Title: PANT-LIKE DISPOSABLE ABSORBENT ARTICLE WITH A TAG FORMED BY SIDE SEAM REINFORCEMENT

Abstract: The present invention relates to a pant-like disposable absorbent article (1), such as diaper or incontinence pants, with a longitudinal direction (y) and a transverse direction (x), comprising, as seen in the longitudinal direction, a front portion (2), a rear portion (3) and an intermediate crotch portion (4) provided with two leg openings, the outer longitudinal edge portions of the front portion (2) being connected by longitudinal side seams (5, 5') to the outer longitudinal edge portions of the rear portion (3), wherein - at least one (5) of said side seams is reinforced by at least one material strip (6) extending longitudinally along the longitudinal edge portion of the front or rear portion (2, 3) and being included in said side seam (5), - the material strip forming an inner portion extending transversely from the side seam (5) towards the centre of said front or rear portion. The inner portion of the material strip (6) forms a tag (7), the tag (7) extending freely from an attachment end (9) towards a free end, so as to be tactiley distinguishable by a user. The invention also relates to a method for forming a pant-like disposable absorbent article.
PANT-LIKE DISPOSABLE ABSORBENT ARTICLE WITH A TAG FORMED BY SIDE SEAM REINFORCEMENT

TECHNICAL FIELD

The present invention relates to a pant-like disposable absorbent article. Such articles include, for example, child and adult pull-up diapers, training pants, adult incontinence pants, and swim pants.

The invention also relates to a method for forming a pant-like disposable absorbent article.

BACKGROUND OF THE INVENTION

Pant-like disposable absorbent articles, in the form of e.g. diaper pants for children and adults or incontinence articles, are absorbent articles which are intended to be pulled-up as regular underwear. To this end, pant-like disposable absorbent articles generally comprise a front portion, a rear portion and a crotch portion, wherein the front and rear portion are connected by longitudinal side seams. The side seams may be possible to open and to reclose, or may be non-reclosable.

One example of a pant-like absorbent article and the production thereof is disclosed in WO 2006/093444. This pant-like article is particularly advantageous in that the side seams formed along the sides of the article, which connect the front and back side thereof, is reinforced by a nonwoven strip containing thermoplastic fibres. The nonwoven strip acts as a reinforcement material, so as reinforce the side seams resulting in a pant being particularly resistant to breaks in the side seams when stressed, such as when pulled over a user's hips.

For correctly positioning the pant-like articles, the front and back side thereof must be identified by a wearer or a helper, such as a parent or nursing staff. Today, this might be a difficult task, in particular if the person to apply the pants is not used to this type of garment. Moreover, some users, such as elderly people, may suffer from poor eye sight which may render the task of identifying the front and back of the pant more difficult.
Moreover, there is a need for ensuring that the proper pant-like article is selected for the particular wearer, e.g. that the size or absorption properties of the article are suitable to the wearer. To this end, it is desired to convey information regarding the article's properties to the wearer or helper, so that the article may easily be identified.

In addition, there is a general desire to make the pant-like products as aesthetically pleasing and preferably as similar to regular undergarments as possible. This is particularly the case for products that are to be worn by adult users. For adults, the use of an aesthetically pleasing product may considerably lessen the inconveniences that may be perceived when using e.g. incontinence products.

To merely print the articles with a large indicium indicating e.g. the front and back side of the product is therefore not desired. Instead, it has been proposed to provide the article with a label or tag, optionally carrying an indicium. A label or tag which is tactiliy distinguishable by a user is particularly preferred, since the positioning of the tag may be used to indicate e.g. front and back of the article. Also users having impaired sight may hence easily identify the front and back of the article by sensing the location of the tag in the article.

US 2007/0265591 describes a disposable absorbent article, which is provided with a removable indicium positioned on the waistband of the article. The removable indicium could be a removable label, including information e.g. "Back" if the label is positioned on the back side of the product.

Previously proposed solutions including the addition of a label or tag presents a disadvantage in that the application of the tag to the article must be made in a new, separate manufacturing step.

