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JP 2004329590 A JP 2003175066 A
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(54) Title of the Invention: Absorbent pad
Abstract Title: Absorbent pad

(57) This absorbent pad (1) comprises: a front surface sheet (3) positioned on a side close to the skin of a wearer in a wearing state; a rear surface sheet (4) positioned on a side far from the skin of the wearer; and an absorptive body (5) positioned between both the sheets (3, 4), wherein the absorbent pad has a longitudinal direction (X) and a transverse direction (Y) orthogonal to the longitudinal direction and is used by being removably fixed to a holder (11) annularly attached around the waist of the wearer. The absorbent pad (1) has, in an end section in the longitudinal direction (X), pad-side fastening structures (8) that can be attached to and detached from the holder (11). The plurality of pad-side fastening structures (8) extend in the traverse direction (Y) and are intermittently disposed in the longitudinal direction (X).

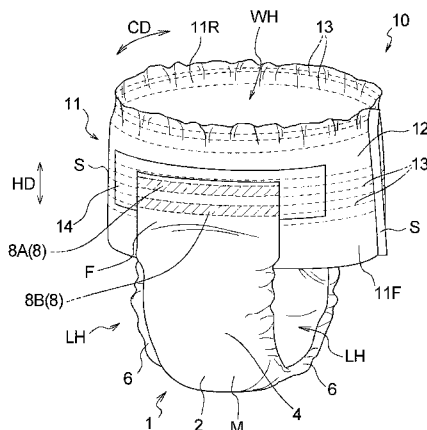


Fig. 1

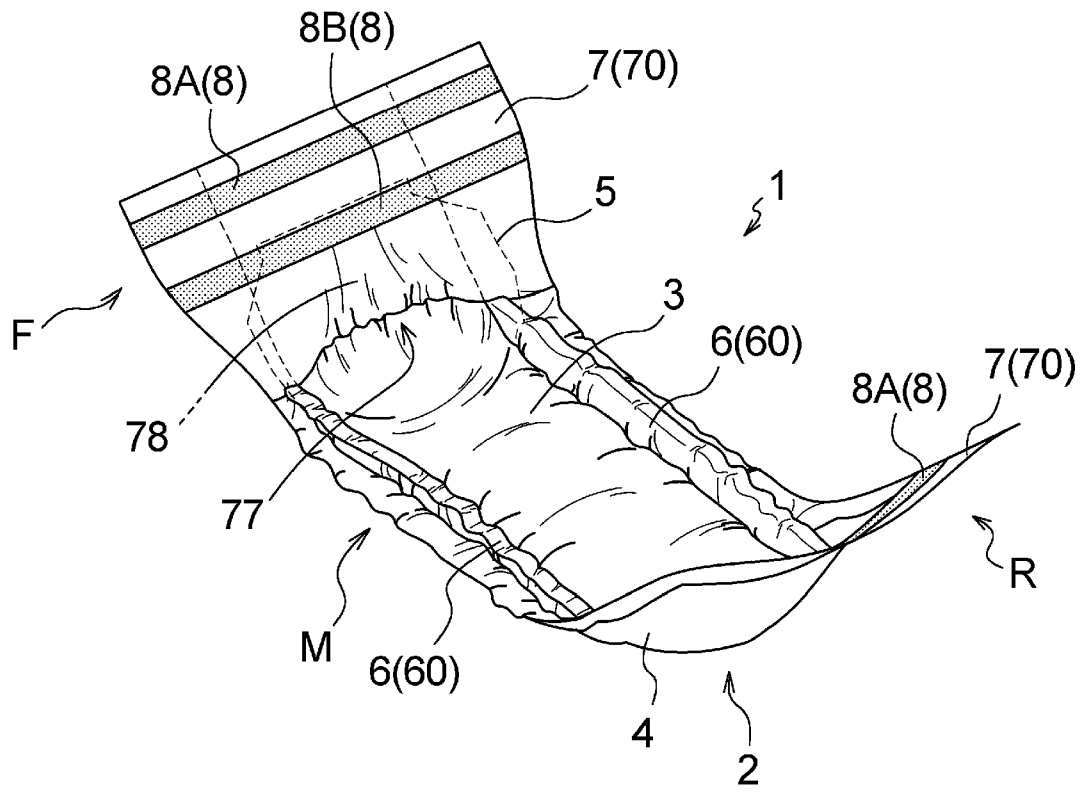


Fig. 2

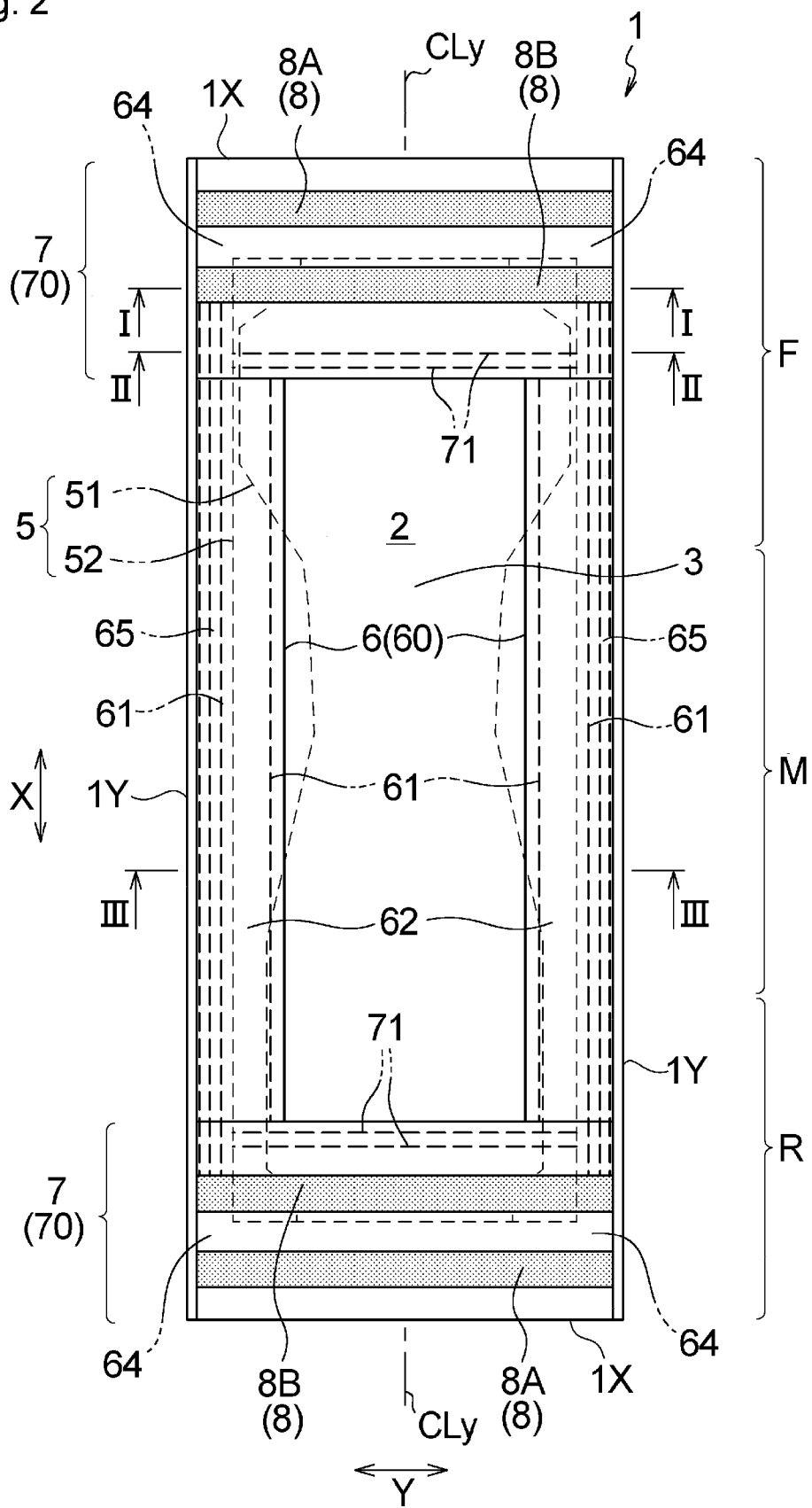


Fig. 3
(a)

