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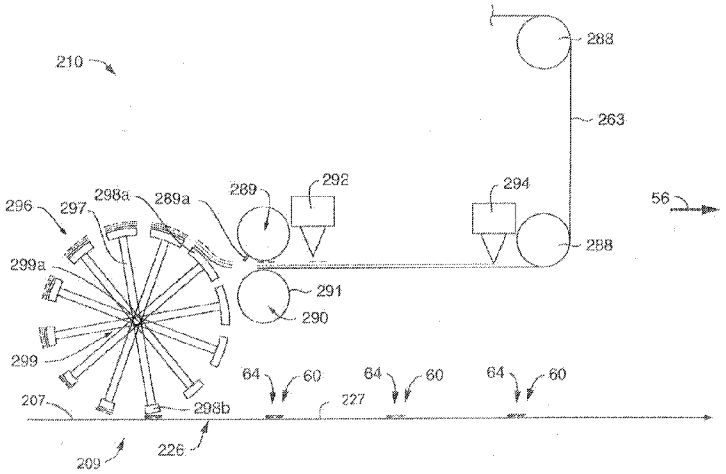


FIG. 4

(57) Abstract: An absorbent article (10, 110) including a pocket (60) and methods of manufacturing (210, 310, 410, 510, 610, 710, 810, 910) such absorbent articles (10, 110) are disclosed. In some embodiments, the pocket (60) can include a first material component (64). In some embodiments, the pocket (60) can include a second material component (66). In some embodiments, a method (210, 310, 410, 510, 610, 710) can include cutting a continuous web of pocket material (263) to form a first material component (64), rotating the first material component (64), and bonding the first material component (64) to at least a portion of the outer surface (7) of the chassis (9).

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ABSORBENT ARTICLE WITH POCKET AND METHODS OF MANUFACTURING THEREOF

TECHNICAL FIELD

The present invention relates to absorbent articles.

BACKGROUND OF THE DISCLOSURE

When absorbent articles become soiled with exudates and are changed from the wearer, it is common for the lower abdomen and/or crotch region of the wearer to become soiled by urine, fecal matter, and/or other bodily discharges. Prior to replacing the soiled absorbent article and replacing it with a new, clean absorbent article, the skin of the wearer is cleansed. This cleaning of the skin can be done in a variety of ways and using a variety of different materials, but caregivers commonly use wet wipes or cloths to clean the wearer's skin. In some circumstances, caregivers may choose to use a clean portion of an inner layer of the soiled absorbent article to provide a first wipe to cleanse the wearer's skin in the lower abdomen or crotch region prior to using wet wipes, cloths, or tissues.

To perform this initial wipe, a caregiver may attempt to pinch or gather the front waist region of the absorbent article to obtain a grip on the absorbent article to use the inner layer of the absorbent article in a wiping fashion. However, pinching or gathering the front waist region of the absorbent article can reduce the effective area of the inner layer of the absorbent article that is intended to wipe the wearer's skin in the soiled area as well as create an uneven inner surface of the absorbent article that is not as conducive to wiping as the initial flat surface. Pinching or gathering the front waist region of the absorbent article in this fashion may also expose a caregiver's fingers or hand to the exudates remaining on the wearer's skin, as the gathered material in the front waist region may fold over due to pinching or gathering of the absorbent article near the front waist edge of the absorbent article where the absorbent article may have less structural integrity and/or due to the wiping motion the caregiver employs with the absorbent article. Additionally, gripping the front waist region of the absorbent article in such a fashion may prove to be difficult altogether as the outer cover materials may have a low coefficient of friction, resulting in the gathered or pinched area of the front waist region slipping out of the caregiver's hands while trying to wipe the soiled area. While some of these issues have been recognized in prior documents, no effective solution has been provided to date to adequately address these issues.

Previous attempts to provide a solution have typically involved providing a pocket on the front of the absorbent article, but these solutions can be difficult and/or can be expensive to manufacture. Thus, there is a need for an absorbent article that includes a pocket providing a caregiver the ability to utilize the absorbent article as a first wipe to cleanse the wearer's skin and protects the caregiver's

hand from contamination while at the same time simplifying the manufacturing process to provide such a pocket.

SUMMARY OF THE DISCLOSURE

In one embodiment, a method of manufacturing an absorbent article including a pocket is disclosed. The absorbent article can include a front waist region including a front waist edge, a rear waist region including a rear waist edge, and a crotch region. The absorbent article can further include a longitudinal axis and a lateral axis. The pocket can be located in the front waist region. The method can include providing a chassis and transferring at least a portion of the chassis in a machine direction. The machine direction can be parallel to the longitudinal axis of the absorbent article. The method can further include providing a continuous web of pocket material and cutting the continuous web of pocket material to form a first material component. The method can also include rotating the first material component and bonding the first material component to the at least a portion of the chassis to form the pocket.

In another embodiment, a method of manufacturing an absorbent article including a pocket is disclosed. The absorbent article can include a front waist region including a front waist edge, a rear waist region including a rear waist edge, and a crotch region. The absorbent article can further include a longitudinal axis and a lateral axis. The pocket can be located in the front waist region. The method can include providing a chassis and transferring at least a portion of the chassis in a machine direction. The machine direction can be perpendicular to the longitudinal axis of the absorbent article. The method can also include providing a continuous web of pocket material and cutting the continuous web of pocket material to form a first material component. Additionally, the method can include bonding the first material component to the at least a portion of the chassis to form the pocket.

In yet another embodiment, an absorbent article can include a front waist region including a front waist edge, a rear waist region including a rear waist edge, and a crotch region. The absorbent article can further include a longitudinal axis and a lateral axis. The absorbent article can also include a chassis including an outer surface and a pocket disposed on the outer surface in the front waist region. The pocket can include a first side edge, a second side edge opposite from the first side edge, an upper lateral edge, a lower lateral edge, and a bottom surface. The pocket can be closed with respect to the bottom surface at least at the first side edge and the second side edge. The pocket can be open with respect to the bottom surface at least at the lower lateral edge. The pocket can include a pocket material and a folded cuff near the lower lateral edge of the pocket.

In still another embodiment, an absorbent article can include a longitudinal and a lateral axis. The absorbent article can include a chassis including a front waist region including a front waist edge, a rear waist region including a rear waist edge, and a crotch region extending between the front waist region and the rear waist region. The absorbent article can also include a pocket disposed in the front waist region. The pocket can include a first side edge, a second side edge opposite from the first side edge, an upper lateral edge, a lower lateral edge, and a bottom surface. The pocket can be closed with respect to an outer surface of the absorbent article at least at the first side edge and the second side edge. The pocket can be open with respect to the bottom surface at least at the lower lateral edge. The pocket can include a first material component and a second material component. The first material component can be substantially the same width as the second material component as measured in a direction parallel to the lateral axis.

In a further embodiment, an absorbent article can include a longitudinal and a lateral axis. The absorbent article can include a chassis including a front waist region including a front waist edge, a rear waist region including a rear waist edge, and a crotch region extending between the front waist region and the rear waist region. The absorbent article can also include a pocket disposed in the front waist region. The pocket can include a first side edge, a second side edge opposite from the first side edge, an upper lateral edge, a lower lateral edge, and a bottom surface. The pocket can be closed with respect to an outer surface of the absorbent article at least at the first side edge and the second side edge. The pocket can be open with respect to the bottom surface at least at the lower lateral edge. The pocket can include a first material component including an uppermost edge, a lowermost edge, and opposing side edges. The pocket can additionally include a second material component including a top edge, a bottom edge, and opposing side edges. The second material component can be aligned with the first material component such that the bottom edge of the second material component substantially aligns with the lowermost edge of the first material component.

BRIEF DESCRIPTION OF DRAWINGS

A full and enabling disclosure thereof, directed to one of ordinary skill in the art, is set forth more particularly in the remainder of the specification, which makes reference to the appended figures in which:

FIG. 1 is a perspective view of an exemplary embodiment of an absorbent article including a pocket, with a caregiver's hand accessing the pocket.

FIG. 2 is a top plan view of the absorbent article of FIG. 1 in a stretched, laid flat configuration, with the outer cover facing the viewer, a portion of the pocket being shown in cut-away configuration.

FIG. 3 is a detailed, top plan, partially cut-away view of the embodiment of FIGS. 1 and 2.

FIG. 4 is a process schematic depicting an exemplary embodiment of a method of manufacturing an absorbent article including a pocket as illustrated in FIG. 1.

FIG. 5 is a process schematic showing a top view of some portions of the method of FIG. 4.

FIG. 6 is a detailed, top plan, partially cut-away view of an alternative embodiment of an absorbent article including a pocket.

FIG. 7 is a process schematic depicting an exemplary embodiment of a method of manufacturing an absorbent article including a pocket as illustrated in FIG. 6.

FIG. 8 is a process schematic showing a top view of some portions of the method of FIG. 7.

FIG. 9 is a detailed, top plan, partially cut-away view of an alternative embodiment of an absorbent article including a pocket.

FIG. 10 is a process schematic depicting an exemplary embodiment of a method of manufacturing an absorbent article including a pocket as illustrated in FIG. 9.

FIG. 11 is a process schematic showing a top view of some portions of the method of FIG. 10.

FIG. 12 is a detailed, top plan, partially cut-away view of an alternative embodiment of an absorbent article including a pocket.

FIG. 13 is a process schematic depicting an exemplary embodiment of a method of manufacturing an absorbent article including a pocket as illustrated in FIG. 12.

FIG. 14 is a process schematic showing a top view of some portions of the method of FIG. 13.

FIG. 15 is a detailed, top plan, partially cut-away view of an alternative embodiment of an absorbent article including a pocket.

FIG. 16 is a detailed, top plan, partially cut-away view of an alternative embodiment of an absorbent article including a pocket.

FIG. 17 is a process schematic depicting an exemplary embodiment of a method of manufacturing an absorbent article including a pocket as illustrated in FIG. 16.

FIG. 18 is a process schematic showing a top view of some portions of the method of FIG. 17.

FIG. 19 is a perspective view of another exemplary embodiment of an absorbent article including a pocket, with a caregiver's hand accessing the pocket.

FIG. 20 is a process schematic depicting an exemplary embodiment of a method of manufacturing an absorbent article including a pocket as illustrated in FIG. 19.

FIG. 21 is a process schematic showing a top view of some portions of the method of FIG. 20.

FIG. 21a is a detailed view of a portion of FIG. 21.

FIG. 22 is a perspective view of yet another exemplary embodiment of an absorbent article including a pocket.

FIG. 23 is a process schematic depicting an exemplary embodiment of a method of manufacturing an absorbent article including a pocket similar to the absorbent article illustrated in FIG. 22.

FIG. 24 is a perspective view of the exemplary process of FIG. 23.

FIG. 25 is a process schematic showing a top plan view of some portions of the method of FIGS. 23 and 24.

FIG. 26 is a process schematic depicting an exemplary embodiment of a method of manufacturing an absorbent article including a pocket illustrated in FIG. 22.

FIG. 27 is a perspective view of the exemplary process of FIG. 26.

FIG. 28 is a process schematic showing a top plan view of some portions of the method of FIGS. 26 and 27.

FIG. 29 is a cross-sectional view taken along line 29-29 from FIG. 28.

Repeat use of reference characters in the present specification and drawings is intended to represent the same or analogous features or elements of the disclosure.

DETAILED DESCRIPTION OF THE DISLOSURE

In an embodiment, the present disclosure is generally directed towards an absorbent article having a pocket disposed on the outer surface of the absorbent article and methods of manufacturing the same. The pocket can aid a caregiver with providing an initial cleaning of the wearer after the article is soiled by the wearer and prior to changing the absorbent article. Each example is provided by way of explanation and is not meant as a limitation. For example, features illustrated or described as part of one embodiment or figure can be used on another embodiment or figure to yield yet another embodiment. It is intended that the present disclosure include such modifications and variations.

When introducing elements of the present disclosure or the preferred embodiment(s) thereof, the articles “a”, “an”, “the” and “said” are intended to mean that there are one or more of the elements.

The terms "comprising", "including" and "having" are intended to be inclusive and mean that there may be additional elements other than the listed elements. Many modifications and variations of the present disclosure can be made without departing from the spirit and scope thereof. Therefore, the exemplary embodiments described above should not be used to limit the scope of the invention.

Definitions:

The term "absorbent article" refers herein to an article which may be placed against or in proximity to the body (i.e., contiguous with the body) of the wearer to absorb and contain various liquid, solid, and semi-solid exudates discharged from the body. Such absorbent articles, as described herein, are intended to be discarded after a limited period of use instead of being laundered or otherwise restored for reuse. It is to be understood that the present disclosure is applicable to various disposable absorbent articles, including, but not limited to, diapers, training pants, youth pants, swim pants, feminine hygiene products, including, but not limited to, menstrual pads, incontinence products, medical garments, surgical pads and bandages, other personal care or health care garments, and the like without departing from the scope of the present disclosure.

The term "acquisition layer" refers herein to a layer capable of accepting and temporarily holding liquid body exudates to decelerate and diffuse a surge or gush of the liquid body exudates and to subsequently release the liquid body exudates therefrom into another layer or layers of the absorbent article.

The term "bonded" or "coupled" refers herein to the joining, adhering, connecting, attaching, or the like, of two elements. Two elements will be considered bonded or coupled together when they are joined, adhered, connected, attached, or the like, directly to one another or indirectly to one another, such as when each is directly bonded to intermediate elements. The bonding or coupling of one element to another can occur via continuous or intermittent bonds.

The term "carded web" refers herein to a web containing natural or synthetic staple length fibers typically having fiber lengths less than about 100 mm. Bales of staple fibers can undergo an opening process to separate the fibers which are then sent to a carding process which separates and combs the fibers to align them in the machine direction after which the fibers are deposited onto a moving wire for further processing. Such webs are usually subjected to some type of bonding process such as thermal bonding using heat and/or pressure. In addition to or in lieu thereof, the fibers may be subject to adhesive processes to bind the fibers together such as by the use of powder adhesives. The carded web may be subjected to fluid entangling, such as hydroentangling, to further intertwine the fibers and thereby improve the integrity of the carded web. Carded webs, due to the fiber

alignment in the machine direction, once bonded, will typically have more machine direction strength than cross machine direction strength.

The term "film" refers herein to a thermoplastic film made using an extrusion and/or forming process, such as a cast film or blown film extrusion process. The term includes apertured films, slit films, and other porous films which constitute liquid transfer films, as well as films which do not transfer fluids, such as, but not limited to, barrier films, filled films, breathable films, and oriented films.

The term "gsm" refers herein to grams per square meter.

The term "hydrophilic" refers herein to fibers or the surfaces of fibers which are wetted by aqueous liquids in contact with the fibers. The degree of wetting of the materials can, in turn, be described in terms of the contact angles and the surface tensions of the liquids and materials involved. Equipment and techniques suitable for measuring the wettability of particular fiber materials or blends of fiber materials can be provided by Cahn SFA-222 Surface Force Analyzer System, or a substantially equivalent system. When measured with this system, fibers having contact angles less than 90 are designated "wettable" or hydrophilic, and fibers having contact angles greater than 90 are designated "nonwettable" or hydrophobic.

The term "liquid impermeable" refers herein to a layer or multi-layer laminate in which liquid body exudates, such as urine, will not pass through the layer or laminate, under ordinary use conditions, in a direction generally perpendicular to the plane of the layer or laminate at the point of liquid contact.

The term "liquid permeable" refers herein to any material that is not liquid impermeable.

The term "meltblown" refers herein to fibers formed by extruding a molten thermoplastic material through a plurality of fine, usually circular, die capillaries as molten threads or filaments into converging high velocity heated gas (e.g., air) streams which attenuate the filaments of molten thermoplastic material to reduce their diameter, which can be a microfiber diameter. Thereafter, the meltblown fibers are carried by the high velocity gas stream and are deposited on a collecting surface to form a web of randomly dispersed meltblown fibers. Such a process is disclosed, for example, in U.S. Patent No. 3,849,241 to Butin et al., which is incorporated herein by reference. Meltblown fibers are microfibers which may be continuous or discontinuous, are generally smaller than about 0.6 denier, and may be tacky and self-bonding when deposited onto a collecting surface.

The term "nonwoven" refers herein to materials and webs of material which are formed without the aid of a textile weaving or knitting process. The materials and webs of materials can have a structure of individual fibers, filaments, or threads (collectively referred to as "fibers") which can be

interlaid, but not in an identifiable manner as in a knitted fabric. Nonwoven materials or webs can be formed from many processes such as, but not limited to, meltblowing processes, spunbonding processes, carded web processes, etc.

The term "pliable" refers herein to materials which are compliant and which will readily conform to the general shape and contours of the wearer's body.

The term "spunbond" refers herein to small diameter fibers which are formed by extruding molten thermoplastic material as filaments from a plurality of fine capillaries of a spinnerette having a circular or other configuration, with the diameter of the extruded filaments then being rapidly reduced by a conventional process such as, for example, eductive drawing, and processes that are described in U.S. Patent No. 4,340,563 to Appel et al., U.S. Patent No. 3,692,618 to Dorschner et al., U.S. Patent No. 3,802,817 to Matsuki et al., U.S. Patent Nos. 3,338,992 and 3,341,394 to Kinney, U.S. Patent No. 3,502,763 to Hartmann, U.S. Patent No. 3,502,538 to Peterson, and U.S. Patent No. 3,542,615 to Dobo et al., each of which is incorporated herein in its entirety by reference. Spunbond fibers are generally continuous and often have average deniers larger than about 0.3, and in an embodiment, between about 0.6, 5 and 10 and about 15, 20 and 40. Spunbond fibers are generally not tacky when they are deposited on a collecting surface.

The term "superabsorbent" refers herein to a water-swellable, water-insoluble organic or inorganic material capable, under the most favorable conditions, of absorbing at least about 15 times its weight and, in an embodiment, at least about 30 times its weight, in an aqueous solution containing 0.9 weight percent sodium chloride. The superabsorbent materials can be natural, synthetic and modified natural polymers and materials. In addition, the superabsorbent materials can be inorganic materials, such as silica gels, or organic compounds, such as cross-linked polymers.

The term "thermoplastic" refers herein to a material which softens and which can be shaped when exposed to heat and which substantially returns to a non-softened condition when cooled.

The term "user" or "caregiver" refers herein to one who fits an absorbent article, such as, but not limited to, a diaper, training pant, youth pant, incontinent product, or other absorbent article about the wearer of one of these absorbent articles. A user and a wearer can be one and the same person.

Absorbent Article:

Referring to FIGS. 1, 2, and 19, a non-limiting illustration of an absorbent article 10 is illustrated, for example, a diaper. Figure 22 depicts a non-limiting illustration of an absorbent article 110, for example, a pant. Other embodiments of the absorbent article could include training pants, youth pants, adult incontinence garments, and feminine hygiene articles. While the embodiments and

illustrations described herein for FIGS. 1-21a generally apply to absorbent articles 10 manufactured in the product longitudinal direction, which is hereinafter called the machine-direction manufacturing of a product, it should be noted that one of ordinary skill in the art could apply the information herein to absorbent articles 110 manufactured in the latitudinal direction of the product (such as that shown in FIGS. 22-28), which hereinafter is called the cross-direction manufacturing of a product, without departing from the spirit and scope of the disclosure.

The absorbent articles 10, 110 illustrated in FIGS. 1, 2, 19, and 22 can include a chassis 9 including a front waist region 12, a rear waist region 14, and a crotch region 16 disposed between the front waist region 12 and the rear waist region 14 and interconnecting the front and rear waist regions, 12, 14, respectively. The front waist region 12 can be referred to as the front end region, the rear waist region 14 can be referred to as the rear end region, and the crotch region 16 can be referred to as the intermediate region. In the embodiment depicted in FIG. 22, a three-piece construction of an absorbent article 110 is depicted where the absorbent article 110 can have a chassis 9 including a front waist panel 13 defining the front waist region 12, a rear waist panel 15 defining the rear waist region 14, and an absorbent panel 17 defining the crotch region 16 of the absorbent article 110. The absorbent panel 17 can extend between the front waist panel 13 and the rear waist panel 15. In some embodiments, the absorbent panel 17 can overlap the front waist panel 13 and the rear waist panel 15. The absorbent panel 17 can be bonded to the front waist panel 13 and the rear waist panel 15 to define a three-piece construction. However, it is contemplated that an absorbent article can be manufactured in a cross-direction without being a three-piece construction garment.

The absorbent articles 10, 110 can have a pair of longitudinal side edges, 18, 20, and a pair of opposite waist edges, respectively designated front waist edge 22 and rear waist edge 24. The front waist region 12 can be contiguous with the front waist edge 22 and the rear waist region 14 can be contiguous with the rear waist edge 24. The longitudinal side edges 18, 20 can extend from the front waist edge 22 to the rear waist edge 24.

The front waist region 12 can include the portion of the absorbent article 10, 110 that, when worn, is positioned at least in part on the front of the wearer. The rear waist region 14 can include the portion of the absorbent article 10, 110 that, when worn, is positioned at least in part on the back of the wearer. The crotch region 16 of the absorbent article 10, 110 can include the portion of the absorbent article 10, 110 that, when worn, is positioned between the legs of the wearer and can partially cover the lower torso of the wearer. The waist edges, 22 and 24, of the absorbent article 10, 110 are configured to encircle the waist of the wearer and together define a central waist opening 23 for the waist of the wearer, as shown in FIGS. 1, 19, and 22. Portions of the longitudinal side edges, 18 and

20, in the crotch region 16 can generally define leg openings for the legs of the wearer when the absorbent article 10, 110 is worn.

The absorbent article 10, 110 can include an outer cover 26 and a bodyside liner 28. In an embodiment, the bodyside liner 28 can be bonded to the outer cover 26 in a superposed relation by any suitable means such as, but not limited to, adhesives, ultrasonic bonds, thermal bonds, pressure bonds, or other conventional techniques. The outer cover 26 can define a length in a longitudinal direction 30, and a width in the lateral direction 32, which, in the illustrated embodiment, can coincide with the length and width of the absorbent article 10, such as depicted in FIG. 2. In the embodiment depicted in FIG. 22, the absorbent panel 17 of the absorbent article 110 can include an outer cover 26 and a bodyside liner 28. In such an embodiment, the outer cover 26 and the bodyside liner 28 do not extend the full length of the absorbent article 110 in the longitudinal direction 30. As illustrated in FIG. 2, the absorbent article 10 can have a longitudinal axis 29 extending in the longitudinal direction 30 and a lateral axis 31 extending in the lateral direction 32. The longitudinal axis 29 and the lateral axis 31 can define a horizontal plane. Although not depicted for the absorbent article in FIG. 19, the absorbent articles 10, 110 in FIGS. 19 and 22, respectively, also include a longitudinal axis 29 extending in the longitudinal direction 30 of the product and a lateral axis 31 extending in the lateral direction 32 of the product. As will be explained in more detail below, the longitudinal direction 30 is aligned with the direction of transferring an absorbent article 10 manufactured in a machine-direction, and the longitudinal direction 30 is perpendicular to the direction of transferring an absorbent article manufactured in a cross-direction.

As shown in FIGS. 2 and 22, the absorbent article 10, 110 can include an absorbent body 34. The absorbent body 34 can be disposed between the outer cover 26 and the bodyside liner 28. In an embodiment, the absorbent body 34 can have a length and width that are the same as or less than the length and width of the absorbent article 10, 110. The bodyside liner 28, the outer cover 26, and the absorbent body 34 can form part of an absorbent assembly 36. The absorbent assembly 36 can also include other components such as a fluid transfer layer 38 and a fluid acquisition layer 39, as are known in the art, and as shown in FIGS. 2 and 22. As illustrated for the embodiment of FIG. 22, the absorbent assembly 36 can be the absorbent panel 17.

The absorbent article 10, 110 can be configured to contain and/or absorb liquid, solid, and semi-solid body exudates discharged from the wearer. For example, containment flaps 40, 42 (labeled in FIGS. 1 and 19), which are known in the art, can be configured to provide a barrier to the lateral flow of body exudates. To further enhance containment and/or absorption of body exudates, in some embodiments the absorbent article 10, 110 can suitably include a waist elastic member, such as a rear

waist elastic member 44 (as shown in FIGS. 1, 2, and 19). The rear waist elastic member 44 can be attached to the outer cover 26 and/or the bodyside liner 28 proximate the rear waist edge 24 and can extend over part or all of the rear waist edge 24. In an embodiment shown in FIGS. 1, 2, and 19, the rear waist elastic member 44 is attached to the bodyside liner 28. In some embodiments, the absorbent article 10 can include a front waist elastic member, although one is not depicted in the figures herein. In some embodiments, a three-piece construction for an absorbent article 110, such as that shown in FIG. 22, can also include one or more waist elastic members.

In some embodiments, the absorbent article 110 as depicted in FIG. 22 can include a front waist panel 13 and/or a rear waist panel 15. In some embodiments, the front waist panel 13 and/or the rear waist panel 15 can exhibit elastic properties. As is known in the art, the front waist panel 13 and/or the rear waist panel 15 can comprise an elastic material, such as elastic strands, to provide elastic properties to the front waist panel and/or the rear waist panel. It can also be appreciated that the front waist panel 13 and/or the rear waist panel 15 of the absorbent article 110 can be a laminate that can include an elastic film layer to provide elastic properties.

The absorbent article 10, 110 can further include leg elastic members, 46 and 48, as depicted in FIGS. 1, 2, 19, and 22, and as are known to those skilled in the art. The leg elastic members, 46 and 48, can be attached to the outer cover 26 and/or the bodyside liner 28 proximate the opposite longitudinal side edges, 18 and 20, and positioned in the crotch region 16 of the absorbent article 10. The leg elastic members, 46 and 48, can be curved as shown in FIG. 2, or can be parallel to the longitudinal axis 29 as is known in the art.

The absorbent article 10 can also include a fastening system that can be used to put the article 10 in a fastened configuration. In some embodiments, the fastening system can include a primary fastening system 47. The primary fastening system 47 can include at least one primary first fastening component 52 in the rear waist region 14 and at least one primary second fastening component 54 in the front waist region 12. In some embodiments, the fastening system can include a primary fastening system 47 and a secondary fastening system 49. The secondary fastening system 49 can include at least one secondary first fastening component 51 in the front waist region 12 and at least one secondary second fastening component 53 in the rear waist region 14. The absorbent article 10 can include back ears 50 in the rear waist region 14 that can include one or more of the components of the fastening system. It is to be understood, however, that the present disclosure for the absorbent article 10, 110 is meant to cover both refastenable garments (whether prefastened or initially not prefastened) and permanently fastened garments.

Additional details regarding each of these elements of the absorbent article 10, 110 described herein can be found below and with reference to the Figures 1 -29.

Outer cover:

The outer cover 26 and/or portions thereof can be breathable and/or liquid impermeable. The outer cover 26 and/or portions thereof can be elastic, stretchable, or non-stretchable. The outer cover 26 may be constructed of a single layer, multiple layers, laminates, spunbond fabrics, films, meltblown fabrics, elastic netting, microporous webs, bonded-carded webs or foams provided by elastomeric or polymeric materials. In an embodiment, for example, the outer cover 26 can be constructed of a microporous polymeric film, such as polyethylene or polypropylene.

In an embodiment, the outer cover 26 can be a single layer of a liquid impermeable material, such as a polymeric film. In an embodiment, the outer cover 26 can be suitably stretchable, and more suitably elastic, in at least the lateral direction 32 of the absorbent article 10. In an embodiment, the outer cover 26 can be stretchable, and more suitably elastic, in both the lateral 32 and the longitudinal 30 directions. In an embodiment, the outer cover 26 can be a multi-layered laminate in which at least one of the layers is liquid impermeable. In an embodiment, the outer cover 26 can be a two layer construction, including an outer layer material and an inner layer material (not shown) which can be bonded together such as by a laminate adhesive. Suitable laminate adhesives can be applied continuously or intermittently as beads, a spray, parallel swirls, or the like, but it is to be understood that the inner layer can be bonded to the outer layer by other bonding methods, including, but not limited to, ultrasonic bonds, thermal bonds, pressure bonds, or the like.

The outer layer of the outer cover 26 can be any suitable material and may be one that provides a generally cloth-like texture or appearance to the wearer. An example of such material can be a 100% polypropylene bonded-carded web with a diamond bond pattern available from Sandler A.G., Germany, such as 30 gsm Sawabond 4185® or equivalent. Another example of material suitable for use as an outer layer of an outer cover 26 can be a 20 gsm spunbond polypropylene non-woven web. The outer layer may also be constructed of the same materials from which the bodyside liner 28 can be constructed as described herein.

The liquid impermeable inner layer of the outer cover 26 (or the liquid impermeable outer cover 26 where the outer cover 26 is of a single-layer construction) can be either vapor permeable (i.e., “breathable”) or vapor impermeable. The liquid impermeable inner layer (or the liquid impermeable outer cover 26 where the outer cover 26 is of a single-layer construction) can be manufactured from a thin plastic film. The liquid impermeable inner layer (or the liquid impermeable outer cover 26 where the outer cover 26 is of a single-layer construction) can inhibit liquid body

exudates from leaking out of the absorbent article 10 and wetting articles, such as bed sheets and clothing, as well as the wearer and caregiver.

Where the outer cover 26 is of a single layer construction, it can be embossed and/or matte finished to provide a more cloth-like texture or appearance. The outer cover 26 can permit vapors to escape from the absorbent article 10 while preventing liquids from passing through. A suitable liquid impermeable, vapor permeable material can be composed of a microporous polymer film or a non-woven material which has been coated or otherwise treated to impart a desired level of liquid impermeability.

As shown in FIGS. 1, 2, 19, and 22, the absorbent article 10, 110 can include a pocket 60. The pocket 60 can be disposed in the front waist region 12 of the absorbent article 10, 110. The pocket 60 can be disposed on an outer surface 11 of the absorbent article 10, 110 and on an outer surface 7 of the chassis 9. In some embodiments, such as the absorbent article 10 illustrated in FIGS. 1, 2, and 19, the pocket 60 can be disposed on an outer surface 27 of the outer cover 26. In other embodiments, the pocket 60 can be disposed on an outer surface 19 of the front waist panel 13, such as in the absorbent article 110 illustrated in FIG. 22. In some embodiments, the pocket 60 can be disposed in the front waist region 12 and can extend into the crotch region 16 of the absorbent article 10.

The pocket 60 can include a pocket longitudinal axis 62, as labeled in FIGS. 2, 19, and 22. Preferably, the pocket longitudinal axis 62 substantially aligns with the longitudinal axis 29 of the absorbent article 10. The pocket 60 can be formed from a pocket material 63. The pocket material 63 can include a first material component 64. In some embodiments, the pocket 60 can include a pocket material 63 that includes a first material component 64 and a second material component 66. The pocket 60 can include a first side edge 70, a second side edge 72, an upper lateral edge 74 and a lower lateral edge 76. Although the first side edge 70, the second side edge 72, the upper lateral edge 74, and the lower lateral edge 76 are depicted as being linear segments, the first side edge 70, the second side edge 72, the upper lateral edge 74, and/or the lower lateral edge 76 can be configured to be arcuate in shape, or in any other suitable shape.

The pocket 60 can include a bottom surface 78 (labeled in the cutaway portion of FIGS. 2, 3, 6, 9, 12, 15, 16, and 29) and a top surface 79 (labeled in FIGS. 5, 8, 11, 14, 18, 21, 24, 25, and 29). In some embodiments, the bottom surface 78 of the pocket 60 can be formed by the outer cover 26, such as illustrated in FIG. 2. In some embodiments, as will be described in more detail below, the bottom surface 78 of the pocket 60 can be formed by another component coupled to the outer cover 26. The pocket 60 can be closed with respect to the bottom surface 78 at least at the first side edge 70 and the

second side edge 72. In some embodiments, the pocket 60 can be closed with respect to the bottom surface 78 at the upper lateral edge 74 as well, as illustrated in the embodiment depicted in FIGS. 1, 2, 19, and 22.

