body, wherein the absorbent main body comprises a fluid-permeable top sheet, a fluid-impermeable back sheet, and a fluid-retaining absorber interposed between the top sheet and the back sheet, and
5 each of the wings has a wing longitudinal length in a longitudinal direction coincident with the longitudinal direction of the absorbent main body, and a wing transverse length in a transverse direction orthogonal to the longitudinal direction of the absorbent main body;
10 characterized in that:

a portion of a wing having the smallest wing longitudinal length is in proximity to the side edge of the absorbent main body and a portion of a wing having the largest wing longitudinal length is distant from the
15 side edge of the absorbent main body; and

where $L_{\min}$ represents the wing longitudinal length of the portion of a wing having the smallest wing longitudinal length, which portion is between the portion having the largest wing longitudinal length and the side
20 edge of the absorbent main body, a portion of a wing having a wing longitudinal length that is 1.00 to 1.05 times as long as $L_{\min}$ extends for 10 to 90% of a transverse length $T_{\max}$ of the wing extending from the portion having a largest wing transverse length to the
25 side edge of the absorbent main body.

E2. The absorbent article according to E1, wherein a portion of a wing having a wing longitudinal length that is 1.00 to 1.05 times as long as $L_{\min}$ extends for 30
30 to 60% of a transverse length $T_{\max}$ of the wing extending from the portion having a largest wing transverse length to the side edge of the absorbent main body.

E3. The absorbent article according to E1 or E2, wherein, of angles formed by a tangential line of an
35 outline of the wing with the side edge of the absorbent main body at an intersection between the outline of the wing and the side edge of the absorbent main body, an

angle appearing inside the wing is 90° or smaller.

5 E4. The absorbent article according to any one of E1 to E3, wherein a portion having a wing longitudinal length that is 0.9 to 1.0 times as long as a longitudinal length $L_{\max}$ of the portion having the largest wing longitudinal length extends for 30 to 80% of $T_{\max}$.

10 E5. The absorbent article according to E4, wherein a portion having a wing longitudinal length that is 0.9 to 1.0 times as long as a longitudinal length $L_{\max}$ of the portion having the largest wing longitudinal length extends for 50 to 70% of $T_{\max}$.

E6. The absorbent article according to any one of E1 to E5, wherein $L_{\min}$ is 40 to 90% of $L_{\max}$.

15 E7. The absorbent article according to E6, wherein $L_{\min}$ is 50 to 80% of $L_{\max}$.

20 E8. The absorbent article according to any one of E1 to E7, wherein the outline of the wing does not have any break point, except for the intersection between the outline of the wing and the side edge of the absorbent main body.

25 E9. The absorbent article according to any one of E1 to E8, wherein, at the intersection between the outline of the wing and the side edge of the absorbent main body, the tangential line of the outline of the wing coincides with the side edge of the absorbent main body.

30 E10. The absorbent article according to any one of E1 to E9, wherein, at the portion having the wing longitudinal length that is 0.9 to 1.0 times as long as $L_{\max}$, a fixing adhesive portion is provided more extensively in the longitudinal direction than a portion corresponding to the portion having the smallest wing longitudinal length between the portion having the largest wing longitudinal length and the side edge of the absorbent main body.

35 E11. The absorbent article according to any one of E1 to E10, wherein the pair of wings is made of a one-piece member.

E12. The absorbent article according to any one of E1 to E11, wherein the wings are bonded to a side of the back sheet opposing the top sheet.

5 E13. The absorbent article according to any one of E1 to E12, wherein the wing is bonded to a backside of the absorbent main body, and a bonding portion between the wing and the backside of the absorbent main body is located more to the interior than the side edge of the absorbent main body.

10 E14. The absorbent article according to any one of E1 to E13, wherein the absorbent article is a mild incontinence pad.

15 E15. The absorbent article according to any one of E1 to E14, wherein a second fluid-permeable sheet is provided between the topsheet and the absorber.

E16. The absorbent article according to any one of E1 to E15, wherein the basis weight of the topsheet is in the range of 15 to 100 g/m².

20 E17. The absorbent article according to E16, wherein the basis weight of the topsheet is in the range of 20 to 50 g/m².

E18. The absorbent article according to any one of E1 to E17, wherein the density of the topsheet is 0.12 g/cm² or less.

25 E19. The absorbent article according to any one of E1 to E18, wherein the topsheet and the wings are produced from nonwoven fabric, and the fiber alignment in the topsheet is in the longitudinal direction, whereas the fiber alignment in the wings is in the transverse direction.

30 E20. The absorbent article according to any one of E1 to E19, wherein an adhesive portion is provided on the backside of the absorbent article and where the adhesive portion is provided on the backside of a wing the adhesive portion is provided to the outside of the portion corresponding to L_{min} and extends for a length longer than L_{min}.

