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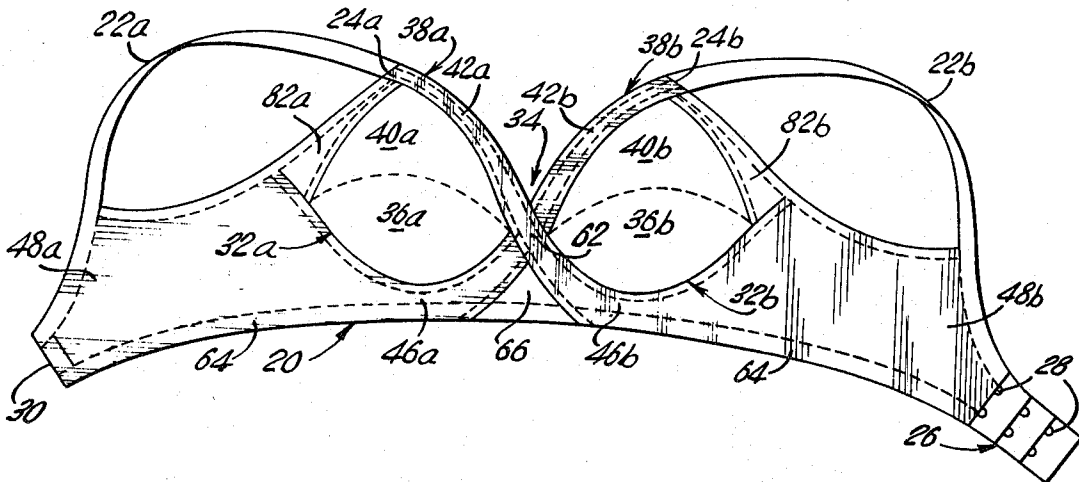
[54] **BRASSIERES**
 11 Claims, 14 Drawing Figs.

