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(54) Titre : ARTICLE ABSORBANT COMPORTANT UNE EXTREMITE DE TAILLE CARACTERISTIQUE
(54) Title: ABSORBENT ARTICLE HAVING CHARACTERISTIC WAIST END

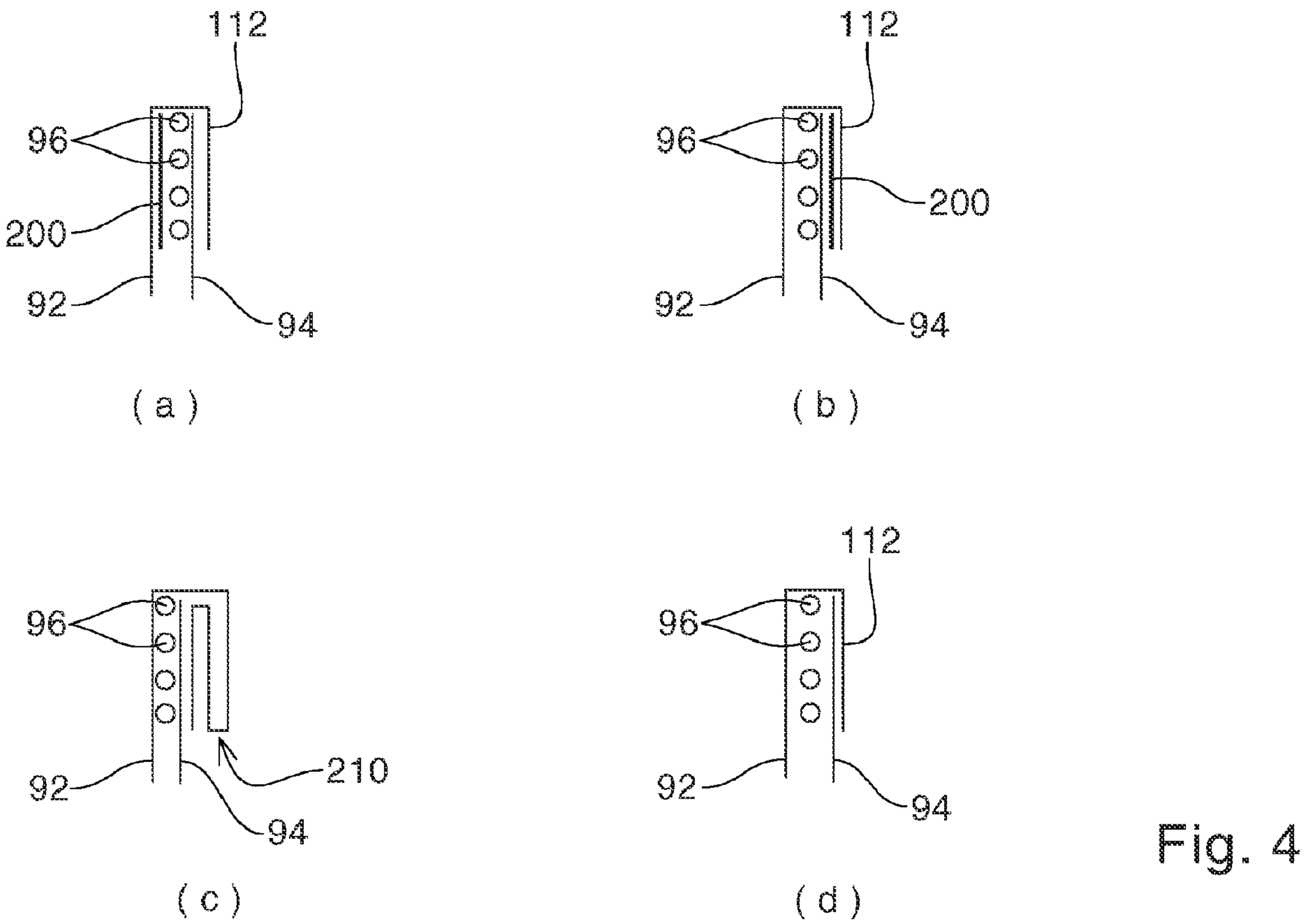

Fig. 4

(57) Abrégé/Abstract:
An absorbent article (20) continuous in a longitudinal direction and a transverse direction, comprises a front belt portion (84), a back belt portion (86), and an absorbent main body (38). The center of the front belt portion (84) is joined to a front waist panel (52)

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(57) Abrégé(suite)/Abstract(continued):
of the absorbent main body (38), the center of the back belt portion (86) is joined to a back waist panel (54) of the absorbent main body (38), the front and back belt portion (84, 86) each having a left side panel and a right side panel where the absorbent main body (38) does not overlap, and the respective left and right side panels of the front belt portion (84) and the back belt portion (86) are joined with each other only at the respective transverse edges to form a waist opening (36) and two leg openings (34), each front belt portion (84) and back belt portion (86) having transversely continuous proximal and distal edges, the proximal edges (90F, 90B) being located closer than the distal edge (88F, 88B) relative to the longitudinal center of the article, wherein: the absorbent main body comprises a main body graphic zone (160); the front belt portion and the back belt portion each have a waist end region (FWE, BWE) adjacent the waist opening (36), wherein the front and back waist panels (52, 54) of the absorbent main body (38) do not overlap with the front or back waist end regions (FWE, BWE); the front belt portion and the back belt portion (84, 86) each have a leg end portion adjacent the proximal edges (90F, 90B); the left and right side panels of the front belt portion (84) and the back belt portion (86) each have a tummy belt region between the waist end region and the leg end region; the waist end region having an opacity of at least 15 points greater than that of the tummy belt region.