The pocket 60 of the various embodiments herein can include a width 80 and a length 82 (labeled in FIG. 2). The length 82 can be measured in the longitudinal direction 30 from the upper lateral edge 74 to the lower lateral edge 76. In preferred embodiments, the length 82 of the pocket 60 can be between about 1.25 inches and about 3.75 inches. The width 80 can be measured in the lateral direction 32 from the first side edge 70 to the second side edge 72. In preferred embodiments, the width 80 of the pocket 60 can be between about 3.00 inches and about 6.00 inches.

The first material component 64 can include an uppermost edge 64a, a lowermost edge 64b, and two opposing side edges 64c and 64d. In embodiments where present, the second material component 66 can include a top edge 66a, a bottom edge 66b, and two opposing side edges 66c and 66d. In one embodiment, the first material component 64 can be bonded to the outer surface 11 of the absorbent article 10 to form the first side edge 70 of the pocket 60 and the second side edge 72 of the pocket 60. For example, in some embodiments, such as illustrated in FIGS. 2 and 19, the first material component 64 can be bonded to the outer surface 11 of the absorbent article 10 near each of the opposing side edges 64c and 64d of the first material component 64 to form the first and second side edges 70, 72 of the pocket 60. In some embodiments, the first material component 64 can be bonded directly to the outer surface 27 of the outer cover 26.

As noted above, the first side edge 70 and the second side edge 72 can be configured to be arcuate in shape, or any other suitable shape, as opposed to the linear segments depicted in the embodiments illustrated herein. As an example, the first side edge 70 and the second side edge 72 could be arcuate in shape by modifying the adhesive 293 that bonds the first material component 64 to the outer surface 7 of the chassis 9 for the absorbent articles 10 illustrated in FIGS. 1-21a, and the adhesive 293 that bonds the first material component 64 to the second material component 66 in the absorbent article 110 depicted in FIGS. 22-29. Additionally or alternatively, one or more of the opposing side edges 64c, 64d of the first material component 64 could be arcuate in shape, or any other suitable shape, to provide a first side edge 70 and/or second side edge 72 of the pocket 60 with an alternative shape to a linear segment as shown herein.

Additionally, the upper lateral edge 74 and the lower lateral edge 76 of the pocket 60 can be configured to be arcuate in shape, or any other suitable shape. As an example, the upper lateral edge 74 could be arcuate in shape by modifying the adhesive 295a that bonds the first material component 64 to the outer surface 7 of the chassis 9 for the embodiments of the absorbent article 10, 110

illustrated in FIGS. 1-18 and 23-25, or by modifying the adhesive 295a that bonds the first material component 64 to the second material component 66 in the embodiment of the absorbent article 110 depicted in FIGS. 22 and 26-29. Additionally or alternatively, the uppermost edge 64a of the first material component could be arcuate in shape or any other suitable shape, to provide an upper lateral edge 74 of the pocket 60 with an alternative shape to a linear segment as shown herein.

In some embodiments, such as that depicted in FIGS. 19-21a, the second material component 66 can be bonded to the first material component 64 and the outer surface 11 of the absorbent article 10 (e.g., outer surface 7 of the chassis 9) to form the upper lateral edge 74 of the pocket 60. In some embodiments, the second material component 66 can be bonded to the first material component 64 and the outer surface 27 of the outer cover 26 to form the upper lateral edge 74 of the pocket 60. As illustrated in FIG. 19, the top edge 66a of the second material component 66 can be closer to the front waist edge 22 than is the uppermost edge 64a of the first material component 64 to help form the upper lateral edge 74 of the pocket 60. As noted above, the upper lateral edge 74 of the pocket 60 can be configured to be of a different shape than the linear segment that is shown in the figures herein. As but one example, the upper lateral edge 74 could be configured to be arcuate in shape. Such a configuration could be accomplished by adjusting the shape of the uppermost edge 64a of the first material component 64 to be arcuate and/or adjusting the adhesive 795 that bonds the second material component 66 to the outer surface 7 of the chassis 9 to be in an arcuate fashion. It is contemplated that the upper lateral edge 74 can have shapes other than linear segments or arcuate segments.

It is to be noted that in some embodiments the upper lateral edge 74 of the pocket 60 is not closed with respect to the outer surface 11 of the absorbent article 10, 110. Such a configuration can be accomplished in a pocket 60 comprised of a first material component 64 by not bonding all or a portion of the first material component 64 near the uppermost edge 64a to the outer surface 11 of the absorbent article 10, for example, by omitting adhesive 295a for the embodiments of the absorbent articles 10, 110 illustrated in FIGS. 1-18 and 22-29. Additionally, such a configuration can be accomplished in a pocket 60 comprised of a first material component 64 and second material component 66 by not bonding all or a portion of the second material component 66 near the top edge 66a of the second material component 66 to the outer surface 11 of the absorbent article 10, such as by omitting a portion of adhesive 795 for the absorbent article 10 depicted in FIGS. 19-21a.

In some embodiments, as illustrated in FIG. 19, the second material component 66 can be bonded to the first material component 64 and to the outer surface 11 of the absorbent article 10 such that the lowermost edge 64b of the first material component 64 is closer to the lateral axis 31 than is

the bottom edge 66b of the second material component 66. In other words, the first material component 64 and the second material component 66 can be disposed such that a portion of the first material component 64 is not covered by the second material component 66. Such a configuration of the pocket 60 can help indicate the presence of the pocket 60 to a caregiver.

The second material component 66 can be wider than the first material component 64 in a direction parallel to the lateral axis 31 in some embodiments. For example, as illustrated in FIG. 19, the side edge 66c of the second material component 66 is disposed closer to the longitudinal side edge 18 of the absorbent article 10 than is the side edge 64c of the first material component 64 and the side edge 66d of the second material component 66 is disposed closer to the longitudinal side edge 20 of the absorbent article 10 than is the side edge 64d of the first material component 64. Configuring the second material component 66 to be wider than the first material component 64 can help ensure that the second material component 66 can seal and form the upper lateral edge 74 of the pocket 60 in such an embodiment. It is contemplated, however, that in some embodiments the second material component 66 can be the same width as the first material component 64 in a direction parallel to the lateral axis 31, or narrower in width than the first material component 64 in a direction parallel to the lateral axis 31. In embodiments where the second material component 66 is bonded to the outer surface 7 of the chassis 9 to form the upper lateral edge 74 of the pocket 60 (such as FIG. 19), it is preferred to have the second material component 66 be substantially the same width or wider than the width of the first material component 64 in a direction parallel to the lateral axis 31.

The first material component 64 and the second material component 66 can be comprised of the same material or different materials from one another. In one preferred embodiment, the first material component 64 can comprise a spunbond-meltblown-spunbond ("SMS") material and the second material component 66 can comprise a point unbonded ("PUB") non-woven material. In some embodiments, the first material component 64 can comprise a portion of the fastening system of the absorbent article 10. For example, the first material component 64 can be and/or can include the front fastener 52 for the fastening, such as illustrated in the embodiment in FIG. 1 and 2. In some embodiments, the second material component 66 can comprise a portion of the fastening system of the absorbent article 10. For example, the second material component 66 can be and/or can include the front fastener 52 for the fastening system of the absorbent article 10, as illustrated in embodiments depicted in FIG. 19. Thus, the first material component 64 and the second material component 66 can provide the advantage of dual functionality of not only forming a portion of the pocket 60, but also forming the front fastener 52.

In some embodiments, the first material component 64 can provide extendable and/or elastic properties. In some embodiments, the second material component 66 can provide extendable and/or elastic properties. In some embodiments, both the first material component 64 and the second material component 66 can provide extendable and/or elastic properties.

In some embodiments, the pocket 60 can include a folded cuff 65, such as illustrated in FIGS. 6, 9, 16, 19, and 22. In preferred embodiments, the folded cuff 65 can be near the lower lateral edge 76 of the pocket 60. In some embodiments, the folded cuff 65 can define the lower lateral edge 76 of the pocket 60. In some embodiments, the first material component 64 of a pocket 60 can include the folded cuff 65, such as illustrated in FIGS. 6, 9, and 19. Alternatively, the pocket material 63 can include an auxiliary cuff material component 86, and the auxiliary cuff material component 86 can include the folded cuff 65, such as illustrated in FIG. 16. The auxiliary cuff material component 86 can be bonded to the first material component 64 near the lowermost edge 64b of the first material component 64. The auxiliary cuff material 86 can extend beyond the lowermost edge 64b of the first material component 64.

The folded cuff 65 can provide functional benefits for the pocket 60. For example, the folded cuff 65 can provide rigidity and strength to the pocket 60. The pocket 60 can be more rigid near the folded cuff 65 than the outer cover 26 near the location of the folded cuff 65. The rigidity of the folded cuff 65 can provide improved access for the caregiver to insert their hand into the pocket 60, as a hand is illustrated as being inserted into the pocket 60 of the embodiments of FIGS. 1 and 19. The folded cuff 65 can also help provide awareness to a caregiver of the location of the lower lateral edge 76 of the pocket 60 for where the caregiver can insert their hand into the pocket 60 and/or can help provide awareness of the presence of a pocket 60 on the absorbent article 10 altogether.

The folded cuff 65 can also provide further advantages for the pocket 60 such as capturing and protecting one or more extensible materials 84 that provide additional functionality to the pocket 60. As illustrated in FIGS. 9, 16, and 19, the folded cuff 65 can include at least one extensible material 84, and in some embodiments, the folded cuff 65 can include multiple extensible materials. The extensible material 84 can be elastic. By providing extensible materials 84 near the lower lateral edge 76 of the pocket 60, the pocket 60 can provide a snug fit to the caregiver's hand, and can extend the amount necessary to adapt to different caregiver hand sizes. The extensible material 84 allows for this expansion of the pocket 60 near the lower lateral edge 76, while also keeping the lower lateral edge 76 nearly flush with the outer surface 11 of the absorbent article 10 prior to the caregiver's hand entering the pocket 60. Keeping the lower lateral edge 76 of the pocket nearly flush with the outer surface 11 of

the absorbent article 10 can provide benefits of a more discrete pocket 60 and improved fit of the absorbent article 10 under a wearer's clothing.

The extensible material 84 can be sheets, strands or ribbons of natural rubber, synthetic rubber, or thermoplastic elastomeric polymers. As will be explained in further detail below, the extensible material(s) 84 can be stretched and bonded to the desired substrate (e.g., the first material component 64, the auxiliary cuff material component 86) bonded to a gathered substrate, or bonded to a substrate and then elasticized or shrunk, for example, with the application of heat, such that elastic retractive forces are imparted to the substrate.

Exemplary methods of manufacturing absorbent articles 10, 110 will now be described. FIG. 3 depicts a detailed view of the pocket 60 of FIGS. 1 and 2. An exemplary method 210 of manufacturing an absorbent article 10 including the pocket 60 as depicted in FIG. 3 is illustrated in FIGS. 4 and 5. The method 210 includes providing a chassis 9. The chassis 9 could be in the form of a discrete absorbent article 10, or can be provided in partial form, such as in the form of a web 209, as depicted in FIGS. 4 and 5, which can then later be combined with the remainder of the chassis (e.g., bodyside liner 28, outer cover 26, and absorbent body 34). As discussed above, the chassis 9 can include an absorbent assembly 36. The absorbent assembly 36 can include a bodyside liner 28, an outer cover 26, and an absorbent body 34 disposed between the bodyside liner 28 and the outer cover 26. The outer cover 26 can include an outer surface 27. The absorbent assembly 36 can be provided in a form configuring a discrete absorbent article 10, such as shown in FIGS. 1 and 2, or can be provided in a web form. The method 210 can also include transferring at least a portion of the chassis 9 in a machine direction 56. For example, as shown in FIGS. 4 and 5, the method 210 can include transferring the outer cover 26 (e.g., web of the outer cover 226). The longitudinal axis 29 of the absorbent article 10 (as shown in FIG. 2) can be parallel with the machine direction 56 when the web of the outer cover 26 is transferred in the machine direction 56.

The method 210 can further include providing a continuous web of pocket material 263. The continuous web of pocket material 263 can be guided and turned by idlers 288, as is known in the art. The method 210 can also include cutting the continuous web of pocket material 263 to form a first material component 64. The method 210 can further include rotating the first material component 64 and bonding the first material component 64 to the chassis 9 (or the chassis web 209) to form the pocket 60. The first material component 64 can be bonded to the outer surface 7 of the chassis 9, or outer surface 207 of the chassis web 209. Although not shown, the method 210 can also include cutting the chassis 209 into a discrete absorbent article 10, such as illustrated in FIGS. 1 and 2, and as is known in the art.

The continuous web of pocket material 263 can be cut and transferred by employing a knife roll 289 and an anvil roll 290, as depicted in FIG. 4. As is known in the art, the anvil roll 290 can be supplied with a source of vacuum (e.g., a vacuum pump, vacuum chamber, etc.) that is capable of selectively applying vacuum pressure (i.e., negative pressure) through one or more holes (not shown) in the outer surface 291 of the anvil roll 290 as is known in the art. By communicating a vacuum to the outer surface 291 of the anvil roll 290, the continuous web of pocket material 263 can be generally drawn to and secured against the outer surface 291 of the anvil roll 290. The continuous web of pocket material 263 can be delivered to the anvil roll 290 at a slower linear speed than the surface speed of the anvil roll 290. In other words, the surface speed of the anvil roll 290 is greater than the speed at which the incoming continuous web of pocket material 263 is fed to the anvil roll 290. It is to be understood that the continuous web of pocket material 263 can be fed to the anvil roll 290 at any suitable rate.

To cut the continuous web of pocket material 263 the knife roll 289 can include one or more knife edges 289a (one knife 289a is shown in FIG. 4). The knife edge 289a can be configured to cut material provided on the outer surface 291 of the anvil roll 290 when the knife edge 289a comes into contact with the outer surface 291 of the anvil roll 290. Thus, as illustrated in FIG. 4, when the continuous web of pocket material 263 is fed to the anvil roll 290, the knife edge 289a can cut the continuous web of pocket material 263 in a transverse or cross-machine direction 57 (labeled in FIG. 5) when the knife edge 289a comes into contact with the outer surface 291 of the anvil roll 290, thereby forming a first material component 64. Once the first material component 64 has been cut from the continuous web of pocket material 263 by knife roll 289, the first material component 64 will be transported at the surface speed of the anvil roll 290 on which it is held to the outer surface 291.

As also shown in FIGS. 4 and 5, the method 210 can also include applying a first intermittent adhesive 293 to the continuous web of pocket material 263. The first intermittent adhesive 293 can be applied to the continuous web of pocket material 263 prior to cutting the continuous web of pocket material 263 to form the first material component 64. Additionally, the method 210 can also include applying a second adhesive 295a to the continuous web of pocket material 263. The second adhesive 295a can be applied prior to cutting the continuous web of pocket material 263 to form the first material component 64.

The first intermittent adhesive 293 can be applied by an adhesive unit 292. The first intermittent adhesive 293 is referred to as “intermittent” in that it is applied intermittently to the continuous web of pocket material 263 in a longitudinal direction of the continuous web of pocket material 263 as the continuous web of pocket material 263 transfers by the adhesive unit 292. The

adhesive unit 292 can apply the first intermittent adhesive 293 substantially across a width of the continuous web of pocket material 263, as depicted in FIG. 5, for example, by using a slot-coat application providing a plurality of distinct linear segments of adhesive. Of course, it is contemplated that the first intermittent adhesive 293 can be applied in other intermittent fashions, including a spray coating, swirl coating, etc. The adhesive unit 292 can be pulsed to provide a first intermittent adhesive 293 to the continuous web of pocket material 263.

As illustrated in FIG. 5, the cutting of the continuous web of pocket material 263 can be phased by cutting through or near two successive portions of the first intermittent adhesive 293. By doing so, the first material component 64 includes a portion of the first intermittent adhesive 293 at the ends of the first material component 64 which, after rotating the first material component 64, become opposing side edges 64c, 64d of the first material component 64. As will be discussed further below, the first intermittent adhesive 293 near the opposing side edges 64c, 64d of the first material component 64 bonds the first material component 64 to at least a portion of the chassis 9 to form a first side edge 70 of the pocket 60 and a second side edge 72 of the pocket 60, as shown in FIG. 5 (in FIG. 3, the first intermittent adhesive 293 is labeled near the first side edge 70 of the pocket 60, however, is not labeled near the second side edge 72 of the pocket 60 for purposes of clarity). In one embodiment, the first intermittent adhesive 293 can bond the first material component 64 to the outer surface 27 of the outer cover 26 (e.g., outer surface 227 of web of outer cover 226).

The second adhesive 295a can be applied to the continuous web of pocket material 263 by adhesive unit 294. The adhesive unit 294 can apply the second adhesive 295a to the continuous web of pocket material 263 prior to cutting the continuous web of pocket material 263 into form the first material component 64. As depicted in FIG. 5, the second adhesive 295a can be applied to the continuous web of pocket material 263 near a first longitudinal side edge 263a of the continuous web of pocket material 263. In one embodiment, the second adhesive 295a can be a continuous bead of adhesive, however, other applications of adhesive, including intermittent applications are contemplated. The second adhesive 295a can be applied with a slot coat or spray technique, or any other suitable method as is known in the art. As will be discussed in more detail below, after the continuous web of pocket material 263 is cut into a first material component 64 and rotated, the second adhesive 295a bonds the first material component 64 to the at least a portion of the chassis 9 to form an upper lateral edge 74 of the pocket 60. For example, the second adhesive 295a can bond the first material component 64 to the outer cover 26 (e.g., the web of outer cover 226).

As noted above, the method 210 can include rotating the first material component 64. After the continuous web of pocket material 263 is cut by the knife roll 289 and the anvil roll 290, the anvil

roll 290 can transfer the first material component 264 to a rotating module 296, such as illustrated in FIG. 4. The general construction and operation of such a rotating module 296 is well known and is exemplified by U.S. Pat. Nos. 5,716,478 and 5,759,340 issued to Boothe et al. and U.S. Pat. No. 6,139,004 issued to Couillard et al., each of which is incorporated herein by reference in its entirety to the extent not inconsistent herewith. The rotating module 296 can include a plurality of transfer arms 297 (twelve transfer arms 297 are shown in FIG. 4) and a plurality of transfer pucks 298 (twelve transfer pucks 298 are shown in FIG. 4). The rotating module 296 can include a rotating means 299, such as a shaft 299a that can be directly or indirectly driven by a drive motor or other suitable means (not shown) as is conventionally used for such equipment. Thus, the rotation shaft 299a can propel the transfer arms 297 about an axis such that the transfer pucks 298 can transfer the first material components 64 from the anvil roll 290 to the at least a portion of the chassis 9 being transferred, such as the web of outer cover 226 shown in FIGS. 4 and 5.

Each of the transfer pucks 298 can be coupled to a respective transfer arm 297. The transfer pucks 298 can be equipped with conventional vacuum assist or other means (not shown) to allow the transfer pucks 298 to pick up the first material components 64 as they are cut by the knife roll 289 and the anvil roll 290. Each of the transfer pucks 298 is equipped with conventional means to pivot about the longitudinal axis of the respective transfer arm 297 so that each of the transfer pucks 298 are rotatable or pivotable between a first position when the transfer pucks 298 first receive the first material component 64 (such as shown by transfer puck 298a in FIG. 4) and a second position where the transfer pucks 298 transfer the first material component 64 to the at least a portion of the chassis 9 being transferred (such as shown by transfer puck 298b). The transfer pucks 298 can rotate 90° from the first position (such as shown by transfer puck 298a) to the second position (such as shown by transfer puck 298b).

As illustrated in FIGS. 4 and 5, the first material component 64 is rotated about 90° by the rotating module 296 prior to bonding the first material component 64 to the at least a portion of the chassis 9 (e.g., web of outer cover 226) to form the pocket 60 on the absorbent article 10. By rotating the first material component 64 prior to bonding the first material component 64 to the outer surface 11 of the absorbent article 10, a lower cost pocket material 63 can be utilized to form the pocket 60. In embodiments that provide dual functionality of having a pocket material 63 that can also serve as a primary second fastening component 54 or be attached to the primary second fastening component 54, the pocket material 263 may benefit from having a higher level of tensile strength in the lateral direction 32 of the article 10 to withstand the shear and peel forces applied when removing the back fasteners 50 from the front fastener 52. Acceptable pocket materials 63 can be high in cost and

difficult to manufacture. Most nonwoven materials have a higher machine direction tensile strength than cross-direction tensile strength. For example, typical bonded carded webs (BCW) have a machine-direction/cross-direction tensile strength ratio of about 5/1 to about 7/1, and polypropylene spunbond has an machine-direction/cross-direction tensile strength ratio that is typically about 3/1 or higher. As a result, if the pocket material 63 is used as a primary second fastening component 54 or is attached to a primary second fastening component 54 and is oriented such that the machine direction of the pocket material 63 is aligned with the longitudinal direction 30 of the absorbent article 10, then a higher basis weight BCW or spunbond can be required to make the strength requirements of the pocket material 263 in the cross-direction 32 of the absorbent article 10 acceptable. However, when the pocket material 63 is cut into a first material component 64, is rotated 90°, and then is bonded to the outer surface 11 of the absorbent article 10, the machine direction of the first material component 64 will be aligned with the lateral direction 32 of the absorbent article 10, and thus, will allow for a lower basis weight and/or lower cost pocket material 63 to be used to form the pocket 60.

As noted above, the method 210 includes providing a chassis 9 and transferring at least a portion of the chassis 9 in a machine direction 56. The method 210 includes bonding the first material component 64 to the at least a portion of the chassis 9 (e.g., chassis web 209) being transferred to form the pocket 60, such as the outer cover 26, which can be in the form of a web of outer cover 226. This can be accomplished by bonding the first material component 64 to the web of outer cover 226 prior to the web of outer cover 226 being bonded with the bodyside liner 28 (which can be in web form) and the absorbent body 34 being disposed between the web of outer cover 226 and the bodyside liner 28. Alternatively, the method 210 also contemplates bonding the first material component 64 to the at least a portion of the chassis 9 after the outer cover 26 (or web of outer cover 226) has already been bonded with the bodyside liner 28 and the absorbent body 34 in the form of an absorbent assembly 36 described herein. The method 210 can include bonding the outer cover 26 (e.g., web of outer cover 226) to the bodyside liner 28, with an absorbent body 34 disposed between the outer cover 26 and the bodyside liner 28 as known by those of skill in the art to form an absorbent assembly 36 (which can be in web form).

FIG. 6 depicts an embodiment of an absorbent article 10 including a pocket 60 that includes a folded cuff 65. FIGS. 7 and 8 depict an exemplary method 310 for manufacturing the absorbent article 10 depicted in FIG. 6 that includes a folded cuff 65. The method 310 depicted in FIGS. 7 and 8 is similar to the method 210 illustrated in FIGS. 4 and 5 discussed above, and thus, the discussion of method 310 below will focus on potions of method 310 that are additional or different from method 210.

FIGS. 7 and 8 illustrate that the method 310 can include folding the continuous web of pocket material 263. The continuous web of pocket material 263 can be folded upon itself near a second longitudinal edge 263b of the continuous web of pocket material 263. Equipment known in the art, such as a folding board 245, can fold the continuous web of pocket material 263 upon itself. A folded portion 265a of the continuous web of pocket material 263 can be bonded to the continuous web of pocket material 263, such as by applying a third adhesive 295b near the second longitudinal edge 263b prior to folding the continuous web of pocket material 263 upon itself and prior to cutting the continuous web of pocket material 263 to form the first material component 64. The third adhesive 295b can be applied to the continuous web of pocket material 263 by adhesive unit 294, or by a separate adhesive unit (not shown), and in any suitable manner. As noted above, the folded cuff 65 can provide several advantages to the pocket 60 for the caregiver.

FIG. 9 displays an alternative embodiment of an absorbent article 10 including a pocket 60 including a folded cuff 65. FIGS. 10 and 11 depict an exemplary method 410 for manufacturing the absorbent article 10 depicted in FIG. 9 that includes a folded cuff 65. The method 410 is similar to the methods 210 and 310 described above and illustrated in FIGS. 4 and 5 and 7 and 8, respectively. Thus, the discussion of method 410 below will focus on portions of method 410 that are different or additional from method 210 and/or method 310.

Method 410 can include providing an extensible material 84 and bonding the extensible material 84 to the continuous web of the pocket material 263 near the second longitudinal edge 263b of the continuous web of pocket material 263. As discussed above, the extensible material 84 can be a variety of materials and configurations and can be elastic. As illustrated in FIGS. 9 and 11, the extensible material 84 can include two strands 84a, 84b of elastic. The extensible material 84 can be stretched and bonded to the continuous web of pocket material 263, such that the elastic retractive forces are imparted to the continuous web of pocket material 263. The extensible material 84 can be bonded to the continuous web of pocket material 263 prior to folding the continuous web of pocket material 263 upon itself near the second longitudinal edge 263b such that the folded cuff 65 includes or captures the extensible material 84 (elastic strands 84a, 84b). As noted above, providing an extensible material 84 in a folded cuff 65 can provide several benefits to the caregiver prior to and while employing the pocket 60 to assist in cleaning the wearer.

Adhesive unit 294 can provide a third adhesive 295b to bond the extensible material 84 to the continuous web of pocket material 263 as well as to bond the folded portion 265a of the continuous web of the pocket material 263 to the continuous web of the pocket material 263, which becomes the folded cuff 65 after the continuous web of pocket material 263 is cut into the first material component

64 and is bonded to the outer surface 11 of the absorbent article 10. Alternatively, a separate adhesive unit (not shown) can provide the third adhesive 295b. The third adhesive 295b can be applied to the continuous web of pocket material 263 in an intermittent manner, as illustrated in FIG. 11, and the continuous web of pocket material 263 can be cut such that the third adhesive 295b is present on the first material component 64 in a pocket region 64f, but not in non-pocket regions 64e and 64g, as illustrated in both FIGS. 9 and 11. Such a configuration allows for the extensible members 84a, 84b, to not impart any extensible properties to the first material component 64 in the non-pocket regions 64e and 64g. The third adhesive 295b is illustrated as being a swirl adhesive pattern in FIGS. 9 and 11, however, any suitable adhesive pattern can be used.

FIG. 12 displays yet another embodiment of an absorbent article 10 including a pocket 60. FIGS. 13 and 14 illustrate an exemplary method 510 of manufacturing the absorbent article 10 depicted in FIG. 12. The absorbent article 10 illustrated in FIG. 12 includes an extensible material 84, but does not included a folded cuff 65, such as illustrated in FIGS. 6 and 9. The method 510 is similar to the methods 210, 310, and 410 described above and illustrated in FIGS. 4 and 5, 7 and 8, and 10 and 11, respectively. Thus, the discussion of method 510 below will focus on portions of method 510 that are different or additional from methods 210, 310, and/or 410.

As illustrated in FIGS. 13 and 14, the method 510 can include providing an extensible material 84, which can be in the configuration of a web of extensible material 584. The method 510 can also include applying the extensible material 84 (web of extensible material 584) to the continuous web of the pocket material 263 near the second longitudinal edge 263b of the continuous web of pocket material 263. The extensible material 84 (web of extensible material 584) can be bonded to the continuous web of pocket material 263 prior to the cutting of the continuous web of pocket material 263.

As discussed above, the extensible material 84 can be comprised of a variety of materials, including elastic materials. In a preferred embodiment, the extensible material 84 can be a stretched-bonded-laminate (hereinafter "SBL"). In another example, the extensible material 84 can be a stretch foam material. The extensible material 84 (web of extensible material 584) can be stretched and bonded to the continuous web of pocket material 263, such that the elastic retractive forces of the extensible material 84 (web of extensible material 584) are imparted to the continuous web of pocket material 263. As illustrated in FIG. 14, the web of extensible material 584 can be bonded to the continuous web of pocket material 263 such that a portion of the web of extensible material 584 extends past the second longitudinal edge 263b of the web of continuous pocket material 263. Such a configuration provides that the extensible material 84 can extend beyond the lowermost edge 64b of

the first material component 64 of the pocket 60, as illustrated in FIGS. 12 and 14. Additionally, as illustrated in FIGS. 12 and 14, the extensible material 84, can be deadened in the non-pocket regions 64e and 64g of the first material component 64, such that the extensible properties are not imparted to the first material component 64 in the non-pocket regions 64e and 64g.

FIG. 15 provides another embodiment of an absorbent article 10 including a pocket 60 including an extensible material 84 bonded to the first material component 64. Similar to the absorbent article 10 illustrated in FIG. 12 discussed above, the extensible material 84 can extend below the lowermost edge 64b of the first material component 64. Preferably, the extensible material 84 is disposed in the pocket region 64f of the first material component 64. The extensible material 84 can be manufactured similar to the method 510 disclosed in FIGS. 13 and 14, however, the extensible material 84 can be bonded to the first material component 64 in the pocket region 64f, but not in the non-pocket regions 64e and 64g. This can be accomplished by intermittently pulsing the adhesive 295b on the continuous web of pocket material 263 to correspond to the pocket region 64f.

FIGS. 16-18 provide an embodiment of an absorbent article 10 including a pocket 60 including an auxiliary cuff material component 86 and a method of manufacturing 610 thereof. Similar to that as described above with respect to the extensible material 84 in FIGS. 12-15 and in method 510, the auxiliary cuff material component 86 can extend beyond the lowermost edge 64b of the first material component 64. The method 610 includes similar steps as methods 210, 310, 410, and 510, and thus, the discussion of method 610 below will focus on portions of method 610 that are different or additional from methods 210, 310, 410, and/or 510.

Method 610 can include providing a continuous web of auxiliary cuff material 686 and providing an extensible material 84. The continuous web of auxiliary cuff material 686 can include a folded portion 665a. The extensible material 84 can be configured as a web or as strands 84a, 84b as described above. The method 610 can include bonding a first longitudinal edge 686a of the continuous web of auxiliary cuff material 686 to the continuous web of pocket material 263 near the second longitudinal edge 263b of the continuous web of pocket material 263. The continuous web of auxiliary cuff material 686 can be bonded to the continuous web of pocket material 263 with a third adhesive 295b that can be applied by adhesive unit 294a. The method 610 can further include bonding the extensible material 84 to the continuous web of auxiliary cuff material 686 near the second longitudinal edge 686b of the continuous web of auxiliary cuff material 686. The extensible material 84 can be bonded to the continuous web of auxiliary cuff material 686 with a fourth adhesive 295c that is applied by adhesive unit 294b. Although the fourth adhesive 295c is illustrated as being applied

directly to the continuous web of auxiliary cuff material 686, it is contemplated that the fourth adhesive 295c could alternatively or additionally be applied directly to the extensible material 84.

The method 610 can also include folding the continuous web of auxiliary cuff material 686 upon itself near the second longitudinal edge 686b of the continuous web of auxiliary cuff material 686 and bonding a folded portion 665a of the continuous web of auxiliary cuff material 686 to the continuous web of auxiliary cuff material 686. As illustrated in FIG. 18, the folded portion 665a in the continuous web of the auxiliary cuff material 686 can provide a folded cuff 65 for the pocket 60 once the continuous web of pocket material 263 and the continuous web of auxiliary cuff material 686 are cut.

It is to be noted that it is also contemplated that the extensible material 84 (e.g., elastic strands 84a, 84b) and the fourth adhesive 295c can be applied near the second longitudinal edge of686b of the continuous web of the auxiliary cuff material 686 and the continuous web of auxiliary cuff material 686 can be folded upon itself near the second longitudinal edge 686b of the continuous web of the auxiliary cuff material 686 to form folded portion 665a prior to the continuous web of auxiliary cuff material 686 being bonded to the continuous web of pocket material 263.

