

July 24, 1951

M. H. BURR

2,561,783

UNDERGARMENT FOR FEMININE WEAR

Filed Oct. 31, 1950

4 Sheets-Sheet 1

Fig. 1.

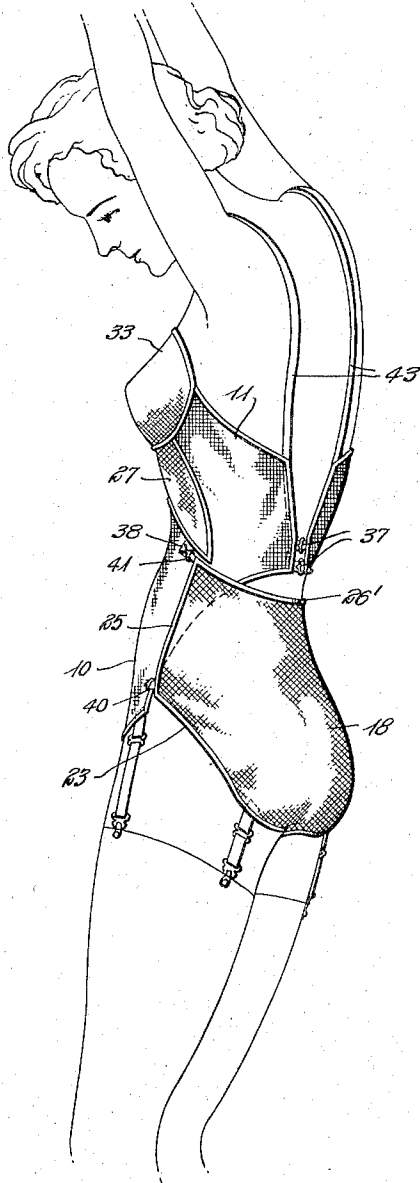
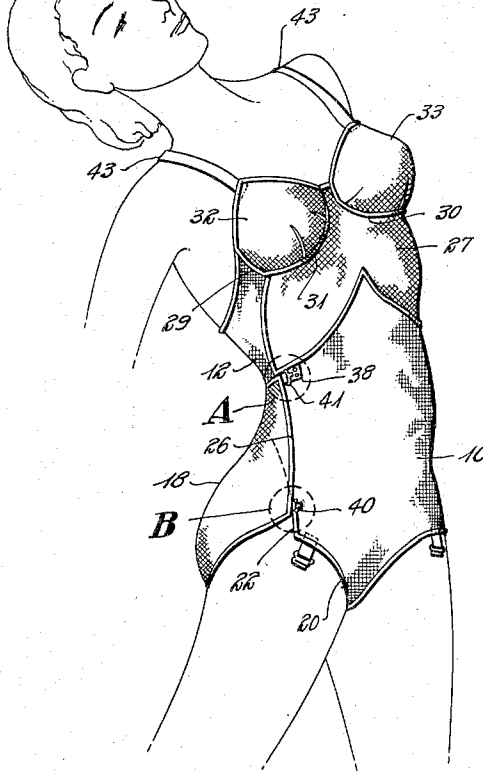


Fig. 2.



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Fig. 3.