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(54) Title: ABSORBENT ARTICLE HAVING CHARACTERISTIC WAIST END

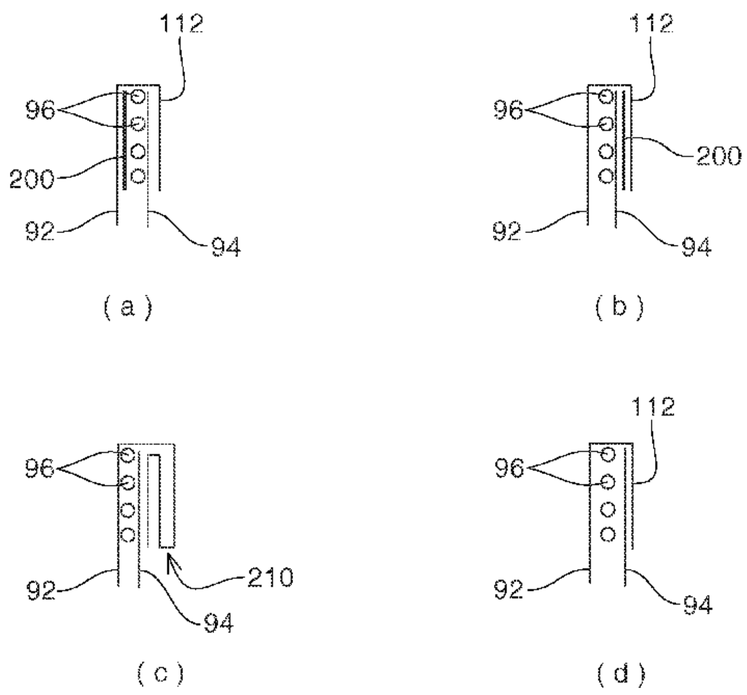

Fig. 4

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(57) Abstract: An absorbent article (20) continuous in a longitudinal direction and a transverse direction, comprises a front belt portion (84), a back belt portion (86), and an absorbent main body (38). The center of the front belt portion (84) is joined to a front waist panel (52) of the absorbent main body (38), the center of the back belt portion (86) is joined to a back waist panel (54) of the absorbent main body (38), the front and back belt portion (84, 86) each having a left side panel and a right side panel where the absorbent main body (38) does not overlap, and the respective left and right side panels of the front belt portion (84) and the back belt portion (86) are joined with each other only at the respective transverse edges to form a waist opening (36) and two leg openings (34), each front belt portion (84) and back belt portion (86) having transversely continuous proximal and distal edges, the proximal edges (90F, 90B) being located closer than the distal edge (88F, 88B) relative to the longitudinal center of the article, wherein: the absorbent main body comprises a main body graphic zone (160); the front belt portion and the back belt portion each have a waist end region (FWE, BWE) adjacent the waist opening (36), wherein the front and back waist panels (52, 54) of the absorbent main body (38) do not overlap with the front or back waist end regions (FWE, BWE); the front belt portion and the back belt portion (84, 86) each have a leg end portion adjacent the proximal edges (90F, 90B); the left and right side panels of the front belt portion (84) and the back belt portion (86) each have a tummy belt region between the waist end region and the leg end region; the waist end region having an opacity of at least 15 points greater than that of the tummy belt region.

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ABSORBENT ARTICLE HAVING CHARACTERISTIC WAIST END

FIELD OF THE INVENTION

The present invention relates to absorbent articles having characteristic waist ends.

BACKGROUND OF THE INVENTION

Infants and other incontinent individuals wear disposable absorbent articles such as diapers to receive and contain urine and other body exudates. Training pants or pull-on diapers have become popular for use on children able to walk and often who are toilet training. Many disposable pull-on garments use elastic elements secured in an elastically contractible condition in the waist and/or leg openings. Typically, in order to insure full elastic fit about the leg and the waist such as is provided with durable undergarments, the leg openings and waist opening are encircled at least in part with elasticized bands positioned along the periphery of the respective opening.

Disposable absorbent articles having an absorbent main body to cover the crotch region of the wearer and a separate elastic belt defining the waist opening and leg opening are known in the art. Such articles, compared to articles where the outer cover completely covers the entirety of the garment-facing surface of the article, may be advantageous in that they may have better breathability by having less layers of material in certain areas of the articles, and that they may be manufactured economically. On the other hand, in that the number of layers of material used for making the absorbent article may decrease towards the waist opening, the waist ends typically have a translucent appearance of less thickness. Such translucent look and thin feel around the waist ends may deviate from that of a durable undergarment which would usually be thicker at the waist ends than the remainder of the garment. Further, the translucent look and thin feel may be associated with a cheap image or low quality of the article.

Based on the foregoing, there is a need for a disposable absorbent article to provide an undergarment-like look and feel. There is also a need for providing such an absorbent article without compromise to the performance as an absorbent article, such as fit, wearability, comfort during wear, prevention of sagging, and prevention of leakage. There is further a need for providing such an absorbent article in an economical manner.

SUMMARY OF THE INVENTION

The present disclosure is directed to an absorbent article continuous in a longitudinal direction and a transverse direction, comprising a front belt portion, a back belt portion, and an

absorbent main body, the center of the front belt portion is joined to a front waist panel of the absorbent main body, the center of the back belt portion is joined to a back waist panel of the absorbent main body, the front and back belt portion each having a left side panel and a right side panel where the absorbent main body does not overlap, and the respective left and right side panels of the front belt portion and the back belt portion are joined with each other only at the respective transverse edges to form a waist opening and two leg openings, each front belt portion and back belt portion having transversely continuous proximal and distal edges, the proximal edge being located closer than the distal edge relative to the longitudinal center of the article, wherein:

the absorbent main body comprises a main body graphic zone;

the front belt portion and the back belt portion each have a waist end region adjacent the waist opening, wherein the front and back waist panels of the absorbent main body do not overlap with the front or back waist end regions;

the front belt portion and the back belt portion each have a leg end region adjacent the proximal edges;

the left and right side panels of the front belt portion and the back belt portion each have a tummy belt region between the waist end region and the leg end region;

the waist end region having an opacity of at least 15 points greater than that of the tummy belt region.

BRIEF DESCRIPTION OF THE DRAWINGS

While the specification concludes with claims particularly pointing out and distinctly claiming the subject matter which is regarded as forming the present invention, it is believed that the invention will be better understood from the following description which is taken in conjunction with the accompanying drawings and which like designations are used to designate substantially identical elements, and in which:

Figure 1 is a perspective view of one embodiment of an absorbent article of the present invention.

Figure 2 is a top plan view of one embodiment of an absorbent article of the present invention in a flat uncontracted condition showing the inner, body facing surface.

Figure 3 is a schematic view of one embodiment of an absorbent article of the present invention observed from the front of the article.

Figure 4 (a), (b), and (c) are embodiments of a schematic cross-sectional view of Figure 2 taken along the line IV-IV of the present invention.

Figure 4 (d) is an schematic cross-sectional view of Figure 2 taken along the line IV-IV of the prior art.

DETAILED DESCRIPTION OF THE INVENTION

Various non-limiting embodiments of the present invention will now be described to provide an overall understanding of the principles of the structure, function, manufacture, and use of the apparatuses, methods, and articles disclosed herein. One or more examples of these non-limiting embodiments are illustrated in the accompanying drawings. Those of ordinary skill in the art will understand that the apparatauses and methods specifically described herein and illustrated in the accompanying drawings are non-limiting example embodiments and that the scope of the various non-limiting embodiments of the present invention are defined solely by the claims. The features illustrated or described in connection with one non-limiting embodiment may be combined with the features of other non-limiting embodiments. Such modifications and variations are intended to be included within the scope of the present invention.