As illustrated in FIGS. 16 and 18, it is contemplated that the fourth adhesive 295c can be intermittently applied to the continuous web of pocket material 263 and the continuous web of auxiliary cuff material 686 can be cut such that the fourth adhesive 295c can be disposed in the pocket region 64f of the first material component 64, but not disposed in the non-pocket regions 64e and 64g of the first material component 64. Alternatively, it is contemplated that the fourth adhesive 295c can be continuously applied but the extensible members 84 (e.g., elastic strands 84a, 84b) can be subsequently chopped in the non-pocket regions 64e and 64g.

FIG. 19 depicts an alternative embodiment of an absorbent article 10 with a pocket 60. FIGS. 20-21a illustrate an exemplary method 710 of manufacturing the absorbent article 10 of FIG. 19. The method 710 includes several similar steps as methods 210, 310, 410, 510, and 610, and thus, the discussion of method 710 below will focus on portions of method 710 that are different or additional as compared to methods 210, 310, 410, 510, and/or 610. In fact, the method 710 is very similar to the method 410 that manufactures an absorbent article 10 including a pocket 60 having a first material component 64 with a folded cuff 65 including an extensible material 84 (e.g., elastic strands 84a, 84b), but method 710 also involves employing a continuous web of second material 766 to form the second material component 66 of the pocket 60.

As such, the method 710 can include providing a continuous web of pocket material 263 and providing a continuous web of second material 766. Adhesive unit 294 can provide a third adhesive

295b near the second longitudinal edge 263b of the continuous web of pocket material 263 as previously described. Similar to the discussion of method 410 with respect to FIGS. 9-11, the third adhesive 295b can be applied in an intermittent fashion and the continuous web of pocket material 263 can be cut such that the third adhesive 295b is present in the pocket region 64f of the first material component 64, but not present in the non-pocket regions 64e and 64g of the first material component 64. The method 710 can also include bonding an extensible material 84 (e.g., elastic strands 84a, 84b) to a folded portion 265a of the continuous web of pocket material 263, as described in detail with respect to method 410 and FIGS. 10 and 11. Different from method 410, however, it is contemplated that a second adhesive 295a need not be applied near the first longitudinal edge 263a of the continuous web of pocket material 263 (however, in some embodiments, second adhesive 295a may be applied to the continuous web of pocket material 263). The first material component 64 can be cut, rotated, and bonded to the at least a portion of the chassis 9 (e.g., chassis web 209) that is being transferred in the machine direction 56, (e.g., web of outer cover 226) as discussed above for method 410.

The method 710 can further include cutting the continuous web of second material 766 to form a second material component 66. The continuous web of second material 766 can be cut with a knife roll 789 (including knife edge 789a) and an anvil roll 790, and transferred on the outer surface 791 of the anvil roll 790. The operation of the knife roll 789 and the anvil roll 790 can be similar to the knife roll 289 and anvil roll 290 described in detail above with respect to method 210. The method 710 can also include applying a fourth adhesive 795 to the continuous web of second material 766. The fourth adhesive 795 can be applied by an adhesive unit 794 (as shown in FIG. 20) and can be applied to a first surface 767 of the continuous web of second material 766 (as shown in FIG. 21). The fourth adhesive 795 can be applied to the continuous web of second material 766 prior to cutting the continuous web of second material 766 to form the second material component 66. Additionally, the fourth adhesive 795 can be applied substantially across a width of the continuous web of second material 766, or substantially from a first longitudinal side edge 766a to a second longitudinal side edge 766b of the continuous web of second material 766. Of course, it is contemplated that the fourth adhesive 795 need not be applied in a solid pattern, but could be applied in an intermittent fashion, in a swirl pattern, or any other suitable pattern.

As illustrated in FIGS. 20 and 21, once the continuous web of the pocket material 263 is cut to form the first material component 64 by the knife roll 289 and the anvil roll 290, as discussed above with respect to prior embodiments, the first material component 64 can be bonded to the web of outer cover 226. As illustrated in the exemplary embodiment of FIG. 21, the first material component 64 can

be bonded to the web of outer cover 226 to form a first side edge 70 and a second side edge 72 of the pocket 60. The first intermittent adhesive 293 that was applied to the continuous web of pocket material 263 provides the bonding of the first material component 64 to the absorbent assembly 236 to form the first side edge 70 and the second side edge 72 of the pocket 60 by bonding the first material component 64 to the web of outer cover 226 near the side edges 64c, 64d of the first material component 64. Although the first intermittent adhesive 293 is shown as a series of segments of adhesive near opposing side edges 64c, 64d, it is contemplated that the first intermittent adhesive 293 could be applied in other ways, such as in a solid linear pattern along the side edges 64c, 64d or in a curved pattern along the side edges 64c, 64d by manipulating adhesive unit 292.

Furthermore, once the continuous web of the second material 766 is cut to form the second material component 66 by the knife roll 789 and the anvil roll 790, similar to that as discussed above, the second material component 66 can be bonded to the first material component 64 and the at least a portion of the chassis 9. In some embodiments, bonding the second material component 66 to the first material component 64 and the at least a portion of the chassis 9 (e.g., chassis web 209) can form an upper lateral edge 74 of the pocket 60. For example, the second material component 66 can be bonded to the first material component 64 and the outer cover 26 (e.g., web of outer cover 226) to form the upper lateral edge 74 of the pocket 60. As depicted in FIG. 21, the second material component 66 can partially overlap the first material component 64 such that a first portion 67a of the second material component 66 is bonded to the first material component 64 and a second portion 67b of the second material component 66 is bonded to the at least a portion of the chassis 9, such as the outer cover 26 (e.g., web of outer cover 226). The adhesive 795 applied to the first surface 767 of the continuous web of the second material 766 can provide the bonding of both the first portion 67a of the second material component 66 to the first material component 64 and the bonding of the second portion 67b of the second material component 66 to the at least a portion of the chassis 9, such as the outer cover 26 (e.g., web of outer cover 226). As illustrated in FIG. 21, the bonding of the second portion 67b of the second material component 66 to the web of outer cover 226 forms the upper lateral edge 74 of the pocket 60, with the pocket 60 being open with respect to the web of outer cover 226 at the lower lateral edge 76. The folded cuff 65 can form the lower lateral edge 76 of the pocket 60. As illustrated in FIGS. 20 and 21, the first material component 64 and the second portion 67b of the second material component 66 can each be directly bonded to the outer surface 27 of the web 226 forming the outer cover 26. The first material component 64 and the second material component 66 can be registered with respect to the chassis 9 or the chassis web 209 such that the pocket 60 formed by the first material component 64 and the second material component 66 will be located in the front waist region 12 of the absorbent article 10.

It is to be appreciated that, in other embodiments, the upper lateral edge 74 of the pocket 60 can be formed by bonding the first material component 64 to the outer surface 7 of the chassis 9, for example, by use of an adhesive (not shown) near the uppermost edge 64a of the first material component 64. For example, second adhesive 295a may be applied to the continuous web of pocket material 263 near the first longitudinal edge 263a as described in other embodiments to provide the upper lateral edge 74 of the pocket 60.

Additionally, in some embodiments the upper lateral edge 74 of the pocket 60 can be open with respect to the chassis 9. Such a configuration can be accomplished by not having the top edge 66a of the second material component 66 be disposed closer to the front waist edge 22 than is the uppermost edge 64a of the first material component 64 such that the second material component 66 does not form the upper lateral edge 74 of the pocket 60 by being bonded to the outer surface 7 of the chassis 9 above the uppermost edge 64a of the first material component 64. Alternatively, such a configuration could be accomplished by adjusting the adhesive 795 such that a portion of the second material component 66 extends above the uppermost edge 64a of the first material component 64, but is not bonded to the chassis 9 above the uppermost edge 64a of the first material component 64.

As illustrated in this one embodiment, the method 710 can include bonding the first portion 67a of the second material component 66 to the first material component 64 after the first material component 64 is bonded to the absorbent assembly 36 (such as the absorbent assembly web 236). However, in some embodiments, it is contemplated that the first portion 67a of the second material component 66 can be bonded to the first material component 64 prior to bonding the first material component 64 to the chassis 9, or a portion of the chassis 9 (e.g., the web of outer cover 226).

As previously described and as illustrated in FIGS. 19 and 21, the first material component 64 can include an uppermost edge 64a and a lowermost edge 64b, and two opposing side edges 64c and 64d. The second material component 66 can include a top edge 66a, a bottom edge 66b, and two opposing side edges 66c and 66d. In some embodiments, the first material component 64 and the second material component 66 can be bonded to the chassis 9 (or chassis web 209) such that the lowermost edge 64b of the first material component 64 is closer to the lateral axis (not shown in FIG. 19) than is the bottom edge 66b of the second material component 66. The lateral axis for the absorbent article 10 in FIG. 19 is located halfway between the front waist edge 22 and the rear waist edge 24, just as the lateral axis 31 is shown for the absorbent article 10 depicted in FIG. 2. The continuous web of the pocket material 263 and the continuous web of second material 766 can be configured such that after cutting and bonding to at least a portion of the chassis 9 (e.g., the web of

outer cover 226), the second material component 66 is wider than the first material component 64 in a direction parallel to the lateral axis 31.

In some embodiments, the first material component 64 and/or the second material component 66 can form and/or include one or more components of the fastening system. For example, the embodiment depicted in FIG. 19 can include a primary fastening system 47 and a secondary fastening system 49. As discussed in further detail below, the second material component 66 can form or include a primary second fastening component 54 and can include at least one secondary first fastening component 51 (two secondary first fastening components 51 are depicted in FIG. 19). As a result, the second material component 66 can provide dual functionality in some embodiments of helping to form the pocket 60, but also including one or more components of the fastening system.

It is also contemplated that while the first material component 64 can be directly bonded to the outer cover 26 in some embodiments to bond the first material component 64 to the portion of the chassis 9 (e.g., web of outer cover 226), the first material component 64 could alternatively be indirectly bonded to the portion of the chassis 9. For example, the first material component 64 could be directly bonded to another component which in turn is directly bonded to the chassis 9. Similarly, it is contemplated while the second material component 66 can be directly bonded to the first material component 64 and directly bonded to the outer cover 26 in some embodiments to bond the second material component 66 to the first material component 64 and the chassis 9, the second material component 66 could be indirectly bonded to the first material component 64 and/or the chassis 9. For example, the second material component 66 could be directly bonded to one or more other components which in turn are directly bonded to the first material component 64 and/or the chassis 9.

A pocket 60 formed by a first material component 64 and a second material component 66 such as that illustrated in FIG. 19 can have increased rigidity in the lateral direction 32 as compared to a pocket 60 being formed by a single material. The increased rigidity can provide the caregiver with easier access to the pocket 60 and/or improved functionality of the pocket 60.

FIGS. 22-29 depict an exemplary absorbent article 110 that include a pocket 60 and that can be manufactured using a method 810 (FIGS. 23-25) or a method 910 (FIGS. 26-29) in a cross-directional manufacturing process. The difference between an absorbent article 110 produced by the method 810 of FIGS. 23-25 is that the pocket 60 can include a first material component 64, but not a second material component 66, whereas the absorbent article 110 produced by method 810 of FIGS. 26-28 can include both a first material component 64 and a second material component 66. Other than this distinction, the absorbent article 110 can be substantially the same as manufactured by

method 810 or method 910. For this reason, methods 810 and 910 will each refer to the absorbent article 110 in FIG. 22 for reference purposes.

The absorbent article 110 of FIG. 22 can include a longitudinal axis 29 and a lateral axis (not labeled). The lateral axis is perpendicular to the longitudinal axis 29 and is located midway between the front waist edge 22 and the rear waist edge 24. The absorbent article 110 can include a chassis 9. The chassis 9 can include a front waist region 12 including the front waist edge 22, a rear waist region 14 including the rear waist edge 24, and a crotch region 16 extending between the front waist region 12 and the rear waist region 14. The pocket 60 can be located in the front waist region 12. The absorbent article 110 as depicted in FIG. 22 can include a chassis 9 that further includes a front waist panel 13 defining the front waist region 12. The absorbent article 110 can include a rear waist panel 15 defining the rear waist region 14. The absorbent article 110 can include an absorbent panel 17 which can be bonded to the front waist panel 13 and the rear waist panel 15. The absorbent panel 17 can include an absorbent assembly 36 that can include an outer cover 26, a bodyside liner 28, and an absorbent body 34 disposed between the bodyside liner 28 and the outer cover 26. The pocket 60 can be disposed on an outer surface 19 of the front waist panel 13.

The pocket 60 can include a first side edge 70 and a second side edge 72 opposite from the first side edge 70. The pocket 60 can also include an upper lateral edge 74 and a lower lateral edge 76. The pocket 60 can be closed with respect to an outer surface 11 of the absorbent article 110 at least at the first side edge 70 and the second side edge 72. In some embodiments, the pocket 60 can be closed with respect to the outer surface 11 of the absorbent article 110 as well, as depicted in FIG. 22. The pocket 60 can be open with respect to the outer surface 11 of the absorbent article 110 at least at the lower lateral edge 76.

FIG. 22 depicts an embodiment of an absorbent article 110 that includes a pocket 60 including a first material component 64 and a second material component 66. In some embodiments, the first material component 64 can be substantially the same size as the second material component 66. In some embodiments, the first material component 64 can be substantially the same width as the second material component as measured in a direction parallel to the lateral axis 31 (not labeled in FIG. 22). In some embodiments, the second material component 66 can be substantially the same length as the second material component as measured in a direction parallel to the longitudinal axis 29.

The first material component 64 can include an uppermost edge 64a, a lowermost edge 64b, and two opposing side edges 64c, 64d. The second material component 66 can include a top edge 66a, a bottom edge 66b, and two opposing side edges 66c, 66d. As illustrated in FIG. 22, the second

material component 66 can be substantially aligned with the first material component 64 such that the bottom edge 66b of the second material component 66 substantially aligns with the lowermost edge 64b of the first material component 64. In some embodiments, the opposing side edges 64c, 64d can substantially align with the respective opposing side edges 66c, 66d of the second material component 66. In other words, the side edge 64c of the first material component 64 can substantially align with the side edge 66c of the second material component 66 and the side edge 64d of the first material component 64 can substantially align with the side edge 66d of the second material component 66.

In some embodiments, the second material component 66 can be bonded to an outer surface 11 of the absorbent article 110. In some embodiments, the second material component 66 can be bonded to an outer surface 19 of the front waist panel 13. In some embodiments, the second material component 66 can be directly bonded to the outer surface 11 of the absorbent article 110 by being bonded directly to the outer surface 19 of the front waist panel 13. The first material component 64 can be bonded to the second material component 66, and in some embodiments, the first material component 64 can be directly bonded to the second material component 66. As will be described in more detail below with respect to FIGS. 26-29, the bottom surface 78 of the pocket 60 can be formed by the second material component 66 and a top surface 79 of the pocket 60 can be formed by the first material component 64. In other words, the pocket 60 can be formed between the second material component 66 and the first material component 64.

As discussed above with respect to various prior embodiments, the first material component 64 and the second material component 66 can be comprised of various materials. In some embodiments, the first material component 64 can comprise the same material as the second material component, however, it can be appreciated that the first material component 64 can comprise a different material as the second material component 66. In some embodiments, the second material component can be a liquid impermeable material. Such a configuration is especially beneficial where the front waist panel 13 or the outer surface 11 of the absorbent article 10 near the pocket 60 is not liquid impermeable. When the front waist panel 13 or the outer surface 11 of the absorbent article 10 near the pocket 60 is not liquid impermeable and when the second material component 66 is liquid impermeable, the second material component 66 can prevent fluid from entering the pocket 60 where it could contact the caregiver's hand while the caregiver is utilizing the pocket 60.

The method 810 is illustrated in FIGS. 23-25 and includes a manufacturing process that can manufacture the absorbent article 110 in a cross-directional manufacturing process. As referred to above, the method 810 is described with respect to an absorbent article 110 that can include a pocket 60 that includes a first material component 64, but does not include a second material component 66.

The method 910 is illustrated in FIGS. 26-28 and includes a manufacturing process that can manufacture the absorbent article 110 in a cross-directional manufacturing process. The method 910 describes a process for manufacturing an absorbent article 110 that includes a pocket 60 that includes both a first material component 64 and a second material component 66.

The method 810 illustrated in FIGS. 23-25 can include providing a chassis 9 and has many similarities to methods 210, 310, and 410 discussed above. Thus, the focus of this discussion on method 810 depicted in FIGS. 23-25 will focus on portions of method 810 that are different or additional to methods 210, 310, and/or 410. As previously discussed, the chassis 9 can include an absorbent assembly 36 including a bodyside liner 28, an outer cover 26, and an absorbent body 34 disposed between the bodyside liner 28 and the outer cover 26. The chassis 9 can further include a front waist panel 13, a rear waist panel 15, and an absorbent panel 17. The absorbent panel 17 can extend between the front waist panel 13 and the rear waist panel 15 and can be bonded to each of the front waist panel 13 and the rear waist panel 15. The absorbent panel 17 can form the absorbent assembly 36.

Different from methods 210, 310, and 410, the method 810 can include transferring at least a portion of the chassis 9 in a machine-direction 56, where the machine-direction 56 is perpendicular to the longitudinal axis 29 of the absorbent article 110. For example, as shown in FIGS. 23 and 24, the method 810 can include transferring at least a portion of the chassis 9 (chassis web 809) such as the front waist panel 13 (e.g., web of front waist panel 813) in a machine-direction 56, where the machine direction 56 is perpendicular to what will become the longitudinal axis (not labeled in FIGS. 23 and 24) of the absorbent article 110. The method 810 can also include providing a continuous web of pocket material 263 and cutting the continuous web of pocket material 263 to form a first material component 64, as described above with respect to previous embodiments. Similar to methods 210, 310, and 410 discussed above, the method 810 can employ a knife roll 289 (two knife edges 289a being shown on knife roll 289) and an anvil roll 290 to cut the continuous web of pocket material 263.

After forming the first material component 64, however, the method 810 does not rotate the first material component 64 as in methods 210, 310, and 410. Thus, the method 810 need not include a rotating module 296. Instead, the orientation of the first material component 64 is already proper in relation to the orientation of the portion of the chassis 9 being transferred (e.g., the front waist panel 13 as web of front waist panel 813), which is being transferred in the machine-direction 56. As a result, method 810 can include bonding the first material component 64 to the at least a portion of the chassis 9 (e.g., the front waist panel 13 as web of front waist panel 813) without first rotating the first discrete material component 64. Providing the first material component 64 to the chassis 9 in this orientation

provides the benefits as discussed above for achieving a higher level of tensile strength in the lateral direction 32 of the article 110 with a lower cost and/or lower basis weight pocket material 63, without the need for rotating the first material component 64 as described in other methods.

Similar to previous methods discussed above, the first material component 64 can be bonded to the chassis 9 (e.g., the outer surface 819 of web of front waist panel 813) with first intermittent adhesive 293 from adhesive unit 292 to form the first side edge 70 and second side edge 72 of the pocket 60, as previously discussed, and can be bonded to the outer surface 7 of the chassis 9 (e.g., outer surface 807 of chassis web 209 via the outer surface 819 of the web of front waist panel 813) to form the upper lateral edge 74 of the pocket with second adhesive 295a from adhesive unit 294a, as previously discussed. The method 810 can also include providing an extensible material 84, bonding the extensible material 84 to the continuous web of pocket material 263 near second longitudinal edge 263b with third adhesive 295b from adhesive unit 294b. Additionally, the method 810 can include folding the continuous web of pocket material 263 near the second longitudinal edge 263b and bonding the folded portion 265a of the continuous web of pocket material 263 to the continuous web of pocket material 263, that once the continuous web of pocket material 263 is cut, will form a folded cuff 65 that includes the extensible material 84.

Method 910 is illustrated in FIGS. 26-29 and is an exemplary method of manufacturing the absorbent article 110 illustrated in FIG. 22 that includes a pocket 60 including a first material component 64 and a second material component 66. Method 910 is similar to method 810, except as noted here below.

Method 910 can further include providing a continuous web of second material 966. The continuous web of second material 966 can include a first longitudinal side edge 966a and a second longitudinal side edge 966b. Method 910 can include bonding the continuous web of pocket material 263 to the continuous web of second material 966. The continuous web of pocket material 263 can be bonded to the continuous web of second material 966 via the use of first intermittent adhesive 293 that is applied with adhesive unit 292 and/or second adhesive 295a that is applied with adhesive unit 294a. The method 910 can include cutting the continuous web of second material 966 to form a second material component 66 at the same time as cutting the continuous web of pocket material 263 to form the first material component 64. Bonding the continuous web of pocket material 263 to the continuous web of second material 966 and cutting the continuous web of pocket material 263 at the same time as the continuous web of second material 966 can help provide that the opposing side edges 64c, 64d of the first material component 64 align with the respective opposing side edges 66c, 66d of the second material component 66. The method 910 can further include bonding the second material component

66 to the at least a portion of the chassis 9 (e.g., outer surface 19 of front waist panel 13 shown as web of front waist panel 813).

A fourth adhesive 995c can be applied to the first surface 967 of the continuous web of the second material 966 substantially across the width of the continuous web 966 of the second material from first longitudinal side edge 966a to second longitudinal side edge 966b with adhesive unit 997. The fourth adhesive 995c can be applied in a slot adhesive pattern (as illustrated in FIG. 27), however, it is contemplated that other adhesive application methods and patterns can be used and would be suitable, such as the swirl pattern illustrated in FIG. 28. The fourth adhesive 995c can be applied to the first surface 967 of the continuous web of second material 966 prior to cutting the continuous web of the second material 966 to form the second material component 66 and prior to cutting the continuous web of the pocket material 263 to form the first material component 64. The fourth adhesive 995c can provide the bonding of the second material component 66 to the at least a portion of the outer surface 7 of the chassis 9 (e.g., outer surface 807 of chassis web 809 via outer surface 819 of web of front waist panel 813). The fourth adhesive 995c can also indirectly provide the bonding of the first material component 64 to the at least a portion of the chassis 9 (e.g., outer surface 807 of chassis web 809 via outer surface 819 of web of front waist panel 813) due to the first material component 64 being bonded to the second material component 66.

As briefly mentioned above and as best illustrated by the cross-sectional image in FIG. 29, the pocket 60 can be formed between the second material component 66 and the first material component 64. The bottom surface 78 of the pocket 60 can be formed by the second material component 66 and the top surface 79 of the pocket 60 can be formed by the first material component 64.

The method 910 can also include aligning the continuous web of second material 966 to the continuous web of pocket material 263. For example, the continuous web of second material 966 can be bonded to the continuous web of pocket material 263 such that the first longitudinal side edge 263a of the continuous web of pocket material 263 substantially aligns with the first longitudinal side edge 966a of the continuous web of second material 966. Additionally or alternatively, the continuous web of second material 966 can be bonded to the continuous web of pocket material 263 such that the second longitudinal side edge 263b of the continuous web of pocket material 263 substantially aligns with the second longitudinal side edge 966b of the continuous web of second material 966. By aligning and bonding the continuous web of pocket material 263 to the continuous web of second material 966, cutting the continuous web of pocket material 263 and the continuous web of second material 966 can form a pocket in which the uppermost edge 64a of the first material component 64 substantially aligns with the top edge 66a of the second material component 66 and the lowermost

edge 64b of the first material component 64 substantially aligns with the bottom edge 66b of the second material component 66, such as illustrated in FIGS. 22, 27, and 28. Additionally, bonding the continuous web of pocket material 263 to the continuous web of second material 966 and cutting the continuous web of pocket material 263 at the same time as the continuous web of second material 966 can help provide that the opposing side edges 64c, 64d of the first material component 64 align with the respective opposing side edges 66c, 66d of the second material component 66, as illustrated in FIGS. 22, 27, 28, and 29. Alignment in one or more of these characteristics can provide a clean aesthetic to the pocket 60. Additionally, providing a pocket 60 with a first material component 64 and a second material component 66 aligned in such a fashion provides consistent rigidity throughout the pocket 60, which could lead to improved handling characteristics for the caregiver.

As noted in prior embodiments, the first material component 64 can also provide the functionality of forming or including one or more components of the fastening system, should the absorbent article 110 be modified to have a refastenable fastening system.

For all the embodiments of the absorbent articles 10, 110 and the methods 210, 310, 410, 510, 610, 710, 810, and 910 discussed herein, it is to be appreciated that while various adhesives are disclosed in the embodiments depicted in FIGS. 1-29 to bond the various components of the pocket 60 to one another or to the chassis 9, other known means of bonding can be used in addition to or in place of one or more of the adhesive discussed herein. For example, other means of bonding could include, but are not limited to, pressure bonding, ultrasonic bonding, thermal bonding, and stitching.

Absorbent Body:

The absorbent body 34 can be suitably constructed to be generally compressible, conformable, pliable, non-irritating to the wearer's skin and capable of absorbing and retaining liquid body exudates. The absorbent body 34 can be manufactured in a wide variety of sizes and shapes (for example, rectangular, trapezoidal, T-shape, I-shape, hourglass shape, etc.) and from a wide variety of materials. The size and the absorbent capacity of the absorbent body 34 should be compatible with the size of the intended wearer (infants to adults) and the liquid loading imparted by the intended use of the absorbent article 10, 110. The absorbent body 34 can have a length and width that can be less than or equal to the length and width of the absorbent article 10, 110.

In an embodiment, the absorbent body 34 can be composed of a web material of hydrophilic fibers, cellulosic fibers (e.g., wood pulp fibers), natural fibers, synthetic fibers, woven or nonwoven sheets, scrim netting or other stabilizing structures, superabsorbent material, binder materials, surfactants, selected hydrophobic and hydrophilic materials, pigments, lotions, odor control agents or the like, as well as combinations thereof. In an embodiment, the absorbent body 34 can be a matrix of

cellulosic fluff and superabsorbent material. In an embodiment, the absorbent body 34 may be constructed of a single layer of materials, or in the alternative, may be constructed of two or more layers of materials.

Various types of wettable, hydrophilic fibers can be used in the absorbent body 34. Examples of suitable fibers include natural fibers, cellulosic fibers, synthetic fibers composed of cellulose or cellulose derivatives, such as rayon fibers; inorganic fibers composed of an inherently wettable material, such as glass fibers; synthetic fibers made from inherently wettable thermoplastic polymers, such as particular polyester or polyamide fibers, or composed of nonwettable thermoplastic polymers, such as polyolefin fibers which have been hydrophilized by suitable means. The fibers may be hydrophilized, for example, by treatment with a surfactant, treatment with silica, treatment with a material which has a suitable hydrophilic moiety and is not readily removed from the fiber, or by sheathing the nonwettable, hydrophobic fiber with a hydrophilic polymer during or after formation of the fiber. Suitable superabsorbent materials can be selected from natural, synthetic, and modified natural polymers and materials. The superabsorbent materials can be inorganic materials, such as silica gels, or organic compounds, such as cross-linked polymers. In an embodiment, the absorbent body 34 can be free of superabsorbent material.

The absorbent body 34 can be superposed over the outer cover 26 and can be bonded to the outer cover 26, such as by being bonded thereto with adhesive. However, it is to be understood that the absorbent body 34 may be in contact with, and not bonded with, the outer cover 26 and remain within the scope of this disclosure. In an embodiment, the outer cover 26 can be composed of a single layer and the absorbent body 34 can be in contact with the singer layer of the outer cover 26. In other embodiments, the outer cover 26 can be composed of more than one layer, and the absorbent body 34 can be in contact with the innermost layer of the outer cover 26. In an embodiment, a layer, such as but not limited to, a fluid transfer layer 38, can be positioned between the absorbent body 34 and the outer cover 26, as illustrated in FIGS. 2 and 22.

Bodyside liner:

The bodyside liner 28 of the absorbent article 10, 110 can overlay the absorbent body 34 and the outer cover 26 and can isolate the wearer's skin from liquid waste retained by the absorbent body 34. In various embodiments, a fluid transfer layer 38 can be positioned between the bodyside liner 28 and the absorbent body 34. In various embodiments, an acquisition layer 39 can be positioned between the bodyside liner 28 and the absorbent body 34 or a fluid transfer layer 38, if present. In various embodiments, the bodyside liner 28 can be bonded to the acquisition layer 39, or to the fluid transfer layer 38 if no acquisition layer 39 is present, via adhesive and/or by a point fusion bonding.

The point fusion bonding may be selected from ultrasonic, thermal, pressure bonding, and combinations thereof.

In an embodiment, the bodyside liner 28 can extend beyond the absorbent body 34 and/or a fluid transfer layer 38, if present, and/or an acquisition layer 39, if present, to overlay a portion of the outer cover 26 and can be bonded thereto by any method deemed suitable, such as, for example, by being bonded thereto by adhesive, to substantially enclose the absorbent body 34 between the outer cover 26 and the bodyside liner 28. The bodyside liner 28 may be narrower than the outer cover 26, but it is to be understood that the bodyside liner 28 and the outer cover 26 may be of the same dimensions, or that the bodyside liner 28 may be of greater width than the outer cover 26. It is also contemplated that the bodyside liner 28 may not extend beyond the absorbent body 34 and/or may not be secured to the outer cover 26. It is further contemplated that the bodyside liner 28 may be composed of more than one segment of material. The bodyside liner 28 can be of different shapes, including rectangular, hourglass, or any other shape. The bodyside liner 28 can be suitably compliant, soft feeling, and non-irritating to the wearer's skin and can be the same as or less hydrophilic than the absorbent body 34 to permit body exudates to readily penetrate through to the absorbent body 34 and provide a relatively dry surface to the wearer.

The bodyside liner 28 can be manufactured from a wide selection of materials, such as synthetic fibers (for example, polyester or polypropylene fibers), natural fibers (for example, wood or cotton fibers), a combination of natural and synthetic fibers, porous foams, reticulated foams, apertured plastic films, or the like. Examples of suitable materials include, but are not limited to, rayon, wood, cotton, polyester, polypropylene, polyethylene, nylon, or other heat-bondable fibers, polyolefins, such as, but not limited to, copolymers of polypropylene and polyethylene, linear low-density polyethylene, and aliphatic esters such as polylactic acid, finely perforated film webs, net materials, and the like, as well as combinations thereof.

Various woven and non-woven fabrics can be used for the bodyside liner 28. The bodyside liner 28 can include a woven fabric, a nonwoven fabric, a polymer film, a film-fabric laminate or the like, as well as combinations thereof. Examples of a nonwoven fabric can include spunbond fabric, meltblown fabric, coform fabric, carded web, bonded-carded web, bicomponent spunbond fabric, spunlace, or the like, as well as combinations thereof. The bodyside liner 28 need not be a unitary layer structure, and thus, can include more than one layer of fabrics, films, and/or webs, as well as combinations thereof. For example, the bodyside liner 28 can include a support layer and a projection layer that can be hydroentagled. The projection layer can include hollow projections, such as those disclosed in U.S. Patent Application Publication No. 2014/0121623 invented by Kirby, Scott S.C. et al.

In a preferred embodiment, the bodyside liner 28 includes a bodyfacing surface that provides an uneven surface at least in the front waist region 12, such as a bodyfacing surface that includes projections as disclosed in U.S. Patent Application Publication No. 2014/0121623 noted above. Such a bodyside liner 28 provides additional benefits in softness and assists in cleaning the wearer's skin when the caregiver uses the pocket 60 of the absorbent article 10, 110 to wipe the wearer.

For example, the bodyside liner 28 can be composed of a meltblown or spunbond web of polyolefin fibers. Alternatively, the bodyside liner 28 can be a bonded-carded web composed of natural and/or synthetic fibers. The bodyside liner 28 can be composed of a substantially hydrophobic material, and the hydrophobic material can, optionally, be treated with a surfactant or otherwise processed to impart a desired level of wettability and hydrophilicity. The surfactant can be applied by any conventional means, such as spraying, printing, brush coating or the like. The surfactant can be applied to the entire bodyside liner 28 or it can be selectively applied to particular sections of the bodyside liner 28.

