

DISPOSABLE ABSORBENT ARTICLE

RELATED FIELD

This disclosure relates to the domain of hygiene products, more particularly, to a disposable absorbent article.

BACKGROUND

The disposable absorbent articles on the market are mainly divided into pant type absorbent articles and long strip type absorbent articles. The pant type absorbent articles possess the advantages of convenient use and leakage prevention, and thus have become popular in recent years. Such absorbent articles include a front waistline region, a rear waistline region and a crotch region between the front waistline region and the rear waistline region, wherein two sides of the front waistline region are respectively connected to two sides of the rear waistline region, and two ends of the crotch region are respectively connected to a bottom end of the front waistline region and a bottom end of the rear waistline region. Further, an absorbent body is disposed on a skin side of the crotch region. However, current products or designs cannot obtain a satisfying use comfort.

SUMMARY

In view of the above problems in the prior art, the object of the present disclosure is to provide a disposable absorbent article possessing the advantages of uniform elasticity in the waistline region, good extensibility and compactness, wear comfort and good breathability.

For these purposes, according to the present disclosure, a disposable absorbent article is provided. The disposable absorbent article comprises a front waistline region, a rear waistline region and a crotch region between the front waistline region and the rear waistline region, wherein two sides of the front waistline region are respectively connected to two sides of the rear waistline region to form a waistline opening, and two sides of the crotch region respectively extend to the front waistline region and the rear waistline region to form a pair of thigh openings. The front waistline region and/or the rear waistline region are provided with at least one extensible region comprising at least one layer of elastic mesh fabric and at least

one nonwoven fabric layer. The breathability of the waistline regions can be improved by the mesh structure of the elastic mesh fabric.

According to the above technical concepts, the present disclosure can further include one or more following optional forms.

5 In some optional forms, the extensible region is disposed across the whole of the front waistline region and the rear waistline region along a lateral direction, and comprises a first nonwoven fabric layer, a second nonwoven fabric layer and an elastic mesh fabric compounded between the first nonwoven fabric layer and the second nonwoven fabric layer.

10 In some optional forms, the extensible region is disposed across the whole of the front waistline region and the rear waistline region along a lateral direction, and comprises a nonwoven fabric layer and an elastic mesh fabric compounded to the nonwoven fabric layer.

In some optional forms, the nonwoven fabric layer and the elastic mesh fabric are compounded by ultrasonic welding, hot melt pressing or adhesive bonding.

15 In some optional forms, a plurality of air-through holes passing through the nonwoven fabric layer and the elastic mesh fabric are formed at least part of the ultrasonic welding points. These air-through holes further enhance the breathability in the waistline regions.

20 In some optional forms, the elastic mesh fabric does not extend to the ends of the front waistline region and the rear waistline region, and the ends of the front waistline region and the rear waistline region comprise at least one elastomer compounded between the first nonwoven fabric layer and the second nonwoven fabric layer and extending along the lateral direction.

25 In some optional forms, the first nonwoven fabric layer extends over the front waistline region, the rear waistline region and the crotch region, while the elastic mesh fabric and the second nonwoven fabric layer extends over the front waistline region and the rear waistline region.

In some optional forms, the first nonwoven fabric layer extends beyond the elastic mesh fabric and the second nonwoven fabric layer, and is folded inwards at the ends of the waistline opening to cover the second nonwoven fabric layer.

30 In some optional forms, the second nonwoven fabric layer extends from the rear waistline region to a portion of the crotch region, and at least one elastomer extending

curvedly in the lateral direction is compounded between the first nonwoven fabric layer and the second nonwoven fabric layer at a position without elastic mesh fabric.

In some optional forms, the extensible region is configured with an extension ratio increasing continuously from the crotch region to the waistline opening.

5 In some optional forms, the extensible region is configured with an extension ratio of 1.2 to 8.

In some optional forms, the extensible region is configured with an elastomer content of 5% to 100%, a fineness of 20 to 1240 dtex, and a basic weight of 20 to 200 gsm.

10 In some optional forms, the elastic mesh fabric is compounded with the at least one nonwoven fabric layer continuously or discontinuously.

In some optional forms, the disposable absorbent article further comprises an absorbent body extending from the crotch region to the front waistline region and the rear waistline region, wherein two sides of the absorbent body are provided with a protective enclosure, and two sides of the protective enclosure are folded inwards to cover at least one elastomer
15 extending in a longitudinal direction to form a three-dimensional protective enclosure.