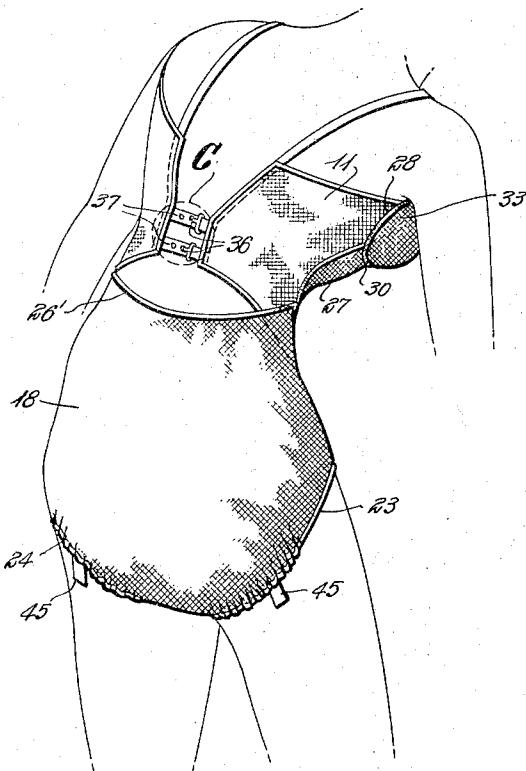


Fig. 4.

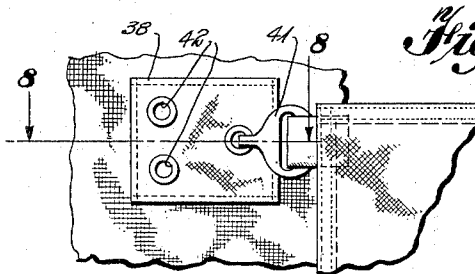
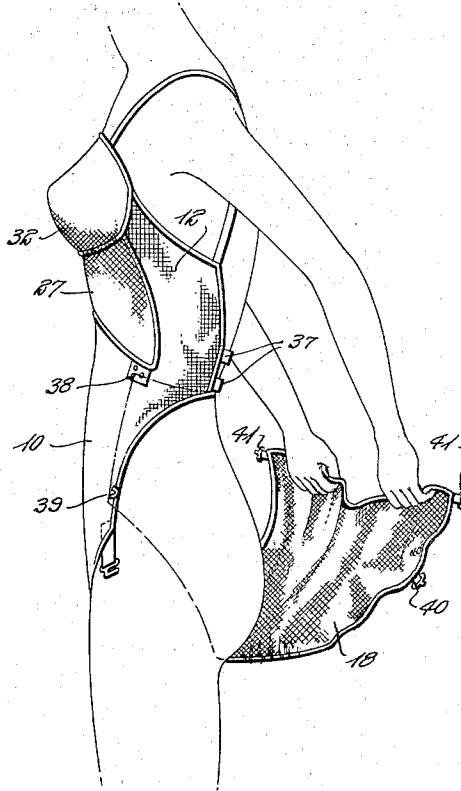
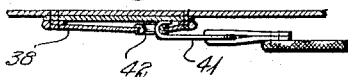


Fig. 7.

Fig. 8.



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Fig. 5.

