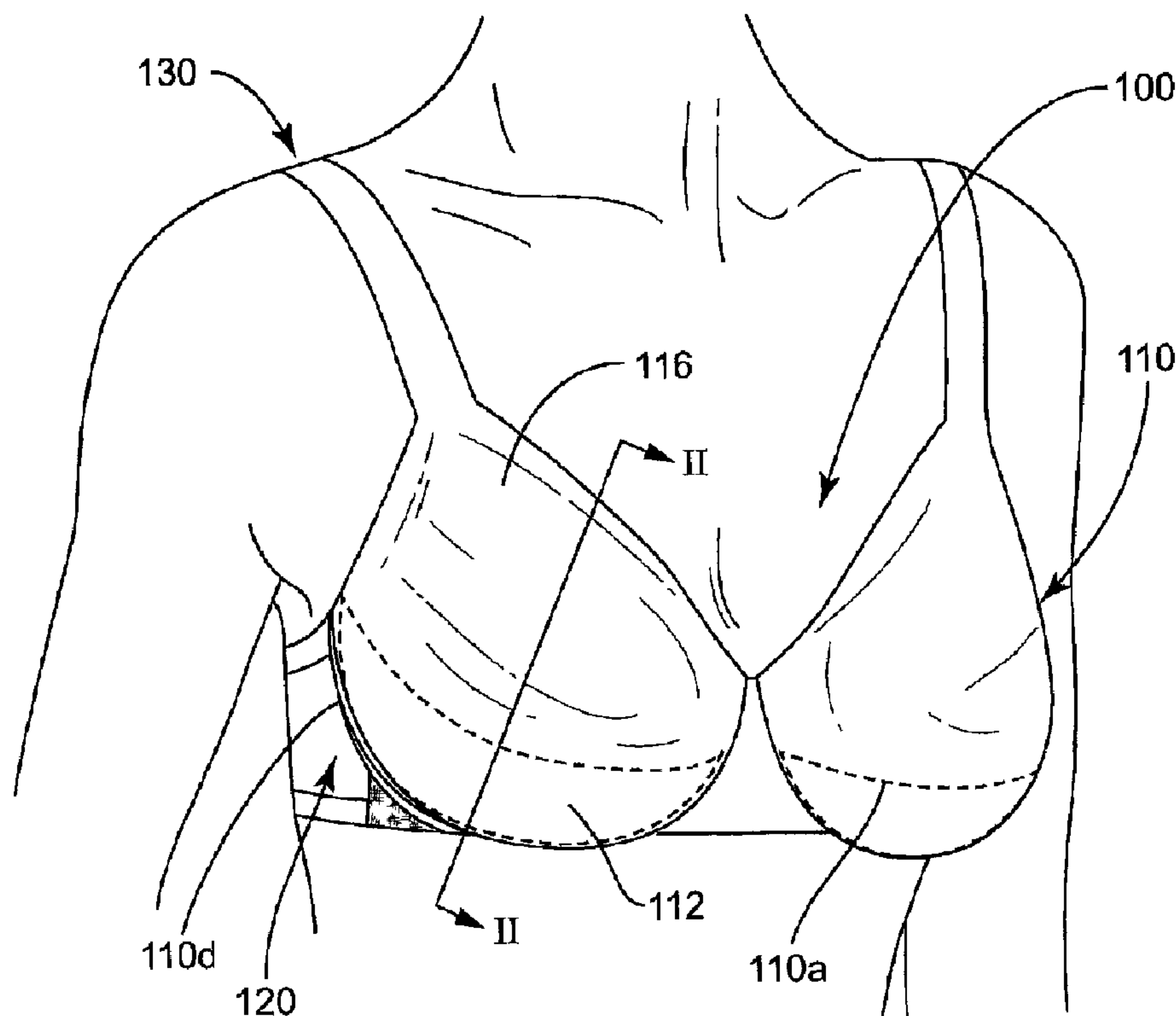




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 (72) **Inventeurs/Inventors:**
 MORENO, LINA MARIA SALDARRIAGA, MX;
 PIOQUINTO, MARISOL, MX;
 HERNANDEZ, PALOMA, MX;
 DURAN, MONIQUE, MX
 (73) **Propriétaire/Owner:**
 HBI BRANDED APPAREL ENTERPRISES, LLC, US
 (74) **Agent:** RIDOUT & MAYBEE LLP

(54) **Titre : SOUTIEN-GORGE AUTO-AJUSTABLE**
 (54) **Title: SELF-ADJUSTING BRASSIERE**



(57) **Abrégé/Abstract:**

A self-adjusting brassiere is provided having a pair of breast-receiving cups, each cup having a molded pad having a variable thickness, a lower zone and an upper zone, an underwire, a stretchable panel extending between at least some portion of the lower edge of each cup and the underwire, wherein the panel is formed to stretch and retract to adjust to the wearer's breast size, a pair of torso bands, and a pair of shoulder straps.

Abstract of the Disclosure

A self-adjusting brassiere is provided having a pair of breast-receiving cups, each cup having a molded pad having a variable thickness, a lower zone and an upper zone, an underwire, a stretchable panel extending between at least some
5 portion of the lower edge of each cup and the underwire, wherein the panel is formed to stretch and retract to adjust to the wearer's breast size, a pair of torso bands, and a pair of shoulder straps.

SELF-ADJUSTING BRASSIERE

5

Field of the Invention

The present invention relates to the field of women's undergarments, and, in particular, to a brassiere having breast-receiving cups with molded pads having variable thickness and hardness, and stretchable panels, for self-adjusting to the correct fit for a wearer.

Background of the Invention

Brassieres designed for shaping, lifting, and enhancing the appearance of a woman's breasts are well known in the intimate apparel arts. In particular, brassieres having padding or other cushioning materials sandwiched between layers of fabric material at the lower portions of the breast-receiving cups have been designed for lifting and supporting the breasts. Where the padding or other cushioning materials have not properly fit one or more breasts, removable or supplemental padding, or both, have been provided. Yet, many women still have incorrectly sized brassieres.

Having an improperly fitted brassiere, however, may be due to several factors. First, from brand to brand the advertised sizes of brassieres are not necessarily consistent; thus, a brassiere advertised as a 36B in one brand may not fit the same as a similarly sized brassiere in another brand. In many cases, women do not even know their correct size. Further, for natural reasons, including weight changes, a woman's body changes frequently. When the change has been an increase or decrease in torso band size, women have had to resort to continuously and manually adjusting the position of the fasteners on the brassiere closure. When the change is in cup size, differently-sized brassieres must be purchased.

While numerous, and some costly, manual solutions to adjust brassieres to resolve these problems have been devised, none has provided features in a brassiere that are self-adjusting to provide the correct fit over a range of cup or torso band sizes, or both, while at the same time providing an aesthetically pleasing appearance when the brassiere is worn, and that can be manufactured at a relatively low cost.

Summary of the Invention

The present invention is directed to a self-adjusting brassiere that addresses the above issues. In one embodiment, the self-adjusting brassiere comprises a pair of breast-receiving cups, each cup having upper and lower edges and an outer edge. Each cup is formed from a molded pad having upper and lower edges and a variable thickness therebetween. Each pad further comprises a lower zone and an upper zone, the lower zone being thicker and harder than the upper zone. An underwire may be positioned beneath each cup, and a stretchable panel extends between at least some portion of the lower edge of each cup and the underwire so that the panel stretches and retracts to adjust to the wearer's breast cup size. A torso band having inner and outer ends is interconnected at the inner end to an outer edge of each breast-receiving cup. A shoulder strap extends between the upper edge of each breast-receiving cup and each torso band.

In one embodiment, the self-adjusting brassiere includes a second stretchable panel positioned between the inner end of each torso band and each underwire to provide self-adjustability of the torso band between the underwire and the lower portion of the torso band.

In another embodiment, the self-adjusting brassiere includes a third stretchable panel in each torso band between the inner end and the outer end of the torso band to provide self-adjustability of the torso band proximate the wearer's back. This stretchable panel may be in lieu of, or in addition to, the second stretchable panel.

In a further embodiment of the invention, there is provided a self-adjusting brassiere. The self-adjusting brassiere comprises:

(a) a pair of breast-receiving cups, each breast-receiving cup having upper and lower edges, an outer edge, and comprising:

5 a molded pad having spaced apart inner and outer surfaces with a variable thickness therebetween;

the molded pad having a lower zone with an upper edge, and an upper zone having a lower edge;

10 (b) an underwire positioned about the lower and outer edges of each cup, wherein the molded pad and underwire define a volume of each cup;

15 (c) a first stretchable panel connecting at least a portion of the lower edge of each cup and the underwire, wherein the first stretchable panel is operative for stretching so that the molded pad moves away from the underwire and increases the volume of each cup;

(d) a pair of torso bands, each torso band having an inner end and an outer end, the inner end interconnected to the outer edge of one of the pair of breast-receiving cups; and,

20 (e) a pair of shoulder straps, each shoulder strap extending between the upper edge of a breast-receiving cup and a torso band.

In a further embodiment of the invention, there is provided a self-adjusting brassiere comprising a pair of cups, a pair of torso bands connected to respective outer edges of the cups and a pair of shoulder straps connected to respective upper edges of the cups and the respective torso bands. Each cup comprises a foam pad
25 having a lower edge and an upper edge. A thickness of the foam pad decreases from the lower edge of the pad towards the upper edge of the pad. Each cup further comprises an underwire extending along a lower edge of the cup and a stretchable cup panel connecting the lower edge of the foam pad to the underwire. The stretchable cup panel is operative for stretching in at least one direction so

that the cup is expandable from a first size to a second size greater than the first size.

