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[Fortsetzung auf der nächsten Seite]

(54) **Title**: INCONTINENCE ARTICLE IN THE FORM OF BRIEFS

(54) **Bezeichnung** : INKONTINENZARTIKEL IN HÖSCHENFORM

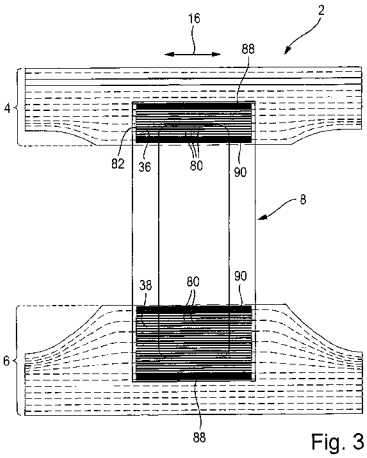

Fig. 3

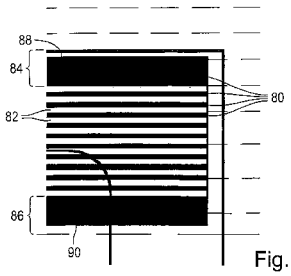

Fig. 4

(57) **Abstract**: The invention relates to an incontinence article (2) in the form of briefs, comprising an abdomen section (4) and a back section (6), which are formed by separate components but are connected to each other at side seam areas (14) on both sides by the manufacturer, and comprising a crotch section (8) having an absorbing body (7), which crotch section is permanently attached to the abdomen section (4) and to the back section (6) in respective overlapping areas (36, 38) on the side of the crotch section facing away from the body, first elasticating means (28, 29) being provided in the abdomen section (4) and the back section (6), which first elasticating means extend in the transverse or hip circumferential direction (16), second elasticating means (40, 42) being provided in a crotch-side area (22, 26) of the abdomen section (4) and of the back section (6) facing the leg openings (19), which second elasticating means spread out with increasing distance from each other and extend into the overlapping area (36, 38), the incontinence article being characterized in that the crotch section (8) is permanently connected to the abdomen section (4) and to the back section (6) by means of a plurality of adhesive strips (80), which are provided in the overlapping area (36, 38) and extend in the transverse direction (16), the adhesive strips (80) substantially encompassing substantially the entire respective overlapping area (36, 38), and that the width of at least the adhesive strips (80) that lie inside with respect to optional edge-side adhesive strips (88, 90), perpendicular to the extension of said adhesive strips, is at least 1 mm and at most 5 mm.

(57) **Zusammenfassung**:

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CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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— *mit internationalem Recherchenbericht (Artikel 21 Absatz 3)*

Die Erfindung betrifft einen Inkontinenzartikel (2) in Höschenform mit Bauchabschnitt (4) und Rückenabschnitt (6), die von separaten Komponenten gebildet sind, jedoch an beidseitigen Seitennahtbereichen (14) herstellerseitig miteinander verbunden sind, und mit einem aufweisenden Schrittabschnitt (8), der Seite an den Bauchabschnitt (4) und an den Rückenabschnitt (6) in einem jeweiligen Überlappungsbereich (36, 38) unlösbar angefügt ist, wobei in dem Bauchabschnitt (4) und dem Rückenabschnitt (6) erste Elastifizierungsmittel (28, 29) vorgesehen sind, die in Quer- oder Hüftumfangsrichtung (16) erstrecken wobei in einem schrittseitigen und den Beinöffnungen (19) zugewandten Bereich (22, 26) des Bauchabschnitts (4) und des Rückenabschnitts (6) zweite Elastifizierungsmittel (40, 42) vorgesehen sind, die sich auffächernd mit zunehmendem Abstand voneinander verlaufen und sich bis in den Überlappungsbereich (36, 38) erstrecken, der Inkontinenzartikel ist dadurch gekennzeichnet, dass der Schrittabschnitt (8) mittels einer Vielzahl von im Überlappungsbereich (36, 38) vorgesehener, in Querrichtung (16) erstreckter, Klebestreifen (80) unlösbar mit dem Bauchabschnitt (4) und mit dem Rückenabschnitt (6) verbunden ist, wobei die Klebestreifen (80) im wesentlichen den gesamten jeweiligen Überlappungsbereich (36, 38) erfassen, und dass die Breite zumindest derjenigen Klebestreifen (80), die bezüglich optionaler randseitiger Klebestreifen (88, 90) innen liegen, quer zu ihrer Erstreckung wenigstens 1 mm bis höchstens 5 mm beträgt.

Incontinence article in pants form

Description

The invention relates to an incontinence article in pants form for absorbing bodily excretions with a front stomach section and a rear back section which are formed by separate components which are spaced apart from one another in a longitudinal direction along a longitudinal center axis however, which are connected to one another by the manufacturer at lateral seam regions on both sides for forming a stomach- and back band which is continuous in transverse direction or in circumferential direction of the waist and has a waist opening which is closed in circumferential direction of the waist, and with a crotch section which has an absorption body and extends in the longitudinal direction between stomach section and back section and is non-detachably attached with its body-averted side to the stomach section and to the back section in a respective overlapping region, wherein the stomach section, the back section and the crotch section together delimit leg openings of the incontinence article, wherein in the stomach section and back section first elastifying means are provided which extend spaced apart from one another and parallel to one another in transverse direction or circumferential direction of the waist and in this way provide planar elasticity of the stomach section and the back section, wherein second elastifying means are provided in a crotch-side region of the stomach section and of the back section which crotch-side regions face away from the leg openings, and which, starting from the two lateral seam regions fan out arch-like with increasing distance to one another in the direction towards a longitudinal center axis of the incontinence article and as far as into the overlapping region of crotch section and stomach section (in the following also referred to as front overlapping section) or respectively of crotch section and back section (in the following also refers to as back overlapping region), where they may no longer have their elastifying effect and can in particular be cut.

Thus, a three-component incontinence article is involved, wherein the stomach section, the back section and the crotch section form these three components. The stomach section and the back section as well as the crotch section are fed into or transported in a manufacturing device as separate components. Typically, the components are guided in a respective transport plane in a flat or evenly spread out state. The stomach section and the back section are transported in the eventual transverse direction of the incontinence article; they are transported spaced apart in the eventual longitudinal direction of the incontinence article. Thus, the eventual transverse or waist-circumferential direction of the incontinence article extends in the machine direction of the manufacturing device. The aforementioned distance between the stomach section and the back section is then bridged by applying the crotch section as third component, wherein an overlapping region between crotch section and stomach section and between crotch section and back section is formed, wherein the three components are permanently joined with each other in the respective overlapping region. Finally, the stomach section and the back section are interconnected at lateral seam regions on both sides as mentioned above. Such an incontinence article is for example known from DE 10 2007 055 628 A1.

Incontinence articles in pants form principally differ from openable and closable incontinence articles in conventional diaper form, in that the waist circumference is already predetermined by the pant form, and the adjustment to different body sizes based on a number of basic sizes is achieved in that the article can be elastically stretched. For this, elastifying means, in particular in the form of bands or threads, often also referred to as Lycra – bands are usually connected in a pre-tensioned state (Stretch-Bond method) to chassis materials of the incontinence article i.e., they are fixed in a pre-tensioned state on the chassis materials for example by means of glue. Due to their pre-tension, these elastifying means bundle chassis materials together, thereby forming plications, which typically extend transverse to the direction in which the elastifying means are pre-tensioned, i.e. in this case in longitudinal direction of the article. The incontinence article or the elastified chassis materials of

the incontinence article can then be elastically stretched again when the user puts on the incontinence article like a pant.

For non-detachably connecting the stomach section or the back section with the crotch section in the respective overlapping region, a full-surface joining, in particular gluing, or a joining over less than the entire surface can be selected. In known hygiene articles, often times in order to join large surface regions, adhesive is applied over the entire surface, or adhesive is applied in spiral form essentially over the entire surface through nozzles. There are also hygiene articles, however in which a different approach is taken; thus US 2004/0116886 A1 for example teaches not to joint large surface areas of the respective overlapping region; This is intended to retain freedom of shape and flexibility of the components in the overlapping, and not to be adversely affected by a joint.

US 7,250,549 teaches to provide respective areas with different adhesive properties in the respective front or rear overlapping region. A waist-averted region i.e., a region facing the center of the crotch section and extending in transverse direction is to have a greater mass per area of the adhesive than a region which is located waist-side relative to this region. The regions can be coated with adhesive over their entire surfaces or linearly, spirally or punctiform.

US 7,591,810 B2 teaches to connect the crotch section and the stomach section or the crotch section and the back section only very partially to one another.

It would be advantageous if the present invention would improve the connection between the three components, i.e., the connection of crotch section and stomach section in the front overlapping region and of crotch section and back section in the rear overlapping region, in that an optimization with regard to the specific type of three-component incontinence article in pant form and with regard to the here occurring stresses during use is achieved.

The present invention provides an incontinence article in pants form for absorbing bodily excretions with a front stomach section and a rear back section, which are formed by separate components which are spaced apart in a longitudinal direction along a center longitudinal axis, however which are connected to each other by the manufacturer at later seam regions on both sides to from a stomach and back band which is continuous in transverse or waist circumferential direction with a waist opening which is closed in waist circumferential direction, and with a crotch section having an absorption body, which crotch section extends in the longitudinal direction between the stomach section and the back section and is non-detachably connected with its body averted side to the stomach section and to the back section in the respective overlapping region, wherein the stomach section, the back section and the crotch section together delimit leg openings of the incontinence article, wherein in the stomach section and the back section first elastifying means are provided which extend spaced apart from each other and parallel to each other in transverse or waist circumferential direction and in this way elastify the stomach section and the back section, wherein in a crotch side region of the stomach section and the back section which crotch side region faces the leg openings second elastifying means are provided which starting from the two lateral seam regions extend in the direction toward a longitudinal center axis of the incontinence article and fan out arch like along their extent with increasing distance to each other and extend into the overlapping region of crotch section and stomach section or of crotch section and back section wherein they may there no longer have their elastifying effect and can in particular be cut, **wherein** the crotch section is non-detachably connected with the stomach section and with the back section by means of multiple adhesive strips which are spaced apart by adhesive free strips and extend in the overlapping region of crotch section and stomach section and in the overlapping region of crotch section and back section, wherein the adhesive strips extend essentially over the entire respective overlapping region and in that the width of at least those adhesive strips which relative to optionally border-side provided adhesive strips are situated inwardly, transverse to their extent is at least 1 mm to at most 5 mm, and in that the

width of the adhesive free strips transverse to their extent is at least 1 mm to at most 15 mm.

