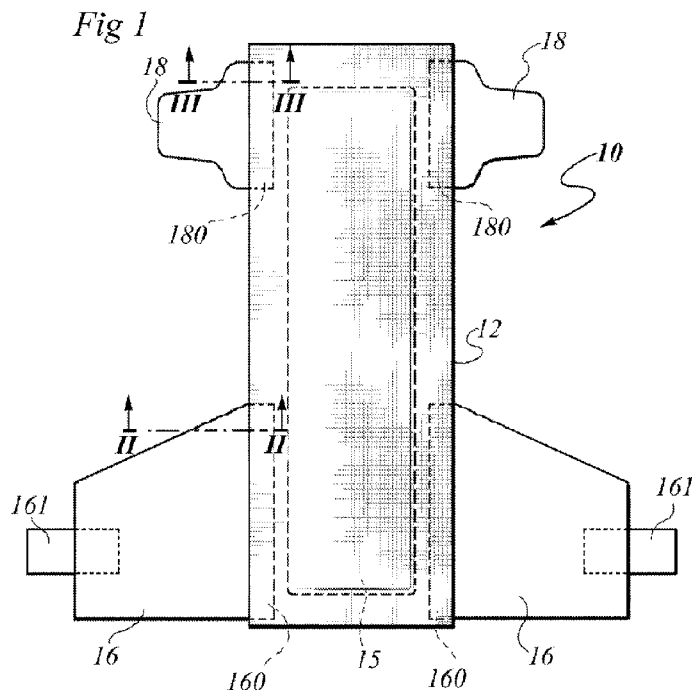




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(54) Title: A SANITARY ARTICLE WEARABLE AS PANTS



(57) Abstract: A sanitary article wearable as pants comprises a body or chassis 12 with a topsheet 13, a backsheet 14 and an absorbent core 15 interposed between the topsheet 13 and the backsheet 14. The article 10 has opposite extremities provided with closing side panels 16 extending laterally starting from at least one of said opposite extremities. The side panels 16 have proximal margins 160 connected to the body 12 in positions interposed between the topsheet 13 and the backsheet 14. In particular, the above-said proximal margins 160 of the side panels 16 are connected by thermal welding or ultrasound welding 170 to the topsheet 13 and adhesively 190 to the backsheet 14.

"A sanitary article wearable as pants"

* * *

Field of the invention

The present description refers to sanitary products
5 wearable as pants.

Description of the related art

Sanitary products wearable as pants have been
available for many years in a wide range of
manufactured forms.

10 A manufacturing solution particularly appreciated
in recent years envisions that the diaper have a main
body or chassis, to be wrapped concave around the
crotch portion of the user, while the side panels
protruding from the sides of one or both of the
15 opposite extremities of the chassis allow closure of
the article around the waistline of the user.

The main body or chassis has a layered structure in
which are normally recognisable (in addition to various
other accessory elements):

20 - an upper layer or topsheet permeable to the
evacuated body liquids, intended to face toward the
body of the user;

- a lower layer or backsheet impermeable to the
body liquids intended to face toward the outside, that
25 is, in the opposite position with respect to the body
of the user; and

- an absorbent mat or core interposed between the
topsheet and the backsheet.

A sanitary product corresponding to such morphology
30 is known, for example, from the document WO-A-
97/032552, taken as a model for the preamble of claim
1.

In particular, concerning the ways of connecting
the side panels to the body or chassis of the article,
35 the above cited document mentions the possibility of:

- connecting the proximal margin of the panel to the topsheet, backsheet or both;

- arranging the above-said proximal margin on the outer surface of the backsheet, on the inner surface of the topsheet or between the topsheet and the backsheet; and

- resorting to any fixing means known in the art, such as, for example, adhesives, thermal welding, pressure welding, ultrasound welding or any combination thereof.

In selecting a completely satisfying solution from among these acceptable possibilities for connecting the side panels to the body or chassis of the article, it is necessary to meet the needs deriving from the characteristics of the finished product (in particular guaranteeing a solid connection of the side panel to the body or chassis, avoiding undesired detachment and/or tearing phenomena), as well as needs of a strictly productive nature, for example, in terms of simplifying equipment and reducing costs.