In some optional forms, two ends of the absorbent body in the longitudinal direction are covered with a protective sheet.

Compared with the current products, the disposable absorbent article according to the present disclosure at least possesses the following advantages:

20 1. The front waistline region and/or the rear waistline region are provided with at least one extensible region which is elastically extensible along the lateral direction and the longitudinal direction, which can meet the requirement of the body size of the users and their movements, and the extensible region has uniform elasticity in the whole waistline region, high conformity with the human body, wear comfort and elegant appearance, and does not
25 cause trace and swelling easily.

2. The extensible region is compounded of at least one nonwoven fabric layer and at least one layer of elastic mesh fabric, and the mesh structure of the elastic mesh fabric has high density, thus it has good breathability and high comfort, and prevents the skin from generating eczema and itching in the heat and humid conditions.

30

BRIEF DESCRIPTION OF THE DRAWINGS

Other features and advantages of the present disclosure will be better understood with reference to the following detailed description when taken in conjunction with the accompanying drawings, and the same reference numerals in the drawings indicate the same or similar members, in which:

Fig.1 is a schematic view of a first embodiment of the absorbent article according to the present disclosure;

Fig.2 is a schematic view of the embodiment of Fig.1 after unfolding, showing partial sectional structure;

Fig.3 is an enlarged sectional schematic view of the front waistline region or the rear waistline region in the embodiment of Fig.1.

Fig.4 is a schematic view of a second embodiment of the absorbent article according to the present disclosure after unfolding, showing partial sectional structure;

Fig.5 is a schematic view of a third embodiment of the absorbent article according to the present disclosure after unfolding, showing partial sectional structure;

Fig.6 is a schematic view of a fourth embodiment of the absorbent article according to the present disclosure after unfolding, showing partial sectional structure;

Fig.7 is a schematic view of a fifth embodiment of the absorbent article according to the present disclosure after unfolding, showing partial sectional structure;

Fig.8 is a schematic view of a sixth embodiment of the absorbent article according to the present disclosure after unfolding, showing partial sectional structure; and

Fig.9 is a schematic view of a seventh embodiment of the absorbent article according to the present disclosure after unfolding, showing partial sectional structure.

DETAILED DESCRIPTION OF THE INVENTION

The implementation and use of the embodiments are discussed in detail below. However, it should be understood that the discussed embodiments of the present disclosure are only illustrative of the specific embodiments of the present disclosure and are not intended to limit the scope of the disclosure. In the description, the orientation representations of the structural positions of various components, such as up, down, top, bottom, etc., are not absolute, but

rather relative. These orientation representations are appropriate when the various components are arranged as shown in the figures, but change accordingly when the positions of the various components in the drawings change.

As used herein, “front” refers to a side facing the abdomen of the human body, and
5 “rear” refers to a side facing the back of the human body. “Lateral direction” refers to a direction along the waistline of the human body, and “longitudinal direction” refers to a direction along the length of the human body, more specifically, a direction from one of the abdomen and the back to the other through the crotch. “Inside” refers to the skin side that is close to the human body, and “outside” refers to the opposite side that is far away from the
10 human body. “Side” refers to an edge that extends in the longitudinal direction, and “end” refers to an edge that extends in the lateral direction.

As used herein, “disposable absorbent articles” include, but are not limited to, pant-type sanitary napkins, panty-type closed diapers, defecation training pants or incontinence patient
15 panties. Each type of absorbent article includes a front waistline region that primarily fits the abdomen of the human body, a rear waistline region that primarily fits the back of the human body, and a crotch region between the two regions, wherein two sides of the front waistline region and two sides of the rear waist region are respectively connected to form a waistline opening, and two sides of the crotch region extend to the front waistline region and the rear
20 waistline region and are connected to each other to form a pair of thigh openings. Further, in the crotch region, the absorbent article further includes an absorbent body disposed on the crotch region.

As used herein, “liquid permeable surface layer” refers to a nonwoven fabric having hot melt fibers with surface hydrophilic treatment and permeability to liquid, comprising a liquid permeable surface layer and a liquid permeable guide layer. “Liquid-impermeable bottom
25 layer” refers to a breathable film layer, a cast film layer or a composite base film layer of a breathable film layer and a nonwoven fabric which is applied to an absorbent article to block the outward penetration of a liquid.