It was discovered that in case of such a non-detachable joining of the components, the amount of the adhesive materials required therefore can be reduced compared to an application of adhesive over the entire surface or a spiral-shaped application of adhesive without resulting in disadvantages. It was further found that when using multiple adhesive strips that extend in transverse direction, the forces that typically occur during use of the hygiene article in longitudinal direction, which forces are introduced in the overlapping region or are transmitted via the overlapping region from the crotch section into the stomach section or into the back section, can be likewise well absorbed when the multiple adhesive strips essentially extend over the entire extent of the respective overlapping region. This does not mean however, that the adhesive strictly has to extend up to the respective geometric border of the overlapping region; rather, it is preferred, that the adhesive retains a defined distance to the geometric border of the overlapping region in the range of one or a few millimeters, in order to avoid that the adhesive leaks from the overlapping region and contaminates the manufacturing device or becomes visible on the finished product. It is further advantageous, that the multiple adhesive strips extend in the transverse direction i.e., especially with regard to the fact that forces of the soaked absorption body due to gravity typically act in the longitudinal direction i.e., transverse to the extent of the adhesive strips. These forces, due to the transverse extent of the adhesive strips, can even be transmitted better and more evenly across the respective overlapping region into the waist–circumferential direction of the stomach section and to the back section or respectively, be absorbed by the stomach section and the back section. This also leads to a slight contracting or bundling up of the overlapping region in transverse direction, i.e., it results to a minor degree in interfering pleatings which then would extend in longitudinal direction. It was found that applying adhesive in such a manner is capable to counteract an excessive

formation of pleatings or tufting which are facilitated or tend to be caused by the first, and as the case may be the second elastifying means.

It was further found that applying adhesive in form of multiple adhesive strips that extend in transverse direction in conjunction with the mostly nonwoven based or nonwoven containing materials or composite materials of the stomach section and the back section and as the case may be also of the crotch section, is suited to form a visually and/or tactilely perceivable structure on the outer visible side of the overlapping region which harmonizes or corresponds with the optically and/or tactilely perceivable course of the elastifying means in the respective overlapping region. In this way, the course of the elastifying means in the overlapping region, where these elastifying means are often deactivated, can be concealed such that they can no longer be distinguished from the adhesive-caused structure. This is esthetically pleasing.

The multiple adhesive strips, which extend essentially over the entire respective overlapping region, are typically applied by a so-called contact application, preferably by using template techniques. For this, adhesive application devices known per se can be used, for example the TrueCoat™ system of the company Nordson Deutschland from Erkrath, Germany. The TrueCoat™ system is a slot nozzle surface application device, wherein the slot nozzle application heads are configurable and thus enable a continuous or intermittent application of adhesive. The application of the adhesive by using a sheet metal with strip-shaped recesses is also possible. Advantageously, the adhesive is applied in machine direction of the material tracks that form the stomach section and the back section, i.e., with adhesive strips extending in machine direction, so that the multiple adhesive strips – as mentioned multiple times – extend in the finished product essentially transverse to the longitudinal direction, i.e., in transverse– or waist–circumferential direction.

It is further advantageous when the adhesive is applied in the machine direction in a pulsed manner, i.e., glue is actually only applied in the already mentioned overlapping regions between crotch section and stomach section or between crotch section and back section.

It is further advantageous, when the width of adhesive strips transverse to their extent is at least 1 mm to at most 4 mm, and further in particular at most 3 mm and preferably 2 mm.

The width of the adhesive-free strips transverse to their extent is advantageously at least 1 mm to at most 10 mm, in particular to at most 5 mm and further in particular to at most 3 mm.

As mentioned before, it is conceivable that in the respective overlapping region, i.e., the rear and/or the front overlapping region, a wider adhesive strip can be provided border – side. This means, that in a border region of the overlapping region, which in longitudinal direction is waist-side, and/or in a border region of the overlapping region which in longitudinal direction faces away from the waist, a wider adhesive strip, which extends in transverse direction can be provided. This waist-side border region or waist-averted border region of the overlapping region covers respectively at the most 20%, in particular at most 18%, in particular at most 15%, in particular at most 12%, in particular at most 10%, of the longitudinal extent of the respective front or rear overlapping region. The multiple narrow adhesive strips, which extend in transverse direction, are then provided between these border regions. The width of the mentioned border – side adhesive strips transverse to their extent is at least 5 mm, in particular at least 8 mm, in particular at least 12 mm, particular at most 20 mm, in particular at most 16 mm, in particular at most 14 mm. In case, a wider adhesive strip is provided in the overlapping region on only one border, it is advantageous when this wider adhesive strip is provided at the waist distal border

region of the overlapping region, in order to achieve a stable joining at this location, which prevents tearing-in.

It is particularly advantageous when the ratio between the width of adhesive strips and the width of immediately neighboring adhesive-free strips is 0.2 – 3.0, in particular 0.2 – 2.0, in particular 0.2 to 1.5, in particular 0.2 – 1.0, in particular 0.4 – 0.8, in particular 0.5 – 0.7. Thus, a finely and evenly distributed succession of adhesive strips and adhesive-free strips is advantageously provided, which enables an even distribution in the joining region and associated therewith a joining stability in the overlapping region and at the same time even distribution of possible stiffening due to the adhesive strips.

Also with regard to an as much as possible even and/or tactilely recognizable configuration or structuring as a result of the multiple adhesive strips, it is advantageous when at least those adhesive strips which are located inwardly relative to optional border-side adhesive strips, i.e., in longitudinal direction between border-side adhesive strips, have the same width.

It is further advantageous when the width of the respective adhesive-free strips is the same.

Regardless of the specific configuration or arrangement of the multiple adhesive strips, it is advantageous when the entire surface of the adhesive strips relative to the surface of the overlapping region of the crotch section and the stomach section or of crotch section and back section is 35 – 60%, in particular 40 – 55% and further in particular 40 – 50%.

It is further advantageous, when the mass per area of the adhesive coating in the adhesive strips is 2 – 20 g/m^2, in particular 2 – 15 g/m^2, in particular 2 – 10 g/m^2, in

particular 5 – 10 g/m^2, wherein the mass per area in all adhesive strips is preferably the same.

In order to achieve an even transmission of forces resulting from the liquid which was absorbed during use of the hygiene article by the absorption body, into the stomach – and back band which is formed by the stomach section and the back section and is continuous in transverse – or waist- circumferential direction, it is advantageous when the surface of the overlapping region of the crotch section and back section is at least 12%, in particular 15 – 40%, in particular 15 – 35%, in particular 15 – 30%, in particular 20 – 30%, in particular 22 – 30% of the surface of the stomach section. It is further advantageous that the surface of the overlapping region of the crotch section and back section is at least 20%, in particular 20 – 45%, in particular 20 – 40%, in particular 22 – 40%, in particular 25 – 40%, in particular 28 – 40% of the surface of the back section.

According to a preferred embodiment of the incontinence article according to the invention, it is advantageous when in the overlapping region of crotch section and stomach section and/or in the overlapping region of crotch section and back section two outer, border-side adhesive strips, i.e., a waist-distal and a waist-proximal border-side adhesive strip and in longitudinal direction between these, multiple inwardly located adhesive strips are provided, wherein the width of the border-side adhesive strips is greater than the width of the inwardly located adhesive strips, and is in particular at least four times, in particular at least five times, and further in particular at most eight times, in particular at most seven times the width of the inwardly located adhesive strips. It is also conceivable, that on a respective waist-side or waist-averted border region of the respective overlapping region, multiple wider border-side adhesive strips are provided, so long as the border region does not exceed the previously explained dimensions in the longitudinal direction.

In a preferred embodiment of the incontinence article according to the invention, at least 8, in particular at least 10 adhesive strips are provided in the overlapping region of stomach section and crotch section, and in the overlapping region of the back section and crotch section, at least 15, in particular at least 18 and further in particular at least 20 adhesive strips are provided.

The aforementioned second elastifying means, which are provided in a crotch side region of the stomach section and the back section which crotch side region faces the leg openings, fan out arch shaped along their extent in the direction toward the longitudinal center axis and in the direction toward the respective overlapping region with increasing distance to each other. This allows influencing the restoring force that acts in the surface of the crotch-side region of the stomach section and the back section, which crotch-side region faces the leg openings.

It is further advantageous, when the first and/or the second elastifying means in the overlapping region of crotch section and stomach section and in the overlapping region of crotch section and back section extend parallel to the adhesive strips. Typically, the elastifying means are introduced so that they extend endlessly in transverse– or waist-circumferential direction i.e., in the machine direction of the flat material tracks of the future stomach section and back section. Thus, they extend at least initially continuously over the entire transverse extent of the incontinence article. In this way, the elastifying means typically traverse the absorption body underneath in the respective front or rear overlapping region of the crotch section and the stomach section or of cross-section and back section so that the absorption body of the crotch section comes to lie above the elastifying means. In this case, it is particularly expedient, when the elastifying means no longer have their eastifying effect, at least where they traverse the absorption body underneath; for this purpose, they can be cut, in particular multiple times, in this region along their transverse extent or can be de-elastified by other means for example by ultrasound. Nevertheless, the course of the originally introduced elastifying means as well as the

elastifying means which have been deactivated or de-elastified in the respective overlapping region, can be recognized from outside the incontinence article. A particular advantage of an embodiment of the invention is that this can be concealed by providing multiple narrow adhesive strips as mentioned before.

The previously mentioned arch-shaped fanning-out can preferably be configured so that a distance of the second elastifying means to each other in a respective lateral seam region is 3 two 8 mm, and further inwardly in the direction towards the longitudinal center axis in the region of a border of the absorption body is between about 7 and 35 mm, in particular between 12 and 30 mm. Advantageously, the second elastifying means extend in the overlapping region at least in the region of the longitudinal center axis in transverse direction and preferably also parallel to one another.

This fanning-out of the second elastifying means can also be quantitatively described in more detail. For example, the second elastifying means of the back section shown in Figure 1 have a minimal distance of 3 to 8 mm to each other (distance between immediately neighboring elastifying means) and at a border of an absorption body or a longitudinal border of the crotch section have a maximal distance to one another (distance between immediately neighboring elastifying means) of 7 to 35 mm. A degree F of the fanning-out can be defined as follows:

$$F = (A-B)/B * 100\%.$$

This fanning-out degree advantageously is between 50 and 900%, in particular between 100 and 700%, and further in particular between 150 to 550%. Advantageously, it is greater in the back section than in the stomach section. The variables A and B are defined as the distance of the in longitudinal direction outermost second elastifying means to the in longitudinal direction innermost second elastifying means (i.e., not the distance between immediately neighboring elastifying

means), i.e. A as the maximal distance, in particular at the longitudinal border of the crotch section, and B as the minimal distance, in particular in the lateral seam region.