In a further embodiment of the invention, there is provided a self-adjusting brassiere comprising a pair of cups. Each cup comprises a foam pad having a lower edge and an upper edge. A thickness of the foam pad decreases from the lower edge of the pad towards the upper edge of the pad. Each cup further comprises an underwire extending along a lower edge of the cup and a stretchable cup panel connecting the lower edge of the foam pad to the underwire. The stretchable cup panel is operative for stretching in at least two directions so that the cup is expandable from a first size to a second size greater than the first size. The self-adjusting brassiere further comprises a pair of torso bands connected to respective outer edges of the cups, a stretchable side panel connecting each torso band to the respectively adjacent underwire, wherein the stretchable side panel is operative for stretching in at least two directions, and a pair of shoulder straps joining respective upper edges of the cups and the respective torso bands.

Various features and aspects of the invention will become apparent upon

review of the detailed description set forth below when taken in conjunction with the accompanying drawings, which are briefly described as follows.

Brief Description of the Drawings

5 Figure 1 is a front perspective, environmental view of a self-adjusting brassiere formed according to the present invention.

 Figure 2 is a sectional view of the brassiere of Figure 1, taken along Line II–II

 Figure 2A is a sectional view of the brassiere cup of Figure 1, illustrating an outer fabric layer seamed over the outer surface of the molded cup pad.

10 Figure 3 is an enlarged view of the right brassiere cup of Figure 1.

 Figure 3A is a sectional view of the side panel shown in Figure 3, taken along line IIIA—IIIA.

 Figure 3B is a second sectional view of the side panel shown in Figure 3, taken along line IIIB--IIIB.

15 Figure 4 illustrates mesh panels in a stretched condition.

 Figure 5 is a rear-view of the brassiere of Figure 1.

 Figure 6 is a rear view of an alternative embodiment of Figure 5.

 Figure 7 is a rear-view of the brassiere of Figure 1.

20 Figure 8 is a rear view of the brassiere of Figure 1, illustrating an alternative shoulder strap arrangement.

Detailed Description

 Certain exemplary embodiments of the present invention are described below and illustrated in the accompanying figures. The embodiments described are
 25 only for purposes of illustrating the present invention and should not be interpreted as limiting the scope of the invention, which, of course, is limited only by the claims below. Other embodiments of the invention, and certain modifications and improvements of the described embodiments, will occur to those skilled in the art, and all such alternate embodiments, modifications, and improvements are within the
 30 scope of the present invention.

Referring now to the figures in general, the present invention is directed to a self-adjusting brassiere, which addresses the problems described above. More specifically, as described in greater detail below, the present invention is directed to a brassiere construction that self-adjusts to the correct size of the wearer.

5 As shown in the embodiment of Figures 1 and 2, the brassiere described herein is intended to provide a breast cup and torso band construction, which will accommodate and self-adjust in both a breast cup size of at least about two sizes and a torso band size of at least about three sizes. As shown, the self-adjusting brassiere 100 comprises a pair of breast-receiving cups 110, a pair of torso
10 bands/side panels 120, and a pair of shoulder straps 130.

The breast-receiving cups 110 are molded and comprise separately-formed lower zone 112 and an upper zone 116, which are subsequently joined at a boundary 110a, comprising the upper edge of lower zone 112 and the lower edge of upper zone 116. In this embodiment, the lower zone 112 comprises at least three
15 layers, 112a, 112b, and 112c, each of which may be formed from a polyurethane foam having a thickness of between about 3mm and 4mm. To bond the layers 112a, 112b, and 112c together along their adjoining inner surfaces during the molding process, a liquid polyurethane adhesive is applied to their adjoining inner surfaces. This not only bonds the layers together, but provides some rigidity and
20 hardness to the lower zone 112 subsequent to molding. As will be appreciated, the adhesive bonding of multiple layers of material necessarily limits the flexibility and lessens the overall softness of the individual layers. The upper zone 116 is similarly formed, except that it may be formed of fewer layers. In the embodiment shown in Figure 2, the upper zone 116 is formed of two layers having a thickness of between
25 about 3mm and 4mm. As will be appreciated, the upper zone 116 in this embodiment is softer and less rigid than the lower zone 112 because the zone is thinner, generally because the lower zone 112 is less flexible and more dense.

The lower zone 112 and upper zone 116 can be placed in a conventional heated mold where they are joined along boundary 110a with an adhesive, which
30 binds the two zones during the molding process, and molds the pad into the desired

shape. The cavity of the mold, defined by the male and female mold portions, can be formed so that the molded pad will have a variable thickness, such that the thickness of the molded pad is greater at the lower edge 110b of the pad and gradually decreases in thickness upwardly toward the upper edge 110c of the
5 molded pad.

Formed in this manner, the lower zone 112 provides greater support and lift for a wearer's breast. The upper zone 116, on the other hand, cradles the upper part of the breast, without creating bulges around the wearer's neckline, because of its greater stretchability and, therefore, adjustability to the size of the breast. As
10 used herein, "stretchability" refers to the magnitude to which a material may be lengthened, widened, distended, or enlarged by tension. The thinner profile of the upper zone 116, proximate the upper edge 110c, also reduces the visible cup profile at the neckline of the wearer.

As best shown in Figure 2, inner 113 and outer 115 fabric layers also may be
15 adhesively bonded to the laminated foam pad during the molding process to provide a soft inner layer 113 for contact with the wearer's skin and for an aesthetically pleasing outer layer 115. The fabric layers 113 and 115 may be selected from any of the conventional fabric types, including polyester fabric-types, depending upon the desired feel, appearance, and durability/washability. In one exemplary
20 embodiment, the fabric layers 113 and 115 are 100 percent polyester. As desired, the fabric layers 113 and 115 may be blends of materials. Alternatively, one or more of layers 113 and 115 may be seamed over, in lieu of molding, after the molded cups 110 are formed. As shown in Figure 2A (on the outer foam surface of the cup only), "seaming over" refers to a fabric layer 115a being positioned over
25 either an outer or inner foam surface of the cup 110, lapped over one or more edges of the cup 110, and stitched 115b, 115c to over the lower 112 and upper 116 molded, and adjoined, foam pads.

In the embodiment shown in the figures, the self-adjusting brassiere 100 may further comprise a fabric-encapsulated and U-shaped underwire 117 affixed

proximate the lower edge 110b of the cup 110, as explained in greater detail below. The underwire 117 may be encapsulated in any suitable fabric casing 117a.

Two further aspects of the self-adjusting brassiere 100 are disclosed. First, a first stretchable panel 140 interconnects the encapsulated underwire 117 and the lower edge 110b of the cup 110 (Figure 2). The first stretchable panel 140, as shown in Figure 3, remains in an unstretched, retracted position whenever the cup size of the brassiere 100 fits properly and needs no further adjustment to conform to the wearer's breast. As shown in Figure 4, however, the first stretchable panel 140 will stretch generally bi-directionally, as illustrated by arrows A—A, to accommodate at least one additional cup size whenever the cup size is not properly fitted, or to accommodate weight gain, natural body changes, etc. The first stretchable panel 140 can be formed of a two layer knitted mesh fabric having elastic properties, which allows elongation and recovery of the panel 140 to adjust to different cup sizes. As used herein, "mesh fabric" refers to fabric that is characterized by open spaces between the yarns. Mesh fabrics may be woven, knitted, lace, net, crochet, etc. For the embodiment shown and described herein, the two mesh fabric layers are a stretch raschel powernet. As used herein, "raschel" refers to a versatile type of warp knitting made in plain and jacquard patterns. Also, as used herein, "powernet," as it is well known in the textile arts, generally refers to any of several knitted fabric constructions having either low compression and high stretch, or high compression and low stretch. The powernet described herein is low compression and high stretch, having a weight of 76 grams per square meter, and comprises 95 percent polyamide and 5 percent elastane, by weight. This fabric is available from Telas Laprotex S. De R.L de C.V (Laprotex) in Aguascalientes, Mexico as Item No. 215. When tested in accordance with ASTM D4964-96, Standard Test Method for Tension and Elongation of Elastic Fabrics (Constant-Rate-of-Extension Type Tensile Testing Machine), on a Zwick Model 1446 Elastometer, this fabric has an elongation of approximately 117 percent in the length (warp) direction and approximately 70 percent in the width (weft) direction, respectively, when a load of 4 kilograms is independently applied in each direction. Those skilled in the art will

appreciate that other stretch powernet fabric constructions may be substituted so long as low compression and high stretch characteristics are maintained. As shown in Figure 4, the first stretchable panel 140 may be substantially crescent-shaped, or triangular to generally follow the contour of the lower zone 112.

5 Turning now to a second aspect shown in Figures 3 and 4, the brassiere 100 may further comprise a second stretchable panel 150 affixed between a portion of the -encapsulated underwire fabric casing 117a and a portion of the torso band 120 of each cup. As shown in the figures, the second stretchable panel 150 is substantially triangular and is positioned between the underwire 117 along the
10 lower, outer periphery of the encapsulated underwire 117 and the lower portion of the inner end 120a of each torso band 120. The remaining upper portion of the torso band connects with the outer edge 110d of the cup 110. The stretchable panel 150 also can comprise two layers of a mesh fabric, which will adjust for torso size by stretching approximately horizontally as shown by bi-directional arrows B—B.
15 The two-layer panel 150 may be formed by folding over a single piece of fabric to create two layers. As will be appreciated, the stretchability of panel 150 may be complementary to the stretchability of panel 140. The mesh fabric layers may be formed to stretch and adjust up to about three torso sizes; e.g., 34 to 38. The stretchable panel 150 can also be a stretch raschel powernet, having a weight of 76
20 grams per square meter, and comprising 95 percent polyamide and 5 percent elastane, by weight. This fabric also is available from Laprotex as Item No. 215. When tested in accordance with ASTM D4964-96 on the Zwick Model 1446 Elastometer, this fabric also has an elongation of approximately 117 percent in the length (warp) direction and approximately 70 percent in the width (weft) direction, as
25 described above, under a load of 4 kilograms. Again, those skilled in the art will appreciate that other stretch powernet fabric constructions may be substituted so long as low compression and high stretch characteristics are maintained.