Accordingly, there is a need for providing an alternative pant-like absorbent article including a tag, for which other manufacturing methods are possible. Preferably, the alternative pant-shaped absorbent article should be possible to manufacture in a cost-efficient manner, and advantageously in a manner which may easily be adapted to existing production facilities. Moreover, the absorbent article should preferably be aesthetically pleasing. Finally, the absorbent article should fulfill other requirements for such articles, such as pertaining to strength or absorption properties.
The object of the present invention is to provide a pant-shape absorbent article fulfilling at least one of the above-mentioned needs.

5 SUMMARY OF THE INVENTION

The above-mentioned object is achieved by a pant-like disposable absorbent article, such as diaper or incontinence pants, with a longitudinal direction and a transverse direction, comprising, as seen in the longitudinal direction, a front portion, a rear portion and an intermediate crotch portion provided with two leg openings, the outer longitudinal edge portions of the front portion being connected by longitudinal side seams to the outer longitudinal edge portions of the rear portion. At least one of said side seams is reinforced by at least one material strip extending longitudinally along the longitudinal edge portion of the front or rear portion and being included in said side seam. The material strip forms an inner portion extending transversely from the side seam towards the centre of said front or rear portion. The inner portion of the material strip forms a tag, which extends freely from an attachment end towards a free end, so as to be tactiley distinguishable by a user.

As mentioned above, a pant-like article including a reinforcement material strip is disclosed in WO 2006/093444. By using the reinforcement material strip for forming the freely extending tag, which may tactiley identified by a user, the problem of indicating e.g. the back and the front portion of the article to a user may be solved using material already existing in the absorbent article. Accordingly, only minimal adaptation of existing manufacturing processes is required for forming the tag.

Moreover, it has been found that a freely extending tag may be formed without substantially impairing the reinforcing effect of the reinforcement material. The tag extending freely means that the tag is attached to the front or rear portion of the pant-like absorbent article only at the attachment end thereof. This attachment end could coincide with the side seam, which provides attachment to the front or rear portion, or could be attached to the front or rear portion at a distance from the side seam by some other means, e.g. by an adhesive or by a separate weld connection.

It will be understood that the tag will be located in or adjacent to the side seam of the article, rather than being centrally positioned on the rear or front portion thereof. However, the location of the tag may nevertheless be used for correctly positioning the article, as
the user learns that the tag shall be located eg on the right hand side of the wearer for a correct position

The material strip may, as in the prior art, advantageously be formed from a nonwoven material, preferably containing thermoplastic material

Advantageously, the material strip extends along at least 50% of the length of the side seam, preferably along at least 60% of the length of the side seam, most preferred along at least 70% of the side seam. Advantageously, the material strip could extend along substantially the entire length of the side seam. The reinforcement function of the material strip will generally be more efficient if the strip extends over the side seams as indicated above.

The tag could have any shape and any extension direction. However, preferably, the tag extends freely in the transverse direction, towards the centre of the front or rear portion, from an attachment end, to a free end. The tag extending in the transverse direction means that it may conveniently be formed by eg forming slits or protrusions from the longitudinal inner end of the strip. Moreover, a transversely extending tag is believed to be more easily discerned when the article is brought to an open position, as before pulling it on, than eg a longitudinally extending tag.

In one embodiment, the tag may be formed by a portion of the material strip having a width in the transversal direction being greater than the portions located upper and lower of said tag as seen in the longitudinal direction of the strip. In this case, the tag will be protruding from the longitudinal edge of the strip, or at least from the longitudinal edge portions of the strip being located adjacent to the tag. In this embodiment, additional amounts of material may be necessary for forming the product since some residue reinforcement material may have to be discarded when forming the protruding tag eg from a material sheet. However, it is feasible to form subsequent material strips from a reinforcement material sheet by letting the protrusion for forming the tab belonging to one strip correspond to an indentation in the subsequently formed strip. The strip carrying the indentation may be used as an additional reinforcement strip in the product. By this method, no residue reinforcement material will need to be discarded.
In another embodiment, the tag formed by the inner portion of the material strip being provided with slits. This is advantageous as the tag may easily be formed from strip material without formation of any residue material which needs to be discarded. Slits may be used to form any shape of the tag, and to form tags extending in any direction.

However, it is particularly preferred that the slits extend transversely from the longitudinal inner edge of the material strip, so as to form a transversely extending tag. This option displays the benefits of transversal tags as set out in the above and is moreover believed to be particularly advantageous in terms of facilitating production.