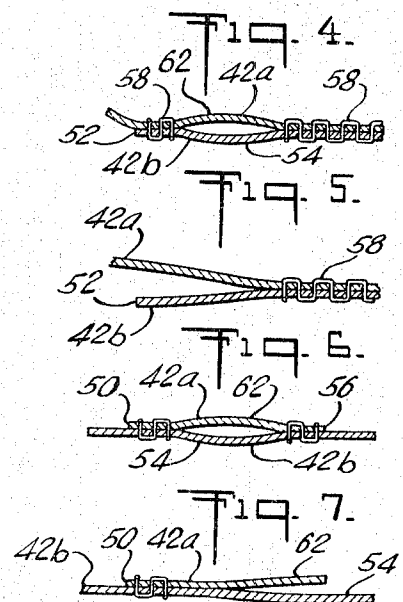
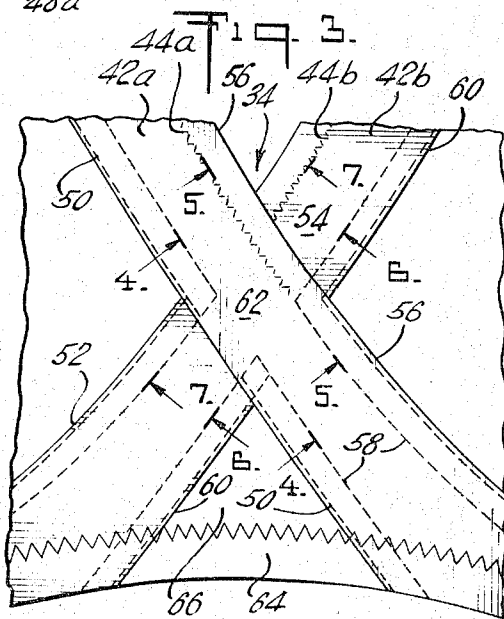
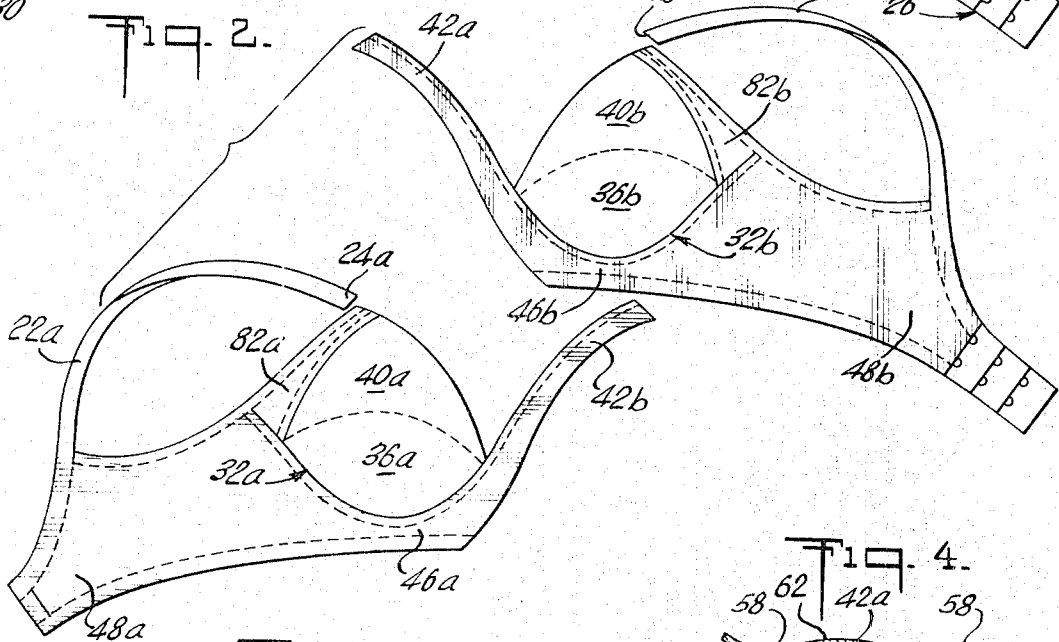
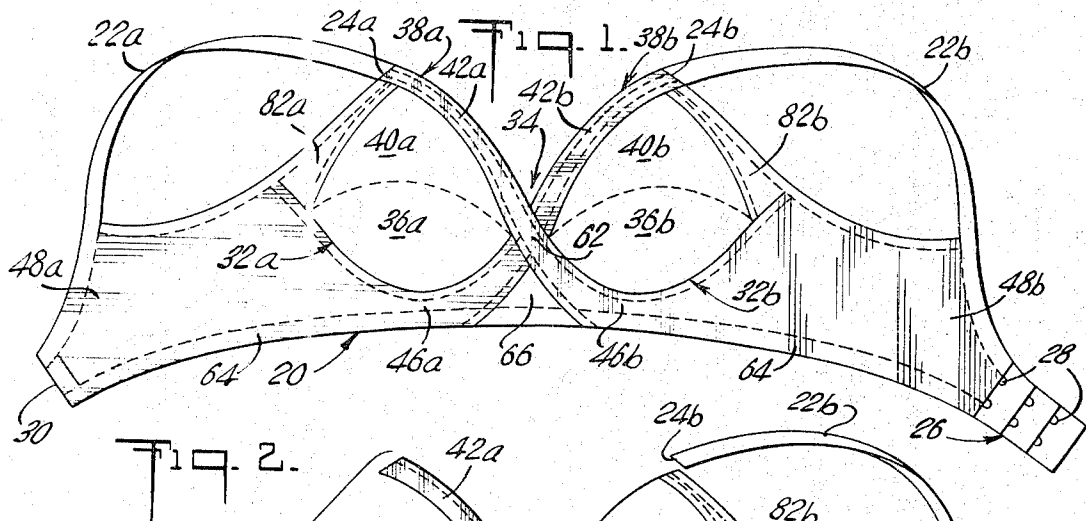
[52] U.S. Cl. **128/483,**
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 [50] Field of Search **128/425-**
—430, 483—488, 495