Referring now to Figure 3A, the torso bands 120 of the self-adjusting brassiere 100 can be formed as a double layer construction. The inner layer 124, in
30 contact with the wearer's skin, can comprise a mesh fabric to provide better

adjustment with minimal movement, and the outer layer 122 can comprise a jacquard construction to provide an aesthetically pleasing decorative pattern. The mesh inner layer 124 can be formed with a mesh fabric that is a stretch raschel powernet. In one embodiment, inner layer 124 weighs 185 grams per square meter, and comprises 82 percent polyamide and 18 percent elastane, by weight. This fabric is available from Laprotex as Item No. 305. When tested in accordance with ASTM D4964-96 on the Zwick Model 1446 Elastometer, this fabric has an elongation of approximately 165 percent in the length (warp) direction and approximately 120 percent in the width (weft) direction, as described above, under a load of 4 kilograms. Again, those skilled in the art will appreciate that other stretch powernet fabric constructions may be substituted so long as low compression and high stretch characteristics are maintained.

The outer jacquard decorative layer 122 can be a circularly knitted fabric and may be formed in any ornamental design. In one embodiment, outer layer 122 weighs 160 grams per square meter, and comprises 89 percent polyamide and 11 percent elastane, by weight. This fabric is available from C.I Confecciones Balalakia in Medellin, Colombia as Item No. 5076. Alternatively, outer layer 122 may be formed of lace, nylon, microfibers, or other similarly suitable fabric materials. When tested in accordance with ASTM D4964-96 on the Zwick Model 1446 Elastometer, this fabric has an elongation of approximately 110 percent in the length (warp) direction, and approximately 140 percent in the width (weft) direction, as described above, under a load of 4 kilograms. Again, those skilled in the art will appreciate that other stretch powernet fabric constructions may be substituted so long as low compression and high stretch characteristics are maintained. The outer 122 and inner 124 layers are joined about their peripheries with a hem 125, which may be formed in any conventional manner, and which may comprise non-slip materials, as desired. Alternatively, hem 125 may be formed by seaming over one of the outer 122 or inner 124 layers.

As shown in Figure 3B, in one embodiment, the torso band 120 is stitched 150a between the folded mesh layers of the second stretchable panel 150 in order to avoid the skin irritation typically caused by seams in the underarm area.

Turning lastly to Figures 5 through 8, the brassiere 100 may include an
5 optional third stretchable panel 160 forming part of the structure of each torso band 120. Stretchable panel 160 may be included in lieu of, or in addition to, the stretchable panel 150 located between the underwire 117 and inner edge 120a of the torso band 120. While shown in the figures as being situated adjacent to the rear closure 170, the third stretchable panel may be situated anywhere along the
10 length of the torso band 120 between the outer edge 120b of the side panel 120 and the inner edge 120a. As shown in Figures 5 and 7, the stretchable panel 160 is in the unstretched position for an initially properly fitted brassiere 100, whereas as shown in Figures 6 and 8, the third stretchable panel is stretched in a horizontal direction as needed to adjust to the body/torso in the case of an initially improperly
15 fitted brassiere, or her weight gain or natural changes create the need for the torso bands 120 to self-adjust. The stretchable panel 160 can be formed with two layers made, also of a mesh fabric that is a raschel powernet, having a weight of 76 grams per square meter, and comprising 95 percent polyamide and 5 percent elastane, by weight. This fabric also is available from Laprotex as Item No. 215. When tested in
20 accordance with ASTM D4964-96 on the Zwick Model 1446 Elastometer, this fabric also has an elongation of approximately 117 percent in the length (warp) direction and approximately 70 percent in the width (weft) direction, as described above, under a load of 4 kilograms. Again, those skilled in the art will appreciate that other stretch powernet fabric constructions may be substituted so long as low
25 compression and high stretch characteristics are maintained.

As shown in Figures 5 through 8, the self-adjusting brassiere 100 can comprise a conventional rear closure 170 such as a hook and eye device, hook and loop, etc. Alternatively, the closure may be a front closure positioned at the gore between the breast receiving cups 110.

Lastly, as shown in Figures 5 and 6, one embodiment of the shoulder strap 130 comprises a pair of straps that adjoin in the center of the wearer's back. To provide extra lift and support, the straps 130 can comprise a pair of rings 132 adjoined via hook or clasp 134, permitting the shoulder straps to slide within the
5 rings 132 when the brassiere 100 is worn, and is especially suitable for use with racer back dresses or shirts. As shown in Figures 7 and 8, an alternative embodiment of the shoulder straps 130 are interconnected between the cups 110 and side straps 120 in the fashion shown.

Thus, the component parts of the brassiere 100 of the present invention
10 cooperate to adapt to the body of the wearer, as both cups 110 and torso bands 120 adjust as needed. The first stretchable panel 140 permits the cup capacity to expand about 1 or 2 cup sizes, while the mesh fabric layers of the second stretchable panel 150, or the third stretchable panel 160, or both, allow the adjustment of torso band size up to about 2 or 3 band sizes. Further, because of its
15 molded, multi-layer construction, the upper zone 116 of the cup 110 provides concealment of a wearer's nipple, and because it is thin at the upper edge 110a of the cup, it reduces bulges around the neckline, even when one cup size is added. Also, torso bands 120 may be expanded even three more band sizes by virtue of the multiple positions of the hook and eye fasteners on the closure 170. As will be
20 appreciated from the foregoing description that the brassiere 100 of the present invention may be provided with any combination of the features described to provide self-adjustability when worn.

The scope of the Claims should not be limited by the preferred embodiments set forth in the examples, but should be given the broadest interpretation consistent
25 with the Description as a whole.

We claim:

1. A self-adjusting brassiere, comprising:
 - (a) a pair of breast-receiving cups, each breast-receiving cup having upper and lower edges, an outer edge, and comprising:
 - a molded pad having spaced apart inner and outer surfaces with a variable thickness therebetween;
 - the molded pad having a lower zone with an upper edge, and an upper zone having a lower edge;
 - (b) an underwire positioned about the lower and outer edges of each cup, wherein the molded pad and underwire define a volume of each cup;
 - (c) a first stretchable panel connecting at least a portion of the lower edge of each cup and the underwire, wherein the first stretchable panel is operative for stretching so that the molded pad moves away from the underwire and increases the volume of each cup;
 - (d) a pair of torso bands, each torso band having an inner end and an outer end, the inner end interconnected to the outer edge of one of the pair of breast-receiving cups; and
 - (e) a pair of shoulder straps, each shoulder strap extending between the upper edge of a breast-receiving cup and a torso band.
2. The brassiere of Claim 1, wherein the lower zone of each cup is thicker than the upper zone of each cup.
3. The brassiere of Claim 2, wherein the lower zone of each cup is more rigid than the upper zone of each cup.
4. The brassiere of any one of Claims 1 to 3, wherein the lower zone of each cup and the upper zone of each cup are separately formed.
5. The brassiere of Claim 4, wherein at least one of the lower zone and upper zone of each cup comprises a plurality of layers of polyurethane foam.
6. The brassiere of Claim 5, wherein the plurality of layers of polyurethane foam of each of the lower zone and upper zone are adhesively bonded together.
7. The brassiere of Claim 4 or 5, wherein the upper edge of the lower zone and lower edge of the upper zone of each cup are adhesively bonded together.

8. The brassiere of any one of Claims 1 to 7, further comprising at least one of an inner fabric layer positioned over the inner surface of the molded pad and an outer fabric layer positioned over the outer surface of the molded pad.
9. The brassiere of any one of Claims 1 to 8, wherein the first stretchable panel extends substantially along the outer edge of the breast-receiving cup.
10. The brassiere of any one of Claims 1 to 9, wherein the first stretchable panel is substantially crescent-shaped.
11. The brassiere of any one of Claims 1 to 9, wherein the first stretchable panel is substantially triangular.
12. The brassiere of any one of Claims 1 to 11, wherein the first stretchable panel comprises a knitted two-layer mesh fabric.
13. The brassiere of Claim 12, wherein the two-layer knitted mesh fabric comprises a stretchable raschel powernet.
14. The brassiere of Claim 13, wherein the stretchable raschel powernet comprises polyamide and elastane.
15. The brassiere of Claim 13 or 14, wherein the stretchable raschel powernet comprises about 95 percent polyamide and about 5 percent elastane.
16. The brassiere of any one of Claims 1 to 15, further comprising a second stretchable panel positioned between the inner end of each torso band and each underwire.
17. The brassiere of Claim 16, wherein the second stretchable panel is substantially triangular shaped.
18. The brassiere of Claim 16 or 17, wherein the second stretchable panel comprises a knitted two-layer mesh fabric.
19. The brassiere of Claim 18, wherein the knitted two-layer mesh fabric comprises a stretchable raschel powernet.
20. The brassiere of Claim 19, wherein the stretchable raschel powernet comprises polyamide and elastane.