As used herein, the term "absorbent article" refers to articles of wear to absorb and contain various exudates such as urine, feces, and menses discharged from the body, and may be in the form of pants, taped diapers, incontinent briefs, feminine hygiene garments, and the like. The absorbent article made partly by the elastic member cutting roll system or the continuous process described above may have a defined waist opening and a pair of leg openings and which are pulled onto the body of the wearer by inserting the legs into the leg openings and pulling the article up over the waist. An example absorbent article 20 is shown in Figure 1.

Figure 1 is a perspective view of an embodiment of the absorbent article 20 of the present invention and Figure 2 is a top plan view of the same article in its flat uncontracted condition showing the inner, body-facing surface. The absorbent article 20 has a longitudinal centerline L1 and a transverse centerline T1. The absorbent article 20 has an outer surface 22, an inner surface 24 opposed to the outer surface 22, a front region 26, a back region 28, a crotch region 30, and seams 32 which join the front region 26 and the back region 28 to form two leg openings 34 and a waist opening 36. The absorbent article 20 comprises an absorbent main body 38 (hereinafter may be referred to as “main body”) to cover the crotch region of the wearer, a front belt portion 84 and a back belt portion 86 (hereinafter may be referred to as “front and back belt portion 84, 86), the front and back belt portions forming a ring-like belt 40 (hereinafter may be referred to as “belt”) extending transversely defining the waist opening 36. The front and back belt portions and the main body 38 jointly define the leg openings 34.

The absorbent main body 38 absorbs and contains body exudates disposed on the main body 38. In the embodiment shown in Figure 2, the main body 38 has a generally rectangular shape, left and right longitudinally extending side edges 48 (hereinafter may be referred to as "longitudinal side edge") and front and back transversely extending end edges 50 (hereinafter may be referred to as "transverse end edge"). The main body 38 also has a front waist panel 52 positioned in the front region 26 of the absorbent article 20, a back waist panel 54 positioned in the back region 28, and a crotch panel 56 between the front and back waist panels 52, 54 in the crotch region 30. The center of the front belt portion 84 is joined to a front waist panel 52 of the absorbent main body, the center of the back belt portion 86 is joined to a back waist panel 54 of the absorbent main body, the front and back belt portion 84, 86 each having a left side panel and a right side panel where the absorbent main body does not overlap. Referring to Figure 3, the main body 38 may comprise a main body graphic zone 160. Among the materials for making the main body 38, the material on which the main body graphic zone is disposed, and which is visible from the garment facing surface, is called a graphic sheet. The graphic sheet may be the outermost layer of the absorbent main body, or a layer inside of a transparent or translucent outer layer through which the graphics may be observed. The main body graphic zone 160 may comprise a tummy graphic zone disposed in the front or back waist panel, and a leg graphic zone (not shown) disposed adjacent a leg opening extending circumferentially about at least a portion of the leg opening. At least two selected from the group consisting of the waist graphic zone (hereinafter described), the tummy graphic zone, and the leg graphic zone, may be coordinated with one another to create a uniform graphical element, such as common colors, patterns, articles, characters, associated shapes, etc.

Referring to Figures 1 and 2, the ring-like belt 40 formed by the front belt portion 84 and back belt portion 86 acts to dynamically create fitment forces and to distribute the forces dynamically generated during wear. Herein, the term "proximal" is used to indicate the position of a "proximal" portion being closer relative to the longitudinal center of the article, also closer relative to the crotch panel of the main body than the position of a "distal" portion. Therefore, the proximal edge 90F, 90B is located closer than the distal edge 88F, 88B relative to the crotch panel 56 of the main body 38. The front and back belt portions 84, 86 may be joined with each other only at the front and back side edges 89F, 89B at the seams 32 to form a absorbent article having a waist opening 36 and two leg openings 34. In one embodiment, the front and back belt portions are not continuous with one another in the crotch region. In such embodiment, there is no material that covers the entirety of either the wearer-facing surface or

garment-facing surface of the article. The front central panel 80F may partly overlap with the front waist panel 52 of the main body 38. The back central panel 80B may partly overlap with the back waist panel 54 of the main body 38. However, the central panel 80F, 80B may not extend into the crotch panel 56 of the main body 38 and not disposed in the crotch panel 56. In the embodiment shown in Figure 2, the central panel 80F, 80B partly overlaps with and is joined to the front waist panel 52 and the back waist panel 54, respectively.

The front belt portion 84 comprises a front waist end region ("FWE" as shown in Figure 2) adjacent the waist opening. The front waist end region may exist where the front waist panel 52 of the main body 38 does not overlap with the front belt portion 84. The back belt portion 86 comprises a back waist end region ("BWE" as shown in Figure 2) adjacent the waist opening. The back waist end region may exist where the back waist panel 54 of the main body does not overlap with the back belt portion 86. The longitudinal length of the waist end region may be 5-100mm, or 5-50mm, or 10-30mm. The longitudinal length of the front waist end region and the back waist end region may be the same or different. The front belt portion 84 and back belt portion 86 may each comprise a leg end region adjacent the proximal edges (not shown). The longitudinal length of the leg end region may be 5-30mm, or 5-20mm, or 10-15mm. The longitudinal length of the front leg end region and the back leg end region may be the same or different. The left and right side panels of the front belt portion 84 and the back belt portion 86 may each comprise a left and right tummy belt region between the waist end region and the leg end region. The tummy belt region may be made with minimum material for providing an elastic panel, such as two layers of low caliper non-woven material and elastic strands sandwiched between them. Such configuration may provide good fitment and breathability of the article. Referring to Figure 3, at least the front waist end region or the back waist end region may comprise a waist graphic zone 150, and the waist graphic zone may comprise an indicia 170. The waist graphic zone may extend circumferentially about the front and back waist end regions. Indicia 170 include one or more of indication of front and/or back of the article, size, gender, pulling area, brand name, logo, and others. In one embodiment, the indica 170 is an indication of front and/or back of the article. The front leg end region or the back leg end region may comprise a leg end graphic zone. The leg end graphic zone may be coordinated with the leg graphic zone on the main body to create a continuous look for the leg opening.