In the disposable absorbent article, in order to improve the compactness to the surface of the human body, an appropriate portion such as a thigh circumference or a waistline
30 circumference is generally imparted with extensibility. As a method of imparting waistline

extensibility, the following three methods can be employed:

1. A method of horizontally arranging and fixing a plurality of elongated elastic extensible members such as rubber bands in a state of extending in the lateral direction.

2. A method of placing the elastic film in a region extending in the lateral direction and fixing it.

3. A method of placing the elastic nonwoven fabric in a region extending in the lateral direction and fixing it.

All of the above methods can better impart waistline extensibility. However, the first method uses the rubber band, thus the extensibility is unevenly distributed in the waistline region; and the rubber band is tight at the time of use, and the body feels uncomfortable. The second method and the third method also cannot provide extensibility in the entire waistline region, but provide extensibility in a partial region such as only two sides of the waistline region or the front and rear waistline regions, thus the extensibility on the entire waistline is not uniform.

In order to further improve the use comfort of the absorbent article, the present disclosure advantageously provides at least one extensible region in the front waistline region and/or the rear waistline region, and the extensible region comprises at least one nonwoven fabric layer and at least one layer of elastic mesh fabric. It will be understood that the elastic mesh fabric has a good elasticity in the lateral direction and the longitudinal direction. Therefore, the multi-directional function such as uniform waistline elasticity, comfortable compactness, size adjustment, dry and breathability are realized through the extensible region and the mesh structure.

The elastic mesh fabric may be any conventional high molecular polymer used for textile or cloth, such as, but not limited to, Lycra, spandex (polyurethane fiber), polyester (PET, polyethylene terephthalate), nylon (polyamide) and combinations thereof.

As an example, a plurality of extensible regions can be arranged in a circular, rectangular or polygonal form on the front waistline region and/or the rear waistline region.

In various embodiments, the extensible region can also be integrally formed with the front waistline region and/or the rear waistline region.

In some embodiments, the extensible region is disposed across the whole of the front

waistline region and the rear waistline region along the lateral direction, and comprises a first (outer) nonwoven fabric layer and a second (inner) nonwoven fabric layer, and a layer of elastic mesh fabric disposed between the two layers.

Alternatively, the extensible region may also be compounded of a nonwoven fabric layer and a layer of elastic mesh fabric. In some embodiments, the elastic mesh fabric is more close to a skin side of the human body than the nonwoven fabric layer. In other embodiments, the nonwoven fabric layer is more close to the skin side of the human body than the elastic mesh fabric.

The nonwoven fabric layer is a single-component or multi-component single-layer or multi-layer composite structure, and has a fineness of 0.1 to 7 dtex and a basis weight of 5 to 60 gsm, preferably 10 gsm to 25 gsm. The elastic mesh fabric has an elastomer content of 5% to 100%, a fineness of 20 to 1240 dtex, and a basis weight of 20 to 200 gsm. The composite process of the elastic mesh fabric and the nonwoven fabric layer includes, but is not limited to, adhesive bonding, ultrasonic welding, hot melt pressing, mechanical connecting, or a combination thereof. When an adhesive (such as glue) is used to composite the elastic mesh fabric and the nonwoven fabric layer, it is suitable to choose an adhesive having a softening temperature much higher than the body temperature of the user, so that the cured adhesive does not soften and stick to the skin of the user when worn, thereby avoiding discomfort or adverse effects on the user.

In some embodiments, the extension ratio of the extensible region is preferably 1.2 to 8, more preferably 1.5 to 4. The extension ratio refers to a ratio of the lateral width of the extensible region in the ultimate extended state to the lateral width in the non-extended state. Alternatively, the extensible region is configured with an extension ratio continuously increasing from the crotch region to the waistline opening, and by continuously changing in the extending direction, the change of the contraction amount becomes continuous, satisfying the requirement that the waistline opening region has stronger contraction than the crotch region.

In some embodiments, it is also conceivable to provide an elastomer or a belt-like extensible nonwoven fabric in the waistline opening region without changing the extension ratio of the extensible region, so as to meet the requirement for an increase in the elasticity of

the waistline opening.