21. The brassiere of Claim 19 or 20, wherein the stretchable raschel powernet comprises about 95 percent polyamide and about 5 percent elastane.
22. The brassiere of any one of Claims 16 to 21, further comprising a third stretchable panel positioned between the inner end and the outer end of each torso band.
23. The brassiere of Claim 22, wherein the third stretchable panel is substantially rectangular.
24. The brassiere of Claim 22 or 23, wherein the third stretchable panel comprises a knitted two-layer mesh fabric.
25. The brassiere of Claim 24, wherein the knitted two-layer mesh fabric comprises a stretchable raschel powernet.
26. The brassiere of Claim 25, wherein the stretchable raschel powernet comprises polyamide and elastane.
27. The brassiere of Claim 25 or 26, wherein the stretchable raschel powernet comprises about 95 percent polyamide.
28. A self-adjusting brassiere, comprising:
 - a pair of cups;
 - a pair of torso bands connected to respective outer edges of the cups; and
 - a pair of shoulder straps connected to respective upper edges of the cups and the respective torso bands,wherein each cup comprises
 - a foam pad having a lower edge and an upper edge, wherein a thickness of the foam pad decreases from the lower edge of the pad towards the upper edge of the pad,
 - an underwire extending along a lower edge of the cup, and
 - a stretchable cup panel connecting the lower edge of the foam pad to the underwire, wherein the stretchable cup panel is operative for stretching in at least one direction so that the cup is expandable from a first size to a second size greater than the first size.
29. The brassiere of Claim 28, wherein the brassier further comprises a stretchable side panel positioned between each torso band and the underwire.

30. A self-adjusting brassiere, comprising:
a pair of cups, wherein each cup comprises
a foam pad having a lower edge and an upper edge, wherein a thickness of the foam pad decreases from the lower edge of the pad towards the upper edge of the pad,
an underwire extending along a lower edge of the cup, and
a stretchable cup panel connecting the lower edge of the foam pad to the underwire, wherein the stretchable cup panel is operative for stretching in at least two directions so that the cup is expandable from a first size to a second size greater than the first size;
a pair of torso bands connected to respective outer edges of the cups;
a stretchable side panel connecting each torso band to the underwire, wherein the stretchable side panel is operative for stretching in at least two directions; and
a pair of shoulder straps joining respective upper edges of the cups and the respective torso bands.
31. The brassiere of any one of Claims 28 to 30, wherein the stretchable cup panel is substantially crescent-shaped.
32. The brassiere of any one of Claims 28 to 30, wherein the stretchable cup panel is substantially triangular in shape.
33. The brassiere of any one of Claims 28 to 32, wherein the stretchable cup panel comprises a mesh fabric.
34. The brassiere of Claim 33, wherein the mesh fabric of the stretchable cup panel comprises a raschel powernet.
35. The brassiere of Claim 33 or 34, wherein the mesh fabric of the stretchable cup panel comprises at least one of polyamide and elastane.
36. The brassiere of any one of Claims 33 to 35 wherein the mesh fabric of the stretchable cup panel comprises about 95 percent polyamide and about 5 percent elastane.
37. The brassiere of any one of Claims 33 to 36, wherein the mesh fabric of the stretchable cup panel has an elongation under a 4 kg load of about 117% in a first direction.

38. The brassiere of Claim 37, wherein the mesh fabric of the stretchable cup panel has an elongation under a 4 kg load of about 70% in a second direction.
39. The brassiere of any one of Claims 33 to 36, wherein the mesh fabric of the stretchable cup panel has an elongation under a 4 kg load of about 70% in a first direction.
40. The brassiere of Claim 39, wherein the mesh fabric of the stretchable cup panel has an elongation under a 4 kg load of about 117% in a second direction.
41. The brassiere of any one of Claims 33 to 36, wherein the mesh fabric of the stretchable cup panel has an elongation under a 4 kg load of about 117% in a first direction and about 70% in a second direction.
42. The brassiere of any one of Claims 29 to 41, wherein the stretchable side panel is substantially triangular in shape.
43. The brassiere of any one of Claims 29 to 42, wherein the stretchable side panel comprises a mesh fabric.
44. The brassiere of Claim 43, wherein the mesh fabric of the stretchable side panel comprises a raschel powernet.
45. The brassiere of Claim 43 or 44, wherein the mesh fabric of the stretchable side panel comprises at least one of polyamide and elastane.
46. The brassiere of any one of Claims 43 to 45, wherein the mesh fabric of the stretchable side panel comprises about 95 percent polyamide.
47. The brassiere of any one of Claims 43 to 46, wherein the mesh fabric of the stretchable side panel has an elongation under a 4 kg load of about 117% in a first direction.
48. The brassiere of Claim 47, wherein the mesh fabric of the stretchable side panel has an elongation under a 4 kg load of about 70% in a second direction.
49. The brassiere of any one of Claims 43 to 46, wherein the mesh fabric of the stretchable side panel has an elongation under a 4 kg load of about 70% in a first direction.

50. The brassiere of Claim 47, wherein the mesh fabric of the stretchable side panel has an elongation under a 4 kg load of about 117% in a second direction.
51. The brassiere of any one of Claims 43 to 46, wherein the mesh fabric of the stretchable side panel has an elongation under a 4 kg load of about 117% in a first direction and about 70% in a second direction.
52. The brassiere of any one of Claims 28 to 51, further comprising a stretchable back panel positioned between inner and outer ends of each torso band.
53. The brassiere of Claim 52, wherein the stretchable back panel is substantially rectangular in shape.
54. The brassiere of Claim 52 or 53, wherein the stretchable back panel comprises a mesh fabric.
55. The brassiere of Claim 54, wherein the mesh fabric of the stretchable back panel comprises a raschel powernet.
56. The brassiere of Claim 54 or 55, wherein the mesh fabric of the stretchable back pane comprises at least one of polyamide and elastane.
57. The brassiere of any one of Claims 54 to 56, wherein the mesh fabric of the stretchable back panel comprises about 5 percent elastane.
58. The brassiere of any one of Claims 54 to 57, wherein the mesh fabric of the stretchable side panel has an elongation under a 4 kg load of about 117% in a first direction.
59. The brassiere of Claim 58, wherein the mesh fabric of the stretchable side panel has an elongation under a 4 kg load of about 70% in a second direction.
60. The brassiere of any one of Claims 54 to 57, wherein the mesh fabric of the stretchable side panel has an elongation under a 4 kg load of about 70% in a first direction.
61. The brassiere of Claim 60, wherein the mesh fabric of the stretchable side panel has an elongation under a 4 kg load of about 117% in a second direction.

62. The brassiere of any one of Claims 54 to 57, wherein the mesh fabric of the stretchable side panel has an elongation under a 4 kg load of about 117% in a first direction and about 70% in a second direction.
63. The brassiere of any one of Claims 28 to 62, wherein the foam pad of the pair of cups has a lower zone and an upper zone.
64. The brassiere of Claim 63, wherein the lower zone and the upper zone each have a thickness, and the thickness of the lower zone is greater than the thickness of the upper zone.
65. The brassiere of Claim 63 or 64, wherein the lower zone and the upper zone each have a stiffness, and the stiffness of the lower zone is greater than the stiffness of the upper zone.
66. The brassiere of any one of Claims 63 to 65, wherein the lower zone and the upper zone are formed separately.
67. The brassiere of Claim 66, wherein the lower zone and the upper zone are joined to one another using an adhesive.
68. The brassiere of any one of Claims 63 to 67, wherein at least one of the lower zone and the upper zone comprises a plurality of layers of foam.
69. The brassiere of any one of Claims 1 to 68, wherein the pair of torso bands each comprise an inner layer and an outer layer.
70. The brassiere of Claim 69, wherein the inner layer comprises a mesh fabric.
71. The brassiere of Claim 70, wherein the mesh fabric of the inner layer comprises a raschel powernet.
72. The brassiere of Claim 70 or 71, wherein the mesh fabric of the inner layer comprises at least one of polyamide and elastane.
73. The brassiere of any one of Claims 70 to 72, wherein the mesh fabric of the inner layer comprises about 82% polyamide.

74. The brassiere of any one of Claims 70 to 73, wherein the mesh fabric of the inner layer comprises about 18% elastane.
75. The brassiere of any one of Claims 70 to 74, wherein the mesh fabric of the inner layer has an elongation under a 4 kg load of about 165% in a first direction.
76. The brassiere of Claim 75, wherein the mesh fabric of the inner layer has an elongation under a 4 kg load of about 120% in a second direction.
77. The brassiere of any one of Claims 70 to 74, wherein the mesh fabric of the inner layer has an elongation under a 4 kg load of about 120% in a first direction.
78. The brassiere of Claim 77, wherein the mesh fabric of the inner layer has an elongation under a 4 kg load of about 165% in a second direction.
79. The brassiere of any one of Claims 70 to 74, wherein the mesh fabric of the inner layer has an elongation under a 4 kg load of about 165% in a first direction and about 120% in a second direction.
80. The brassiere of any one of Claims 70 to 79, wherein the mesh fabric of the inner layer weighs 185 grams per square meter.
81. The brassiere of any one of Claims 69 to 80, wherein the outer layer comprises a jacquard fabric.
82. The brassiere of Claim 81, wherein the jacquard fabric of the outer layer comprises a circularly knitted fabric.
83. The brassiere of Claim 81 or 82, wherein the jacquard fabric of the outer layer comprises at least one of polyamide and elastane.
84. The brassiere of any one of Claims 81 to 83, wherein the jacquard fabric of the outer layer comprises about 89% polyamide.
85. The brassiere of any one of Claims 81 to 84, wherein the jacquard fabric of the outer layer comprises about 11% elastane.
86. The brassiere of any one of Claims 1 to 68, wherein each torso band comprises a knitted mesh fabric inner layer and a jacquard fabric outer layer.

87. The brassiere of Claim 86, wherein the knitted mesh fabric inner layer comprises a stretch raschel powernet and the jacquard fabric outer layer comprises a circularly knitted fabric.

88. The brassiere of Claim 86 or 87, wherein both the knitted mesh inner layer and the jacquard fabric outer layer comprise polyamide and elastane.

