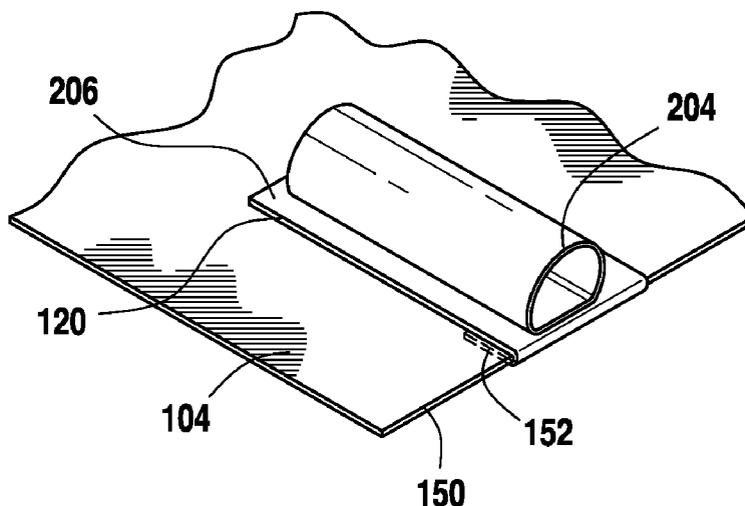




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(54) Titre : FIXATION POUR ARTICLE ABSORBANT
 (54) Title: FASTENER FOR AN ABSORBENT ARTICLE



(57) Abrégé/Abstract:

An absorbent article includes front and rear portions and a fastener for connecting side edges of the front and rear portions. The fastener includes a grasping element attached to an outer surface of the fastener to provide for grasping by the wearer or caregiver. The grasping element may be formed of flexible material and may have a variety of configurations, including a tube, a flange, a tunnel or a pocket.

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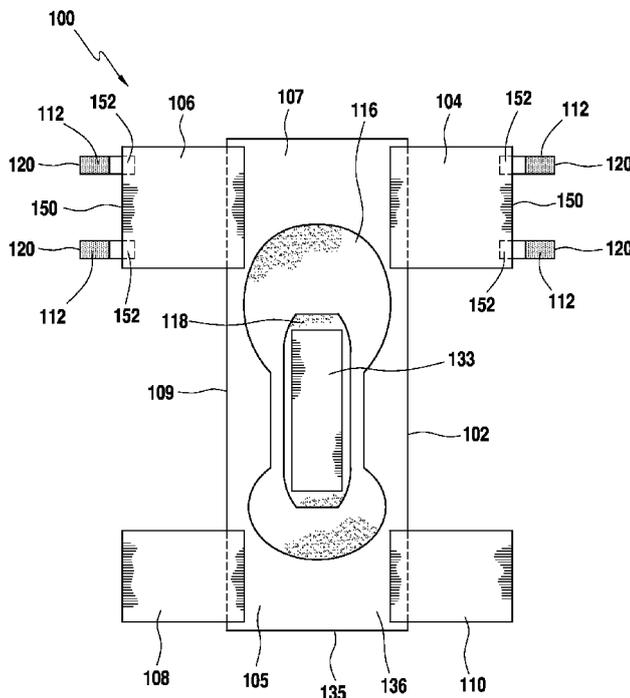


FIG. 1

(57) Abstract: An absorbent article includes front and rear portions and a fastener for connecting side edges of the front and rear portions. The fastener includes a grasping element attached to an outer surface of the fastener to provide for grasping by the wearer or caregiver. The grasping element may be formed of flexible material and may have a variety of configurations, including a tube, a flange, a tunnel or a pocket.

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FASTENER FOR AN ABSORBENT ARTICLEFIELD OF THE INVENTION

[0001] The present invention relates generally to absorbent articles and, in particular, to the use of fastening tab features for absorbent articles that provide for grasping by the wearer or caregiver.

BACKGROUND OF THE INVENTION

[0002] Millions of people of all ages suffer from incontinence of the bowel or bladder. Whether an infant, adult, or elderly person, the underlying cause of incontinence varies but the method of treatment typically involves use of absorbent article products. Adult incontinent briefs, disposable diapers and underpads can alleviate some of the emotional and physical discomfort of incontinence by absorbing and containing liquid and other discharges from the human body to prevent body and clothing soiling.

[0003] Typical absorbent articles include a topsheet facing the wearer that permits fluid exudates to pass through and a backsheet that prevents the exudates from escaping from the absorbent article. Much advancement has been made in the art since the introduction of the disposable absorbent article, as shown, for example, in applicant's co-pending U.S. Patent Application No. 13/832,965.

However, a fastening tab features that provide for grasping by the wearer or caregiver, while minimizing the risk of accidental opening the fastening tab because of shear with clothing or bed sheets.

[0004] Current absorbent article products include features or construction of fastening tape tabs that facilitate the opening of the tab. This is important for easy application of the product, and because caregivers are often wearing gloves during patient care. One fastening method includes a fold-over of the "peel" edge, which usually results in a sharp corner, as shown for example in U.S. Patent No. 4,090,516. Another fastening method employs a wavy edge often along with a non-glued or non-adhesive region, as shown for example in U.S. Patent No. 8,251,970.

[0005] Both embodiments can easily be caught in the wearer's clothing or bed sheets causing the absorbent article to accidentally open.

SUMMARY OF THE INVENTION

[0006] The present invention was developed in order to overcome these and other drawbacks by providing absorbent articles with fastening features that can be easily grasped but do not become caught in the wearers clothing or bed sheets.

[0006a] According to an aspect of the present invention, there is provided an absorbent article, comprising:

- a moisture-impervious outer layer;
 - an inner layer substantially co-extensive with the outer layer;
 - a filler interposed between the inner layer and the outer layer;
 - a rear portion having a rear side panel with a longitudinally extending side edge, the rear portion comprising a fastener attached to the rear side panel; and
 - a front portion comprising a fastener attachment area on an outside surface of the front portion, wherein the attachment area is adapted to engage the fastener;
- wherein the fastener comprises:
- a first portion that overlaps the rear side panel of the rear portion;
 - a second portion that extends laterally beyond the longitudinally extending side edge, the second portion having a length that extends in a lateral direction and a width perpendicular to the length and further having an upper surface and a lower surface;

a grasping element comprising a tube having an opening at a first end and an opening at a second end that extends laterally along the second portion upper surface, wherein the tube is folded flat against the second portion upper surface prior to use and a user inserts a finger into the tube to grip the grasping element to release the fastener; and

an attachment zone where a sidewall of the tube is attached to the second portion upper surface, wherein the attachment zone is narrower than both a diameter of the tube and the width of the second portion.

[0006b] According to another aspect of the present invention, there is provided an absorbent article, comprising:

a moisture-impervious outer layer;

an inner layer substantially co-extensive with the outer layer;

a filler interposed between the inner layer and the outer layer;

a rear portion having a rear side panel with a longitudinally extending side edge;

a fastener attached to the rear side panel and having a length that extends in a lateral direction and a width perpendicular to the length, the fastener comprising:

a base layer having an outer surface that faces away from the wearer when the article is in use and an inner surface that faces toward the wearer when the article is in use;

an engagement element attached to the inner surface of the base layer at a first attachment area; and

a grasping element attached to the outer surface of the base layer at a second attachment area, wherein the second attachment area overlaps with the first attachment area; and

a front portion comprising a fastener attachment area on an outside surface of the front portion, wherein the attachment area is adapted to engage the fastener, and

wherein the grasping element comprises:

a tube having an opening at a first end and an opening at a second end that extends laterally along the base layer outer surface, wherein the tube is folded flat against the base layer outer surface prior to use and a user inserts a finger into the tube to grip the grasping element to release the fastener; and

an attachment zone, wherein a sidewall of the tube is attached to the base layer outer surface and wherein the attachment zone is narrower than both a diameter of the tube and the width of the base layer.

[0006c] According to a further aspect of the present invention, there is provided an absorbent article, comprising:

a moisture-impervious outer layer;

an inner layer substantially co-extensive with the outer layer;

a filler interposed between the inner layer and the outer layer;

a rear portion having a rear side panel with a longitudinally extending side edge;

a fastener attached to the rear side panel, the fastener comprising:

a base layer having an outer surface that faces away from the wearer when the article is in use, an inner surface that faces toward the wearer when the article is in use;

an engagement element attached to the inner surface of the base layer; and

a grasping element attached to the outer surface of the base layer and forming an enclosed area; and

a front portion comprising a fastener attachment area on an outside surface of the front portion, wherein the attachment area is adapted to engage the fastener and

wherein the grasping element comprises:

a tube having an opening at a first end and an opening at a second end that extends laterally along the base layer outer surface, wherein the tube is folded flat against the base layer outer surface prior to use and a user inserts a finger into the tube to grip the grasping element to release the fastener; and

an attachment zone, wherein a sidewall of the tube is attached to the base layer outer surface and wherein the attachment zone is narrower than both a diameter of the tube and the width of the base layer.

[0006d] According to another aspect of the present invention, there is provided an absorbent article comprising:

a moisture-impervious outer layer;

an inner layer substantially co-extensive with the outer layer;

a filler interposed between the inner layer and the outer layer;
a rear portion having a rear side panel with a longitudinally extending side edge, the rear portion comprising a fastener attached to the rear side panel; and
a front portion comprising a fastener attachment area on an outside surface of the front portion, wherein the attachment area is adapted to engage the fastener;
wherein the fastener comprises:
a first portion that overlaps the rear side panel of the rear portion;
a second portion that extends laterally beyond the longitudinally extending side edge, the second portion having a length that extends in a lateral direction and a width perpendicular to the length and further having an upper surface and a lower surface;
a grasping element comprising a first end and a second end, the grasping element further comprising a first finger pocket with an opening at the first end and a second finger pocket with an opening at the second end; and
an attachment zone where the grasping element is attached to the second portion upper surface, wherein the attachment zone extends length-wise along edges of the fastener second portion and extends width-wise across the fastener second portion in spaced relation to the grasping element first and second ends to form the first and second finger pockets.