U1. An absorbent article, comprising:
an absorbent main body, and
a pair of wings extending from both side edges of
5 the absorbent main body,
wherein

the absorbent main body comprises a fluid-permeable
top sheet, a fluid-impermeable back sheet, and a fluid-
retaining absorber interposed between the top sheet and
10 the back sheet,

each of the wings has a wing longitudinal length in
a longitudinal direction of the absorbent main body and a
wing transverse length in a transverse direction
orthogonal to the longitudinal direction of the absorbent
15 main body; and

wherein, in each of the wings,
a portion having a largest wing
longitudinal length $L_{\max}$ is distant from the respective
side edge of the absorbent main body;
20 a portion having a smallest wing
longitudinal length $L_{\min}$ is located between the portion
having the largest wing longitudinal length $L_{\max}$ and the
respective side edge of the absorbent main body, and
a portion having a wing longitudinal
25 length that is 1.00 to 1.05 times as long as $L_{\min}$ is
present by 10 to 90% of a largest wing transverse length
 $T_{\max}$ between an outermost side edge of the wing and the
respective side edge of the absorbent main body.

30 U2. The absorbent article according to U1, wherein,
an angle formed by a tangential line of an outline of
each wing with the respective side edge of the absorbent
main body at an intersection between the outline of the
wing and the side edge of the absorbent main body, and
35 appearing inside the wing is 90° or smaller.

U3. The absorbent article according to U1, wherein

a portion having a wing longitudinal length that is 0.9 to 1.0 times as long as the largest wing longitudinal length $L_{\max}$ is present by 30 to 80% of $T_{\max}$.

5 U4. The absorbent article according to U1, wherein $L_{\min}$ is 40 to 90% of $L_{\max}$.

10 U5. The absorbent article according to U1, wherein the outline of the wing does not have any break point, except for the intersections between the outline of the wing and the respective side edge of the absorbent main body.

15 U6. The absorbent article according to U1, wherein, at the intersection between the outline of the wing and the respective side edge of the absorbent main body, the tangential line of the outline of the wing coincides with the side edge of the absorbent main body.

20 U7. The absorbent article according to any one of U1 to U6, wherein, at the portion having the wing longitudinal length that is 0.9 to 1.0 times as long as $L_{\max}$, a fixing adhesive portion is provided outside in the longitudinal direction of a portion corresponding to the
25 portion having the smallest wing longitudinal length between the portion having the largest wing longitudinal length and the side edge of the absorbent main body.

30 U8. The absorbent article according to any one of U1 to U7, wherein the pair of wings is made of a one-piece member.

35 U9. The absorbent article according to any one of U1 to U8, wherein the wings are bonded to a side of the back sheet opposing the top sheet.

U10. The absorbent article according to any one of

U1 to U8, wherein the wing is bonded to a backside of the absorbent main body, and a bonding portion between the wing and the backside of the absorbent main body is spaced inwardly from the respective side edge of the absorbent main body.

U11. The absorbent article according to any one of U1 to U10, wherein the absorbent article is a mild incontinence pad.

U12. The absorbent article according to any one of U1 to U4 and U6-U11, wherein the outline of the wing, including the intersections between the outline of the wing and the respective side edge of the absorbent main body, does not have any break point.

U13. The absorbent article according to any one of U1-U12, wherein
the wings are made of a nonwoven fabric; and
fiber alignment in the wings is in the transverse direction of the absorbent main body.

U14. The absorbent article according to U13, wherein
the top sheet is made of a nonwoven fabric separate from the non-woven fabric of the wings; and
fiber alignment in the top sheet is in the longitudinal direction of the absorbent main body.

C1. An absorbent article comprising an absorbent main body and a pair of wings extending from both side edges of the absorbent main body, wherein the absorbent main body comprises a fluid-permeable top sheet, a fluid-impermeable back sheet, and a fluid-retaining absorber interposed between the top sheet and the back sheet, and each of the wings has a wing longitudinal length in a longitudinal direction coincident with a longitudinal direction of the absorbent main body and a wing

transverse length in a transverse direction orthogonal to the longitudinal direction of the absorbent main body; characterized in that:

5 a portion having a largest wing longitudinal length $L_{\max}$ is distant from each of the side edges of the absorbent main body; and

10 when $L_{\min}$ represents a wing longitudinal length of a portion having a smallest wing longitudinal length, as compared with the portion having the largest wing longitudinal length, being more in proximity to the side edge of the absorbent main body, a portion $P_{\min}$ having a wing longitudinal length that is 1.00 to 1.05 times as long as $L_{\min}$ is present by 10 to 90% of a transverse length $T_{\max}$ of a portion having a largest wing transverse length, as compared with the portion having the largest wing longitudinal length, being more in proximity to the side edge of the absorbent main body.

15 C2. The absorbent article according to C1, wherein, the portion having a wing longitudinal length that is 1.00 to 1.05 times as long as $L_{\min}$ is present by 30 to 60% of the transverse length $T_{\max}$.

25 C3. The absorbent article according to C1 or C2, wherein, the transverse length of the portion having a wing longitudinal length that is 1.00 to 1.05 times as long as $L_{\min}$ is 5 to 20mm.