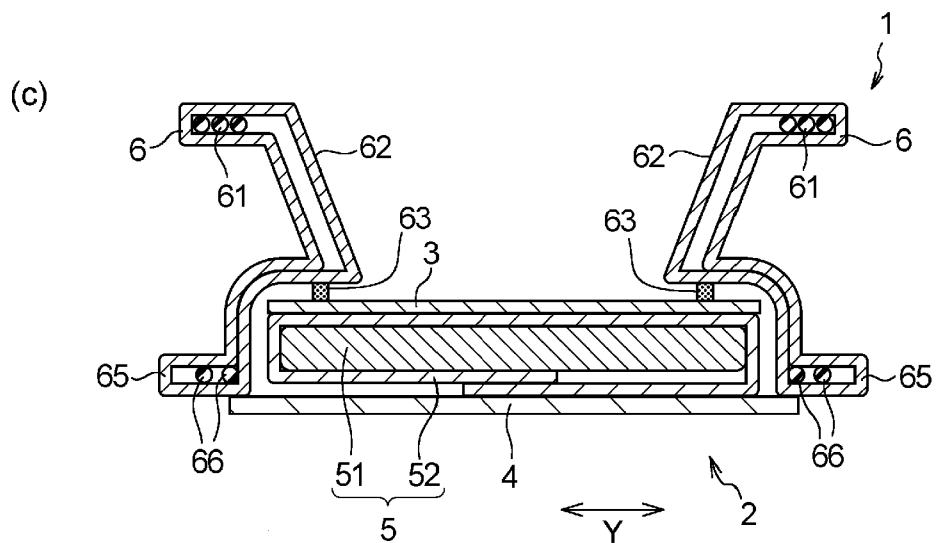
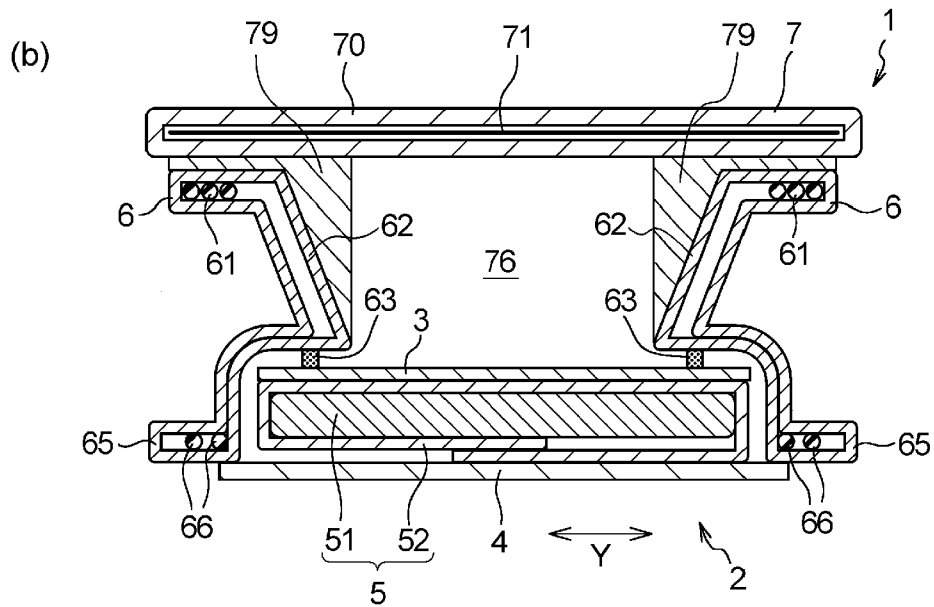
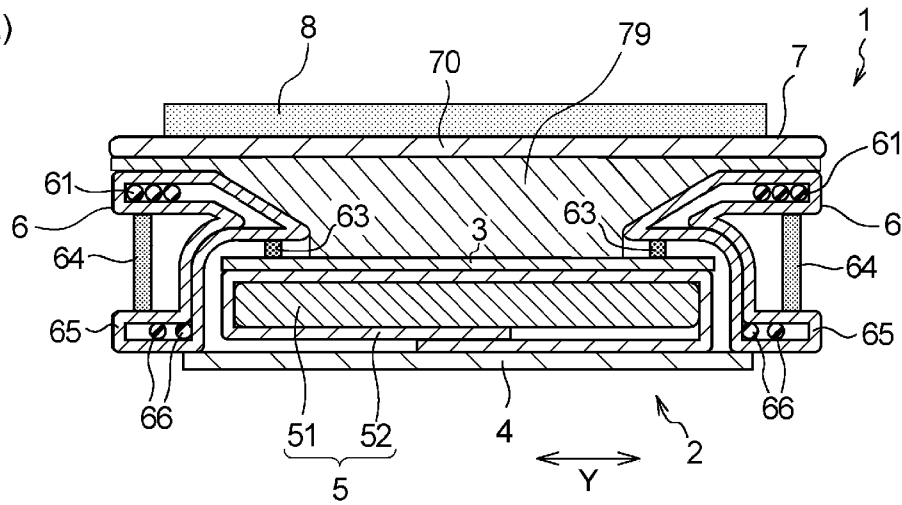