[0006e] According to another aspect of the present invention, there is provided an absorbent article comprising:

a moisture-impervious outer layer;
an inner layer substantially co-extensive with the outer layer;
a filler interposed between the inner layer and the outer layer;
a rear portion having a rear side panel with a longitudinally extending side edge;
a fastener attached to the rear side panel and having a length that extends in a lateral direction and a width perpendicular to the length, the fastener comprising:

a base layer having an outer surface that faces away from the wearer when the article is in use and an inner surface that faces toward the wearer when the article is in use;

an engagement element attached to the inner surface of the base layer at a first attachment area; and

a grasping element attached to the outer surface of the base layer at a second attachment area, wherein the second attachment area overlaps with the first attachment area; and

a front portion comprising a fastener attachment area on an outside surface of the front portion, wherein the attachment area is adapted to engage the fastener, and wherein the grasping element comprises:

a first end and a second end;

a first finger pocket with an opening at the first end and a second finger pocket with an opening at the second end; and

an attachment zone where the grasping element is attached to the base layer outer surface, wherein the attachment zone extends length-wise along edges of the fastener and extends width-wise across the fastener in spaced relation to the grasping element first and second ends to form the first and second finger pockets.

[0006f] According to a further aspect of the present invention, there is provided an absorbent article comprising:

a moisture-impervious outer layer;

an inner layer substantially co-extensive with the outer layer;

a filler interposed between the inner layer and the outer layer;

a rear portion having a rear side panel with a longitudinally extending side edge;

a fastener attached to the rear side panel, the fastener comprising:

a base layer having an outer surface that faces away from the wearer when the article is in use, an inner surface that faces toward the wearer when the article is in use, a length extending between a first end and a second end, and a width extending between a first edge and a second edge;

an engagement element attached to the inner surface of the base layer; and
a grasping element attached to the outer surface of the base layer; and
a front portion comprising a fastener attachment area on an outside surface of the front portion, wherein the attachment area is adapted to engage the fastener, and
wherein the grasping element comprises:

a flexible material having a length extending between a first end and a second end and a width extending between a first edge and a second edge;

a first attachment zone extending length-wise along the fastener first edge and securing the first edge of the flexible material to the base layer outer surface;

a second attachment zone extending length-wise along the fastener second edge and securing the second edge of the flexible material to the base layer outer surface; and

a tunnel formed by the grasping element between the first attachment zone and the second attachment zone, the tunnel comprising an opening at the flexible material first end and an opening at the flexible material second end wherein a length of the tunnel between the flexible material first end and the flexible material second end is greater than the width of the flexible material, wherein a user inserts a finger into the tunnel to grip the grasping element to release the fastener.

[0006g] According to another aspect of the present invention, there is provided a method for manufacturing a fastener for an absorbent article comprising the steps of:

passing a continuous web of fastener material in a first direction, the fastener material having an upper surface and a lower surface;

applying a hook component of a hook and loop closure to the lower surface of the fastener material;

feeding a continuous length of a grasping element material in a second direction;
severing the grasping material into individual sections; and

securing each individual section of grasping element material to an attachment zone of an upper surface the fastener material.

BRIEF DESCRIPTION OF THE FIGURES

[0007] Other objects and advantages of the invention will become apparent from a study of the following specification when viewed in light of the accompanying drawing, in which:

[0008] FIG. 1 is a top plan view of an absorbent article in a substantially flat un-contracted position according to an embodiment of the invention.

[0009] FIG. 2 is an exploded perspective view of the absorbent article of FIG. 1, again in a substantially flat un-contracted position.

[0010] FIG. 3 is a perspective view of a second absorbent core of the absorbent article depicted in FIG. 1.

[0011] FIG. 4 is a perspective view of a first absorbent core of the absorbent article depicted in FIG. 1.

[0012] FIG. 5 is a perspective view of an embodiment of a grasping element attached to a fastener of the absorbent article.

[0013] FIG. 6 is a partially exploded end-view of the embodiment illustrated in FIG. 5.

[0014] FIG. 7 is a perspective view of the embodiment illustrated in FIG. 5 showing the fastener attached to a side part of the absorbent article.

[0015] FIG. 8 is a partially exploded end-view of an embodiment of the grasping element.

[0016] FIG. 9 is a perspective view of an embodiment of the grasping element showing the fastener attached to a side part of the absorbent article.

[0017] FIG. 10 is a perspective view of an embodiment of the grasping element showing the fastener attached to a side part of the absorbent article.

[0018] FIG. 11 is a partially exploded end-view of an embodiment of the grasping element.

[0019] FIG. 12 is a partially exploded end-view of an embodiment of the grasping element.

[0020] FIG. 13 is a perspective view of an embodiment of the grasping element showing the fastener attached to a side part of the absorbent article.

[0021] FIG. 14 is a partially exploded end-view of the embodiment illustrated in FIG. 13.

[0022] FIG. 15 is a representative diagram illustrating steps in an embodiment of a manufacturing process for manufacturing the fastener and grasping element of FIGS. 5-7.

[0023] FIGS. 16-17 are representative diagrams illustrating steps in an embodiment of a manufacturing process for manufacturing the fastener and grasping element of FIGS. 13-14.

DETAILED DESCRIPTION

[0024] Absorbent articles as described herein generally include a moisture-pervious inner layer, an absorbent layer, and a moisture-impervious outer layer. Although the remainder of the description will be specifically directed to adult incontinence articles, such as disposable diapers, it is to be understood that the embodiments may also be implemented using other absorbent articles and that the properties and uses described below apply to these other absorbent articles as well. Throughout this application, the terms absorbent article and diaper are used interchangeably. However, it should be understood that the term diaper is intended to include other absorbent articles, such as training pants, incontinence pads, etc., as would be understood by one of ordinary skill in the art.

[0025] Embodiments of the invention are now described in detail. Referring to the drawings, like numbers indicate like parts throughout the views. As used in the description herein and throughout the claims, the following terms take the meanings explicitly associated herein, unless the context clearly dictates otherwise: the meaning of “a,” “an,” and “the” includes plural reference, the meaning of “in” includes “in” and

“on.” Relational terms such as first and second, top and bottom, proximal and distal, and the like may be used solely to distinguish one entity or action from another entity or action without necessarily requiring or implying any actual such relationship or order between such entities or actions.

[0026] FIGS. 1 and 2 illustrate an exemplary non-limiting general embodiment of an absorbent article 100. FIG. 1 illustrates a plan view of the absorbent article 100 in a substantially flat un-contracted state. As shown in these figures, the absorbent article 100 generally consists of several layers, including an inner layer, an absorbent layer, and an outer layer. The inner layer faces a wearer and contacts the skin of the wearer when the absorbent article 100 is secured to the wearer. The inner layer may comprise a topsheet that is composed of a moisture-pervious fabric suitable to allow bodily discharge to pass through the inner layer and be absorbed by the absorbent layer. Non-limiting examples of materials suitable to form the topsheet include polypropylene, polyethylene, polyester, materials having hydrophobic properties, combinations thereof and/or the like. Additionally, the topsheet can be treated with a hydrophilic finish to improve pass through of liquids to diaper layers beneath the inner layer. Non-limiting examples of suitable hydrophilic finishes include stearic acid, melamine-based chemicals, fluorocarbon chemicals, and silicon based chemicals.

[0027] The plan view of FIG. 1 is shown from the top or patient contacting side of the absorbent article. The topsheet (130) and other components have been removed for clarity. FIG. 2 is an exploded perspective view of the absorbent article 100. Again, the article 100 is shown in a substantially flat un-contracted state with certain items removed for clarity.

[0028] As shown in FIG. 1, an embodiment of the absorbent article 100 comprises a chassis 102. The chassis 102 includes a front waist region 105, a back waist region 107, and a crotch region 109 that is disposed longitudinally between the front and back waist regions 105 and 107. The front waist region 105 and the back waist region 107 generally comprise those portions of the absorbent article 100 which, when worn, encircle the waist of the wearer. The crotch region 109 is that portion of the absorbent article 100 which, when the absorbent article 100 is worn, is generally positioned between the legs of the wearer.

[0029] The chassis 102 has a shape such that its outer perimeter is rectangular or at least substantially rectangular in the illustrative embodiment of the absorbent article 100. In other embodiment, there may be portions of the chassis that are shaped and/or removed, such as in the crotch region 109, for example, resulting in a narrower crotch region portion 109 to provide a contoured fit between the legs. Still other embodiments have different shaped chassis, such as hourglass shapes, T-shapes, and the like.

[0030] Rear side panels 104, 106 are coupled to and may extend from the back waist region 105. The disposable article may further include front side panels 108, 110 that are coupled to and may extend from the front waist region 105. The back region 107 is generally positioned against the back of the user. The front region 105 is generally positioned against the front of the user. The rear side panels 104, 106 are configured to wrap around a wearer's waist from back to front, extending from each side of the back waist region 105. The front side panels 108, 110 are configured to wrap around a wearer's waist from front to back. In this manner, rear side panel 106 can be connected to front side panel 108 and rear side panel 104 can be connected to front side panel 110 to

couple the front region 105 to the back region 107. In this embodiment there are four side panels 104, 106, 108, 110. However, it should be recognized that other embodiments may be configured with more or fewer side panels. In particular, rear side panels 104, 106 may connect directly to an outside surface of front waist region 105 rather than to front side panels 108, 110.