In an embodiment, a bodyside liner 28 can be constructed of a non-woven bicomponent web. The non-woven bicomponent web can be a spunbonded bicomponent web, or a bonded-carded bicomponent web. An example of a bicomponent staple fiber includes a polyethylene/polypropylene bicomponent fiber. In this particular bicomponent fiber, the polypropylene forms the core and the polyethylene forms the sheath of the fiber. Fibers having other orientations, such as multi-lobe, side-by-side, end-to-end may be used without departing from the scope of this disclosure. In an embodiment, a bodyside liner 28 can be a spunbond substrate with a basis weight from about 10 or 12 to about 15 or 20 gsm. In an embodiment, a bodyside liner 28 can be a 12 gsm spunbond-meltblown-spunbond substrate having 10% meltblown content applied between the two spunbond layers.

Although the outer cover 26 and bodyside liner 28 can include elastomeric materials, it is contemplated that the outer cover 26 and the bodyside liner 28 can be composed of materials which are generally non-elastomeric. In an embodiment, the bodyside liner 28 can be stretchable, and more suitably elastic. In an embodiment, the bodyside liner 28 can be suitably stretchable and more suitably elastic in at least the lateral or circumferential direction of the absorbent article 10, 110. In other aspects, the bodyside liner 28 can be stretchable, and more suitably elastic, in both the lateral and the longitudinal directions 32, 30, respectively.

Fluid Transfer Layer:

In some embodiments, the absorbent article 10, 110 can include a fluid transfer layer 38. The fluid transfer layer 38 can be disposed between the absorbent body 34 and the bodyside liner 28. In some embodiments, the fluid transfer layer 38 can be in contact with and at least partially wrap the

absorbent body 34. The fluid transfer layer 38 can be pliable, less hydrophilic than the absorbent body 34, and sufficiently porous to thereby permit liquid body exudates to penetrate through the fluid transfer layer 38 to reach the absorbent body 34. In an embodiment, the fluid transfer layer 38 can have sufficient structural integrity to withstand wetting thereof and of the absorbent body 34. The fluid transfer layer 38 can be a single layer of material or a laminate constructed from two or more layers. The fluid transfer layer 38 can include, but is not limited to natural and synthetic fibers such as polyester, polypropylene, acetate, nylon, polymeric materials, and cellulosic materials, and mixtures thereof. In some embodiments, the fluid transfer layer 38 can include spunbond and/or meltblown materials. The fluid transfer layer 38 can have a longitudinal length the same as, greater than, or less than the longitudinal length of the absorbent body 34.

Acquisition Layer:

In some embodiments, the absorbent article 10, 110 can include an acquisition layer 39. The acquisition layer 39 can be disposed between the absorbent body 34 and the bodyside liner 28. The acquisition layer 39 can serve to quickly collect and temporarily hold liquids discharged by the wearer and then release the liquids to the absorbent body 34. Various woven and nonwoven materials can be used to construct the acquisition layer 39. For example, the acquisition layer 39 can be a layer of a spunbonded or meltblown web of polyolefin fibers. The acquisition layer 39 can also be a bonded carded web of natural and synthetic fibers. The acquisition layer 39 can be a substantially hydrophobic material and, optionally, can be treated with a surfactant or otherwise to impart a desired level of wettability and hydrophilicity.

Leg Elastics:

Leg elastic members 46, 48 (shown in FIGS. 1, 2, 19, and 22) can be secured to the outer cover 26, such as by being bonded thereto by laminate adhesive, generally laterally inward of the longitudinal side edges, 18 and 20, of the absorbent article 10, 110. The leg elastic members 46, 48 can form elasticized leg cuffs that further help to contain body exudates. In an embodiment where the outer cover 26 is comprised of an inner layer and an outer layer, the leg elastic members 46, 48 may be disposed between the inner layer and outer layer. In some embodiments, the leg elastic members 46, 48 can be located between other layers of the absorbent article 10, 110. The leg elastic members 46, 48 can be a single elastic member, or each leg elastic member 46, 48 can include more than one elastic member, such as illustrated herein. A wide variety of elastic materials may be used for the leg elastic members 46, 48. Suitable elastic materials can include sheets, strands or ribbons of natural rubber, synthetic rubber, or thermoplastic elastomeric materials. The elastic materials can be stretched and secured to a substrate, secured to a gathered substrate, or secured to a substrate and

then elasticized or shrunk, for example, with the application of heat, such that the elastic retractive forces are imparted to the substrate. Of course, the leg elastic members 46, 48 can be omitted from the absorbent article 10, 110 without departing from the scope of this disclosure.

Fastening System:

In some embodiments, the absorbent article 10 can include a fastener system. In some embodiments, the fastening system can include a primary fastening system 47. Figures 1-18 illustrate embodiments of an absorbent article 10 that include a fastening system that includes a primary fastening system 47. However, in some embodiments, the fastening system can include a primary fastening system 47 and a secondary fastening system 49. Figures 19-21a illustrate embodiments of an absorbent article 10 that include a fastening system that includes a primary fastening system 47 and a secondary fastening system 49. Regardless of whether the fastening system includes a primary fastening system 47 or a primary fastening system 47 and a secondary fastening system 49, the fastening system can be configured to secure the absorbent article 10 about the waist of the wearer and maintain the absorbent article 10 in place during use in fastened configuration.

The primary fastening system 47 can include at least one primary first fastening component 52 and at least one primary second fastening component 54. As shown in the embodiments of the absorbent articles 10 depicted in FIGS. 1, 2, and 19, the absorbent article 10 can include a primary first fastening component 52 on each of the back ears 50. The primary first fastening components 52 can be disposed in the rear waist region 14 and the primary second fastening component 54 can be disposed in the front waist region 12. The primary first fastening components 52 are adapted for refastenable engagement with the primary second fastening component 54. The primary first fastening components 52 and the primary second fastening component 54 can comprise any refastenable fasteners suitable for absorbent articles, such as adhesive fasteners, cohesive fasteners, mechanical fasteners, or the like. In one suitable embodiment, the primary fastening components 52, 54 can comprise mechanical fastening components, such as hook and loop fasteners. For example, suitable hook and loop components can be provided by interlocking geometric shaped materials. As used herein, “hook” broadly refers to any suitable mechanical fastener adapted to engage loop components including, e.g., hooks, bulbs, mushrooms, arrowheads, balls on stems, stems, structures having stems that engage foam such as open cell foam or the like, etc. Other suitable mechanical fastening components include male and/or female mating components, buckles, snaps, or the like. In the illustrated embodiments, the primary first fastening components 52 comprise hook fasteners and the primary second fastening component 54 comprises a complementary loop fastener formed by the second material component 66 of the pocket 60. Alternatively, the primary first fastening components

52 may comprise loop fasteners and the primary second fastening component 54 may comprise complementary hook fasteners. It can also be appreciated that while the embodiments disclosed herein illustrate that the first material component 64 or the second material component 66 can form the primary second fastening component 54, one alternative can be to have the primary second fastening component(s) 54 be bonded to the first material component 64 or the second material component 66.

As noted above, the absorbent article in FIG. 19 depicts a fastening system including a primary fastening system 47 and a secondary fastening system 49. The secondary fastening system 49 can include at least one secondary first fastening component 51 and at least one secondary second fastening component 53. As illustrated in FIG. 19, the absorbent article 10 can include a secondary second fastening component 53 on each of the back ears 50 (the secondary first fastening components 51 not being shown in FIGS. 20 and 21 for clarity purposes). The secondary first fastening components 51 can be disposed in the front waist region 12 and can be disposed on the second material component 66 of the pocket 60. The secondary first fastening components 51 are adapted for refastenable engagement with the secondary second fastening components 53. As noted above with respect to the primary fastening components 52, 54, the secondary fastening components 51, 53 can comprise mechanical fastening components, such as hook and loop fasteners, but other suitable mechanical fastening components can include male and/or female mating components, buckles, snaps, or the like. In the illustrated embodiment, the secondary first fastening components 51 comprise hook fasteners and the secondary second fastening components 53 comprise loop fasteners. Alternatively, the secondary first fastening components 51 may comprise loop fasteners and the secondary second fastening components 53 may comprise complementary hook fasteners. In one embodiment, the secondary first fastening components 51 may be constructed of polyethylene or other suitable polymer blends.

As illustrated in FIG. 19, a benefit to having a pocket 60 that includes a first material component 64 and a second material component 66 when the fastening system includes a secondary fastening system 49 is that the lower lateral edge 76 of the pocket 60 can be independent from the location of the secondary first fastening components 51. Specifically, when the secondary first fastening components 51 are disposed on the second material component 66, but the lower lateral edge 76 of the pocket 60 is defined by a component other than the second material component 66, such as by the lowermost edge 64b of the first material component 64, then the secondary first fastening components 51 can be independent from the lower lateral edge 76 of the pocket 60. Such a configuration provides the benefit of being able to provide a pocket 60 of a desired length 82 and desired location in the front waist region 12, yet keep the secondary first fastening components 51

away from the longitudinal edges 18, 20 of the absorbent article 10 that define leg openings when the product is in the fastened configuration. Keeping the secondary first fastening components 51 away from the longitudinal side edges 18, 20 helps to reduce the possibility that the secondary first fastening components 51 may irritate the wearer's skin on the wearer's legs.

Although a secondary fastening system 49 is only depicted for the embodiment of the absorbent article 10 depicted in FIG. 19, it is to be understood that other embodiments, such as embodiments of absorbent articles 10 depicted in FIGS. 1-18, could include a secondary fastening system 49, and the embodiment of the absorbent article 110 could be modified to include a primary fastening 47 and a secondary fastening system 49. Additionally, it is to be appreciated that the embodiment of FIGS. 19-21a need not require a secondary fastening system 49. Furthermore, the fastening system can be omitted from any embodiments of the absorbent article 10, 110 without departing from the scope of this disclosure.

Waist Elastic Members:

In an embodiment, the absorbent article 10, 110 can have one or more waist elastic members, such as rear waist elastic member 44, which can be formed of any suitable elastic material. The rear waist elastic member 44 can be in a rear waist region 14 of the absorbent article 10, 110. Suitable elastic materials for waist elastic members can include, but are not limited to, sheets, strands or ribbons of natural rubber, synthetic rubber, or thermoplastic elastomeric polymers. The elastic materials can be stretched and bonded to a substrate, bonded to a gathered substrate, or bonded to a substrate and then elasticized or shrunk, for example, with the application of heat, such that elastic retractive forces are imparted to the substrate. It is to be understood, however, that the waist elastic member can be omitted from the absorbent article 10, 110 without departing from the scope of this disclosure.

Embodiments

Embodiment 1: A method of manufacturing an absorbent article, the absorbent article including a front waist region including a front waist edge, a rear waist region including a rear waist edge, and a crotch region, the absorbent article further including a longitudinal axis, a lateral axis, and a pocket in the front waist region, the method comprising: providing a chassis; transferring at least a portion of the chassis in a machine direction, the machine direction being parallel to the longitudinal axis of the absorbent article; providing a continuous web of pocket material; cutting the continuous web of pocket material to form a first material component; rotating the first material component; and bonding the first material component to the at least a portion of the chassis to form the pocket.

Embodiment 2: A method of manufacturing an absorbent article, the absorbent article including a front waist region including a front waist edge, a rear waist region including a rear waist edge, and a crotch region, the absorbent article further including a longitudinal axis, a lateral axis, and a pocket in the front waist region, the method comprising: providing a chassis; transferring at least a portion of the chassis in a machine-direction, the machine-direction being perpendicular to the longitudinal axis of the absorbent article; providing a continuous web of pocket material; cutting the continuous web of pocket material to form a first material component; and bonding the first material component to the at least a portion of the chassis to form the pocket.

Embodiment 3: The method of manufacturing an absorbent article of embodiment 1 or embodiment 2, wherein the chassis comprises an absorbent assembly including a bodyside liner, an outer cover, and an absorbent body disposed between the bodyside liner and the outer cover.

Embodiment 4: The method of manufacturing an absorbent article of embodiment 3, wherein the first material component is bonded to the outer cover.

Embodiment 5: The method of manufacturing an absorbent article of embodiment 2, wherein the chassis comprises an absorbent assembly including a bodyside liner, an outer cover, and an absorbent body disposed between the bodyside liner and the outer cover, the chassis further comprising a front waist panel, a rear waist panel, and an absorbent panel, the absorbent panel extending between the front waist panel and the rear waist panel and bonded to the front waist panel and the rear waist panel.

Embodiment 6: The method of manufacturing an absorbent article of embodiment 5, wherein the first material component is bonded to the front waist panel.

Embodiment 7: The method of manufacturing an absorbent article of embodiment 1, wherein the first material component is rotated 90 degrees prior to bonding the first material component to the at least a portion of the chassis to form the pocket.

Embodiment 8: The method of manufacturing an absorbent article of any of the preceding embodiments, further comprising: applying a first intermittent adhesive to the continuous web of pocket material prior to cutting the continuous web of pocket material to form the first material component, the first intermittent adhesive spanning substantially across a width of the continuous web of pocket material.

Embodiment 9: The method of manufacturing an absorbent article of embodiment 8, wherein the cutting of the continuous web of pocket material to form the first material component is phased such that the first material component includes a portion of the first intermittent adhesive near

opposing side edges of the first material component, wherein the first intermittent adhesive near the opposing side edges of the discrete pocket material bonds the first material component to the at least a portion of the chassis to form a first side edge of the pocket and a second side edge of the pocket.

Embodiment 10: The method of manufacturing an absorbent article of embodiment 8 or embodiment 9, further comprising: applying a second adhesive to the continuous web of pocket material prior to cutting the continuous web of pocket material to form the first material component, the second adhesive being applied near a first longitudinal side edge of the continuous web of pocket material, wherein the second adhesive bonds the first material component to the at least a portion of the chassis to form an upper lateral edge of the pocket.

Embodiment 11: The method of manufacturing an absorbent article of any one of the preceding embodiments, further comprising: folding the continuous web of pocket material upon itself near a second longitudinal edge of the continuous web of pocket material and bonding a folded portion of the continuous web of pocket material to the continuous web of pocket material to form a folded cuff.

Embodiment 12: The method of manufacturing an absorbent article of embodiment 11, further comprising: applying a third adhesive to the continuous web of pocket material prior to cutting the continuous web of pocket material to form the first material component, the third adhesive being applied to the continuous web of pocket material near a second longitudinal edge of the continuous web of pocket material prior to folding the continuous web of pocket material such that the third adhesive bonds the folded portion of the continuous web of pocket material to the continuous web of pocket material to form the folded cuff.

Embodiment 13: The method of manufacturing an absorbent article of embodiment 11 or embodiment 12, further comprising: providing an extensible material; and bonding the extensible material to the continuous web of the pocket material near the second longitudinal edge of the continuous web of pocket material prior to folding the continuous web of pocket material upon itself near the second longitudinal edge such that the folded cuff includes the extensible material.

Embodiment 14: The method of manufacturing an absorbent article of embodiment 11, further comprising: providing an extensible material; and bonding the extensible material to the continuous web of the pocket material near the second longitudinal edge of the continuous web of pocket material prior to cutting the continuous web of pocket material, wherein the extensible material extends beyond the second longitudinal edge of the continuous web of pocket material.

Embodiment 15: The method of manufacturing an absorbent article of embodiment 10, further comprising: providing a continuous web of an auxiliary cuff material; providing an extensible material;

bonding the extensible material to the continuous web of an auxiliary cuff material near a second longitudinal edge of the auxiliary cuff material; folding the continuous web of the auxiliary cuff material upon itself near the second longitudinal edge of the continuous web of the auxiliary cuff material and bonding a folded portion of the continuous web the auxiliary cuff material to itself to form a folded cuff, the folded cuff including the extensible material; and bonding the continuous web of the auxiliary cuff material to the continuous web of pocket material.

Embodiment 16: The method of manufacturing an absorbent article of any one of embodiments 1-4 or 7, wherein the pocket comprises the first material component and a second material component, the method further comprising: providing a continuous web of a second material; cutting the continuous web of the second material to form a second material component; and bonding a first portion of the second material component to the first material component.

Embodiment 17: The method of manufacturing an absorbent article of embodiment 16, further comprising: bonding a second portion of the second material component to the at least a portion of the chassis.

Embodiment 18: The method of manufacturing an absorbent article of embodiment 17, wherein the bonding of the second portion of the second material component to the at least a portion of the chassis forms an upper lateral edge of the pocket.

Embodiment 19: The method of manufacturing an absorbent article of embodiment 17 or embodiment 18, further comprising: applying a fourth adhesive to a first surface of the continuous web of the second material prior to cutting the continuous web of the second material to form the second material component, wherein the fourth adhesive provides the bonding of the first portion of the second material component to the first material component and the bonding of the second portion of the second material component to the at least a portion of the chassis.

Embodiment 20: The method of manufacturing an absorbent article of embodiment 16, wherein the chassis comprises an absorbent assembly including a bodyside liner, an outer cover, and an absorbent body disposed between the bodyside liner and the outer cover, and wherein the first material component and the second portion of the second material component are each bonded to the at least a portion of the chassis such that the first material component and the second material component are each directly bonded to the outer cover.

Embodiment 21: The method of manufacturing an absorbent article of any one of embodiments 2, 5, or 6, wherein the pocket comprises the first material component and a second

material component, and wherein the continuous web of the pocket material includes a first longitudinal side edge and a second longitudinal side edge, the method further comprising: providing a continuous web of second material, the continuous web of second material including a first longitudinal side edge and a second longitudinal side edge; bonding the continuous web of the pocket material to the continuous web of second web material; and cutting the continuous web of second material to form a second material component of the pocket at the same time of the cutting of the continuous web of pocket material to form the first material component of the pocket.

Embodiment 22: The method of embodiment 21, wherein the chassis comprises an absorbent assembly including a bodyside liner, an outer cover, and an absorbent body disposed between the bodyside liner and the outer cover, and wherein the chassis further comprises a front waist panel, a rear waist panel, and an absorbent panel, the absorbent panel extending between the front waist panel and the rear waist panel and bonded to the front waist panel and the rear waist panel, and wherein bonding the second material component to the at least a portion of the chassis includes bonding the second material component to the front waist panel.

Embodiment 23: The method of manufacturing an absorbent article of embodiment 21 or embodiment 22, wherein the continuous web of the pocket material is bonded to the continuous web of the second web material such that the first longitudinal side edge of the continuous web of the pocket material substantially aligns with the first longitudinal side edge of the continuous web of the second material, and wherein the continuous web of the pocket material is bonded to the continuous web of the second web material such that the second longitudinal side edge of the continuous web of the pocket material substantially aligns with the second longitudinal side edge of the continuous web of the second material.

Embodiment 24: The method of manufacturing an absorbent article of any one of embodiments 21-23, further comprising: applying a fourth adhesive to a first surface of the continuous web of the second material prior to cutting the continuous web of the second material to form the second material component and prior to cutting the continuous web of the pocket material to form the first material component.

Embodiment 25: The method of manufacturing an absorbent article of any one of embodiment 21-24, wherein the second material component is liquid impermeable.

Embodiment 26: The method of manufacturing an absorbent article of any one of embodiments 16 or 21-25, further comprising: applying a third adhesive to the continuous web of pocket material prior to cutting the continuous web of pocket material to form the first material

component, the third adhesive being applied to the continuous web of pocket material near a second longitudinal edge of the continuous web of pocket material; and folding the continuous web of pocket material upon itself near the second longitudinal edge of the continuous web of pocket material to form a folded cuff.

Embodiment 27: The method of manufacturing an absorbent article of embodiment 26, further comprising: providing an extensible material; applying the extensible material to the continuous web of the pocket material near the second longitudinal edge of the continuous web of pocket material prior to folding the continuous web of pocket material upon itself near the second longitudinal edge such that the folded cuff includes the extensible material.

Embodiment 28: The method of manufacturing an absorbent article of embodiment 16, further comprising: providing a fastening system, the fastening system including a primary fastening system and a secondary fastening system, the primary fastening system including at least one primary first fastening component in the rear waist region and at least one primary second fastening component in the front waist region, the secondary fastening system including at least one secondary first fastening component in the front waist region and at least one secondary second fastening component in the rear waist region; wherein the second material component includes the at least primary second fastening component and the at least one secondary first fastening component.

Embodiment 29: An absorbent article including a front waist region including a front waist edge, a rear waist region including a rear waist edge, and a crotch region, the absorbent article further including a longitudinal axis and a lateral axis, the absorbent article comprising: a chassis including an outer surface; and a pocket disposed on the outer surface in the front waist region, the pocket including a first side edge, a second side edge opposite from the first side edge, an upper lateral edge, a lower lateral edge, and a bottom surface, the pocket being closed with respect to the bottom surface at least at the first side edge and the second side edge, the pocket being open with respect to the bottom surface at least at the lower lateral edge, the pocket comprising a pocket material, the pocket including a folded cuff near the lower lateral edge of the pocket.

Embodiment 30: The absorbent article of claim 29, wherein the pocket material includes at least one extensible material in the folded cuff.

Embodiment 31: The absorbent article of embodiment 29 or embodiment 30, wherein the pocket material comprises a first material component and a second material component, the first material component being bonded to the outer surface to form the first side edge and the second side edge of the pocket, the second material component being bonded to the first material component and

the outer surface to form the upper lateral edge of the pocket, and wherein the first material component includes the folded cuff.

Embodiment 32: The absorbent article of embodiment 29 or embodiment 30, wherein the pocket material comprises a first material component and an auxiliary cuff material component, the first material component being bonded to the outer surface to form the first side edge of the pocket, the second side edge of the pocket, and the upper lateral edge of the pocket, the auxiliary cuff material component being bonded to the first material component near a lowermost edge of the first material component and extending beyond the lowermost edge of the first material component, and wherein the auxiliary cuff material component includes the folded cuff.

Embodiment 33: The absorbent article of any one of embodiments 29-32, wherein the pocket is closed with respect to the outer surface at the upper lateral edge.

Embodiment 34: An absorbent article including a longitudinal and a lateral axis, the absorbent article comprising: a chassis including a front waist region including a front waist edge, a rear waist region including a rear waist edge, and a crotch region extending between the front waist region and the rear waist region; and a pocket disposed in the front waist region, the pocket including a first side edge, a second side edge opposite from the first side edge, an upper lateral edge, a lower lateral edge, and a bottom surface, the pocket being closed with respect to an outer surface of the absorbent article at least at the first side edge and the second side edge, the pocket being open with respect to the bottom surface at least at the lower lateral edge, the pocket comprising: a first material component; and a second material component, the first material component being substantially the same width as the second material component as measured in a direction parallel to the lateral axis.

Embodiment 35: An absorbent article including a longitudinal axis and a lateral axis, the absorbent article comprising: a chassis including a front waist region including a front waist edge, a rear waist region including a rear waist edge, and a crotch region extending between the front waist region and the rear waist region; and a pocket disposed in the front waist region, the pocket including a first side edge, a second side edge opposite from the first side edge, an upper lateral edge, a lower lateral edge, and a bottom surface, the pocket being closed with respect to an outer surface of the absorbent article at least at the first side edge and the second side edge, the pocket being open with respect to the bottom surface at least at the lower lateral edge, the pocket comprising: a first material component including an uppermost edge, a lowermost edge, and opposing side edges; and a second material component including a top edge, a bottom edge, and opposing side edges, the second material component being aligned with the first material component such that the bottom edge of the

second material component substantially aligns with the lowermost edge of the first material component.

Embodiment 36: The absorbent article of embodiment 34, wherein the first material component includes an uppermost edge, a lowermost edge, and opposing side edges, the second material component includes a top edge, a bottom edge, and opposing side edges, the second material component being aligned with the first material component such that the bottom edge of the second material component substantially aligns with the lowermost edge of the first material component.

Embodiment 37: The absorbent article of embodiment 35, wherein the first material component is substantially the same width as the second material component as measured in a direction parallel to the lateral axis.

Embodiment 38: The absorbent article of any one of embodiments 34-37, wherein the first material component is substantially the same length as the second material component as measured in a direction parallel to the longitudinal axis.

Embodiment 39: The absorbent article of any one of embodiments 34-38, wherein the opposing side edges of the first material component align with the opposing side edges of the second material component.

Embodiment 40: The absorbent article of any one of embodiments 34-39, wherein the chassis further comprises a front waist panel defining the front waist region, a rear waist panel defining the rear waist region, and an absorbent panel bonded to each of the front waist panel and the rear waist panel, the absorbent panel including an absorbent assembly, the absorbent assembly including a bodyside liner, an outer cover, and an absorbent body disposed between the bodyside liner and the outer cover, and wherein the pocket is disposed on an outer surface of the front waist panel.

Embodiment 41: The absorbent article of any one of embodiments 34-40, wherein the second material component is liquid impermeable.

Embodiment 42: The absorbent article of any one of embodiments 34-41, wherein the second material component is directly bonded to the outer surface of the absorbent article, and wherein the first material component is directly bonded to the second material component.

Embodiment 43: The absorbent article of any one of embodiments 34-42, wherein the bottom surface of the pocket is formed by the second material component, and wherein a top surface of the pocket is formed by the first material component.

Embodiment 44: The absorbent article of any one of embodiments 34-43, wherein the upper lateral edge of the pocket is closed with respect to the outer surface of the absorbent article.

All documents cited in the Detailed Description are, in relevant part, incorporated herein by reference; the citation of any document is not to be construed as an admission that it is prior art with respect to the present invention. To the extent that any meaning or definition of a term in this written document conflicts with any meaning or definition of the term in a document incorporated by references, the meaning or definition assigned to the term in this written 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.

WHAT IS CLAIMED IS:

1. A method of manufacturing an absorbent article, the absorbent article including a front waist region including a front waist edge, a rear waist region including a rear waist edge, and a crotch region, the absorbent article further including a longitudinal axis, a lateral axis, and a pocket in the front waist region, the method comprising:

providing a chassis;

transferring at least a portion of the chassis in a machine direction, the machine direction being parallel to the longitudinal axis of the absorbent article;

providing a continuous web of pocket material;

cutting the continuous web of pocket material to form a first material component;

rotating the first material component; and

bonding the first material component to the at least a portion of the chassis to form the pocket.

2. A method of manufacturing an absorbent article, the absorbent article including a front waist region including a front waist edge, a rear waist region including a rear waist edge, and a crotch region, the absorbent article further including a longitudinal axis, a lateral axis, and a pocket in the front waist region, the method comprising:

providing a chassis;

transferring at least a portion of the chassis in a machine-direction, the machine-direction being perpendicular to the longitudinal axis of the absorbent article;

providing a continuous web of pocket material;

cutting the continuous web of pocket material to form a first material component; and

bonding the first material component to the at least a portion of the chassis to form the pocket.

3. The method of manufacturing an absorbent article of claim 1, wherein the chassis comprises an absorbent assembly including a bodyside liner, an outer cover, and an absorbent body disposed between the bodyside liner and the outer cover.

4. The method of manufacturing an absorbent article of claim 3, wherein the first material component is bonded to the outer cover.

5. The method of manufacturing an absorbent article of claim 2, wherein the chassis comprises an absorbent assembly including a bodyside liner, an outer cover, and an absorbent body disposed between the bodyside liner and the outer cover, the chassis further comprising a front waist panel, a rear waist panel, and an absorbent panel, the absorbent panel extending between the front waist panel and the rear waist panel and bonded to the front waist panel and the rear waist panel.

6. The method of manufacturing an absorbent article of claim 5, wherein the first material component is bonded to the front waist panel.

7. The method of manufacturing an absorbent article of claim 1, wherein the first material component is rotated 90 degrees prior to bonding the first material component to the at least a portion of the chassis to form the pocket.

8. The method of manufacturing an absorbent article of claim 1 or claim 2, further comprising:

applying a first intermittent adhesive to the continuous web of pocket material prior to cutting the continuous web of pocket material to form the first material component, the first intermittent adhesive spanning substantially across a width of the continuous web of pocket material.

9. The method of manufacturing an absorbent article of claim 8, wherein the cutting of the continuous web of pocket material to form the first material component is phased such that the first material component includes a portion of the first intermittent adhesive near opposing side edges of the first material component, wherein the first intermittent adhesive near the opposing side edges of the discrete pocket material bonds the first material component to the at least a portion of the chassis to form a first side edge of the pocket and a second side edge of the pocket.

10. The method of manufacturing an absorbent article of claim 8, further comprising:

applying a second adhesive to the continuous web of pocket material prior to cutting the continuous web of pocket material to form the first material component, the second adhesive being applied near a first longitudinal side edge of the continuous web of pocket material, wherein the second adhesive bonds the first material component to the at least a portion of the chassis to form an upper lateral edge of the pocket.

11. The method of manufacturing an absorbent article of any one of claims 1-7, further comprising:

folding the continuous web of pocket material upon itself near a second longitudinal edge of the continuous web of pocket material and bonding a folded portion of the continuous web of pocket material to the continuous web of pocket material to form a folded cuff.

12. The method of manufacturing an absorbent article of claim 11, further comprising:

applying a third adhesive to the continuous web of pocket material prior to cutting the continuous web of pocket material to form the first material component, the third adhesive being applied to the continuous web of pocket material near a second longitudinal edge of the continuous web of pocket material prior to folding the continuous web of pocket material such that the third adhesive bonds the folded portion of the continuous web of pocket material to the continuous web of pocket material to form the folded cuff.

13. The method of manufacturing an absorbent article of claim 11, further comprising:

providing an extensible material; and

bonding the extensible material to the continuous web of the pocket material near the second longitudinal edge of the continuous web of pocket material prior to folding the continuous web of pocket material upon itself near the second longitudinal edge such that the folded cuff includes the extensible material.

14. The method of manufacturing an absorbent article of claim 11, further comprising:

providing an extensible material;

bonding the extensible material to the continuous web of the pocket material near the second longitudinal edge of the continuous web of pocket material prior to cutting the continuous web of pocket material, wherein the extensible material extends beyond the second longitudinal edge of the continuous web of pocket material.

15. The method of manufacturing an absorbent article of claim 10, further comprising:

providing a continuous web of an auxiliary cuff material;

providing an extensible material;

bonding the extensible material to the continuous web of an auxiliary cuff material near a second longitudinal edge of the auxiliary cuff material;

folding the continuous web of the auxiliary cuff material upon itself near the second longitudinal edge of the continuous web of the auxiliary cuff material and bonding a folded portion of the continuous web the auxiliary cuff material to itself to form a folded cuff, the folded cuff including the extensible material; and

bonding the continuous web of the auxiliary cuff material to the continuous web of pocket material.

16. The method of manufacturing an absorbent article of claim 1, wherein the pocket comprises the first material component and a second material component, the method further comprising:

providing a continuous web of a second material;

cutting the continuous web of the second material to form a second material component; and

bonding a first portion of the second material component to the first material component.

17. The method of manufacturing an absorbent article of claim 16, further comprising:

bonding a second portion of the second material component to the at least a portion of the chassis.

18. The method of manufacturing an absorbent article of claim 17, wherein the bonding of the second portion of the second material component to the at least a portion of the chassis forms an upper lateral edge of the pocket.

19. The method of manufacturing an absorbent article of claim 17, further comprising:

applying a fourth adhesive to a first surface of the continuous web of the second material prior to cutting the continuous web of the second material to form the second material component, wherein the fourth adhesive provides the bonding of the first portion of the second material component to the first material component and the bonding of the second portion of the second material component to the at least a portion of the chassis.

20. The method of manufacturing an absorbent article of claim 16, wherein the chassis comprises an absorbent assembly including a bodyside liner, an outer cover, and an absorbent body disposed between the bodyside liner and the outer cover, and wherein the first material component and the second portion of the second material component are each bonded to the at least a portion of the chassis such that the first material component and the second material component are each directly bonded to the outer cover.