Fig. 4

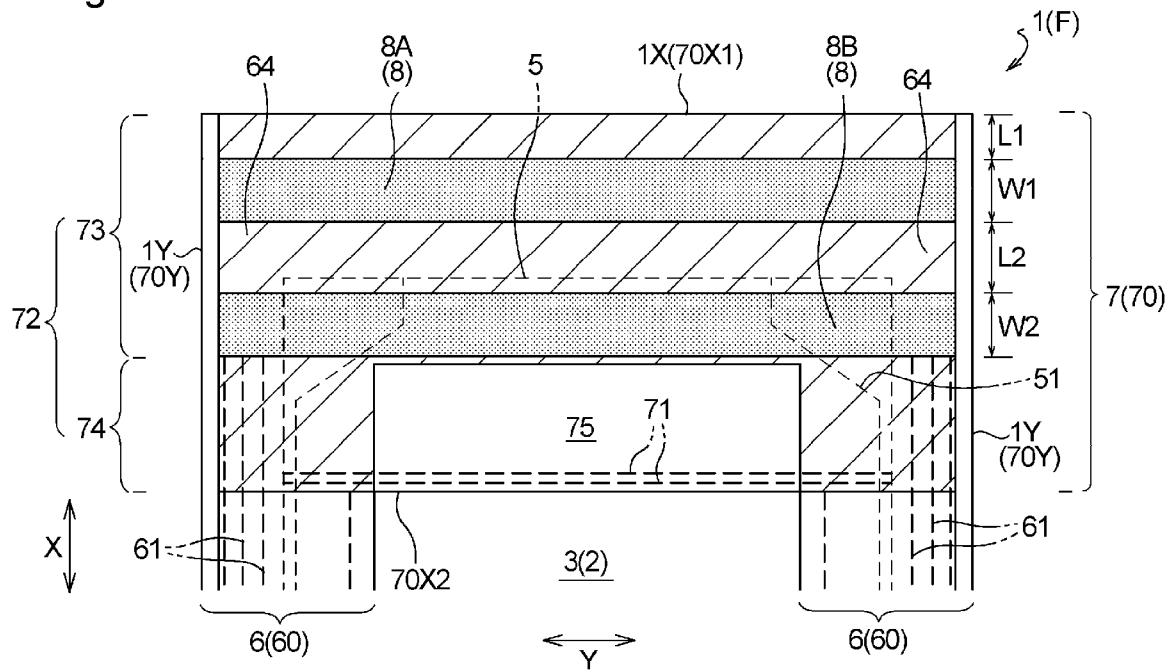


Fig. 6

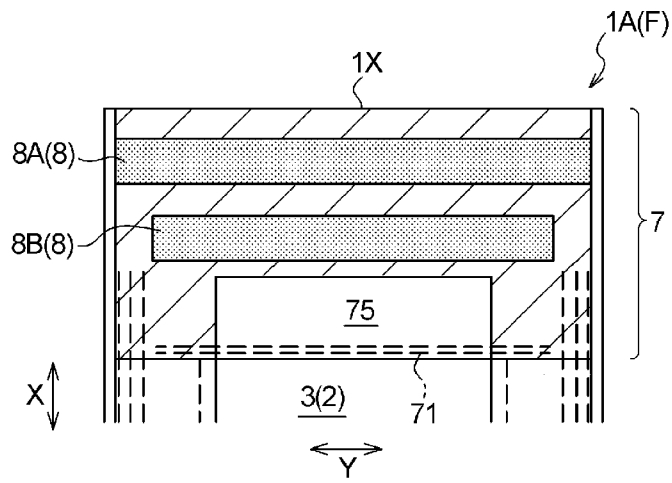


Fig. 7

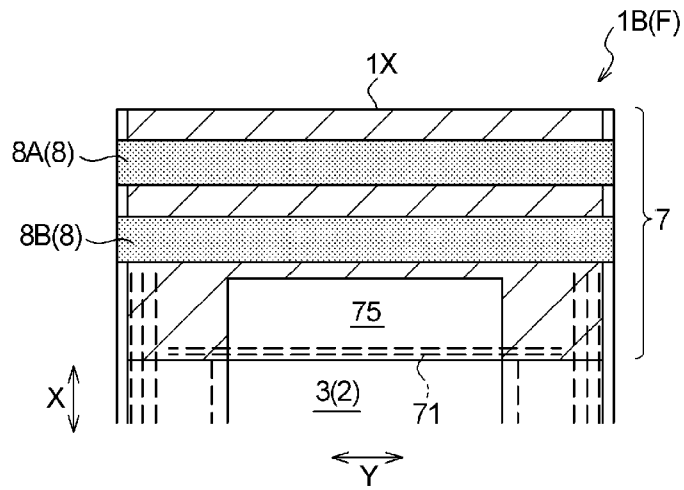


Fig. 8

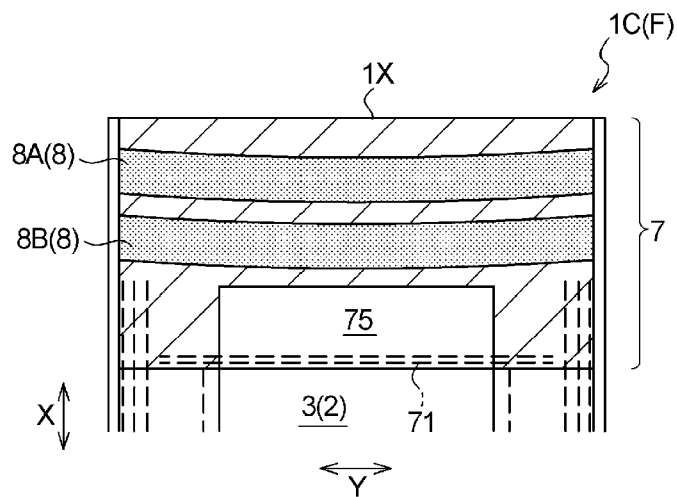


Fig. 9

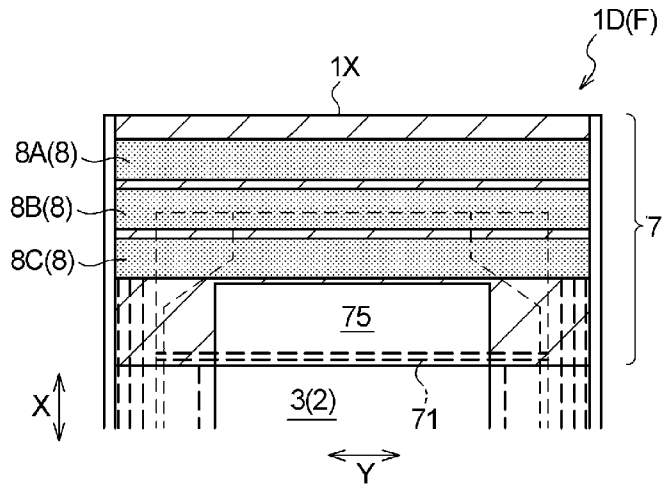


Fig. 10

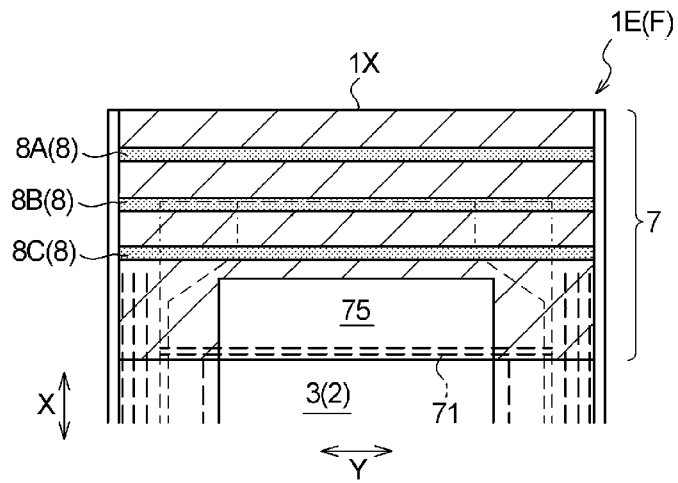


Fig. 11

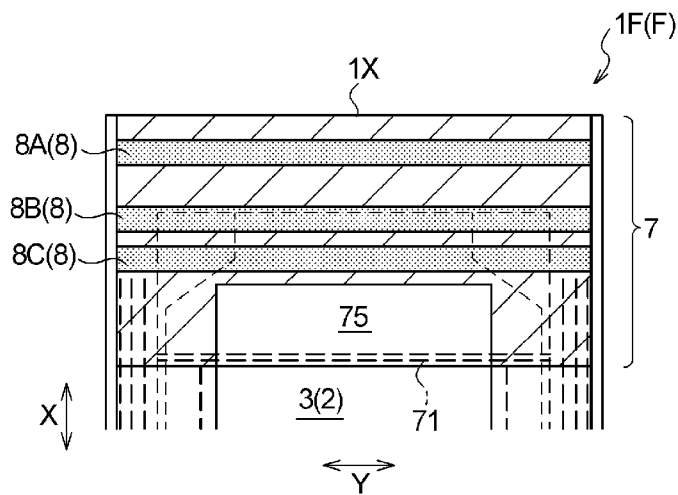
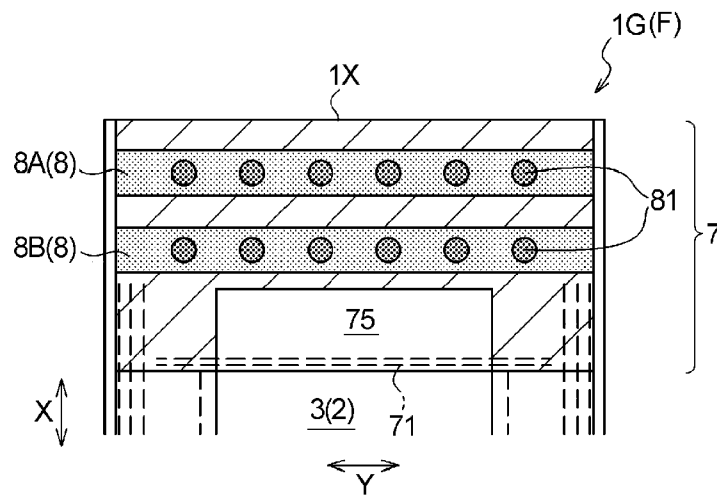


Fig. 12



DESCRIPTION

Title of Invention: ABSORBENT PAD

Technical Field

[0001]

The present invention relates to an absorbent pad used as detachably secured to a holder worn about the lower torso of a wearer.

Background Art

[0002]

As absorbent articles such as disposable diapers, two-piece absorbent articles are known, which include an absorbent pad for absorption and containment of body fluids such as urine to be applied to the crotch of a wearer and a holder designed to be worn around the lower torso of a wearer and to detachably hold the absorbent pad. As described in patent literatures 1 to 3 listed below, conventional two-piece absorbent articles include an attachment structure on the holder (holder-side attachment structure) and an attachment structure on each longitudinal (corresponding to the front-to-back direction of a wearer) end portion of the absorbent pad (pad-side attachment structure) that can be detachably secured to the holder-side attachment structure. The absorbent pads of patent literatures 1 and 3 have a single rectangular attachment structure on each longitudinal end portion thereof with the longitudinal direction of the attachment structure coincident with the lateral direction of a wearer. The absorbent pad of patent literature 2 has four attachment structures spaced from each other in both the longitudinal and lateral directions in each longitudinal end portion thereof.

Citation List

Patent Literature:

[0003]

- Patent literature 1: JP 2003-175066A
- Patent literature 2: JP 2004-329590A
- Patent literature 3: JP 2011-136063A

Summary of Invention

[0004]

The invention relates to an absorbent pad. The absorbent pad includes a topsheet closer to the wearer's skin while worn, a backsheet farther from the wearer's skin while worn, and an absorbent member interposed between the topsheet and the backsheet. The absorbent pad has a longitudinal direction corresponding to the direction extending from the front to the back of a wearer through the crotch, and a lateral direction perpendicular to the longitudinal direction. The absorbent pad is configured to be detachably secured to a holder cylindrically fitted around the lower torso of a wearer.

In an embodiment of the invention, the absorbent pad has, in each of longitudinally opposed end portions thereof, a plurality of pad-side attachment members configured to be removably attached to the holder.

In an embodiment of the invention, the pad-side attachment members extend in the lateral direction and are spaced in the longitudinal direction.

This and other characteristics, effects, and embodiments of the present invention will be clarified by the following description.

Brief Description of Drawings

[0005]

[Fig. 1] Figure 1 is a perspective view of an embodiment of the absorbent pad according to the invention.

[Fig. 2] Figure 2 is a schematic plan view of the absorbent pad of Fig. 1 in its flat-out, uncontracted state, the skin facing side (the topsheet side) facing the viewer.

[Fig. 3] Figure 3 shows schematic cross-sectional views of the absorbent pad of Fig. 2, taken in the lateral and thickness directions at predetermined positions. Fig. 3a is taken along line I-I in Fig. 2, Fig. 3b is taken along line II-II in Fig. 2, and Fig. 3c is taken along line III-III in Fig. 2.

[Fig. 4] Figure 4 is an enlarged schematic plan view of a longitudinal end portion of the front portion of the absorbent pad shown in Fig. 2.

[Fig. 5] Figure 5 illustrates an exemplary use of the absorbent pad of Fig. 1, presenting a perspective view of a disposable diaper including a holder and the absorbent pad secured to the holder.

[Fig. 6] Figure 6 illustrates another embodiment of the absorbent pad according to the invention, corresponding to Fig. 4.

[Fig. 7] Figure 7 illustrates still another embodiment of the absorbent pad according to the invention, corresponding to Fig. 4.

[Fig. 8] Figure 8 illustrates yet another embodiment of the absorbent pad according to the invention, corresponding to Fig. 4.

[Fig. 9] Figure 9 illustrates yet another embodiment of the absorbent pad according to the invention, corresponding to Fig. 4.

[Fig. 10] Figure 10 illustrates yet another embodiment of the absorbent pad according to the invention, corresponding to Fig. 4.

[Fig. 11] Figure 11 illustrates yet another embodiment of the absorbent pad according to the invention, corresponding to Fig. 4.

[Fig. 12] Figure 12 illustrates yet another embodiment of the absorbent pad according to the invention, corresponding to Fig. 4.

Description of Embodiment

[0006]

As a wearer of a two-piece absorbent article moves (e.g., stands up or sits down), the holder worn about the wear's lower torso may become curved or bent according to the movement. If the holder worn is so deformed, excessive stress may be applied to the pad-side attachment member, at which the pad is secured to the holder, and, as a result, the absorbent pad can come off from the holder. No technique has been proposed to solve this problem associated with the attachment system essential to the two-piece absorbent articles.

[0007]

The invention provides an absorbent pad that is used as detachably secured to a holder and hardly comes off from the holder with the wearer's movement during use.