30 C4. The absorbent article according to C1, wherein, of angles formed by a tangential line of an outline of the wing with the side edge of the absorbent main body at an intersection between the outline of the wing and the side edge of the absorbent main body, an angle appearing inside the wing is 90° or smaller.

35 C5. The absorbent article according to C2, wherein, of angles formed by the tangential line of the outline of the wing with the side edge of the absorbent main body at the intersection between the outline of the wing and the side edge of the absorbent main body, the angle appearing inside the wing is 10° to 80°.

C6. The absorbent article according to C5, wherein, of angles formed by the tangential line of the outline of the wing with the side edge of the absorbent main body at the intersection between the outline of the wing and the side edge of the absorbent main body, the angle appearing inside the wing is 20° to 70° .

C7. The absorbent article according to C1 or C2, wherein a portion $P_{\max}$ having a wing longitudinal length that is 0.9 to 1.0 times as long as a longitudinal length $L_{\max}$ of the portion having the largest wing longitudinal length is present by 30 to 80% of $T_{\max}$; and a sum of a transverse length $t_{\max}$ of the portion having a wing longitudinal length that is 0.9 to 1.0 times as long as a longitudinal length $L_{\max}$ of the portion having the largest wing longitudinal length and a transverse length $t_{\min}$ of the portion having the wing longitudinal length that is 1.00 to 1.05 times as long as $L_{\min}$ is smaller than or equal to $T_{\max}$.

C8. The absorbent article according to C7, wherein the portion having a wing longitudinal length that is 0.9 to 1.0 times as long as a longitudinal length $L_{\max}$ of the portion having the largest wing longitudinal length is present by 50 to 70% of $T_{\max}$.

C9. The absorbent article according to C8, wherein the transverse length of the portion having a wing longitudinal length that is 0.9 to 1.0 times as long as a longitudinal length $L_{\max}$ of the portion having the largest wing longitudinal length is 10 to 20 mm.

C10. The absorbent article according to any one of C1 to C7, wherein $L_{\min}$ is 40 to 90% of $L_{\max}$.

C11. The absorbent article according to C10, wherein $L_{\min}$ is 50 to 80% of $L_{\max}$.

C12. The absorbent article according to C10, wherein $L_{\min}$ is 30 to 70mm.

C13. The absorbent article according to C11, wherein $L_{\min}$ is 40 to 60mm.

C14. The absorbent article according to any one of

C1 to C10, wherein the outline of the wing does not have any break point, except for the intersection between the outline of the wing and the side edge of the absorbent main body.

5 C15. The absorbent article according to any one of C1 to C10, wherein, at the intersection between the outline of the wing and the side edge of the absorbent main body, the tangential line of the outline of the wing coincides with the side edge of the absorbent main body.

10 C16. The absorbent article according to any one of C1 to C15, wherein, at the portion having the wing longitudinal length that is 0.9 to 1.0 times as long as $L_{\max}$, a fixing adhesive portion is provided more extensively in the longitudinal direction than a portion
15 corresponding to the portion having the smallest wing longitudinal length.

C17. The absorbent article according to any one of C1 to C16, wherein the pair of wings is made of a one-piece member.

20 C18. The absorbent article according to any one of C1 to C17, wherein the wings are bonded to a side of the back sheet opposing the top sheet.

C19. The absorbent article according to any one of C1 to C17, wherein the wing is bonded to a backside of
25 the absorbent main body, and a bonding portion between the wing and the backside of the absorbent main body is located more interiorly than the side edge of the absorbent main body.

30 C20. The absorbent article according to any one of C1 to C19, wherein the absorbent article is a mild incontinence pad.

INDUSTRIAL APPLICABILITY

35 The absorbent article according to some embodiments of the present invention can be used as an incontinence pad, a sanitary napkin, a panty liner, and the like, and in particular can be suitably used as a mild incontinence

pad. Mild incontinence pads are often used for longer hours compared to sanitary napkins and are thus configured based on long hours of use. The absorbent article in accordance with some embodiments of the present invention can be stably fixed to an undergarment for long hours, and therefore is preferably used as a mild incontinence pad.

This application claims the benefit of Japanese Application No. 2011-021026 the entire disclosure of which is incorporated by reference herein.

This application is further related to Japanese Application No. 2011-020146 the entire disclosure of which is incorporated by reference herein.