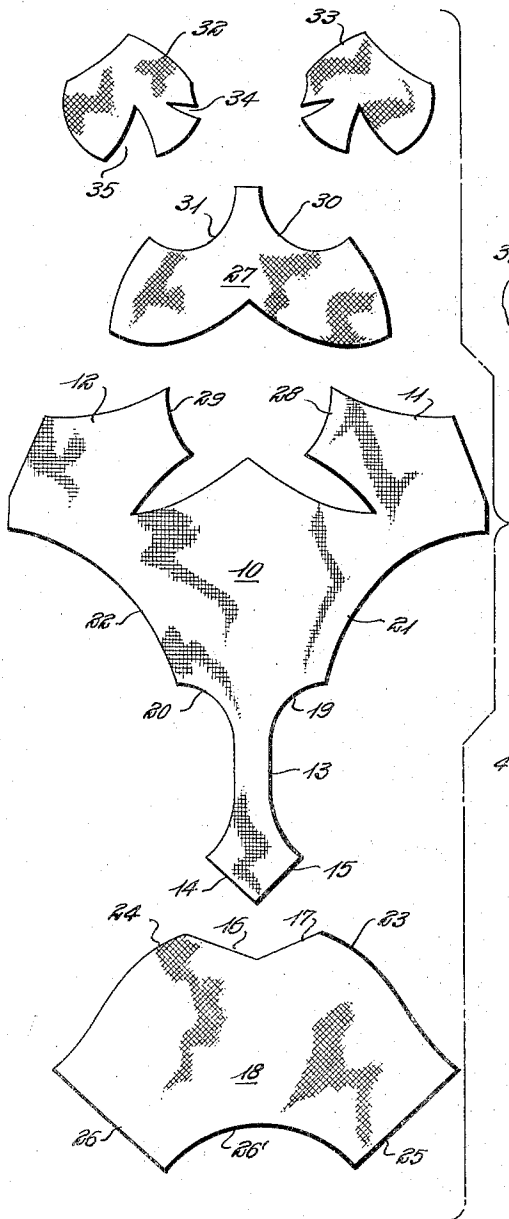
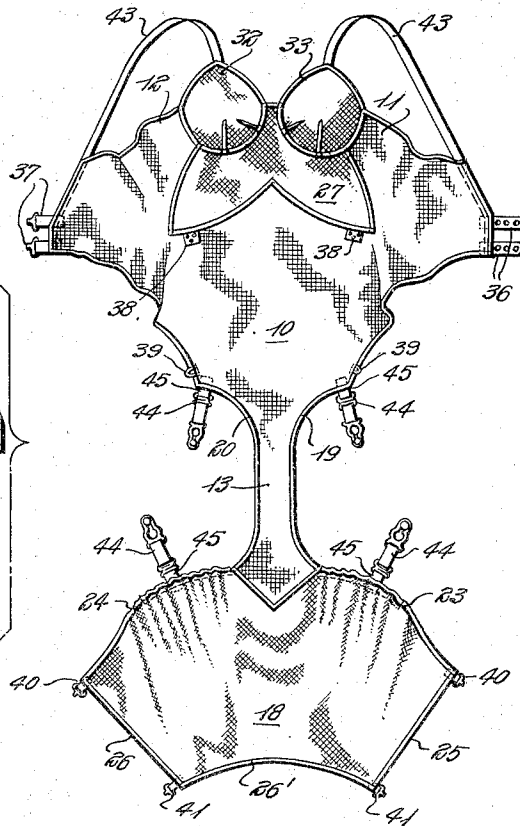


Fig. 6.



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Fig. 9.

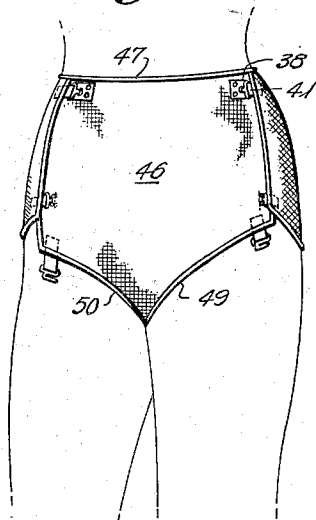


Fig. 10.

