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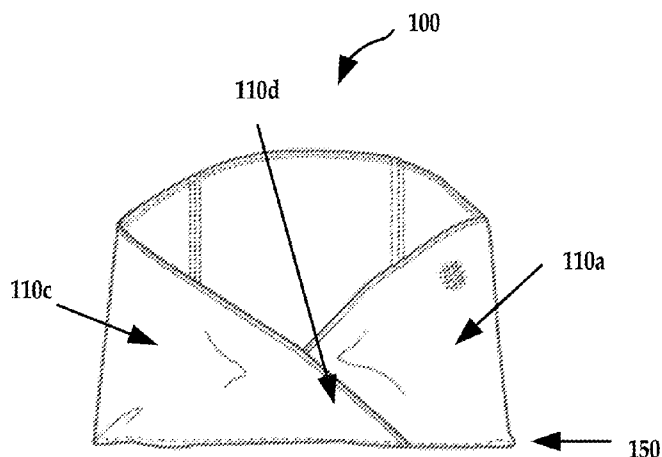


FIG. 2

(57) Abstract: Disclosed is a crossover maternity panel that may be attached to any lower garment worn throughout pregnancy and post-partum body changes. The crossover maternity panel may be a belly panel comprised of a single piece of fabric or multiple pieces connected with seams, and wrap around from the front to the back of the wearer. The portions may overlap in the back of the wearer as they decrease in height to create a crossover triangular section that provides support to the lumbar region of the wearer. The crossover maternity panel may be attached to any lower garment such as a pant, short, skirt, skort, or the like. The flexible and stretchable material of the crossover maternity panel allows the wearer to have support for the enlarged belly, support for increased pressure and laxity on the wearer's sacroiliac joints and lower back, as well as comfort and mobility.

CROSSOVER MATERNITY PANEL

BACKGROUND OF THE INVENTION

Field of the Invention

[001] The present invention relates generally to a garment worn during different stages of pregnancy and post-partum body changes.

Background

[002] The shape and weight of a woman's body changes dramatically during, and after pregnancy. In particular, a pregnant woman's belly grows to accommodate the growth of her baby. As a pregnant woman's baby grows, its weight pushes outward and downward in her body. This can cause pressure and discomfort around the woman's lumbar region, including the pelvic area and sacroiliac joints.

[003] Throughout pregnancy, back pain can be a common complaint of pregnant women, and is generally characterized by discomfort in the lower lumbar region. Discomfort in this region may be contributed to loosened ligaments as a result of pregnancy, and movement of the sacroiliac joints.

[004] The sacroiliac joints are weight-bearing joints that distribute weight from the spine to the lower extremities through the hip joints. The human body has two sacroiliac joints (or SI joints), one on the left and one on the right side of the body, that are joined by ligaments. Most body types display a small dimple on each side of the lower back at the SI joint. Generally, this joint moves very little.

[005] For pregnant women, hormonal changes associated with pregnancy may cause a woman's ligaments to become more lax, and her sacroiliac joints to become more relaxed. The softening of the dense ligaments of the SI joints allows the pelvic outlet to expand during childbirth. As a pregnant woman's belly grows, the rib cage expands to make room for the growing fetus, as well as allowing the pelvis to expand in order for the baby to be delivered. However, this increased ligament laxity can cause instability at

the SI joints during later stages of pregnancy and postpartum. After delivery, the woman's body continues its metamorphosis as it reshapes into its normal size over weeks or months. During this time, the SI joints need to continue to be supported. Furthermore, as the belly grows, the woman's center of gravity shifts forward. Many people compensate for this by leaning back, which can also strain the muscles in the lower back and contribute to back pain during pregnancy.

[006] In the prior art, various maternity pants exist that serve to accommodate a woman's growing belly size with a belly panel. The belly panel may cover a portion of a woman's belly, or substantially all of it. However, these belly panels merely serve to allow bottom garments to accommodate a pregnant belly and do not actually provide any support for the belly or relieve any of the pressure on the woman's lumbar region on the back. Maternity belts are available, and are generally much tighter and constricting around and below the belly, and require adjusting. The belts are worn over or under clothing, and are often bulky with straps that may wrap around a woman's belly, they may wrap in between her legs, and are often secured with Velcro, buckles and other closures to secure a tight fit. They are intended for women with severe back pain due to pregnancy.

[007] Accordingly, a need exists for a maternity panel that is attached to any type of lower garment wherein the maternity panel can stretch and grow with a woman's changing body shape throughout pregnancy and postpartum, while also providing lower back support, comfort, and mobility.

SUMMARY OF THE INVENTION

[008] During pregnancy and afterwards, a woman's body changes shape and size dramatically. A pregnant woman slowly develops an oversized load in the front due to the enlarged belly that pulls the pelvis forward and puts stress and load on the lower back. Also, a pregnant woman's body may experience increased laxity that may cause instability in the sacroiliac joints and connecting ligaments.

[009] In embodiments of the present invention, a crossover maternity panel is disclosed that comprises one or more fabric portions that may cover substantially a woman's entire belly in the front to provide for outward and upward stretch and support for the enlarged belly, or may be folded down to provide for under belly support. The panel also wraps around a pregnant woman's enlarged belly and reduces in height in the back of the woman, as each side portion of the panel overlaps and creates a triangular crossover portion that provides additional support to the lumbar region of the wearer.

[0010] As the pregnant belly grows throughout pregnancy, the flexible and stretchable material of the crossover maternity panel stretches forward and outward, while retaining its original shape. The forward stretch of the panel forces the panel to stretch forward. The result is forward compression at the back portion of the panel, with the greatest forward compression occurring within the triangular portion of the panel. This compression provides gentle pressure on the lower back of the wearer as the belly grows which offsets the forward pressure from the baby. The gentle pressure also gives improved holding stability to the sacroiliac joint, providing gentle support, and therefore allowing the wearer to be more comfortable and mobile. In various embodiments, the crossover maternity panel may also be worn with the belly panel folded down to provide front support and lift of the enlarged belly from below.

DESCRIPTION OF THE DRAWINGS

[0011] FIG. 1 illustrates an exemplary front view of one embodiment of a crossover maternity panel.

[0012] FIG. 2 illustrates an exemplary rear view of one embodiment of a crossover maternity panel.

[0013] FIG. 3 is a chart depicting exemplary fabric blends for various embodiments of a crossover maternity panel.

[0014] FIG. 4 illustrates an exemplary front view of one embodiment of a pant incorporating a crossover maternity panel.

[0015] FIG. 5 illustrates an exemplary rear view of one embodiment of a pant incorporating a crossover maternity panel.

[0016] FIG. 6 illustrates an exemplary front view of another embodiment of a pant incorporating a crossover maternity panel.

[0017] FIG. 7 illustrates an exemplary rear view of another embodiment of a pant incorporating a crossover maternity panel.

[0018] FIG. 8 illustrates an exemplary front view of a third embodiment of a pant incorporating a crossover maternity panel.

[0019] FIG. 9 illustrates an exemplary rear view of a third embodiment of a pant incorporating a crossover maternity panel.

[0020] FIG. 10 illustrates an exemplary front view of one embodiment of a skirt incorporating a crossover maternity panel.

[0021] FIG. 11 illustrates an exemplary rear view of one embodiment of a skirt incorporating a crossover maternity panel.

[0022] FIG. 12 illustrates an exemplary embodiment of a pregnant woman wearing a pant incorporating a crossover maternity panel.

[0023] FIG. 13 illustrates an exemplary embodiment of a pregnant woman wearing a pant incorporating a crossover maternity panel with the panel folded.

[0024] FIG. 14 illustrates an exemplary embodiment of a pregnant woman wearing a pant incorporating a crossover maternity panel.

[0025] FIG. 15 illustrates an exemplary embodiment of a pregnant woman wearing a pant incorporating a crossover maternity panel.

[0026] FIG. 16 illustrates exemplary resistance test results for a crossover maternity panel.

DETAILED DESCRIPTION

[0027] In the drawings, FIG. 1 illustrates an exemplary front view of one embodiment of a crossover maternity panel 100 (also referred to as a crossover belly panel 100). The crossover maternity panel 100 may be manufactured from a flexible, stretchable fabric material capable of being expanded and stretched to be firmly but comfortably worn around the abdomen of a woman during pregnancy or postpartum approximately at the waist. The fabric may also be antimicrobial and/or moisture wicking. The crossover maternity panel 100 may be worn as a standalone garment, or may be attached to any type of lower garment that a woman would wear, including, but not limited to, pants of any length or fabric, jeans, capri, shorts, leggings, active wear including active pants, skirt, skort, or hosiery.