When the tag is formed by slits in the strip, the strip may advantageously have a uniform transversal width throughout its longitudinal length.

Preferably, an upper end of said tag is located at a distance from the upper end of the side seam. This means that the tag will extend from the side seam at a distance from the upper end thereof. This is advantageous for maintaining the strength of the side seam in the upper end of the article.

Preferably, a lower end of said tag is located at a distance from the lower end of said side seam. This means that the tag will extend from the side seam at a distance from the lower end thereof. This is advantageous for maintaining the strength of the side seam in the lower end of the article.

Advantageously, said distance(s) is/are greater than 1 cm, preferably greater than 2 cm.

Preferably, the inner portion of the material strip forms an upper portion being located above said tag, and/or a lower portion being located below said tag, wherein said upper and/or lower portion is at least partly attached to the front or rear portion of the pant-like absorbent article. The tag should however be free from attachment to the underlying material, apart from at it's attachment end. The attachment of the material strip's upper and lower portions, which do not form part of the tag, to the front or rear portion of the article may be beneficial for the reinforcement effect of the strip. Moreover, the upper and lower portions being attached to the underlying material will provide a contrast to the freely extending tag, meaning that the tag is rendered easier to identify.
In one embodiment, the upper and/or lower portions of the material strip may be attached to the underlying material of the front or rear portion using an adhesive. In this case, the freely extending tag would be free from adhesive.

Several tags could be formed in one product. For example, the left and right sides of the article could be indicated by one tag in each side seam, said tags being tactilely different, e.g., being differently shaped.

However, preferably only one single of said two side seams of the article is provided with a tag. This is preferred, as it is believed to be easier to learn that, if you find a tag, that tag shall have a specific direction when the article is pulled on, than to discern between different tags.

Moreover, it is particularly preferred that only one single tag is applied to each article. The location and shape of such a tag could be used to indicate the left or right side of the article, and/or to indicate a particular type of product or size.

Moreover, the tag may be provided with an indicium. Advantageously, the indicium may be used to indicate product information, preferably any one of size, absorption capacity, brand name, left/right side of the product, or inside/outside of the product. Different types of indicia may be used, e.g., tactile indicia such as an embossment, geometrical indicia such as different shapes or sizes or tags, or cut-outs in the tags. Most preferred is however a printed indicium.

Advantageously, said indicium is non-removable.

Preferably, the longitudinal length of the tag is less than the longitudinal length of the reinforcement strip, preferably less than a third of the length of the reinforcement strip, most preferred less than a quarter of the length of the reinforcement strip.

The longitudinal length of the tag may be less than 5 cm, preferably between 1 and 5 cm, most preferred between 2 and 4 cm.

Preferably, the transversal width of the strips is greater than 2 cm, preferably between 2 and 15 cm, most preferred between 2 and 10 cm.
Advantageously, the transversal width of the tag is greater than 0.5 cm, preferably greater than 1 cm, most preferred greater than 2 cm.

The above measures for the tag are believed to be beneficial in terms of ensuring that them tag is perceived as a tag with the function of carrying information. Moreover, it is believed that the measures may be beneficial in some embodiments for ensuring that the reinforcement function of the material strip is not substantially impaired.

The material strip with the tag may be provided on the inside or the outside of the absorbent article, while providing both reinforcement to the seam and fulfilling the purpose of carrying information.

However, it is preferred that the material strip with said tag is provided on the inside of the absorbent article. This enables more aesthetical solutions where the outside of the article will be more similar to regular underwear.

In a second aspect, the invention relates to a method for forming a pant-like absorbent article, such as diaper or incontinence pants, with a longitudinal direction (y) and a transverse direction (x), comprising, as seen in the longitudinal direction, a front portion, a rear portion and an intermediate crotch portion provided with two leg openings, the outer longitudinal edge portions of the front portion being connected by longitudinal side seams to the outer longitudinal edge portions of the rear portion, comprising:

- including a material strip in at least one of said side seams for reinforcement thereof, such that the material strip extends longitudinally along said side seam, and that the material strip forms an inner portion extending transversely from the side seam (5) towards the centre of the front or rear portion of the article,
- the inner portion of said material strip forming a tag
- the material strip being applied such that said tag extends freely from an attachment end (9) towards a free end.