[0008]

The invention will be described by way of its preferred embodiments with reference to the accompanying drawings. In the drawings, the same or similar elements or members are given the same or similar numerical and/or alphabetical designations. Note that the drawings are basically schematic, and the proportions of each dimension may differ from the reality.

[0009]

Figs. 1 through 4 illustrate an embodiment of the absorbent pad according to the invention. Fig. 5 illustrates a disposable diaper 10 (hereinafter, also simply referred to as

“diaper 10”) composed of an absorbent pad 1 and a holder 11 for holding the absorbent pad 1 applied to the wearer, representing an exemplary use of the absorbent pad according to the invention. The diaper 10 is an embodiment of an absorbent article according to the invention. The absorbent article according to the invention includes the absorbent pad according to the invention and a holder configured such that the absorbent pad is to be secured thereto. As illustrated in Fig. 5, the diaper 10 is composed of the absorbent pad 1 and the holder 11 attached to each other via pad-side attachment members 8 and a holder-side attachment member 14. The diaper 10 has a waist opening WH, which is defined by the holder 11, and a pair of leg openings LH, which are defined by the lower (in the height direction HD of the holder) edge of the holder 11 and laterally opposed side edges of the absorbent pad 1 extending in the lengthwise direction (longitudinal direction X, which will be hereinafter described) of the absorbent pad 1. Understandably, the holder 11 is not an element constituting the absorbent pad 1.

[0010]

Since the diaper 10, which is a two-piece absorbent article, is composed of the absorbent pad 1 and the holder 11 that are removably coupled via the attachment members 8 and 14, it has a reduced environmental impact compared to conventional one-piece absorbent articles, in which the portion worn around the wearer’s waist (corresponding to the holder) and the portion worn between the legs (corresponding to the absorbent pad) are inseparable. In other words, when a one-piece absorbent article after use is disposed of, the portion corresponding to the holder must be disposed of together with the soiled portion corresponding to the absorbent pad, even if the portion corresponding to the holder is not soiled. In contrast, the unsoiled holder 11 of the diaper 10 can be reused, and only the soiled absorbent pad 1 is replaced with a new one. Therefore, the two-piece absorbent articles reduce waste disposal and carbon dioxide emissions, compared to one-piece absorbent articles, and thus contribute to reduction in environmental loading.

While the diaper 10 is being worn, it is easy to replace the soiled absorbent pad 1 with a new one since the absorbent pad 1 is detachably secured to the holder 11, and accordingly, the hassle of diaper changing is minimized, compared to the conventional one-piece absorbent articles.

[0011]

The absorbent pad 1 is used as detachably secured to the holder 11, and the holder 11 is cylindrically fitted around the wearer’s lower torso. The holder 11 will be briefly

described with reference to Fig. 5. The holder 11 is designed to be fitted cylindrically around the lower torso of a wearer and to hold the absorbent pad 1 applied to the wearer's body. The holder 11 has a height direction HD along the wearer's body height direction and a circumferential direction CD along the wearer's waist. The holder 11 includes a front panel 11F adapted to be worn about the wearer's front and a rear panel 11R adapted to be worn about the wearer's back, and has a body portion 12 serving as the main body of the holder 11. The body portion 12 is made mainly of a sheet material, such as nonwoven fabric, and typically includes a laminate structure composed of an outer sheet defining the non-skin facing side (outer side) of the body portion 12 and an inner sheet defining the skin facing side (inner side) of the body portion 12. The longitudinally opposite ends of the front panel 11F are joined to those of the rear panel 11R by a known bonding means, such as fusion bonding or adhesive bonding, thereby forming a cylindrical shape having a waist opening WH and a pair of side seams S at which the front panel 11F and the rear panel 11R are joined together. The side seams S are equivalent to those of general disposable pull-on (one-piece) diapers. The body portion 12 further includes multiple elastic members 13 disposed in each of the front panel 11F and the rear panel 11R. The elastic members 13 are spaced in the height direction HD and elastically extend in a direction perpendicular to the height direction HD, so that the holder 11 is elasticized in the circumferential direction CD. The body portion 12 has, on its non-skin facing side (outer side), a holder-side attachment member 14, and the plurality of pad-side attachment members of the absorbent pad 1 is to mate with the holder-side attachment member 14, thereby detachably securing the absorbent pad 1 to the holder 11.

Since the holder 11 does not include an absorbent member for absorption and containment of water, it can be designed to be washable for repeated use by using washable materials to form the body portion 12. Such a washable holder 11 leads to reductions in waste disposal and carbon dioxide emissions, contributing to reduction in environmental loading.

The holder 11 is nothing more than one exemplary mode of the holder that can be used in combination with the absorbent pad according to the invention. Therefore, the holder with which the absorbent pad according to the invention can be used is not limited to the holder 11 as long as it has a holder-side attachment member that can mate with the pad-side attachment members of the absorbent pad. For example, the holder have a cylindrical shape when worn. The holder may have a cylindrical shape beforehand like the holder 11, or the holder before worn may have a shape long in one direction, i.e., a belt-like shape, having two longitudinally opposite ends, which are joined to each other to form a cylindrical shape when fitted around the wearer's waist.

[0012]

As used herein, the term “skin facing side” refers to the side of a wearable article, such as an absorbent article, a holder, or an absorbent pad, or a member constituting the wearable article (e.g., an absorbent member of an absorbent pad), the side facing the wearer’s skin while worn. The term “non-skin facing side” refers to the side of the wearable article or a constituent member thereof facing away from the wearer’s skin.

[0013]

The absorbent pad 1 will be described below.

The absorbent pad 1 includes a topsheet 3 located closer to the wearer’s skin while worn, a backsheet 4 located farther from the wearer’s skin while worn, and an absorbent member 5 interposed between the topsheet 3 and backsheet 4. The absorbent pad 1 has a longitudinal direction X and a lateral direction Y perpendicular to the longitudinal direction X. The longitudinal direction X of the absorbent pad 1 coincides with the direction extending from the front to the back of a wearer through the crotch and also with the height direction HD of the holder 11. The lateral direction Y of the absorbent pad 1 coincides with the circumferential direction CD of the holder 11.

[0014]

As illustrated in Fig. 2, the absorbent pad 1 has a crotch portion M, which is to be applied to the wearer’s crotch, a front portion F forward of the crotch portion M, and a rear portion R rearward of the crotch portion M. The crotch portion M is located in the longitudinally middle part of the absorbent pad 1 and includes a target zone (unshown), which is to face the wearer’s point of discharge, such as the penis, while worn. As illustrated in Fig. 5, when the absorbent pad 1 is properly secured to the holder 1, the front portion F of the absorbent pad 1 overlaps the front panel 11F of the holder 11, the rear portion R of the absorbent pad 1 overlaps the rear panel 11R of the holder 11, but the crotch portion M does not overlap the holder 11.

In the embodiment, the absorbent pad 1 in its flat-out, uncontracted state has a rectangular shape which is symmetrical about the longitudinal centerline CLy as shown in Fig. 2. The longitudinal centerline CLy is an imaginary straight line extending in the longitudinal direction X and bisecting the absorbent pad 1 in its flat-out, uncontracted state in the lateral direction Y.

[0015]

As used herein, the term “flat-out, uncontracted state” means a state or configuration in which a wearable article, such as an absorbent article, a holder, or an absorbent pad, is spread flat to its design dimensions with every elastic member stretched out or with any influences of elastic members eliminated. In the case of an absorbent article with side seams, like the side seams S of the holder 11, the absorbent article is opened and spread flat by cutting the side seams.

[0016]

The absorbent pad 1 of the embodiment includes an absorbent assembly 2 having the topsheet 3, the backsheet 4, and the absorbent member 2, a pair of first barrier cuff 6 disposed along laterally opposed, longitudinally extending side edges of the absorbent assembly 2, and a pair of second barrier cuffs 7 disposed in longitudinal end portions of the absorbent assembly 2. Each first barrier cuff 6 is located in the lateral side area to prevent lateral leakage of body fluids toward the outside and can be referred to as a lateral barrier cuff. Each second barrier cuff 7 is located in the longitudinal end portion for preventing longitudinal leakage of body fluids toward the outside and can be referred to as a longitudinal barrier cuff. As used herein, the term “longitudinal end portions” can refer to the two longitudinally opposite end portions of the three longitudinally divided portions (i.e., the portions other than the longitudinally central portion) when the absorbent pad 1 is divided into longitudinally arranged three portions.

[0017]

The absorbent assembly 2 serves as the main body of the absorbent pad 1 and functions to absorb and retain excretions, such as urine. The absorbent assembly 2 in the embodiment is oblong in the longitudinal direction X and extends from the front portion F to the rear portion R with its length direction coincident with the longitudinal direction X. The topsheet 3 defines the skin facing side of the absorbent assembly 2 and may come into contact with the wearer's skin when worn. The backsheet 4 defines the non-skin facing side of the absorbent assembly 2. The topsheet 3 is in contact with the skin facing side of the absorbent member 5 and covers its entire area. The backsheet 4 is in contact with the non-skin facing side of the absorbent member 5 and covers its entire area. The absorbent member 5 includes an absorbent core 51 capable of absorbing and retaining bodily fluids and a core wrap sheet 52 covering the exterior surface, including the skin and the non-skin facing sides, of the absorbent core 51. The absorbent member 5 for use in the invention is not limited as long as

it includes at least the absorbent core 51. The core wrap sheet 52 is not an essential element. The topsheet 3, backsheet 4, and absorbent member 5, which are members of the absorbent assembly 2, are united together by a known bonding means, such as adhesive.