[0028] The crossover belly panel 100 may be manufactured from a double ply (or double layer) of fabric material that stretches with the body as it changes through pregnancy and afterwards, yet still substantially maintains its elasticity and shape. The crossover belly panel 100 may further be comprised of one or more fabric portions 110a, 110b, and 110c. Each of these fabric portions may be approximately rectangular in shape, or have a curved top edge and/or bottom edge at the waist 150. The fabric portions may be connected to each other with a seam, such as a flatlock seam or princess seam. The waist 150 of the crossover maternity panel 100 may be defined by a seam, a hemline, a fold in the fabric of the garment, a change in pattern, design or color of the garment, or by any other means. In exemplary embodiments, the waist 150 may range from approximately 8-26 inches across when the crossover maternity panel 100 is laid on a flat surface. Although three fabric portions are depicted here, fewer or more fabric portions may also be utilized.

[0029] In various other embodiments, the crossover belly panel 100 may be manufactured from seamless fabric. The crossover belly panel 100 may be manufactured from a single piece of circularly knitted fabric such as a single knit or double knit. In one embodiment, the crossover belly panel 100 may be manufactured

using an electronic circular knitting machine or electronic warp knitting machine for seamless products, such as the single jersey, double jersey, or warp seamless machines produced by Santoni S.p.A. of Brescia, Italy. The knitting machine may have a cylinder having various shapes and properties. The cylinder may also allow the use of different fabrics, yarn types, needles, and knitting structures.

[0030] The crossover belly panel 100 may be manufactured such that one size fits most users, although two or more different sizes may also be provided for different sizes of women. Sizes may be designated by numbers or letters. For example, the garment may be available in different sizes, such as sizes 0-4, wherein size 0 is the smallest available garment with the smallest measurement and size 4 is the largest garment with the largest measurement. Alternatively, sizes may be designated by letters such as "XS" indicating an extra small garment, "S" for a small garment, "M" indicating a medium sized garment, "L" indicating a large sized garment, and "XL" indicating an extra large sized garment. A crossover belly panel 100 of a single size may fit a particular pregnant woman as her body shape changes throughout her pregnancy and postpartum, such that a woman does not need to purchase different sizes for the different stages of pregnancy and postpartum.

[0031] In exemplary embodiments, the crossover belly panel 100 is of knit fabric, in basic colors typical of bottom-half clothing today such as black, khaki, denim-color blue, grey, and white. The crossover maternity panel 100 may also be made in various and seasonal patterns and colors if desired. The crossover belly panel 100 may also be textured or adorned with any decoration known in the art such as lace, beads, or decorative stitching. The seams of the crossover belly panel 100 may be of the same color as the fabric of the pant, or of a different color. The crossover belly panel 100 may be of the same color or design as the bottom garment it is attached to, or a different color or design.

[0032] In exemplary embodiments, the knit fabric of the crossover maternity panel 100 may be any knit fabric known in the art such as double knit fabric, single knit fabric, baby rib knit, interlock knit, fleece, stretch velvet, or textured novelty knit. In one

embodiment, the knit fabric is jersey fabric. In exemplary embodiments, the crossover belly panel 100 may be made from any fiber content yarn knit into fabric made with a spandex content of between 5%-30%. The remaining 70%-90% of the crossover belly panel 100 may be comprised of cotton, organic cotton, nylon, rayon, or any other suitable material. The flexible, stretchable material of the crossover belly panel 100 may have a fabric density (also sometimes referred to as weight) ranging from 130 grams/square meter to 350 grams/square meter (g/m²). In one embodiment, the crossover belly panel 100 may be of a stretchable, knit nylon/spandex (elastane) blend. The knit nylon/spandex blend may include 70-95% nylon and 5-30% spandex. In various other embodiments, the fabric for the crossover belly panel 100 may be a blend of any of cotton, organic cotton, spandex, or nylon. Other suitable fabrics may also be used such as polyester, lyocel, or rayon (polyamide or viscose). FIG. 3 depicts a chart showing various other material blends and fabric densities of embodiments of the crossover belly panel 100.

[0033] The crossover belly panel 100 may range from approximately 8 inches to 16 inches in height 130 at the front of the woman's body. The crossover belly panel 100 is of a circumference that will accommodate a pregnant woman of a designated size range, the circumference preferably being between 16 and 52 inches before the fabric is stretched.

[0034] The crossover belly panel 100 may also include a silicone strip or coating applied to an interior area of the garment. The silicone strip or coating may be applied to help the garment adhere or stick to the body of the woman and/or prevent the garment from moving during use. The silicone strip or coating may be applied to the garment using any technique known in the art such as knife coating, dip/immersion coating, rotogravure coating, extrusion, or spraying. The silicone strip or coating may have a height of about ¼ inch to 1 inch.

[0035] FIG. 2 illustrates an exemplary rear view of one embodiment of the crossover maternity panel 100. In the rear view, the crossover portion of the crossover belly panel 100 is shown. The crossover portion may be manufactured such that the portion on the

wearer's left side 110c overlaps over the portion on the wearer's right side 110a. In other embodiments, the portion on the wearer's right side 110a may overlap over the portion on the wearer's left side 110c. The overlapping of the two portions creates a triangular support portion 110d which may fall approximately at the top of the iliac crest (top of pelvis) of the wearer. The overlapping of the two portions may occur at the midline of the back of the wearer. Each portion 110a and 110c may connect with the waist 150 at 1 to 10 inches to the left of the midline of the back of the wearer, and 1-10 inches to the right of the midline of the back of the wearer. The seam at the waist 150 may be strategically located to meet approximately at the iliac crest of the wearer of the garment. While combining seam and paneling with structure and anatomical location, the crossover maternity panel 100 is delicately engineered and manufactured to alleviate strain on the abdomen and lumbar region of the wearer while adding comfort, mobility, and support.

[0036] The combination of a double ply crossover belly panel 100 with deliberately placed structural seams at the waist level 150 on the lower back provide increased comfort and mobility for the wearer due to the combination of the triangular support portion 110d and the elasticity of the fabric blend. The crossover belly panel 100 traces the contour of the lower back of the wearer to sweep up and around to the front of the wearer and top of the belly using the lumbar region as a natural platform. The crossover belly panel 100 may consist of a double layer of fabric to hold the belly with comfort during the physical changes of pregnancy. Thus, the triangular support portion 110d may provide a total of four layers of fabric in the overlapping region to provide additional support to the wearer's lower back. The sides of the crossover belly panel 100 may additionally provide a built-in framework for the expanding belly. Furthermore, a seam at the waist 150 may be in a subtle arc shape instead of strictly horizontal, such that the crossover belly panel 100 may provide additional comfort and support to the wearer's belly, and be in an optimal location for the best common fit. In other embodiments, the crossover belly panel 100 may also be manufactured from a single layer of fabric.

[0037] As the belly area of a pregnant woman grows, the crossover belly panel 110 may also expand due to its stretchable and flexible fabric makeup. The expansion of the crossover belly panel 100 may allow it to become more snug, and provide a lifting feeling to the front of the wearer's belly while also simultaneously providing a subtle inward push against the lumbar region of the wearer at the triangular support portion 110d. This may provide additional support to the wearer's entire abdomen region, including belly and lumbar region, as the belly grows and additional support is needed. Elastic materials necessarily tend to recoil and pull back to their original shape after they are expanded. Thus, as the belly of the wearer expands, the elasticity of the fabric will cause the crossover belly panel 100 to have increased resistance in the triangular support portion 110d, and thus provide more support to the wearer's lower back, including the lumbar region and sacroiliac joints. Furthermore, the resistance is even greater with increasing layers of fabric. Thus, the multiple layers of fabric in the triangular support portion 110d provide even greater resistance in that area and provide additional support in the strategic lower back region for the wearer.