[0031] The side panels may attach to the chassis 102 in a variety of manners as would be apparent to one of skill in the art. For example, as described in applicant's co-pending U.S. Patent Application No. 13/832,965 (U.S. Pat. App. Pub. 2013/0345657),

Alternatively, one or more of the side panels may be integrally formed, in whole or in part, with a backsheet 135 or topsheet 130 of the absorbent article. The backsheet 135 will have an outside surface 134 facing away from the patient wearing the absorbent article and an inside surface 136 facing toward the patient.

[0032] The rear side panels 104, 106 may also include fasteners 120. Fasteners 120 may comprise adhesive tape, hook and loop, snaps or any other appropriate fasteners as would be understood by one of ordinary skill in the art. As shown in the illustrative embodiment, rear side panel 104, 106 includes two fasteners 120. In a preferred embodiment, fasteners 120 can be configured to operatively couple rear side panels 104, 106 to a front region 105 of the diaper chassis 102. The fasteners 120 extend laterally from side edges 150 of the rear side panels 104, 106. The fasteners may overlap in a portion 152 to provide an adhesive area for attaching the fasteners to the side panels. Alternative, fasteners 120 may also engage front side panels 108, 110 to attach rear side panels 104, 106, respectively. While FIG. 1 depicts rear side panels 104, 106 as

including two fasteners 120, in some embodiments, more or fewer fasteners may be used. While FIG. 1 depicts fasteners 120 sized and shaped a particular way, in other embodiments, fasteners 120 can be a different size and/or shape. Alternatively, the front side panels 108, 110 may include fasteners in additions to, or in place of, the fasteners 120 attached to rear side panels 104, 106.

[0033] In another embodiment, the front region 105 and/or front panels 108, 110 may include added or modified features to reinforce or increase the affinity to the fastening device. Additionally, features may be employed to allow adhesive fasteners to be attached and detached from the fastening region multiple times. Those skilled in the art will recognize that there are multiple approaches to doing so via modification of the base material as well as additions of various materials. For example, fasteners 120 may incorporate the hook component 112 of a hook-and-loop closure and portions of the front region 105 and/or front panels 108, 110 may be comprise a corresponding loop component. The surface of front region 105 and/or front panels 108, 110 may be treated to increase or decrease the affinity for the hook components. Alternatively, separate loop component material may be adhered to the surface of the front region 105 and/or front panels 108, 110.

[0034] Referring again FIGS. 1 and 2, embodiments of the absorbent article 100 include an absorbent layer. The absorbent layer may comprise an acquisition and/or distribution (“A/D”) layer 133, a first absorbent core 116, and a second absorbent core 118. The liquid acquisition and/or distribution layers serves to rapidly acquire and then distribute acquired liquid to an absorbent core for retention. To achieve rapid acquisition and distribution, these layers often include cellulosic fibers. These layers can include

cross-linked cellulosic fibers to impart bulk and resilience to the layer, and wood pulp fibers to increase the wicking of liquid within the layer and to facilitate distribution of the liquid throughout the layer and ultimately to another layer, such as a storage layer, that is in liquid communication with the distribution layer.

[0035] FIG. 3 is a perspective view of a top (facing towards wearer) of the second core 118, and FIG. 4 is a perspective view of a bottom side (facing away from a wearer) of the first core 116. Each of the first core 116 and second core 118 can be composed of similar material, and can be shaped depending on the size of the absorbent article, and whether it is intended for use by infants, children and/or adults. By way of example, and as shown in FIGS. 3 and 4, first core 116 can be larger and substantially hourglass shaped, whereas second core 118 can be smaller, relative to first core 116, and can be substantially rectangular shaped. In this manner, the absorbent article can include a large surface area of coverage provided by the first core 116, and the increased absorbency provided by the second core 118, without the additional bulk of a second core having the same size as the first core.

[0036] First core 116 is shown having an embossed bottom and second core 118 is shown having an embossed top. The embossed top of second core 118 and the embossed bottom of first core 116 provide increased longitudinal flow while reducing lateral flow, and, in this manner, reducing leakage. Said another way, the embossed top of second core 118 and the embossed bottom of first core 116 allows fluid to move longitudinally towards the front and the back of a wearer, as opposed to towards the legs of a wearer.

[0037] Each of the first core 116 and the second core 118 may be composed of any materials suitable for absorbing the fluids and discharge including, but not limited to, a fibrous material (e.g., fluffed wood pulp), a super absorbent polymer (“SAP”), or the combination of SAP and fibrous material. The SAP can be natural or synthetic and may be biodegradable. Non-limiting examples of SAP include polymers based on acrylate(s) such as sodium acrylate, potassium acrylate, and/or an alkyl acrylate(s) (e.g., methyl acrylate, ethyl acrylate, propyl acrylate, butyl acrylate, and hexyl acrylate). The absorbency of the diaper may vary depending upon whether it is intended for use by infants, children and/or adults.

[0038] While FIGS. 3 and 4 depict the first core 116 having an embossed bottom, and the second core 118 having an embossed top, in some embodiments, an absorbent article can have only a single core with no embossing, a single core with embossing on both, and/or other combinations of one or two cores each with embossing on one, both, or neither side. While the figures show absorbent articles include one or two cores, in some embodiments, absorbent articles can include more or fewer cores.

[0039] FIGS. 3 and 4 depict embossing as including four spaced apart embossing “lines,” in some embodiments. However, a core can include more or fewer embossing lines. In some embodiments, embossing lines can be adjacent one another, or can be a combination of adjacent and space apart embossing line. In this manner, the different combinations of embossing lines can define an embossing pattern. While FIGS. 3 and 4 depict embossing substantially along the entire width and length of each respective core, in some embodiments a core can have embossing substantially along an entire width and/or length, and/or a portion of a width and/or length.

[0040] In embodiments of the invention, the first 116 and second 118 cores may be created with or without the use of super absorbent polymer (SAP). While some literature indicates that the presence of SAP in a diaper used for urine testing is considered benign, manufacturing diapers without SAP for the benefit of accuracy is contemplated by the present invention and may be considered beneficial.

[0041] Returning to FIGS. 1 and 2, the absorbent article 100 may further include a set of leak guards and/or a set leg cuffs 142, 144, both known to those of ordinary skill in the art. Additionally, the exemplary absorbent article includes an outer layer or backsheet 135 and elastic bands 137. The elastic bands 137 can be used to gather the leg of the article around the user's leg, improving the fit of the absorbent article 100 and can improve the comfort of the wearer. Elastic bands and other elastic materials may be used at other places in the absorbent article in order to improve the fit and/or fluid retention of the article.

[0042] As illustrated in FIGS. 5-14, fasteners 120 may include a grasping element that provide for grasping by the wearer or caregiver. In an embodiment shown in FIGS. 5-6, the fastener 120 may have an outer portion 206, which faces away from the wearer when the article is in use, and an inner portion 208, which faces toward the wearer when the article is in use. A grasping element, in this embodiment a flexible tube 204, is affixed to the outer portion 206 of the fastener 120. As shown in FIG. 6, the hook structures 212 of a hook and loop type fasteners may be attached to a length of the inner portion 208 of the fastener.

[0043] The tube 204 is attached to the fastener 120 along a region 210 that is narrower than the width of the fastener. In an embodiment of the invention, the region of

attachment is less than 50% of the width of the fastener. Alternatively, the region of attachment may be narrower, extending across 5-45% of the fastener width. The tube 204 may be attached using an adhesive 214, which may be applied continuously or in an intermittent manner to the outer portion 206 of the fastening tape 120, such that a narrow strip of adhesive 214 is present along the centerline of the fastener 120. The tube 204 acts as a gripping surface that may be grasped by the wearer or caregiver to release a fastener once applied to the surface of an absorbent article, such as the outer surface of front side panel 108, 110.

[0044] FIG. 7 shows a fastener 120 in a folded position prior to use. The fastener is attached to an outside surface of side panel 104 at an attachment region 152. The fastener is then folded over the lateral edge 150 of the side panel 104 and folded flat against an inside surface of the side panel. The tube 204 is also folded flat against the outer portion 206 of the fastener. In further embodiments, the hooks 212 may engage the inside surface of the side panel to hold the fastener in this folded position. During the process of putting the article on the wearer, the tube 204 is grasped and pulled to extend the fastener for use in side panel to another portion of the article.

[0045] The grasping element is not limited to a tube configuration show in FIGS. 5-7. For example, as shown in FIG. 8, a ribbon 304 or other similar material can be used in place of the tube construction and attached along a region 310 that is narrower than the fastener 120 and the ribbon 304. This results in two flanges 316, 318 that extend from the fastener and may be grasped individually or together by the user or wearer.

[0046] Referring now to FIG. 9, in an additional embodiment, the fastener 120 includes an outer layer 440 of material. The material 440 may be a nonwoven material,

elastomeric strip, plastic or poly film layer or other appropriate material. The outer layer 440 is preferably attached to the outer portion 206 of the fastener 120 over a specific pattern 460. The pattern 460 of attachment may be accomplished using hot melt adhesive, ultra sonic bonding or similar heat and pressure bonding. The pattern of attachment 460 is formed to create at least one finger pocket 480. To lift the fastener 120 away from the absorbent article the wearer or caregiver inserts a finger into the pocket 480 (as shown by arrow 482) and gently pulls the fastener away from an absorbent article. As shown in FIG. 9, the attachment pattern 460 may be formed of sections 462 extending length-wise along edges of the fastener and one or more sections 464 extending width-wise across the fastener 120 to form individual pockets 480.