21. The method of manufacturing an absorbent article of claim 2, wherein the pocket comprises the first material component and a second material component, and wherein the continuous web of the pocket material includes a first longitudinal side edge and a second longitudinal side edge, the method further comprising:

providing a continuous web of second material, the continuous web of second material including a first longitudinal side edge and a second longitudinal side edge;

bonding the continuous web of the pocket material to the continuous web of second web material; and

cutting the continuous web of second material to form a second material component of the pocket at the same time of the cutting of the continuous web of pocket material to form the first material component of the pocket.

22. The method of claim 21, wherein the chassis comprises an absorbent assembly including a bodyside liner, an outer cover, and an absorbent body disposed between the bodyside liner and the outer cover, and wherein the chassis further comprises a front waist panel, a rear waist panel, and an absorbent panel, the absorbent panel extending between the front waist panel and the rear waist panel and bonded to the front waist panel and the rear waist panel, and wherein bonding the second material component to the at least a portion of the chassis includes bonding the second material component to the front waist panel.

23. The method of manufacturing an absorbent article of claim 21 or claim 22, wherein the continuous web of the pocket material is bonded to the continuous web of the second web material such that the first longitudinal side edge of the continuous web of the pocket material substantially aligns with the first longitudinal side edge of the continuous web of the second material, and wherein the continuous web of the pocket material is bonded to the continuous web of the second web material such that the second longitudinal side edge of the continuous web of the pocket material substantially aligns with the second longitudinal side edge of the continuous web of the second material.

24. The method of manufacturing an absorbent article of claim 21, further comprising:

applying a fourth adhesive to a first surface of the continuous web of the second material prior to cutting the continuous web of the second material to form the second material component and prior to cutting the continuous web of the pocket material to form the first material component.

25. The method of manufacturing an absorbent article of claim 21, wherein the second material component is liquid impermeable.

26. The method of manufacturing an absorbent article of claim 16 or claim 21, further comprising:

applying a third adhesive to the continuous web of pocket material prior to cutting the continuous web of pocket material to form the first material component, the third adhesive being applied to the continuous web of pocket material near a second longitudinal edge of the continuous web of pocket material; and

folding the continuous web of pocket material upon itself near the second longitudinal edge of the continuous web of pocket material to form a folded cuff.

27. The method of manufacturing an absorbent article of claim 26, further comprising:

providing an extensible material;

applying the extensible material to the continuous web of the pocket material near the second longitudinal edge of the continuous web of pocket material prior to folding the continuous web of pocket material upon itself near the second longitudinal edge such that the folded cuff includes the extensible material.

28. The method of manufacturing an absorbent article of 16, further comprising:

providing a fastening system, the fastening system including a primary fastening system and a secondary fastening system, the primary fastening system including at least one primary first fastening component in the rear waist region and at least one primary second fastening component in the front waist region, the secondary fastening system including at least one secondary first fastening component in the front waist region and at least one secondary second fastening component in the rear waist region;

wherein the second material component includes the at least primary second fastening component and the at least one secondary first fastening component.

29. An absorbent article including a front waist region including a front waist edge, a rear waist region including a rear waist edge, and a crotch region, the absorbent article further including a longitudinal axis and a lateral axis, the absorbent article comprising:

a chassis including an outer surface; and

a pocket disposed on the outer surface in the front waist region, the pocket including a first side edge, a second side edge opposite from the first side edge, an upper lateral edge, a lower lateral edge, and a bottom surface, the pocket being closed with respect to the bottom surface at least at the first side edge and the second side edge, the pocket being open with respect to the bottom surface at least at the lower lateral edge, the pocket comprising a pocket material, the pocket including a folded cuff near the lower lateral edge of the pocket.

30. The absorbent article of claim 29, wherein the pocket material includes at least one extensible material in the folded cuff.

31. The absorbent article of claim 29 or claim 30, wherein the pocket material comprises a first material component and a second material component, the first material component being bonded to the outer surface to form the first side edge and the second side edge of the pocket, the second material component being bonded to the first material component and the outer surface to form the upper lateral edge of the pocket, and wherein the first material component includes the folded cuff.

32. The absorbent article of claim 29 or claim 30, wherein the pocket material comprises a first material component and an auxiliary cuff material component, the first material component being bonded to the outer surface to form the first side edge of the pocket, the second side edge of the pocket, and the upper lateral edge of the pocket, the auxiliary cuff material component being bonded to the first material component near a lowermost edge of the first material component and extending beyond the lowermost edge of the first material component, and wherein the auxiliary cuff material component includes the folded cuff.

33. The absorbent article of claim 29 or claim 30, wherein the pocket is closed with respect to the outer surface at the upper lateral edge.

34. An absorbent article including a longitudinal and a lateral axis, the absorbent article comprising:

a chassis including a front waist region including a front waist edge, a rear waist region including a rear waist edge, and a crotch region extending between the front waist region and the rear waist region; and

a pocket disposed in the front waist region, the pocket including a first side edge, a second side edge opposite from the first side edge, an upper lateral edge, a lower lateral edge, and a bottom surface, the pocket being closed with respect to an outer surface of the absorbent article at least at the first side edge and the second side edge, the pocket being open with respect to the bottom surface at least at the lower lateral edge, the pocket comprising:

a first material component; and

a second material component, the first material component being substantially the same width as the second material component as measured in a direction parallel to the lateral axis.

35. An absorbent article including a longitudinal axis and a lateral axis, the absorbent article comprising:

a chassis including a front waist region including a front waist edge, a rear waist region including a rear waist edge, and a crotch region extending between the front waist region and the rear waist region; and

a pocket disposed in the front waist region, the pocket including a first side edge, a second side edge opposite from the first side edge, an upper lateral edge, a lower lateral edge, and a bottom surface, the pocket being closed with respect to an outer surface of the absorbent article at least at the first side edge and the second side edge, the pocket being open with respect to the bottom surface at least at the lower lateral edge, the pocket comprising:

a first material component including an uppermost edge, a lowermost edge, and opposing side edges; and

a second material component including a top edge, a bottom edge, and opposing side edges, the second material component being aligned with the first material component such that the bottom edge of the second material component substantially aligns with the lowermost edge of the first material component.

36. The absorbent article of claim 34, wherein the first material component includes an uppermost edge, a lowermost edge, and opposing side edges, the second material component includes a top edge, a bottom edge, and opposing side edges, the second material component being aligned with the first material component such that the bottom edge of the second material component substantially aligns with the lowermost edge of the first material component.

37. The absorbent article of claim 35, wherein the first material component is substantially the same width as the second material component as measured in a direction parallel to the lateral axis.

38. The absorbent article of any one of claims 34-37, wherein the first material component is substantially the same length as the second material component as measured in a direction parallel to the longitudinal axis.

39. The absorbent article of any one of claims 34-37, wherein the opposing side edges of the first material component align with the opposing side edges of the second material component.

40. The absorbent article of any one of claims 34-37, wherein the chassis further comprises a front waist panel defining the front waist region, a rear waist panel defining the rear waist region, and an absorbent panel bonded to each of the front waist panel and the rear waist panel, the absorbent panel including an absorbent assembly, the absorbent assembly including a bodyside liner, an outer cover, and an absorbent body disposed between the bodyside liner and the outer cover, and wherein the pocket is disposed on an outer surface of the front waist panel.

41. The absorbent article of any one of claims 34-37, wherein the second material component is liquid impermeable.

42. The absorbent article of any one of claims 34-37, wherein the second material component is directly bonded to the outer surface of the absorbent article, and wherein the first material component is directly bonded to the second material component.

43. The absorbent article of any one of claims 34-37, wherein the bottom surface of the pocket is formed by the second material component, and wherein a top surface of the pocket is formed by the first material component.

44. The absorbent article of any one of claims 34-37, wherein the upper lateral edge of the pocket is closed with respect to the outer surface of the absorbent article.

