

May 27, 1941.

L. J. MACLEAR

2,243,531

GARMENT

Filed Dec. 27, 1933

3 Sheets-Sheet 1

FIG. 1

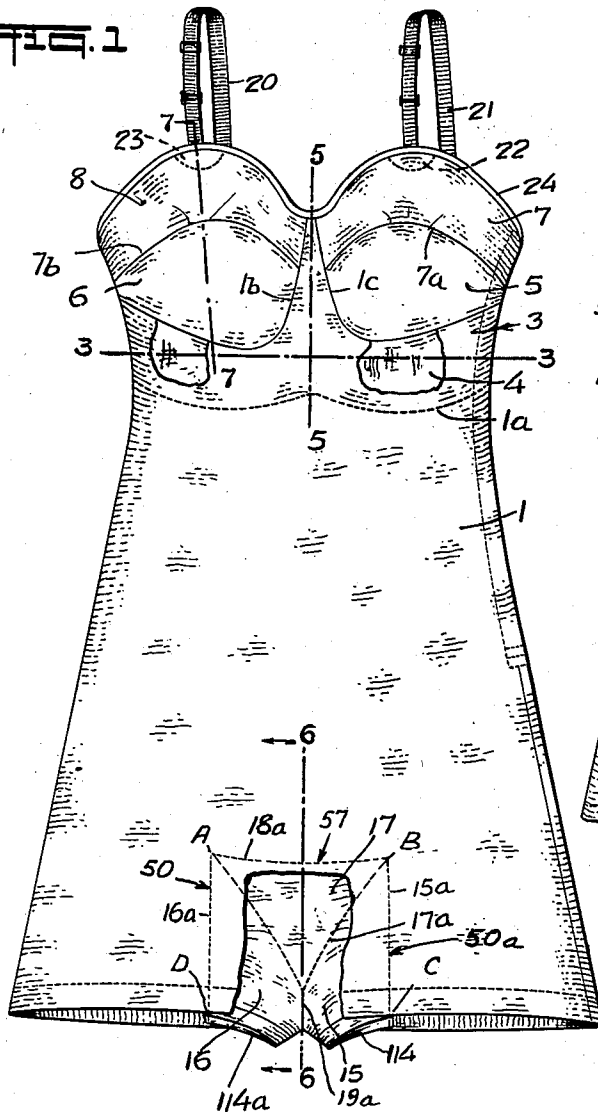


FIG. 2

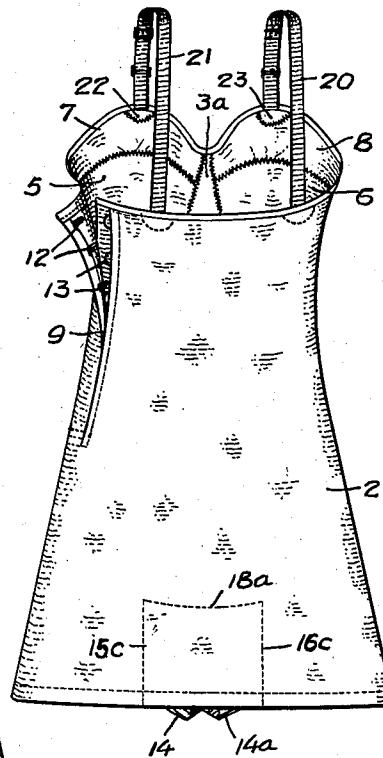
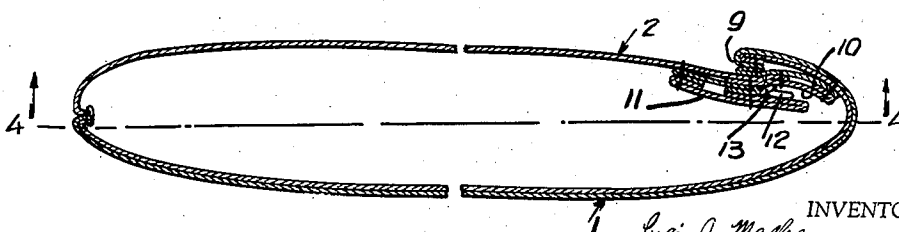


FIG. 3



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May 27, 1941.