As first and/or second elastifying means preferably thread-shaped or band-shaped elastifying means are used such as rubber threads, polyether polyurethane threads or polyester polyurethane threads, preferably elastic threads such as Lycra® - or Spandex® threads. The first elastifying means preferably have a thread length of 400 – 1500 dtex, in particular 500 – 1400 dtex, in particular 800 – 1400 dtex, in particular 1000 – 1400 dtex, further in particular 1100 – 1400 dtex. The second elastifying means preferably have a thread Strength of 500 – 1000 dtex, in particular of 600 – 1000 dtex, further in particular 700 – 900 dtex.

The thread strength of the elastifying means is expressed in the unit dtex (1 dtex = 1g/10,000 m). The thread strength is determined according to the testing guidelines BISFA, the International Bureau for the Standardization of man-made Fibres, Test methods for bare elastane yarns, edition 1998, chapter 5: "Determination of linear density"). The thread strength or linear density is determined by determining the mass of a test specimen having a known thread length of 1,000 mm (cut under a standard pre-tension of 0.1+/- 0.01 mN/tex) after a conditioning under standard conditions (23°C +/- 2°C, 50% +/- 5% relative humidity) in the relaxed state.

The thread strength (in dtex) is calculated from the quotient of the mass (in g) divided by the length of the section (in m) multiplied by the factor 10,000.

For this, five sections of the thread-shaped or band-shaped elastifying means having a length of 1,300 mm are cut off from the role or package under a tension that is as small as possible, namely in uneven distances of at least 2 m. These five sections are relaxed so as to be tension-less and are let rest under standard conditions for at least four hours. Then, a test specimen of 1,000 mm +/- 1 mm is cut off from the respective 1,300 mm long section, while the section is maintained under a pretension

of 0.1 mN/dtex. The cut off test specimens of 1,000 mm length are weighed to an accuracy of +/- 1% of their expected mass. For each testing specimen, its thread strength is obtained by multiplying the respective mass with the factor 10,000 in dtex. From the five testing specimen, the arithmetic mean value is calculated which is used as thread strength for the purposes discussed here.

The first and/or second elastifying means are preferably fixed on the chassis forming sheath materials of the stomach section and feedback section (stretch bonding method) under a pre-tension of 2.5 – 6.0. The pre- tension is defined as the degree of stretching of a stretched elastifying means relative to the unstretched/relaxed original state of the elastifying means in the state of the application and fixing of the elastifying means in the manufacturing machine. The degree of stretching is thus calculated as the ratio of the stretched length L' (=initial length L + ΔL) to the initial length L, i.e., L'/L. The first elastifying means are preferably fixed under a pre-tension of 4.0 – 6.0, in particular of 4.5 – 5.5, wherein their pre-tension is preferably greater then the pre-tension of the second elastifying means. The second elastifying means are preferably fixed under a pre-tension of preferably 2.5 – 5.0, in particular of 3.0 – 4.5.

The first and second elstifying means can be fixed on the chassis forming sheath materials of the stomach section and back section in different ways. Elastifying means that extend parallel to the transverse or waist-circumferential direction, such as for example the first elastifing means, are preferably fixed by applying adhesive to individual threads. Applying adhesive to individual threads means that the topside of the individual elastifying means is first covered with adhesive and is then supplied to the lamination between two chassis material layers. A further possibility to fix elastifying means is to embed the elastifying means in a glue bed between two chassis material layers, wherein at least one layer has regions, which are provided with adhesive over their entire surface. In particular, fixing in a glue bed is used for elastifying means which change directions along their course, such as for example

the second elastifying means, which fan out arch shaped along their extent in the direction toward the longitudinal center axis of the incontinence article and extend at increasing distance to one another.

It is further advantageous when the second elastifying means are fixed in a glue bed between chassis material layers. In this case, a laminate results in which the layers are connected over their entire surfaces. Sufficient stretching of this laminate results in a single, even flat material track which can then be joined with further components without the formation of undefined pleatings as is the case when individual strands are provided with adhesive where bordering chassis material layers are only connected along the strands that are provided with adhesive. The glue bed fixing of the second elastifying means is therefore especially advantageous when joining the crotch section with the stomach section or the back section.

It is further advantageous, when the first elastifying means in the stomach section and/or in the back section are fixed between the chassis material layers by single-strand glue application. In the region of the first elastifying means a greater flexibility of the chassis material layers is desired, because no further laminate is formed at this location.

In a refinement of this inventive idea, it is advantageous when the first elastifying means in the stomach section and/or in the back section our fixed between a body averted chassis material layer and a body facing chassis material layer by single-strand cool application and to the body facing chassis material protrudes over or overlaps the associated longitudinal end of the crotch section on the body facing side of the crotch section. Because the body facing chassis material layer is typically made of a soft nonwoven material, a soft skin friendly transition to the crotch section can be achieved in longitudinal direction.

The crotch section advantageously includes a liquid-impermeable backsheet – material and a nonwoven topsheet–material, between which the absorption body is arranged. The backsheet–material and the nonwoven – topsheet–material in a manner of speaking form the chassis of the crotch section. In an embodimentof the invention, advantageous when the backsheet material and/or topsheet material form an overhang over the absorption body and this overhang – in total on both sides of the absorption body, i.e., in total left and right – is at least 25%, in particular 30 – 50%, further in particular 35 – 50%, further in particular 38 – 48%, further in particular 40 – 45%, of the greatest width of the crotch-section (i.e., relative to the maximal extent of the crotch section in transverse direction).

This relatively great overhang of back-sheet material and/or top sheet material on both sides of the absorption body thus means a wide crotch section with a relatively narrow absorption body. This allows providing leg-elastifying means in the crotch section, which extend along the leg openings, and have a relatively great distance to the material rich and with this bending stiff absorption body. This in turn results in a good sealing and adjustability of the borders of the leg openings on both sides of the crotch section. In this case, the material rich absorption body, which is torsion stiff relative to the thin chassis materials, only interferes with the formation of a liquid-tight leg sealing to a minor degree; forming a liquid-tight leg sealing does therefore not require extremely high tensions which in turn has a positive influence on the wearing comfort of the incontinence article.

In a further ebodiment of the invention, it is particularly advantageous when the leg-elastifying means end in longitudinal direction at least 10 mm, in particular at least 20 mm, before the second elastifying means. It is particularly advantageous when the leg-elastifying means end is located in a direction before the stomach section and/or before the back section. The tension and return force exerted by the leg-elastifying means does therefore not influence the tension conditions provided according to an embodiment of the invention within the crotch-side region of the stomach section and

the back section that faces the leg openings, in which the fanning-out second elastifying means are provided.

As leg-elastifying means, thread- or band-shaped elastifying means, such as rubber- or polyurethane or polyester polyurethane threads, are preferably used, preferably elastic threads such as Lycra® threads or Spandex® threads. The leg-elastifying means preferably have a tensile strength of 300 – 1500 dtex, in particular of 500 – 1200 dtex, further in particular of 500 – 900 dtex.

The leg-elastifying means are preferably fixed on the chassis-forming sheath materials of the crotch section under a pre-tension of 1.5 – 6.0 in particular 2.5 – 4.5.

The chassis-forming materials of the stomach section and/or back section preferably include nonwoven materials such as spunbonds, card webs or through air bonded card webs. Particularly preferably, the chassis forming material of stomach section and/or back section includes a spunbond material. The nonwoven materials that are used for the stomach section and/or back section Preferably have a mass per area of 10 – 30 g/m^2, further preferably of 15 – 25 g/m^2. Particularly preferably the stomach section and the back section include a spunbond, in particular made of polypropylene, in particular with a mass per area of 15 – 25 g/m^2. Due to their flexibility, low masses per area of the chassis forming materials of stomach section and/or back section, in particular including or being made of nonwoven materials, enable particularly advantageously the formation of the visually and/or tactilely perceivable structures according to an embodiment of the invention.

The crotch section advantageously includes a liquid-impermeable backsheet-material and a nonwoven topsheet material. The backsheet material in particular includes a foil, in particular with a mass per area of 8 – 20 g/m^2, in particular 8 – 16 g/m^2, further in particular 8 – 14 g/m^2. In particular, the backsheet includes a foil, which in

particular is micro-porous, and during use liquid tight but at the same time breathable, i.e. water vapor permeable.

The absorption body includes materials that absorb bodily fluids such as natural or synthetic fibers, in particular cellulose fibers, preferably in the form of cellulose. Preferably, the absorption body also includes superabsorbent materials (SAP), in particular based on surface-cross-linked, partially neutralized polyacrylates.

The crotch section or the longitudinal borders of the crotch section, which delimit the leg openings, can be configured to have a straight or arched contour. The crotch-facing transverse borders of stomach section and back section, which also delimit the leg openings, are advantageously configured to have an arched contour.

Further features, details and advantages of the invention will become apparent from the included patent claims and from the drawing and the following description of a preferred embodiment of the incontinence article according to the invention. In the drawing it is shown in:

Figure 1 a top view onto an incontinence article according to an embodiment of the invention, wherein a stomach section, a back section and a crotch section of the incontinence article are not yet joined for forming a pant form but are shown in a spread out and evenly stretched out state;

FIGS. 2 a, b schematic sectional views of the crotch section in the region of the transverse centerline or in the overlapping region of crotch section and back section;

Figure 3 a representation corresponding to Figure 1, illustrating the fixing of the crotch section with the stomach section and the back section by means of adhesive strips;

Figure 4 an enlarged representation of a section in the region of the overlapping region of crotch section and stomach section or crotch-section and back section of the incontinence article according to Figure 3;

Figure 5 a schematic sectional view of the relevant individual components of the chassis materials along the longitudinal center axis of the incontinence article;

Figure 6 a schematic view of the incontinence article in its final configuration.

Figure 7 a representation corresponding to Figure 1, illustrating dimensions;

Figure 8 a representation corresponding to Figure 1, illustrating the construction of the absorption body and the folding axes;

Figure 9 a schematic longitudinal sectional view of the absorption body taken along the longitudinal center axis;

Figure 10 a,b,c three schematic views of the incontinence article, illustrating the folding; and

Figure 11 a schematic view of the folded incontinence article, illustrating sampling during determination of the thickness.

The Figures show an incontinence article in pant form, overall designated with the reference numeral 2, for absorbing solid and liquid bodily excretions. The incontinence article 2 is composed of three components which can essentially be manufactured independently i.e., a front stomach section 4, a rear back section 6,

and a crotch section 8 which has an absorption body 7 and is located between the stomach section 4 and the back section 6, wherein the crotch section 8 extends in a longitudinal direction 9 of the incontinence article 2 and overlaps with a substantial surface portion of the stomach section 4 on one hand, and of the back section 6 on the other hand, and is non-detachably connected by the manufacturer in the overlapping region in a manner to be described in more detail below. As can be seen from Figure 1, this leads to an H–shaped basic structure of the incontinence article. For forming the pant form, the interconnected components shown in Figure 1 are then connected to one another at respective lateral longitudinal border sections 10, 12 of the stomach section 4 and the back section 6, also by the manufacturer, by conventional joining methods, thereby forming lateral seam regions 14 on both sides. In this pant form of the incontinence article, which is manufactured by the manufacturer, the stomach section 4 and the back section 6 extend in a transverse – or waist-circumferential direction 16 continuously and thus define with their waist border 17 a waist opening 18 which is closed in waist-circumferential direction; further, together with the crotch section 8 they delimit leg openings 19, through which the user can put on the incontinence article like a pant.