Referring to Figures 2, 4 (a), (b), and (c), the front belt portion 84 and back belt portion 86 may each comprise an inner sheet 94, an outer sheet 92, (hereinafter also collectively "belt sheets") and a plurality of elastic strands 96 sandwiched between the inner and outer sheets, the

elastic strands 96 extending in the transverse direction to provide a continuous elastic ring when the front belt portion and the back belt portion are joined. The waist end region may overlap with one or more elastic strands. The waist end region may overlap with 1-5 elastic strands, or 2-5 elastic strands. The leg end region may overlap with one or more elastic strands. The leg end region may overlap with 1-3 elastic strands, or 2-3 elastic strands. In one embodiment, the outer sheet 92 of the front or back belt portion towards the distal edge 108 may be longer than the size of the inner sheet 94 in the longitudinal direction, and an end flap 112 of the outer sheet 92 may be folded over the distal end of the inner sheet 94 at the waist opening 36 to form the waist end region. Similarly, an end flap 112 of the outer sheet 92 towards the proximal edge may be folded over the proximal end of the inner sheet 94 to form the leg end region. Both outer sheets 92 of the front belt portion 84 and the back belt portion 86 may be folded to cover both the front proximal edge 90F and the back proximal edge 90B. The waist graphic zone may be disposed on material in the waist end regions, so long as it is visible from the garment side of the article. The leg end graphic zone may be disposed on material in the leg end regions, so long as at least a portion is visible from the garment side of the article. The material on which the waist graphic zone and leg end graphic zone are disposed may be the same or different material for also adding opacity and/or thickness to the waist end regions and leg end regions. In one embodiment, they are the same material. The front and back belt portions 84, 86 may be provided in low caliper non-woven material for sake of breathability and softness of the belt 40. Such low caliper non-woven material, however, may provide a thin feel and transparent look at the waist end region, which may not provide an under-garment like feel and look. Opacity of nonwoven material may be measured according to the EDANA ERT110 1 (78) test method. Opacity is described in the unit of percentage. Such numerical value is described as points herein. For purposes of measuring opacity, the sample materials are prepared in an un-gathered state, with any elastic strands removed, if elastic strands are used or planned to be used. The waist end region and leg end region may have an opacity of at least 15 points greater than, or at least 20 points greater than, or at least 30 points greater than, or at least 40 points greater than, or 10-50 points greater than that of the tummy belt region. By adding material to the waist end region and/or leg end region, an under-garment like feel and look may be achieved while maintaining the overall performance of the belt 40. Further, by selection of the material, skin gather marking at the waist opening or leg opening may be alleviated, and fit of the waist opening or leg opening may be improved. Any material which meets the opacity

requirement or provides the desired skin/fit benefit may be added to the waist end region or the leg end region.

As in Figures 4(a) and 4(b), in some embodiments, the waist end region and leg end region may comprise an additional material 200 disposed between the inner sheet and the outer sheet. As in Figure (c), in some embodiments, the waist end region and leg end region may comprise an extension of the end flap of the outer sheet folded over the waist opening and further disposed in at least three layers. The configurations of Figures 4 (a), (b), and (c) are advantageous in that such additional material or multiple layers of the outer sheet in the waist end regions and leg end regions may provide added thickness and opacity (non-translucency) to the waist end region and leg end region. The additional material 200 provided in the waist end region and leg end region may comprise a cushion material such as polyurethane and corrugated non-woven, or elastic material such as elastomeric film, to provide additional sensorial elements to the waist end region and leg end region. Sensorial elements include tackiness, resilience, softness, lubricity, and others. Further, adding thickness to the waist end region may help prevent flipping of the waist end region over the waist edge. Adding material of certain tackiness or resilience may improve the fit of the leg opening. Adding material of certain softness or lubricity may prevent or alleviate gathering marks at the waist end region or the leg end region.

Similar or different configurations for adding material for opacity and/or thickness may be taken for the waist end region and leg end regions. By having both the waist end region and leg end region have higher opacity and/or thickness than the tummy belt region, an under-garment like feel and look may be achieved.

In one embodiment, the back belt portion 86 has a greater longitudinal length LB between the back distal edge 88B and the back proximal edge 90B along its entire width of the back belt portion 86 in the transverse direction than the longitudinal length LF of the front belt portion 84 between the front distal edge 88F and the front proximal edge 90F (Figures 1 and 2). In such embodiment, when the absorbent article is assembled to form the waist opening 36 and the leg openings 34, the absorbent article 20 is folded along the transverse centerline T1 such that the front distal edge 88F is aligned with the back distal edge 88B. The front side edge 89F is also aligned with a portion of the back side edge 89B. Then the front belt portion 84 and the back belt portion 86 are joined at the front and back side edges 89F, 89B at the seams 32. The front and back proximal edges 90F, 90B, however, may not be aligned to one another. The back proximal edge 90B may be disposed longitudinally closer than the front proximal edge 90F

relative to the transverse center line T1 such that the proximal portion of the back side panel 82B extends toward the crotch panel 56 of the main body 38 beyond the front proximal edge 90F. The side edge of the proximal portion of the back side panel 82B may not be joined to anywhere and free from attachment. Thus, the proximal portion of the back side panel 82B provides a buttock cover 95. Both outer sheets 92 of the front belt portion 84 and the back belt portion may be folded to cover both the front proximal edge 90F and the back proximal edge 90B. By such configuration for both the front and back portions of the leg opening, a relatively integral appearance of the leg opening may be achieved.

As described hereinabove, pant-type absorbent articles may have different configurations for the front and back of the article, including but not limited to, greater area of material in the back side for covering the buttock, uneven distribution of absorbent material in the main body for effectively absorbing and containing bodily fluids, etc. Unlike taped absorbent articles which may define the front and back of the article by the configuration of the tape and tape landing zone, the front and back distinction of a pant-type absorbent article may not be obvious to the wearer or care-giver just by the structure of the article. As such, the front and/or back side of the article may be clearly communicated to provide the expected performance of the article.

The present absorbent article may be suitably manufactured by forming the main body, and the front and back belt portions, and assembling the 3 elements. In processes where the main body and belt portions are formed in continuous direction that are perpendicular to each other, the main body provided in individual pieces is turned ninety degrees and placed on the continuous front and back belt portions at a predetermined interval to provide the left and right side panels between each of the individual main bodies. The process may then be followed by cutting the continuous front and back belt portions into each individual absorbent article, folding along the transverse centerline T1 in the crotch region, and joining the front and back belt portions 84, 86 at the seam 32 adjacent the side edges 89F, 89B to form the waist opening and the leg openings.