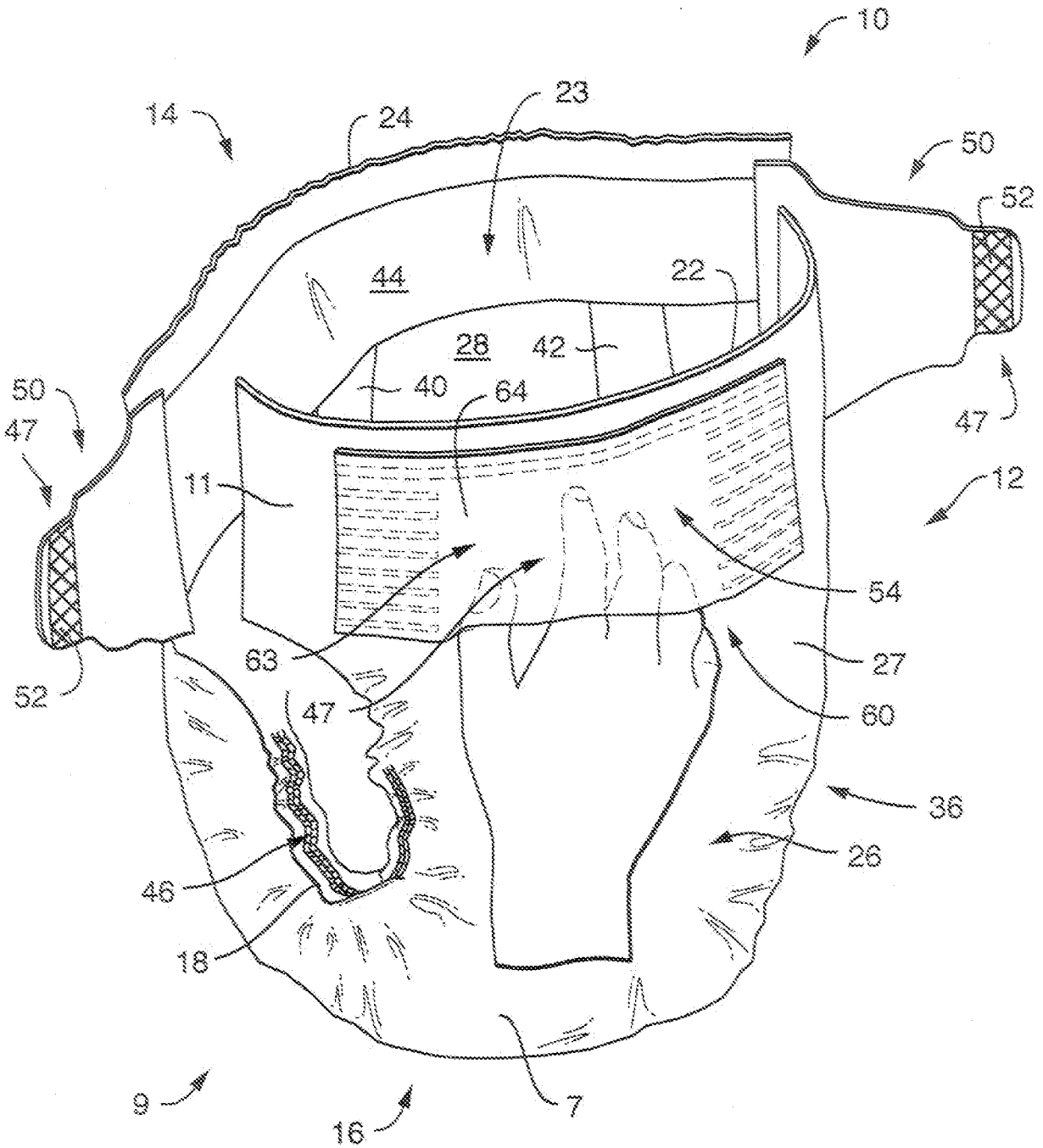

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FIG. 1

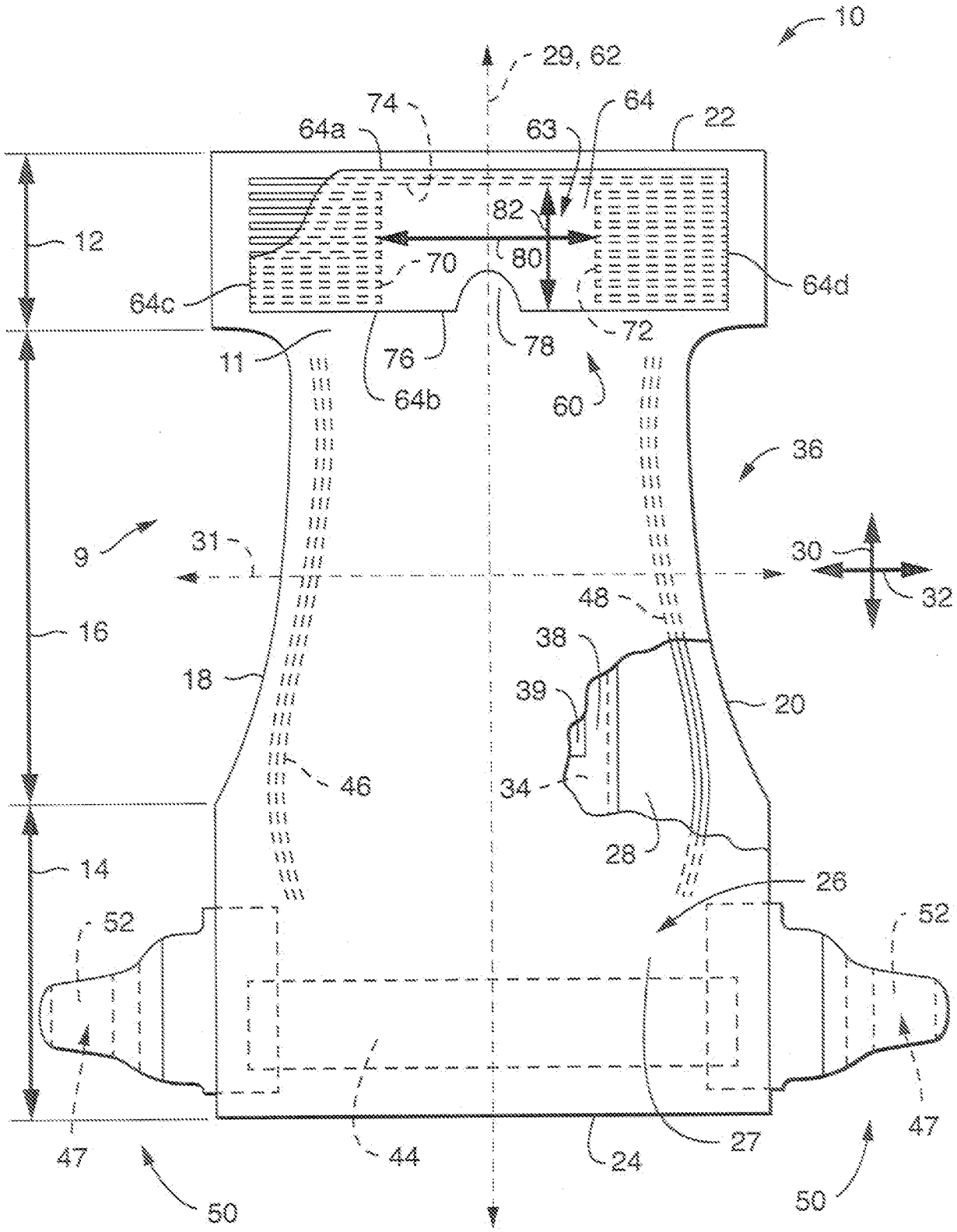

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FIG. 2

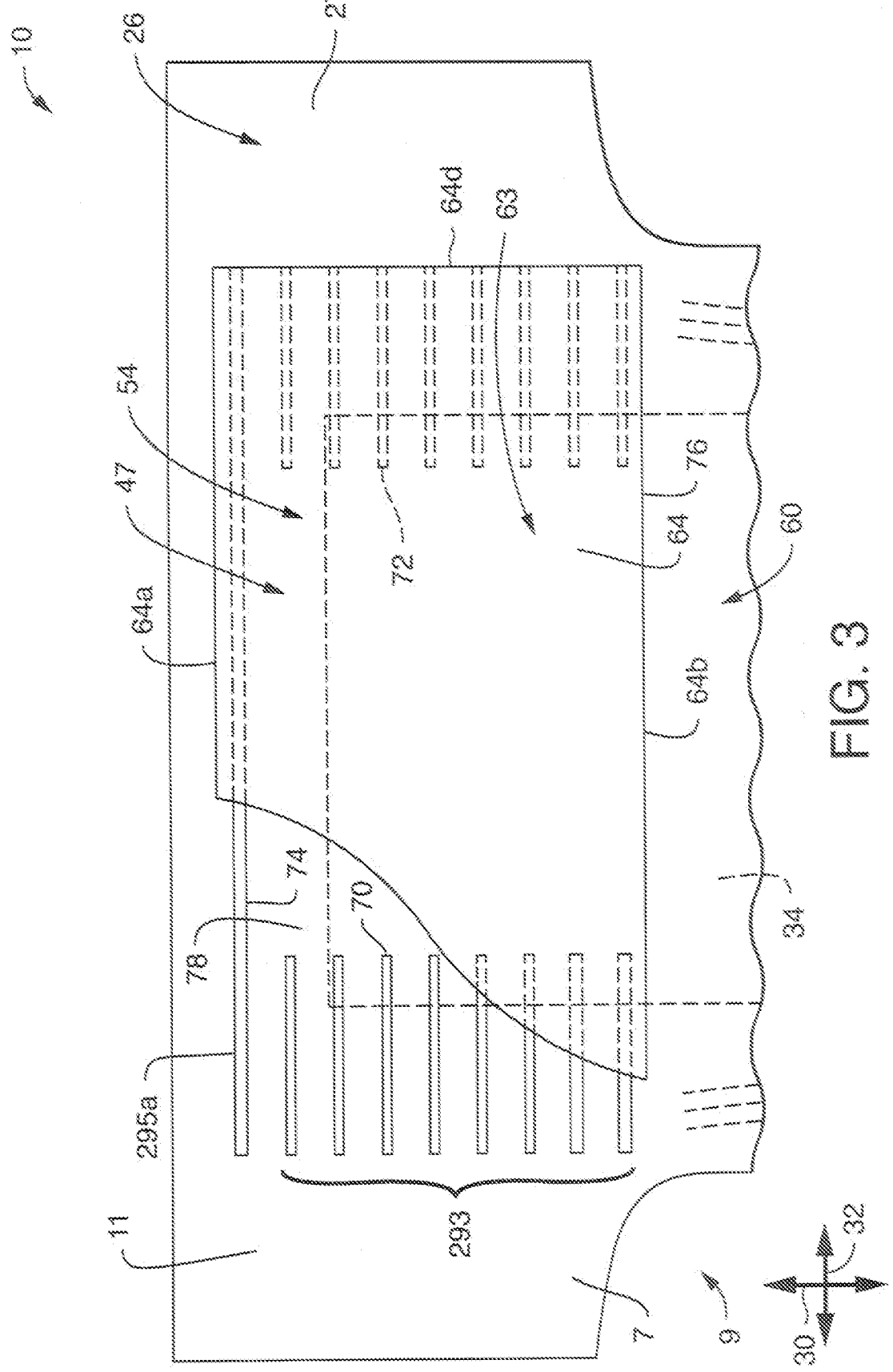

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FIG. 3

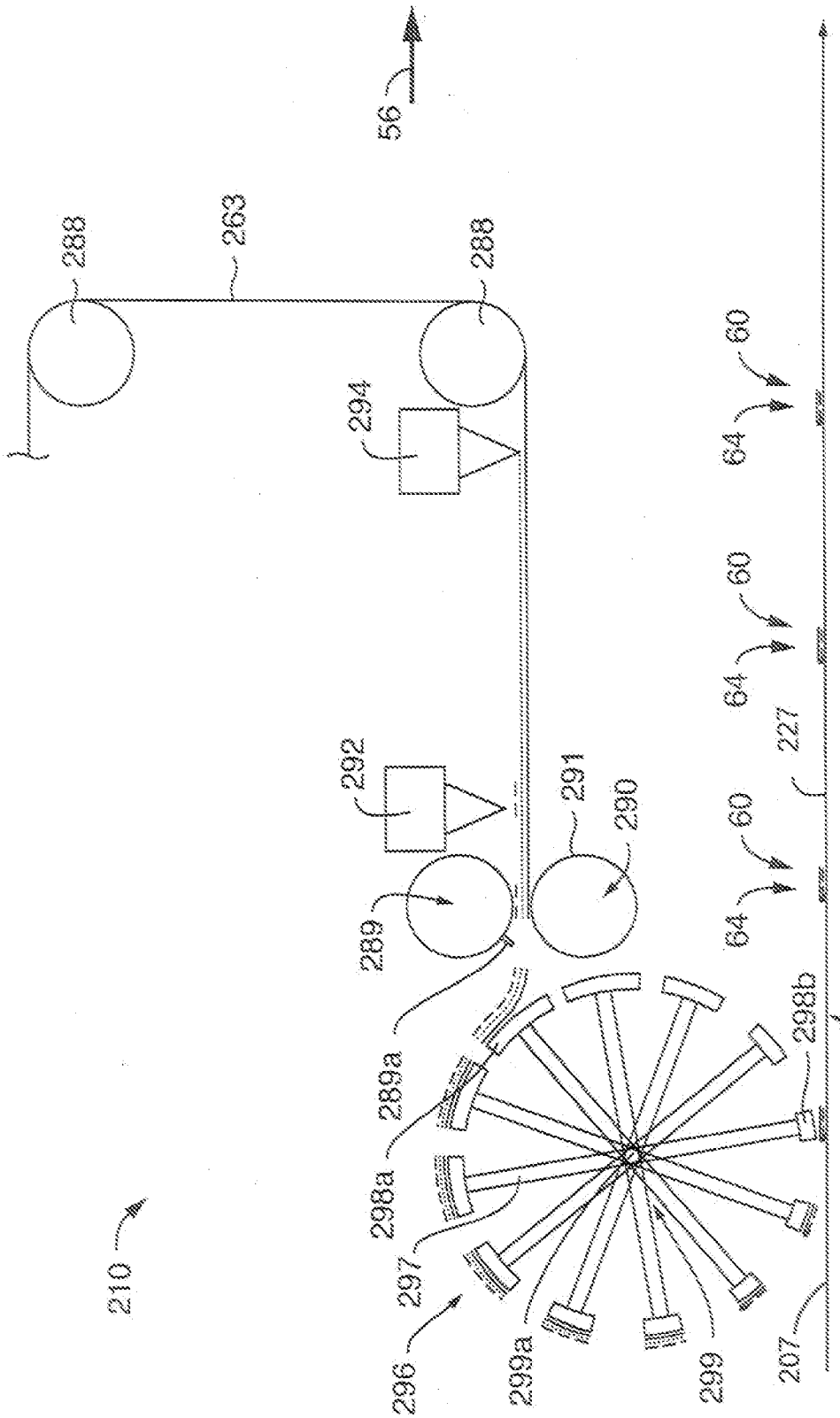

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FIG. 4

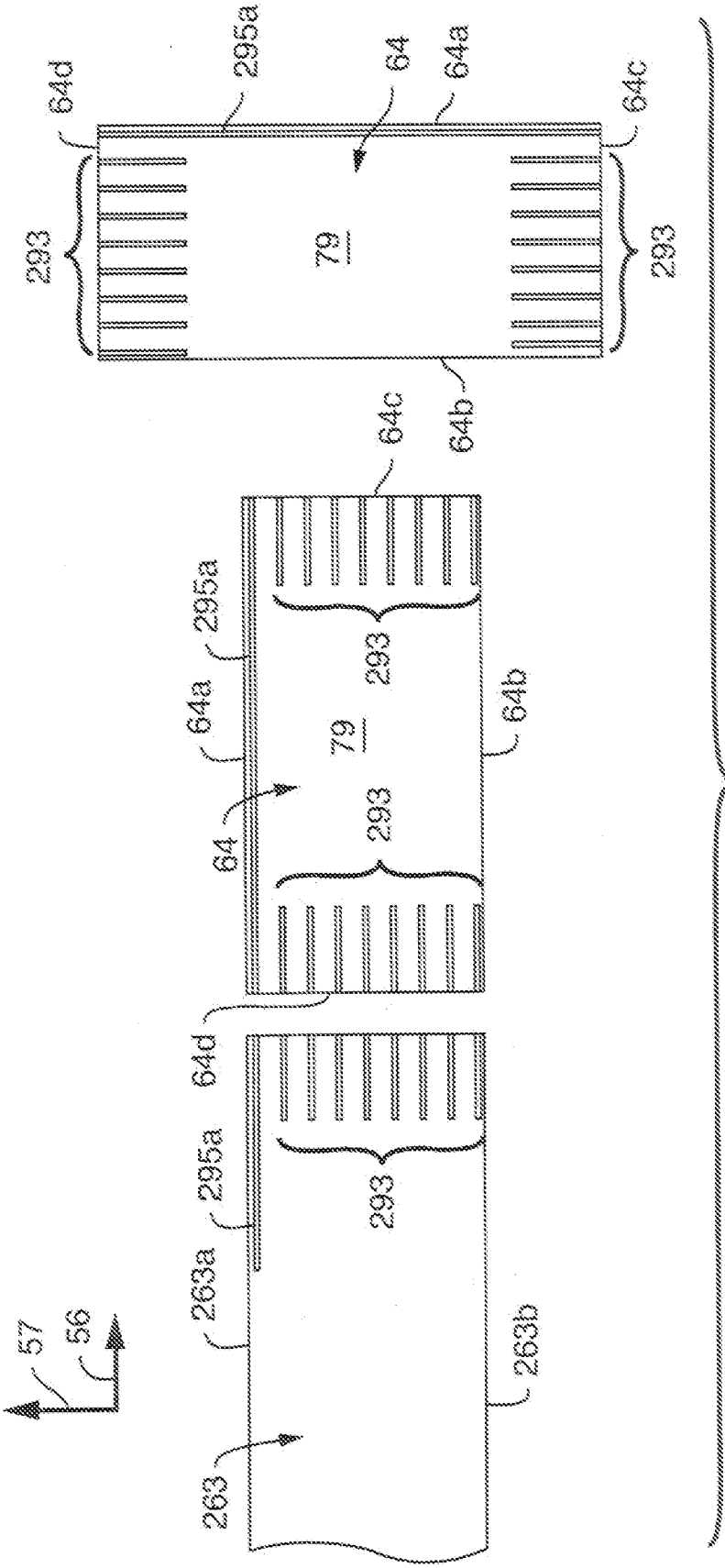

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FIG. 5

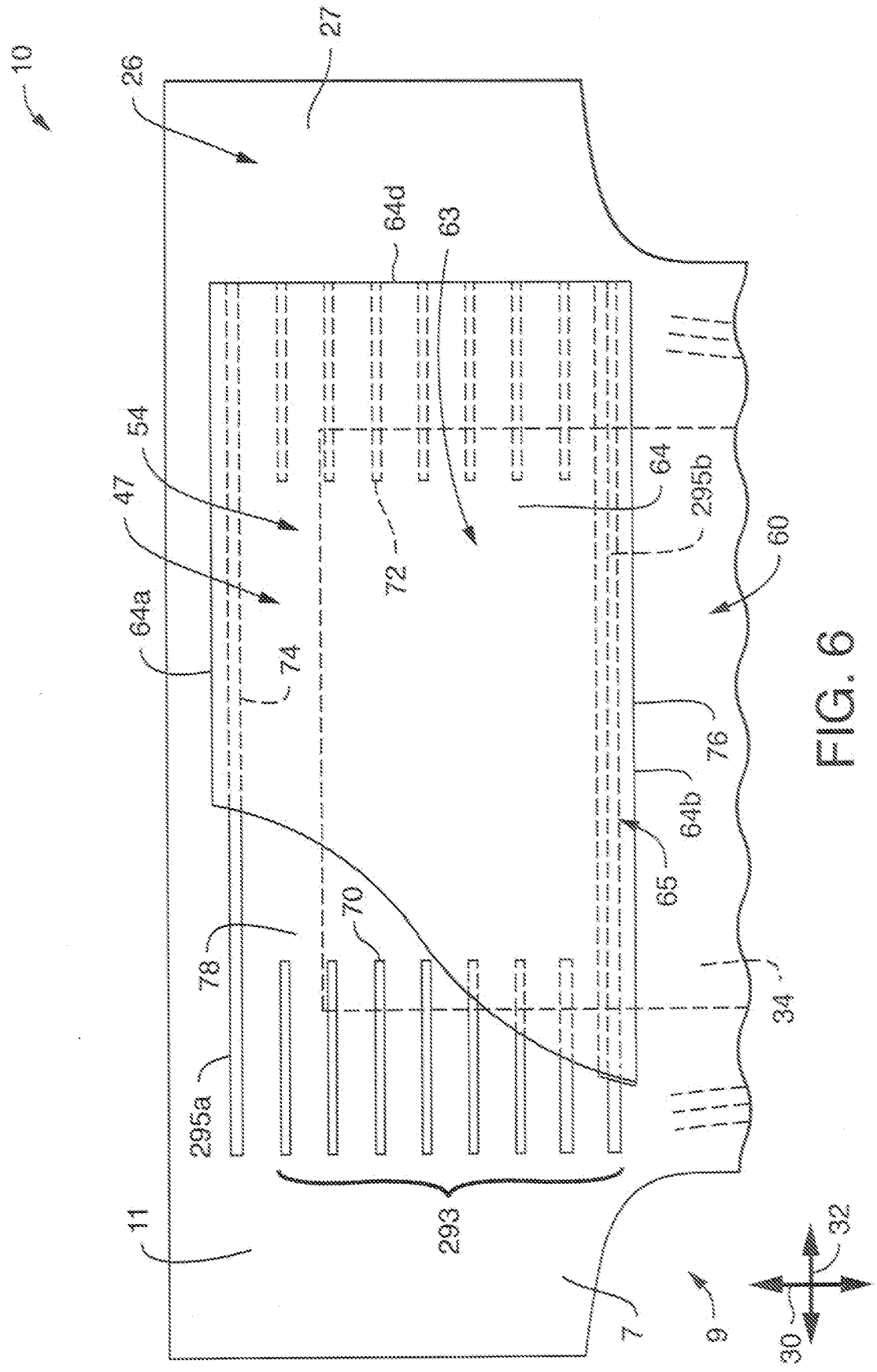

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FIG. 6

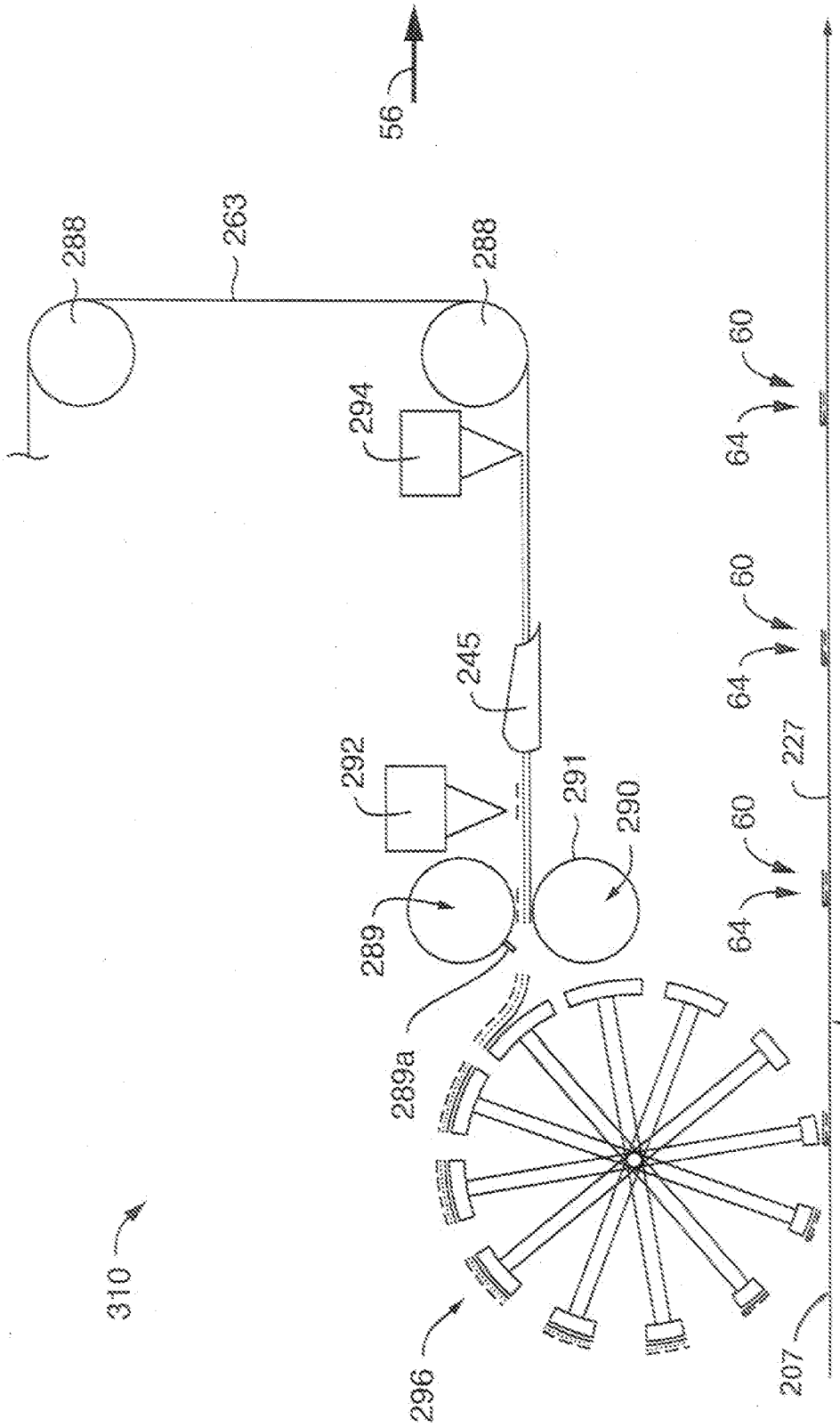

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FIG. 7

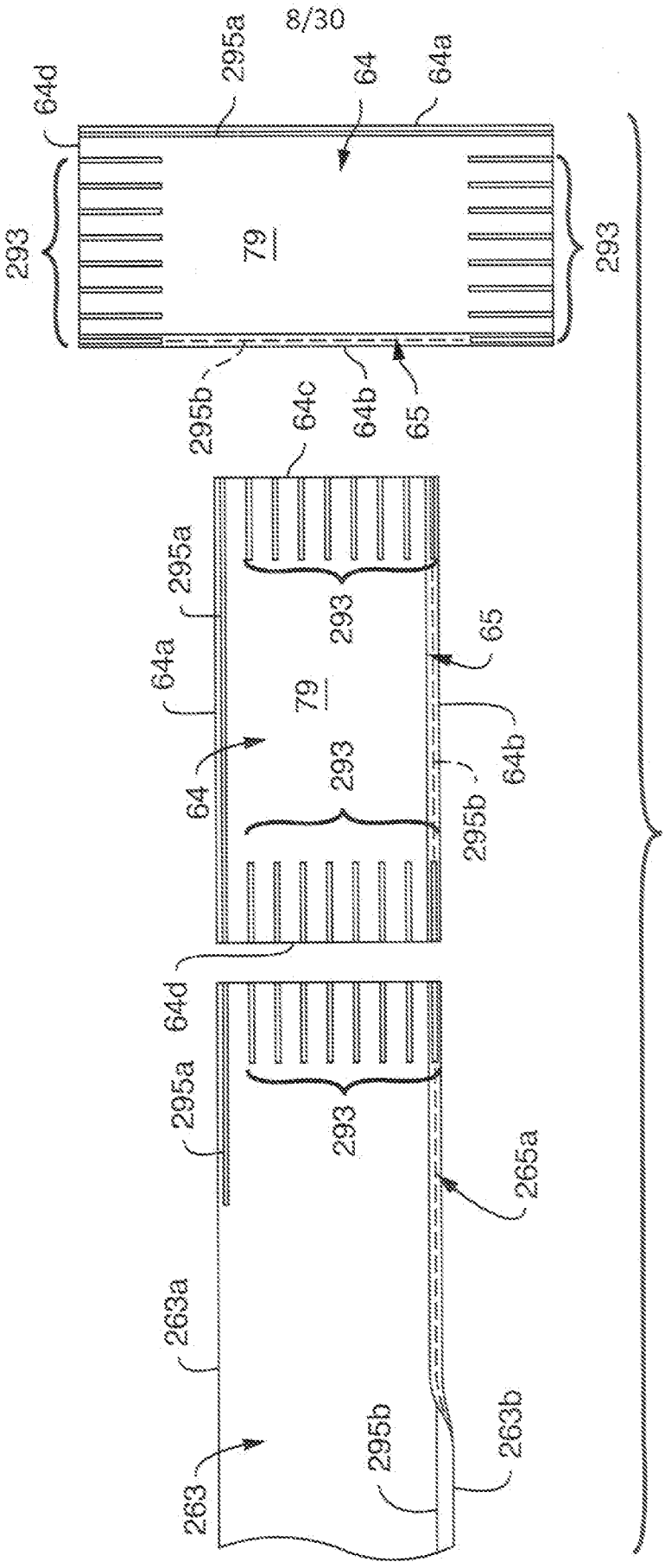

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FIG. 8

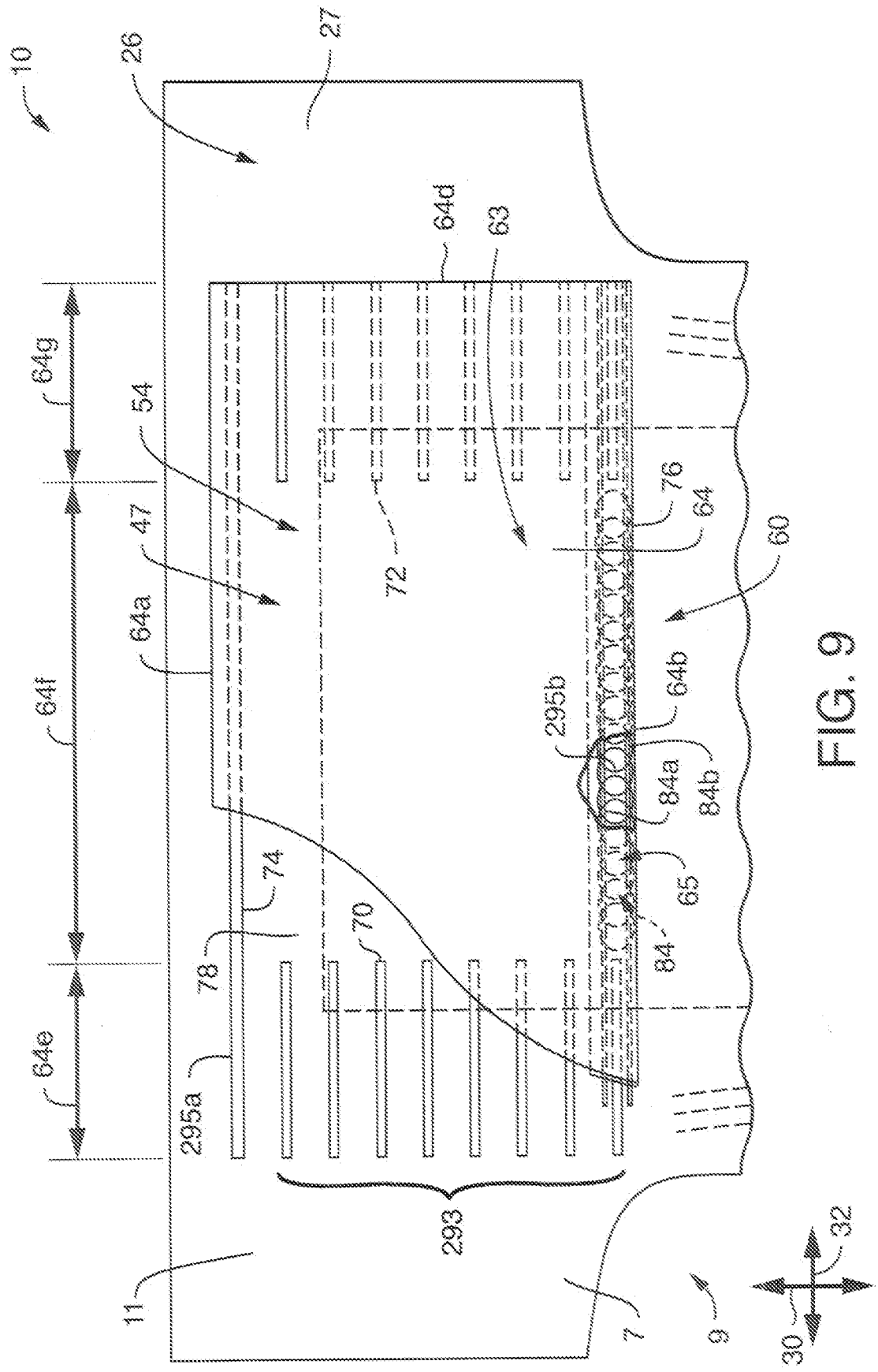

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FIG. 9

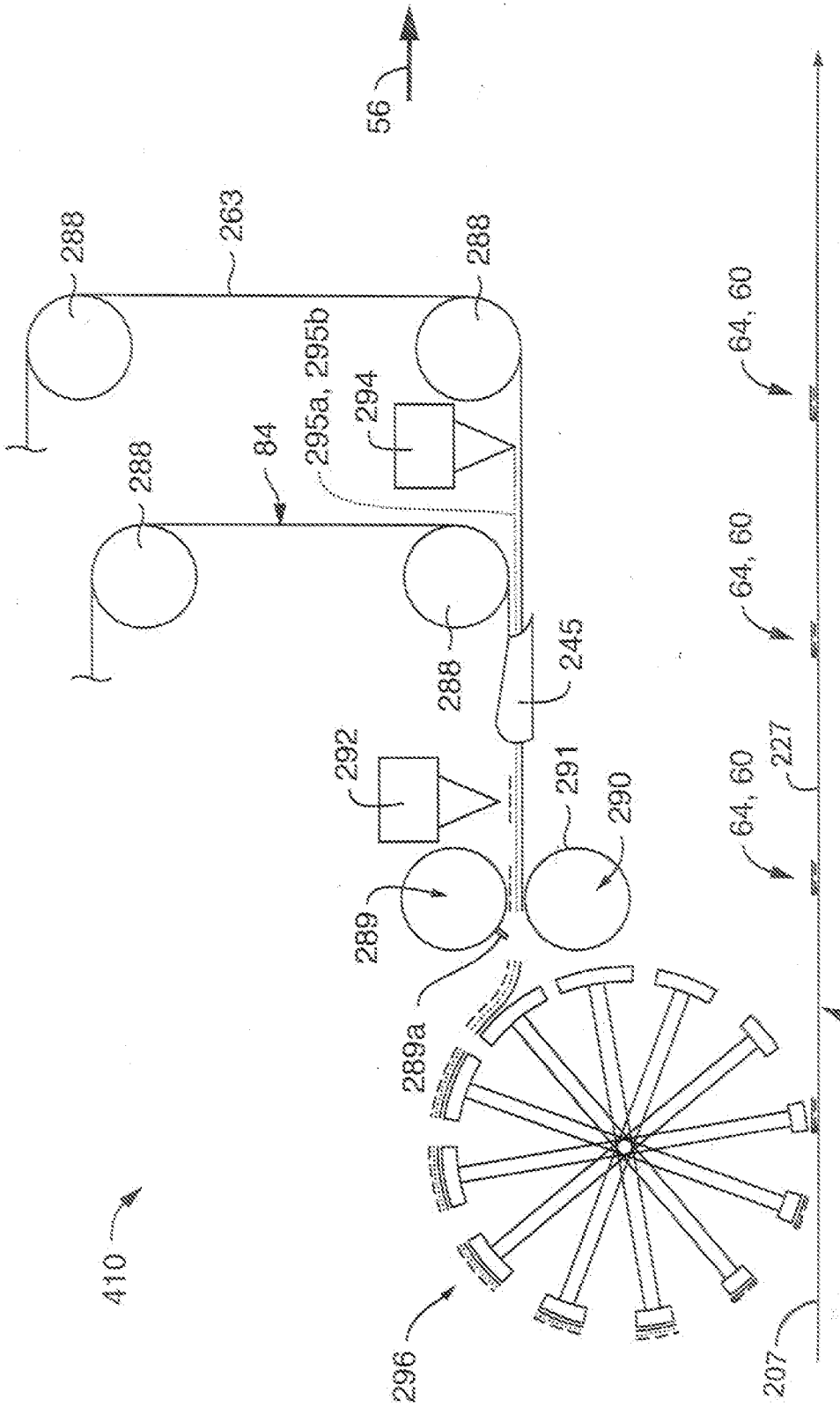

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FIG. 10

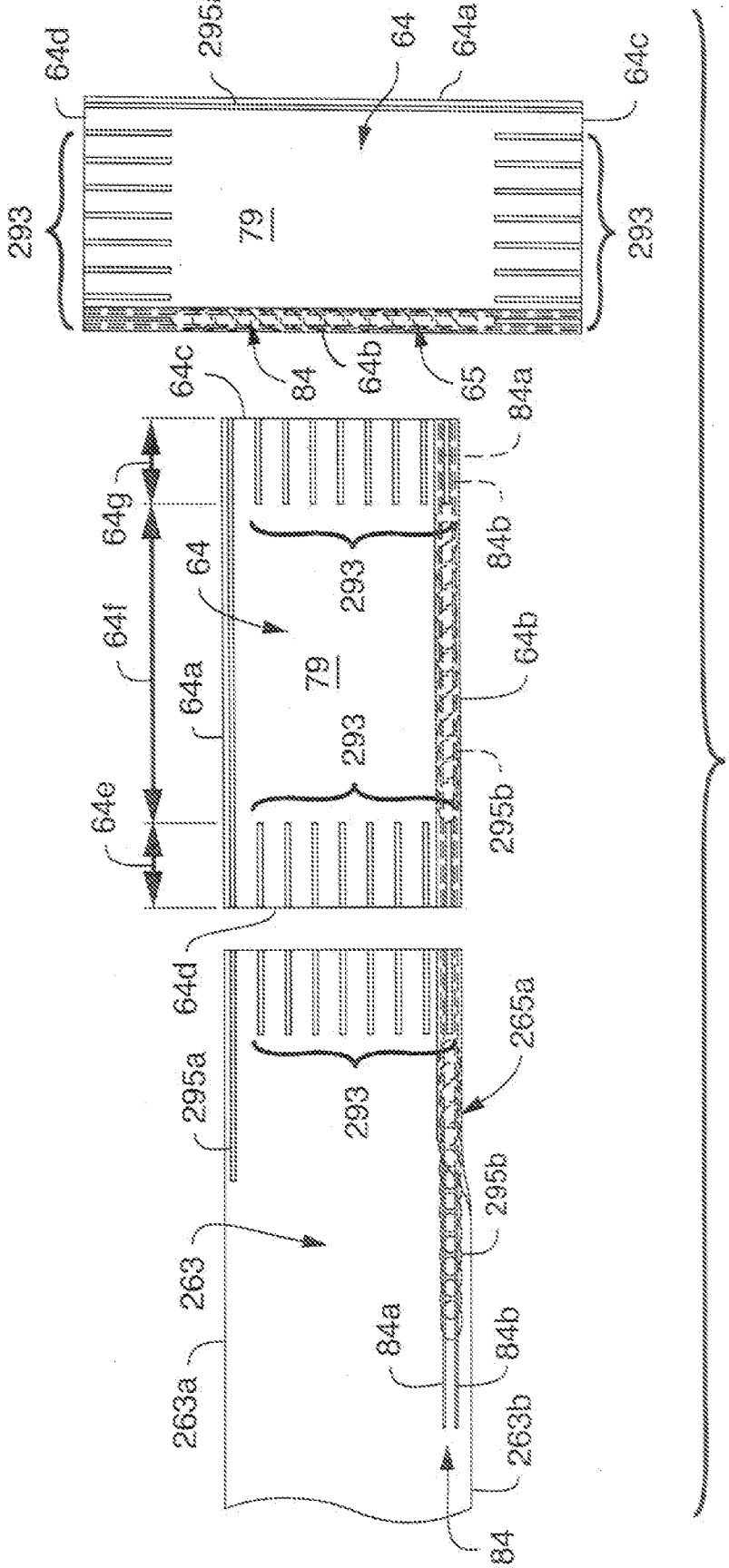

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FIG. 11

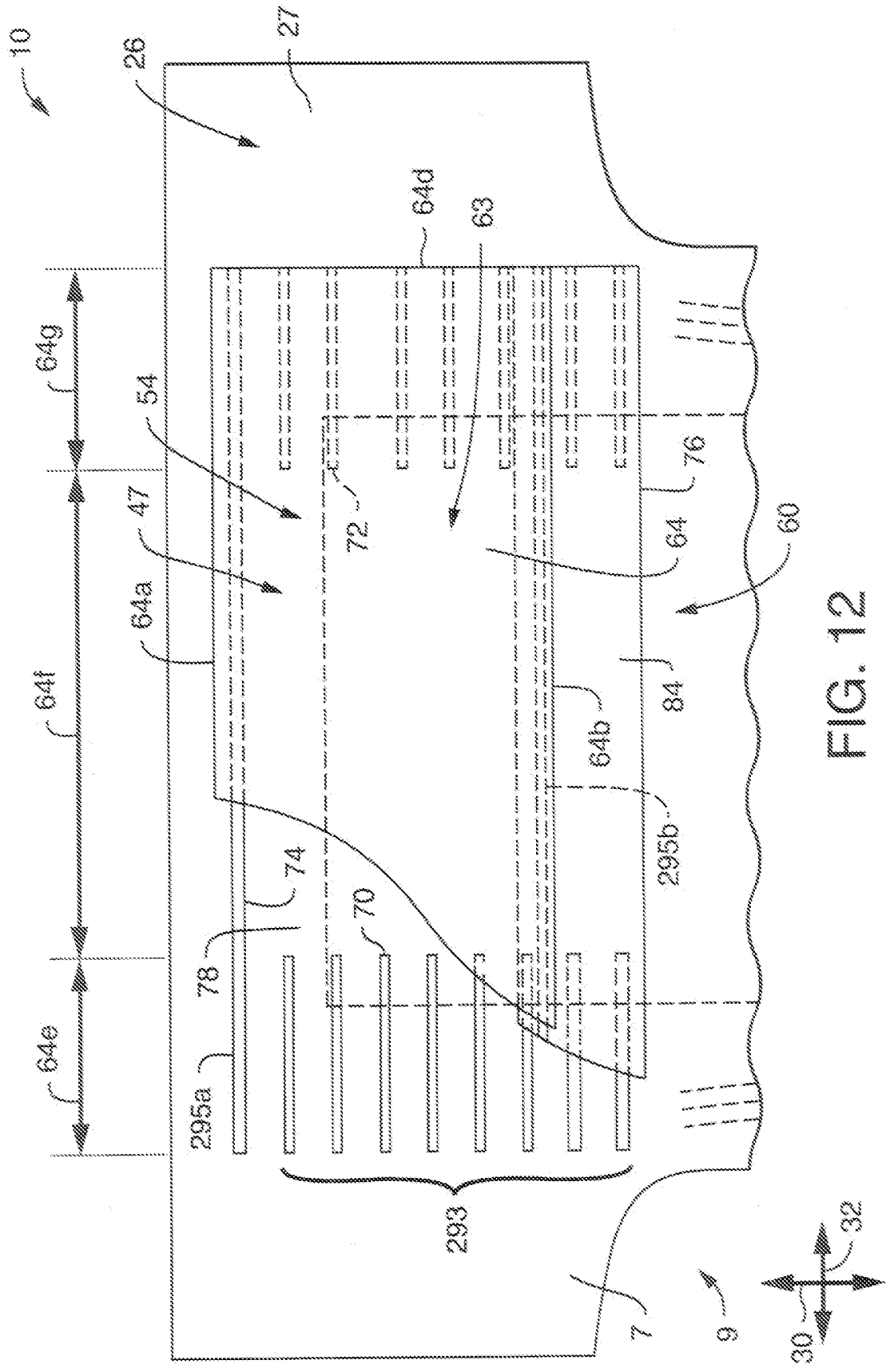

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FIG. 12

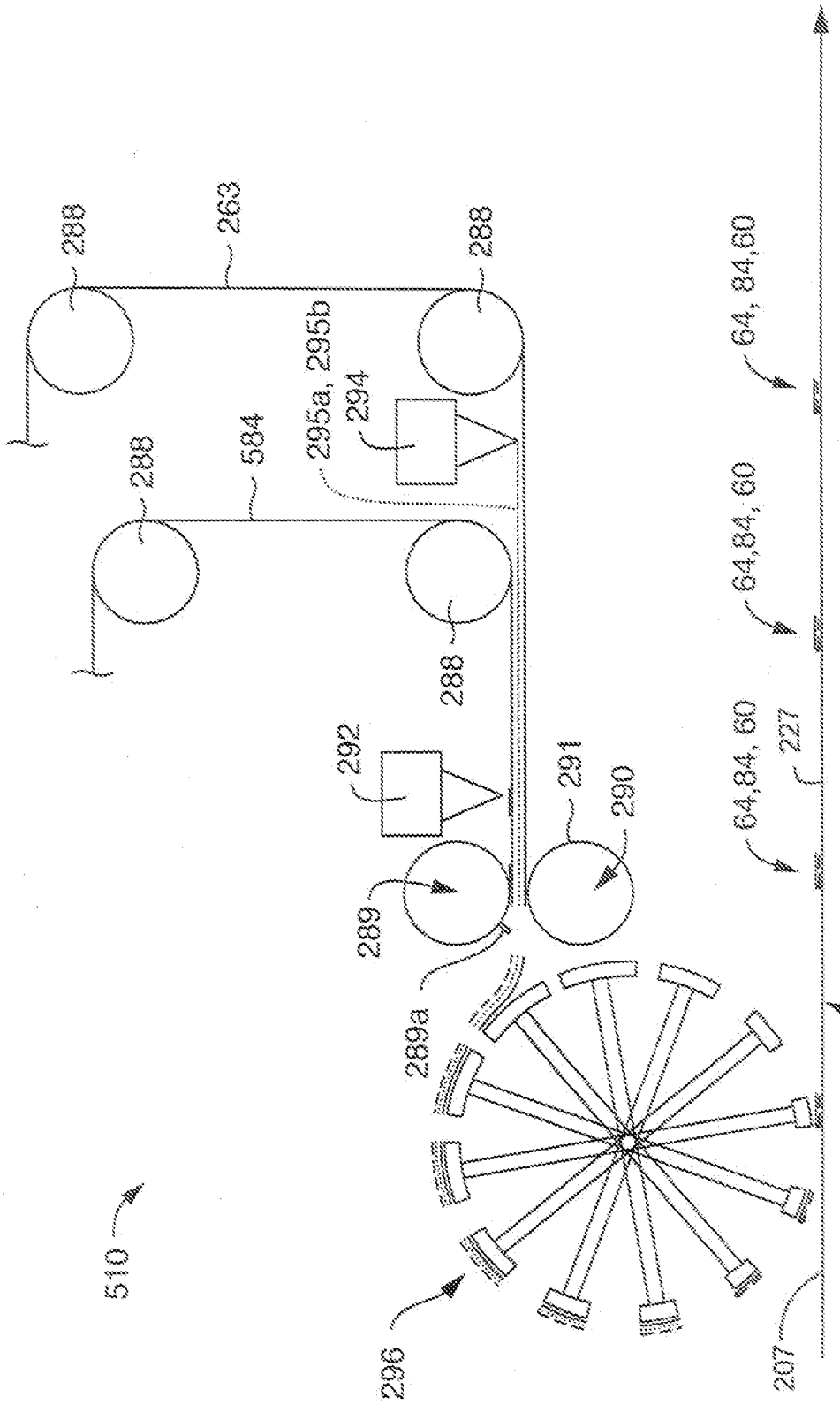

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FIG. 13

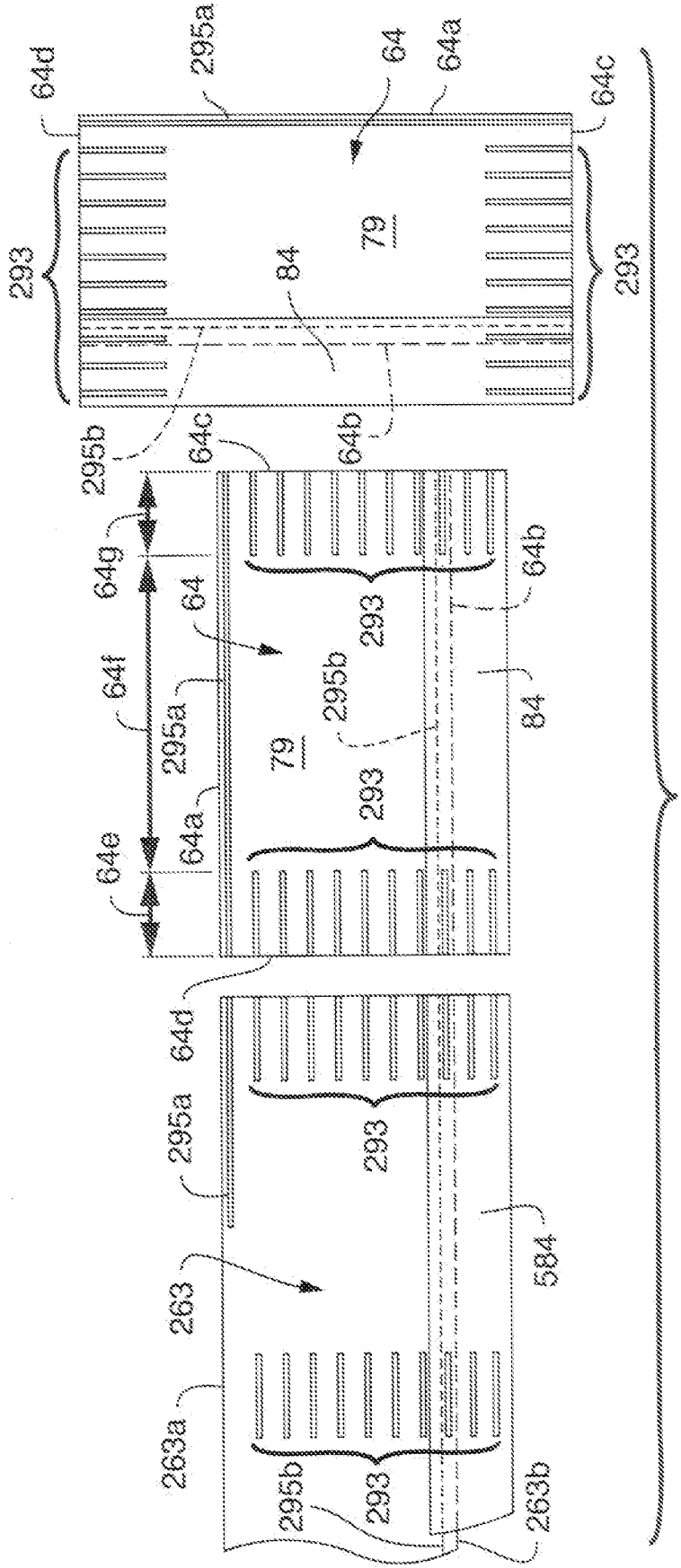

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295a
64
64a
64c
293
79
84
293
295b
64c
64b
64g
64b
64
293
64f
295b
295a
79
84
293
64a
64e
64d
295a
293
584
263
263a
295b
293
263b

FIG. 14

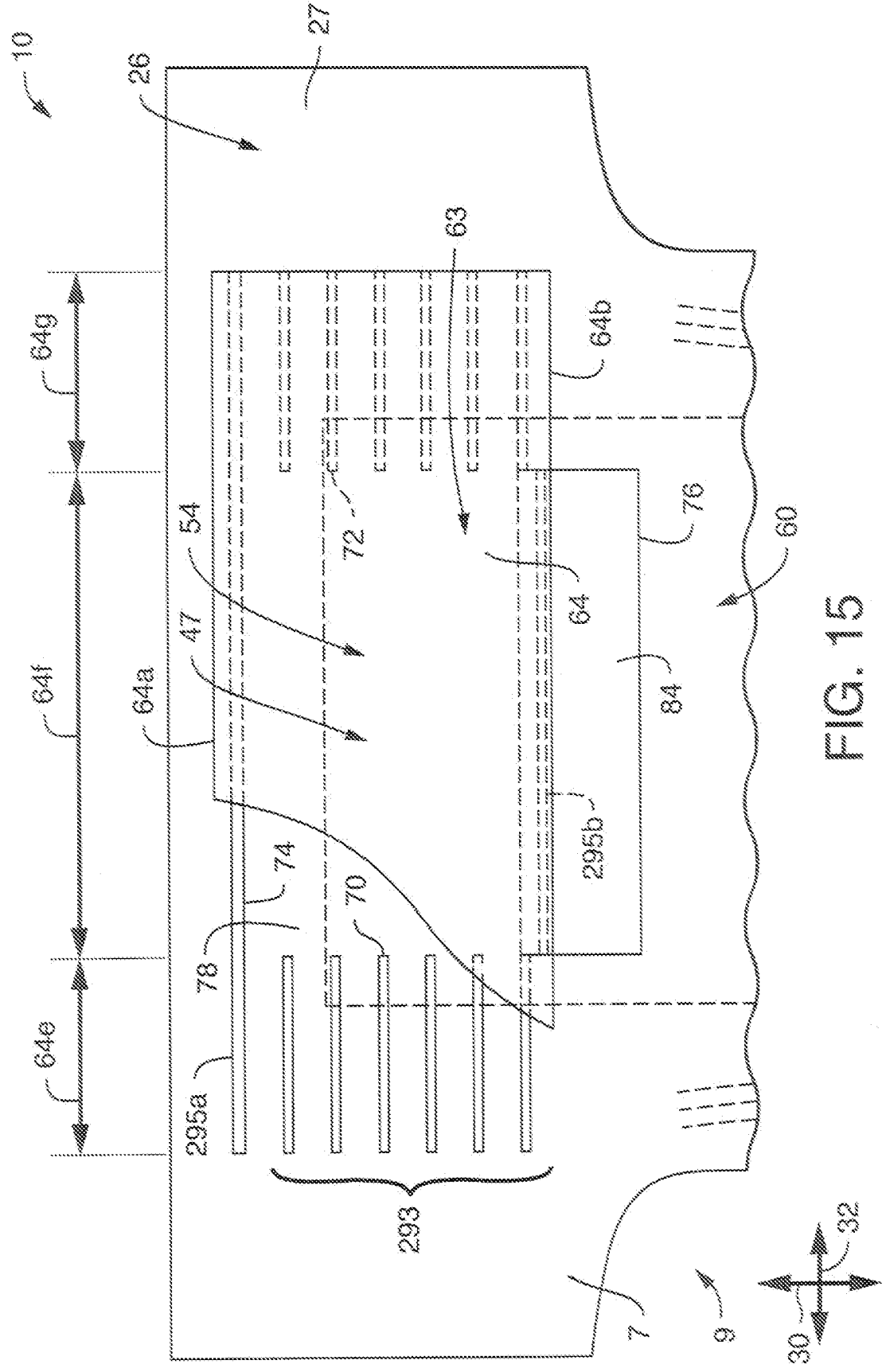

10
26
27
63
64g
64b
64f
64a
54
47
72
64
76
60
84
295b
74
70
78
64e
295a
293
7
9
32
30