REFERENCE SIGN LIST

1. Absorbent article
2. Top sheet
3. Back sheet
4. Absorber
5. Absorbent main body
6. Side edge of absorbent main body
7. Wing
8. Root of wing
9. Outline of wing
11. Intersection between outline of wing and side edge of absorbent main body
12. Tangential line of outline of wing at intersection 11
21. Fixing adhesive portion
31. Bonding portion

CLAIMS

1. An absorbent article comprising an absorbent main body and a pair of wings extending from both side edges of the absorbent main body, wherein the absorbent
5 main body comprises a fluid-permeable top sheet, a fluid-impermeable back sheet, and a fluid-retaining absorber interposed between the top sheet and the back sheet, and each of the wings has a wing longitudinal length in a longitudinal direction coincident with a longitudinal
10 direction of the absorbent main body and a wing transverse length in a transverse direction orthogonal to the longitudinal direction of the absorbent main body; characterized in that:

a portion having a largest wing
15 longitudinal length is distant from each of the side edges of the absorbent main body; and

when $L_{\min}$ represents a wing longitudinal length of a portion having a smallest wing longitudinal length between the portion having the largest wing
20 longitudinal length and the side edge of the absorbent main body, a portion having a wing longitudinal length that is 1.00 to 1.05 times as long as $L_{\min}$ is present by 10 to 90% of a transverse length $T_{\max}$ of a portion having a largest wing transverse length between the portion
25 having the largest wing longitudinal length and the side edge of the absorbent main body.

2. The absorbent article according to claim 1, wherein, of angles formed by a tangential line of an outline of the wing with the side edge of the absorbent
30 main body at an intersection between the outline of the wing and the side edge of the absorbent main body, an angle appearing inside the wing is 90° or smaller.

3. The absorbent article according to claim 1 or 2, wherein a portion having a wing longitudinal length
35 that is 0.9 to 1.0 times as long as a longitudinal length $L_{\max}$ of the portion having the largest wing longitudinal length is present by 30 to 80% of $T_{\max}$.

4. The absorbent article according to any one of claims 1 to 3, wherein $L_{\min}$ is 40 to 90% of a longitudinal length $L_{\max}$ of the portion having the largest wing longitudinal length.

5 5. The absorbent article according to any one of claims 1 to 4, wherein the outline of the wing does not have any break point, except for the intersection between the outline of the wing and the side edge of the absorbent main body.

10 6. The absorbent article according to any one of claims 1 to 5, wherein, at the intersection between the outline of the wing and the side edge of the absorbent main body, the tangential line of the outline of the wing coincides with the side edge of the absorbent main body.

15 7. The absorbent article according to any one of claims 1 to 6, wherein, at the portion having the wing longitudinal length that is 0.9 to 1.0 times as long as $L_{\max}$, a fixing adhesive portion is provided more extensively in the longitudinal direction than a portion
20 corresponding to the portion having the smallest wing longitudinal length between the portion having the largest wing longitudinal length and the side edge of the absorbent main body.

25 8. The absorbent article according to any one of claims 1 to 7, wherein the pair of wings is made of a one-piece member.

9. The absorbent article according to any one of claims 1 to 8, wherein the wings are bonded to a side of the back sheet opposing the top sheet.

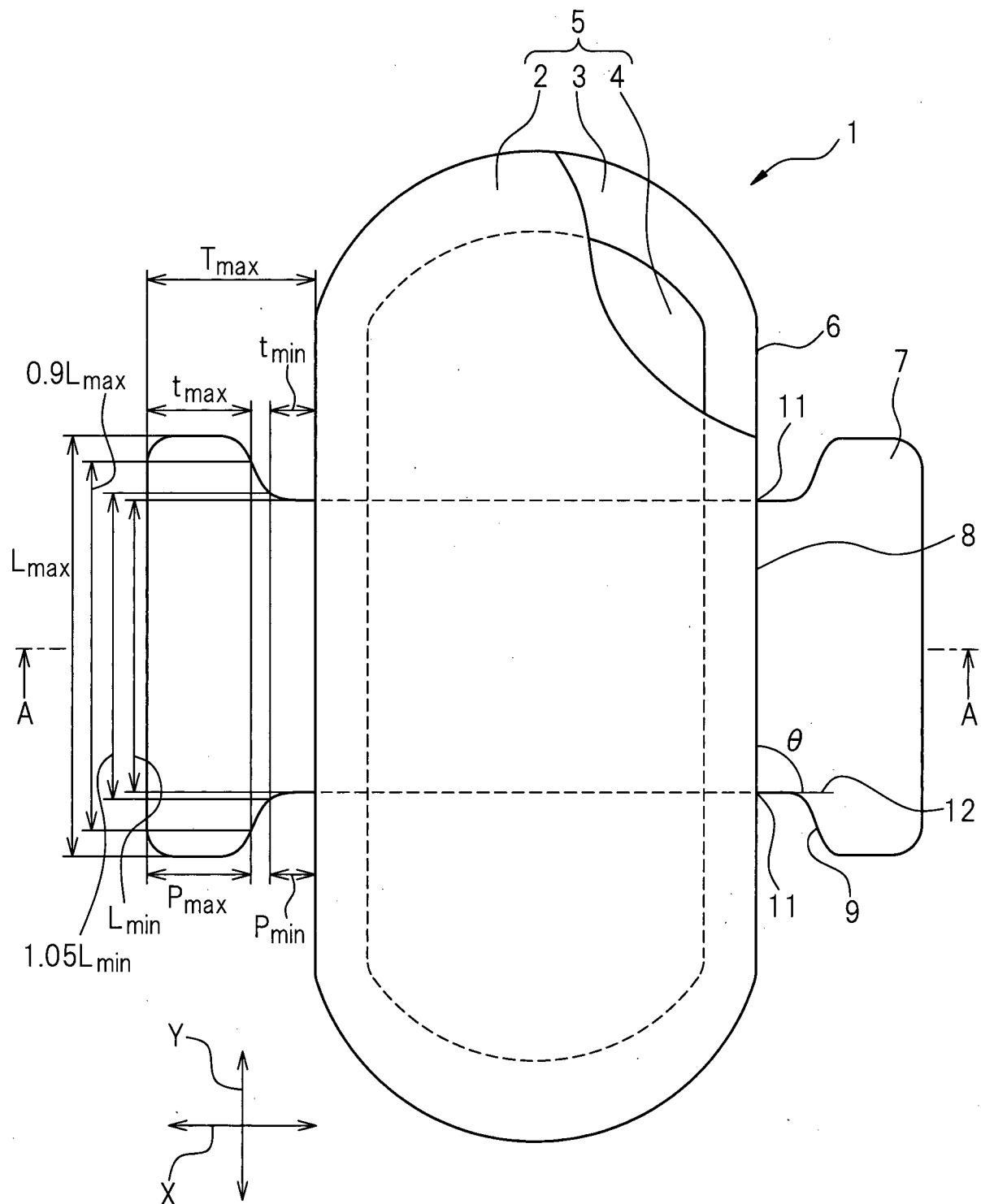
30 10. The absorbent article according to any one of claims 1 to 8, wherein the wing is bonded to a backside of the absorbent main body, and a bonding portion between the wing and the backside of the absorbent main body is located more interiorly than the side edge of the
35 absorbent main body.