As need be, the main body graphic zone is registered with respect to the length of the individual main body or in relation to the front and back belt portions. By “registration” herein, what is meant is the act of aligning the position of one part of an article with another. Positioning may be in any direction. The graphic sheet on which the main body graphic zone is disposed may be registered with respect to the length of the individual main body or in relation to the front and back belt portions so that, for example, the tummy graphic zone matches with the

designated front or back waist panel area, or so that the designated position for front and back indication is properly provided for the respective front and/or back belt portion to be joined to. When such registration is required, failure of registration may provide the tummy graphic zone in an undesired portion of the article, or provide wrong indication of the front and back side of the article.

In one embodiment, by providing a front/back indicia on either the front or back waist graphic zones, need for the above mentioned registration may become less critical. Absence of the registration need may simplify process steps, or reduce cost for machinery to conduct such registration. Further, absence of the need to register the main body graphic zone relative to the length of the main body, or the direction of the main body, allows the main body graphic zone to have a variety of graphics. The main body graphic zone may be one in a form of non-direction, such as repeating patterns, or characters disposed in plurality in random orientation. Figure 3 shows one embodiment of a non-directional graphic for the main body graphic zone 160. Accordingly in one embodiment, the present invention is directed to a process of manufacturing the article herein wherein the process is free of a step of registering the main body graphic zone relative to the direction or positioning of the main body.

The obtained absorbent article of the present invention may provide an aesthetically pleasing, undergarment-like look and feel at the waist end edge. The obtained absorbent article of the present invention may also have a suitable tackiness, resilience, or softness at the waist end edge to enhance wearability by aiding pull up, or to provide good fit, or to prevent flipping of the waist end region over the waist edge, or to provide comfort during wear, or to prevent or alleviate gathering marks, or to prevent sagging and leakage. The obtained absorbent article of the present invention may be made in an economical manner.

Example 1

An absorbent article of the present invention having a waist end region according to Figure 4 (a) was made. The opacity of the waist end region was 80.6%, and the opacity of the tummy belt region was 37.9% when measured according to the EDANA ERT110 1 (78) test method. Thus, the opacity of the waist end region was 42.7 points greater than that of the tummy belt region.

Comparative Example

An absorbent article of the prior art having the same configuration as that of Example 1, except having a waist end region according to Figure 4 (d), was made. The opacity of the waist end region was 49.1%, and the opacity of the tummy belt region was 37.9% when measured

according to the EDANA ERT110 1 (78) test method. Thus, the opacity of the waist end region was 11.2 points greater than that of the tummy belt region.

Compared to Comparative Example, Example 1 provided more of an undergarment-like look and feel at the waist end edge, without significant compromise to other performance as an absorbent article.

The dimensions and values disclosed herein are not to be understood as being strictly limited to the exact numerical values recited. Instead, unless otherwise specified, each such dimension is intended to mean both the recited value and a functionally equivalent range surrounding that value. For example, a dimension disclosed as "40 mm" is intended to mean "about 40 mm."

Every document cited herein, including any cross referenced or related patent or application, is hereby incorporated herein by reference in its entirety unless expressly excluded or otherwise limited. The citation of any document is not an admission that it is prior art with respect to any invention disclosed or claimed herein or that it alone, or in any combination with any other reference or references, teaches, suggests or discloses any such invention. Further, to the extent that any meaning or definition of a term in this document conflicts with any meaning or definition of the same term in a document incorporated by reference, the meaning or definition assigned to that term in this document shall govern.

While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

CLAIMS

What is claimed is:

1. An absorbent article continuous in a longitudinal direction and a transverse direction, comprising a front belt portion, a back belt portion, and an absorbent main body, the center of the front belt portion is joined to a front waist panel of the absorbent main body, the center of the back belt portion is joined to a back waist panel of the absorbent main body, the front and back belt portion each having a left side panel and a right side panel where the absorbent main body does not overlap, and the respective left and right side panels of the front belt portion and the back belt portion are joined with each other only at the respective transverse edges to form a waist opening and two leg openings, each front belt portion and back belt portion having transversely continuous proximal and distal edges, the proximal edge being located closer than the distal edge relative to the longitudinal center of the article, wherein:

the absorbent main body comprises a main body graphic zone;

the front belt portion and the back belt portion each have a waist end region adjacent the waist opening, wherein the front and back waist panels of the absorbent main body do not overlap with the front or back waist end regions;

the front belt portion and the back belt portion each have a leg end region adjacent the proximal edges;

the left and right side panels of the front belt portion and the back belt portion each have a tummy belt region between the waist end region and the leg end region;

the waist end region having an opacity of at least 15 points greater than that of the tummy belt region.

2. The article of Claim 1 wherein at least the front waist end region or the back waist end region comprises a waist graphic zone.

3. The article of Claim 2 wherein the waist graphic zone comprises an indicia.

4. The article of Claim 3, wherein the indicia comprises indication of the front and/or back side of the article.

5. The article of Claim 4 wherein the main body graphic zone is non-directional.

6. The article of Claim 1, wherein at least a portion of the leg end region has an opacity of at least 15 points greater than that of the tummy belt region.

7. The article of Claim 2 or 6 wherein the main body graphic zone comprises a tummy graphic zone disposed on the front or back waist panel, and a leg graphic zone disposed adjacent the leg opening extending circumferentially about at least a portion of the leg opening.

8. The article of Claim 7 wherein at least two selected from the group consisting of the waist graphic zone, leg graphic zone, and tummy graphic zone, are coordinated with one another to create a uniform graphical element.

9. The article of Claim 7 wherein at least a portion of the leg end region comprises a leg end graphic zone, wherein the leg graphic zone and the leg end graphic zone are coordinated with each other to create a uniform graphical element.

10. The article of Claim 1, wherein the front and back belt portions each comprise an inner sheet, an outer sheet, and a plurality of elastic strands sandwiched between the inner and outer sheets, the elastic strands extending in the transverse direction to provide a continuous elastic ring when the front belt portion and the back belt portion are joined.

11. The article of Claim 10, wherein the outer sheet of the front or back belt portion towards the distal edge is longer than the size of the respective inner sheet in the longitudinal direction and an end flap of the outer sheet is folded over the distal end of the inner sheet to form the waist end region.

12. The article of Claim 10, wherein the outer sheet of the front or back belt portion towards the proximal edge is longer than the size of the respective inner sheet in the longitudinal direction and an end flap of the outer sheet is folded over the proximal end of the inner sheet to form the leg end region.

13. The article of Claim 10, 11, or 12 wherein the waist end region or the leg end region comprises an additional material disposed between the inner sheet and the outer sheet.