[0038] Resistance tests have shown that the more the fabric stretches, the stronger the resistance is in the fabric. Resistance tests measure resistance in pounds of force per square inch. The triangular support portion 110d has two or more layers of fabric strategically located at the lower lumbar region, which acts as the anchor point at which the wearer receives the most support. Through the physical growth of pregnancy, the wearer receives more support as her belly expands. FIG. 16 shows exemplary test results that demonstrate the increasing support provided by the crossover belly panel 100.

[0039] In other embodiments, the two overlapping portions 110a and 110c may be stitched together at the triangular support portion 110d, such that the triangular support portion 110d is a distinct fabric portion from the remainder of the crossover maternity panel 100. In further embodiments, the upper portion of the fabric portion 110c that comprises the triangular support portion 110d may have a slit to allow for the insertion of another material into the triangular support portion 110d.

[0040] In the drawings, FIG. 4 illustrates an exemplary front view of one embodiment of a maternity pant 400 incorporating a crossover maternity panel 410. The maternity pant 400 comprises an upper portion that is a crossover belly panel 410, and a lower portion 420 that is a pant. In various embodiments, the crossover belly panel 410 and the lower portion 420 may be manufactured from the same material, or a different material. The upper portion 410 may be manufactured similarly to, and have substantially the same properties as, the crossover maternity panel 100 as described above.

[0041] In exemplary embodiments, the lower portion 420 may be a pant of a straight leg fit from the pelvic ring, or drop waist 450 to the ankle 460, such that the circumference of each pant leg is uniform throughout. The lower portion 420 may also be of a tapered leg configuration such that the circumference of each pant leg becomes smaller from the waist 450 to the ankle 460. In other embodiments, the pant legs may be of a skinny, slim fit, bootcut, flare, leggings, or any other configuration. The pelvic ring or drop waist 450 and ankle 460 of the maternity pant 400 may be defined by a seam, a hemline, a fold in the fabric of the garment, a change in pattern, design or color of the garment, or by any other means. The lower portion 420 may range from approximately 25 inches to 48 inches in height 440. The lower portion 420 may be of the same color or design as the upper portion 410, or a different color or design.

[0042] FIG. 5 illustrates an exemplary rear view of one embodiment of the maternity pant 400. In the rear view, the crossover portion of the crossover belly panel 410 is shown. The crossover portion may be manufactured such that the portion on the wearer's left side 410c overlaps over the portion on the wearer's right side 410a. In other embodiments, the portion on the wearer's right side 410a may overlap over the portion on the wearer's left side 410c. The overlapping of the two portions creates a triangular support portion 410d which may fall approximately at the top of the iliac crest (top of pelvis) of the wearer. The seam at the pelvic ring or drop waist 450 may be strategically located to meet approximately at the iliac crest of the wearer of the maternity pant 400.

[0043] In an exemplary embodiment, the maternity pant 400 may have strategically designed flatlock seams tracing the contour of the lower portion 420, then following up

and around to approximately the iliac crest of the wearer, and connecting to the rear of the crossover belly panel 410.

[0044] The crossover belly panel 410 traces the contour of the lower back of the wearer to sweep up and around to the front of the wearer and top of the belly using the lumbar region as a natural platform. The crossover belly panel 410 may consist of a double layer of fabric to hold the belly with comfort during the physical changes of pregnancy. Thus, the triangular support portion 410d may provide a total of four layers of fabric in the overlapping region to provide additional support to the wearer's lower back. The sides of the crossover belly panel 410 may also provide a built-in framework for the expanding belly. Additionally, a seam at the pelvic ring or drop waist 450 may be in a subtle arc shape instead of strictly horizontal, such that the crossover belly panel 410 may provide additional comfort and support to the wearer's belly, and be in an optimal location for the best common fit to accommodate the growth of the pregnant belly.

[0045] As the belly area of a pregnant woman grows, the crossover belly panel 410 may also expand due to its stretchable and flexible fabric makeup. The expansion of the crossover belly panel 410 may allow it to become more snug, and provide a lifting feeling to the front of the wearer's belly while also simultaneously providing a subtle inward push against the lumbar region of the wearer at the triangular support portion 410d. This may provide additional support to the wearer's entire belly region, including lower belly and lumbar regions, as the belly grows and additional support is needed.

[0046] FIG. 6 illustrates an exemplary front view of another embodiment of a maternity pant 600 incorporating a crossover maternity panel 410. The maternity pant 600 comprises an upper portion that is a crossover belly panel 610, and a lower portion that is a pant 620. In various embodiments, the crossover belly panel 610 and the lower portion 620 may be manufactured from the same material, or a different material. The upper portion 610 may be manufactured similarly to, and have substantially the same properties as, the crossover maternity panel 100 as described above.

[0047] In exemplary embodiments, the lower portion 620 may be of a straight leg fit from the pelvic ring or drop waist 650 to the bottom 660, such that the circumference of

each pant leg is uniform throughout. The lower portion 620 may also be of a tapered leg configuration such that the circumference of each pant leg becomes smaller from the pelvic ring or drop waist 650 to the bottom 660. In other embodiments, the pant legs may be of a slim fit, leggings, or any other configuration. The pelvic ring or drop waist 650 and bottom 660 of the maternity pant 600 may be defined by a seam, a hemline, a fold in the fabric of the garment, a change in pattern, design or color of the garment, or by any other means. The lower portion 620 may be a capri length such that the bottom 660 is placed just above the knee of the wearer, below the knee of the wearer, or at a point between the wearer's knee and ankle. The lower portion 620 may range from approximately 19 inches to 42 inches in height 640.

[0048] FIG. 7 illustrates an exemplary rear view of an embodiment of the maternity pant 600. In the rear view, the crossover portion of the crossover belly panel 610 is shown. The crossover portion may be manufactured such that the portion on the wearer's left side 610c overlaps over the portion on the wearer's right side 610a. In other embodiments, the portion on the wearer's right side 610a may overlap over the portion on the wearer's left side 610c. The overlapping of the two portions creates a triangular support portion 610d which may fall approximately at the top of the iliac crest (top of pelvis) of the wearer. The seam at the pelvic ring or waist 650 may be strategically located to meet approximately at the iliac crest of the wearer of the maternity pant 600.

[0049] FIG. 8 illustrates an exemplary front view of another embodiment of a maternity pant 800 incorporating a crossover maternity panel 810. The maternity pant 800 comprises an upper portion that is a crossover belly panel 810, and a lower portion 820 that is a short pant. In various embodiments, the crossover belly panel 810 and the lower portion 820 may be manufactured from the same material, or a different material. The upper portion 810 may be manufactured similarly to, and have substantially the same properties of the crossover maternity panel 100 as described above.

[0050] In exemplary embodiments, the lower portion 820 may be of a straight leg fit from the pelvic ring or drop waist 850 to the bottom 860, such that the circumference of each pant leg is uniform throughout. The lower portion 820 may also be of a tapered leg

configuration such that the circumference of each pant leg becomes smaller from the pelvic ring or drop waist 850 to the bottom portion 560. In other embodiments, the pant legs may be of a slim fit, leggings, or any other configuration. The pelvic ring or drop waist 850 and bottom 860 of the maternity pant 800 may be defined by a seam, a hemline, a fold in the fabric of the garment, a change in pattern, design or color of the garment, or by any other means. The lower portion 820 may be the length of shorts such that the bottom 860 is placed above the knee of the wearer. The lower portion 820 may range from approximately 4 inches to 36 inches in height 840. The lower portion 820 may be of the same color or design as the upper portion 810, or a different color or design.

[0051] FIG. 9 illustrates an exemplary rear view of an embodiment of the maternity pant 800. In the rear view, the crossover portion of the crossover belly panel 810 is shown. The crossover portion may be manufactured such that the portion on the wearer's left side 810c overlaps over the portion on the wearer's right side 810a. In other embodiments, the portion on the wearer's right side 810a may overlap over the portion on the wearer's left side 810c. The overlapping of the two portions creates a triangular support portion 810d which may fall approximately at the top of the iliac crest (top of pelvis) of the wearer. The seam at the pelvic ring or waist 850 may be strategically located to meet at the iliac crest of the wearer of the maternity pant 800.