11. The absorbent article according to any one of claims 1 to 10, wherein the absorbent article is a mild

incontinence pad.

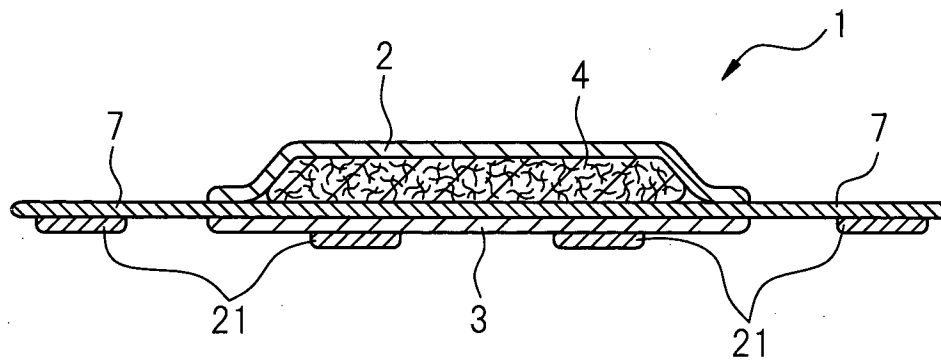
1/6

Fig.1



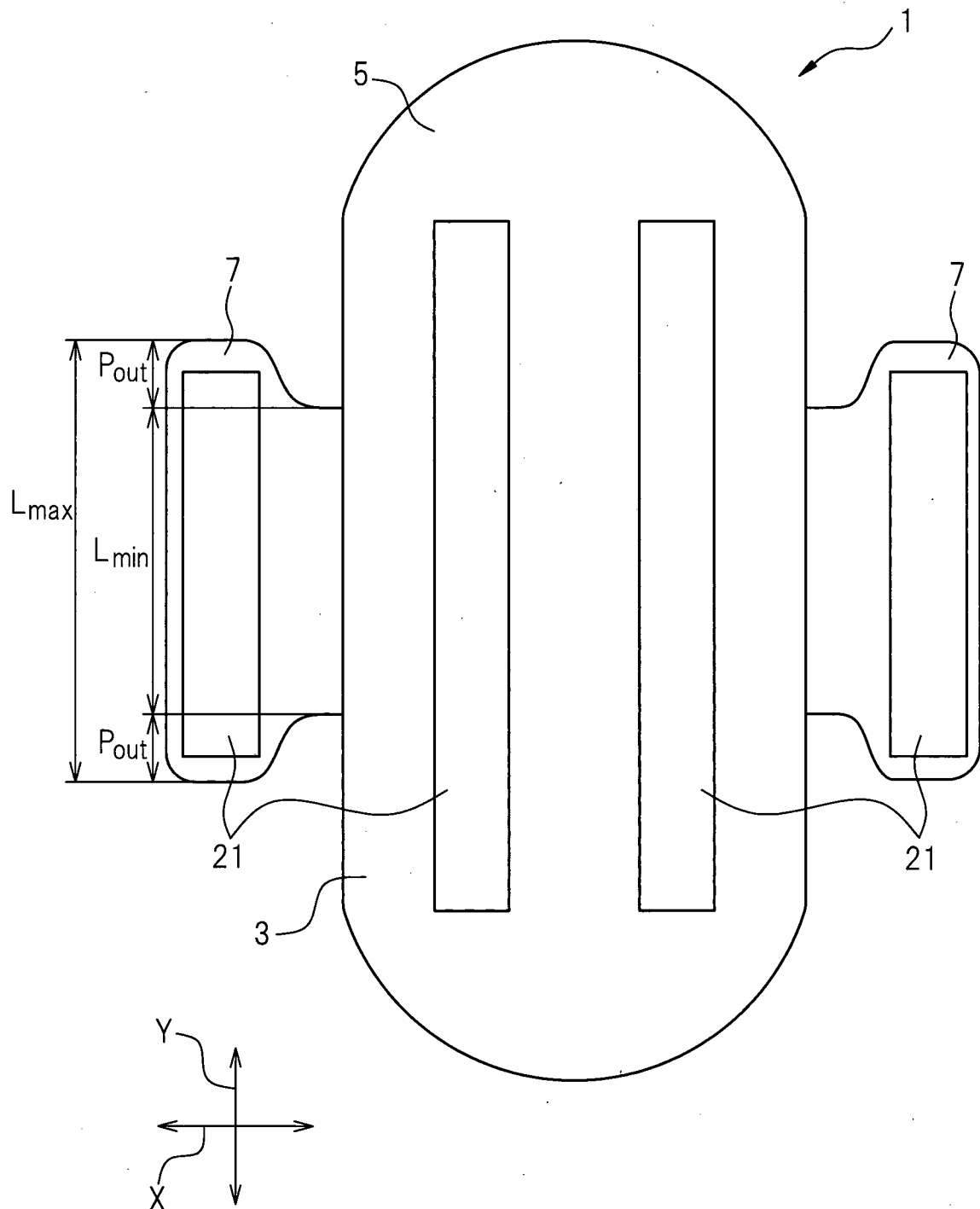
2/6

Fig.2



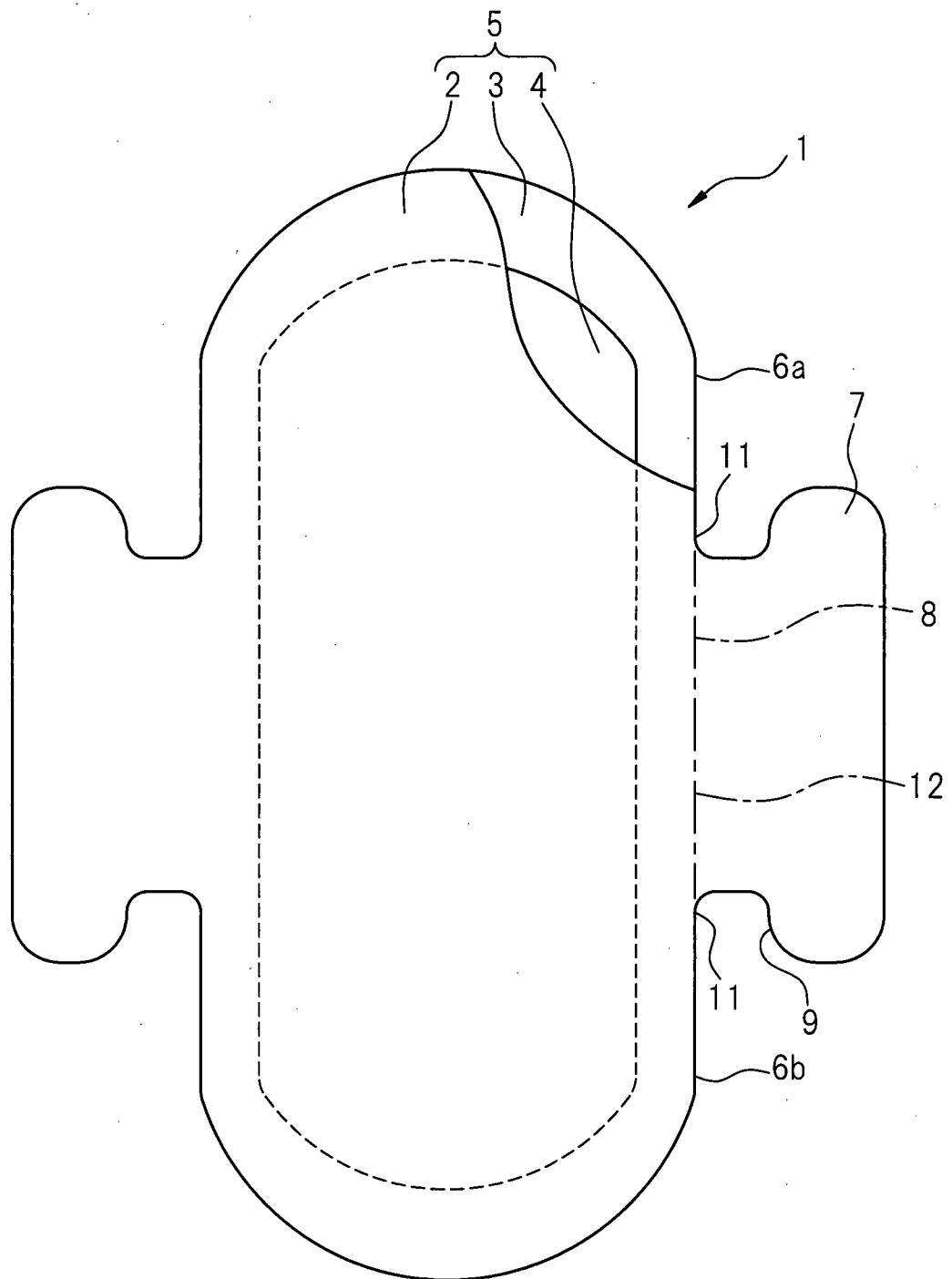