89. The brassiere of Claim 88, wherein the knitted mesh inner layer comprises about 82 percent polyamide and 18 percent elastane, and the jacquard fabric outer layer comprises about 89 percent polyamide and 11 percent elastane.

90. The brassiere of any one of Claims 1 to 89, wherein the underwire is encapsulated by a fabric.

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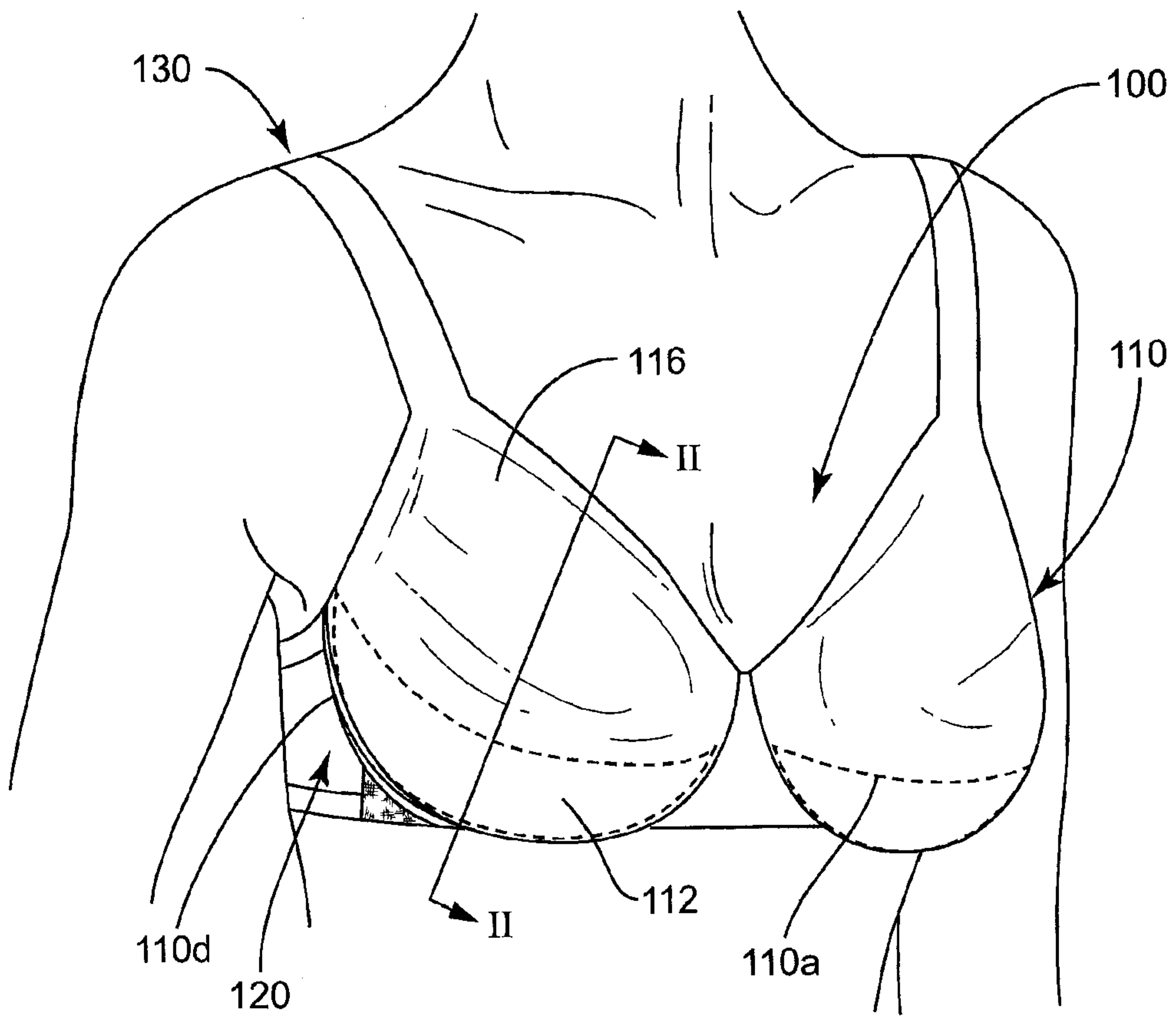


