[Fig. 5] Fig. 5 is a schematic cross-section taken along line V-V of Fig. 1.

[Fig. 6] Fig. 6(a) and Fig. 6(b) illustrate the process for making the absorbent core of the sanitary napkin shown in Fig. 1.

[Fig. 7] Fig. 7 is a plan view of a sanitary napkin as another preferred embodiment of the absorbent article of the invention, seen from the skin facing side, i.e., the topsheet side.

[Fig. 8] Fig. 8 is a plan view of a sanitary napkin as still another preferred embodiment of the absorbent article of the invention, seen from the skin facing side, i.e., the topsheet side.

Description of Embodiments

[0009]

Although Patent Literatures 1 and 2 disclose techniques for improving absorption capacity by providing a raised portion having an increased basis weight in the central part of the absorbent core, they mention nothing about a raised portion raised or protruded toward the backsheet side. According to the techniques of Patent Literatures 1 and 2, a gap is created between the topsheet and the bevel of the raised portion. The gap can inhibit rapid spread of a discharged fluid in the absorbent member to result in leakage, or the level difference of the raised portion can cause a wearer discomfort. Patent Literature 3 describes an absorbent article the absorbent core of which has its central portion in the target zone protruded toward the backsheet. The absorbent article of Patent Literature 3 provides an improved conforming fit to a wearer. However, the central protruded portion does not extend over the whole width of the absorbent core, so that there is a risk of leak when the central protruded portion is or gets out of alignment with a wearer's point of fluid discharge when put on a wearer or during wear.

[0010]

The invention provides an absorbent article that eliminates the disadvantages of the aforementioned conventional techniques.

[0011]

The absorbent article of the invention will be illustrated on the basis of a sanitary napkin 1 as a preferred embodiment of the invention (hereinafter simply referred to as the

a sample cut out of the part of the protrusion adjacent portion 44 by the area of the skin facing side of the sample, as has been described with respect to the measurement of the thicknesses of various portions of the absorbent core 41.

[0050]

The first portion 41F and the second portion 41R of the absorbent core 41 of the napkin 1 each have groove portions 45 having a relatively low basis weight and small absorptive portions 46 having a relatively high basis weight as illustrated in Fig. 2. Preferably, the groove portions 45 include longitudinal groove portions 45X extending in the longitudinal direction X and lateral groove portions 45Y extending in the lateral direction Y. Thus, the first portion 41F and the second portion 41R each have grooves running in the lateral direction Y (lateral grooves 45Y) and grooves running in the longitudinal direction X (longitudinal grooves 45X). The longitudinal grooves 45X running in the longitudinal direction X are arranged at a regular interval in the lateral direction Y, and the lateral grooves 45Y running in the lateral direction Y are arranged in the longitudinal direction X at a regular interval. The small absorptive portions 46 are located at the cells of the grid formed by the longitudinal grooves 45Y and the lateral grooves 45X. The thickness and basis weight of each of the first portion 41F and the second portion 41R as referred to above are the thickness and basis weight of the small absorptive portions 46. The groove portions 45 having the longitudinal groove 45X or the lateral groove 45Y have a smaller basis weight of the material for forming the absorbent core than the small absorptive portions 46, which are portions of the first portion 41F and the second portion 41R other than the groove portions 45.

[0051]

The absorbent core 41 of the napkin 1, which has the groove portions 45 and the small absorptive portions 46 in the first portion 41F and the second portion 41R and the protruded portion 42, the protrusion-defining groove portions 43, and the protrusion adjacent portions 44 in the middle portion 41M, is a integrally formed single member. As used herein, the expression "integrally formed" means that the absorbent core 41 is not composed of separately prepared parts joined together by adhesive bonding, compression, or a like means but formed integrally of a material in a single process.

absorption capacity is secured even when the napkin 1, an absorbent article, is applied slightly out of proper position in use. Since the protruded portion 42 is flat on its skin facing side, the skin facing surface of the protruded portion 42 of the absorbent core 41 is easily brought into close contact with the unshown core wrap sheet wrapping the absorbent core 41 and, consequently, the absorbent member 4 is easily brought into close contact with the topsheet 2 on its skin facing side at the location corresponding to the protruded portion 42. As a result, a discharged fluid having reached the skin facing side of the absorbent core 41 is allowed to spread quickly in planar directions, bringing about further improvements on absorption capacity and absorption rate, so that a rewet is prevented from occurring. Because a gap is less likely to be formed between the wearer's skin and the napkin 1, the napkin 1 provides a good fit to the wearer's body, causing little wearer discomfort. In particular, since the absorbent core 41 of the napkin 1 has on its skin facing side the continuous layer RS extending form the first portion 41F, through the middle portion 41M, to the second portion 41R with a uniform thickness, a gap is still less likely to be formed between the wearer's skin and the napkin 1, giving a further improved fit to the contour of the wearer's body. Since the protruded portion 42 of the middle portion 41M of the absorbent core 41 is thicker than the first portion 41F and the second portion 41R of the absorbent core 41, a space K (see Figs. 4 and 5) is easily provided between the non-skin facing side of the absorbent core 41 and the backsheet 3 or the unshown core wrap sheet in the regions forward and rearward of the protruded portion 42. The space K allows the napkin 1 to be deformed in the longitudinal direction X with good cushioning properties, thereby providing a further improved fit.