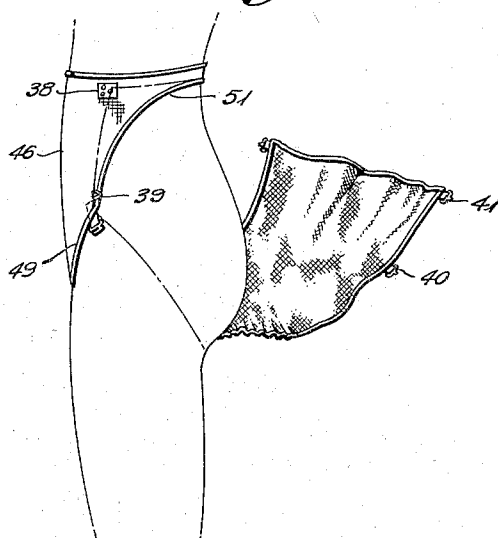
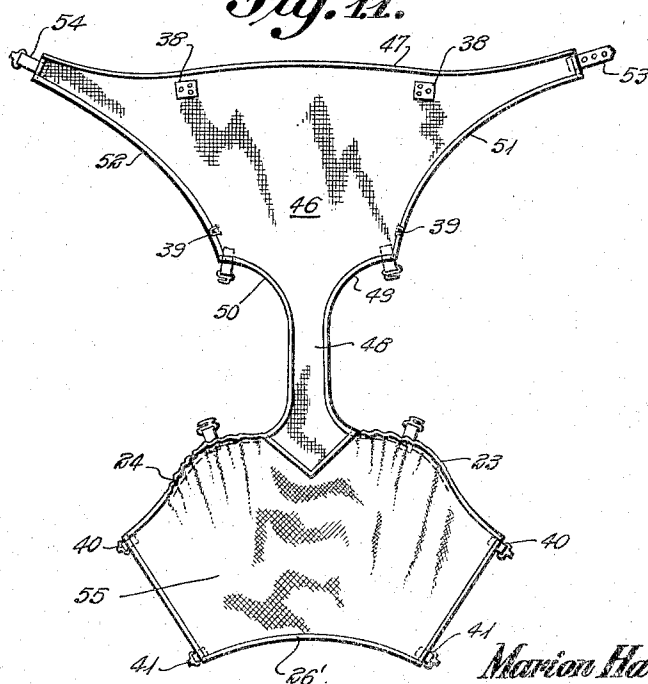


Fig. 11.



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UNITED STATES PATENT OFFICE

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UNDERGARMENT FOR FEMININE WEAR

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Application October 31, 1950, Serial No. 193,091

4 Claims. (Cl. 2-78)

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This present invention relates to an undergarment for feminine wear, and has among its objects an undergarment of such construction and design that the stresses and strains resulting from the movement of the legs and torso of the wearer are transmitted to and absorbed by the garment at the physiologically correct axes for the major body movements, these being in the center of the back at that vertebra immediately below the back chest cage and on the sides at a point immediately above the hip bones transversely aligned through the hip joints. More specifically, the invention contemplates a garment so constructed with fastening elements therefor so related that in either strenuous rapid or slow gentle body movement, there is little disturbance of any portion of the garment, and to provide a garment which maintains its fit and comfort in all positions and contortions of the body and legs, regardless of whether or not stockings are worn in association therewith.

It is a further specific purpose and object of the invention to provide an undergarment having a rear flap seat so constructed and designed as to have a form-fitting contour which materially adds to the comfort and usefulness of the garment.

It is a further object and purpose of the invention to provide an undergarment which may be made from a wide variety of fabrics, so long as the warp and the woof thereof are of a fairly even strain or tension, whereby stress and strain encountered by the garment will be correctly transmitted to those areas through which the axes for the major body movements extend.

Still more specifically, it is the purpose and object of the invention to provide an undergarment which gives great snugness of fit with extreme lightness of construction, and which gives support to the wearer, improving posture and contributing to appearance of the figure.

Still further objects and purposes of the invention reside in the provision of an undergarment capable of mass production at low cost.

Further and more detailed advantages of the invention will become apparent as the description thereof proceeds, which will be given by reference to the accompanying drawings, wherein:

Figure 1 is a view of a garment conforming to one modification of the invention showing a rear side view thereof as it appears on the wearer.

Figure 2 is a front side view of that modification of the invention shown in Figure 1, as it appears on the wearer.

Figure 3 is a back view of that modification of

the invention as shown in Figure 1, as it appears on the wearer.

Figure 4 is a view in side elevation of that modification of the invention shown in Figures 1 to 3, showing the flap seat in open position.

Figure 5 is an exploded view of that modification of the garment illustrated in Figures 1 to 4, showing the contour and cut of the individual pieces of fabric which are joined together in the production of the garment.

Figure 6 is a front elevational view showing the garment conforming to the modification of Figures 1 to 4, with the individual pieces as shown in Figure 5 in fully assembled relationship, ready to be worn.