3/6

Fig.3



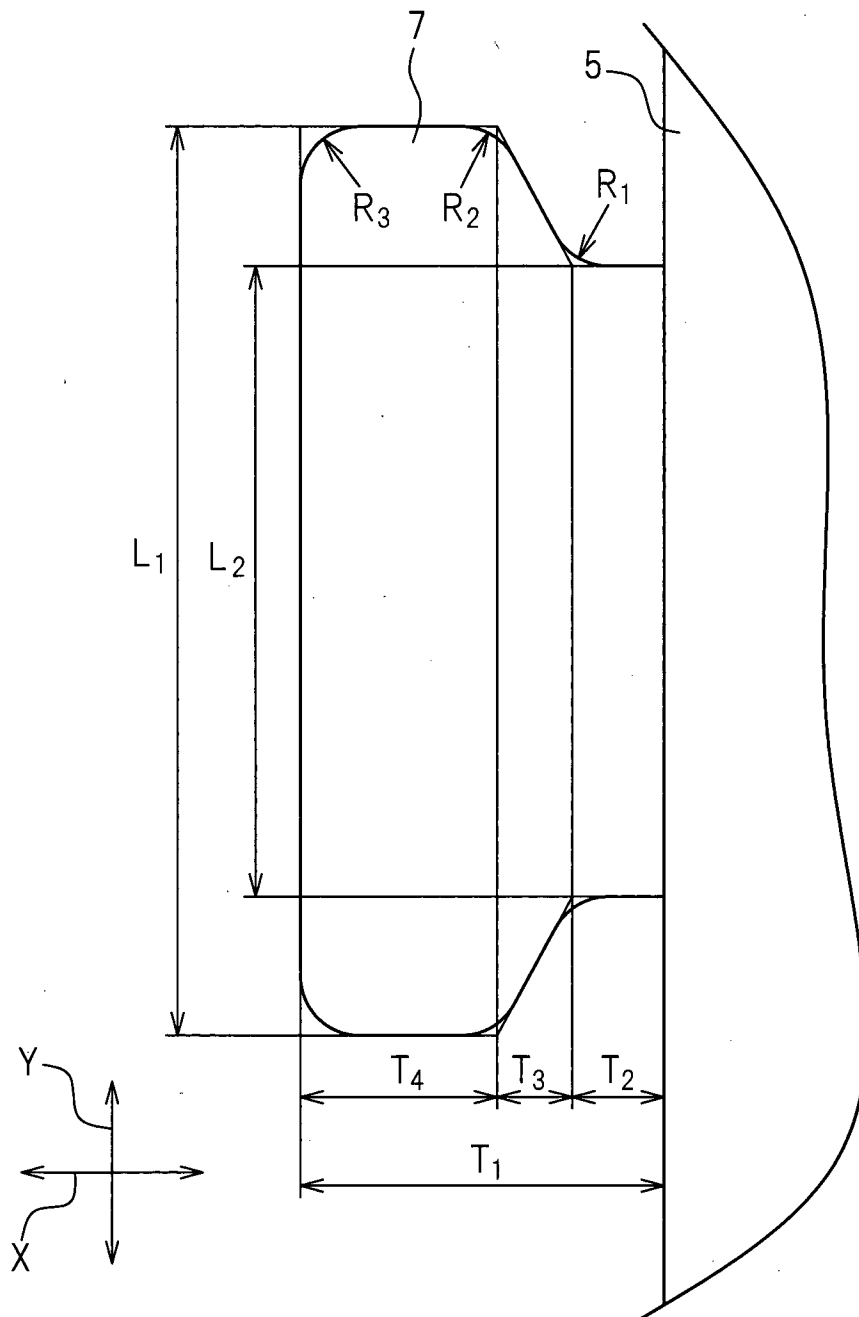
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Fig.4