14. The article of Claim 13 wherein the additional material comprises cushion material.

15. The article of Claim 13 wherein the additional material comprises elastic material.

16. The article of Claim 13 wherein at least the front waist end region or the back waist end region comprises a waist graphic zone, wherein the waist graphic zone is disposed on the additional material.

17. The article of Claim 11 or 12 wherein the end flap of the outersheet is further disposed in at least three layers.

18. The article of Claim 10 wherein each of the proximal edges and the distal edges of the front belt portion and the back belt portion are substantially parallel, the longitudinal length of the back belt portion being longer than that of the front belt portion, wherein the distal edge of the front belt portion is aligned with the distal edge of the back belt portion, and the proximal edge of the front belt portion is not aligned with the proximal edge of the back belt portion.

19. The article of Claim 18 wherein both of the outer sheets of the front and back belt portions are longer than the size of the respective inner sheets in the longitudinal direction and the end flaps of the outer sheets are folded over the proximal ends of the inner sheets to form leg end regions on both of the front and back belt portions.

20. A process of manufacturing the article of Claim 5 wherein the process is free of a step for registering the main body graphic zone relative to the direction or positioning of the absorbent main body.

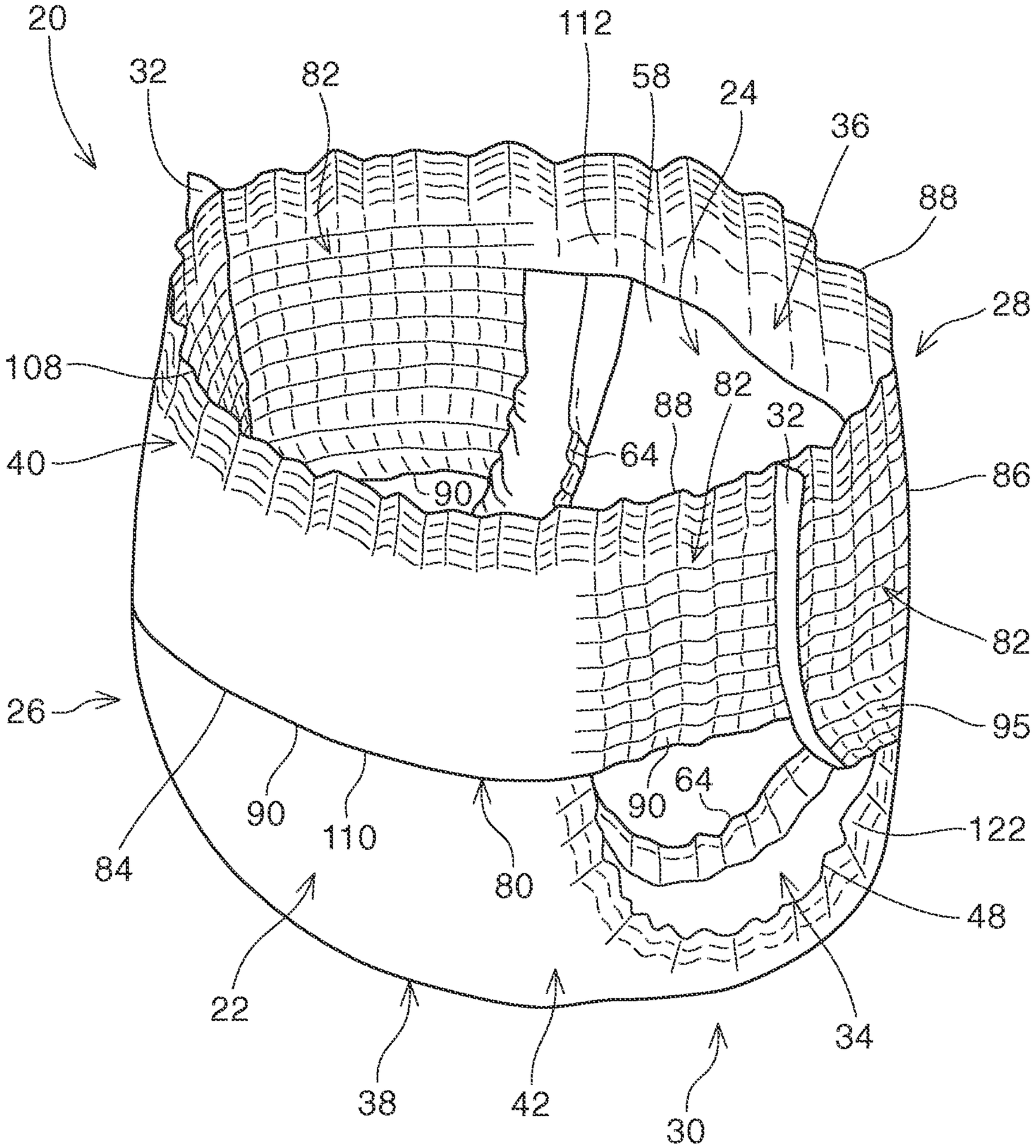
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Fig. 1