[0052] In an exemplary embodiment, the maternity pant 500 may have strategically designed flatlock seams tracing the contour of the pant portion 520, then following up to the iliac crest and connecting to the rear of the crossover belly panel 510. The crossover belly panel 810 traces the contour of the lower back of the wearer to sweep up and around to the front of the wearer and top of the belly using the lumbar region as a natural platform. The crossover belly panel 810 may consist of a double layer of fabric to hold the belly with comfort during the physical changes of pregnancy. Thus, the triangular support portion 810d may provide a total of four layers of fabric in the overlapping region to provide additional support to the wearer's lower back. The sides of the crossover belly panel 810 may also provide a built-in framework for the expanding belly. Additionally, a seam at the pelvic ring or drop waist 850 may be in a

subtle arc shape instead of strictly horizontal, such that the crossover belly panel 810 may provide additional comfort and support to the wearer's belly, and be in an optimal location for the best common fit.

[0053] FIG. 10 illustrates an exemplary front view of another embodiment of a maternity garment 1000 incorporating a crossover maternity panel 1010. The maternity garment 1000 comprises an upper portion that is a crossover belly panel 1010, and a lower portion 1020 that is a skirt. In various embodiments, the crossover belly panel 1010 and the lower portion 1020 may be manufactured from the same material, or a different material. The upper portion 1010 may be manufactured similarly to, and have substantially the same properties as, the crossover maternity panel 100 as described above.

[0054] In exemplary embodiments, the lower portion 1020 may be a skirt of any shape from the pelvic ring or drop waist 1050 to the bottom 1060. The skirt may be of a straight fit, such that the circumference from the pelvic ring or drop waist 1050 to the bottom 1060 is uniform throughout. The skirt may also be of an A-line shape, flare, or any other shape. The pelvic ring or drop waist 1050 and bottom 1060 of the maternity garment 1000 may be defined by a seam, a hemline, a fold in the fabric of the garment, a change in pattern, design or color of the garment, or by any other means. The skirt may also be of any length from above the knee of the wearer to below the ankle of the wearer. The crossover belly panel 1010 may be of the same color or design as the lower portion 1020, or a different color or design. When the lower portion 1020 is a skirt, the skirt may be seamless, or have one or more seams running vertically along the length of the skirt.

[0055] FIG. 11 illustrates an exemplary rear view of one embodiment of the maternity garment 1000. In the rear view, the crossover portion of the crossover belly panel 1010 is shown. The crossover portion may be manufactured such that the portion on the wearer's left side 1010c overlaps over the portion on the wearer's right side 1010a. In other embodiments, the portion on the wearer's right side 1010a may overlap over the portion on the wearer's left side 1010c. The overlapping of the two portions creates a triangular support portion 1010d which may fall approximately at the top of the iliac

crest (top of pelvis) of the wearer. The seam at the pelvic ring or waist 1050 may be strategically located to meet approximately at the iliac crest of the wearer of the maternity garment 1000.

[0056] The combination of a double ply crossover belly panel 1010 with deliberately placed structural seams at the pelvic ring or drop waist level 1050 on the lower back provide increased comfort and mobility for the wearer due to the combination of the triangular support panel 1010d and the elasticity of the fabric blend. In an exemplary embodiment, the maternity garment 1000 may have strategically designed flatlock seams tracing the contour of the lower portion 1020, then following up and around to approximately the iliac crest of the wearer, and connecting to the rear of the crossover belly panel 1010.

[0057] The crossover belly panel 1010 traces the contour of the lower back of the wearer to sweep up and around to the front of the wearer and top of the belly using the lumbar region as a natural platform. The crossover belly panel 1010 may consist of a double layer of fabric to hold the belly with comfort during the physical changes of pregnancy. Thus, the triangular support panel 1010d may provide a total of four layers of fabric in the overlapping region to provide additional support to the wearer's lower back. The sides of the crossover belly panel 1010 may also provide a built-in framework for the expanding belly. Additionally, a seam at the pelvic ring or drop waist 1050 may be in a subtle arc shape instead of strictly horizontal, such that the crossover belly panel 1010 may provide additional comfort and support to the wearer's belly, and be in an optimal location for the best common fit.

[0058] FIG. 12 illustrates an exemplary embodiment of a pregnant woman wearing a maternity pant 400. FIG. 13 illustrates an exemplary embodiment of a pregnant woman wearing a maternity pant 400 with the crossover belly panel 410 folded down. In this configuration, the folded layers of the crossover belly panel 410 provide additional support from below the belly, while also maintaining the support on the wearer's lumbar region in the back. FIGS. 14 and 15 illustrate an exemplary embodiment of a woman in later stages of pregnancy wearing a maternity pant 400. The figures illustrate

the stretch of the crossover belly panel 410 as the wearer's belly grows into an increasingly swollen belly.

[0059] The above described embodiments are intended to illustrate the principles of the invention, but not to limit its scope. Other embodiments and variations to these embodiments will be apparent to those skilled in the art and may be made without departing from the spirit and scope of the invention as defined in the following claims. It will be further understood that the methods of the invention are not necessarily limited to the discrete steps or the order of the steps described. To the contrary, the present descriptions are intended to cover such alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims and otherwise appreciated by one of ordinary skill in the art.

CLAIMS

WHAT IS CLAIMED IS:

1. A crossover maternity panel made from a flexible and stretchable material, comprising:
 - at least one fabric portion configured to cover a left portion, front portion, and right portion of a wearer's swollen belly;
 - wherein the left portion and right portion decrease in height as they wrap around from the front of the wearer to the back of the wearer, and the left portion crosses over or under the right portion at the midline of the back of the wearer forming a triangular portion.
2. The crossover maternity panel of claim 1, wherein the flexible and stretchable material is a knit fabric.
3. The crossover maternity panel of claim 2, wherein the knit fabric is a blend comprising nylon and spandex.
4. The crossover maternity panel of claim 2, wherein the knit fabric is a blend comprising cotton and spandex.
5. The crossover maternity panel of claim 1, wherein the flexible and stretchable material is a blend comprising polyester and spandex.
6. The crossover maternity panel of claim 1, wherein the flexible and stretchable material is a blend comprising cotton/polyester and spandex.

7. The crossover maternity panel of claim 1, wherein the flexible and stretchable material is a blend comprising polyester/viscose and spandex.
8. The crossover maternity panel of claim 2, wherein the knit fabric is a blend comprising rayon and spandex.
9. The crossover maternity panel of claim 1, wherein the flexible and stretchable material has a fabric density of 130-350 g/m².
10. The crossover maternity panel of claim 1, wherein the middle front portion has a height ranging from 8 inches to 16 inches.
11. The crossover maternity panel of claim 1, wherein the crossover maternity panel is affixed to a bottom garment, such as a pant, jeans, skirt, short, capri, skorts, leggings, active pant, and hosiery.
12. The crossover maternity panel of claim 11, wherein the triangular portion connects to the bottom garment 1-10 inches to the left of the midline of the back of the wearer, and 1-10 inches to the right of the midline of the back of the wearer.
13. The crossover maternity panel of claim 1, wherein the flexible and stretchable material is moisture wicking.
14. The crossover maternity panel of claim 1, wherein the flexible and stretchable material is antimicrobial.