Various embodiments of the method may be imagined, in particular in relation to different desired features of the articles as explained in the above.

In a preferred embodiment, the method includes in-line formation of chassis for pant-like disposable articles.
- wherein a chassis includes a front portion, a rear portion and an intermediate crotch portion to form a pant-like product,
- said chassis being formed one after the other along a transverse feeding direction, such that a longitudinal edge portion of a front or rear portion of an initial chassis meets the longitudinal edge portion of a front or rear portion of a consecutive chassis at a predetermined separation line,

and said step of including a material strip in at least one of said side seams includes
- attaching a reinforcement material extending longitudinally over the predetermined separation line, such that reinforcement material extends transversely on both sides of the predetermined separation line, over both the initial and the consecutive chassis, and
- said reinforcement material forming at least one tag over at least one of said initial and said consecutive article, wherein the tag is free from attachment to the underlying chassis material, for forming a freely extending tag in the final pant-like article

Advantageously, the method comprises the additional step of
- transversely folding the chassis and welding along the longitudinal ends, so as to form side seams extending along the longitudinal ends of the articles

Preferably, the method comprises additional step of separating the chassis by cutting along the pre-determined separation line Advantageously, cutting along said pre-determined separation line results in the separation of the reinforcement material, such that the reinforcement material forms two reinforcement strips, one for each chassis Advantageously, the step of transversely folding the chassis and welding the end seams is performed before separating the chassis by cutting along the pre-determined separation line

Preferably, the tag is provided with an indicium The indicium may advantageously be provided on the reinforcement material to form the material strip prior to the attachment thereof to the chassis

BRIEF DESCRIPTION OF THE DRAWINGS

In the following, the invention will be described in relation to exemplary embodiments in connection with the appended drawings, wherein
Fig 1 is a perspective view of an absorbent pant-like article in accordance with an embodiment of the invention,
Fig 2a is a front view of the inside of the front portion of the article in Fig 1,
Fig 2b is a front view of the inside of the front portion of a second embodiment of an article in accordance with the invention,
Fig 3a illustrates in-line formation of chassis in accordance with an embodiment of the inventive method, and
Fig 3b is an enlarged portion of Fig 3a

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The invention will, in the following, be exemplified by embodiments. It is to be understood, however, that the embodiments are included in order to explain principles of the invention and not to limit the scope of the invention defined by the appended claims.

Figure 1 illustrates a pant-like disposable absorbent article 1. It extends in a transverse direction x and in a longitudinal direction y. The article comprises a front portion 2 intended during use to be worn against the front part of the wearer's body, a rear portion 3 intended during use to be worn on the rear part of the wearer's body, and an intermediate crotch portion 4 located between the front 2 and rear 3 portions. The crotch portion 4 is further provided with two leg openings, so that the crotch portion during use will be located in the crotch region of the wearer. Each longitudinal edge portion of the front portion 2 is connected to the corresponding longitudinal edge portion of the rear portion 3 by a longitudinal side seam 5, 5', thereby forming a waist opening and giving the article a pant-like shape.

The article 1 comprises an inner liquid permeable cover, an outer liquid impermeable cover and an absorbent body enclosed between the inner and outer cover. Alternatively, the absorbent body may be formed integral with one or both of the inner and outer cover.

The inner liquid permeable cover can consist of a nonwoven material, e.g., spunbond, meltblown, carded, hydroentangled, wetlaid etc. Suitable nonwoven materials can be composed of natural fibers, such as woodpulp or cotton fibers, manmade fibers, such as polyester, polyethylene, polypropylene, viscose etc., or from a mixture of natural and manmade fibers. The inner cover may further be composed of tow fibers, which may be bonded to each other in a bonding pattern, as e.g., disclosed in EP-A-1 035 818. Further
examples of materials suitable for inner covers are porous foams, apertured plastic films etc. The materials suited as inner cover materials should be soft and non-irritating to the skin and intended to be readily penetrated by body fluid, e.g. urine. The inner cover may be different in different parts of the absorbent article.