[0018]

The members composing the absorbent assembly 2 may be made of any materials commonly used in this type of absorbent articles, without limitation.

The topsheet 3 can be a liquid permeable sheet, including nonwovens manufactured by various processes, perforated nonwoven fabrics, single- or double-sided textured nonwoven fabrics, and perforated resin films. The topsheet 3 may have a single layer structure or a laminate structure composed of two or more layers of the same or different types.

The backsheet 4 can be a liquid impermeable, hardly liquid permeable, or water repellant sheet, such as nonwoven fabrics, resin films, and resin film-laminated nonwoven fabrics.

The absorbent core 51 is typically made mainly of an absorbent material, and the absorbent material includes at least one selected from fibrous materials, such as wood pulp, and absorbent polymers. The absorbent material may be uniformly distributed or unevenly distributed in a predetermined direction (e.g., the longitudinal direction X, lateral direction Y, or thickness direction) in the absorbent core 51. The absorbent core 51 may be an airlaid type made mainly of a fibrous material or may be a sheet type composed of a fibrous sheet and absorbent polymer particles attached to the sheet. The airlaid type absorbent core can be produced, for example, using a known airlaying apparatus equipped with a laydown drum. The sheet type absorbent core may be, for example, a stack of two fibrous sheets having absorbent polymer particles interposed therebetween. The core wrap sheet 52 should have liquid permeability and is typically paper, nonwoven fabric, or the like.

The absorbent member 5 may have a recessed portion with an opening on at least one of its skin and non-skin facing sides. The recessed portion can be a leak-preventive channel that is open on the skin facing side of the absorbent member 5. The density of the absorbent member 5 may be varied from part to part. In such a structure, the relatively high-density portion can be a compressed portion formed by debossing or other compressing processes.

[0019]

As illustrated in Figs. 2 and 3, the first barrier cuff 6 includes a first cuff-forming sheet 60, which forms the main part of the first barrier cuff 6, and first elastic members 61

fixed to the first cuff-forming sheet 60 in an elastically contractible condition in the longitudinal direction X. The first cuff-forming sheet 60 defines a part of the skin facing side of the absorbent pad 1. The first cuff-forming sheet 60 is folded lengthwise into two facing panels, and the first elastic members 61 are disposed between the facing panels. The first barrier cuff 6 (the first cuff-forming sheet 60) continuously extends along the longitudinally extending, lateral side edge of the absorbent assembly 2 over substantially the entire length (the dimension in the longitudinal direction X) of the absorbent assembly 2.

The first barrier cuff 6 includes, in at least the crotch portion M, a standing portion 62 that stands up toward the wearer's skin while the absorbent pad 1 (the diaper 10) is worn. The standing portion 62 rises from a fixed portion 63 acting as a rising edge. The standing portion 62 is the region that is not anchored to any other members, the region being in the first cuff-forming sheet 60. The fixed portion 63 is the region that is fixed to a different member by a known bonding means, such as adhesive or fusion bonding, the region being in the first cuff-forming sheet 60, and in the embodiment shown, the different member is the topsheet 3.

The first barrier cuff 6 has, at both longitudinal ends thereof, an anchored portion 64 where the first cuff-forming sheet 60 is inhibited from standing. The anchored portion 64 is formed in the front region F and the rear region R. The longitudinally extending portion between the two anchored portions 64 in each barrier cuff 6 corresponds to the standing portion 62. Each anchored portion 64 is a portion formed by bonding a portion of the first cuff-forming sheet 60 that is located at the same position in the lateral direction Y as the standing portion 62 to a different member (e.g., the topsheet 3) and/or a portion of the first cuff-forming sheet 60 other than the standing portion 62 by a known bonding means, such as adhesive or fusion bonding. By the provision of the anchored portions 64 at respective longitudinal ends of the first barrier cuff 6, the standing portion 62, i.e., the portion between the anchored portions 64, of the first barrier cuff 6 stands up toward the wearer's skin from the fixed portion 63 (rising edge) due to the contraction of the first elastic members 61 while the absorbent pad 1 (diaper 10) is worn. The leakage of body fluids of the wearer, such as urine, from the absorbent pad 1 toward the outside, so-called the lateral leakage, is thus prevented.

The first cuff-forming sheet 60 may be any materials commonly used for a barrier cuff in this type of absorbent articles, such as a single or multi-layered water-repellent nonwoven fabric or a resin film-laminated nonwoven fabric. The number of the first elastic members 61 is not particularly limited and can be one or more.

[0020]

As illustrated in Fig. 3, the absorbent pad 1 of the embodiment has a leg cuff 65 along each leg edge of the absorbent pad 1 that is to be worn around the wearer's thigh circumference. The leg edge typically includes the longitudinally extending side edge portion of the absorbent pad 1 in the crotch portion M. The leg cuff 65 includes the first cuff-forming sheet 60, which forms the first barrier cuff 6, and leg cuff elastic members 66. More specifically, the leg cuff 65 is formed in the following manner: the first cuff-forming sheet 60 includes longitudinally extending opposite side portions, i.e., longitudinally extending proximal portion (closer to the wearer's skin) and distal portion (farther from the wearer's skin); the proximal portion forms the standing portion 62 as described above, while the distal portion is fixed to a different member (the topsheet 3 and the backsheet 4 in the embodiment) at the laterally outboard position of the absorbent member 5; and the leg cuff elastic members 66 extending in the longitudinal direction X are fixed elastically contractively in the longitudinal direction X to the portion of the first cuff-forming sheet 60 that is fixed to the different member, thereby forming the leg cuff 65. The leg cuff elastic members 66 are disposed along the longitudinally extending edge of the absorbent pad 1 in at least the crotch portion. While the absorbent pad 1 is worn or in a relaxed state, the leg cuff elastic members 66 contract to form leg gathers that are substantially continuous in the longitudinal direction X along the leg edge.

[0021]

As illustrated in Figs. 2 and 4, the second barrier cuff 7 includes a second cuff-forming sheet 70, which serves as the main part of the second barrier cuff 7, and second cuff elastic members 71 that are fixed to the second cuff-forming sheet 70 in an elastically contractible condition in the lateral direction Y. The second cuff-forming sheet 70 defines at least a part of the skin facing side of the front portion F or rear portion R of the absorbent pad 1. The material of the second cuff-forming sheet 70 may be the same as that of the first cuff-forming sheet 60.

In the embodiment, the second barrier cuff 7 of the front portion F and that of the rear portion R have the same structure. Therefore, the description of one of the second barrier cuffs 7 of the front and the rear portion F and R applies equally to the other as appropriate.

[0022]

The second cuff-forming sheet 70 in the embodiment is rectangular in plan view and covers almost the entire area of the skin facing side of the longitudinal end portion of the

absorbent assembly 2. As illustrated in Fig. 4, the second cuff-forming sheet 70 has longitudinally opposed, laterally extending edges, or in other words, the distal and proximal edges. Among these, the distal edge 70X1 coincides with the edge of the longitudinal end portion (of the front portion F or the rear portion R) of the absorbent assembly 2 where the second cuff-forming sheet 70 is placed. The laterally opposed, longitudinally extending edges 70Y of the second cuff-forming sheet 70 are near the laterally opposed, longitudinally extending side edges of the absorbent assembly 2. That is, in the embodiment, the second cuff-forming sheet 70 has its distal edge 70X1 aligned with the longitudinal end 1X of the absorbent pad 1, and its lateral edge 70Y located near the longitudinally extending, lateral side edges 1Y of the absorbent pad 1. The proximal edge among the longitudinally opposite, laterally extending edges of the second cuff-forming sheet 70, i.e., the proximal edge 70X2, extends parallel to the lateral direction Y.

[0023]

As illustrated in Fig. 4, the second cuff-forming sheet 70 has a fixed portion 72 (the hatched area in Fig. 4) where it is fixed to a different member, and a non-fixed portion 75 where it is not fixed to any other member. The “different member” to which the second cuff-forming sheet 70 is fixed is a member facing the second cuff-forming sheet 70, such as the topsheet 3 or the first cuff-forming sheet 60. The second cuff-forming sheet 70 and the different member are secured to each other by a fixing means 79 (see Fig. 3a). The area where the fixing means 79 is applied is the same as the fixed portion 72 (the hatched portion in Fig. 4). Any known fixing means, such as adhesive or fusion bonding, can be used as the fixing means 79.

The fixed portion 72 of the second cuff-forming sheet 70 to the different member includes a continuous fixed subportion 73 that extends continuously over the entire width (lateral dimension) of the absorbent assembly 2 and a pair of fixed subportions 74 that are spaced laterally and located longitudinally inward from and contiguous to the continuous fixed subportion 73. The portion between the laterally spaced pair of fixed subportions 74 is the non-fixed portion 75.

[0024]

As shown in Fig. 4, second elastic members 71 extending in the lateral direction Y are arranged in an elastically contractible condition in the lateral direction Y in the longitudinal end portion the second cuff-forming sheet 70 on the proximal edge 70X2 side (in other words, the proximal end portion the second cuff-forming sheet 70). In the embodiment,

the second elastic members 71 run in the lateral direction Y, straddling the spaced pair of fixed subportions 74 across the non-fixed portion 75 between the spaced fixed subportions 74. In the invention, the pattern of arranging the second elastic members 71 is not particularly limited. For example, unlike the embodiment shown in Fig. 4, the second elastic members 71 may be disposed only in the non-fixed portion 75 without extending outwardly into the spaced pair of fixed subportions 74. Alternatively, there may be no fixed subportions 74 in the regions that overlap the second elastic members 71 and imaginary extensions of the second elastic members 71 in plan view (i.e., the regions at the same position as the second elastic members 71 in the longitudinal direction X).