Figure 7 is a detailed view of one of the top fastener assemblies for the flap seat.

Figure 8 is a cross-sectional view taken along the line 8-8 of Figure 7.

Figure 9 is a front elevational view of the modified form of the invention, susceptible of wear independently of an attached bra.

Figure 10 is a view in side elevation of the modification of Figure 9, showing the flap seat open; and,

Figure 11 is a view of the garment conforming to the modification of Figure 9 shown in assembled form, ready to be worn.

Before referring in detail to the structural elements and their arrangement, it is desired to point out that the undergarment of the present invention has been developed to harmonize with the anatomy of the feminine body, with emphasis placed upon the provision of interengaging fasteners in the areas conforming to the axes about which the major body movements occur. As will be seen by reference to Figure 2, the area "A" indicated by the dotted line circle, surrounds a transverse axis through the body about which forward and backward bending largely take place. Thus that portion of the garment lying in this area partakes of minimum displacement during the various movements of the body. Area "B," as shown in Figure 2, embraces the axis about which the legs swing, and that portion of the garment within this area likewise undergoes minimum displacement during body and leg movements. The area "C," surrounded by the dotted line circle in Figure 3, embraces the axes about which most of the major body movements occur, and thus elements of the garment positioned within this area likewise undergo minimum displacement during movements of the wearer.

The elements of the garment can perhaps be best initially described by reference to Figures 5

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and 6, wherein the front or abdominal portion of the garment is indicated generally at 10. In the modification of Figures 5 and 6, the front or abdominal portion 10 is provided with side portions 11 and 12, and carries as a continuation thereof the relatively narrow crotch portion 13 which terminates in the angularly disposed edges 14 and 15 which are adapted to be sewn to the complementary edges 16 and 17 of the flap seat portion indicated generally at 18. It will be observed that the angularly disposed edges 14 and 15 of the crotch portion 13 intersect at a smaller angle than do the angularly disposed edges 16 and 17 of the flap seat portion 18. The arrangement is such that when edges 14 and 15 are sewn to edges 16 and 17, the seat portion 18 is cupped in somewhat along the seam.

Returning to the front or abdominal portion 10 it will be observed that it flares outwardly for a short distance from the crotch portion 13 along the curved lines 19 and 20. From the outer ends of the curved lines 19 and 20 the portion 10 continues to flare outwardly along curved lines 21 and 22 which, it will be observed, are of a lesser degree of curvature than lines 19 and 20. The opposite sides of the abdominal portion 10 continue to flare outwardly or diverge to the point of maximum transverse dimension of the abdominal portion. This dimension is predetermined in relation to the size of the particular garment, so as to be adequate to substantially completely encircle the torso of the wearer.

Again referring to the flap seat portion 18, it will be observed that what becomes the lower edges of the opposite halves thereof curve outwardly from their points of attachment to the crotch portion 13, as indicated at 23 and 24. Thus the bottom edges 23 and 24 of the flap seat diverge outwardly along the curved lines to the point of the maximum transverse dimension of the flap seat portion 18, and from that point the flap seat portion 18 is defined by the converging straight lines 25 and 26, which become the sides of the flap seat when worn. The top edge of the flap seat 26' is cut on a curve for a purpose that will hereinafter more fully appear. The lower chest bridging portion indicated generally at 27 is adapted to be received in cut out portions of and sewn to the abdominal portion 10 between the side portions 11 and 12 thereof, which are opened to receive the opposite edges of the lower chest bridging portion 27. When the lower chest bridging portion 27 is sewn in position with the abdominal portion 10, the curved portions 28 and 29 of the side portions 11 and 12 of the abdominal portion 10 constitute respectively continuations of the curved portions 30 and 31 of the lower chest bridging portion 27, to thereby provide substantially semi-circular lines of attachment for receiving the respective breast cup portions 32 and 33 which are provided with suitable cut-outs or gores indicated at 34 and 35 to permit gathering on attachment to the abdominal portion 10 and lower chest bridging portion 27 so as to yield breast cups giving the desired uplift effect.