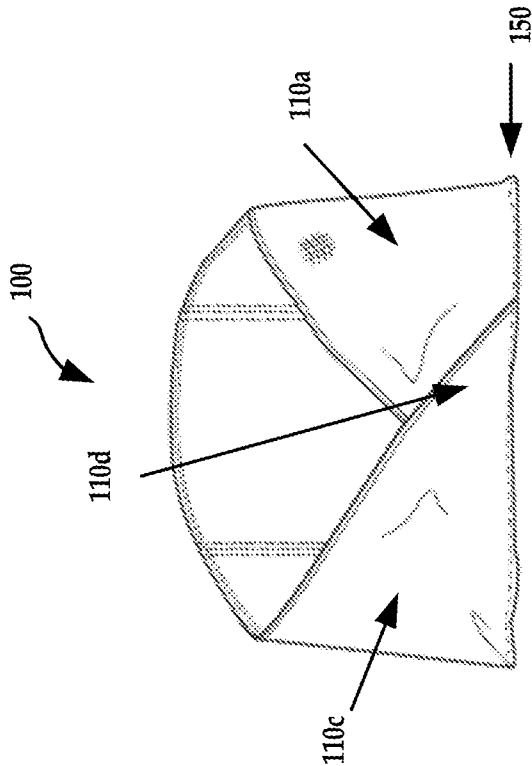


FIG. 2

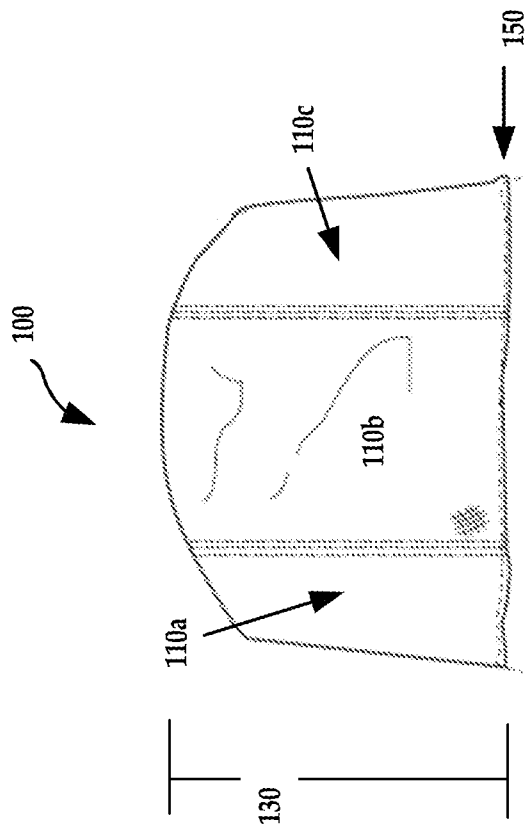


FIG. 1

Spandex Content	Other Fabric Content	Fabric Density
5-30% spandex	70-95% cotton	130-350 g/m ²
5-30% spandex	70-95% cotton/polyester blend	130-350 g/m ²
5-30% spandex	70-95% Nylon	130-350 g/m ²
5-30% spandex	70-95% polyester	130-350 g/m ²
5-30% spandex	70-95% Rayon (viscose or Modal or Bamboo)	130-350 g/m ²
5-30% spandex	70-95% blended polyester/cotton/viscose	130-350 g/m ²
5-30% spandex	70-95% blended polyester/nylon/viscose	130-350 g/m ²
5-30% spandex	70-95% blended polyester/nylon	130-350 g/m ²