As described above, the absorbent article of the present disclosure simultaneously has good breathability which encompasses the breathability of the front waistline region and/or the rear waistline region itself, as well as the breathability of the extensible region. For the extensible region, the mesh structure of the elastic mesh fabric is helpful for the steam to pass through. For example, when the elastic mesh fabric is compounded with at least one nonwoven fabric layer by ultrasonic welding, in the compounding process, the ultrasonic welding device is in vibration contact with the welding bump on the bottom roller at a high frequency (for example, 20k Hz) high speed, and the heat is generated by friction to cause the elastic mesh fabric to be fusion-bonded to at least one nonwoven fabric layer, and the welding bump on the bottom roller may be configured to have pattern shape (for example, a wave shape).

In some embodiments, the elastic mesh fabric of the waistline region is compounded between two nonwoven fabric layers by an ultrasonic welding process. Some or even most of the ultrasonic welding points are located in the mesh structure of the elastic mesh fabric, that is, the two nonwoven fabric layers are directly compounded together in part of the mesh structure of the elastic mesh fabric.

In some embodiments, air-through holes passing through the two nonwoven fabric layers and the elastic mesh fabric therebetween are formed at least part of the ultrasonic welding points. In some embodiments, the distribution of the air-through holes in the waistline region is not uniform, that is, there are regions where the air-through holes are dense and regions where the air-through holes are sparse.

It should be understood that the parameter limits such as the elastomer content, the basis weight, the extension ratio and the fineness can be appropriately changed according to actual needs, and are generally within the above range. Further, the above elastomer may be any one of various known elastic members such as rubber band, Lycra silk, spandex or the like.

The technical solutions of the optional embodiments of the present disclosure will be clearly and completely described below with reference to the accompanying drawing.

Figs.1-3 illustrate a first embodiment of an absorbent article according to the present disclosure. In this embodiment, the absorbent article is a pant type sanitary napkin 1,

comprising a front waistline region 11, a rear waistline region 12 and a crotch region 13 between the front waistline region 11 and the rear waistline region 12, wherein two sides of the front waistline region 11 are respectively connected to two sides of the rear waistline region 12 to form a waistline opening 14. For example, a lateral side 111 of the front waistline region 11 is connected to a lateral side 121 of the rear waistline region 12 by ultrasonic welding or hot roll bonding and any other suitable means. Alternatively, after the absorbent article is used, it can be quickly removed by disconnecting the lateral sides. Additionally, two sides of the crotch region 113 extend to the front waistline region 11 and the rear waistline region 12 and connected to each other to form a pair of thigh openings 15. For example, in this embodiment, the crotch region 13 has a front connecting portion 131 and a rear connecting portion 132 at two ends. The front connecting portion 131 is connected to the skin side of the front waistline region 11 for example by an adhesive, and the rear connecting portion 132 is connected to the skin side of the rear waistline region 12 for example by an adhesive.

Fig.2 illustrates a structure view of the pant type sanitary napkin of the present embodiment after unfolding. As shown in the drawing, the front waistline region 11, the crotch region 13 and the rear waistline region 12 after unfolding have a I-shaped structure. The front waistline region 11, the crotch region 13 and the rear waistline region 12 are three generally dependent members, and are connected together in the manufacturing process. The extensible region is disposed across the whole of the front waistline region 11 and the rear waistline region 12 along the lateral direction, and comprises a first nonwoven fabric layer 161, a second nonwoven fabric layer 162 and an elastic mesh fabric 163 compounded between the first nonwoven fabric layer 161 and the second nonwoven fabric layer 162, as shown in Fig.3. In a preferable embodiment, the mesh structure of the elastic mesh fabric can provide a good breathability. The crotch region 13 is illustrated to have a rectangular sheet shape, and comprises a liquid permeable surface layer 133 at the skin side and a liquid impermeable bottom layer 134 at the outer side. An absorbent body 17 is arranged in the crotch region 13. In this embodiment, the absorbent body 17 has an absorbent core 171 arranged between the liquid permeable surface layer 133 and the liquid impermeable bottom layer 134. The absorbent core 171 may be superabsorbent fiber material which can be glued

with the liquid permeable surface layer 133 and the liquid impermeable bottom layer 134 of the crotch region 13, or be configured to be absorbent material covered between a core liquid permeable cover layer and a core liquid impermeable bottom layer. The side edges of the core liquid permeable cover layer and the core liquid impermeable bottom layer are connected to each other and also connected to the liquid permeable surface layer 133 and the liquid impermeable bottom layer 134 of the crotch region 13.