FIG. 1

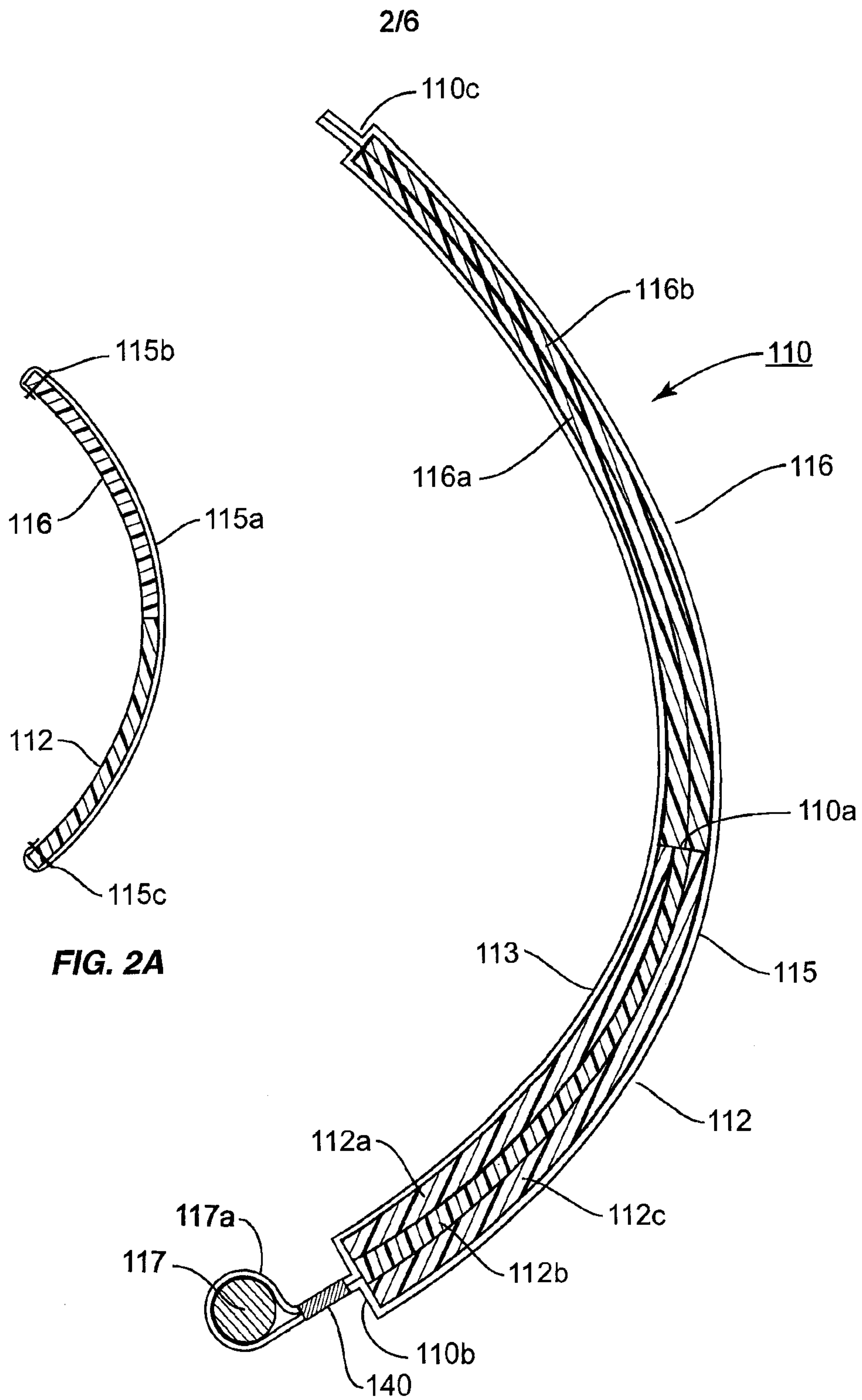


FIG. 2A

FIG. 2

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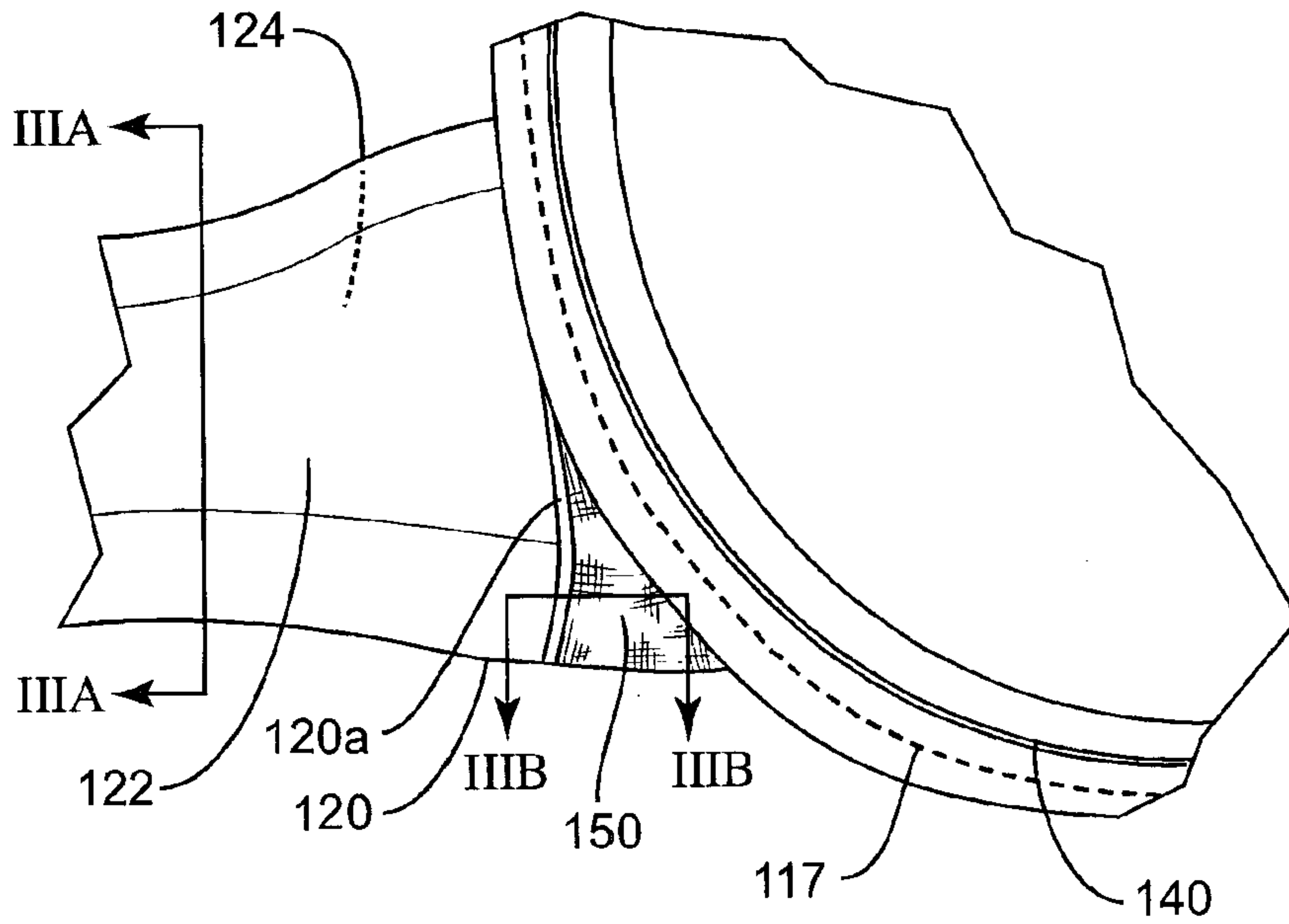