The outer liquid impervious cover is of a liquid impervious material, such as a thin plastic film, e.g. a polyethylene or polypropylene film, a nonwoven material coated with a liquid impervious material, a hydrophobic nonwoven material, which resists liquid penetration or a laminate comprising plastic films and nonwoven materials. The outer cover material may be breathable so as to allow vapour to escape from the absorbent body, while still preventing liquids from passing therethrough. Examples of breathable outer cover materials are porous polymeric films, nonwoven laminates from spunbond and meltblown layers, laminates from porous polymeric films and nonwovens.

The absorbent body can be of any conventional kind. Examples of commonly occurring absorbent materials are cellulose fluff pulp, tissue layers, highly absorbent polymers (so-called superabsorbents), absorbent foam materials, absorbent nonwoven materials or the like. It is common to combine cellulose fluff pulp with superabsorbents in an absorbent body. The thin absorbent bodies, which are common in for example baby diapers and incontinence guards, often comprise a compressed mixed or layered structure of cellulose fluff pulp and superabsorbent. The size and absorbent capacity of the absorbent body may be varied to be suited for different uses such as for infants or for incontinent adults.

The absorbent body may comprise one or more layers which may be selected to improve the handling of bodily waste. Such layers are designed to receive a large amount of liquid in a short space of time and distribute it evenly across the absorbent body. They may include so-called transfer, distribution, surge or acquisition layers, and are usually located between the inner cover material and the absorbent body. The absorbent body is at least located in the crotch portion 4 of the article 1, and may also extend somewhat into the front and rear portions 2, 3.

The inner and outer covers generally have a similar extension in the plane, while the absorbent body has an extension which is somewhat smaller. The inner and outer covers are joined to one another around the periphery of the absorbent body, so that the
absorbent body is enclosed within the envelope formed by the inner and outer covers. The inner and outer covers may be joined to one another by any means common in the art, e.g., ultrasonic welding, thermal welding or gluing.

As can be seen in Figure 1, in the illustrated embodiment the side seams 5, 5' have been reinforced with four material strips 6, 6', 6", 6"" (hatched area in Figure 1) which have been applied to the inside of the inner cover material at the front and rear portions 2, 3 of the article, and along the edge portions thereof. The material strips 6, 6', 6", 6"" extend in the longitudinal direction y along the longitudinal edge portion of the front 2 or rear portion 3 and are included in the side seams 5, 5'. Further, the material strips 6, 6', 6", 6"" have a width in the transverse direction x from the longitudinal edge of the front 2 or rear 3 portion towards the centre of the front 2 or rear 3 portion. The extension of a material strip between the side seam and the longitudinal edge of the material strip which is directed towards the centre of the article is referred to as the inner portion of the material strip.

The material strips 6, 6', 6", 6"" could be made of nonwoven, e.g., spunbond. Preferably the material strips 6, 6', 6", 6"" contain thermoplastic fibres, which upon welding will reinforce the seam. Preferably the material strips 6, 6', 6", 6"" are not stretched during application to the cover, such that the material strip retains its strength.

A part of the inner portion of one of the material strips 6 forms a tag 7. The inner portion of the material strip 6 is, as mentioned above, the portion of the material strip which is located inside of the side seam 5.

The tag 7 may be marked with an indicium 8 indicating for example product information, preferably any one of size, absorption capacity, brand name, left/right side of the product, or inside/outside of the product. In the illustrated embodiment, the tag 7 shows the size, M. The tag 7 is located distant from both the waist opening and the leg opening. The indicium 8 could be a print on the tag 7 or may be embossed to the tag 7, whereby the information could not only be seen but also tactiley perceived.

In the illustrated embodiment, only one of the side seams 5, 5' is provided with a material strip 6 forming one single tag 7. This is generally preferred, as explained in the above.
However, in other embodiments, both side seams could comprise tags 7, or a single side seam could comprise one, two or more tags 7. If more than one tag is used in the article, they could provide different information, e.g. one tag 7 for size information and another for brand information, or one tag for left-hand side and another for right-hand side.

It would also be possible to locate one or more of the reinforcing material strips 6, 6', 6", 6"" on the outside of the absorbent article 1. The tag 7 could then be positioned on the outside of the article 1. In this case, the tag is easily distinguishable from the outside, making it possible also for other persons than the wearer to touch or see it.