In this embodiment, it can be seen from Fig.2 that the elastic mesh fabric 163 does not extend to the ends of the front waistline region and the rear waistline region, and the ends of the front waistline region and the rear waistline region comprise at least one elastomer 18 such as an elastic rubber band compounded between the first nonwoven fabric layer 161 and the second nonwoven fabric layer 162 and extending along the lateral direction. The first and second nonwoven fabric layers have a single-component single-layer structure with a fineness of 0.1~7dtex and a basic weight of 10~60gsm. The elastic mesh fabric 163 has an elastomer content of 5% to 100%, a fineness of 20 to 1240 dtex, and a basic weight of 20 to 200 gsm. The extensible region can be elastically extensible by 1.5 to 8 times in the waistline direction, and is wrinkled in a natural state, so that when being worn, the front waistline region 11 and the rear waistline region 12 have uniform elastic extensibility on the entire surface, and can be extended and adjusted along at least the lateral direction and the longitudinal direction, and are naturally contracted after being worn, so that the pant body fits the human skin without a tightening feeling.

It should be understood that the elastomer 18 disposed at the ends of the front waistline region and the rear waistline region enables the waistline opening to have an increased extension ratio to meet the user's requirement for a snug compactness. Meanwhile, in order to improve the comfort of the pant type sanitary napkin, the thigh openings may also be provided with an elastic contraction structure (not shown). For example, the thigh openings may be preferably provided with at least one elastic rubber band elongated in the longitudinal direction and arranged side by side in the lateral direction. During preparation, the elastic rubber band is extended according to a certain extension ratio, and is adhered to the opening edges of the waistline opening and the thigh openings by hot melt bonding according to a predetermined arc and length, and the extended elastic rubber band is restored to the natural

state after formation so that the waistline opening and the thigh openings are contracted to form a wrinkle portion, thereby preventing a body fluid leakage during use.

It should also be understood that when preparing, the elastic mesh fabric 163 is extended at a preset extension ratio and placed in an elastic recovery range; then, two nonwoven fabric layer 161, 162 having the same size as the elastic mesh fabric 163, are respectively attached to two sides of the elastic mesh fabric 163, and are compounded by a discontinuous or continuous compounding manner. After the completion of the compounding, in the non-extended state, the nonwoven fabric layers 161, 162 are elastically deformed to form wrinkles with the elastic mesh fabric 163. The discontinuous or continuous compounding manner may be hot rolling, chemical bonding or ultrasonic welding. Due to the breathability of the elastic mesh fabric, during the production, the elastic mesh fabric are compounded with the two nonwoven fabric layers in turn, thus an integral physical perforation is not needed in the front waistline region 11 and the rear waistline region 12, but it does not exclude the additional process of physical perforation. Preferably, the opening diameters of the two side nonwoven fabric layer and the elastic mesh fabric 163 are kept uniform.

In a preferred embodiment, the nonwoven fabric layers 161, 162 and the elastic mesh fabric 163 are compounded together by using ultrasonic welding compounding process. By using ultrasonic welding compounding process, the extensible region does not need to add glue, which reduces the risk to the health of the user due to flow of glue caused by the sweat immersion in the user's waistline. The mesh structure of the elastic mesh fabric 163 in the waistline region greatly improves the permeability of the waistline region, reduces the possibility of the sweat immersion in the user's waistline, and improves user comfort and further reduces the possible risk to the health of the user. Air-through holes may also be formed at part of the ultrasonic welding points in order to further improve the breathability of the waistline region.

Fig.4 illustrates a second embodiment according to the present disclosure. In this embodiment, a pant type sanitary napkin 2 comprises a front waistline region 21 and a rear waistline region 22. An absorbent core 271 of an absorbent body 27 is arranged between a liquid permeable surface layer 233 and a liquid impermeable bottom layer 234 of the crotch region. As compared with the above embodiment, the difference is that a lateral side 221 of

the rear waistline region 22 is connected with a strip fastener 222, and accordingly, a lateral side 211 of the front waistline region 21 is provided with a connecting portion for cooperating and connecting with the strip fastener 222. When being worn, the strip fastener 222 may be connected with the connecting portion, without connecting the lateral side 211 of the front waistline region 21 and the lateral side 221 of the rear waistline region 22. The connection between the strip fastener 222 and the connecting portion may be gluing or snap compactness connection, thereby obtaining a quick and easy wearing and removing. It should be understood that the strip fastener may also be arranged in the front waistline region.