By reference to Figure 6 showing all of the elements in assembled relation with the garment ready for wear, it will be noted that fastener tabs 36, each provided with a plurality of spaced openings, are attached to one side of the abdominal portion 10 along the line of its maximum transverse dimension, and that complementary fastener hooks 37 are attached to the abdominal portion 10 at the opposite side thereof along the line of its maximum transverse dimension. Duplicate

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fastening elements 38, each arranged for selective attachment at any one of several points are affixed to the abdominal portion 10, at points substantially vertically disposed from the points of juncture of the curved lines 19 and 20 respectively with the curved lines 21 and 22. A second set of duplicate fastener elements 39 are affixed to the abdominal portion 10 adjacent the side edges thereof, and near the points of juncture respectively of the curved lines 19 and 20 with the curved lines 21 and 22. Duplicate fastener hooks 40 are carried at the opposite sides of the rear flap 18, at the point of its maximum transverse dimension. A further set of duplicate fastener elements 41 are carried at the opposite sides of the rear flap 18 adjacent the upper edge 26' thereof. The arrangement is such that fastener elements 41 on the rear flap 18 interengage with a selected opening 42 in the fastener members 38 secured to the abdominal portion 10 as above described, and the fastener elements 40 on the rear flap 18 interengage with the fastener members 39 mounted on the abdominal portion 10.

While not essential, it has been found desirable to incorporate a section of elastic in that portion of the curved lower edges 23 and 24 of the rear flap 18 adjacent the crotch portion 13. These sections of elastic at these points act to draw in the bottom of the rear flap 18 to give a smooth, form-fitting effect that will be apparent by reference to Figure 3.

In the modification of the invention shown in Figures 1-6, shoulder straps 43 extend from the rearmost upper corners of the side portions 11 and 12 of the abdominal portion 10 to the uppermost points of the breast cups 32 and 33.

The garment may be worn either with or without stockings and for this reason conventional detachable garters 44 are illustrated as applicable to the garter attaching tabs 45. The points at which the garter attaching tabs 45 are secured to the garment are important and it will be noted that the front garter attaching tabs 45 are secured to the abdominal portion 10 along the curved lines 19 and 20 adjacent their intersection respectively with the curved lines 21 and 22, whereas the rear garter attaching tabs 45 are secured to the curved lower edges 23 and 24 of the rear flap 18 in approximate alignment with the intersection of the curved edges 23 and 24 with the crotch portion 13. The arrangement is such that the pull on the stockings in leg movement of the wearer is transmitted to the garment along lines designed to minimize displacement and disturbance of the garment.

When the garment is worn, it will be observed that the various fastening elements lie in the areas of the axes of the major movements of the body. For example, the fastener elements 36 and 37 lie in the area C of the back as may be seen by reference to Figure 3. The fastener elements 38 and 41 lie in the area A and the fastener elements 39 and 40 lie in the area B, as will be seen by reference to Figure 2.

Due to the fact that the abdominal portion 10, including the side portions 11 and 12 and the crotch portion 13 are cut straight with the cloth, whereas the remaining portions of the garment are cut on the bias, the garment yields in those areas where the greatest accommodation to body contours is required and yet gives support to the abdomen, greatly contributing to posture and attractiveness of the figure silhouette.

Inasmuch as all points of attachment and interengagement of the portions of the garment

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occur in the areas of the axes of the major body movements, they are subject to minimum displacement during body movement of the wearer. For this reason, among others, the garment does not creep, bind or pull at any point, regardless of the position assumed by the wearer. The few seams required in the assembly of the limited number of pieces making up the garment are so positioned that they do not occasion puckering of the fabric or discomfort to the wearer.