The number of the second elastic members 71 is not particularly limited and may be one or more. In the embodiment, the proximal end portion (the portion along the proximal edge 70X2) of the second cuff-forming sheet 70 is folded back onto the skin or non-skin facing side to provide facing panels, and two second elastic members 71 are disposed between the facing panels.

While the absorbent pad 1 is worn or in a relaxed condition, the second elastic members 71 contract to cause the non-fixed portion 75 of the second cuff-forming sheet 70 to stand toward the wearer's body, and thus, a pocket 78 (Fig. 1) is formed. The pocket 78 has an interior space 76 (Fig. 3b) and an opening 77 (Fig. 1). The interior space 76 is defined by the standing non-fixed portion 75 and the facing member (e.g., the absorbent assembly 2), and the opening 77 is open longitudinally inward.

During wear of the absorbent pad 1 (diaper 10), when bodily waste discharged in the crotch portion M of the absorbent pad 1 migrates to the front portion F or rear portion R, the bodily waste is received by the interior space 76 of the pocket 78 through the opening 77 and does not move further to the holder 11, to which the absorbent pad 1 is secured. The pocket 78 of the absorbent pad 1 thus prevents the holder 11 from being soiled by the bodily waste, thereby allowing the holder 11 to be used for a longer period of time.

[0025]

The absorbent pad 1 has, in the longitudinal end portions thereof, pad-side attachment members 8 via which the absorbent pad 1 is attached to and detached from the holder 11. In the embodiment, the pad-side attachment members 8 are provided on the skin facing side (inner side) of the absorbent pad 1 as depicted in Fig. 1.

[0026]

In the embodiment, the pad-side attachment members 8 are fixed to the skin facing

side of the second cuff-forming sheet 70 covering the skin facing side (e.g., topsheet 3) of the absorbent assembly 2, but not directly fixed to the skin facing side of the absorbent assembly 2. If the absorbent pad 1 does not have the second cuff-forming sheet 70 (the second cuff 7) and has the pad-side attachment member 8 directly on the skin facing side of the absorbent assembly 2, the body waste discharged on the crotch portion M of the absorbent pad 1 and migrating to the front portion F or rear portion R will soil the holder 11, making the duration of use of the holder 11 shorter. Such an inconvenience can be eliminated in the absorbent pad 1 of the embodiment by the second cuff-forming sheet 70 between the pad-side attachment member 8 and the skin facing side of the absorbent assembly 2.

[0027]

The pad-side attachment member 8 may have any structure as long as it is removably attachable to the holder-side attachment member 14 (Fig. 5), and any known removable attachment systems can be used with no particular limitations. For example, either one or both of the pad-side attachment member 8 and the holder-side attachment member 14 can have a pressure-sensitive adhesive layer formed by applying a pressure-sensitive adhesive so that the pad-side attachment member 8 is detachably secured to the holder-side attachment member 14 via the adhesive layer.

[0028]

The attachment system used in the embodiment, including the pad-side and the holder-side attachment members 8 and 14, is a hook-and-loop fastener. The hook-and-loop fastener is a combination of a male component having hooks (engaging components) arranged in a plane and a female component having loops (piles) in a plane. The hook-and-loop fastener is exemplified by MAGIC TAPE®.

Specifically, the pad-side attachment member 8 used in the embodiment is a male component of a hook-and-loop fastener, which is typically composed of a base sheet formed of resin film, woven or nonwoven fabric, etc. and a large number of hooks arranged on the base sheet, and the holder-side attachment member 14 is a female component, which is typically composed of a base sheet and an attachment region, to which the pad-side attachment member 8 is attached, on the non-skin facing side (outer side) of the base sheet.

[0029]

One of the main characteristics of the absorbent pad 1 resides in the configuration of

the plurality of pad-side attachment members 8. Specifically, the pad-side attachment members 8 extend in the lateral direction Y and are spaced in the longitudinal direction X, as shown in Figs. 2 and 4. This configuration is effective in preventing the absorbent pad 1 from coming off from the holder 11 during use (with the absorbent pad 1 attached to the holder 11 via the pad-side attachment members 8 as illustrated in Fig. 5). The reason for this is as follows: due to the above-described configuration, the pad-side attachment members 8 are capable of conforming to the wearer's body even when the wearer actively moves, for example, stands up and sits down, and thus, excessive stress is less likely to be applied on the pad-side attachment members 8.

[0030]

As shown in Figs. 2 and 4, the plurality of the pad-side attachment members 8 in the embodiment includes the longitudinally most distal attachment member 8A and a longitudinally proximal attachment member 8B that is proximal to the most distal attachment member 8A. Each of the attachment members 8A and 8B is rectangular and oblong in the lateral direction Y in plan view and continuously extends substantially over the entire width (lateral dimension) of the absorbent pad 1, except the laterally opposed side edge portions.

In the embodiment, the longitudinally spaced pad-side attachment members 8A and 8B have the same length in the lateral direction Y, more specifically the same shape and dimensions in plan view. The phrase “the same length” as used above is intended to include “exactly the same length” and “virtually the same length with a slight difference”. In the latter case, it is desirable that the absolute difference from the mean of the lengths in the lateral direction of the pad-side attachment members be within 90% of the mean.

The longitudinally distal edge of the most distal attachment member 8A is located at a distance L1 in the longitudinal direction X from the longitudinal end 1X of the absorbent pad 1 (the absorbent assembly 2). The proximal attachment member 8B is located at a distance L2 in the longitudinal direction X from the most distal attachment member 8A and longitudinally distal to the second elastic members 71 arranged in the non-fixed portion 75 of the second cuff-forming sheet 70.

[0031]

In order to ensure the effects of the above-described characteristic configuration of the pad-side attachment members 8, the members preferably have the following geometric dimensions.

The distance L1 (Fig. 4) from the longitudinal end 1X of the absorbent pad 1 to the

longitudinally most distal attachment member 8A is preferably 30 mm or less, more preferably 25 mm or less.

The distance L2 (Fig. 4) between longitudinally adjacent attachment members 8A and 8B is preferably at least 1 mm, more preferably 3 mm or more, and preferably 50 mm or less, more preferably 40 mm or less. As will be described, the invention encompasses embodiments in which at least three pad-side attachment members 8 are arranged so as to be longitudinally spaced in a longitudinal end portion of the absorbent pad (Figs. 9 through 11). In these embodiments, the distance between longitudinally adjacent attachment members is preferably in the above-mentioned range.

The longitudinally most distal attachment member 8A preferably has a width W1 (Fig. 4) (dimension in the longitudinal direction X) of at least 2 mm, more preferably 5 mm or more, and preferably 50 mm or less, more preferably 45 mm or less. When the width W1 varies in the lateral direction Y, it is preferred that the minimum of the width W1 be in the above range. The preference for the width W1 also applies to the width W2 (dimension in the longitudinal direction X) of the proximal attachment member 8B.

[0032]

In the invention, the region between longitudinally adjacent pad-side attachment members 8 is preferably inelastic. In the embodiment, the region between the longitudinally most distal attachment member 8A and the proximal attachment member 8B is preferably inelastic. In this context, the term “inelastic” refers to the lack of elasticity, where the term “elasticity” is defined as a material’s property such that the material is stretchable. More precisely, “elasticity” is the property of a material by which the material can be stretched by 50 percent of its original length (i.e., up to 150 percent of its original length, or 1.5 times its original length) and return to less than 110 percent of its original length when released from the stretching force. It is preferable that the region between the longitudinally adjacent pad-side attachment members 8 have no such elasticity. In, for example, the diaper 10 shown in Fig. 5, such a preferred feature ensures the conformability of each of the spaced plurality of pad-side attachment members 8 (the attachment members 8A and 8B in the embodiment) to the wearer’s movement during wear. As a result, the inconvenience of the absorbent pad 1 coming off from the holder 11 during wear can be prevented more effectively.

[0033]

As seen in Figs. 2 and 4 showing plan views of the absorbent pad 1 of the

embodiment, the longitudinally most distal attachment member 8A among the longitudinally spaced pad-side attachment members 8 has no overlap with the absorbent member 5, whereas at least one longitudinally proximal attachment member 8B among the longitudinally spaced pad-side attachment members 8 overlaps the absorbent member 5. The absorbent member 5 is usually stiffer than the other members of the absorbent pad 1. Therefore, an overlap of a member with the absorbent member 5 in plan view of the absorbent pad 1 provides a high stiffness region that is stiffer and less flexible than the other area of the member. If all the pad-side attachment members 8 are located in such a high stiffness region, there is a concern that the holder 11 otherwise secured via the pad-side attachment members 8 will come off during use of the diaper 10. In the embodiment, however, the above-mentioned configuration of the attachment system allows the absorbent pad 1 to be secured to the holder 11 via the longitudinally most distal attachment member 8A having no overlap with the absorbent member 5 in plan view, so that the inconvenience of the absorbent pad 1 coming off from the holder 11 can be prevented more effectively. The invention encompasses the embodiments in which at least three pad-side attachment members 8 are arranged so as to be longitudinally spaced in a longitudinal end portion of the absorbent pad 1 (Figs. 9 through 11). In these embodiments, it is preferred for only the longitudinally most distal attachment member 8A to have no overlap with the absorbent member 5 and for the other proximal attachment members 8B to overlap the absorbent member 5.