[0047] Alternatively, as shown in FIG. 10, the attachment pattern 460 may comprise only sections 562 extending length-wise along edges of the fastener such that the outer layer of material 540 is attached to form a tunnel 580, into which the wearer or caregiver inserts a finger (as shown by arrow 482). The outer layer of material 540 may be attached, as shown in FIG. 11, such that it is substantially parallel to the fastener outer portion 206 or only slightly bowed outward to form a shallow arch or tunnel.

Alternatively, as shown in FIG. 12, the outer layer of material may be substantially wider than the fastener 120 such that the material forms a more open tunnel 780.

[0048] FIG. 13 shows a further embodiment of the invention in which a flexible tab 804 is attached to an outer portion 206 of the fastener 120. As shown in FIG. 14, an inner portion 208 of the fastener 120 includes hook structures 212 of hook and loop type fasteners known in the art. A base portion 820 of the tab 804 extends substantially parallel to the fastener and is affixed to the outer portion 206 of the fastener using a

narrow pattern 810 of adhesive or other bonding. An extension portion 822 of the tab 804 is bent at a hinge 824 so that the extension portion extends upwardly from the fastener. The free end 826 of the tab 804 may be grasped by the wearer or caregiver to release a fastening tab once applied to the surface of the absorbent article.

[0049] FIG. 15 illustrates an exemplary method of a manufacturing process for the embodiment shown in FIGS. 5-7. A web of fastener material 930 passes in a first direction 932. A section of hooks for a hook-and-loop fastener is applied across a portion of the lower portion of the material (not shown). An adhesive 914 may be applied in an intermittent manner to transverse sections 910 of the outer portion 906 of the fastener material 930. A continuous flexible tube 903 is fed into the process. The tube 203 is severed into individual tube sections 904 that are shorter than the cross-direction width of the fastener material. The tube sections 904 are turned 90 degrees and placed transversely on the web of fastening material at sections corresponding to the adhesive 914 such that the tube sections 904 adhere to the fastening material 930 at intervals. This activity may be performed while the fastening material 930 is a continuous web.

[0050] Alternatively, the adhesive may be applied continuously to the flexible tube 903 and the tube may be severed into tube sections 904 and turned 90 degrees and placed upon the outer portion 906 fastening material 930. In this alternative, the adhesive would not be applied directly to the fastening material.

[0051] Following adhesion of the tube sections, the fastening material may be severed into discrete fasteners 920 along transverse lines 921. These fasteners may then be attached to the side panels 104, 106. The fastening material may be severed at this

stage of the process or may be severed at the point in the process that it is attached to the side panels.

[0052] Because the tube 903 may be accelerated or decelerated to match the spacing (cut width) of the fasteners 920, there is no limitation on the fed-in length relative to the final cut length of the fasteners. Furthermore, utilizing different tube widths or diameters can provide various dimensions of gripping area for a given tape construction. Additionally, the grasping element is not limited to a tube configuration. A ribbon can be used in place of the tube construction, resulting in two flanges that can be used for more readily grasping the fastening tab. This embodiment, as well as other versions, will require registration of the web leading to the cutting and placing applicator

[0053] FIGS. 16-17 show an exemplary method of a manufacturing process for the embodiments illustrated in FIGS. 13-14. A web of fastener material 1030 having an upper side 1006 and a lower side 1008 passes in a first direction 1032. A section of hooks 1012 for a hook-and-loop fastener is applied across a portion of the lower side 1008 of the material 1030. Adhesive 1014 may be applied in an intermittent manner to transverse sections of upper side 1006 of the fastener material 1030. A web of flexible flange material 1034 passes in a second direction 1036 and is realigned to be parallel to the fastener material 1030 and brought into contact with the fastener material over the transverse adhesive sections 2014. Accordingly, the application of an adhesive 1014 creates a pattern that is phased to create alternating adhered 1038 and non-adhered 1040 portions of the flange material 1034. The flange material 1034 may be narrower than the fastener material 1030 such that the flange material extends only part way across the flange material.

[0054] The resulting layup of materials may then be cut along first cut lines 1060 that pass through the non-adhered sections 1040 and along second cut lines 1080 that pass through the adhered sections 1038. The pattern of alternating adhesive and cuts results a plurality of fasteners 1120 with alternating fasteners having flexible tabs 1004 arranged in “mirror image” about the first cut line 1060 and bonded portions 1020 mirrored about a second cut line 1080. The resulting fasteners may then be attached to the side panels 104, 106. The fastening material may be severed at this stage of the process or may be severed at the point in the process that it is attached to the side panels.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. An absorbent article, comprising:
 - a moisture-impervious outer layer;
 - an inner layer substantially co-extensive with the outer layer;
 - a filler interposed between the inner layer and the outer layer;
 - a rear portion having a rear side panel with a longitudinally extending side edge, the rear portion comprising a fastener attached to the rear side panel; and
 - a front portion comprising a fastener attachment area on an outside surface of the front portion, wherein the attachment area is adapted to engage the fastener;wherein the fastener comprises:
 - a first portion that overlaps the rear side panel of the rear portion;
 - a second portion that extends laterally beyond the longitudinally extending side edge, the second portion having a length that extends in a lateral direction and a width perpendicular to the length and further having an upper surface and a lower surface;
 - a grasping element comprising a tube having an opening at a first end and an opening at a second end that extends laterally along the second portion upper surface, wherein the tube is folded flat against the second portion upper surface prior to use and a user inserts a finger into the tube to grip the grasping element to release the fastener; and
 - an attachment zone where a sidewall of the tube is attached to the second portion upper surface, wherein the attachment zone is narrower than both a diameter of the tube and the width of the second portion.
2. The absorbent article of claim 1, wherein the grasping element comprises a flexible material.
3. The absorbent article of claim 2, wherein the flexible material comprises nonwoven material.

4. The absorbent article of claim 2, wherein the flexible material comprises an elastomeric material.
5. The absorbent article of claim 2, wherein the flexible material comprises a polymer film.
6. The absorbent article of any one of claims 1 to 5, wherein the tube comprises an axis extending along the center of the tube, and the tube axis is generally parallel to the length of the fastener second portion.
7. The absorbent article of any one of claims 1 to 6, wherein the fastener attachment zone comprises an adhesive.
8. The absorbent article of any one of claims 1 to 6, wherein the fastener attachment zone comprises an ultrasonic bond.
9. The absorbent article of any one of claims 1 to 6, wherein the fastener attachment zone comprises a heat and pressure bond.
10. An absorbent article, comprising:
 - a moisture-impervious outer layer;
 - an inner layer substantially co-extensive with the outer layer;
 - a filler interposed between the inner layer and the outer layer;
 - a rear portion having a rear side panel with a longitudinally extending side edge;
 - a fastener attached to the rear side panel and having a length that extends in a lateral direction and a width perpendicular to the length, the fastener comprising:
 - a base layer having an outer surface that faces away from the wearer when the article is in use and an inner surface that faces toward the wearer when the article is in use;

an engagement element attached to the inner surface of the base layer at a first attachment area; and

a grasping element attached to the outer surface of the base layer at a second attachment area, wherein the second attachment area overlaps with the first attachment area; and

a front portion comprising a fastener attachment area on an outside surface of the front portion, wherein the attachment area is adapted to engage the fastener, and

wherein the grasping element comprises:

a tube having an opening at a first end and an opening at a second end that extends laterally along the base layer outer surface, wherein the tube is folded flat against the base layer outer surface prior to use and a user inserts a finger into the tube to grip the grasping element to release the fastener; and

an attachment zone, wherein a sidewall of the tube is attached to the base layer outer surface and wherein the attachment zone is narrower than both a diameter of the tube and the width of the base layer.

11. The absorbent article of claim 10, wherein the engagement element comprises a hook portion of a hook-and-loop fastener.
12. The absorbent article of claim 11, wherein the front portion fastener attachment area comprises a loop portion of a hook-and-loop fastener.
13. An absorbent article, comprising:
 - a moisture-impervious outer layer;
 - an inner layer substantially co-extensive with the outer layer;
 - a filler interposed between the inner layer and the outer layer;
 - a rear portion having a rear side panel with a longitudinally extending side edge;
 - a fastener attached to the rear side panel, the fastener comprising:

a base layer having an outer surface that faces away from the wearer when the article is in use, an inner surface that faces toward the wearer when the article is in use;

an engagement element attached to the inner surface of the base layer; and

a grasping element attached to the outer surface of the base layer and forming an enclosed area; and

a front portion comprising a fastener attachment area on an outside surface of the front portion, wherein the attachment area is adapted to engage the fastener and wherein the grasping element comprises:

a tube having an opening at a first end and an opening at a second end that extends laterally along the base layer outer surface, wherein the tube is folded flat against the base layer outer surface prior to use and a user inserts a finger into the tube to grip the grasping element to release the fastener; and

an attachment zone, wherein a sidewall of the tube is attached to the base layer outer surface and wherein the attachment zone is narrower than both a diameter of the tube and the width of the base layer.