FIG. 3

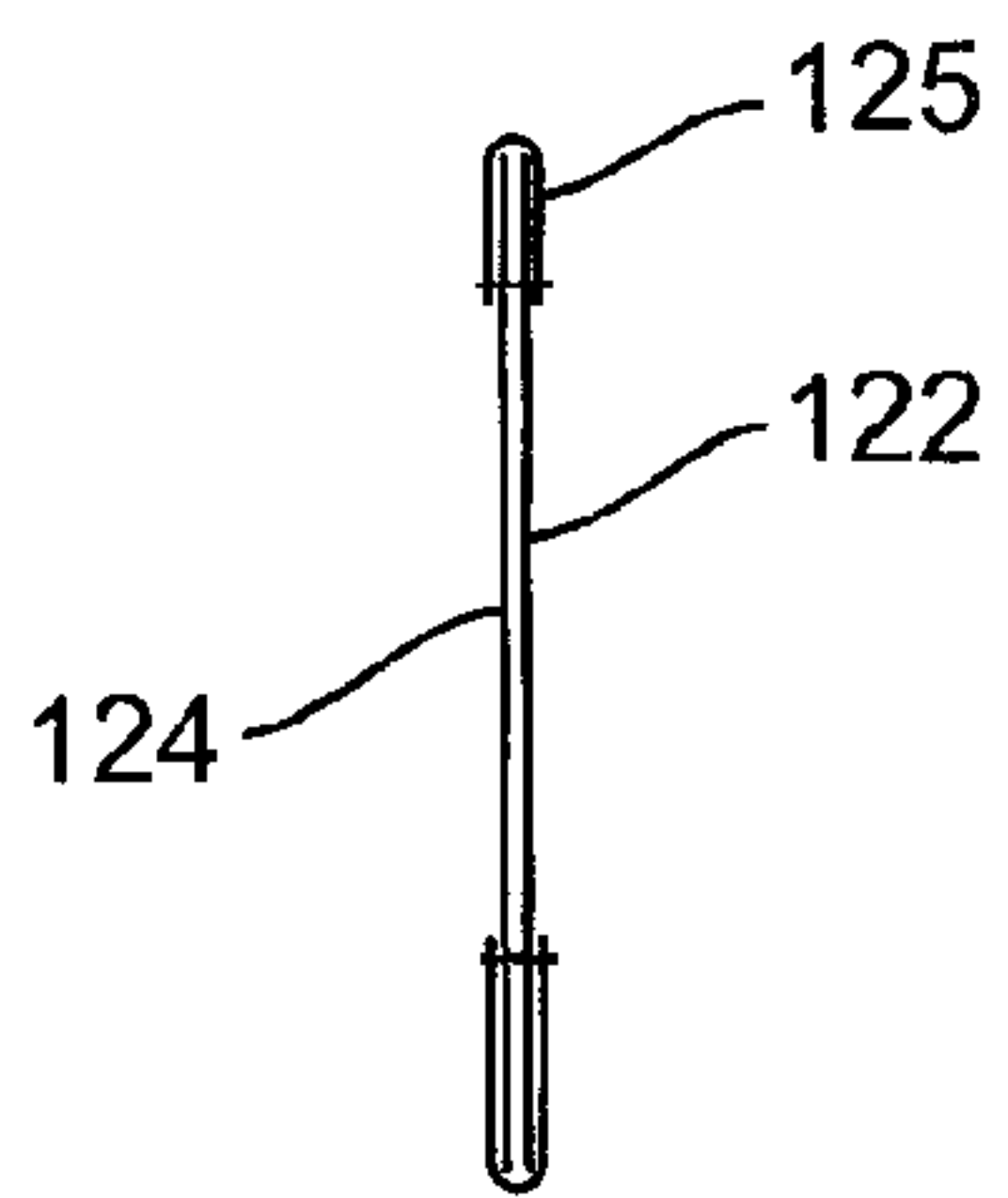


FIG. 3A

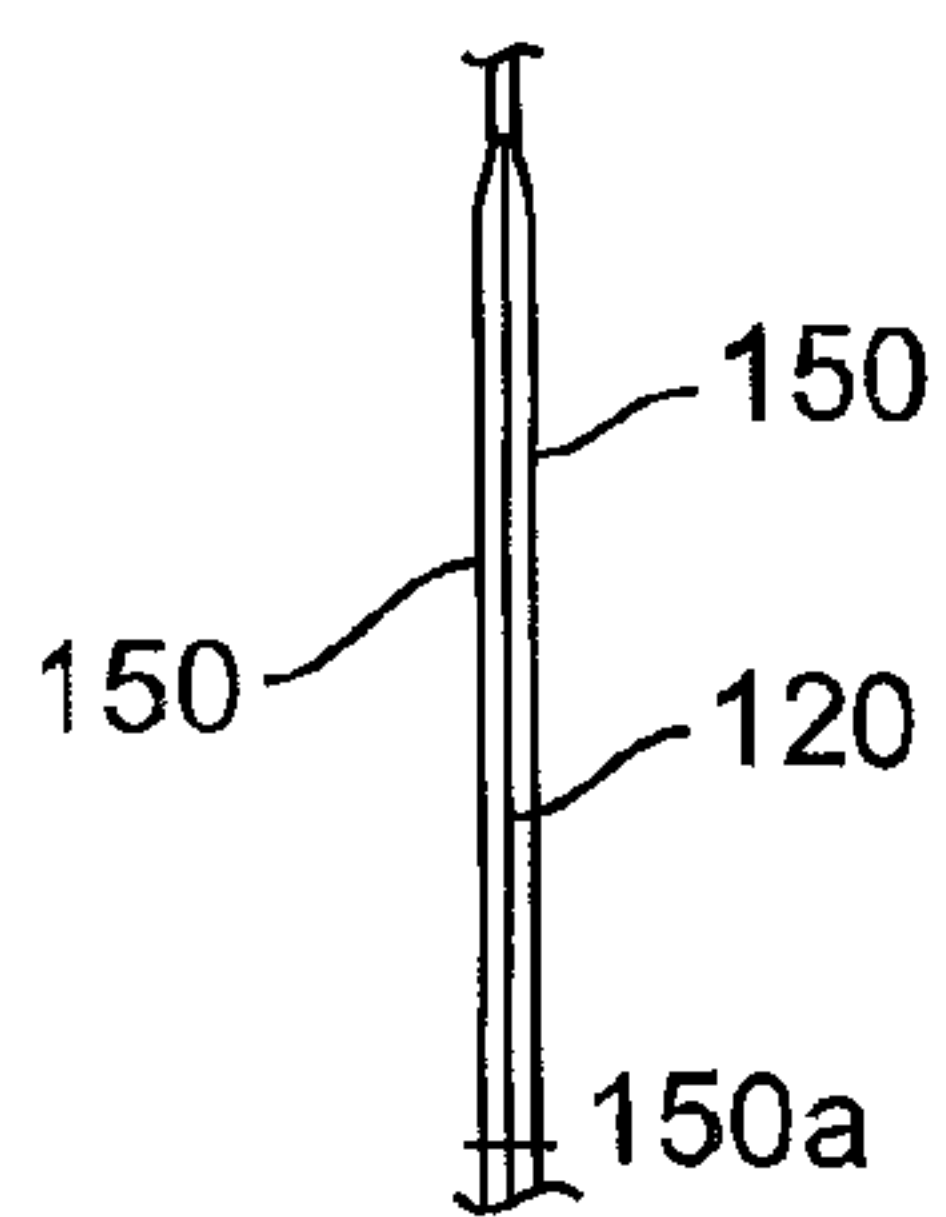


FIG. 3B

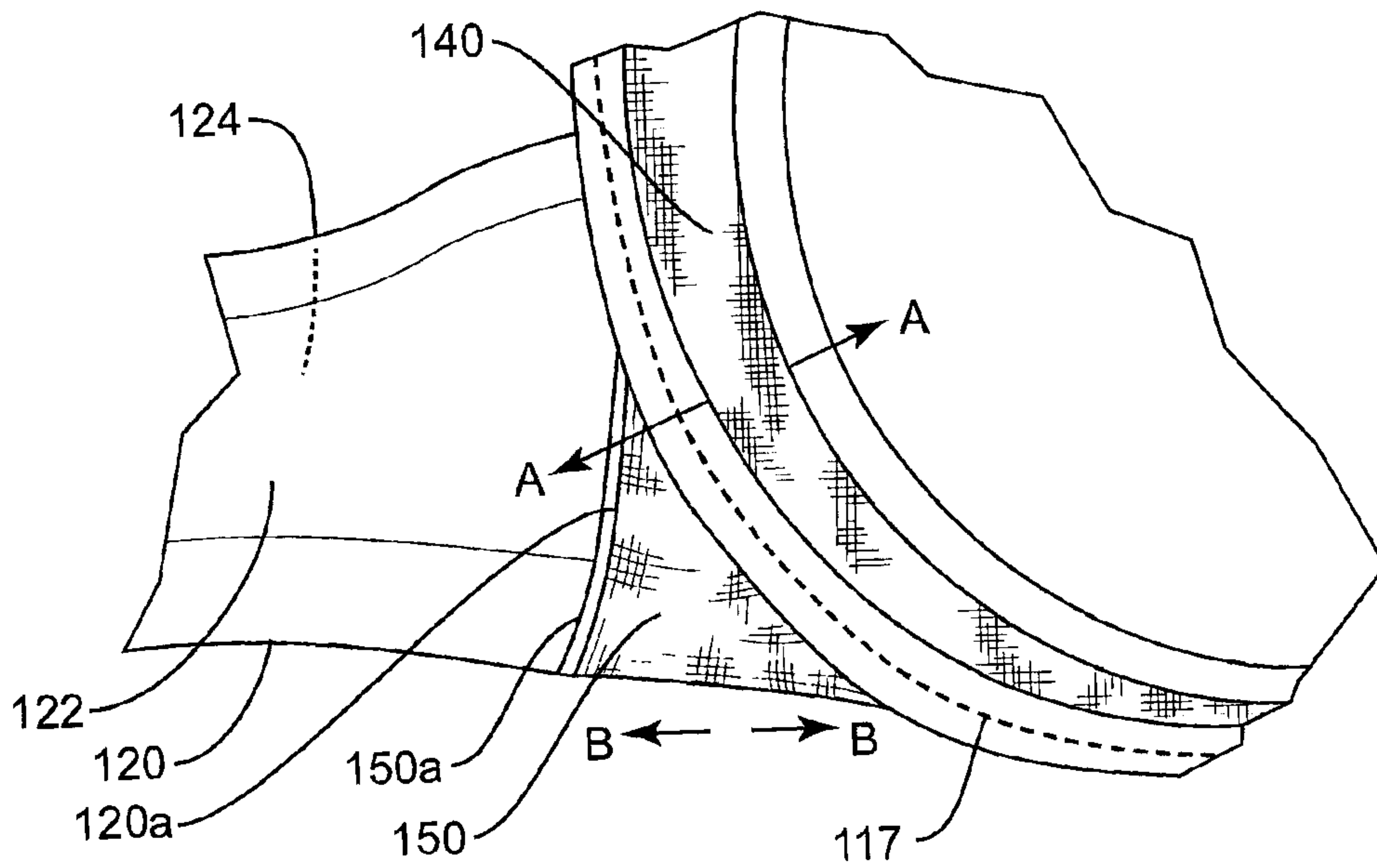


FIG. 4

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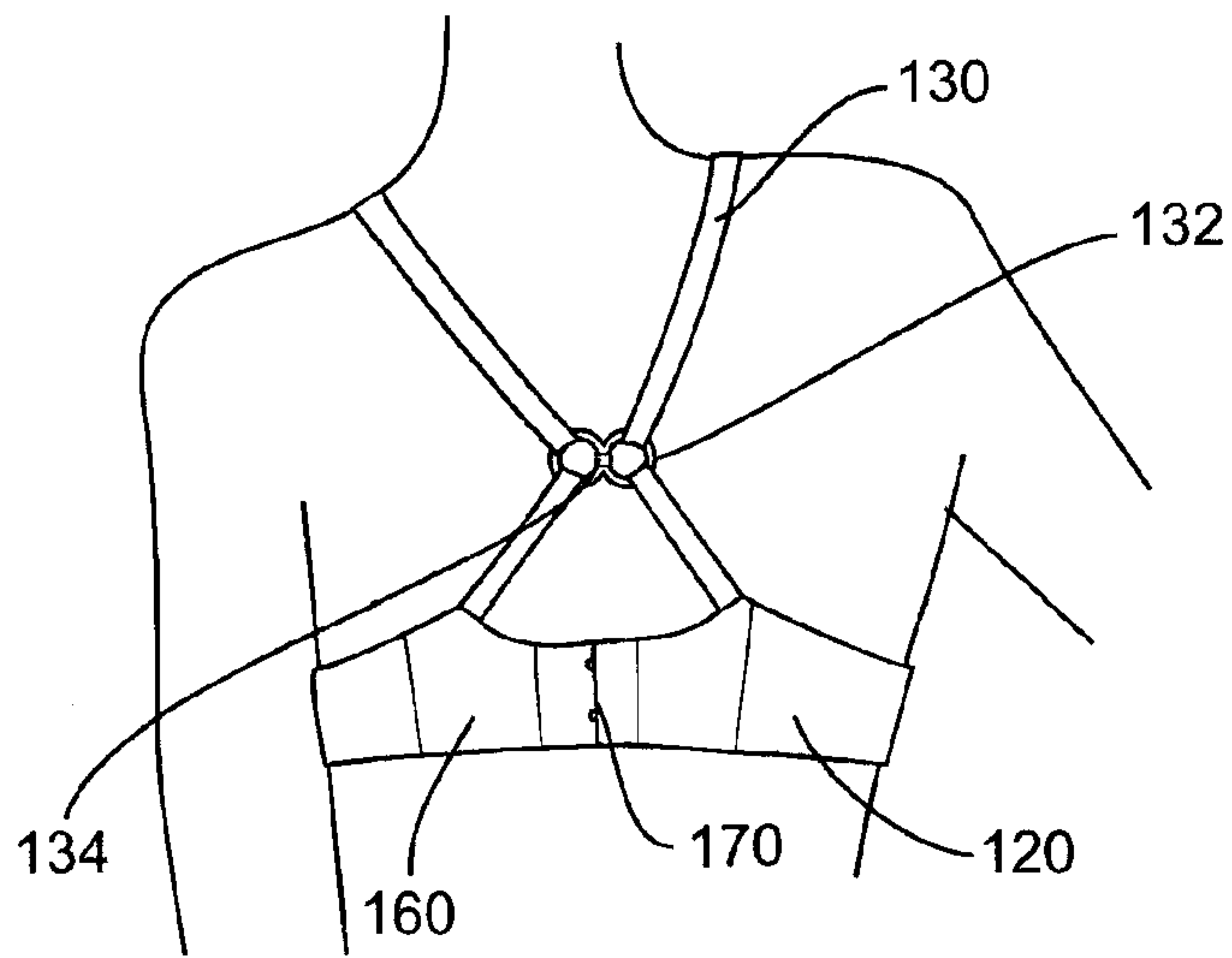