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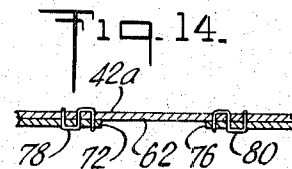
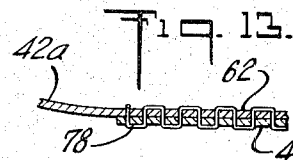
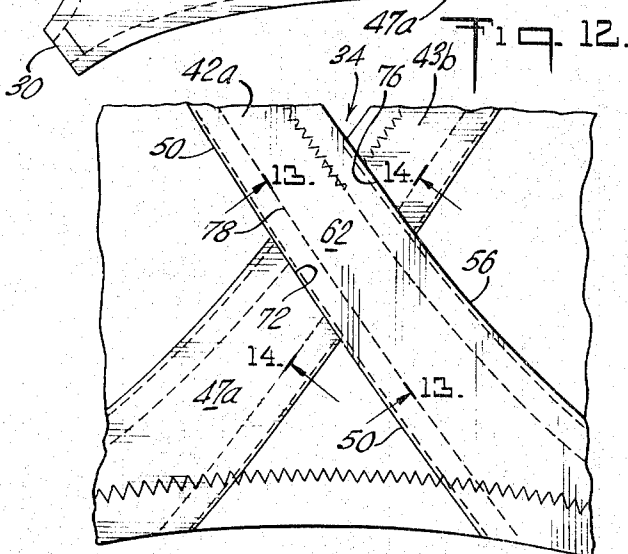
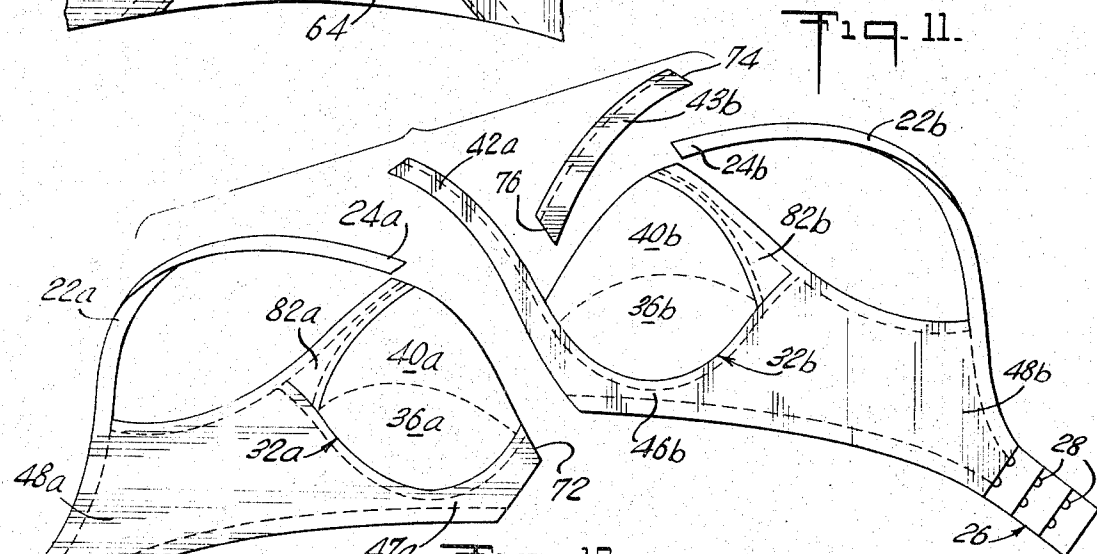
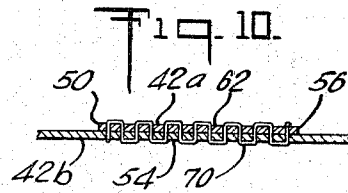
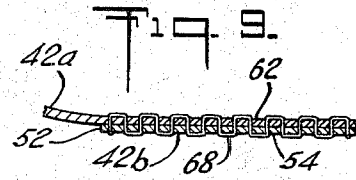
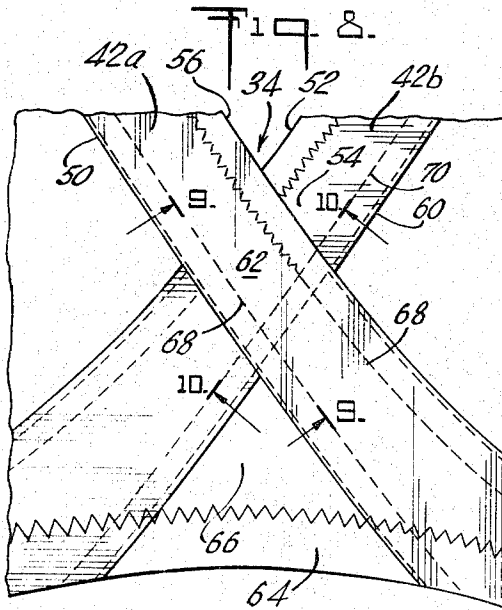
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ABSTRACT: A brassiere capable of providing the wearer with a high degree of freedom of movement while at the same time remaining in its proper position. The brassiere has at its cups upper cup portions extending from the bottom ends of the straps to a central region of the brassiere where these upper cup portions intersect. At least one of the upper cup portions forms an extension of an underbust band portion with the upper cup part of one cup connected with the underbust band portion of the other cup. The underbust band portions are in turn connected with back portions which terminate at a rear releasable fastener for the brassiere. The upper cup portions are not connected to each other where they cross over each other at the central region of the brassiere, and these upper parts of the upper cup portions as well as the underbust band portions and the back portions are all made of a stretch fabric which has at least a one-way stretch.