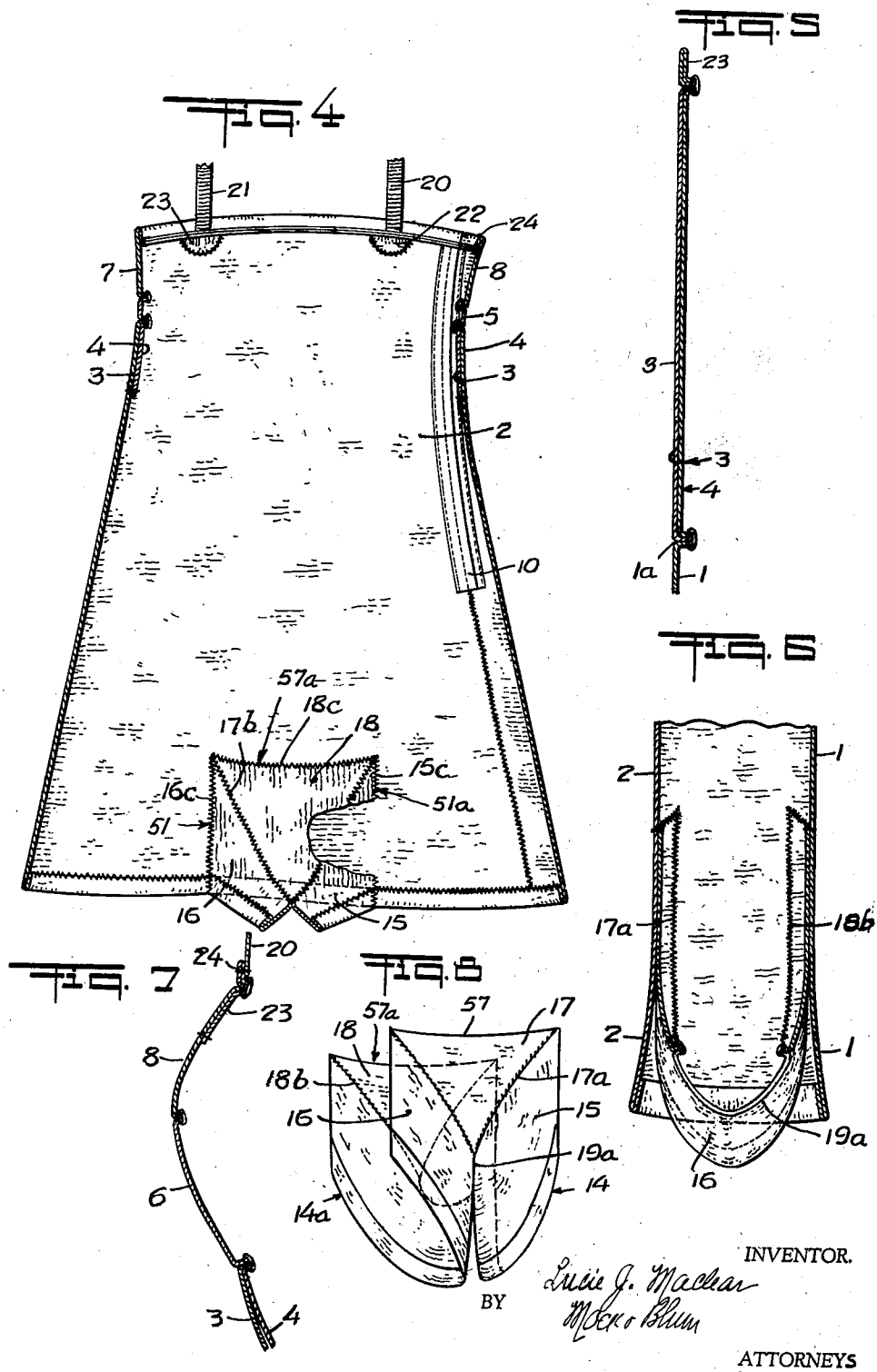
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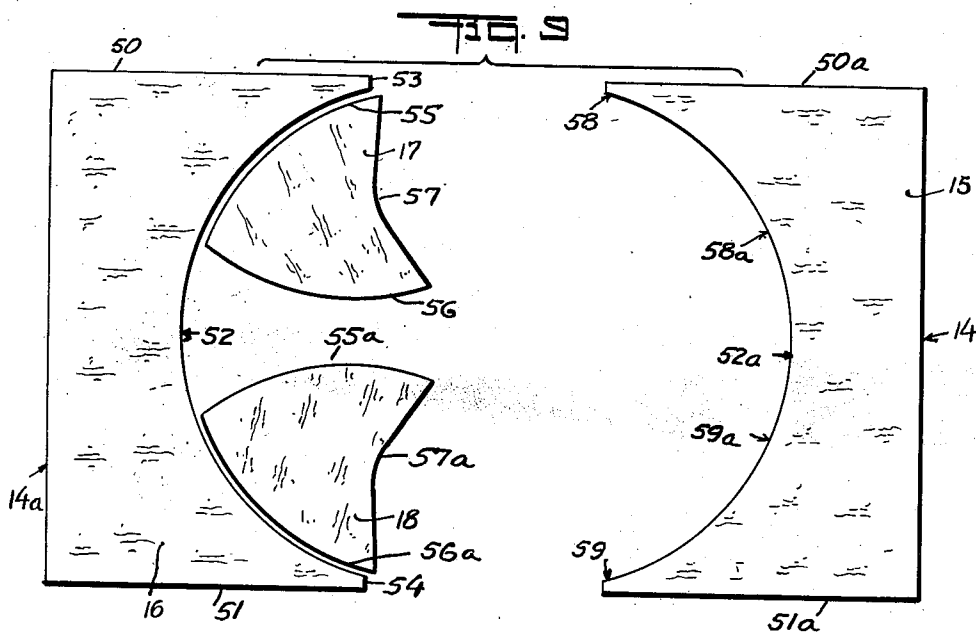
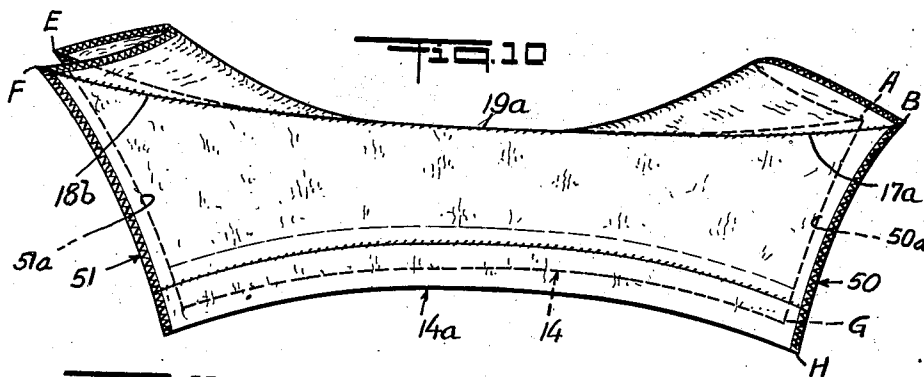