FIG. 3

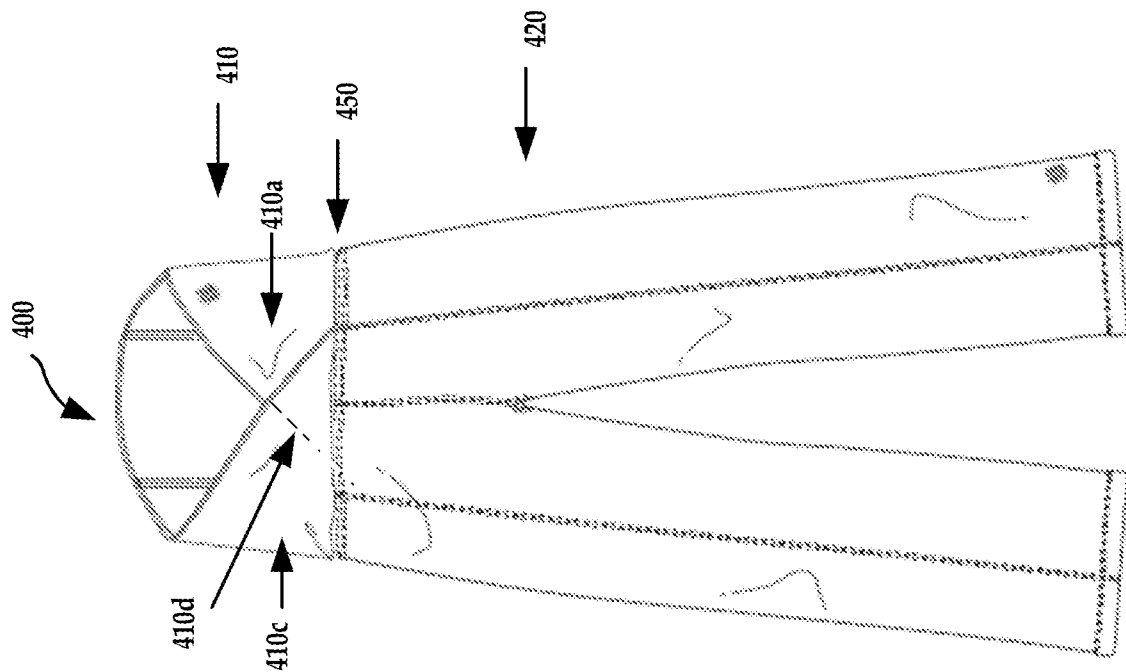


FIG. 5

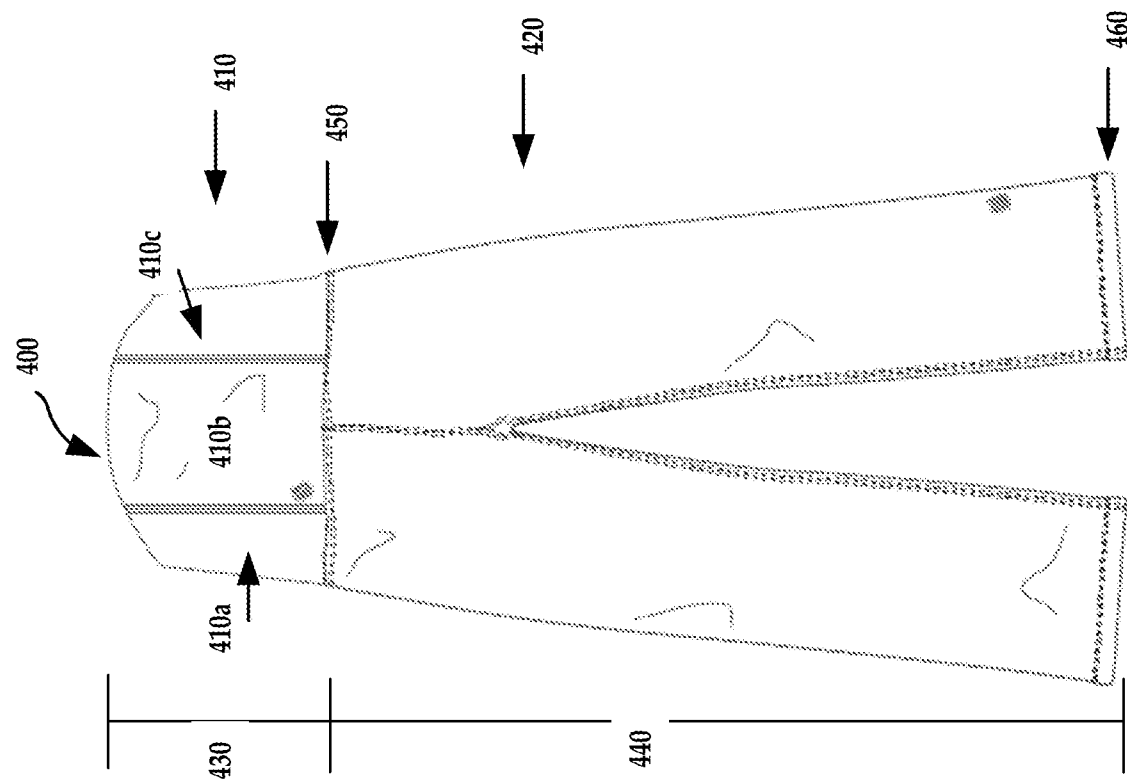


FIG. 4

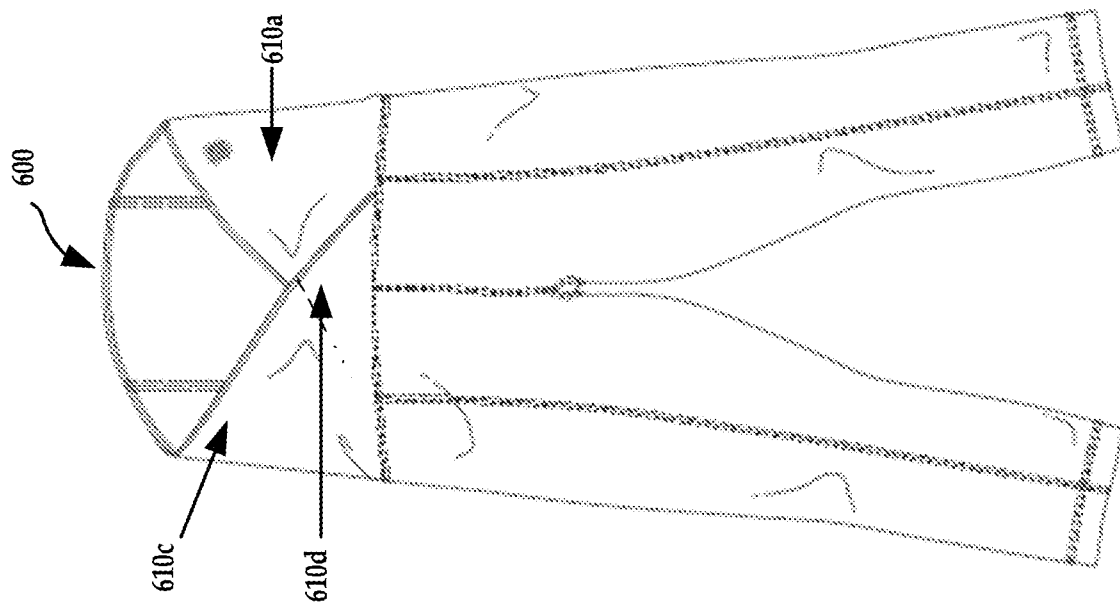


FIG. 7

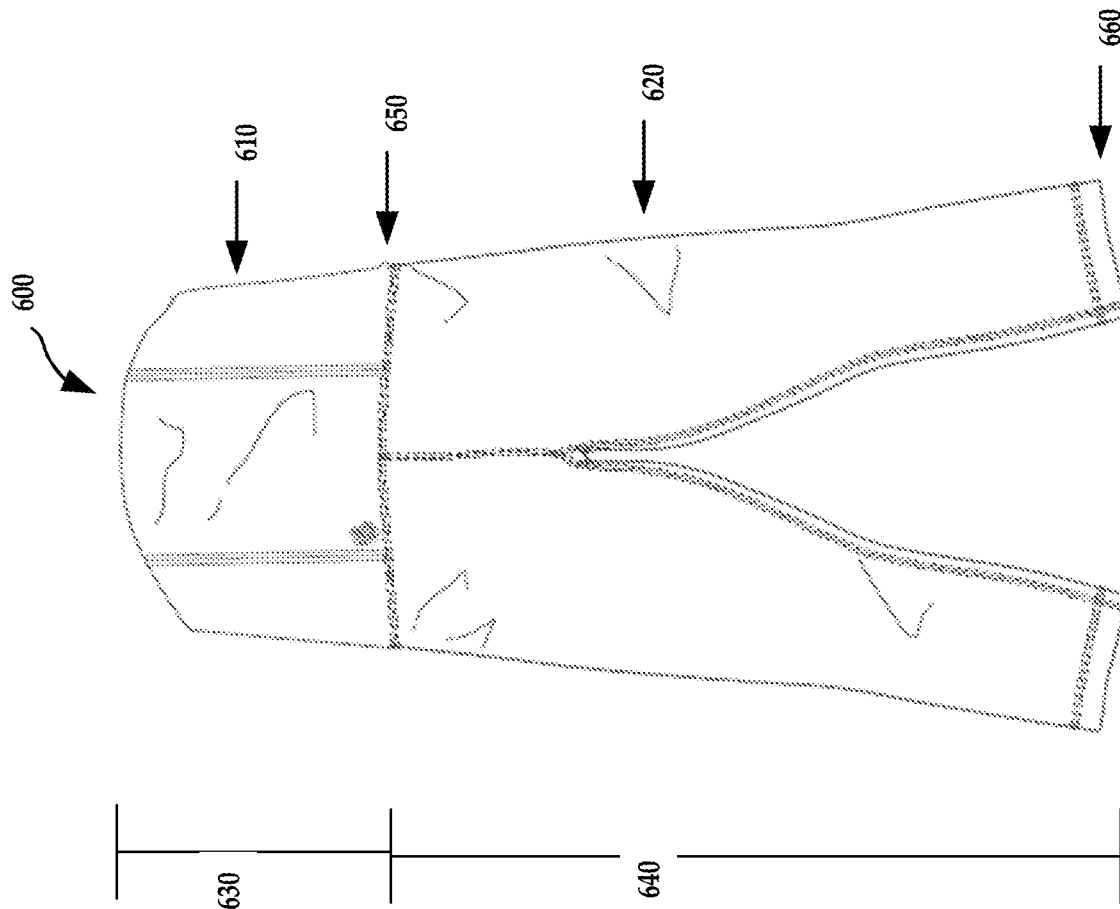


FIG. 6

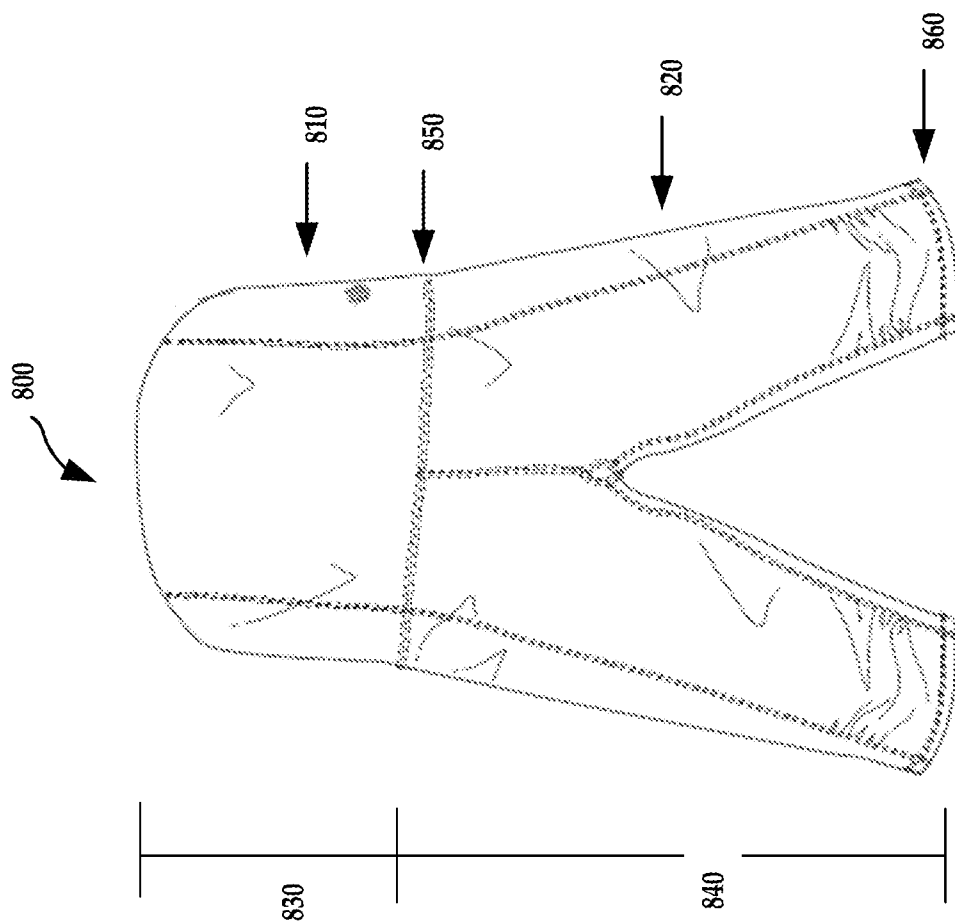


FIG. 8

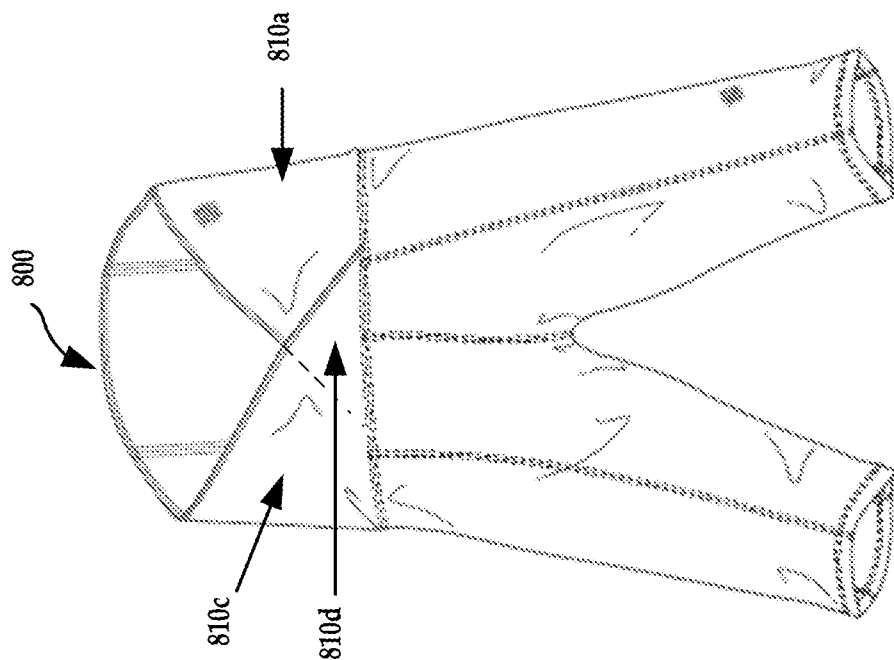


FIG. 9

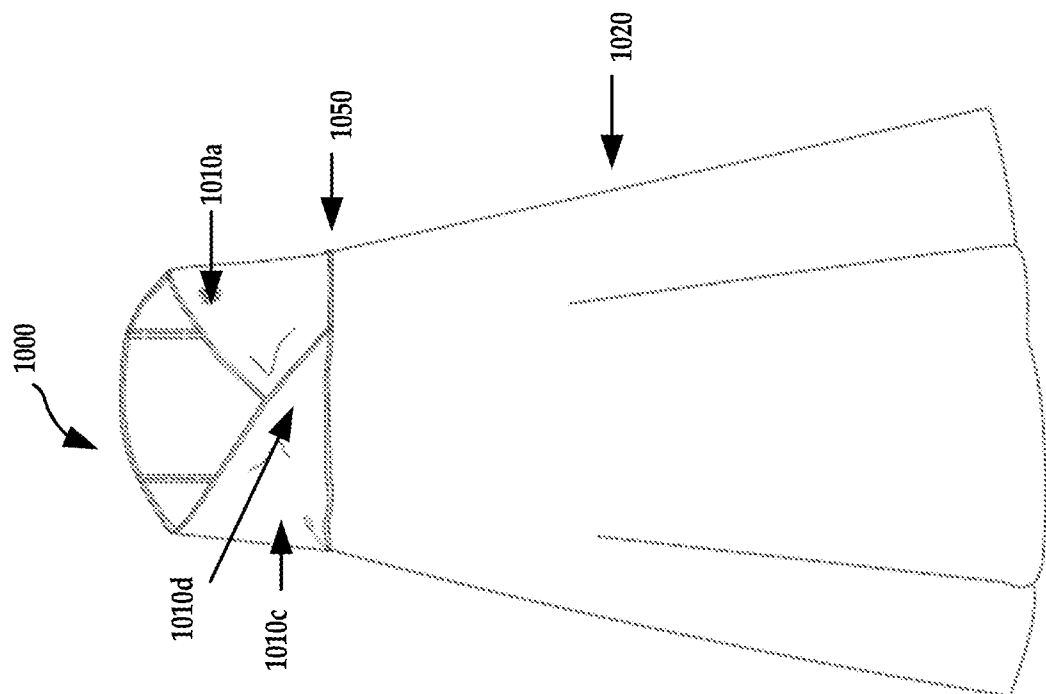


FIG. 11

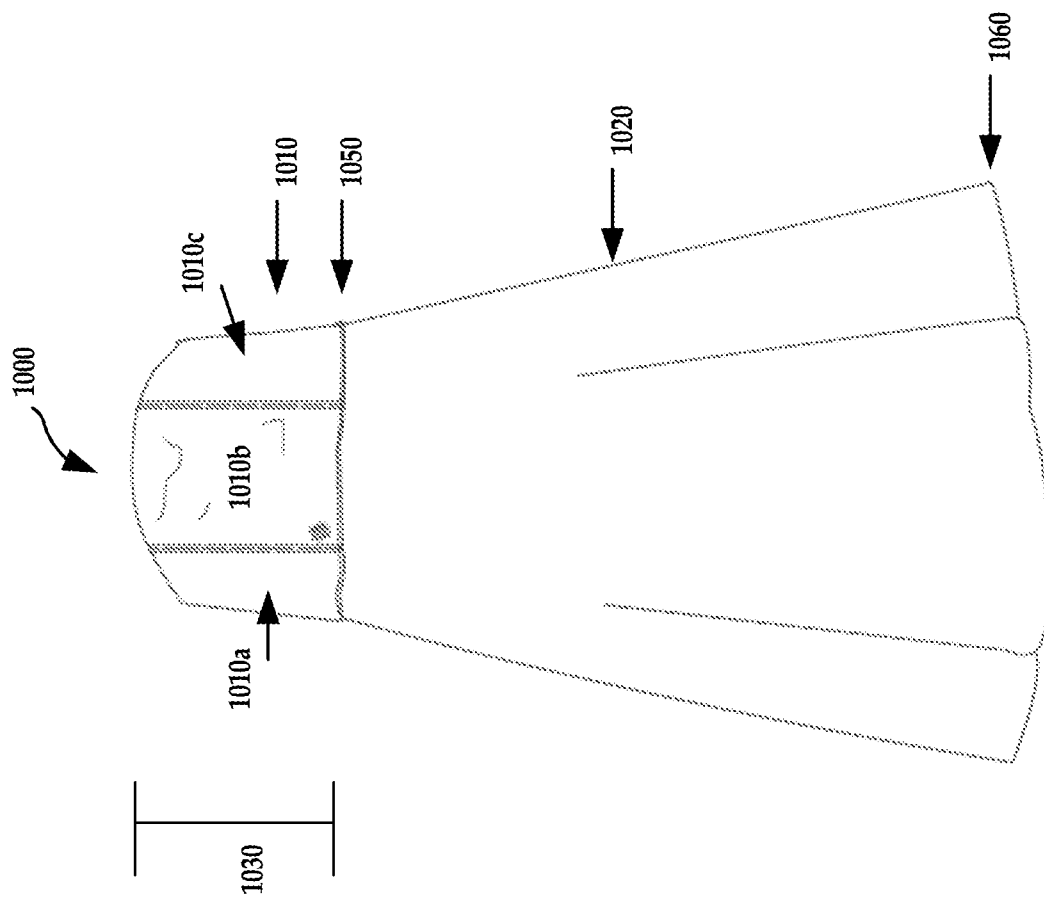


FIG. 10

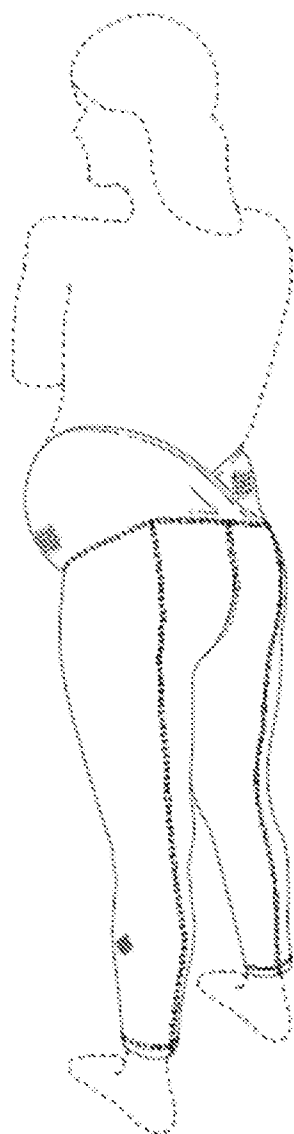


FIG. 12

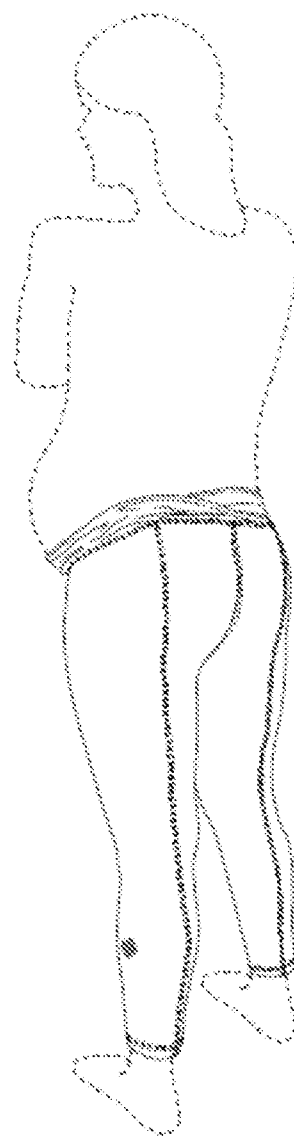


FIG. 13

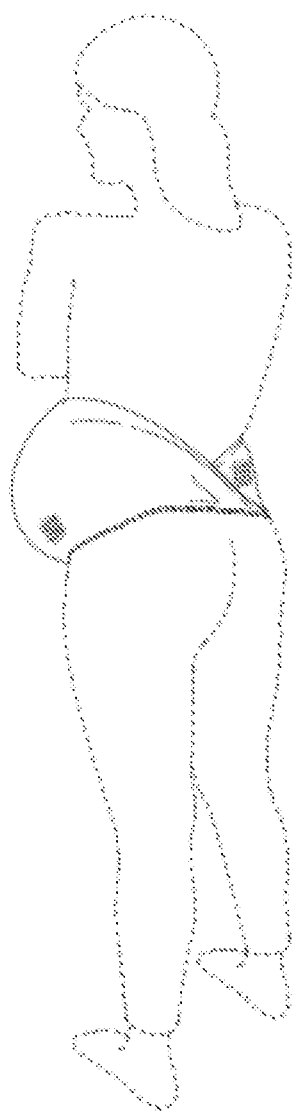


FIG. 14

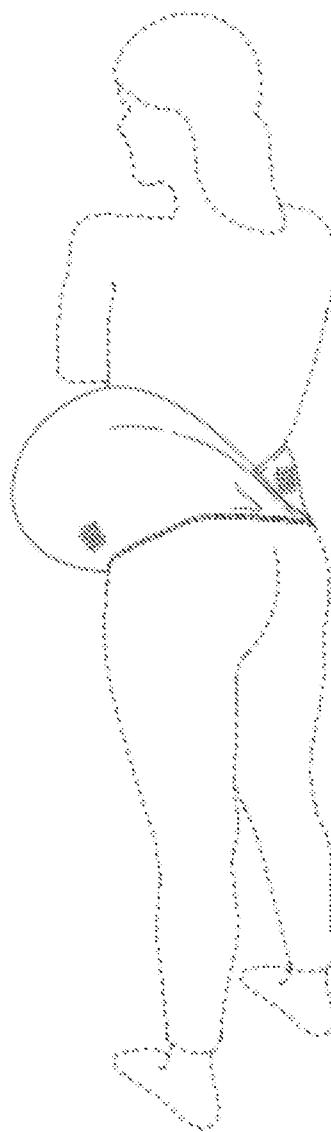


FIG. 15

RESISTANCE READINGS SHOW THE SUPPORT AND STRENGTH AT LOWER BACK

TEST 2

A - Single Layer Test

Testing Resistance of:	
- A to B	92.8
- B to C	91.8
- C to A	94.7

B - Double Layer Test

Testing Resistance of:	
- A to B	93.7
- B to C	95.1
- C to A	98.8

Wrap around pattern piece in Fig. 2

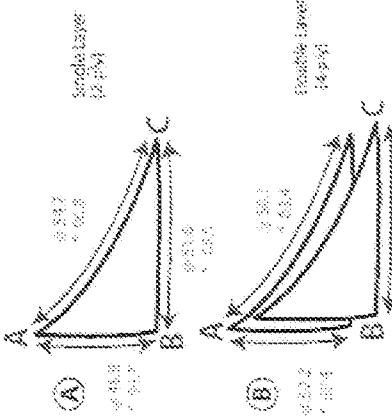


Fig. 2 is an elevation view of the wrap-around pattern as seen in Fig. 1

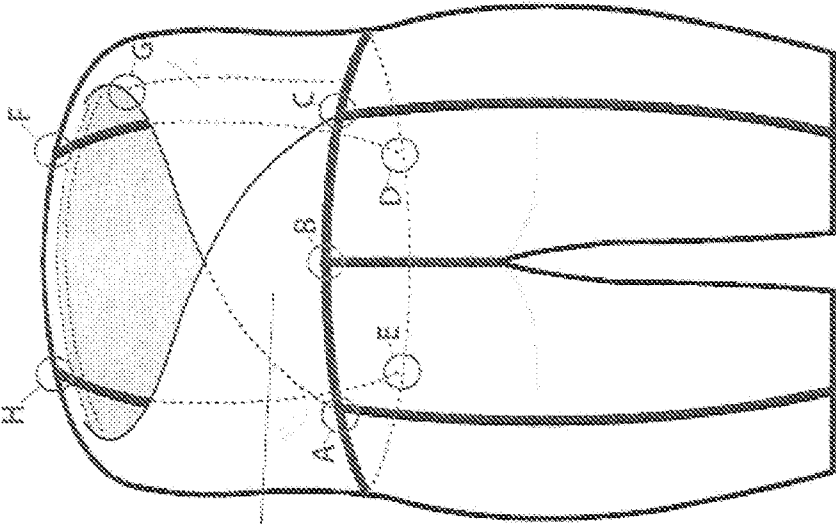


FIG. 1
BACK VIEW

RESISTANCE

- Testing Resistance of Triangle to Princess Seam
- Testing Resistance of Princess Seams to G-Belly