The stomach section 4 can be divided into a waist-side region 20 and into a crotch-side region 22, which faces the leg openings 19. The back section 6 can be divided correspondingly i.e., also in a waist-side region 24 and a crotch-side region, which faces the leg openings 19.

In the waist-side region 20 of the stomach section 4 and in the waist-side region 24 of the back section 6, first elastifying means 28, 29 are provided, which may be Lycra – threads, and which are connected with the flat materials (chassis materials) of the stomach section 4 and the back section 6 in the so-called stretch-bond-method. These first elastifying means 28, 29 extend in transverse – or waist-circumferential direction 16 from one lateral seam region 14 to the other.

The respective crotch-side sections 22 and 26 of the stomach section 4 or of the back section 6 which face the leg openings 19 each have a border contour 32 or 34 which deviates from the transverse – or waist-circumferential direction 16 and which extends towards a transverse center axis 30 of the crotch section 8. This border contour 32, 34 is also arch-shaped in the representation according to Figure 1 and therefore suited for delimiting the leg openings 19.

Through this extent of the crotch-side region 22 or 26 which faces the leg openings, a relatively great overlapping region 36, 38 between the crotch section 8 and the stomach section 4 or back section 6 is realized, which is important with regard to a tear-resistant connection of crotch section 8 and stomach section 4.

The respective crotch-side region 22, 26 of the stomach section 4 or the back section 6 which crotch-side region 22, 26 faces the leg openings 19, is also configured elastified and is provided with second elastifying means 40 or 42. The second elastifying means 40, 42 extend, in each case starting from the lateral seam regions 14, in the direction towards a longitudinal center axis 44 of the incontinence article. As can be seen from Figure 1, the second elastifying means 40, 42 fan out in the direction towards the longitudinal center axis 44, i.e., with increasing distance to one another in the direction towards the longitudinal center axis 44. The second elastifying means 40, 42 pass underneath the crotch section 8. In the region below the absorption body 7, they may be deactivated i.e. they may not posses their elastifying effect.

As can be seen from Figures 2 a, b, the crotch section 8 includes a liquid-impermeable backsheat material 62, which can in particular be formed by a breathable, but liquid-tight foil material and a preferably nonwoven-based topsheet material 64. The absorption body 7 (only shown schematically) is arranged between the backsheet material and the topsheet material. In the exemplary shown case, the backsheat material 62 forms an overhang 66 over the absorption body 7 in

transverse direction 16. The topsheet 64 protrudes over the absorption body 7 in transverse direction 16 only to a relatively small degree and an upright barrier means 68 is provided on both sides of the absorption body 7. The barrier means 68 extends in a longitudinal direction 9, and is typically referred to as upright cuff element and is preferably made of a hydrophobic, in particular liquid-impermeable nonwoven material which extends in transverse direction 16 as far as to lateral longitudinal borders 69 of the crotch section 8. The distal ends 70 of the barrier means 68 are provided with further elastifying means 72 which raise the barrier means 68 during use of the incontinence article relative to the skin surface of the user. The lateral barrier means 68 are fastened on the topsheet 64 or onto themselves in a C – shape-folded configuration via schematically indicated fixations 76, 77. Outside of the absorption body 7 i.e., in the region of the protrusion 66, leg-elastifying means 78 are provided, which preferably extend at a defined distance to the material-rich and with this rather bending stiff absorption body 7, in order on one hand, to prevent exerting additional stretching or distortion forces on the absorption body, which might negatively influence the absorption properties of the absorption body and on the other hand to realize a liquid-tight leg sealing, which to the most degree is not influenced by the absorption body. These leg-elastifying means 78 end in longitudinal direction 9 at a significant distance of in particular 10 mm, preferably at least 20 mm before the second elastifying means 40 and 42 of the stomach section 4 or the back section 6. Preferably, these leg-elastifying means 78 end in longitudinal direction 8 before the stomach section 4 and the back section 6.

In the following, the fixing of the crotch section 8 in the front overlapping region 36 with the stomach section 4 and in the rear overlapping region 38 with the back section 6 is described. As can be seen in FIGS. 3 and 4, for this purpose, adhesive is not applied to the entire surface, but multiple adhesive strips 80 are provided in the overlapping region and extend in transverse direction 16 and parallel to one another and are spaced apart by adhesive-free strips 82. The adhesive strips 80 occupy or overlap essentially the entire respective overlapping region 36, 38. In the exemplary

shown, however, not strictly required case, broader adhesive strips 88 and 90 are provided in a border region 84 and a border region 86 of the respective overlapping region 36, 38, which border region 84 is located waist-side in longitudinal direction and which border region 86 faces away from the waist in longitudinal direction. The respective border-side i.e., waist-facing and waist-distal adhesive strips 88, 90 have a greater width than the multitude of adhesive strips 80 which are located inwardly and between the adhesive strips 88, 90. In an exemplary embodiment, the width of the border-side adhesive strips 88, 90 transverse to their extent is 14 mm, the width of the inwardly located adhesive strips 80 is 2 mm and the width of the adhesive-free strips 82 is 3 mm. In the exemplary and preferred shown case, the inwardly located adhesive strips 80 preferably all have the same width and the distances between them i.e., the width of the adhesive free strips 82 are preferably also the same. Nevertheless, the same explanations set forth in the beginning apply with regard to the dimensions and the conditions described there, as well as with regard to the mass per area of the adhesive coating of the adhesive strips. The surface of the front and rear overlapping region 36, 38 relative to the surface of the stomach section 4 or the back section 6 also lies within the previously explained preferred ranges.

It can further be seen from Figure 3 in conjunction with Figure 1 that the second elastifying means 40, 42 in the respective overlapping region 36, 38 extend parallel to the adhesive strips 80. In the exemplary shown case, some of the first elastifying means 28 also extend in the front and rear overlapping region 36, 38 (however on the body-facing side of the crotch section). The second elastifying means 40, 42 were also introduced so as to be continuous in the transverse direction 16; they are de-elastified in the respective overlapping region 36, 38 by the aforementioned measures. Even though the second elastifying means remain visible also in the de-elastified state – as explained above, they are concealed by the multitude of adhesive strips 80, thereby reducing their visibility.

In the preferred shown case, the second elastifying means are fixed in a glue bed 92 between chassis material layers 92 and 96 or 95 and 97 (c.f. Figure 5). The glue bed 92 is applied on one of the chassis material layers 94, 96 or 95, 97. Then, the second elastifying means 40, 42 are placed on or introduced preferably in an endless manner and covered and laminated by the further chassis material layer. In this way, the second elastifying means 40, 42 are fixed and the chassis material layers 94 and 96 or 95 and 97 are joined to each other over their entire surfaces. The body-averted chassis material layer 94, 95 is a breathable fiber nonwoven material, which corresponds to the extent of the stomach section 4 or back section 6. The chassis material layer 96, 97 is an inwardly located fiber nonwoven material which is recessed relative to the chassis material layer 94, 95. In the preferred shown case, it ends in longitudinal direction 9 before the longitudinal end 98, 99 of the crotch section 8.

In the exemplary and preferred shown case, the first elastifying means 28, 29 are fixed between the body averted chassis material layer 94 or 95 and a further body-facing chassis material layer 100, 101 by single-strand application of adhesive. The further chassis material layer 100, 101 is again formed by a nonwoven material. The body-averted and the body-facing chassis material layers are exclusively interconnected by the first elastifying means 28, 29 to which adhesive has been individually applied i.e., only along the extent of these first elastifying means 28, 29. The skin friendly nonwoven materials are therefore not fixed to one another over their entire surfaces, but can detached from one another and, in particular as a result of the elastifing effect, can form pleatings and cuffs. In the preferred shown case, the body-facing chassis material layer 100, 101 extends in the stomach section 4 as well as in the back section 6 over the respective longitudinal end 98, 99 of the crotch section 8 on its body facing-side. It thus overlaps this material transition and in this way prevents an unevenness that leads to skin irritation.

Further, it can be seen in Figure 5 that the backsheet 62 of the crotch section 8 has a coating 102 on its body-averted side. This coating 102 is a fiber nonwoven coating of the substantially liquid-impermeable backsheet 62. The coating 102 extends in longitudinal direction 9, however, not over the entire longitudinal extent of the backsheet 62 but instead ends relatively short within the front and rear overlapping region 36, 38. Outside of the overlapping region, the coating 102 is provided over the entire extent of the body-averted side of the back sheet 62. The coating 102 is preferably composed of a nonwoven material, in particular of a spunbond material, in particular of polypropylene, in particular with a mass per area of 10 – 20 g/m^2, in particular of 12 – 17g/m^2.

Figure 6 shows a schematic view of an incontinence article according to an embodiment of the invention in the finished configured state in which the stomach section 4 and the back section 6 are joined to one another, forming lateral seam regions 14. Only schematically shown are pleatings or cuffs 104 formed as a result of the contracting effect of the first and second elastifying means 28, 29, 40, 42, resulting from the fixing of the elastifying means in the pre-tensioned state on the chassis materials (stretch bond method). As a result of the multitude of relatively fine adhesive strips 80 in the respective overlapping region 36, 38 of crotch section 8 and stomach section 4 or back section 6, a visually and/or tactilely perceivable structure 106 is formed in the outer visible side of the incontinence article in the respective overlapping region 36, 38 which is here only shown as outline. According to an embodiment of the invention, it was found that the adhesive applied in strip-shape enters into the three-dimensional porous and also breathable configured fiber nonwoven materials, which are typically used as chassis materials, and leads to such an optical and/or tactilely perceivable structure 106, which can be advantageous as mentioned before. In addition, the connection of the crotch section 8 and stomach section 4 or back section 6 by the multitude of relatively narrow adhesive strips 80 leads to a very cost-effective use of adhesive while at the same time nevertheless

providing the required holding forces for securely joining the three components to one another.