More recently, in addition to these needs, an increased attention to issues of environmental protection have been added, linked both to the productive cycle of the article and the disposal of the same after use: in fact, the articles in question substantially qualify as single-use or disposable articles. In particular, the above-said environmental issues tend to look increasingly unfavourably on resorting to adhesives and glues and, particularly, to scarcely biodegradable adhesives.

Object and summary of the invention

Thus, the invention has the object of providing a sanitary article that, on one hand, is able to suitably respond to the functional needs linked to its use and, on the other hand, can be produced and disposed of with

reduced environmental impact.

The present invention has the object of providing a solution to such needs.

According to the present invention, such object is
5 achieved by means of a sanitary article having the characteristics specifically recalled in the claims that follow.

The claims form an integral part of the technical disclosure provided herein relative to the invention.

10 Brief description of the annexed drawings

The invention will now be described, by way of non limiting example only, with reference to the annexed drawings, wherein:

- figure 1 is a general schematic view of a
15 sanitary article of the type described herein, illustrated in extended position, and

- figures 2 and 3 are two views in section along the lines II-II and III-III in figure 1.

Detailed description of embodiments

20 In the description that follows various specific details are illustrated aimed at a thorough understanding of the embodiments. The embodiments can be practiced without one or more of the specific details or with other methods, components, materials,
25 etc. In other instances, known structures, materials or operations are not shown or described in detail to avoid obscuring the various aspects of the embodiments.

Reference throughout this specification to "one embodiment" or "an embodiment" means that a particular
30 feature, structure or characteristic described in connection with the embodiment is included in at least one embodiment. Thus, the appearance of the phrases "in one embodiment" or in "an embodiment" in various places throughout this specification do not necessarily refer
35 to the same embodiment. Furthermore, the particular

features, structures or characteristics may be combined in any suitable manner in one or more embodiments.

The headings provided herein are provided for convenience only and thus do not interpret the field of protection or the scope of the embodiments.

In figure 1 the reference numeral 10 indicates a sanitary product wearable as pants in its entirety, illustrated herein in a flat, extended position. In the example illustrated herein, it is a conventional article (baby diaper, or adult incontinence product) intended to be sold open and to be closed pants-like after being placed on the body of the user. However, the solution described herein is susceptible of being applied also to the articles currently denominated "training pants" intended to be sold already closed in the pants configuration and to be pulled onto the body of the user.

Essentially, the product 10 is composed of a central body 12 destined to have a general U-conformation conferred thereto and be applied on the body of the user, wrapping it around the crotch portion of the user.

The body or chassis 12 has a structure wherein are usually recognisable (in addition to various other accessory elements):

- an upper layer or topsheet 13 permeable to the evacuated body liquids, intended to face toward the body of the user;
- a lower layer or backsheet 14 impermeable to the body liquids, intended to face toward the outside, that is, in the opposite position with respect to the body of the user; and
- an absorbent mat or core 15 interposed between the topsheet 13 and the backsheet 14.

Elastic side panels are also present, indicated

with the references 16, extending from the central body 12, and allowing closure of the article (for example, by means of adhesive tabs 161 or micro hooks) around the waistline as worn by the user.

5 The side panels or inserts 16 are susceptible of being realised according to criteria better described in documents W-A-01/91666 and W-A-01/92013; also concerning the possibility of conferring characteristics of "breathability" to the panels 16,
10 through the formation of transpiration openings.

The side panels can be present at both extremities (front and rear) of the central body 12. This is usually the case in articles of the training pants type, where the distal edges of the various panels are
15 sealed together to provide the article as sold, with the closed conformation. It should be pointed out that the indications "front" and "rear" are used herein only to distinguish the two extremities and therefore have no specific relevance concerning the way in which the
20 product is eventually worn.

The embodiment illustrated herein refers to the case (more frequent in the products sold "open") wherein the side panels 16 are at the rear extremity of the central body 12, while the two wings 18 protrude
25 laterally from the front extremity of the central body 12, providing the article 10 (ideally seen in open and extended position, as represented in figure 1) with the typical hourglass conformation.

The representation in figure 1 is schematic in
30 nature and is intended to highlight the fact that the solution described herein is susceptible of being applied to a wide variety of possible types of embodiments of the article 10.