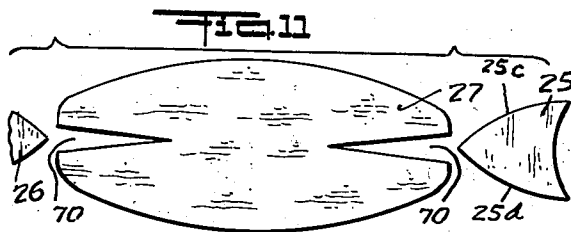
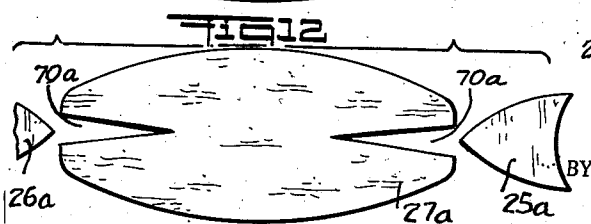
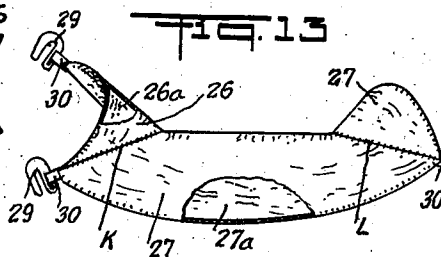
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GARMENT