FIG. 15

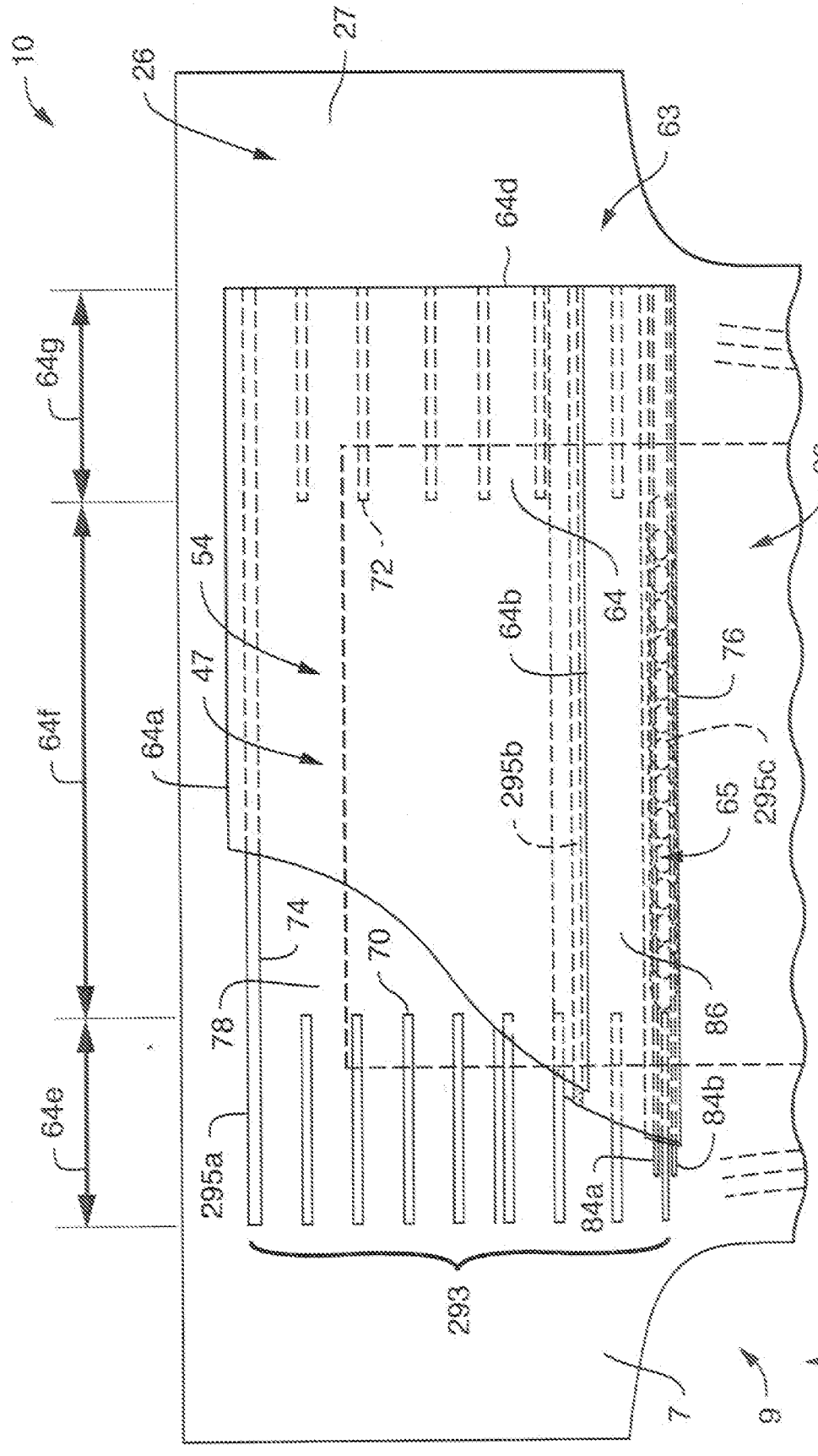

10
26
27
63
64d
64g
64f
64e
64a
54
47
72
64
64b
60
76
65
295b
295c
74
70
78
86
84b
84a
295a
293
7
9
32
30

FIG. 16

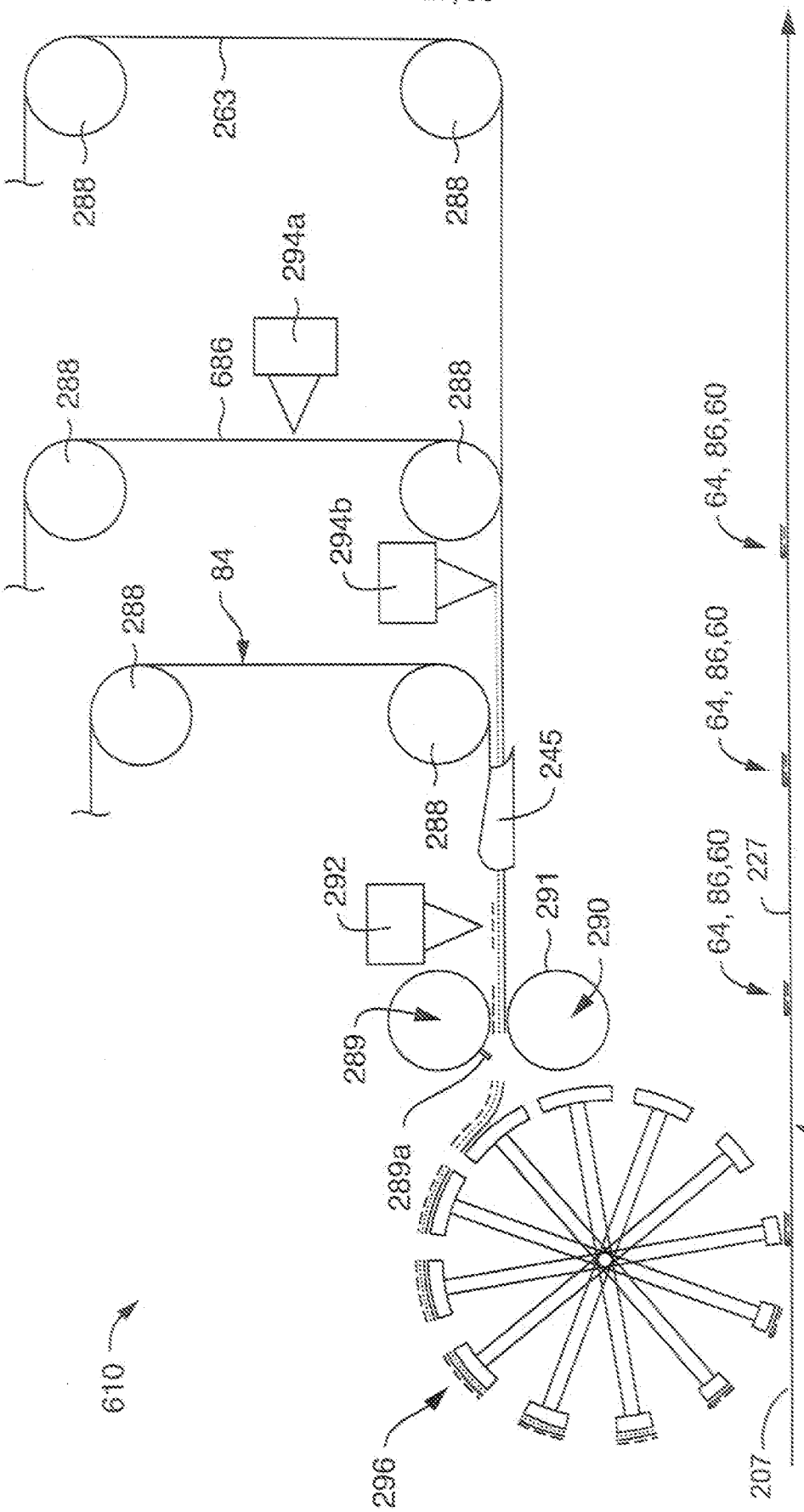

610
296
289a
289
292
291
290
245
288
84
294b
686
294a
263
64, 86,60
227
226
209
207

FIG. 17

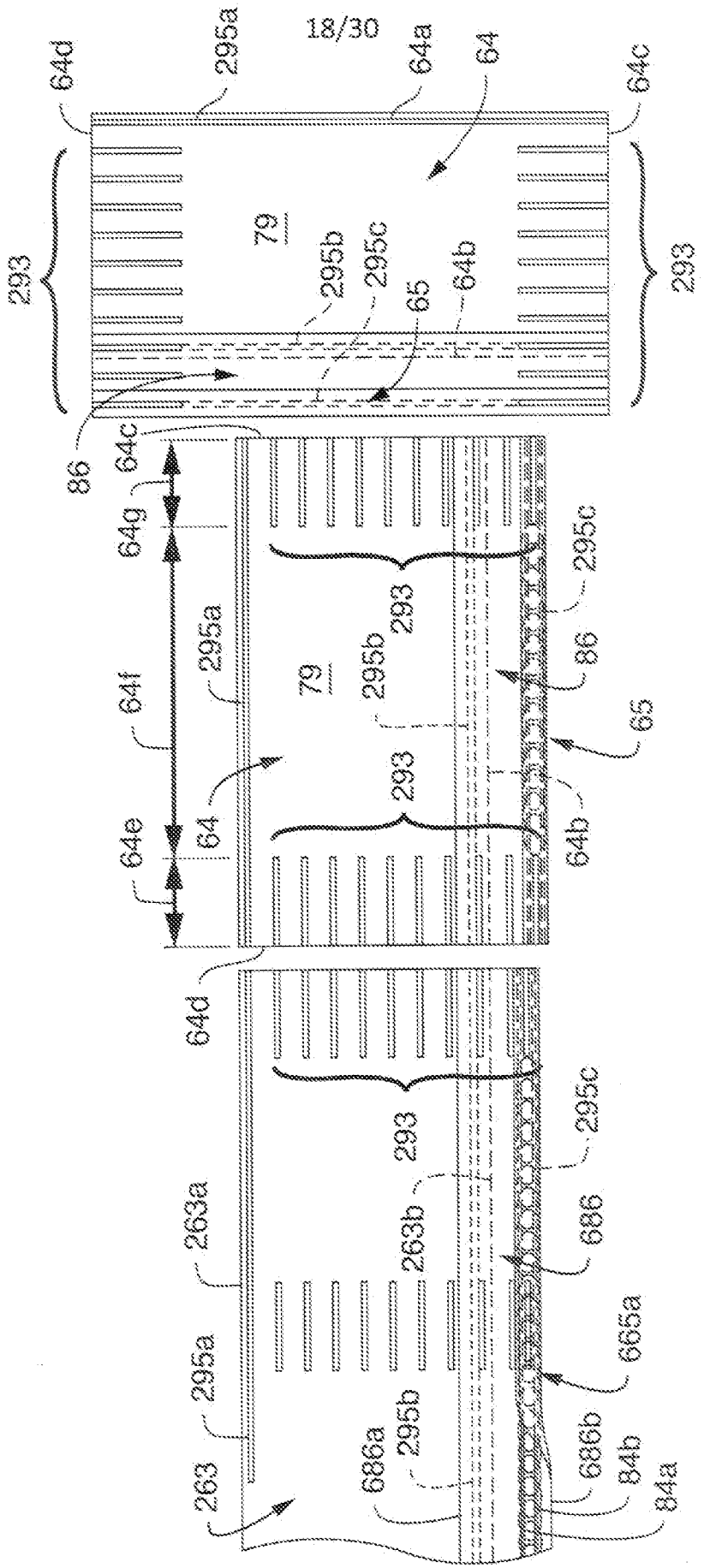

64d
295a
64a
64
64c
293
79
295b
295c
65
64b
293
86
64c
64g
64f
64e
64
295c
293
295b
79
295a
86
65
64b
64d
295c
293
263a
263b
686
665a
295a
295b
263
686a
686b
84b
84a

FIG. 18

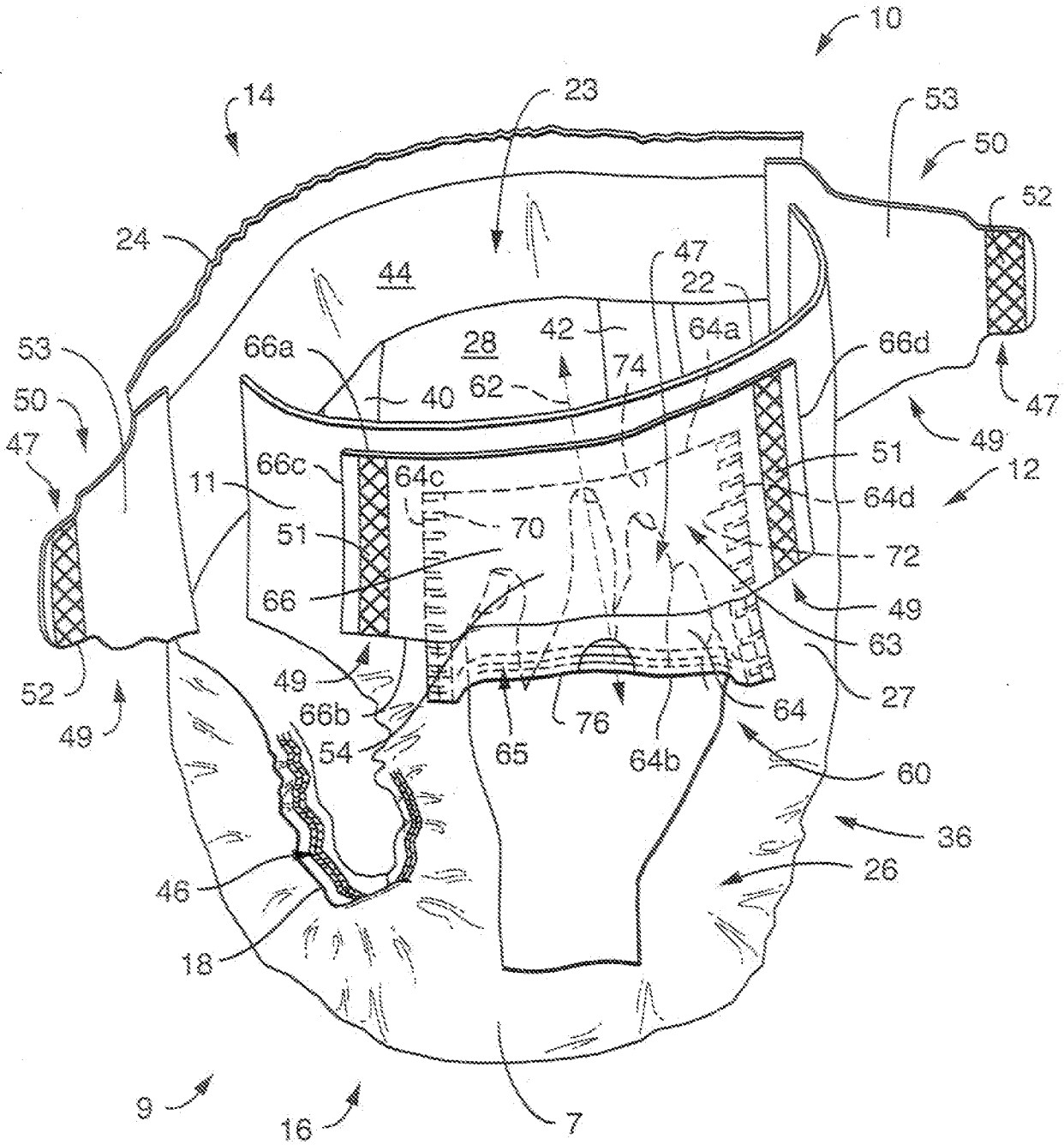

10
14
23
53
50
52
24
44
47
22
28
42
64a
66a
74
62
40
66d
47
49
53
50
47
66c
64c
11
51
70
51
64d
12
66
72
49
63
52
49
49
66b
54
65
76
64b
64
27
60
36
46
26
18
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16
7

FIG. 19

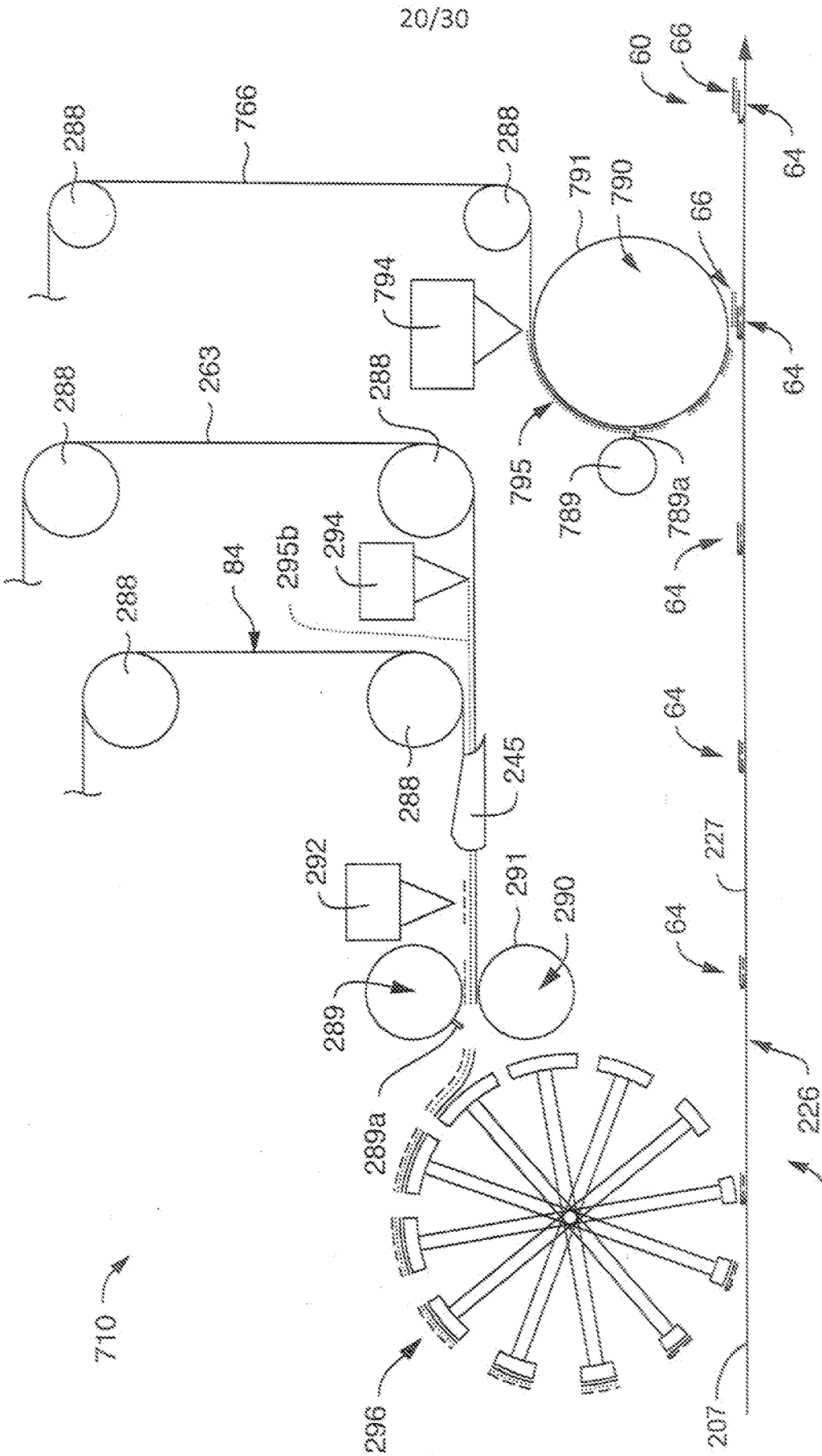

710
296
289a
289
292
291
290
288
245
84
295b
294
263
766
794
795
789
789a
791
790
66
64
60
68
207
209
226
227

FIG. 20

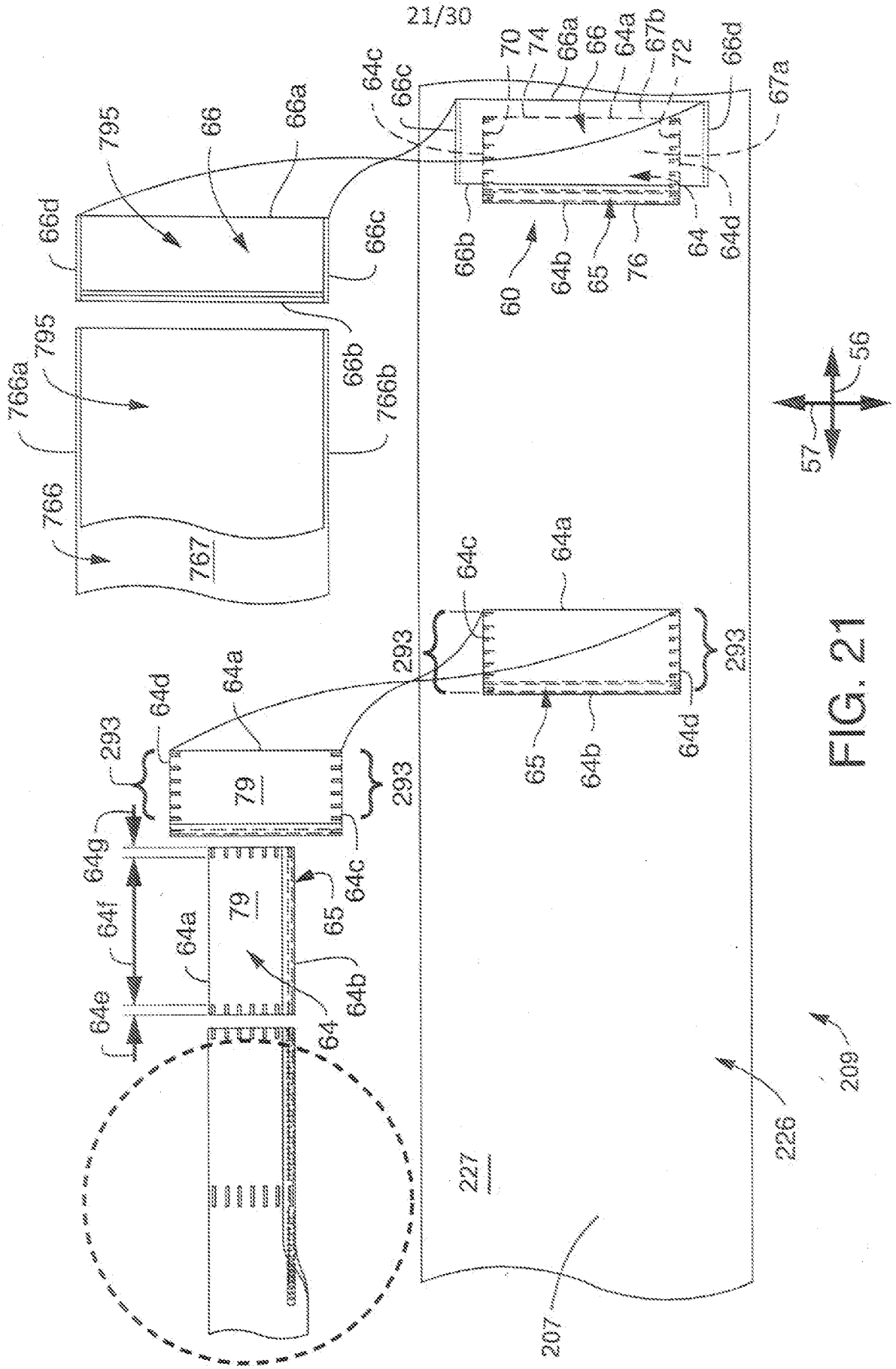

795
66
66a
66d
66c
64c
66c
70
74
66a
66
64a
67b
72
66d
67a
766a
795
766
767
66b
766b
66b
64b
65
76
64
64d
60
56
57
64c
64a
293
64d
64a
293
293
79
64g
64c
65
64f
64a
79
64b
64e
64
227
226
209
207

FIG. 21

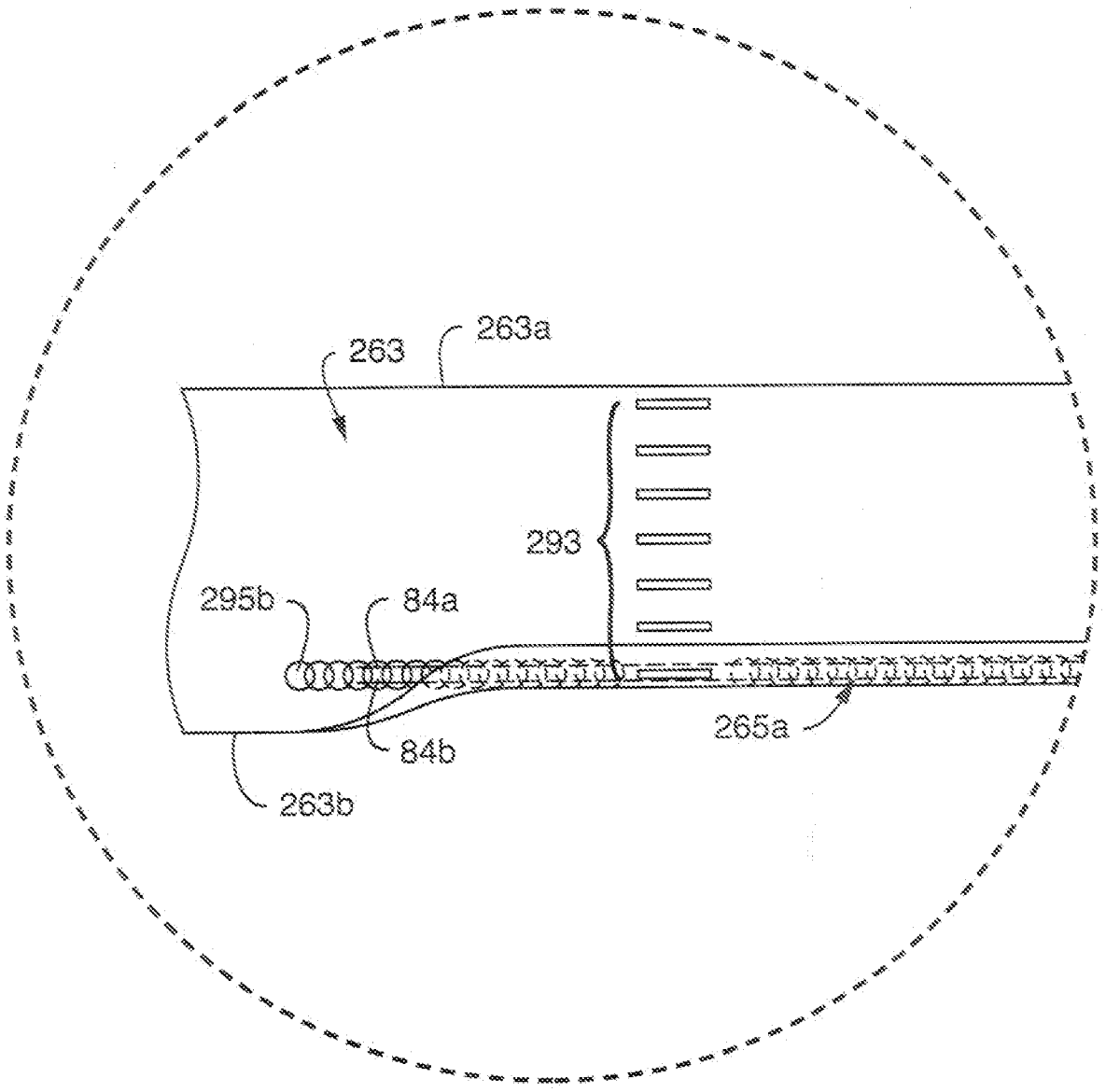


FIG. 21A

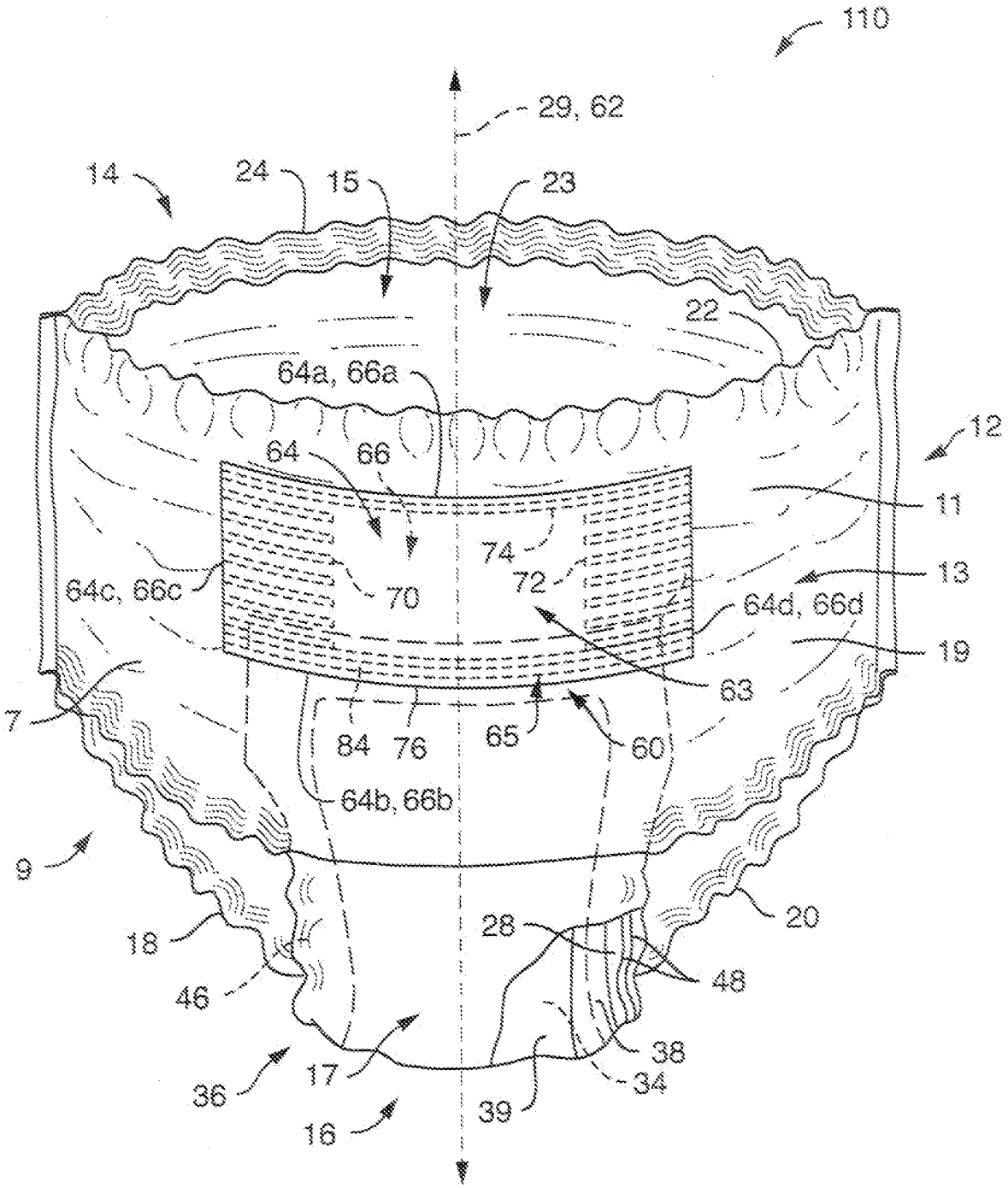

110
29, 62
14
24
15
23
22
64a, 66a
12
64
66
11
74
13
64c, 66c
70
72
64d, 66d
19
63
7
84
76
65
60
64b, 66b
9
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18
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FIG. 22