- Testing Resistance of Belly using Princess Seams to Princess Seam inside waist of belly fabric
- Testing Resistance of each side of Single Seam Piece
- Testing Resistance of Knee Panel Triangle

TRIANGLE

- Derived fabric strength at triangle
- Forces support at lower back
- Location of triangle pieces in key

PRINCESS SEAMS

- Princess seams to not fabric elasticity in half
- Add structural dynamic for support architecture

BELLY

- Use generous strength for comfort
- Holds belly in place

TEST 1

TESTING RESISTANCE OF:

- A to B	133.7
- A to C	145.2
- A to D	176.0
- A to E	
- A to F	121.8
- A to G	144.4

FIG. 16

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US14/55693

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A41D 1/00, 1/20; A41F 9/00 (2014.01)

CPC - A41F 9/002, 11/16, 15/005

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)

IPC(8) Classification(s): A41D 1/00, 1/20; A41F 9/00 (2014.01)

CPC Classification(s): A41F 9/002, 11/16, 15/005; USPC Classification(s): 2/311, 338

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

MicroPatent (US Granted, US Applications, EP-A, EP-B, WO, JP, DE-G, DE-A, DE-T, DE-U, GB-A, FR-A);

Google.com, scholar.google.com; DialogPro (Derwent, INSPEC, NTIS, PASCAL, Current Contents Search, Dissertation Abstracts Online, Inside Conferences); KEYWORDS: maternity, pregnancy, belt, panel, cover, garment, girdle, stretch, flex, elastic, knit, fabric, cloth, span

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3,273,563 A (BONANG R. P.) September 20, 1966; figures 1-3; column 2, lines 1-30	1
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Y		2-14
Y	US 8,276,216 B2 (CARNEY I.) October 2, 2012; figure 2; claim 1	2-10
Y	US 2008/0172769 A1 (HERGET J. N.) July 24, 2008; abstract; figures 4A-4B	11-12
Y	US 2013/0097764 A1 (MICHEL J.) April 25, 2013; paragraphs [0108], [0112]	13-14
A	US 4,697,592 A (MADDUX I. H. et al.) October 6, 1987; entire document	1-14
A	US 5,492,496 A (WALKER L. R.) February 20, 1996; entire document	1-14
A	US 6,062,946 A (ROSENBERG J.) May 16, 2000; entire document	1-14

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

* Special categories of cited documents:

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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"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

03 December 2014 (03.12.2014)

Date of mailing of the international search report

16 DEC 2014

Name and mailing address of the ISA/US

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