It is preferred to provide four reinforcing material strips, one for each of the front 2 and rear side 3 of each of the two side seams 5, 5' of the article. However, one could use fewer reinforcing material strips, for example two strips, wherein only one strip is arranged in each side seam of the article.

Figure 2a illustrates a part of the front portion 2 in more detail. The article 1 has been opened up, so that the front portion 2 is displayed as seen from inside the article 1 looking forwards. The material strip 6 lies flat on the inner cover of the front portion 2, and is attached thereto by the side seam 5. In addition, parts of the inner portion of the material strip 6 may be attached to the underlying inner cover, by means of for example gluing or welding.

The tag 7 extends freely towards the centre of the front portion 2, from an attachment end 9 to a free end 10. In this example, the tag 7 extends from a position located adjacent to the side seam 5. In other embodiments however, tag 7 may extend all the way from the side seam 5, that is, the side seam 5 coincides with the attachment end 9.

When the attachment end 9 does not coincide with the side seam 5, attachment means could be attached to the portion of the material strip 6 located immediately adjacent to the tag 7, so as to secure the attachment end 9 to the front or rear portion 2, 3 of the article.

The inner portion of the material strip 6 extending above and below the tag 7 forms an upper portion 11 and a lower portion 12. The directions above/below and upper/lower used herein are defined according to when the article 1 is mounted on a person standing
up. As is known in the prior art, the upper portion 11 and the lower portion 12 may be attached to the front or rear portion 2,3.

The edge of the tag 7 forms a free end 10, which may coincide with the inner longitudinal edge of the material strip 6 as illustrated in Figure 2a or as an alternative be formed by cut in the material strip 6. The tag 7 is further delimited by upper and lower slits 13. The slits 13 may be a cut through the material strip 6, as illustrated. The slits may be in the transversal direction as illustrated in Figure 2a giving a rectangular tag 7. They may also be at an oblique angle or have a more complicated form, in order to provide a tag with a more complicated geometrical shape, e.g. a triangle, rhomboid or polygon.

In the embodiment of Figure 2b the tag 7 is formed by a portion of the material strip 6 having a width in the transversal direction being greater than the transversal width of the upper 11 and lower 12 portions. The attachment end 9 of the tag 7 is located adjacent to or at the inner longitudinal edge of the material strip 6. The tag 7 is preferably not attached to the inner cover while the rest of the material strip 6 preferably is attached to the inner cover, for example by means of gluing or welding. In this embodiment, the tag 7 could be given any desired shape.

Figs 3a and b illustrate part of the manufacturing process for absorbent articles as the ones described above. Only process steps distinguishing the above-mentioned articles from state of the art pant-like absorbent articles will be explained below. Two illustrated chassis 100, 100' are located beside each other and connected to each other in the production line running in the MD direction. The chassis 100, 100' have been formed one after the other and connected to each other according to known technology prior to the process step of Figure 3. The longitudinal edge portion of one chassis 100 is hence connected with the longitudinal edge portion of the consecutive chassis 100'. A predetermined separation line 300 indicates where the two chassis 100, 100' will later on be separated from each other. A reinforcement material strip 600 is applied on the chassis material, for example by means of welding or gluing by means of an adhesive. Care is taken so that the tag 7 still is freely movable, for example by avoiding glue in the area below the tag 7. As an alternative a releasable adhesive may be used at least under the tag 7, so that the tag 7 can be lifted up from the underlying cover material if desired but otherwise remains flat on the cover material.
Preferably, the same reinforcement material piece 600 is used to form the material strips 6, 6' on either side of the separation line 300. It is also possible, though less convenient, to use two separate material pieces for forming two strips. The reinforcement material piece 600 may be cut in a shape following the form of the leg opening or the piece 600 may be cut straight, which would give less material loss when forming the material piece.

The material strips 6, 6' may extend along the whole length of the side seam 5, 5' or they may be shorter in order to only reinforce the most critical parts of the side seam 5, 5'. e.g. near the side seam ends at the waist opening and/or leg opening. Preferably at least 60% and more preferably at least 80% of the length of the side seam 5, 5' is reinforced by the material strip 6, 6'. In the illustrated embodiment, the material strip 6, 6' extends along substantially the full length of the side seam 5, 5'.