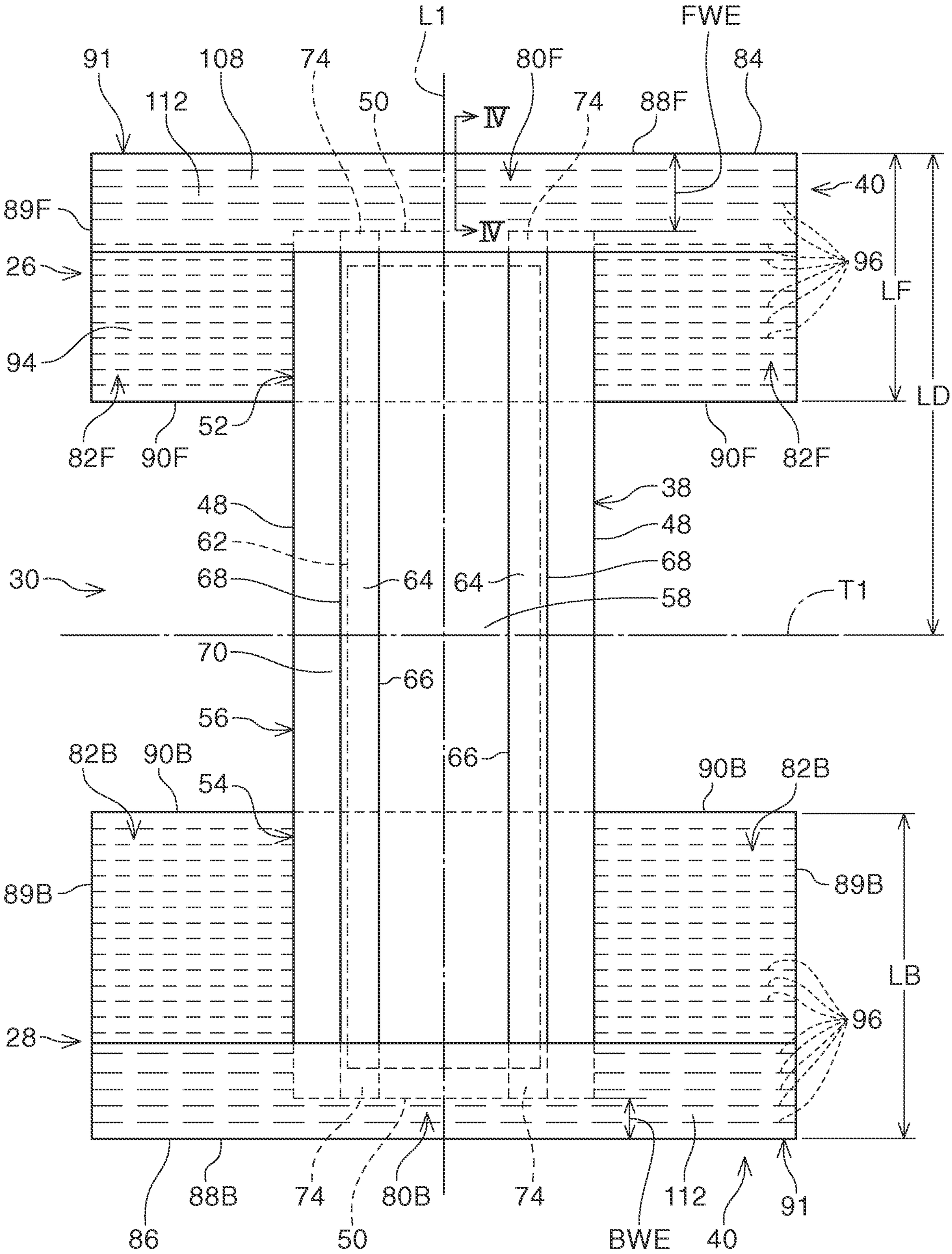
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Fig. 2

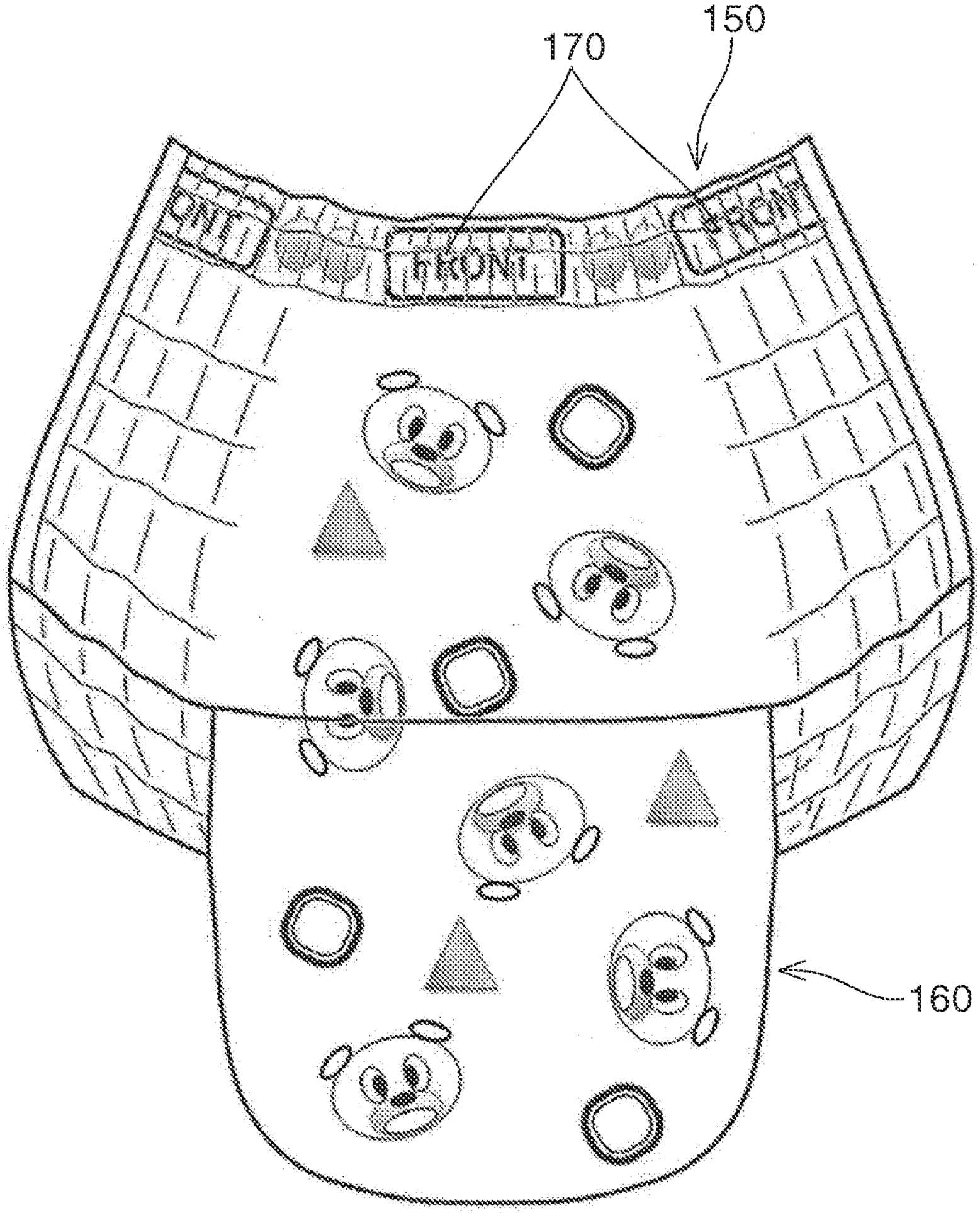
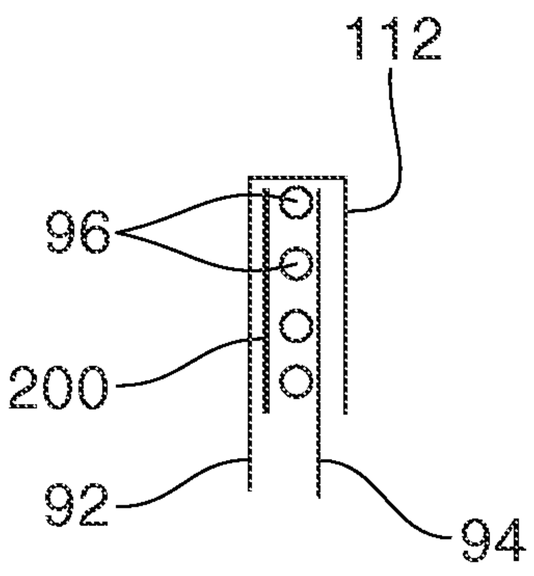