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3 Sheets-Sheet 3



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2,243,531

GARMENT

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Application December 27, 1938, Serial No. 247,855

3 Claims. (Cl. 2-78)

My invention relates to a new and improved garment.

One of the objects of the invention is to provide a garment having a crotch-portion which is invisible or substantially invisible when the garment is worn, the crotch-portion being then enclosed either wholly or substantially by the skirt portion of the garment.

Another object of the invention is to provide a garment of this type which can be manufactured conveniently and at low cost and which will have the proper fit and hang.

Another object is to provide a fitted crotch-portion in a garment which is free from a centre seam, front and back.

Another object is to provide a garment of the skirt type with a trouser-leg member.

Other objects of my invention will be set forth in the following description and drawings which illustrate preferred embodiments thereof, it being understood that the above statement of the objects of my invention is intended generally to explain same without limiting it in any manner.

Fig. 1 is a front elevation of the improved garment.

Fig. 2 is a rear elevation of Fig. 1.

Fig. 3 is a sectional view on the line 3-3 of Fig. 1.

Fig. 4 is a sectional view on the line 4-4 of Fig. 3.

Fig. 5 is a sectional view on the line 5-5 of Fig. 1.

Fig. 6 is a sectional view on the line 6-6 of Fig. 1.

Fig. 7 is a sectional view on the line 7-7 of Fig. 1.

Fig. 8 is a perspective view showing the crotch-forming parts, detached from the remainder of the garment.

Fig. 9 is a plan view showing the various pieces which are used in forming the crotch-portion of the garment.

Fig. 10 is another perspective view showing the assembled crotch-forming pieces.

Figs. 11 and 12 are plan views showing the pieces or elements which are used for making modified crotch-forming portion of the garment.

Fig. 13 is a perspective view showing the assembly of the elements which are illustrated in Figs. 11 and 12.

The invention has been illustrated in connection with a garment which extends above the waistline and which may be more or less of conventional construction above the waistline.

However the invention applies equally to a

garment which does not extend above the waistline.

The garment, which may be made of any suitable fabric or fabrics, has a front panel 1 and a rear panel 2. An element, which consists of two layers of cloth 3 and 4, is sewed at the front of the garment to the front panel 1, by means of the edge stitches 1a.

Additional fabric members 5 and 6 are sewed to the fabric pieces 3 and 4 at the front of the garment, along the lines of edge stitches 1b and 1c. Additional fabric pieces 7 and 8 are sewed to the fabric pieces 5 and 6 at the front of the garment along the lines of edge stitches 1a and 1b.

This provides the garment with a brassiere or bust-supporting portion above the waistline.

Conventional adjustable shoulder straps 20 and 21 are sewed to the top of the rear panel 2 and they are also connected to the tops of the fabric pieces 7 and 8 by means of reinforcing tabs 23 and 22.

The garment is provided with the usual side seams, one of said seams having an open portion 9, which can be closed by means of ordinary detachable fasteners, such as hooks 12 and eyes 13. The various parts above described extend to the side seams.

The garment is also provided with crotch-forming elements, so as to provide leg-openings 114 and 114a.

Fig. 9 shows the four fabric strips or pieces 15, 16, 17 and 18 which are used for making the crotch-portion of the garment. The pieces 15 and 16 are identical in all respects, and the pieces 17 and 18 are identical with each other.

The piece 16 has straight edges 50, 51 and 14a. The edges 50 and 51 are perpendicular to the edge 14a. The piece 16 also has a curved re-entrant edge 52 of circular shape.

Blunt edges 53 and 54 are provided at the junctions between the edge 52 and the edges 50 and 51. The piece 15 has edges 50a, 51a, and 52a, which respectively correspond to the edges 50, 51, and 52.

The piece 17 has curved edges 55 and 56 which terminate in a point. The edges 55 and 56 are of equal curvature, and said curvature is equal to the curvature of the edge 52. The piece 17 has a third curved re-entrant edge 57 which is of substantially uniform curvature. The piece 18 has edges 55a, 56a and 57a, which correspond respectively to the edges 55, 56 and 57.

In assembling these four pieces, the edge 55 is sewed to the adjacent portion of the edge 52.

The edge 56a is sewed to its adjacent portion of the edge 52. The edge 56 of the piece 17 is then sewed to a portion of the edge 52a, and the edge 55a is then sewed to another portion of the edge 52a.

In Fig. 9, the part of the edge 52a to which the edge 56 is sewed, is indicated by the reference numerals 58 and 58a. The portion of the edge 52a to which the edge 55a is sewed is indicated by the reference numerals 59 and 59a. The edges 55 and 56 of piece 17 are respectively connected to the pieces 15 and 16, by means of stitches 17a which are shown in Fig. 8.