At least one of the material strips 6, 6' comprises a tag 7 which is unattached to the underlying chassis material, such that the free end 10 of the tag 7 is free-moving. The tag 7 may be pre-formed in the reinforcement material piece 600 or it may be formed directly prior to application on the chassis. Moreover, the indicium 8 may be pre-applied to the reinforcement material strip 600 in a separate production line, may be applied prior to application of the reinforcement material strip 600 on the chassis 100, 100' or even be applied after the reinforcement material strip 600 has been applied on the chassis 100, 100'. The indicium 8 is suitably applied by printing, although other alternatives such that embossing are also conceivable.

In a subsequent process step (not shown) the chassis 100, 100' are folded along a transverse line in the crotch portion 4, so that the front portion 2 is located on top of the rear portion 3. The applied material strip 6 is thereby located on the inside of the folded chassis. Thereafter, a welding step is performed along and adjacent to the longitudinal edges of the front 2 and rear 3 portions, so that the front 2 and rear 3 portions are attached to each other along the side seams 5, 5'. The positions of the side seams 5, 5' are indicated in Figure 3. Preferably there is a certain distance between the longitudinal edge and the side seam giving a seam allowance, which is good for the strength of the side seam. The side seams 5, 5' may preferably be formed by welding. Welding may be done by thermo-welding or ultrasonic welding. The method is preferably adapted to the material used in the absorbent article 1.
In a following step, the chassis 100, 100' are separated from each other by cutting in the separation line 300. The separation line 300 is essentially perpendicular to the running direction MD of the production line. The cutting will cut the material piece 600 in two, such that one reinforcement strip belonging to the first article 100 and another belonging to the second article is formed.

The invention has been described above by way of examples only and the skilled person will appreciate that many modifications of the above-described embodiments are conceivable within the scope of the appended claims. For example, in the above the side seams have been described as being joined by welding, such as thermo-welding or ultrasonic welding. However, other means for forming the side seams could include adhesives or laser bonding.
CLAIMS

1 Pant-like disposable absorbent article (1), such as diaper or incontinence pants, with a longitudinal direction (y) and a transverse direction (x), comprising, as seen in the longitudinal direction, a front portion (2), a rear portion (3) and an intermediate crotch portion (4) provided with two leg openings, the outer longitudinal edge portions of the front portion (2) being connected by longitudinal side seams (5, 5') to the outer longitudinal edge portions of the rear portion (3), wherein

- at least one (5) of said side seams is reinforced by at least one material strip (6) extending longitudinally along the longitudinal edge portion of the front or rear portion (2, 3) and being included in said side seam (5),

- the material strip forming an inner portion extending transversely from the side seam (5) towards the centre of said front or rear portion characterised by

said inner portion of the material strip (6) forming a tag (7),

the tag (7) extending freely from an attachment end (9) towards a free end, so as to be tactiliely distinguishable by a user

2 Pant-like disposable absorbent article according to claim 1, wherein the material strip (6) extends along at least 50% of the length of the side seam, preferably along at least 60% of the length of the side seam

3 Pant-like disposable absorbent article according to claim 1 or 2, wherein the tag (7) extends freely in the transverse direction, towards the centre of the front or rear portion (2, 3), from an attachment end (9), to a free end

4 Pant-like disposable absorbent article according to any one of the claims 1-3, wherein the tag (7) is formed by a portion of the material strip (6) having a width in the transversal direction being greater than the width of the upper portion (11) of said strip located above the tag (7) and/or greater than the width of the lower portion (12) of said strip located below said tag (7), as seen in the longitudinal direction of the strip

5 Pant-like disposable absorbent article according to any one of the claims 1-3, wherein the tag (7) is formed by the inner portion of the material strip (6) being provided with slits (13)
6 Pant-like absorbent article according to claim 5, wherein the material strip (6) has a uniform transversal width throughout its longitudinal length.

7 Pant-like absorbent article according to any one of the preceding claims, wherein an upper end of said tag (7) is located at a distance from the upper end of the side seam (5).

8 Pant-like absorbent article according to any one of the preceding claims, wherein a lower end of said tag (7) is located at a distance from the lower end of said side seam (5).

9 Pant-like absorbent article according to any one of claims 7 or 8, wherein said distance is greater than 1 cm, preferably greater than 2 cm.