Referring to the modification shown in Figures 9-11, which modification is adapted to be worn independently of an affixed bra, it will be observed that the abdominal portion 46 corresponds in construction to the abdominal portion 10 of the modification of Figures 1-6 with the exception that it terminates in the upper edge 47 at its point of maximum transverse dimension at approximately the waistline of the wearer. In this modification the sides of the abdominal portion 46 diverge from the relatively narrow crotch portion 43 along the curved lines 49 and 50 and thence along the curved lines 51 and 52 which are of lesser curvature than the lines 49 and 50. Complementary fastener tabs 53 and 54 are carried by the abdominal portion 46 at the opposite sides thereof and at the point of its maximum transverse dimension, which is slightly less than that required to encircle the torso of the wearer. The rear flap 55 is in all respects identical to the rear flap 18 by the modification of Figures 1-6, and inasmuch as the remaining elements of the modification of Figures 9-11 have their counterpart in the modification of Figures 1-6, like reference characters have been applied to like parts in these figures. It will be observed that in the modification of Figures 9-11 the points of interengagement and fastening of the portions of the garment when worn fall in the areas of the axes of the major body movements and are subject to minimum displacement by body movements of the wearer just as hereinabove pointed out in respect to the modification of the invention illustrated in Figures 1-6.

To the end that a garment according to either modification may be accommodated to variations in the build and contours of the wearer, the complementary fastener tabs 36 and 37 are arranged to provide a selection of points of interengagement and the fastening members 38 are provided with triangularly disposed openings 42 to permit engagement of the fastener members 41 carried on the rear flap at any one of several selected points of attachment. In this way the variations in body contour within the limits of the given size garment can be accommodated without sacrificing the form-fitting and smooth effect of the garment.

In the modification of Figures 9-11 only one of the back fastening connections is required since it is so positioned as to completely control the stresses and strains of movement and to maintain the garment in perfect control when worn with or without stockings, while permitting the flap seat to be fastened and unfastened at will. The provision of the flap seat has many advantages over closed garments and the cut of this portion of the garment allows the garters, when attached to the stockings, to take the strain on the warp and woof of the material diagonally across the buttocks and hips which is transmitted to a natural pivotal point of the body on each side just below the waistline. The uppermost fasteners at each side of the rear flap, apart from permitting easy opening, serve to draw in and up

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on the upper abdomen as well as to create an axis for the complete freedom of movement of the wearer in all forms of activities without in any way pulling the garment out of shape or disturbing the back garters. The lower side fasteners for the rear flap serve to maintain tension upwardly and inwardly on the lower part of the abdomen while at the same time retaining fit and snugness around the natural line of the buttocks. The lower edge of the rear flap, which may be provided either with sections of elastic or finished by several darts, will stay comfortably in place when in use either with or without garters.

Inasmuch as the rear flap is cut lower in the center of the back than the lower waistline and is unattached to the upper part of the garment at any point, it serves to permit freedom of forward bending, sitting or stretching without any disturbance to the remainder of the garment, the axes of the rear flap being the spaced fastenings at each side which lie in the areas of the axes of the major movements of the legs and hips.

I claim:

1. An undergarment for feminine wear comprising, a front abdominal portion, a relatively narrow crotch portion, said abdominal portion flaring outwardly along a pair of concave curved lines from said crotch portion for a relatively short distance and thence along lines of less curvature to a point upwardly of the waistline at which point said abdominal portion has its maximum transverse dimension, fastening means secured to said abdominal section at the opposite extremities of its maximum transverse dimension adapted, when worn, to be interengaged at the back of the torso of a wearer, a rear flap connected to said abdominal section by said relatively narrow crotch section, the lower edges of the opposite halves of said flap being convexly curved so as to be snugly drawn under the buttocks of a wearer, the side edges of said rear flap converging along substantially straight lines from its point of maximum transverse dimension toward the upper edge thereof, a fastener carried at each end of each of said converging side edges of said rear flap to provide upper and lower pairs of fasteners for said rear flap, upper and lower pairs of complementary fasteners carried by said abdominal section, the upper pair of said complementary fasteners being spaced inwardly a substantial distance from the marginal edges of said abdominal portion to provide a substantial overlap of said rear flap and abdominal portion at the opposite sides of said garment.