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Fig.5



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Fig.6

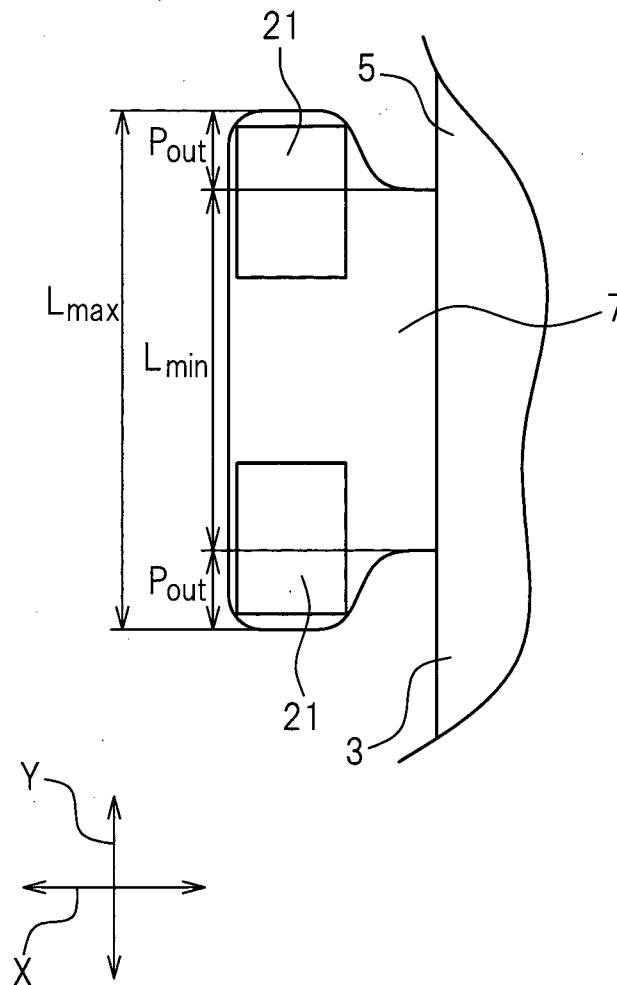
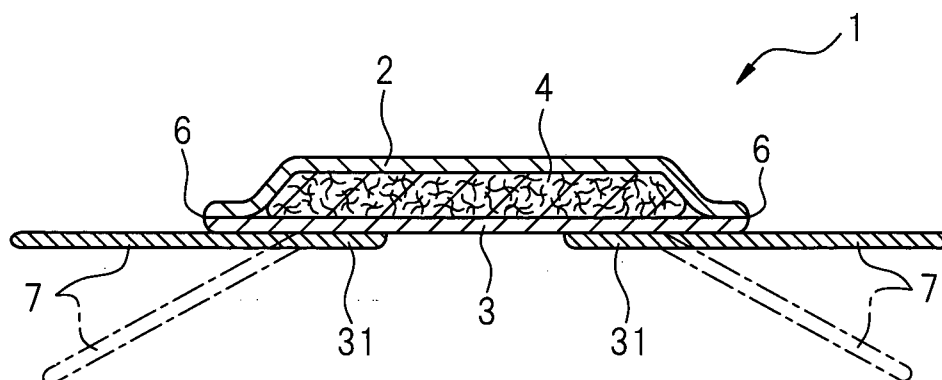


Fig.7



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2012/051909

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl. A61F13/15 (2006.01) i, A61F13/472 (2006.01) i, A61F13/511 (2006.01) i,
A61F13/56 (2006.01) i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl. A61F13/15, A61F13/472, A61F13/511, A61F13/56

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Published examined utility model applications of Japan 1922-1996
Published unexamined utility model applications of Japan 1971-2012
Registered utility model specifications of Japan 1996-2012
Published registered utility model applications of Japan 1994-2012

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2000-024036 A (McNEIL-PPC, Inc.) 2000.01.25, Claim 2, Paragraphs 【0017】, 【0030】—【0032】, 【0038】, 【0048】, Figure 6 & US 6176850 B1 & US 6394990 B1 & EP 966942 A2 & CN 1162133 C	1 — 1 1
Y	JP 9-501335 A (The Procter & Gamble Company) 1997.02.10, Figures 1-2 & US 5558657 A & WO 1995/003022 A2	1 — 1 1
Y	JP 7-24008 A (Kimberly-Clark Corporation) 1995.01.27, Figure 6 & US 5154715 A & US 5221275 A & EP 446818 A2	8
Y	JP 2008-6270 A (UNICHARM CORPORATION) 2008.01.17, Figure 23 & US 2007/0282288 A1 & US	9

☒ Further documents are listed in the continuation of Box C.
☐ See patent family annex.

* Special categories of cited documents:

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“&” document member of the same patent family

Date of the actual completion of the international search

22.03.2012

Date of mailing of the international search report

03.04.2012

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2012/051909

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	2010/0274210 A1 & EP 2025315 A1 & WO 2007/142147 A1 Microfilm of the specification and drawings annexed to the written application of Japanese Utility Model Application No.478/1989 (Laid-open No.91525/1990) (Junko Araki) 1990.07.20, Figure 1 (No Family)	1 - 1 1