10 Pant-like absorbent article according to any one of the preceding claims, wherein said inner portion of the material strip (6) forms an upper portion (11) being located above said tag, and/or a lower portion (12) being located below said tag, wherein said upper (11) and/or lower portion (12) is at least partly attached to the front (2) or rear portion (3) of the pant-like absorbent article (1).

11 Pant-like absorbent article according to anyone of the preceding claims, wherein only one single of said two side seams (5, 5') is provided with a tag (7).

12 Pant-like absorbent article according to any one of the preceding claims, wherein said tag (7) is provided with an indicium (8).

13 Pant-like absorbent article according to claim 12, wherein said indicium (8) indicates product information, preferably any one of size, absorption capacity, brand name, left/right side of the product, or inside/outside of the product.

14 Pant-like absorbent article according to claim 13, wherein said indicium (8) is a printed indicium.

15 Pant-like absorbent article according to any one of claims 12 to 14, wherein said indicium (8) is non-removable.
16 Pant-like absorbent article according to any one of the previous claims, wherein the longitudinal length of said tag (7) is less than the longitudinal length of said reinforcement strip (6), preferably less than a third of the length of the reinforcement strip (6), most preferred less than a quarter of the length of the reinforcement strip (6)

17 Pant-like absorbent article according to any one of the previous claims, wherein the longitudinal length of the tag (7) is less than 5 cm, preferably between 1 and 5 cm, most preferred between 2 and 4 cm

18 Pant-like absorbent article according to any one of the previous claims, wherein said material strip (6) with said tag (7) are provided on the inside of the absorbent article (1)

19 Method for forming a pant-like absorbent article, such as diaper or incontinence pants, with a longitudinal direction (y) and a transverse direction (x), comprising, as seen in the longitudinal direction, a front portion, a rear portion and an intermediate crotch portion provided with two leg openings, the outer longitudinal edge portions of the front portion being connected by longitudinal side seams to the outer longitudinal edge portions of the rear portion, comprising

- including a material strip (6) in at least one of said side seams (5) for reinforcement thereof, such that the material strip (6) extends longitudinally along said side seam (5), and that the material strip (6) forms an inner portion extending transversely from the side seam (5) towards the centre of the front or rear portion (2, 3) of the article,

- the inner portion of said material strip (6) forming a tag (7),

- the material strip being applied such that said tag (7) extends freely from an attachment end (9) towards a free end (10)

20 Method for forming a pant-like absorbent article in accordance with claim 19, including in-line formation of a chassis (100, 100') for pant-like disposable articles

- wherein a chassis includes a front portion, a rear portion and an intermediate crotch portion to form a pant-like product,

- said chassis (100, 100') being formed one after the other along a transverse feeding direction (MD), such that a longitudinal edge portion of a front or rear portion of an initial chassis (100) meets the longitudinal edge portion of a front or rear portion of a consecutive chassis (100') at a predetermined separation line (300),
and said step of including a material strip (6) in at least one of said side seams (5) includes
- attaching a reinforcement material (600) extending longitudinally over the predetermined separation line (300), such that reinforcement material (600) extends transversely on both sides of the predetermined separation line (300), over both the initial and the consecutive chassis (100, 100'), and
- said reinforcement material (600) forming at least one tag (7) over at least one of said initial and said consecutive article (100, 100'), wherein the tag (7) is free from attachment to the underlying chassis material, for forming a freely extending tag (7) in the final pant-like article.

21 Method for forming an article according to claim 20, comprising the additional step of
- transversely folding the chassis and welding along the longitudinal ends, so as to form side seams (5, 5') extending along the longitudinal ends of the articles.

22 Method for forming an article according to any one of the claims 19 to 21, comprising the additional step of separating the chassis (100, 100') by cutting along the predetermined separation line (300).

23 Method according to any one of the claims 19 to 22, wherein said tag (7) is provided with an indicium (8).
INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE2009/050321

A. CLASSIFICATION OF SUBJECT MATTER
IPC: see extra sheet
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)
IPC: A61F
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
SE, DK, FI, NO classes as above

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

EPQ-INTERNAL, WPI DATA, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Date of the actual completion of the international search
17 November 2009

Date of mailing of the international search report
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International patent classification (IPC)

A61F 13/15 (2006.01)
A61F 13/496 (2006.01)

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