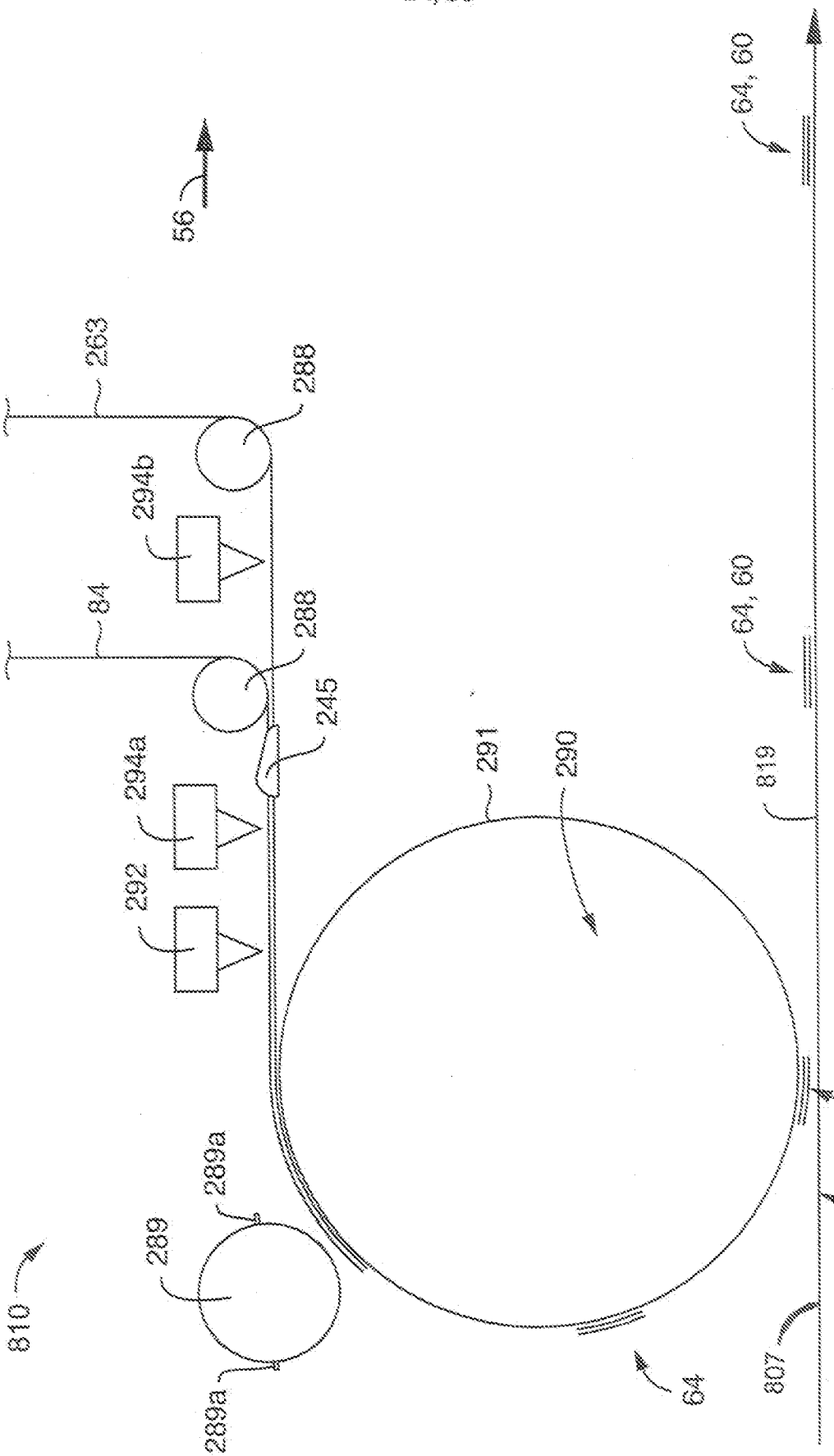

56
263
288
294b
84
288
245
294a
292
291
290
64, 60
64, 60
819
289a
289
289a
810
64
807
813
64
809

FIG. 23

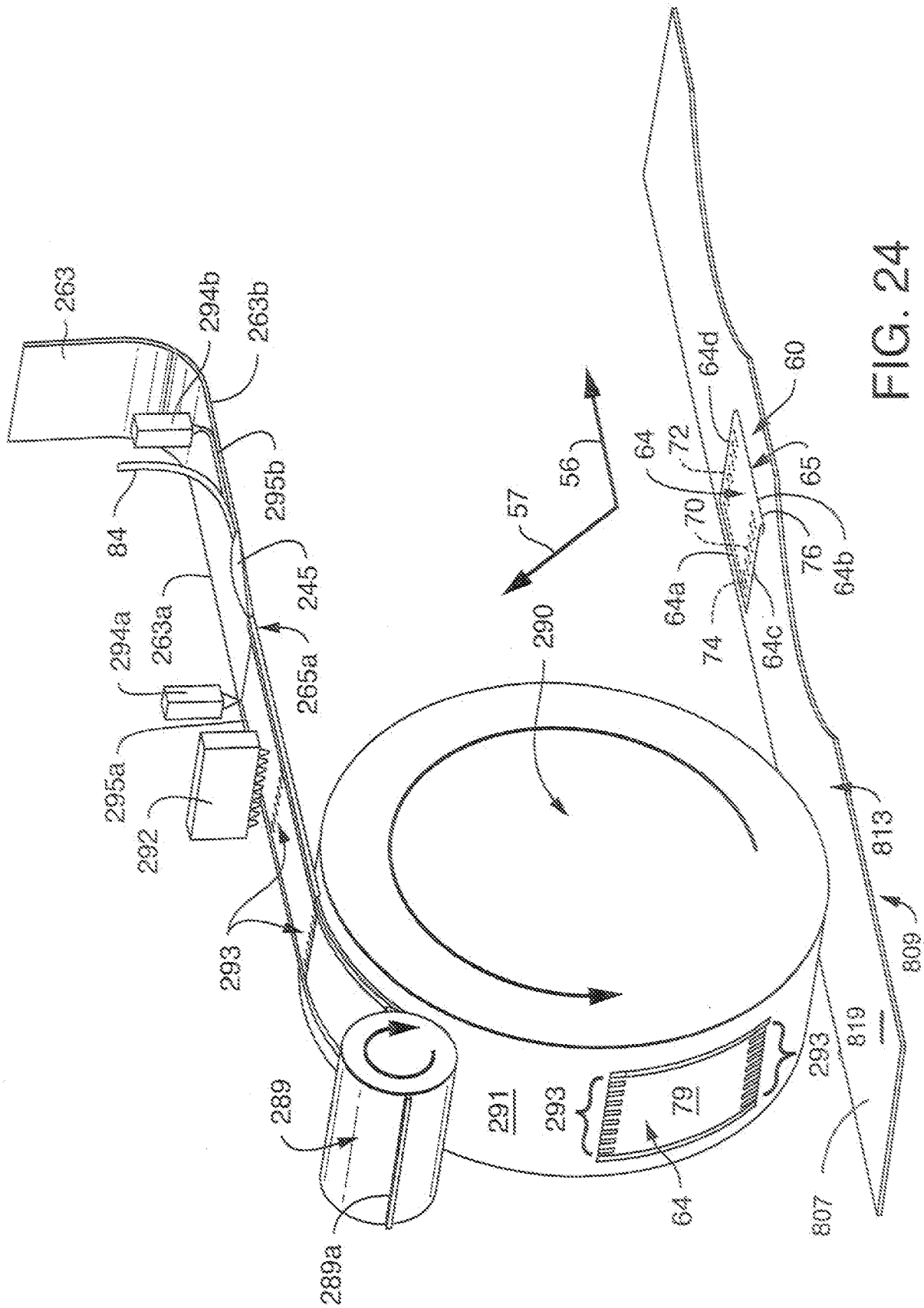

263
294b
263b
84
295b
245
294a
263a
265a
295a
292
293
289
289a
290
291
293
79
64
57
56
64
72
64d
60
70
65
76
64b
64a
74
64c
813
809
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807
293

FIG. 24

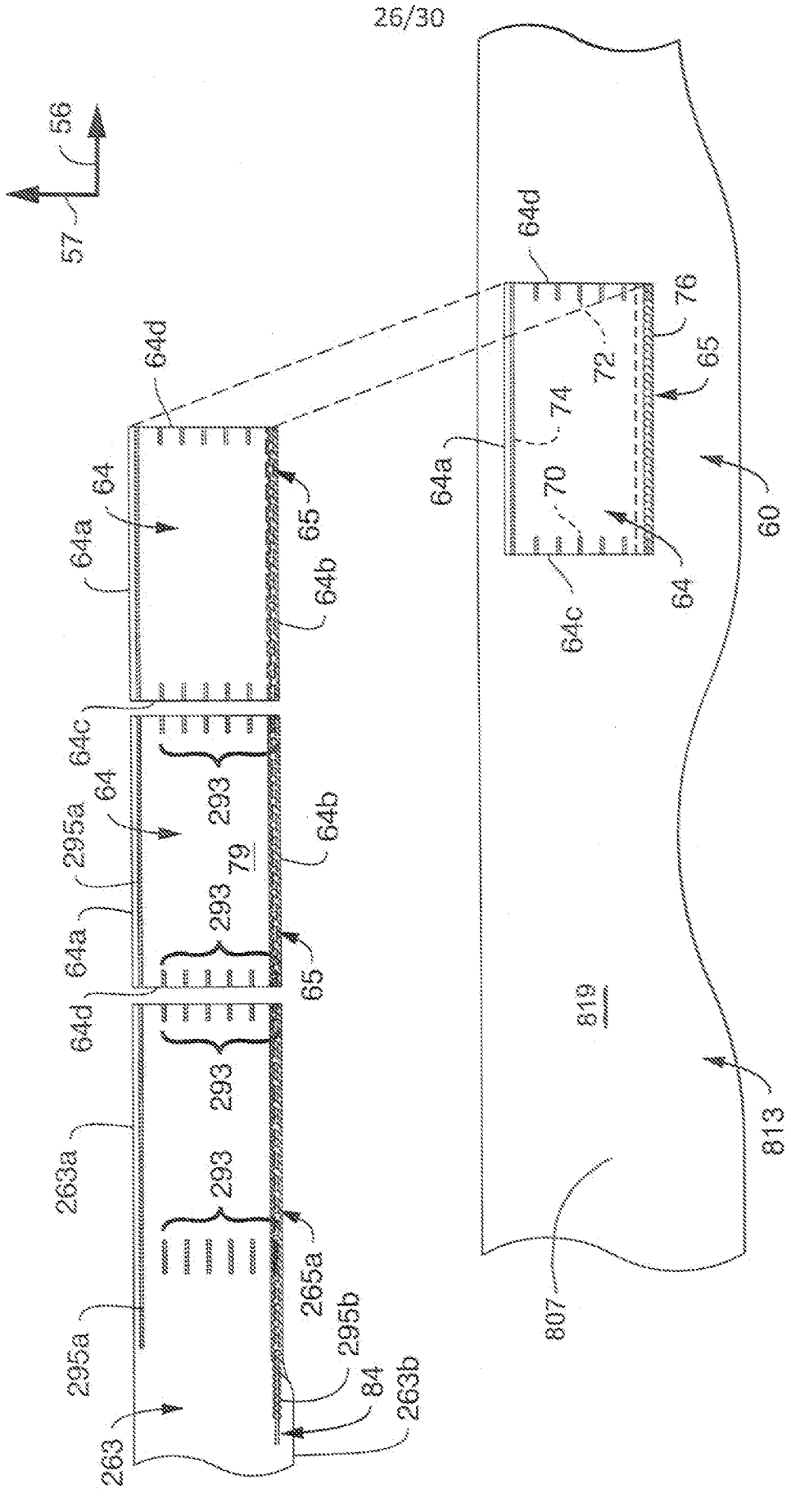

56
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64d
64
64a
65
64b
64c
293
79
295a
263a
263
295b
84
263b
265a
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72
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819
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FIG. 25

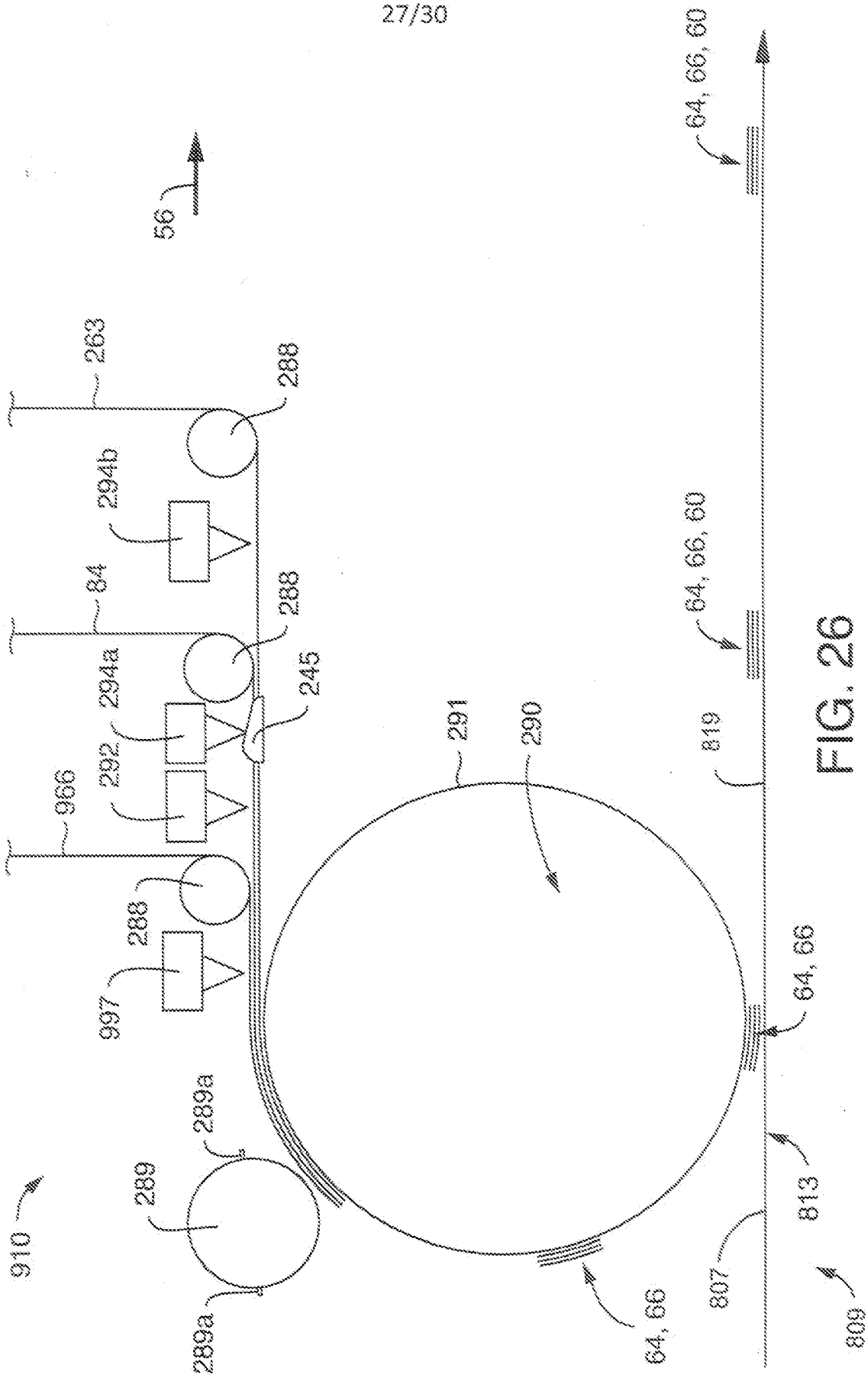

56
263
288
294b
84
288
294a
245
966
292
291
290
819
64, 66, 60
64, 66, 60
64, 66, 60
288
997
64, 66
289a
289
813
910
807
64, 66
809

FIG. 26

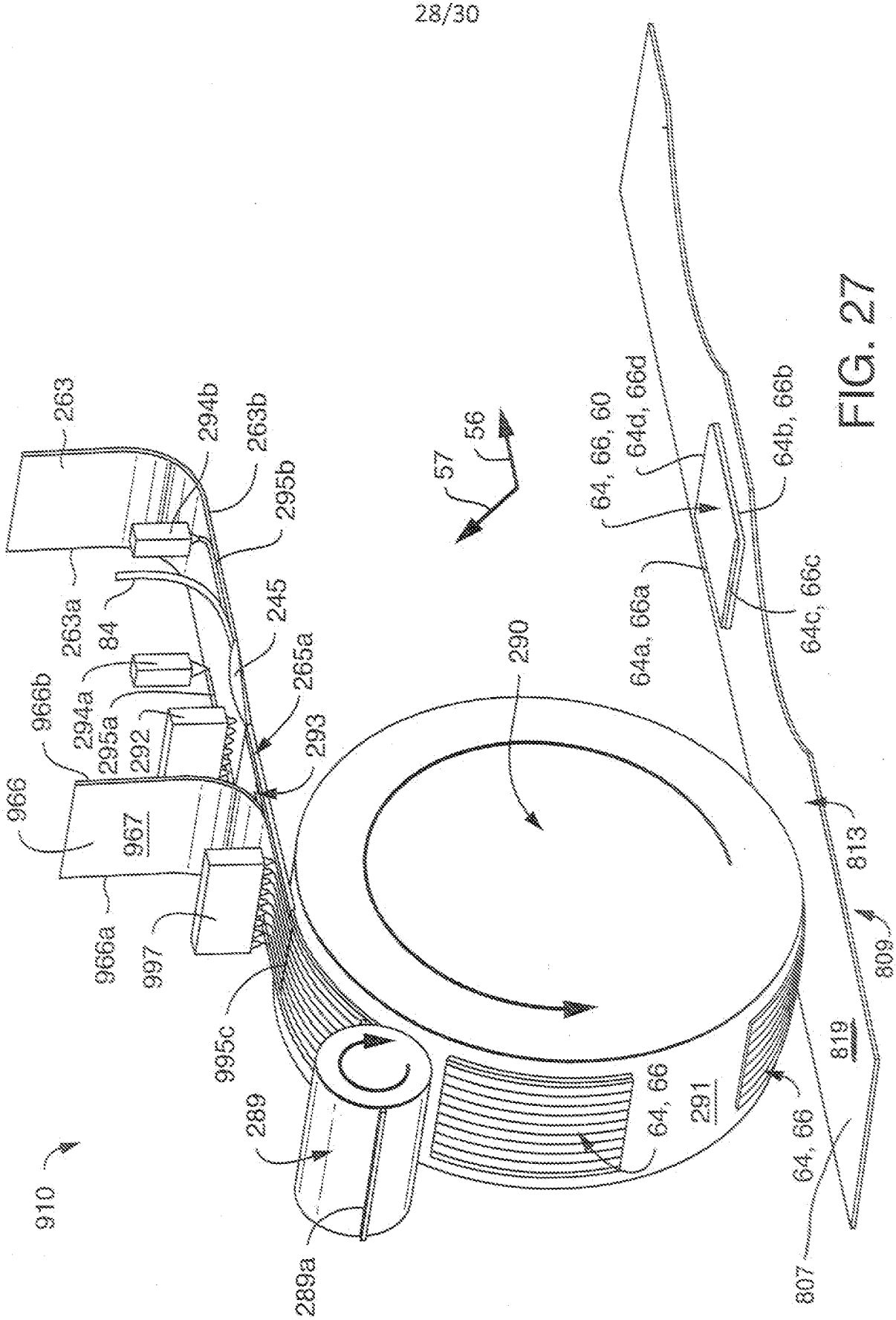

910
289a
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995c
997
966a
967
966
966b
294a
295a
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84
263a
263
294b
263b
295b
245
265a
293
290
57
56
64, 66, 60
64d, 66d
64b, 66b
64a, 66a
64c, 66c
813
809
819
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64, 66
291

FIG. 27

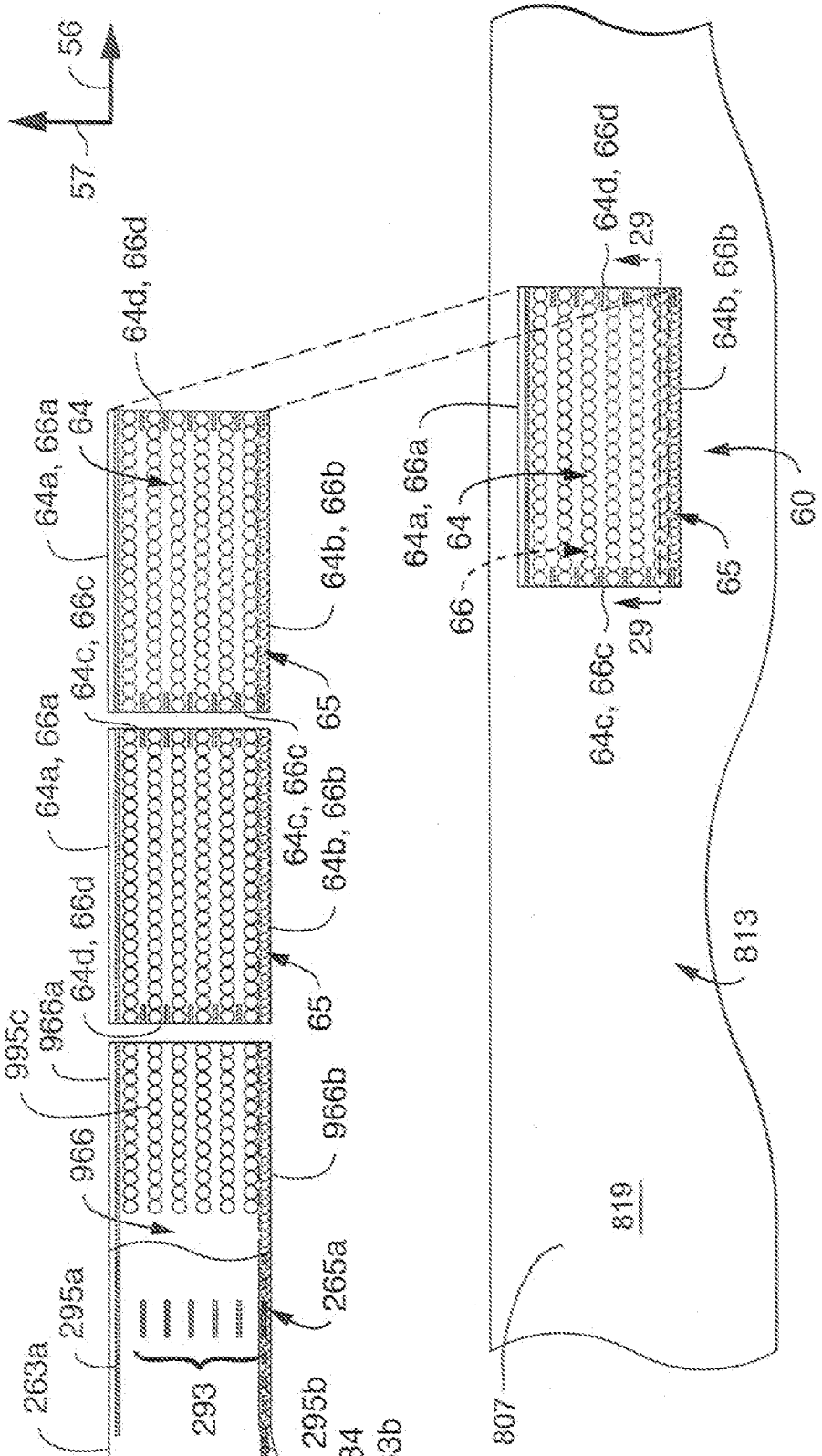

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995c
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966b
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295a
293
295b
84
263b
263
64a, 66a
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64b, 66b
66
64c, 66c
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FIG. 28

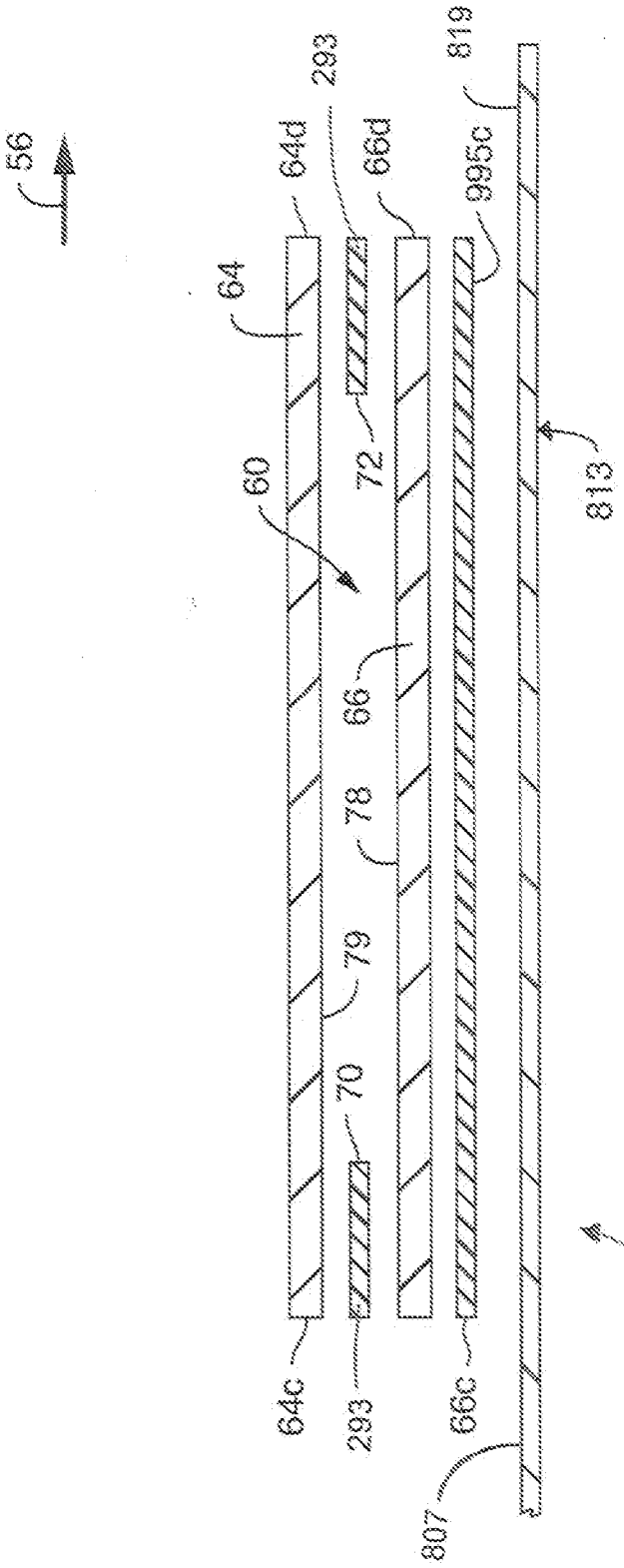

56
64d
293
66d
995c
819
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813
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64c
293
66c
807
809

FIG. 29

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2015/013880

A. CLASSIFICATION OF SUBJECT MATTER

A61F 13/49(2006.01)i, A61F 13/56(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A61F 13/49; A61F 13/15; A61F 5/44; A61F 13/20; A61F 13/56

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean utility models and applications for utility models
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS(KIPO internal) & keywords: absorbent article, pocket, pouch, front waist region, second material component, fold, cuff

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 7727211 B2 (LAVON, G. D. et al.) 1 June 2010 See claim 1; figures 1, 6-7.	1-44
A	US 6264639 B1 (SAUER, B. O.) 24 July 2001 See entire document.	1-44
A	US 6258076 B1 (GLAUG, F. S. et al.) 10 July 2001 See entire document.	1-44
A	US 2003-0109841 A1 (EDWARDS, L. A.) 12 June 2003 See entire document.	1-44
A	US 7993314 B2 (ASP, F. et al.) 9 August 2011 See entire document.	1-44

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
26 August 2015 (26.08.2015)	**05 October 2015 (05.10.2015)**

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Facsimile No. +82-42-472-7140

Authorized officer
Han, Inho
Telephone No. +82-42-481-3362

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/US2015/013880

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 7727211 B2	01/06/2010	AU 2003-293106 A1	23/06/2004
		CA 2283659 A1	08/10/1998
		CA 2283911 A1	08/10/1998
		CA 2508033 A1	17/06/2004
		CA 2594558 A1	17/06/2004
		CA 2594570 A1	17/06/2004
		EP 0971666 A1	19/01/2000
		EP 0971666 B1	29/01/2003
		EP 0971668 A1	19/01/2000
		EP 0971668 B1	21/09/2005
		EP 1495740 A2	12/01/2005
		EP 1495740 A3	20/03/2013
		EP 1567109 A2	31/08/2005
		JP 2000-510755 A	22/08/2000
		JP 2002-509461 A	26/03/2002
		JP 2003-135520 A	13/05/2003
		JP 2006-218322 A	24/08/2006
		JP 2006-508741 A	16/03/2006
		JP 2010-012272 A	21/01/2010
		KR 10-0574746 B1	28/04/2006
		KR 10-2001-0005691 A	15/01/2001
		KR 10-2001-0005693 A	15/01/2001
		KR 10-2005-0085366 A	29/08/2005
		KR 10-2006-0124790 A	05/12/2006
		US 2002-0091368 A1	11/07/2002
		US 2003-0199844 A1	23/10/2003
		US 2004-0024379 A1	05/02/2004
		US 2004-0030314 A1	12/02/2004
		US 2004-0039361 A1	26/02/2004
		US 2005-0228356 A1	13/10/2005
		US 2005-0256480 A1	17/11/2005
		US 2006-0206086 A1	14/09/2006
		US 2006-0206087 A1	14/09/2006
		US 2006-0206088 A1	14/09/2006
		US 2006-0212016 A1	21/09/2006
		US 2006-0217676 A1	28/09/2006
		US 2006-0224135 A1	05/10/2006
		US 2006-0253093 A1	09/11/2006
		US 2007-0083181 A1	12/04/2007
		US 2008-0058754 A1	06/03/2008
		US 6015935 A	18/01/2000
		US 6932800 B2	23/08/2005
		US 6989005 B1	24/01/2006
		US 6989006 B2	24/01/2006
		US 7291137 B2	06/11/2007
		US 7381202 B2	03/06/2008
		US 7494483 B2	24/02/2009
		US 7601145 B2	13/10/2009
		US 7670324 B2	02/03/2010

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/US2015/013880

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		US 7727218 B2	01/06/2010
		US 7887524 B2	15/02/2011
		US 8075542 B2	13/12/2011
		US 8187241 B2	29/05/2012
		US 8192415 B2	05/06/2012
		WO 2004-049992 A2	17/06/2004
		WO 2004-049992 A3	09/12/2004
US 6264639 B1	24/07/2001	AU 3377897 A	07/01/1998
		CA 2256499 A1	24/12/1997
		US 5938652 A	17/08/1999
		WO 97-048359 A1	24/12/1997
US 6258076 B1	10/07/2001	CA 2374136 A1	07/12/2000
		EP 1194097 A1	10/04/2002
		EP 1194097 B1	13/04/2005
		JP 2003-500165 A	07/01/2003
		US 6491677 B1	10/12/2002
		WO 00-072791 A1	07/12/2000
US 2003-0109841 A1	12/06/2003	None	
US 7993314 B2	09/08/2011	AU 2004-326232 A1	06/07/2006
		EP 1845910 A1	24/10/2007
		EP 1845910 B1	30/06/2010
		EP 1845910 B2	22/05/2013
		JP 2008-525149 A	17/07/2008
		US 2007-0255245 A1	01/11/2007
		WO 2006-071145 A1	06/07/2006