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BRASSIERES

BACKGROUND OF THE INVENTION

The present invention relates to brassieres.

In particular, the present invention relates to brassieres which are designed to give the wearer a high degree of freedom of movement while retaining the brassiere properly positioned.

While there are at the present time known brassiere constructions intended to achieve results of this type, the known constructions fall short of achievement of the desired results. Thus, the known brassiere constructions only achieve a stable positioning of the brassiere at the expense of freedom of movement. Where there is a large freedom of movement the known brassieres cannot be reliably maintained properly positioned on the body.

SUMMARY OF THE INVENTION

It is accordingly a primary object of the present invention to provide a brassiere which will give the wearer a very high degree of freedom of movement while at the same time reliably remaining in its proper position on the body.

It is also an object of the invention to provide a brassiere which will accommodate size variances within the same bust size. For example, a brassiere having a size 34B will, with the construction of the invention, adjust 34- or 34+.

In addition it is an object of the invention to provide a brassiere construction which has a self-adjusting separation between the bust, permitting the brassiere to fit the different needs of different wearers.

Thus, it is an object of the invention to provide a lightweight, comfortable brassiere which will give complete freedom of body movement without distortion or restriction.

At the same time, it is an object of the invention to provide a brassiere which will keep the bust in perfect alignment at all times while remaining in the proper position, without falling out of place.

Also, it is an object of the invention to provide a brassiere which will give an increased stability of separation for women who require more than average support.

Also it is an object of the invention to provide a brassiere which is capable of achieving a very definite separation at the central region of the brassiere.

The brassiere of the invention has a rear releasable fastening means and a pair of shoulder straps which respectively terminate in bottom front ends. The brassiere also includes a pair of cups each of which has a lower component and an upper component. The upper component of each cup has a lower part connected to the lower component and an upper part connected to the lower part of the upper component. The upper parts of the upper components respectively extend from the lower front ends of the shoulder straps toward a central region of the brassiere, between the cups thereof, where these upper parts of the upper cup components cross each other. The brassiere furthermore includes a pair of underbust band portions respectively extending along and joined to lower edges of the lower cup components. Also, the brassiere has back portions which respectively extend from the underbust band portions up to the releasable rear fastening means. The upper parts of the upper cup components, the underbust band portions, and the back portions are all made of a stretch fabric which has at least a one way stretch. At least one of the upper parts of the upper component of one cup forms an uninterrupted extension of the underbust band portion of the other cup with this one upper part of the upper component of the one cup having an elongated intermediate portion which is completely disconnected from while extending across a side edge region of the other upper part of the upper component of the other cup, so that in this way the crossing upper parts of upper cup components together with their interconnection with the underbust band portions provide for a stable positioning of the brassiere while at the same time achieving the desired degree of freedom of movement.

BRIEF DESCRIPTION OF DRAWINGS

The invention is illustrated by way of example in the accompanying drawings which form part of this application and in which:

FIG. 1 is a front elevation of one embodiment of a brassiere of the invention, FIG. 1 showing the brassiere in an extended condition;

FIG. 2 is an exploded schematic elevation showing parts of the brassiere of FIG. 1 separate from each other;

FIG. 3 is a fragmentary front elevation, at an enlarged scale as compared to FIG. 1, showing the central region of the brassiere where upper cup portions cross each other;

FIG. 4 is a fragmentary sectional elevation taken along line 4-4 of FIG. 3 in the direction of the arrows;

FIG. 5 is a fragmentary sectional elevation taken along line 5-5 of FIG. 3 in the direction of the arrows;

FIG. 6 is a fragmentary sectional elevation taken along line 6-6 of FIG. 3 in the direction of the arrows;

FIG. 7 is a fragmentary sectional elevation taken along line 7-7 of FIG. 3 in the direction of the arrows;

FIG. 8 is a fragmentary front elevation showing another structure of the invention according to which the upper cup portions cross each other, but in a manner differently from the embodiment shown in FIG. 3;