Figure 7 explains the measurements, dimensions and ratios of the incontinence article according to an embodiment of the invention. It can be seen that the position of the transverse center axis 30 divides the overall length of the incontinence article in half in the flatly spread out state (according to Figure 1). The transverse center axis 30 also forms a first folding axis 16 which extends in transverse direction 16, and about which the components are folded inside the manufacturing machine in order to arrange the longitudinal border sections 10, 12 of the stomach section 4 and back section 6 on top of one another for fixing and forming lateral seam regions 14 on both sides. Typically, this occurs by guiding endless, flat materials, which form the respective stomach section 4 and back section 6 i.e., even before the separation of the articles. The length L1 between the transverse center axis 30 and the respective border of the waist 17 can be seen. Further, the extent L2 of the respective lateral seam or the lateral seam region 14 in longitudinal direction 9 can be seen, which also corresponds to the length of the respective longitudinal border section 10 at 12. According to the an embodiment of the invention, the ratio L2/L1 is at least 0.42.

Further, the distance L4 of the outermost waist-facing first elastifying means 28, 29 in longitudinal direction 9 to the innermost crotch-facing first elastifying means 28, 29 can be seen. According to an embodiment of the invention, the ratio L4/L1 is at most 0.3.

It can further be seen, that the first elastifying means 28, 29 have a distance d1 to one another, which is at least 20% greater than the distance of the second elastifying means 40, 42 to one another defined in the lateral seam region 14. In the preferred shown case, the first elastifying means 28, 29 all have the same distance d1 to one another, which is at least 10 mm, in particular 10 to 15 mm. The ratio d1/L4 is preferably 0.08 to 0.25.

Further, L3 can be seen as the extent of the stomach section 4 and back section 6 in longitudinal direction 9, which for the stomach section 4 is in particular 135 – 260 mm and for the back section 6 in particular 200 – 320 mm.

Further shown is the extent Q of the stomach section 4 or the back section 6 in transverse direction 16, which enters into ratios L2/Q or L4/Q.

The first elastifying means 28, 29 have a thread strength, which is at least 20% greater than the thread strength of the second elastifying means 40, 42. In addition, the first elastifying means 28, 29 are fixed with a pre-tension with the chassis material layers in the stomach section 4 and in the back section 6, which pretension is 10% greater than that of the second elastifying means.

Reference is made to the further preferred afore described measurements, dimensions and ratios.

Figures 8 and 9 show the construction of the absorption body 7 in a top view and in a sectional view along the longitudinal center axis 44. Starting from its body-averted side, the absorption body 7 includes a basic layer 120 made of cellulosic fiber material with an exemplary mass per area of 176 g/m^2. Depending on the exact two-dimensional extent, the basic layer contains 10 to 14 g of cellulosic fiber material.

On the basic layer 120, a absorption body layer 122 is placed, which is three-dimensionally shaped at least with regard to the mass per area of absorption body material. In a center region 124, the absorption body layer 122 has a higher mass per area of absorption body material then in front and rear regions 126, 127, in longitudinal direction 9. In the exemplary shown case, the mass per area of cellulosic fiber material in the front and rear region 126, 127 of the absorption body layer 122 is 162 g/m^2 and in the center region 124 329 g/m^2. In addition, the absorption body layer 122 includes overall about 7 g of superabsorbent polymer materials, which are

homogenously, evenly distributed in the absorption body layer 122. The regions 126, 127 and 124 are offset backward in longitudinal direction 9 relative to the two-dimensional extent of the basic layer 120 as can be seen from Figure 8.

Finally, the absorption body 7 includes a body-facing liquid-absorption and distribution layer 128, which in the exemplary and preferred shown case has an hour class-shape, and predominantly extends on the center region 124 of the absorption body layer 122. The liquid-absorption and distribution layer 128 protrudes over a stomach-section-side longitudinal end 130 of the center region 124 of the absorption body layer 122. It includes a mass per area of fiber material i.e., in the form of intra-cross-linked cellulose fibers (curled fiber) of for example 149 g/m^2 with an overall mass corresponding to the exemplary extent of about 2.8 g.

The basic layer 120, the three regions 124, 126 and 127 of the absorption body layer 122 and the body-facing liquid absorption- and distribution layer 128 have a uniform mass per area of absorption body materials across their two-dimensional extent.

The mass per area is measured as described above by analyzing a test specimen of 25 mm x 25 mm, which is punched out through all previously described layers of the absorption body 7. The area 132 (25 mm x 25mm) to be punched out is always centered relative to the longitudinal center axis 44, as indicated in Figure 8. When the mass per area in longitudinal direction 9 is determined more frontward or more rearward, the test specimen is accordingly centered relative to the longitudinal center axis 44.

It can be seen that the mass per area of absorption body material thus decreases stepwise in the direction toward a stomach-section-side end 134 and in the direction toward a back-section-side end 136 of the absorption body 7. In this way, plateaus 138 are formed between the steps. In the region of these plateaus 138, the mass per

area of absorption body material of the layers of the absorption body 7 lying there underneath is preferably but not necessarily, constant.

In the shown preferred embodiment of the incontinence article, the mass per area of the absorption body 7, starting from the transverse center axis 30 anteriorly and posteriorly in the region of the overlap of the body-facing liquid absorption – and distribution layer 128 with the center region 124 of the absorption body layer 122, is essentially constant.

In Figures 8 and 9, plateaus 140, 141 can be seen which adjoin a step 142, 143 anteriorly or posteriorly in the longitudinal direction 9. In the region of these plateaus 140, 141, the mass per area of the absorption body 7 is significantly reduced relative to the mass per area in the region of the transverse center axis 30.

In the following, the folding of the incontinence article in pant form for the stacked arrangement of multiple incontinence articles in a packaging for distribution is described by way of the FIGS. 8, 10 and 11: as already mentioned, the transverse center axis 30 forms a first folding axis 150, about which the incontinence article is folded, so that the stomach section 4 and back section 6 can be permanently joined together for forming lateral seam regions 14 i.e., by conventional joining methods, such as gluing, ultrasound etc. Further, second folding lines 152 which approximately extend in longitudinal direction 9 are only outlined in Figure 8, because the folding does not occur in the stretched out state shown in Figure 8, but after finishing the pant-shaped incontinence article in the only schematically shown state in Figure 10 a. Starting from this outlined state shown in Figure 10 a, regions 154 of the stomach section 4 and back section 6 which laterally extend over the crotch section 8 on both sides, are folded in the direction towards the longitudinal center axis 44, preferably onto the outsides of the stomach section 4, so that the configuration outlined in Figure 10 b is obtained.

Figures 8 and 10 show a third folding axis 156, which extends in transverse direction 16, and whose position relative to the absorption body 7 can be seen from Figure 8. Further folding about this only further folding axis 156, which extends in transverse direction 16, results in the compactly folded configuration of the pant-shaped incontinence article shown in Figure 10 c. It can be seen that the border of the stomach and back band 17, which delimits the waist opening 18, does not protrude in longitudinal direction 9 over the outer folding edge 158 of the incontinence article, which folding edge 158 is formed by the first folding axis 150.

Figure 11 illustrates at which sites the thickness of the incontinence article 2, which is folded into the configuration of Figure 10 c, is determined. As already mentioned, the entire such folded incontinence article 2 is punched out over the entire transverse direction 16 with a punching knife at a distance of about 10 mm to the folding edges or folding axes 150 and 156, thereby forming strip-shaped test specimens 160. Based on these test specimens 160, which include all layers of the incontinence article, the thickness is then determined as described above.

The claims defining the invention are as follows:

1. Incontinence article in pants form for absorbing bodily excretions with a front stomach section and a rear back section, which are formed by separate components which are spaced apart in a longitudinal direction along a center longitudinal axis, however which are connected to each other by the manufacturer at later seam regions on both sides to from a stomach and back band which is continuous in transverse or waist circumferential direction with a waist opening which is closed in waist circumferential direction, and with a crotch section having an absorption body, which crotch section extends in the longitudinal direction between the stomach section and the back section and is non-detachably connected with its body averted side to the stomach section and to the back section in the respective overlapping region, wherein the stomach section, the back section and the crotch section together delimit leg openings of the incontinence article, wherein in the stomach section and the back section first elastifying means are provided which extend spaced apart from each other and parallel to each other in transverse or waist circumferential direction and in this way elastify the stomach section and the back section, wherein in a crotch side region of the stomach section and the back section which crotch side region faces the leg openings second elastifying means are provided which starting from the two lateral seam regions extend in the direction toward a longitudinal center axis of the incontinence article and fan out arch like along their extent with increasing distance to each other and extend into the overlapping region of crotch section and stomach section or of crotch section and back section wherein they may there no longer have their elastifying effect and can in particular be cut, wherein the crotch section is non-detachably connected with the stomach section and with the back section by means of multiple adhesive strips which are spaced apart by adhesive free strips and extend in the overlapping region of crotch section and stomach section and in the overlapping region of crotch

section and back section, wherein the adhesive strips extend essentially over the entire respective overlapping region and in that the width of at least those adhesive strips which relative to optionally border-side provided adhesive strips are situated inwardly, transverse to their extent is at least 1 mm to at most 5 mm, and in that the width of the adhesive free strips transverse to their extent is at least 1 mm to at most 15 mm.

2. Incontinence article according to claim 1, wherein the width of adhesive strips transverse to their extent is at least 1 mm to at most 4 mm, such as at most 3 mm and preferably 2mm.

3. Incontinence article according to claim 1 or 2, wherein the width of the adhesive-free strips transverse to their extent is at least 1 mm to at most 10 mm, such as at most 5 mm or at most 3 mm.

4. Incontinence article according to any one of the preceding claims, wherein in a border region of the overlapping region which in longitudinal direction is waist side and/or in a border region of the overlapping region which in longitudinal direction is waist averted, a wider adhesive strip is provided which extends in transverse direction, wherein the adhesive coated respective waist side border region and/or the adhesive coated waist averted border region of the overlapping region extend to at most 20%, such as at most 18%, at most 15%, at most 12%, or at most 10 % of the longitudinal extent of the respective overlapping region.

5. Incontinence article according to claim 4, wherein the width of border side adhesive strips transverse to their extent is at least 5 mm, such as at least 8 mm, orat least 12 mm, and may at most 20 mm, such as at most 16 mm, or at most 14 mm.

6. Incontinence article according to any one of the preceding claims, wherein the ratio between the width of adhesive strips to the width of immediately neighboring adhesive-free strips is 0.2 - 3.0, such as 0.2 - 2.0, 0.2 - 1.5, 0.2 – 1.0, 0.4 – 0.8, or 0.5-0.7.

7. Incontinence article according to any one of the preceding claims, wherein the width of at least those adhesive strips which relative to optionally border side adhesive strips lie inwardly, is respectively the same.

8. Incontinence article according to any one of the preceding claims, wherein the width of the adhesive free strips is respectively the same.

9. Incontinence article according to any one of the preceding claims, wherein the total surface of the adhesive strips relative to the surface of the overlapping region of the crotch section and stomach section or of crotch section and back section is 35 - 60%, such as 40 – 55% or 40 - 50%.