[0034]

As stated earlier, the embodiment includes the elasticized leg cuff 65 extending longitudinally at the laterally outboard position of each longitudinally extending side edge of the absorbent member 5, as shown in Figs. 2 and 3. The start point of the elastic contraction (or stretch) of the leg cuff 65 is preferably coincident with or longitudinally outward beyond the longitudinally proximal edge of the plurality of pad-side attachment members 8 in at least one of the front portion F and the rear portion R. This configuration as well as the aforementioned characteristic configuration of the invention allows for exhibiting the desired effects of the invention with greater reliability.

In this context, “the start point of the elastic contraction of the leg cuff 65” refers to one of the longitudinal ends of the elasticized region where the leg cuff elastic members 66 are arranged in a longitudinally elastically contractible condition to form the leg cuff 65 (the region where the standing portion 62 is provided). The elasticized region typically extends at least over the entire length (the dimension in the longitudinal direction X) of the crotch portion M and further extends to the front portion F and the rear portion R. As used above,

“the longitudinally proximal edge of the plurality of pad-side attachment members 8” refers to the proximal edge of the longitudinally most proximal pad-side attachment member out of the longitudinally spaced plurality of pad-side attachment members 8 in the longitudinal end portion of the absorbent pad 1 (the longitudinally most proximal pad-side attachment member in the embodiment is the pad-side attachment member 8B). Every pad-side attachment member 8 has a pair of laterally extending, longitudinally opposite edges, so that the term “proximal edge” of the individual pad-side attachment member refers to the edge located longitudinally inward (closer to the absorbent member 5). The pair of longitudinally opposite edges of every pad-side attachment member 8 includes the proximal edge defined above and the opposing distal edge.

[0035]

As illustrated in Figs. 2 and 3 and described hereinabove, the embodiment has the elasticized first barrier cuff 6 (lateral barrier cuff) extending in the longitudinal direction X at the laterally inboard position of each leg cuff 65. In at least one of the front portion F and the rear portion R, the start point of the elastic contraction of the first barrier cuff 6 is preferably coincident with or longitudinally outward beyond the longitudinally proximal edge of the plurality of pad-side attachment members 8. This configuration as well as the aforementioned characteristic configuration allows for exhibiting the desired effects of the invention with greater reliability.

In this context, “the start point of the elastic contraction of the first barrier cuff 6” refers to one of the longitudinal ends of the elasticized region where the first elastic members 61 are arranged in a longitudinally elastically contractible condition to form the first barrier cuff 6 (the region where the standing portion 62 is provided). This elasticized region typically extends at least over the entire length (the dimension in the longitudinal direction X) of the crotch portion M and further extends to the front portion F and the rear portion R.

[0036]

Fig. 6 through 12 show arrangement patterns of the plurality of pad-side attachment members that can be employed in the invention. The description of these other embodiments of the absorbent pad will generally be confined to the specific configurations that differ from the absorbent pad 1 described above. Identical or corresponding elements throughout the drawings are given identical reference numerals and will not be redundantly described. Unless explicitly stated otherwise, the description for the absorbent pad 1 appropriately applies to the other embodiments described below. While the other

embodiments will be described with particular reference to the front portion F, the description for the front portion F applies equally to the rear portion R as appropriate unless otherwise indicated.

[0037]

Fig. 6 shows an absorbent pad 1A. The absorbent pad 1A differs from the absorbent pad 1 in that the longitudinally most distal attachment member 8A is longer than the other pad-side attachment members 8 (i.e., the proximal attachment member 8B) in the lateral direction Y, whilst the pad-side attachment members 8 of the absorbent pad 1 have the same length in the lateral direction Y (Fig. 4). The absorbent pad 1A is superior in that it is even less likely to come off from the holder 11 especially when the wearer of the diaper 10 (Fig. 5) moves the legs quite actively.

Fig. 7 shows an absorbent pad 1B. The absorbent pad 1B differs from the absorbent pad 1 in that the both attachment members 8A and 8B span the entire width (the dimension in the lateral direction Y) of the absorbent pad 1B, whereas the attachment members 8A and 8B in the absorbent pad 1 are not provided in the lateral side edge portions of the absorbent pad 1 (Fig. 4). The absorbent pad 1B is superior in that it is prevented from coming off from the holder 11 from its lateral side edge, which may otherwise serve as a start point of the coming off of the absorbent pad, even when the wearer of the diaper 10 moves actively to thereby apply an excessive load to the diaper 10.

Fig. 8 illustrates an absorbent pad 1C. The absorbent pad 1C differs from the absorbent pad 1 in that both the attachment members 8A and 8B are curved in plan view, while both the attachment members 8A and 8B in the absorbent pad 1 are straight in plan view. The absorbent and 1C is especially superior in conformity to the wearer's body and ease of attaching to the holder.

[0038]

Figs. 9, 10, and 11 show absorbent pads 1D, 1E, and 1F, respectively. These absorbent pads are common in that three pad-side attachment members 8 (8A, 8B, and 8C) are longitudinally spacedly arranged in one of the longitudinal end portions of the pad. The attachment member 8A is the most distal in the longitudinal direction X, and the attachment members 8B and 8C are proximal. All the three attachment members 8 in each absorbent pad have the same width (the dimension in the longitudinal direction X).

In the absorbent pad 1D, the distances between longitudinally adjacent attachment members 8 are smaller than the width (dimension in the longitudinal direction X) of the

individual attachment members.

In the absorbent pad 1E, the distances between longitudinally adjacent attachment members 8 are smaller than the width of the individual attachment members.

The absorbent pad 1F differs from the absorbent pads 1D and 1E in that the distances between longitudinally adjacent attachment members 8 are different from each other while the distances between adjacent attachment members 8 are equal to each other in the absorbent pads 1D and 1E. In the embodiment illustrated in Fig. 11, the distance between the longitudinally most distal attachment member 8A and the adjacent proximal attachment member 8B is larger than the distance between the proximal attachment member 8B and the proximal attachment member 8C, which is proximal to the attachment member 8B.

[0039]

Fig. 12 shows an absorbent pad 1G. The absorbent pad 1G differs from the absorbent pad 1 in that the attachment members 8A and 8B each have non-attachment portions 81, while those of the absorbent pad 1 (Fig. 4) do not have such non-attachment portions. The non-attachment portion 81 is a portion to which the holder-side attachment member of the holder, which constitutes a two-piece absorbent article together with the absorbent pad 1G, cannot be attached. In the embodiment illustrated in Fig. 12, each of the attachment members 8A and 8B has multiple planarly circular non-attachment portions 81 arrayed spacedly in the lateral direction Y. The non-attachment portions 81 are formed by, for example, compressing the pad-side attachment members 8, which are male or female components of a hook-and-loop fastener, by hot or cold debossing.

Generally, absorbent pads are often folded in half transversely with the skin side inside in an unused state, such as during the distribution process. When the absorbent pad 1 having no non-attachment portions 81 is folded in two, the facing front and rear portion F and R may attach to each other via the attachment portions 8A and 8B and need to be peeled off upon use. Forced peeling can damage the absorbent pad. Such an inconvenience is unlikely to occur with the absorbent pad 1G because the non-attachment portions 81 provided in the attachment portions 8A and 8B prevent attachment between the front and rear portions F and R even when the absorbent pad is folded in two.

[0040]

The invention is by no means limited to the above-described embodiments, and various changes and modifications can be made in the embodiments without departing from the spirit and scope of the invention.

For example, the absorbent pad according to the invention may include a disposal tape and a wetness indicator. When a used absorbent pad is rolled up for disposal, the disposal tape is used to maintain the rolled-up configuration. The disposal tape is typically provided on the non-skin facing side (outer side) of the absorbent pad. The absorbent pad after use is longitudinally rolled with the skin-facing side (inner side) inside, and the disposal tape is placed across the exposed longitudinal end of the rolled-up absorbent pad to secure the pad in the rolled-up configuration. The indicator is used to inform a caregiver when it is time to change the absorbent pads. Typically, the indicator is designed to change visually, e.g., in color upon contact with urine such that the visual change is visible from the outside of the absorbent pad. Any types of disposal tapes and wetness indicators conventionally used in this type of absorbent articles can be used without limitations.

[0041]

While the pad-side attachment members 8 are provided on the skin facing side (inner side) of the absorbent pad 1 in the foregoing embodiments, the invention encompasses an embodiment in which the pad-side attachment members 8 are provided on the non-skin facing side (outer side) of the absorbent pad 1. In that case, the pad-side attachment members 8 may be fixed to the non-skin facing side of the backsheet 4.

[0042]

In the foregoing embodiments, the pad-side attachment members 8 are male components having hooks of a hook-and-loop fastener, and the holder-side attachment member 14 is a female component having loops; however, the arrangement of the male and female components may be reversed.

[0043]

The following clauses are also disclosed.

1. An absorbent pad including a topsheet closer to the wearer's skin while worn, a backsheet farther from the wearer's skin while worn, and an absorbent member interposed between the topsheet and the backsheet,

the absorbent pad having a longitudinal direction corresponding to the direction extending from the front to the back of a wearer through the crotch and a lateral direction perpendicular to the longitudinal direction, and being configured to be detachably secured to a holder cylindrically fitted around the wearer's lower torso,

the absorbent pad including, in each of its longitudinally opposed end portions, a plurality of pad-side attachment members configured to be removably attached to the holder, and

the pad-side attachment members extending in the lateral direction and being spaced in the longitudinal direction.