FIG. 5

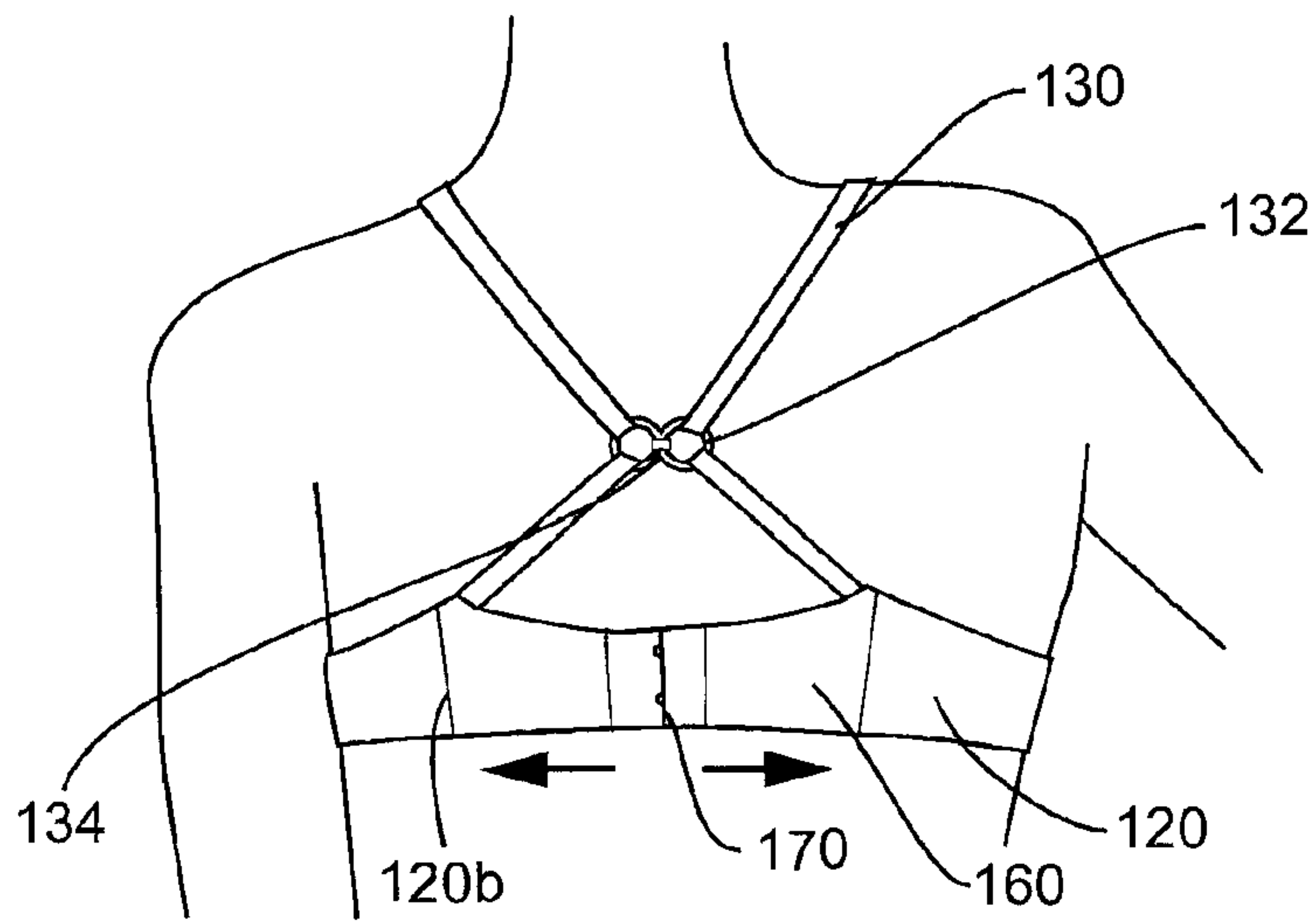


FIG. 6

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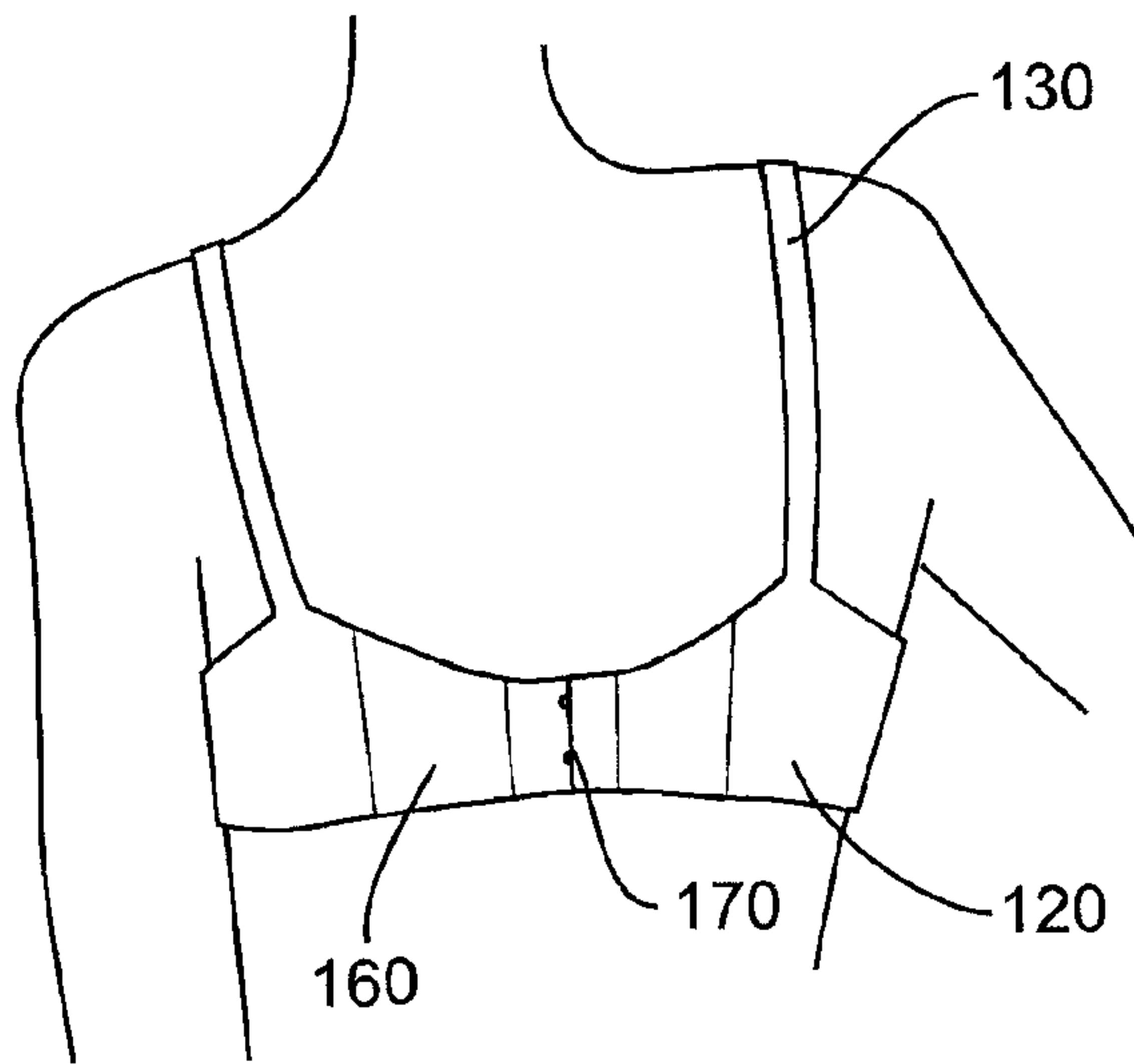


FIG. 7

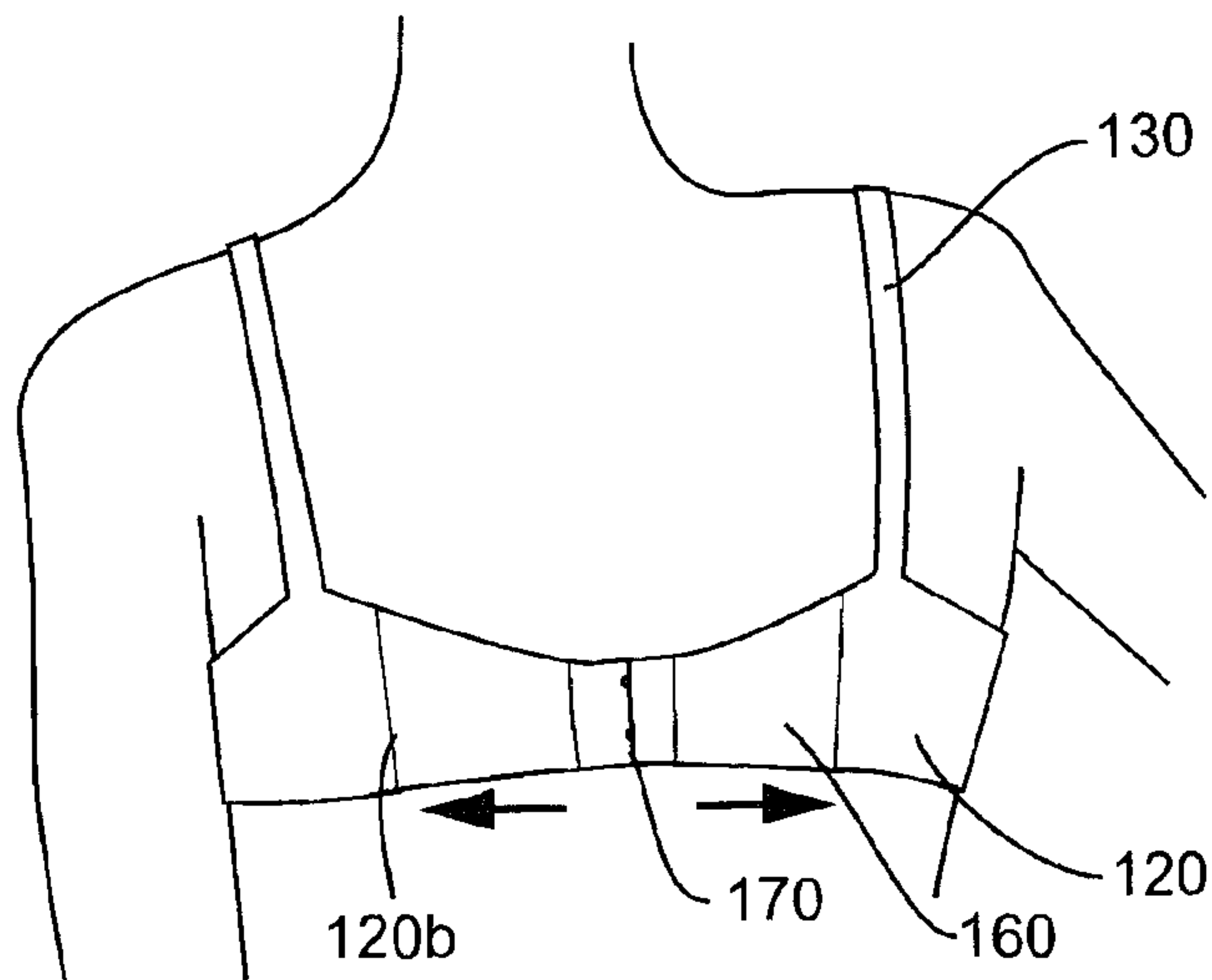


FIG. 8