10. Incontinence article according to any one of the preceding claims, wherein the mass per area of the adhesive coating in the adhesive strips is 2-20 g/m^2, such as 2-15 g/m^2, 2-10 g/m^2, or5-10 gm^2, wherein the mass per area in all adhesive strips is preferably the same.

11. Incontinence article according to any one of the preceding claims, wherein the surface of the overlapping region of crotch section and stomach section relative to the surface of the stomach section is at least 12%, such as 15-40 %, 15-35%, 15-30%, 20-30%, or 22-30%.

12. Incontinence article according to any one of the preceding claims, wherein the surface of the overlapping region of crotch section and back section relative to

the surface of the back section is at least 20%, such as 20-45%, 20-40%, 22-40%, or 28-40%.

13. Incontinence article according to any one of the preceding claims, wherein in the overlapping region of crotch section and stomach section and/or in the overlapping region of crotch section and back section tow outer border side adhesive strips and in longitudinal direction there between multiple inwardly positioned adhesive strips are provided, wherein the width of the border side adhesive strips is greater than the width of the inwardly located adhesive strips, such as 4-fold, at least 5-fold and may be at most 8-fold or 7-fold to width of the inwardly located adhesive strips.

14. Incontinence article according to any one of the preceding claims, wherein in the overlapping region of stomach section and crotch section at least 8, such as 10 adhesive strips are provided and in the overlapping region of back section and crotch section at least 15, such as 18 and may be at least 20 adhesive strips are provided.

15. Incontinence article according to any one of the preceding claims, wherein the first and/or second elastifying means extend in the overlapping region of crotch section and stomach section and in the overlapping region of crotch section and back section parallel to the adhesive strips.

16. Incontinence article according to any one of the preceding claims, wherein the second elastifying means are fixed in a glue bed between chassis material layers and /or the first elastifying means are fixed by application of adhesive to individual strands between chassis material layers.

17. Incontinence article according to any one of the preceding claims, wherein the first elastifying means are fixed in the stomach section and/or in the back

section by application of adhesive to individual strands between a body averted chassis material layer and a body facing chassis material layer, and in that the body facing chassis material layer overlaps the associated longitudinal end of the crotch section on its body facing side.

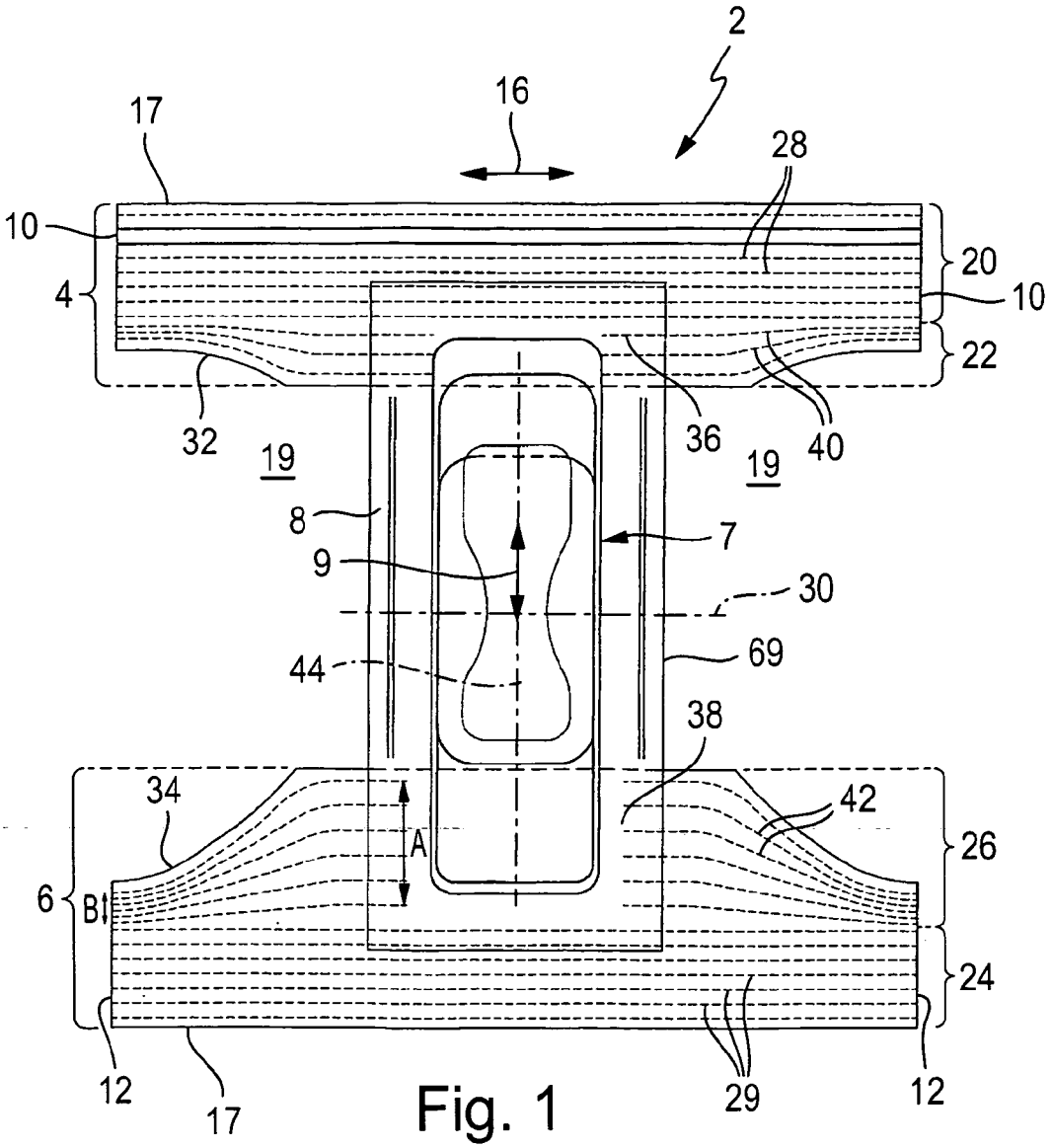
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Fig. 1