14. An absorbent article comprising:

a moisture-impervious outer layer;

an inner layer substantially co-extensive with the outer layer;

a filler interposed between the inner layer and the outer layer;

a rear portion having a rear side panel with a longitudinally extending side edge, the rear portion comprising a fastener attached to the rear side panel; and

a front portion comprising a fastener attachment area on an outside surface of the front portion, wherein the attachment area is adapted to engage the fastener;

wherein the fastener comprises:

a first portion that overlaps the rear side panel of the rear portion;

a second portion that extends laterally beyond the longitudinally extending side edge, the second portion having a length that extends in a lateral direction and a width perpendicular to the length and further having an upper surface and a lower surface;

a grasping element comprising a first end and a second end, the grasping element further comprising a first finger pocket with an opening at the first end and a second finger pocket with an opening at the second end; and

an attachment zone where the grasping element is attached to the second portion upper surface, wherein the attachment zone extends length-wise along edges of the fastener second portion and extends width-wise across the fastener second portion in spaced relation to the grasping element first and second ends to form the first and second finger pockets.

15. The absorbent article of claim 14, wherein the grasping element comprises a flexible material.
16. The absorbent article of claim 15, wherein the flexible material comprises nonwoven material.
17. The absorbent article of claim 15, wherein the flexible material comprises an elastomeric material.
18. The absorbent article of claim 15, wherein the flexible material comprises a polymer film.
19. The absorbent article of claim 14, wherein the first finger pocket comprises a first axis extending along a center of the first finger pocket, and the first finger pocket axis is generally parallel to the length of the fastener second portion.
20. The absorbent article of claim 15, wherein the second finger pocket comprises a second axis extending along a center of the second finger pocket, and the second finger pocket axis is generally parallel to the length of the fastener second portion.
21. The absorbent article of claim 14, wherein the fastener attachment zone comprises an adhesive.

22. The absorbent article of claim 14, wherein the fastener attachment zone comprises an ultrasonic bond.
23. The absorbent article of claim 14, wherein the fastener attachment zone comprises a heat and pressure bond.
24. An absorbent article comprising:
a moisture-impervious outer layer;
an inner layer substantially co-extensive with the outer layer;
a filler interposed between the inner layer and the outer layer;
a rear portion having a rear side panel with a longitudinally extending side edge;
a fastener attached to the rear side panel and having a length that extends in a lateral direction and a width perpendicular to the length, the fastener comprising:
a base layer having an outer surface that faces away from the wearer when the article is in use and an inner surface that faces toward the wearer when the article is in use;
an engagement element attached to the inner surface of the base layer at a first attachment area; and
a grasping element attached to the outer surface of the base layer at a second attachment area, wherein the second attachment area overlaps with the first attachment area; and
a front portion comprising a fastener attachment area on an outside surface of the front portion, wherein the attachment area is adapted to engage the fastener, and wherein the grasping element comprises:
a first end and a second end;
a first finger pocket with an opening at the first end and a second finger pocket with an opening at the second end; and
an attachment zone where the grasping element is attached to the base layer outer surface, wherein the attachment zone extends length-wise along edges of the fastener and extends width-wise across the fastener in spaced relation to the

grasping element first and second ends to form the first and second finger pockets.

25. The absorbent article of claim 24, wherein the engagement element comprises a hook portion of a hook-and-loop fastener.

26. The absorbent article of claim 24, wherein the front portion fastener attachment area comprises a loop portion of a hook-and-loop fastener.

27. The absorbent article of claim 24, wherein a width of the first finger pocket opening is narrower than the fastener width.

28. An absorbent article comprising:

a moisture-impervious outer layer;

an inner layer substantially co-extensive with the outer layer;

a filler interposed between the inner layer and the outer layer;

a rear portion having a rear side panel with a longitudinally extending side edge;

a fastener attached to the rear side panel, the fastener comprising:

a base layer having an outer surface that faces away from the wearer when the article is in use, an inner surface that faces toward the wearer when the article is in use, a length extending between a first end and a second end, and a width extending between a first edge and a second edge;

an engagement element attached to the inner surface of the base layer; and

a grasping element attached to the outer surface of the base layer; and

a front portion comprising a fastener attachment area on an outside surface of the front portion, wherein the attachment area is adapted to engage the fastener, and

wherein the grasping element comprises:

a flexible material having a length extending between a first end and a second end and a width extending between a first edge and a second edge;

a first attachment zone extending length-wise along the fastener first edge and securing the first edge of the flexible material to the base layer outer surface;

a second attachment zone extending length-wise along the fastener second edge and securing the second edge of the flexible material to the base layer outer surface; and

a tunnel formed by the grasping element between the first attachment zone and the second attachment zone, the tunnel comprising an opening at the flexible material first end and an opening at the flexible material second end wherein a length of the tunnel between the flexible material first end and the flexible material second end is greater than the width of the flexible material, wherein a user inserts a finger into the tunnel to grip the grasping element to release the fastener.

29. The absorbent article of claim 28, wherein the grasping element further comprises a third attachment zone extending width-wise across the fastener between the flexible material first end and second end and securing a lateral portion of the flexible material to the base layer outer surface.

30. The absorbent article of claim 29, wherein the first, second and third attachment zones attach the flexible material to the base layer outer surface to form a first finger pocket.

31. The absorbent article of claim 30, wherein the first, second and third attachment zones attach the flexible material to the base layer outer surface to form first and second finger pockets.

32. The absorbent article of claim 30, wherein a width of the opening at the first end of the flexible material is less than the width of the base layer.

33. The absorbent article of claim 28, wherein a width of the flexible material is greater than the width of the base layer such that the tunnel extends away from the outer surface of the base layer.

34. The absorbent article of claim 33, wherein the tunnel is folded against the base layer outer surface prior to use.
35. A method for manufacturing a fastener for an absorbent article comprising the steps of:
passing a continuous web of fastener material in a first direction, the fastener material having an upper surface and a lower surface;
applying a hook component of a hook and loop closure to the lower surface of the fastener material;
feeding a continuous length of a grasping element material in a second direction;
severing the grasping material into individual sections; and
securing each individual section of grasping element material to an attachment zone of an upper surface the fastener material.
36. The method according to claim 35, wherein the hook component is discontinuous and adhered to portions of the fastener material lower surface.
37. The method according to claim 35, wherein the grasping element material comprises a flexible material.
38. The method according to claim 36, wherein the flexible material comprising a tube.
39. The method according to claim 36, wherein the flexible material comprising a ribbon.
40. The method according to claim 35, where in the individual sections of grasping material each have a length that is shorter than a cross-directional width of the fastener material.

41. The method according to claim 35, further comprising applying an adhesive that secures individual sections of the grasping element material the fastener material.
42. The method according to claim 35, further comprising bonding individual sections of the grasping element material the fastener material.
43. The method according to claim 41, wherein before the step of feeding the grasping element material into the process, the adhesive is intermittently applied to the fastening material.
44. The method according to claim 41, wherein before the step of feeding the grasping element material into the process, the adhesive is continuously applied to the grasping element material.
45. The method according to claim 41, further comprising the step of applying the adhesive in a pattern, the pattern phased to create alternating adhered and non-adhered portions.
46. The method according to claim 45, further comprising the step of securing the grasping element material to the fastener material along a portion of the length of the grasping material, wherein the securement pattern forms the secured grasping element material into at least one flange or tab.
47. The method according to claim 45, further comprising the step of securing the grasping element material to the fastener material along length-wise edge portions of the grasping element material wherein the pattern forms the secured grasping element material into a tunnel.
48. The method according to claim 47, further comprising the step of securing the grasping element material to the fastener material along at least one section extending

across a width of the grasping element material wherein the pattern forms the grasping element material into at least one finger pocket.

49. The method according to claim 35, wherein the attachment zone is narrower than both of a width of the grasping element material and a width of the fastener material.

50. The method according to claim 49, wherein the attachment zone is less than 50% of a width of the fastener material.

51. The method according to claim 35, wherein the second direction is parallel to the first direction.

52. The method according to claim 35, further comprising, before the step of securing the grasping element material to the fastener material the steps of:
cutting the grasping element material into sections that are shorter than a cross-direction width of the fastener material;
turning the grasping element material cut sections 90 degrees; and
placing the grasping element material cut sections transversely on the fastening material at intervals corresponding to the attachment zone.

53. The method according to claim 52, wherein before the step of cutting the grasping element material into sections an adhesive is applied to the continuous length of the grasping element material.

54. The method according to claim 35, further comprising the step of attaching an end of the fastening material to an outside surface of a side panel of an absorbent article.