For a more detailed illustration of additional
35 characteristics of the article 10 (for example,

concerning the presence of shaped edges delineating the contour of the openings for the legs of the user and also the presence of so-called cuffs or elastic edges arranged along the sides of the absorbent nucleus 15 functioning to containing laterally the bodily fluxes the reader is directed to the broad existing literature on the topic; this also regarding the choice of possible materials constituting the various parts of the article 10.

10 As is better appreciable in the views in section in figures 2 and 3, both for the connection of the side panels 16, and for the connection of the front wings 18, the solution described herein envisions that the corresponding proximal margins, indicated with 160 and 15 180, respectively, are connected to the body or chassis 12 of the article 10 interposing them sandwich-like between the topsheet 13 and the backsheet 14 of the body 12 of the article with the following ways of connecting:

20 - thermal welding or ultrasound welding connection, along a welding line 170 (continuous or, preferably discontinuous) to the topsheet, and
- adhesive connection to the backsheet 14 exploiting the reduced layer of glue 190 normally 25 already envisioned as so-called "construction glue" to keep the topsheet 13 and the backsheet 14 connected together on at least part of the external region with respect to the absorbent nucleus or core 15.

The experiments performed by the Applicant 30 demonstrated that, surprisingly, such specific way of connecting is able - on one hand - to provide a solid connection of the side panels 16 (and of the side wings 18) to the body 12 of the article 10 without risk of accidental detachment or tearing, while - on the other 35 hand - minimising recourse to adhesive layers (or

glue).

Without limitation to any specific theory on this matter, the Applicant has reason to believe that the two connecting structures (thermal welding or
5 ultrasound welding line 170, layer of glue 190) cooperate synergistically based on a mechanism wherein the adhesive connection realised by the layer of glue 190 maintains all three layers of the sandwich structure (topsheet 13, proximal margin 160 or 180,
10 backsheet 14) in a condition of coherent co-planarity.

In this way it is possible to act so that the proximal margin 160 of the side panel 16 remains aligned with the general laying plane of the topsheet 13, so that traction efforts exerted on the side panel
15 16 during the use of the article 10 are transferred from the proximal margin 160 of the panel 16 to the topsheet 13 only as shear stresses acting in the common laying plane, that is, under conditions in which the thermal welding line 170 is able to exert the maximal
20 connecting and retaining action.

Naturally, without prejudice to the underlying principle of the invention, the details of realisation and the embodiments may vary, even appreciably, with reference to what has been described
25 herein by way of non-limiting example only, without departing from the scope of the invention as defined in the annexed claims.

CLAIMS

1. A sanitary article wearable as pants with a body or chassis (12) including a topsheet (13), a backsheet (14) and an absorbent core (15) interposed between said topsheet (12) and said backsheet (14), said article (10) having opposite extremities with side panels (16) extending laterally starting from at least one of said opposite extremities, said side panels (16) having proximal margins (160) connected to said body (12) in a position interposed between said topsheet (13) and said backsheet (14), characterised in that said proximal margins (160) of said side panels (16) are connected by thermal welding or ultrasound welding (170) to said topsheet (13) and adhesively (190) to said backsheet (14).

2. The sanitary article according to claim 1, with a pair of side panels (16) extending laterally starting from one of said opposite extremities and a pair of side wings (18) extending laterally starting from the other of said opposite extremities, said lateral wings (18) having proximal margins (180) connected to said body (12) in a position interposed between said topsheet (13) and said backsheet (14) by thermal welding or ultrasound welding (170) to said topsheet (13) and adhesively (190) to said backsheet (14).

3. The sanitary article according to claim 1 or claim 2, comprising an adhesive connection layer (190) between said topsheet (13) and said backsheet (14) and wherein said proximal margins (160, 180) are connected to said backsheet (14) by means of said adhesive connection layer (190).

4. The sanitary article according to any of the previous claims, wherein said proximal margins (160, 180) are connected to said topsheet (13) by means of a discontinuous thermal welding or ultrasound welding
5 line (170).

5. The sanitary article according to any of the previous claims 1 to 3, wherein said proximal margins (160, 180) are connected to said topsheet (13) by means
10 of a continuous thermal welding or ultrasound welding line (170).