2. An undergarment for female wear comprising, a front abdominal portion, a crotch and a rear flap, the sides of said abdominal portion diverging along concavely curved paths from the crotch to the point of maximum transverse dimension of said abdominal portion, tabs affixed to the opposite sides of said abdominal portion at its point of maximum transverse dimension to effect interengagement thereof at the back of a wearer, a seam securing said rear flap and said crotch together, said rear flap diverging outwardly and upwardly from said crotch along convexly curved paths to the point of maximum transverse dimension of said rear flap and then converging along substantially straight lines toward the upper edge of said rear flap which lies below the point of interengagement of said tabs carried by said abdominal portion, a fastener near each end of each of said converging side edges of said rear flap to provide upper and lower pairs of fasteners for said rear flap, upper and

lower pairs of complementary fastener-engaging elements secured to said abdominal portion, the upper pair of said complementary fastener-engaging elements being spaced inwardly a substantial distance from the marginal edges of said abdominal portion to provide a substantial overlap of said rear flap and abdominal portion at the opposite sides of said garment, all of said fasteners, when engaged, lying in areas of limited displacement during body movements of a wearer.

3. An undergarment for feminine wear comprising, a front abdominal portion, a crotch, and a rear flap, the sides of said abdominal portion diverging along a pair of concavely curved paths from the crotch for a relatively short distance and thence along lines of less curvature to the point of maximum transverse dimension of said abdominal portion, means positioned at the opposite sides of said abdominal portion at its point of maximum transverse dimension to effect interengagement thereof at the back of a wearer, a seam securing said rear flap and said crotch together, said rear flap diverging outwardly and upwardly from said crotch along convexly curved paths to the point of maximum transverse dimension of said rear flap then converging toward the upper edge of said rear flap along substantially straight lines, the upper edge of said rear flap lying below the point of interengagement of said means carried by said abdominal portion, fasteners near the ends of the converging side edges of said rear flap, complementary fastener engaging elements on said abdominal portion, said abdominal portion carrying upwardly extending rear side portions which project above and flare outwardly from said interengaging means, a lower chest bridging portion sewn to said abdominal portion intermediate said rear side portions and breast cups secured around their lower portions to said bridging portion and to said rear side portions, said abdominal portion and the crotch being cut straight with the cloth and the remaining portions of the garment being cut on the bias.

4. An undergarment for feminine wear comprising, a front abdominal portion, a crotch and a rear flap, the sides of said abdominal portion diverging from the crotch for a short distance along a first pair of concavely curved paths then continuing said curvature along a second pair

of concavely curved paths of lesser curvature than said first pair to the point of maximum transverse dimension of said abdominal portion, means affixed to the opposite sides of said abdominal portion at its point of maximum transverse dimension to effect interengagement thereof at the back of a wearer, means securing said rear flap and said crotch together along lines permitting said crotch to extend above the lowermost part of said rear flap, said rear flap diverging outwardly and upwardly from said crotch along convexly curved lines to the point of maximum transverse dimension of said rear flap and then converging along straight lines to the upper edge of said rear flap which lies below the point of interengagement of said means carried by said abdominal portion, the length of said converging straight lines being less than the second pair of concave curved paths defining the side edges of said abdominal portion, fasteners near the ends of said straight lines and complementary fastener-engaging elements on said abdominal portion, said abdominal portion embracing upwardly extending rear side portions which project upwardly and flare outwardly from said interengaging means, a chest bridging portion sewn to said abdominal portion intermediate said rear side portions and breast cups secured around their lower portions to said bridging portion and said rear side portions and shoulder straps connecting the upper edges of the breast cups to the upper edges of said rear side portions.

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