2. The absorbent pad according to clause 1, wherein, in plan view, a longitudinally distal attachment member among the longitudinally spaced pad-side attachment members has no overlap with the absorbent member, and at least one longitudinally proximal attachment member among the longitudinally spaced pad-side attachment members overlaps the absorbent member.

3. The absorbent pad according to clause 1 or 2, wherein the region between longitudinally adjacent pad-side attachment members is inelastic.

[0044]

4. The absorbent pad according to any one of clauses 1 to 3, wherein the longitudinally spaced pad-side attachment members have the same length in the lateral direction in plan view.

5. The absorbent pad according to any one of clauses 1 to 3, wherein a longitudinally distal attachment member among the longitudinally spaced pad-side attachment members is longer in the lateral direction than a longitudinally proximal attachment member among the longitudinally spaced pad-side attachment members in plan view.

6. The absorbent pad according to any one of clauses 1 to 3, wherein the longitudinally spaced pad-side attachment members span the entire width of the absorbent pad in the lateral direction in plan view.

7. The absorbent pad according to any one of clauses 1 to 3, wherein the longitudinally spaced pad-side attachment members are curved in plan view.

8. The absorbent pad according to any one of clauses 1 to 3, wherein the distance between longitudinally adjacent pad-side attachment members is equal to the dimension of the individual pad-side attachment members in the longitudinal direction.

9. The absorbent pad according to any one of clauses 1 to 3, wherein the distance between longitudinally adjacent pad-side attachment members is smaller than the dimension of the individual pad-side attachment members in the longitudinal direction.

10. The absorbent pad according to any one of clauses 1 to 3, wherein the distance between longitudinally pad-side adjacent attachment members is larger than the dimension of the individual pad-side attachment members in the longitudinal direction.

11. The absorbent pad according to any one of clauses 1 to 3, wherein the pad-side attachment member includes a non-attachment portion.

[0045]

12. The absorbent pad according to any one of clauses 1 to 11, further including an elasticized leg cuff extending in the longitudinal direction at the laterally outboard position of each of the longitudinally extending side edges of the absorbent member, wherein the start point of elastic contraction of the leg cuff is coincident with or longitudinally outward beyond the longitudinally proximal edge of the plurality of pad-side attachment members in at least one of the front and rear portions.

13. The absorbent pad according to any one of clauses 1 to 12, further including an elasticized leg cuff extending in the longitudinal direction at the laterally outboard position of each of the longitudinally extending side edges of the absorbent member, and an elasticized barrier cuff extending in the longitudinal direction at a laterally inboard position of the leg cuff, wherein the start point of elastic contraction of the barrier cuff is coincident with or longitudinally outward beyond the longitudinally proximal edge of the plurality of pad-side attachment members in at least one of the front and rear portions.

14. An absorbent article including the absorbent pad according to any one of clauses 1 to 13 and a holder configured such that the absorbent pad is to be secured thereto.

Industrial Applicability

[0046]

The absorbent pad according to the invention detachably secured to a holder is less likely to come off from the holder even with the wearer's movement during use and can be used for a long time with a sense of security.

CLAIMS

1. An absorbent pad comprising a topsheet closer to the skin of a wearer while worn, a backsheet farther from the skin of a wearer while worn, and an absorbent member interposed between the topsheet and the backsheet,

the absorbent pad having a longitudinal direction corresponding to the direction extending from the front to the back of a wearer through the crotch, and a lateral direction perpendicular to the longitudinal direction, and being configured to be detachably secured to a holder cylindrically fitted around the lower torso of a wearer,

the absorbent pad comprising, in each of longitudinally opposed end portions thereof, a plurality of pad-side attachment members configured to be removably attached to the holder, and

the pad-side attachment members extending in the lateral direction and being spaced in the longitudinal direction.

2. The absorbent pad according to claim 1, wherein, in plan view, a longitudinally distal attachment member among the longitudinally spaced pad-side attachment members has no overlap with the absorbent member, and at least one longitudinally proximal attachment member among the longitudinally spaced pad-side attachment members overlaps the absorbent member.

3. The absorbent pad according to claim 1 or 2, wherein a region between longitudinally adjacent pad-side attachment members is inelastic.

4. The absorbent pad according to any one of claims 1 to 3, wherein the longitudinally spaced pad-side attachment members have the same length in the lateral direction in plan view.

5. The absorbent pad according to any one of claims 1 to 3, wherein a longitudinally distal attachment member among the longitudinally spaced pad-side attachment members is longer in the lateral direction than a longitudinally proximal attachment member among the longitudinally spaced pad-side attachment members.

6. The absorbent pad according to any one of claims 1 to 3, wherein the longitudinally

spaced pad-side attachment members span the entire width of the absorbent pad in the lateral direction.

7. The absorbent pad according to any one of claims 1 to 3, wherein the longitudinally spaced pad-side attachment members are curved in plan view.

8. The absorbent pad according to any one of claims 1 to 3, wherein a distance between longitudinally adjacent pad-side attachment members is equal to the dimension of the individual pad-side attachment members in the longitudinal direction.

9. The absorbent pad according to any one of claims 1 to 3, wherein a distance between longitudinally adjacent pad-side attachment members is smaller than the dimension of the individual pad-side attachment members in the longitudinal direction.

10. The absorbent pad according to any one of claims 1 to 3, wherein a distance between longitudinally adjacent pad-side attachment members is larger than the dimension of the individual pad-side attachment members in the longitudinal direction.

11. The absorbent pad according to any one of claims 1 to 3, wherein the pad-side attachment member comprises a non-attachment portion.

12. The absorbent pad according to any one of claims 1 to 11, further comprising an elasticized leg cuff extending in the longitudinal direction at a laterally outboard position of each longitudinally extending side edge of the absorbent member,

wherein the leg cuff has a start point of elastic contraction, and the start point of the elastic contraction is coincident with or longitudinally outward beyond a longitudinally proximal edge of the plurality of pad-side attachment members in at least one of front and rear portions.

13. The absorbent pad according to claim 12, further comprising an elasticized barrier cuff extending in the longitudinal direction at a laterally inboard position of the leg cuff,

wherein the barrier cuff has a start point of elastic contraction, and the start point of the elastic contraction of the barrier cuff is coincident with or longitudinally outward beyond

a longitudinally proximal edge of the plurality of pad-side attachment members in at least one of the front and rear portions.

14. The absorbent pad according to any one of claims 1 to 11, further comprising an elasticized leg cuff extending in the longitudinal direction at a laterally outboard position of each of longitudinally extending side edges of the absorbent member, and an elasticized barrier cuff extending in the longitudinal direction at a laterally inboard position of the leg cuff,

wherein the barrier cuff has a start point of elastic contraction, and the start point of the elastic contraction of the barrier cuff is coincident with or longitudinally outward beyond a longitudinally proximal edge of the plurality of pad-side attachment members in at least one of front and rear portions.

15. An absorbent article comprising the absorbent pad according to any one of claims 1 to 14 and a holder configured such that the absorbent pad is to be secured thereto.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2022/038539

A. CLASSIFICATION OF SUBJECT MATTER

A61F 13/47(2006.01)i; **A61F 13/505**(2006.01)i; **A61F 13/56**(2006.01)i; **A61F 13/62**(2006.01)i
 FI: A61F13/56 200; A61F13/505 100; A61F13/47 100; A61F13/62

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)

A61F13/47; A61F13/505; A61F13/56; A61F13/62

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 1971-2022
 Registered utility model specifications of Japan 1996-2022
 Published registered utility model applications of Japan 1994-2022

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 2004-329590 A (LIVEDO CORPORATION) 25 November 2004 (2004-11-25) paragraphs [0032]-[0075], fig. 1-9	1-15
Y	JP 2003-175066 A (DAIO PAPER CORP) 24 June 2003 (2003-06-24) paragraph [0042], fig. 1-16	1-15
Y	JP 2016-514981 A (THE PROCTER AND GAMBLE COMPANY) 26 May 2016 (2016-05-26) fig. 2E, 2F, 2O, 2P, 2Q, 2R	1-15
Y	JP 2016-104078 A (KAO CORP) 09 June 2016 (2016-06-09) paragraphs [0025]-[0040], fig. 1-7	11-15
A	JP 2007-209774 A (OJI PAPER CO LTD) 23 August 2007 (2007-08-23) paragraphs [0042]-[0110], fig. 1-29	1-15
A	JP 2011-172793 A (LIVEDO CORPORATION) 08 September 2011 (2011-09-08) paragraphs [0023]-[0055], fig. 1-9	1-15



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

“A” document defining the general state of the art which is not considered to be of particular relevance
 “E” earlier application or patent but published on or after the international filing date
 “L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
 “O” document referring to an oral disclosure, use, exhibition or other means
 “P” document published prior to the international filing date but later than the priority date claimed

“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

“&” document member of the same patent family

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2022/038539

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 3185400 U (MIKAMI, Kumiko) 24 July 2013 (2013-07-24) paragraphs [0018]-[0041], fig. 1-7	1-15

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/JP2022/038539

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
JP	2004-329590	A	25 November 2004	(Family: none)	
JP	2003-175066	A	24 June 2003	(Family: none)	
JP	2016-514981	A	26 May 2016	US 2014/0257231 A1 fig. 2E, 2F, 2O, 2P, 2Q, 2R CN 105025858 A	
JP	2016-104078	A	09 June 2016	(Family: none)	
JP	2007-209774	A	23 August 2007	(Family: none)	
JP	2011-172793	A	08 September 2011	(Family: none)	
JP	3185400	U	24 July 2013	(Family: none)	