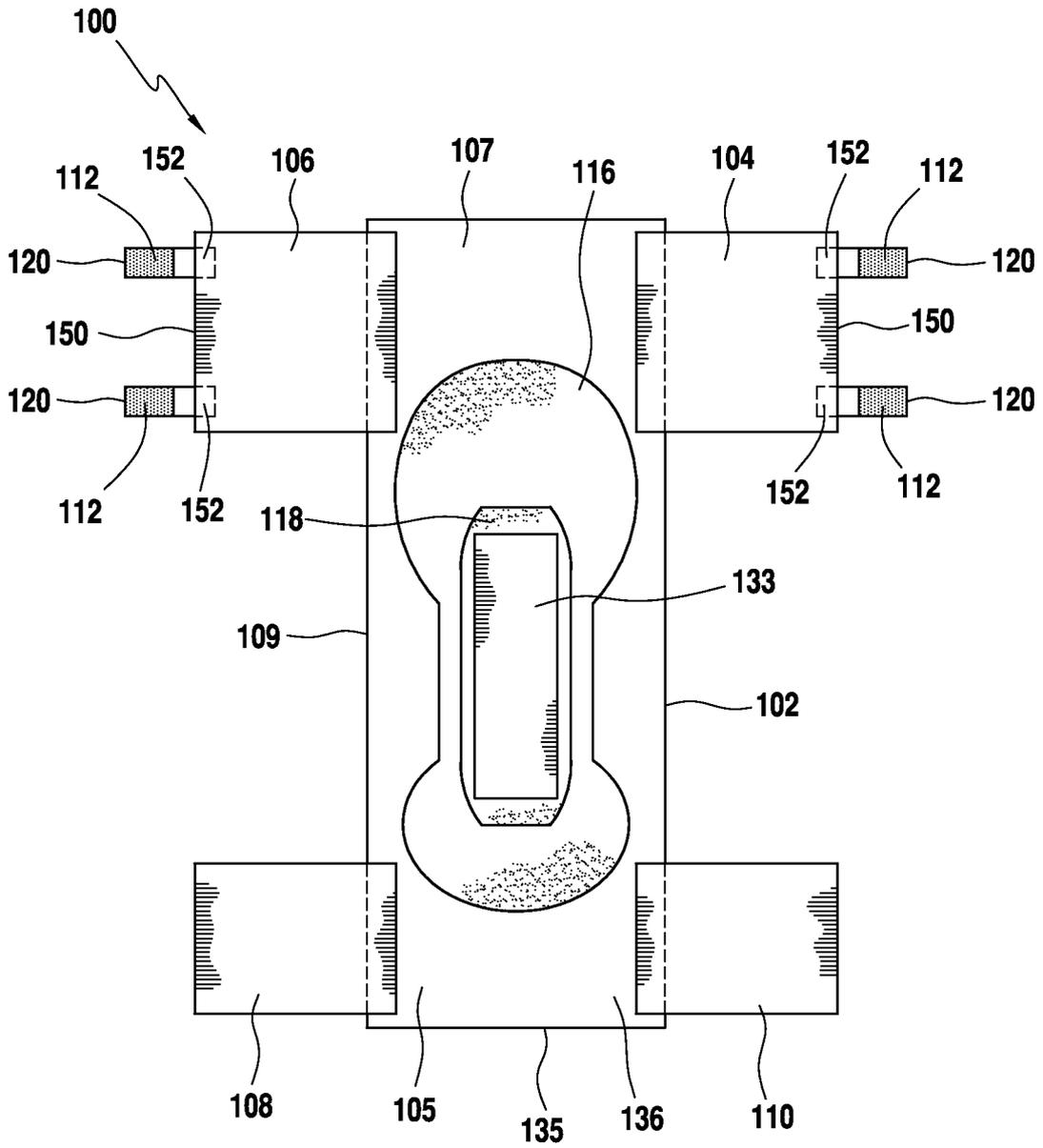


FIG. 1

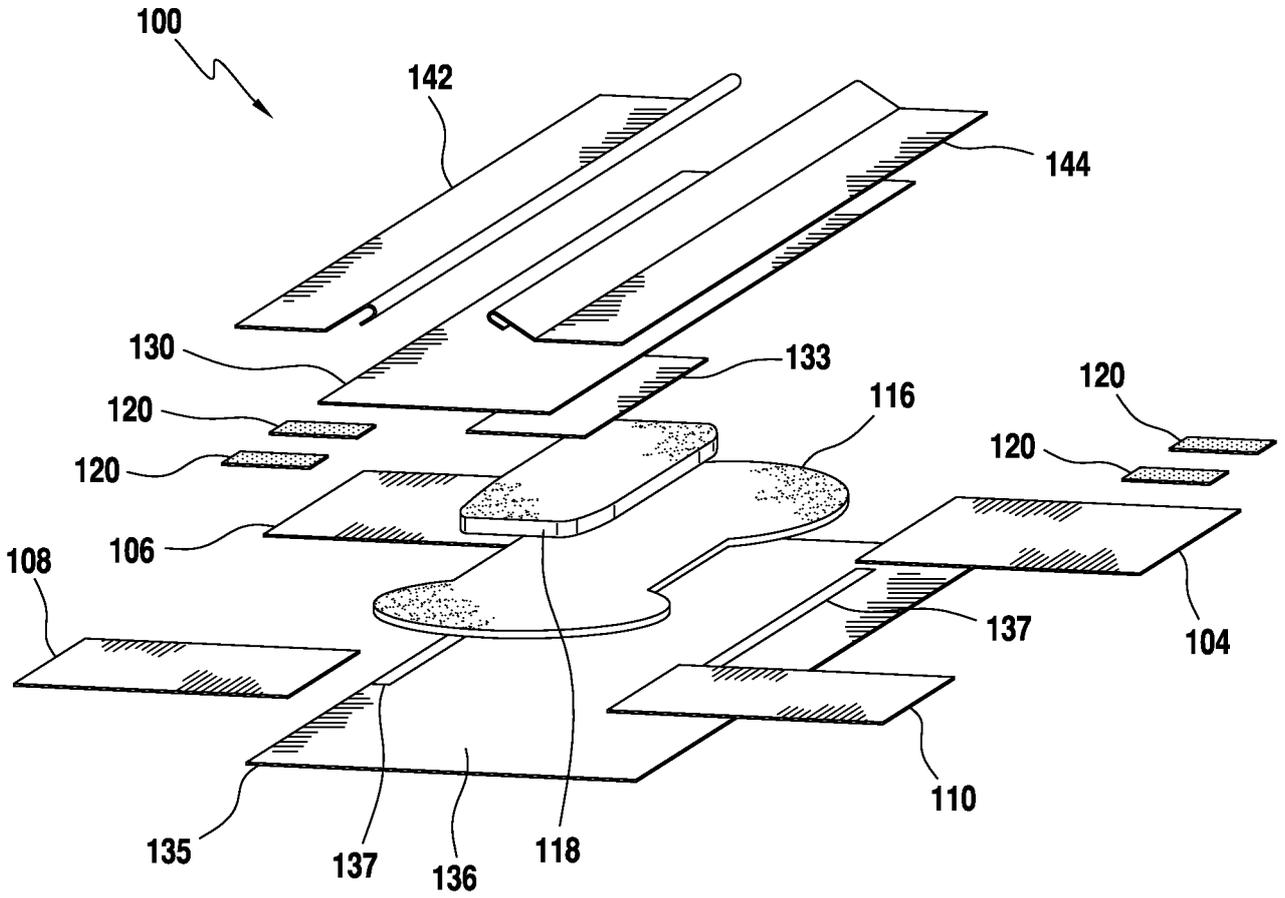


FIG. 2

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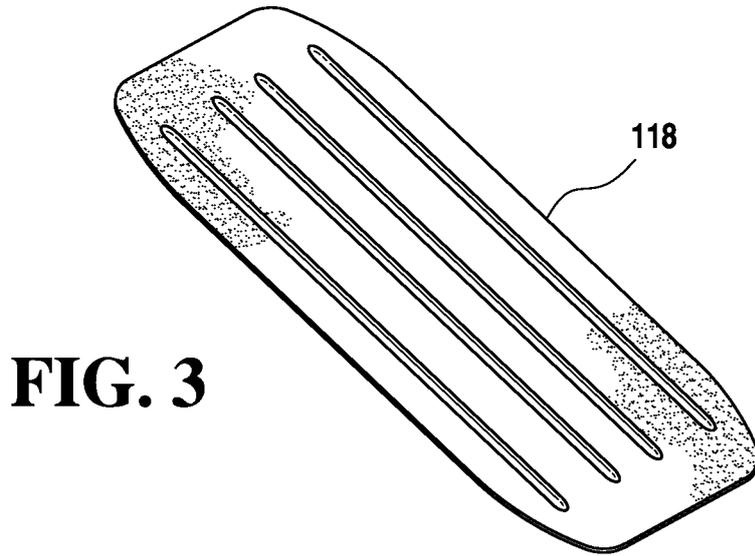