Fig.5 illustrates a third embodiment according to the present disclosure. In a pant-type sanitary napkin 3 of this embodiment, two sides of a crotch region 33 with an absorbent body 17 thereon extend to a front waistline region 31 and a rear waistline region 32 and formed in one piece. An elastic mesh fabric 363 is compounded between a first nonwoven fabric layer 361 and a second nonwoven fabric layer 362 and comprises at least one elastomer 38 arranged at the ends of the front waistline region and the rear waistline region. The first nonwoven fabric layer 361 is a whole piece extending in the front waistline region 31, the rear waistline region 32 and the crotch region 33. The elastic mesh fabric 363 and the second nonwoven fabric layer 362 extend in the front waistline region 31 and the rear waistline region 32, as shown by the dotted lines in the drawing.

Alternatively, the nonwoven fabric layers 361 and 362 may be a multi-component multilayer composite structure having a fineness of 0.1 to 7 dtex and a basis weight of 5 to 60 gsm.

Fig.6 illustrates a fourth embodiment similar to the embodiment shown in Fig.5. In this embodiment, a first nonwoven fabric layer 461 of a pant-type sanitary napkin 4 extends over a front waistline region 41, a rear waistline region 42 and a crotch region 43, and an elastic mesh fabric 463 and a second nonwoven fabric layer 462 extend over the front waistline region 41 and the rear waistline region 42, and an absorbent body 47 covers the crotch region 43 and extends to the front waistline region 41 and the rear waistline region 42. Further, the first nonwoven fabric layer 461 extends beyond the elastic mesh fabric 463 and the second nonwoven fabric layer 462, and is folded inwards at the ends of the front waistline region 41 and the rear waistline region 42 and covers the second nonwoven fabric layer 462.

Alternatively, the inwardly folded portion 464 of the first nonwoven fabric layer 461 substantially covers at least one elastomer 48 disposed in the waistline opening.

Fig.7 illustrates a fifth embodiment similar to the embodiment shown in Fig.5. In this embodiment, a first nonwoven fabric layer 561 of a pant-type sanitary napkin 5 extends over a front waistline region 51, a rear waistline region 52 and a crotch region, and an elastic mesh fabric 563 extends over the front waistline region 51 and the rear waistline region 52, and an absorbent body 57 covers the crotch region and extends to the front waistline region 51 and the rear waistline region 52. In this embodiment, a second nonwoven fabric layer 562 extending over the rear waistline region 52 extends to a portion of the crotch region, and, in addition to the elastomer 58 disposed in the waistline opening, at least one elastomer 59 curvedly extending in the lateral direction is compounded between the first nonwoven fabric layer 561 and the second nonwoven fabric layer 562 at a position without elastic mesh fabric. Thereby, the compactness and comfort of the crotch region is particularly enhanced.

Fig.8 illustrates a sixth embodiment similar to the embodiment shown in Fig.5. In this embodiment, a first nonwoven fabric layer 661 of a pant-type sanitary napkin 6 extends over a front waistline region 61 and a rear waistline region 62 and a crotch region, and an elastic mesh fabric 663 extends over the front waistline region 61 and the rear waistline region 62, and an absorbent body 67 covers the crotch region and extends to the front waistline region 61 and the rear waistline region 62. In this embodiment, two sides of an absorbent body 67 are provided with a protective enclosure 674, the side edges of which are folded inwards and cover at least one elastomer (not shown) extending in the longitudinal direction to form a three-dimensional protective enclosure 675 so as to help avoiding a body fluid leakage when the user is in a position such as lying on the side. The protective enclosure 674 can be made from a skin-friendly nonwoven fabric layer material.

As can also be seen in Fig. 8, a protective sheet 676 may be provided at both ends of the absorbent body 67, preferably a sheet-like structure made of a high flexible nonwoven fabric material. The protective sheet 676 covers the end of the absorbent body 67 and is connected to the second nonwoven fabric layer 662 by hot roll bonding. In this way, it can avoid the ends of the absorbent body 67 and the side protective enclosure from directly contacting the human body when being worn, and thus the human skin is not scratched.