[0062]

In particular, the napkin 1 has the central subportion 421 formed by the extension of the widest part over a predetermined length in the longitudinal direction X along the opposite side edges of the absorbent core 41. This configuration secures increased absorption capacity for discharged fluids and also provides sufficient absorbing performance even when the napkin 1, an absorbent article, is applied slightly out of proper position or regardless of the movement or sleeping position of the wearer in use. Because of no gap formation between the topsheet 2 and the absorbent core 41, a discharged fluid is wicked into the absorbent core 41 so quickly that the fluid is prevented from leaking laterally through the gaps between the topsheet 2 and the absorbent core 41. The protruded portion 42 includes the central subportion 421 and at least one of the front

CLAIMS

1. An absorbent article comprising an absorbent member, a topsheet covering the skin facing side of the absorbent member, and a backsheet covering the non-skin facing side of the absorbent member, the absorbent article having a front section and a rear section, the absorbent member comprising an oblong absorbent core having a longitudinal direction corresponding to the front-to-back direction of a wearer,

the absorbent core having a first portion located in the side of the front section, a second portion located in the side of the rear section, and a middle portion intermediate between the first and second portions, the middle portion having a protruded portion thicker than the first and second portions,

the protruded portion protruding toward the backsheet, and,

in plan view of the absorbent core, the protruded portion having a widest part that is the widest in a lateral direction perpendicular to the longitudinal direction of the absorbent core, the widest part having the same width as the absorbent core.

2. The absorbent article according to claim 1, wherein the protruded portion comprises a central subportion defined by extending the widest part in the longitudinal direction over a predetermined length along the opposite side edges extending in the longitudinal direction of the absorbent core.

3. The absorbent article according to claim 2, wherein the protruded portion further comprises a front or rear subportion projecting from the central subportion forward or rearward, respectively, and the dimension of the front or rear subportion in the lateral direction decreases from the width of the widest part in the forward or rearward direction, respectively.

4. The absorbent article according to any one of claims 1 to 3, wherein the middle portion of the absorbent core has a protrusion-defining groove portion delineating the boundary between the protruded portion and the other part of the absorbent core,

the protrusion-defining groove portion extending the whole width of the absorbent core in the lateral direction.

5. The absorbent article according to any one of claims 1 to 4, wherein the middle portion of the absorbent core has a protrusion-defining groove portion delineating the boundary between the protruded portion and the other part of the absorbent core and has a protrusion adjacent portion in a region exclusive of the protruded portion and the protrusion-defining groove portion, and

a basis weight of the protrusion adjacent portion is lower than that of the protruded portion and equal to or lower than that of the first and second portions of the absorbent core.

6. The absorbent article according to any one of claims 1 to 5, wherein the absorbent core has on its skin facing side a continuous layer with a uniform thickness extending continuously from the first portion through the middle portion to the second portion.

7. The absorbent article according to any one of claims 1 to 6, wherein the protruded portion comprises a central subportion defined by extending the widest part in the longitudinal direction over a predetermined length along the opposite side edges extending in the longitudinal direction of the absorbent core, and a front and a rear subportion projecting from the central subportion forward and rearward, respectively, wherein the dimension of the front or rear subportion in the lateral direction decreases from the width of the widest part in the forward or rearward direction, respectively,

the front subportion being one subportion forwardly adjacent to the central subportion, the rear subportion being one subportion rearwardly adjacent to the central subportion, and

each of the front subportion and the rear subportion having a vertex positioned at the lateral middle of the absorbent core and having a width decreasing gradually from the laterally opposite sides toward the vertex.

8. The absorbent article according to any one of claims 1 to 7, wherein the middle portion of the absorbent core has a protrusion-defining groove portion delineating the boundary between the protruded portion and the other part of the absorbent core and has a protrusion adjacent portion in a region exclusive of the protruded portion and the protrusion-defining groove portion, and

a basis weight of the protrusion adjacent portion is lower than that of the protruded portion and higher than that of the protrusion-defining groove portion.

9. The absorbent article according to any one of claims 1 to 8, wherein the middle portion of the absorbent core has a protrusion-defining groove portion delineating the boundary between the protruded portion and the other part of the absorbent core and has a protrusion adjacent portion in a region exclusive of the protruded portion and the protrusion-defining groove portion,

the absorbent article having a linear groove formed by integrally compressing the topsheet and the absorbent core, the linear groove comprising a pair of longitudinal grooves extending in the longitudinal direction of the absorbent core,

the longitudinal grooves extending in the longitudinal direction across the protruded portion, the protrusion-defining groove portion, and the protrusion adjacent portion.

10. The absorbent article according to any one of claims 1 to 9, wherein the first portion and the second portion of the absorbent core each have a laterally running groove portion, the groove portion having a lower basis weight of the material for forming the absorbent core than the other parts of the first and the second portion.