FIG. 3

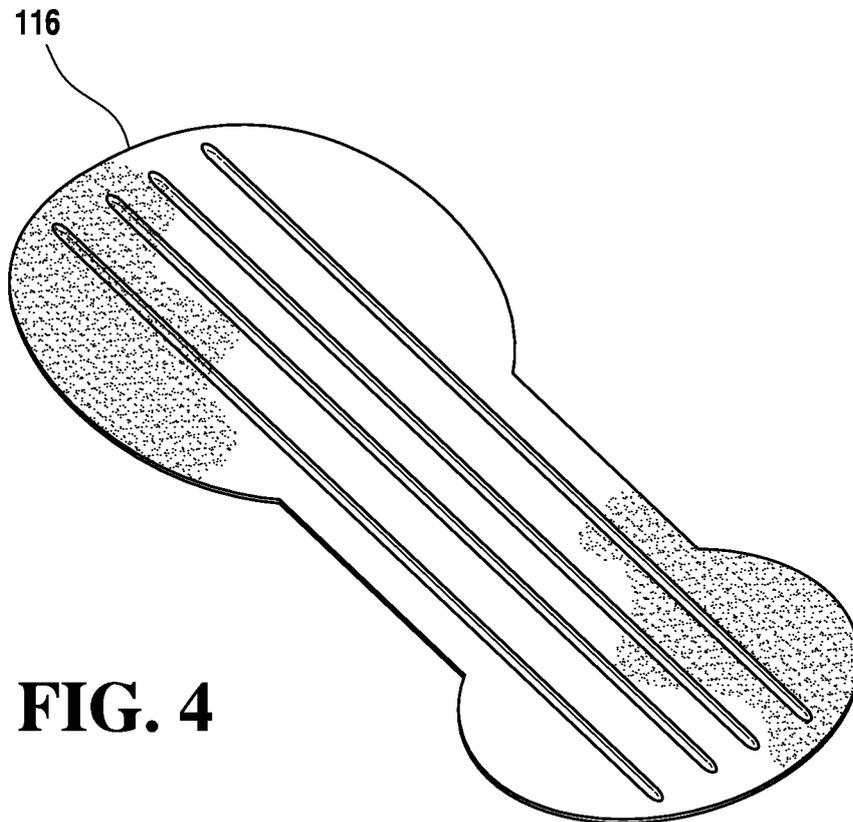


FIG. 4

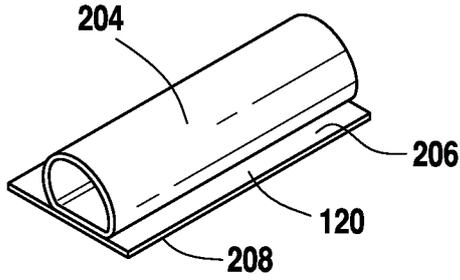


FIG. 5

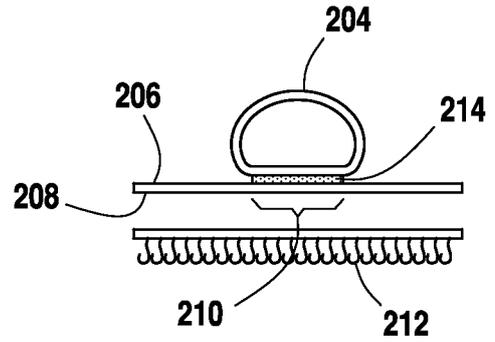


FIG. 6

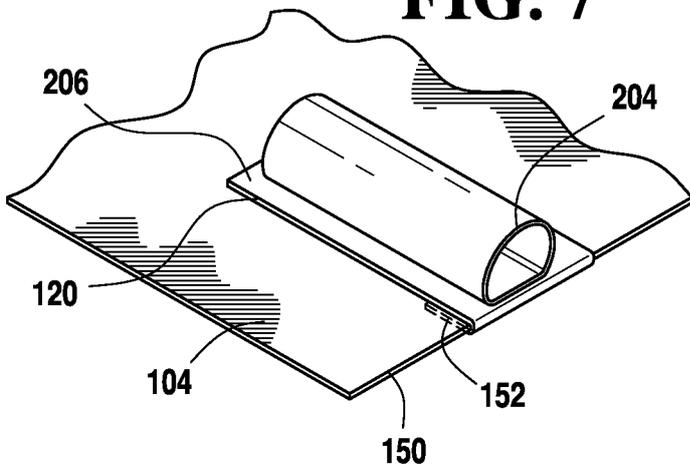


FIG. 7

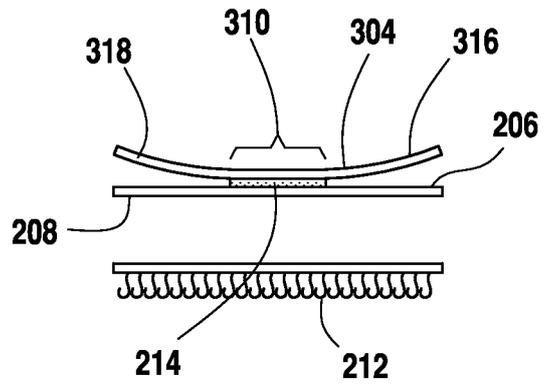


FIG. 8

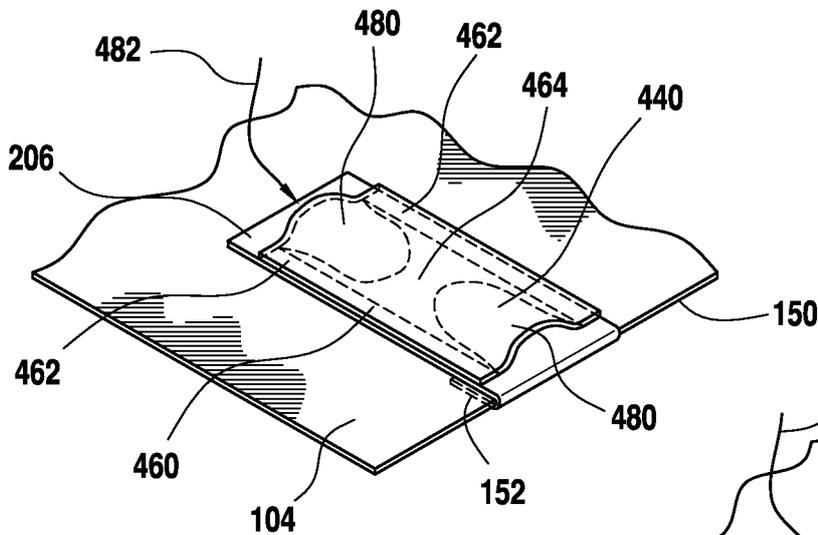


FIG. 9

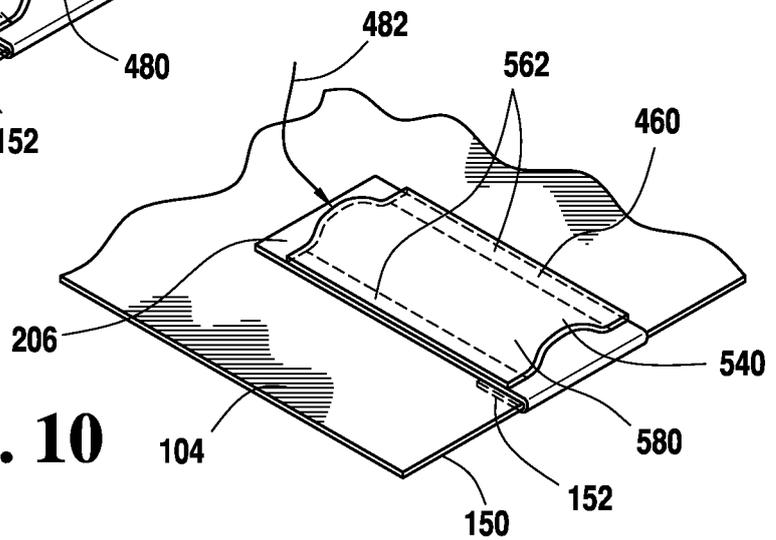


FIG. 10

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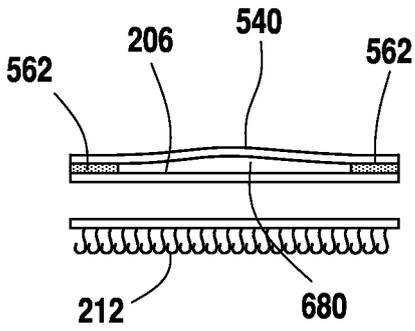