Fig. 3



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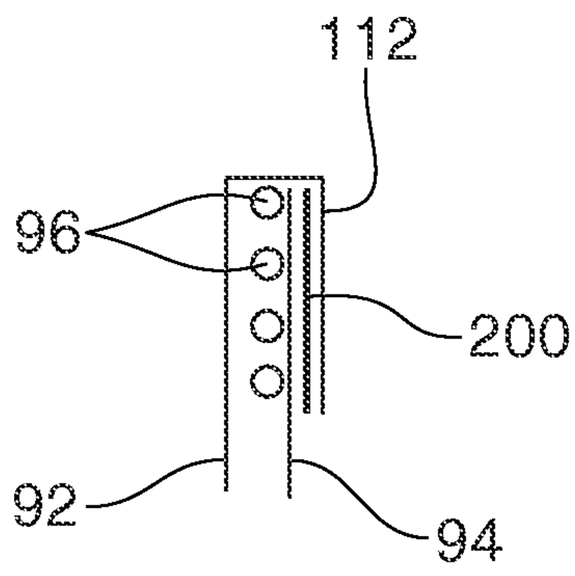

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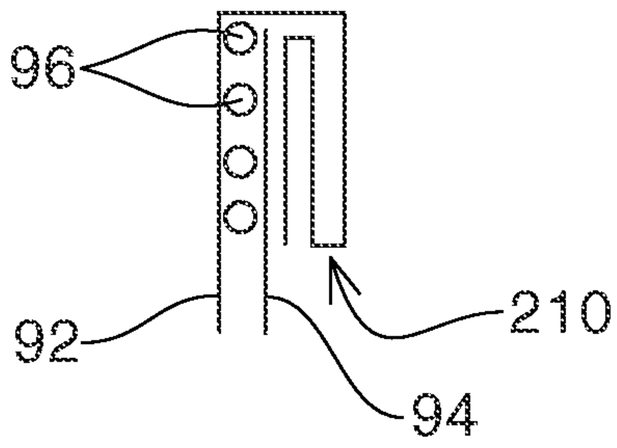

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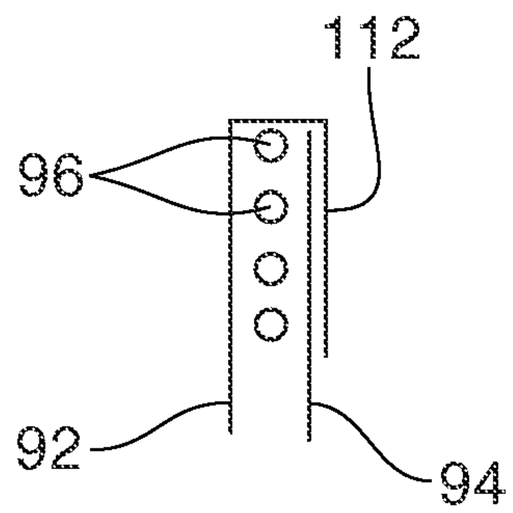

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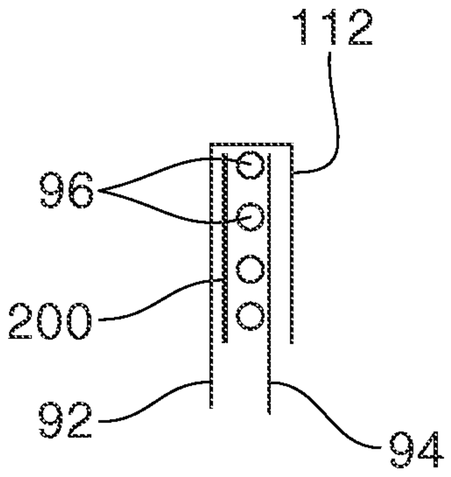
Fig. 4



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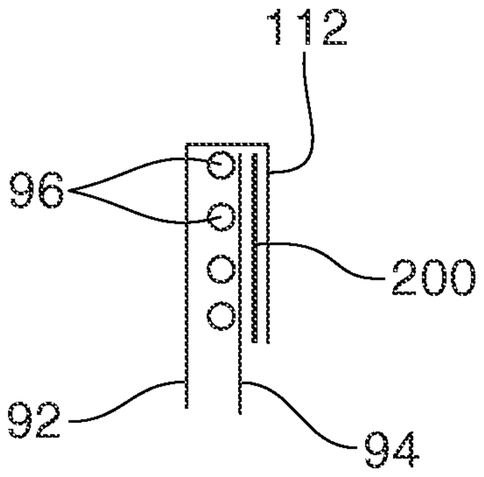

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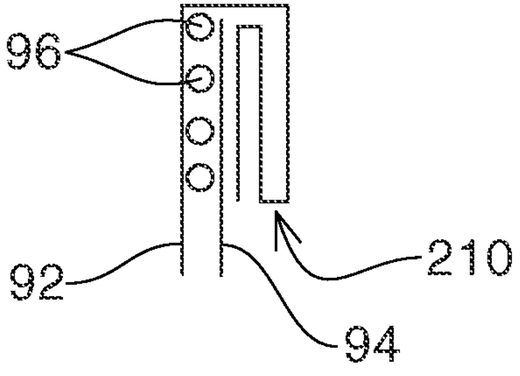

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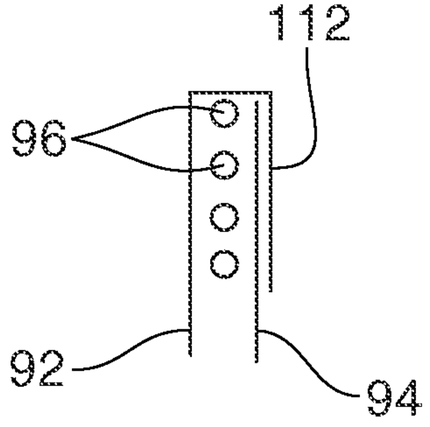

(d)

Fig. 4