The edges 55a and 56a of the piece 18 are respectively connected to the pieces 15 and 16, by means of stitches 18b. The portions of the edges 52 and 52a which are not sewed to the pieces 17 and 18, are connected to each other by means of stitches 19a. In Fig. 10, the ends of edge 57 are designated by the reference letters A and B, and the ends of edge 57a are designated by reference letters E and F. Fig. 10 also shows edge-stitches applied to edges 50, 50a, 51, 51a, 57 and 57a. These edge stitches reinforce and ornament said edge. The material of pieces 15 and 16 may be doubled at the edges 14 and 14a, so as to provide smooth reinforced edges. This is indicated in Figs. 4 and 8. As this doubling is conventional, it is not described in detail.

In connecting the assembled parts which are shown in Fig. 10, to the panels 1 and 2, one short edge 50 of the piece 16 is connected in vertical relation to the inner surface of the front panel 1 of the garment by means of stitches 16a. The short edge 50a of the piece 15 is connected to the inner face of the front panel of the garment in similar vertical relation by additional stitches 15a.

The second short edge 51 of the piece 16 is sewed in vertical relation to the inner surface of the rear panel 2 by stitches 16c. The second short edge 51a of piece 15 is sewed to the inner surface of rear panel 2 by stitches 15c.

The lines of stitches 16a and 15a may be vertical and parallel to each other, or said lines of stitches may be inclined to each other so that the space between the bottom ends of said lines is greater than the space between their top ends. The same applies to stitches 16c and 15c. When the garment is laid flat, edges 50 and 51 coincide, and edges 51a and 50a coincide.

The concave edge 57 of the piece 17 is sewed to the front panel 1 of the garment by means of stitches 18a and the concave edge 57a of the piece 18 is sewed to the rear panel 2 of the garment by corresponding stitches 18c.

The elements 15 and 16 can be made of any material, knitted or woven. They can be made of woven fabric which is bias-cut so that said elements are stretchable and elastic in a direction parallel to the seam 19a, with little or no stretch in a direction perpendicular to said seam. The elements 17 and 18 are also preferably made of bias-cut woven fabric so that they have little or no stretch in a direction parallel to the transverse seam 19a. Said elements 17 and 18 are stretchable and elastic in a direction perpendicular to seam 19a. The elements 15, 16, 17 and 18 are stretchable and elastic in a direction perpendicular to seams 17a and 18b. Said elements can also be made of knitted material so as to have said characteristics.

While I do not wish to be limited to any particular material for making the crotch-forming elements, it is preferred that the elements 15

and 16 should be substantially stretchable and elastic in the direction of the seam 19a and that they should have little or no stretch in a direction perpendicular thereto and that the elements 17 and 18 should be substantially non-stretchable in the direction of the seam 19a and should be substantially stretchable and elastic in a direction perpendicular to said seam.

The stitches 19a should be of the type to permit the elements 15 and 16 to stitch freely in a direction parallel to said seam. The panels 1 and 2 are preferably made of bias-cut woven fabric or of knitted fabric so that they are stretchable and elastic in a vertical direction and also in a horizontal direction.

When the garment is worn, the crotch-portion is either wholly invisible or it is only slightly visible.

Referring to Figs. 11 and 12, these show fabric pieces or fabric elements 27 and 27a which have notches 70 and 70a. These figures also show auxiliary pieces 25, 26, 25a and 26a. The four pieces 25, 25a, 26 and 26a are identical. The pieces 27 and 27a are also identical. The notches 70 of the piece 27 are opened, so that the edges of said notches coincide with the edges 25c and 25d of the piece 25, and said edges 25c and 25d are then sewed to the edges of the adjacent notch 70. The piece 26 is correspondingly assembled with the piece 27. The pieces 25a and 26a are correspondingly assembled with the piece 27a.

The two composite pieces which are thus formed are sewed to each other by stitches K and L which follow the edges of the notches 70 and 70a. This assembly is shown in Fig. 13. The assembled crotch-forming elements shown in Fig. 13 are provided with tabs 30 which can be connected to hooks 29. The garment is provided with tabs similar to the tabs 30 so that the assembled elements shown in Fig. 13 can be connected to the garment in the manner previously described instead of using stitches.

The embodiment of Figs. 11-13 eliminates the seam 19a.

As shown in Fig. 11, the fabric pieces 27 and 27a have longitudinal edges of convex shape. When the elements 27 and 27a are assembled with the elements 25, 25a, 26 and 26a, said longitudinal edges retain their convex shape.