FIG. 11

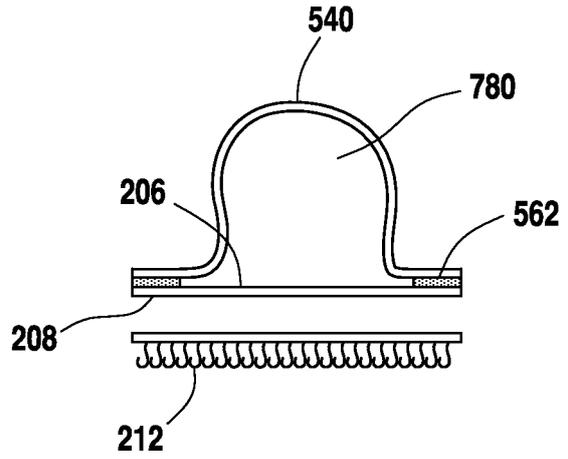


FIG. 12

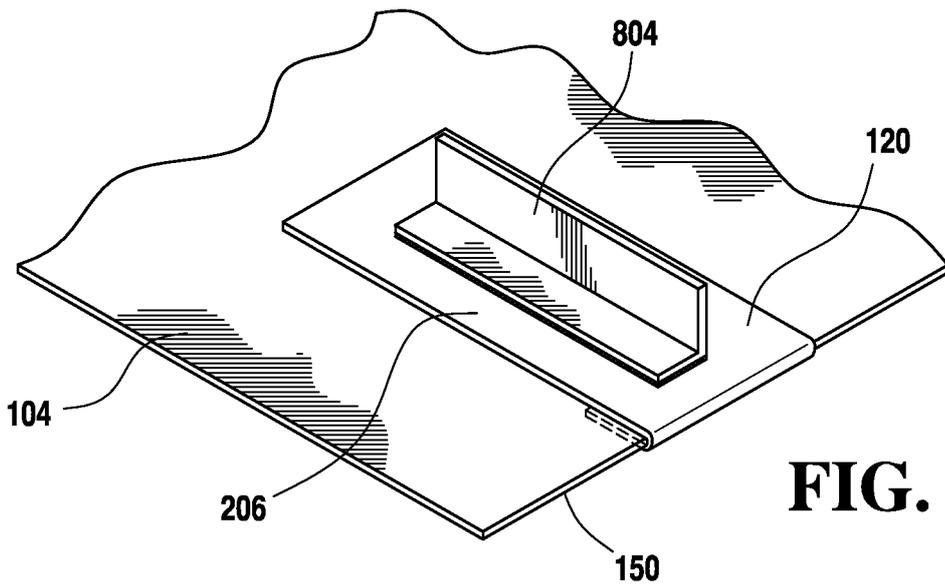


FIG. 13

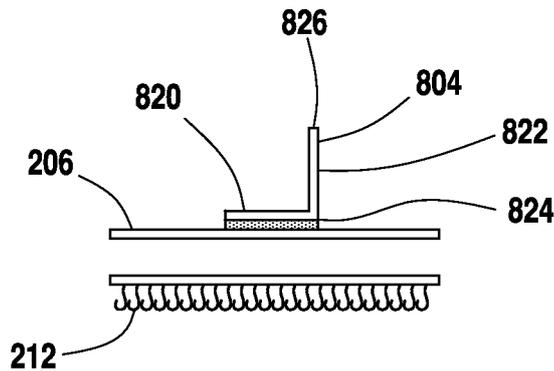


FIG. 14

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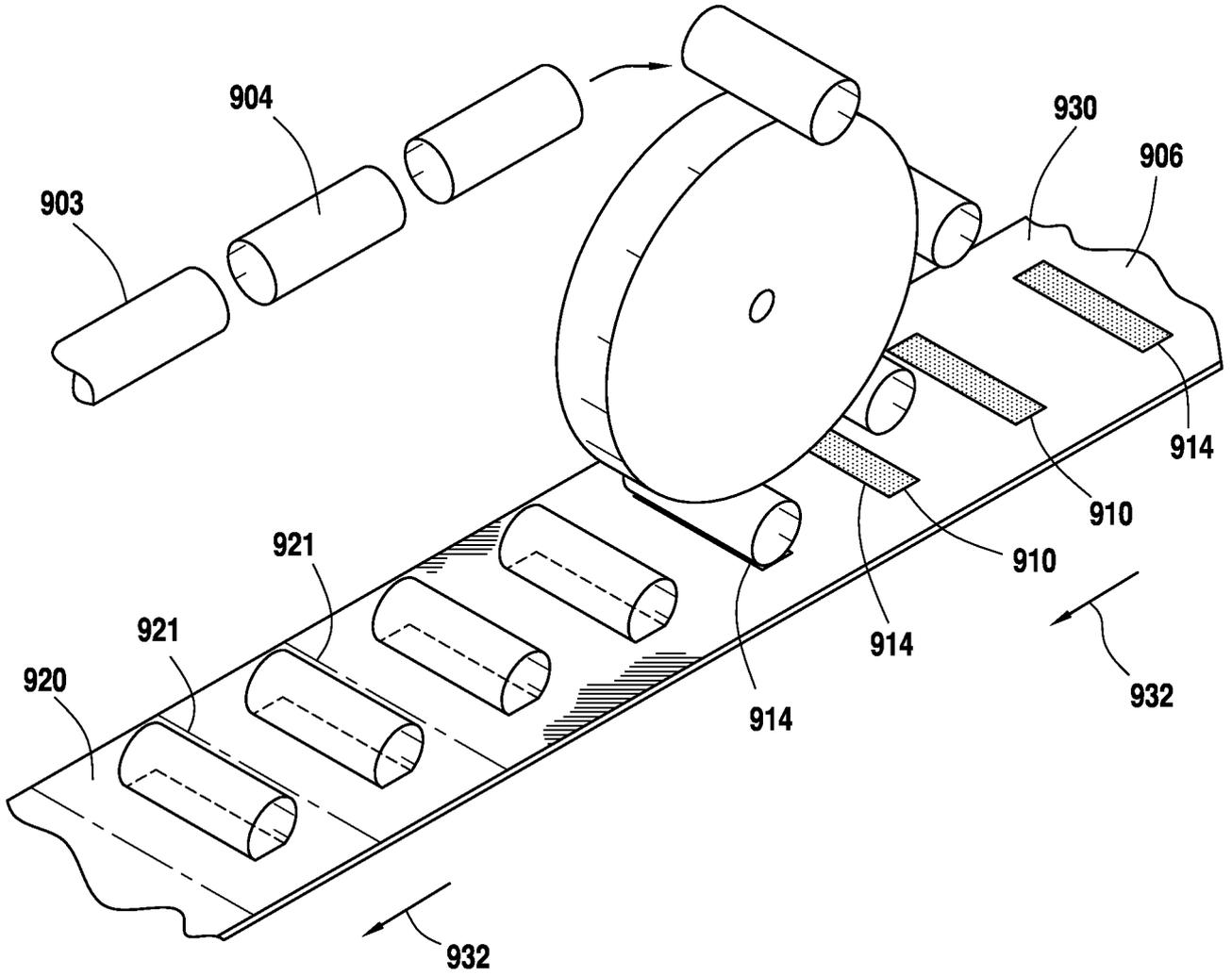


FIG. 15

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FIG. 16

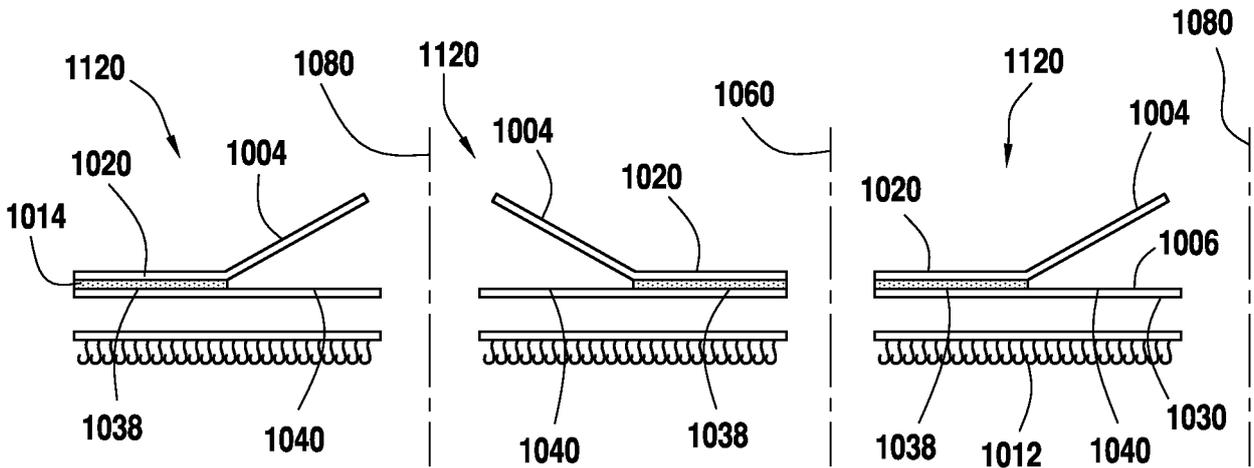
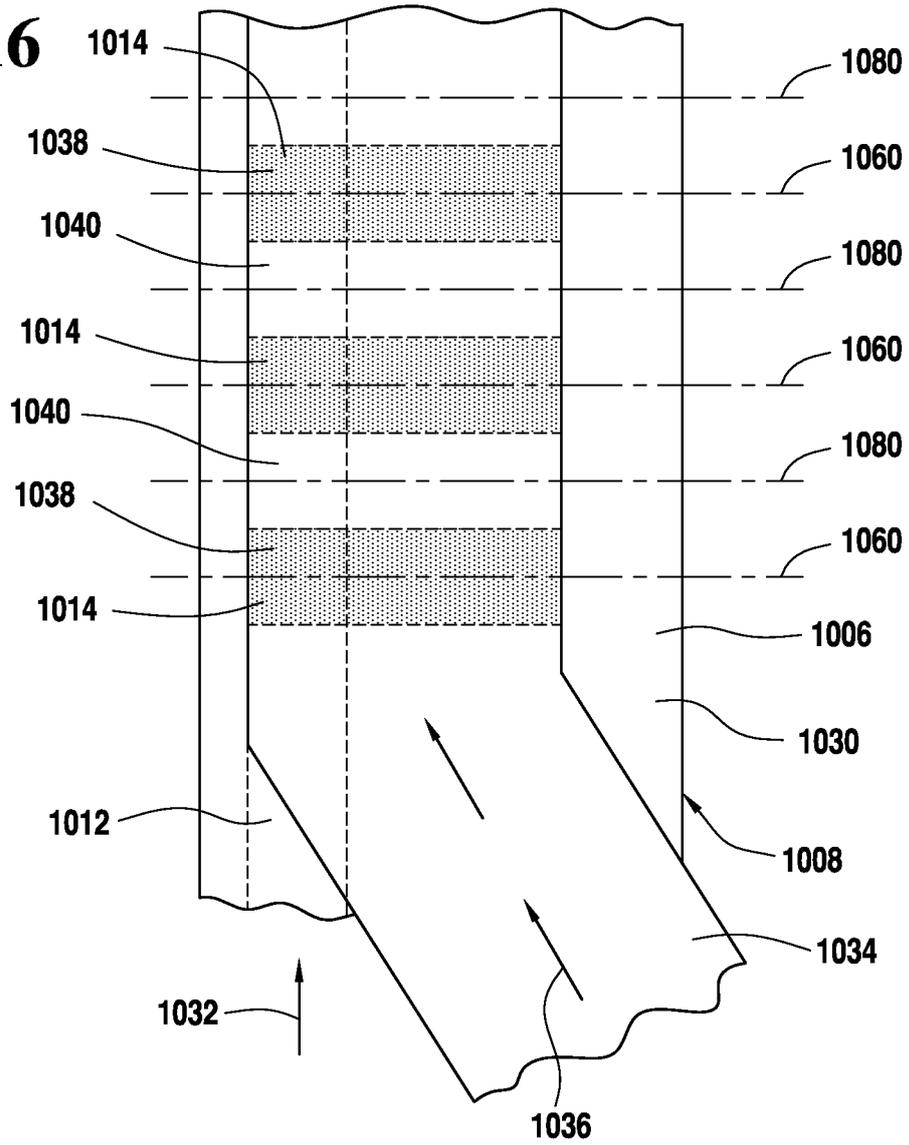


FIG. 17