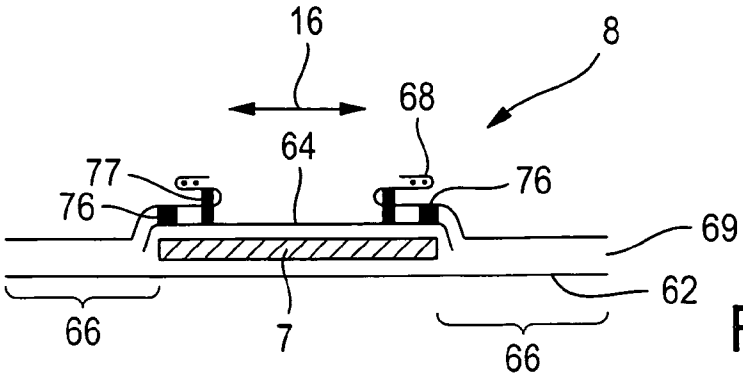


Fig. 2a

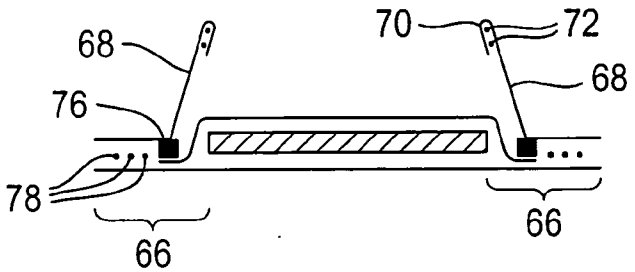


Fig. 2b

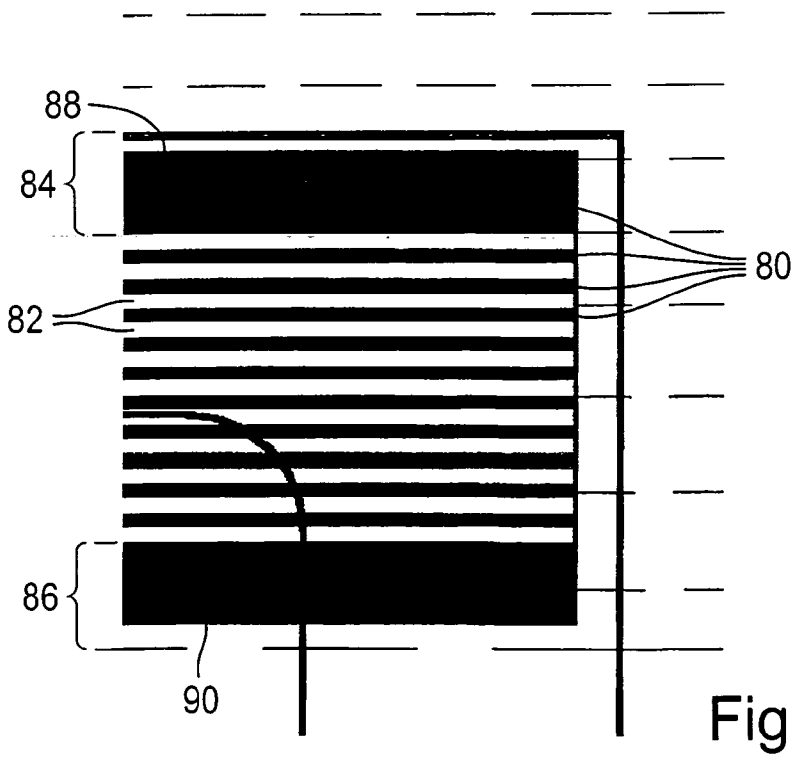


Fig. 4

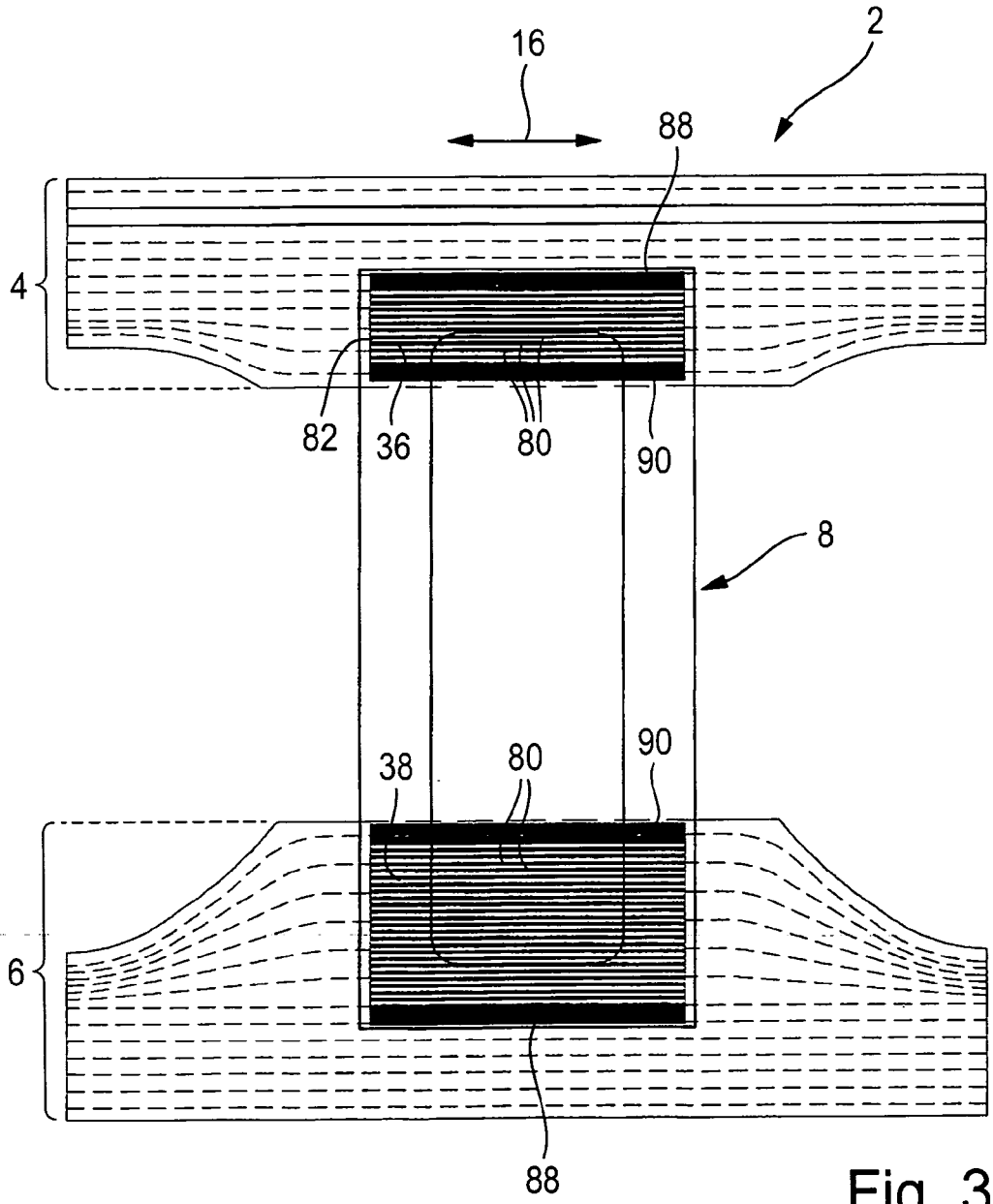
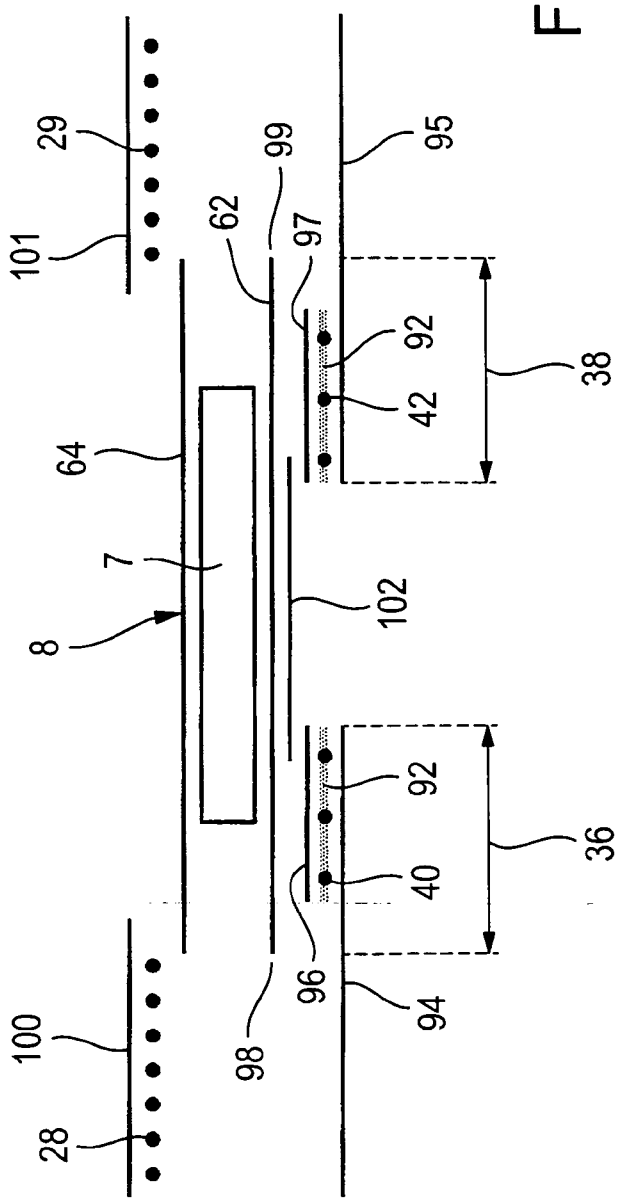