In the assembly of Fig. 13, the pieces 27 and 27a may be freely stretchable and resilient in a lateral direction, that is, in a direction perpendicular to said convex longitudinal edges. Said pieces 27 and 27a may have little or no stretch in a longitudinal direction. The pieces 25 and 25a may be stretchable and resilient in the transverse direction, and they may have little or no stretch in a longitudinal direction which is generally parallel to the convex edges. However, the invention is not limited to these characteristics of said pieces 25, 25a, 27, and 27a.

In each of the embodiments, the length of the crotch piece of the assembled elements, taken in a direction parallel to the width of the garment, exceeds the width of said crotch piece.

As shown in Fig. 1, the line of stitches or seam 19a is substantially vertical. Hence the crotch portion of the garment shown in Fig. 1 has two-way stretch, since it is stretchable both vertically and horizontally. While the pieces 17 and 18 have little or no vertical stretch, the pieces 15 and 16 have considerable vertical stretch and resilience. Likewise, while the pieces 15 and 16 have little or no stretch in a horizontal direction,

the portions of said pieces 15 and 16 which are adjacent the inclined lines of stitches 17a and 17b are freely stretchable and resilient in a direction perpendicular to said inclined stitches. When the device shown in Fig. 13 is detachably connected to a garment by means of the tabs 30 and the hooks 29, said tabs will be arranged in substantially horizontal pairs, their positions being indicated by the points A and B in Fig. 1. The seams between the main pieces 27 and 27a, and the auxiliary smaller pieces will then correspond to the positions of the seams 17a and 17b. This crotch insert will have little or no vertical stretch, but it will have substantial horizontal stretch and resilience.

For convenience, the pieces 15, 16, 27 and 27a may be designated as the main pieces of the crotch, and the other pieces shown in Figs. 9, 11 and 12 may be designated as the auxiliary pieces.

In the embodiment shown in Fig. 1, the height of the insert 17 is about two-thirds the height of the front wall of the crotch member.

In the embodiment shown in Fig. 13, the height of the insert 25, 25a is a little less than two-thirds the height of the front wall of the crotch member.

I claim:

1. A garment having a skirt portion consisting of a front panel and a rear panel, a strip cut from a flat piece and having two identical triangular notches at opposite ends, a symmetrical substantially triangular insert, the two symmetric edges of which being secured to the side edges of one of said notches, a second similar insert, the symmetric edges of which being secured to the side edges of the other notch, the widths of said inserts being larger than the openings of said notches in flat condition, whereby said strip is bent around a seamless line running from one notch to the other and the two inserts and the strip are assembled to form a closed smoothly curved crotch member, said crotch member being secured to the inside of said skirt portion in a position where the base edge of one triangular insert is adjacent to the central part of said front panel, substantially parallel to the bottom of said panel and at a distance from said bottom,

the base edge of the other insert being adjacent to the central part of said rear panel, substantially parallel to the bottom of said panel and at a distance from said bottom, said crotch member extending downwardly from said base edges about as far as said bottoms, whereby said strip extends from said front panel to said rear panel, its right and left edges being curved to fit the curvature of the wearer's legs.

2. A garment having a skirt portion consisting of a front panel and a rear panel, two identical strips made from material having different elasticity in two perpendicular directions, the higher elasticity being in the longitudinal direction of said strips, said strips being connected to each other at the central part of a corresponding longitudinal edge of each strip, a symmetrical, substantially triangular insert made from material having different elasticity in two perpendicular directions, the two symmetric edges of said insert being secured to two adjacent unconnected ends of said centrally connected strip edges, a second similar insert, the two symmetric edges of which being secured to the two other adjacent unconnected ends of said centrally connected strip edges, whereby said two strips and two inserts are assembled to form a closed, smoothly curved, highly elastic crotch member, said crotch member being secured to the inside of said skirt portion in a position where the base edge of one triangular insert is adjacent to the central part of said front panel, substantially parallel to the bottom of said panel and at a distance from said bottom, the base edge of the other insert being adjacent to the central part of said rear panel, substantially parallel to the bottom of said panel and at a distance from said bottom, and the crotch member extending downwardly from said base edges about as far as said bottoms, whereby said strips extend from said front panel to said rear panel, the right and left edges of said strips being highly elastic and curved to fit the curvature of the wearer's legs.

3. A garment according to claim 2, the strips and inserts being made from bias-cut woven fabric.

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