Fig.9 illustrates a seventh embodiment similar to the embodiment shown in Fig.5, wherein an absorbent body 77 of a pant-type sanitary napkin 7 covers a crotch region 73 and extends to a front waistline region 71 and a rear waistline region 72, and at least one elastomer 78 is arranged in the front waistline region and the rear waistline region. In this embodiment, the lateral sides of the rear waistline region 72 are connected with a strip fastener 722. Accordingly, the lateral sides of the front waistline region 71 may be provided with a connecting portion for cooperating and connecting with the strip fastener 722, for example a tape or a buckle. It should be understood that the strip fastener may also be disposed on the front waistline region.

The technical contents and technical features of the present disclosure have been disclosed above, but it should be understood that under the creative idea of the present disclosure, those skilled in the art can make various changes and improvements to the above disclosed concepts, which are all belong to the protection scope of the present disclosure. The description of the above embodiments is illustrative and not restrictive, and the scope of the present disclosure is defined by the claims.

Claims

1. A disposable absorbent article comprising a front waistline region, a rear waistline region and a crotch region between the front waistline region and the rear waistline region, two sides of the front waistline region being respectively connected to two sides of the rear waistline region to form a waistline opening, and two sides of the crotch region respectively extending to the front waistline region and the rear waistline region to form a pair of thigh openings;

wherein the front waistline region and/or the rear waistline region are provided with at least one extensible region comprising a first nonwoven fabric layer, a second nonwoven fabric layer and an elastic mesh fabric compounded between the first nonwoven fabric layer and the second nonwoven fabric layer; and

wherein the first nonwoven fabric layer, the second nonwoven fabric layer and the elastic mesh fabric are compounded by ultrasonic welding, and a plurality of air-through holes passing through the nonwoven fabric layer and the elastic mesh fabric are formed in at least part of ultrasonic welding points.

2. A disposable absorbent article according to claim 1, wherein the extensible region is disposed across the whole of the front waistline region and the rear waistline region along a lateral direction.

3. A disposable absorbent article according to claim 2, wherein the elastic mesh fabric does not extend to the ends of the front waistline region and the rear waistline region, and the ends of the front waistline region and the rear waistline region comprise at least one elastomer compounded between the first nonwoven fabric layer and the second nonwoven fabric layer and extending along the lateral direction.

4. A disposable absorbent article according to claim 3, wherein the first nonwoven fabric layer extends over the front waistline region, the rear waistline region and the crotch region, while the elastic mesh fabric and the second nonwoven fabric layer extend over the front waistline region and the rear waistline region.

5. A disposable absorbent article according to claim 4, wherein the first nonwoven fabric layer extends beyond the elastic mesh fabric and the second nonwoven fabric layer, and is folded inwards at the ends of the waistline opening to cover the second nonwoven fabric layer.

5 6. A disposable absorbent article according to claim 4, wherein the second nonwoven fabric layer extends from the rear waistline region to a portion of the crotch region, and at least one elastomer extending curvedly in the lateral direction is compounded between the first nonwoven fabric layer and the second nonwoven fabric layer at a position without elastic mesh fabric.

10 7. A disposable absorbent article according to claim 1 or 2 wherein the extensible region is configured with an extension ratio increasing continuously from the crotch region to the waistline opening.

15 8. A disposable absorbent article according to claim 1 or 2, wherein the extensible region is configured with an extension ratio of 1.2 to 8.

20 9. A disposable absorbent article according to claim 1 or 2, wherein the extensible region is configured with an elastomer content of 5% to 100%, a fineness of 20 to 1240 dtex and a basic weight of 20 to 200 gsm.

 10. A disposable absorbent article according to claim 1 or 2, wherein the elastic mesh fabric is compounded with at least one nonwoven fabric layer continuously or discontinuously.

25 11. A disposable absorbent article according to claim 1 or 2, wherein further comprising an absorbent body extending from the crotch region to the front waistline region and the rear waistline region; and wherein two sides of the absorbent body are provided with a protective enclosure, and two sides of the protective enclosure are folded inwards to cover at least one elastomer extending in a longitudinal direction to form a three-dimensional protective enclosure.

30

12. A disposable absorbent article according to claim 11, wherein two ends of the absorbent body in the longitudinal direction are covered with a protective sheet respectively.