Fig. 3

Fig. 5



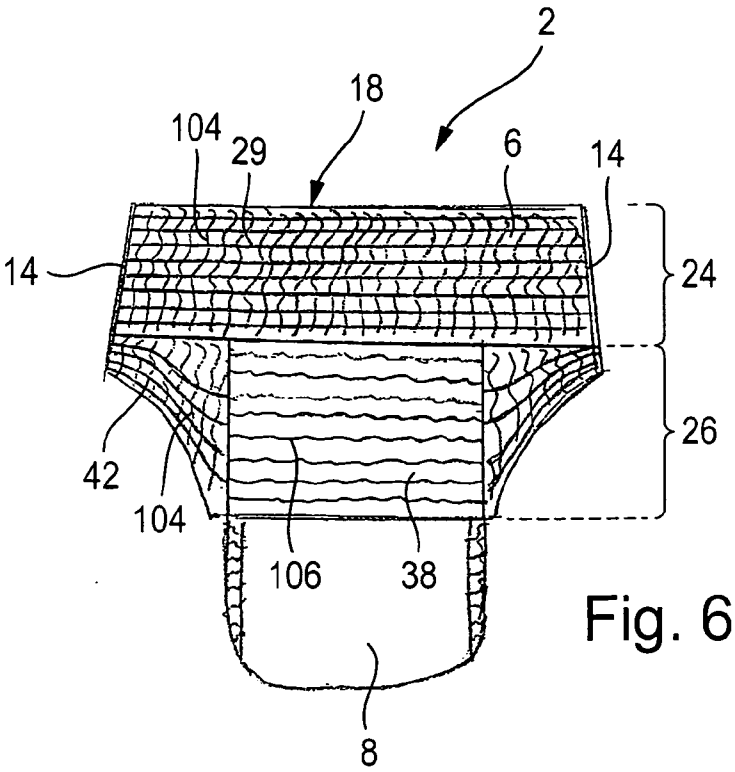


Fig. 6

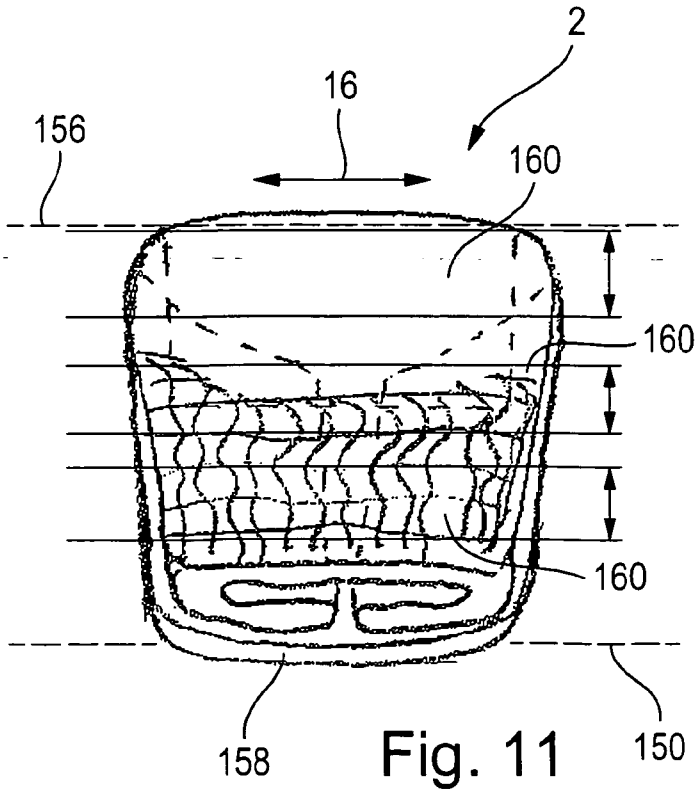


Fig. 11

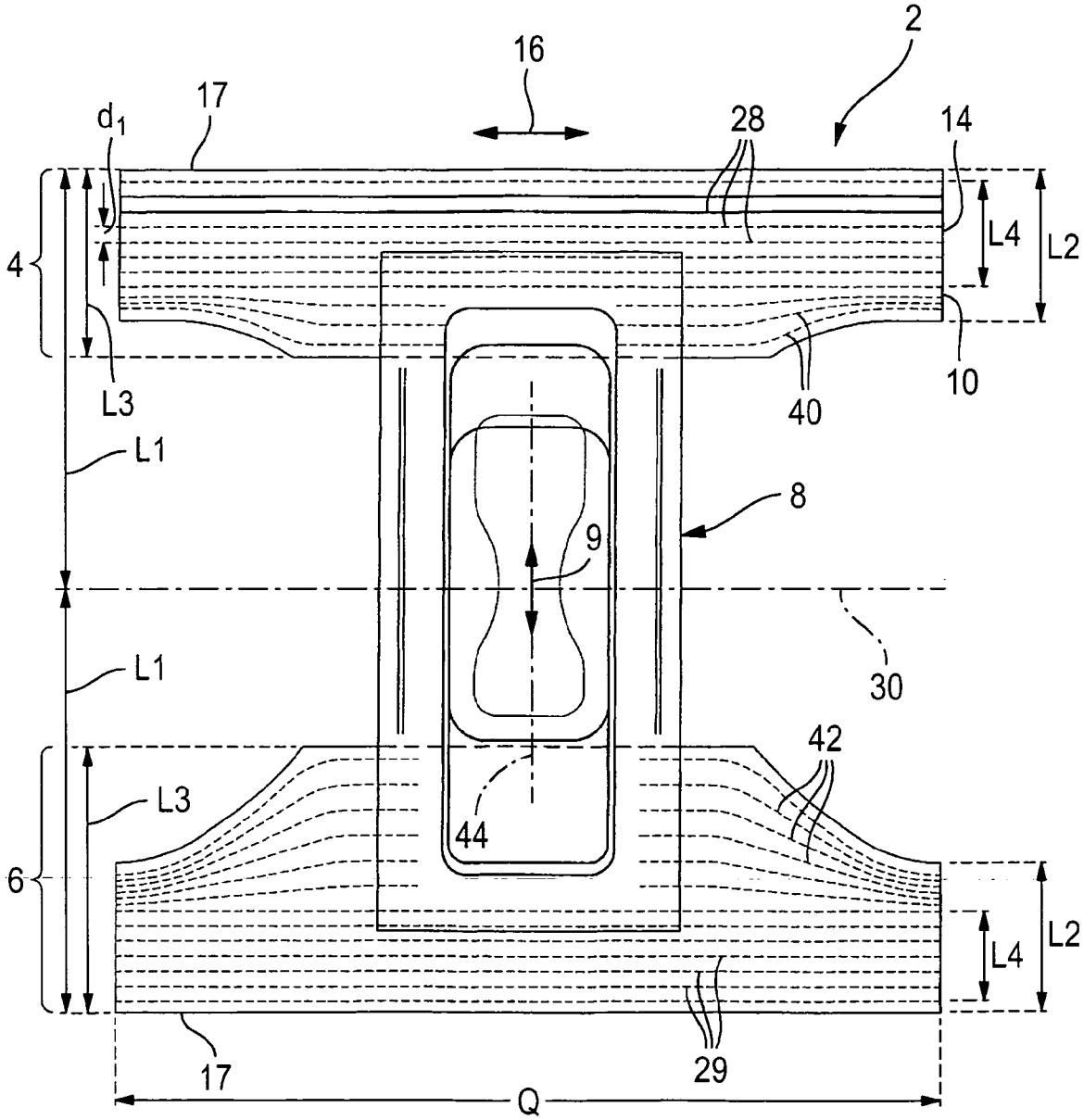


Fig. 7

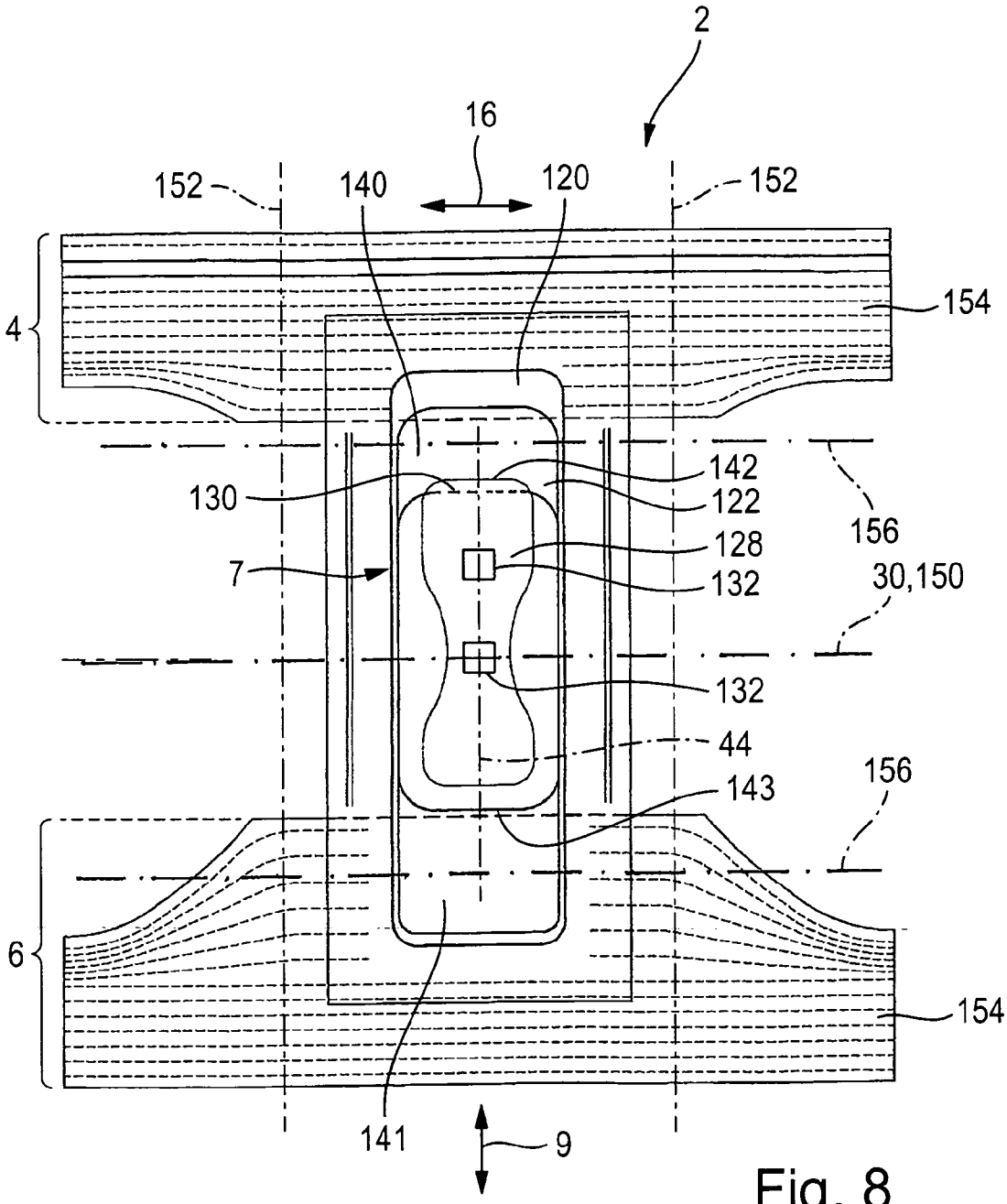

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Fig. 8

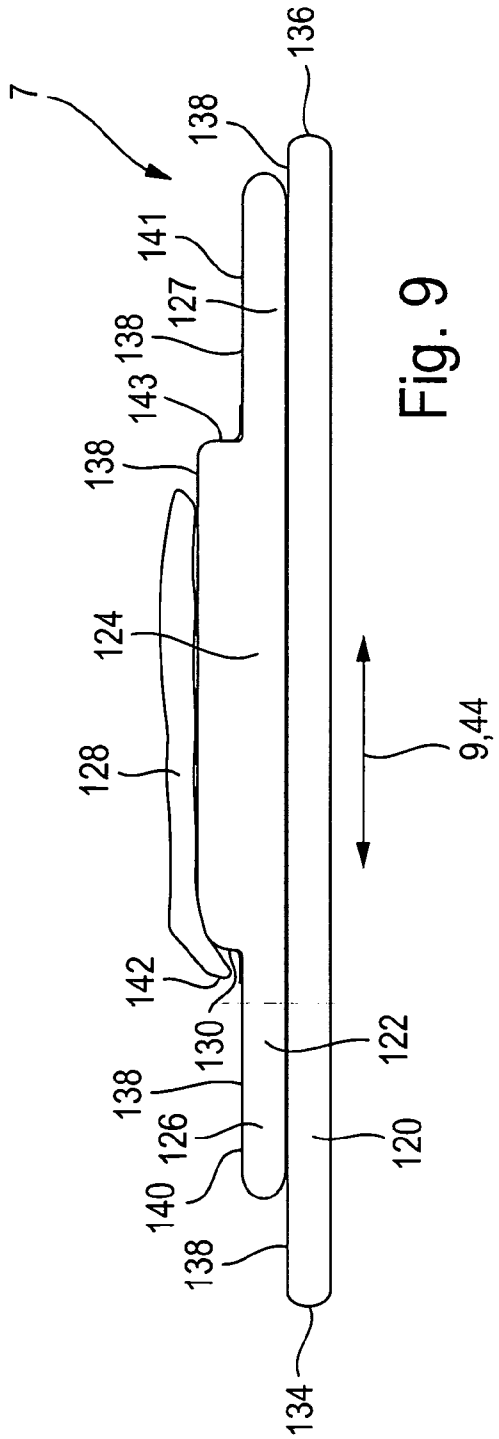
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Fig. 9

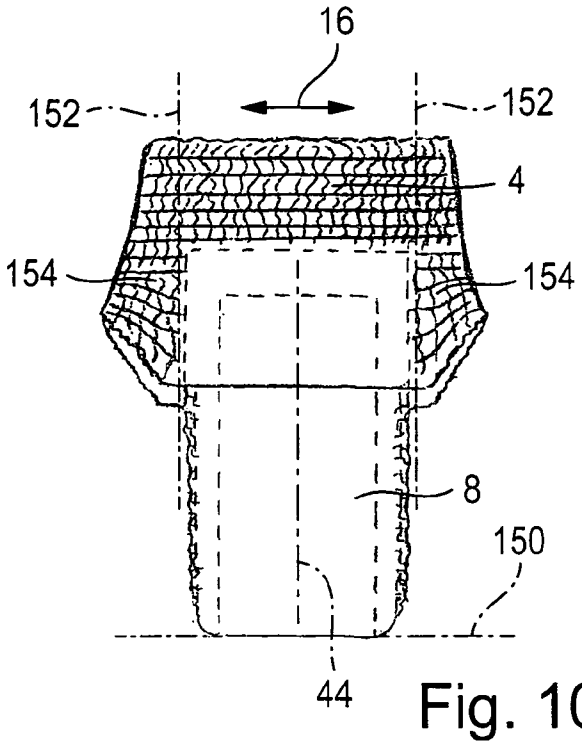

Fig. 10a

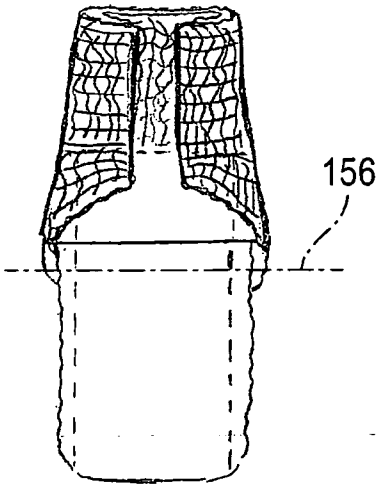

Fig. 10b

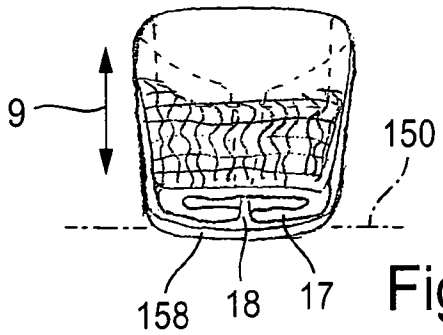

Fig. 10c