FIG. 9 is a fragmentary sectional elevation taken along line 9-9 of FIG. 8 in the direction of the arrows;

FIG. 10 is a fragmentary sectional elevation taken along line 10-10 of FIG. 8 in the direction of the arrows;

FIG. 11 is an exploded front elevation showing yet another embodiment of a brassiere according to the invention;

FIG. 12 is a fragmentary front elevation, on an enlarged scale as compared to FIG. 11, illustrating also the central region of the brassiere of FIG. 11 with the parts thereof assembled;

FIG. 13 is a fragmentary sectional elevation taken along line 13-13 of FIG. 12 in the direction of the arrows; and

FIG. 14 is a fragmentary sectional elevation taken along line 14-14 of FIG. 12 in the direction of the arrows.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to FIG. 1, the brassiere 20 of the invention which is illustrated therein includes a pair of shoulder straps 22a and 22b which respectively terminate in front bottom ends 24a and 24b. Also, the brassiere 20 has a rear fastening means 26 which includes the series of eyes 28 at one end of the brassiere and unillustrated hooks at the opposite end 30 of the brassiere. Thus, the hooks at the end 30 will engage selected eyes 28 to form a releasable rear fastening means 26 for the brassiere 20.

Also, the brassiere includes cups 32a and 32b between which the brassiere has a central region 34. The cups 32a and 32b respectively include lower components 36a and 36b. These cups also include upper components 38a and 38b. These upper components 38a and 38b are respectively provided with lower parts 40a and 40b which are respectively connected to the lower components 36a and 36b and with upper parts 42a and 42b which are respectively connected with the lower parts 40a and 40b. The upper parts 42a and 42b of the upper components 38a and 38b are respectively formed of an elastic stretch fabric which has at least a one way stretch although a two-way stretch is preferred and these elastic upper parts 42a and 42b respectively form integral parts of the bust cups, creating shaping and adding to the natural curve of the bust. These elongated upper cup portions 42a and 42b are distinct from elastic edging which is in fact connected to the uppermost edges of the cup portions 42a and 42b extending along these uppermost edges. Such elastic edging is indicated by the zigzag dotted lines 44a and 44b in FIG. 3, and this elastic edging may extend all the way up to the bottom ends 24a and 24b of the shoulder straps 22a and 22b, respectively. The bottom ends of these shoulder straps are directly connected with the top ends of the uppermost cup portions 42a and 42b at the top crests or peaks of the cups 32a and 32b.

The brassiere 20 also includes underbust band portions 46a and 46b. These underbust band portions are connected with and extend along the lower edges of the lower cup components 36a and 36b, respectively. As is apparent particularly from FIG. 2, the underbust band portion 46a and the upper cup portion 42b form uninterrupted extensions of each other, and in the same way the upper cup portion 42a and the underbust band portion 46b form in uninterrupted extensions of each other.

The brassiere 20 also includes a pair of back portions 48a and 48b which respectively extend from the underbust band portion 46a and 46b all the way up to the rear fastening means 26. These back portions 48a and 48b as well as the underbust band portion 46a and 46b are made, in the same way as the upper cup parts 42a and 42b, of an elastic stretch fabric which has at least a one way stretch, but preferably has a two-way stretch. Moreover, although the brassiere 20 is shown as having a single uninterrupted length of stretch fabric extending on the one hand all the way from the bottom end 24b of the strap 22b to the rear fastening means and another single length of uninterrupted stretch fabric extending, on the other hand, from the bottom end 24a of the shoulder strap 22a all the way up to the fastening means 26 in an opposite direction from the first uninterrupted length of stretch fabric, it is not at all essential that each of these lengths of fabric be made of a single piece of stretch fabric. For example, the back portions 48a and 48b could be made of pieces separate from the underbust band portions and joined thereto, respectively, by any suitable stitching, for example. However, even with such stitching because of the elasticity of the stretch fabric extending all the way from the bottoms of the shoulder straps to the rear fastening means it is still possible to achieve the outstanding results of the invention.

Referring now to FIGS. 3—5, it will be seen that at the central region 34 of the brassiere 20 the upper cup part 42a extends across the upper cup part 42b. Stitching 50 along the left side edge region of the upper cup part 42a terminates at the left side edge region 52 of the upper cup part 42b so that the intermediate portion 54 of the upper cup part 42b is completely unconnected to the upper cup part 42a. The upper or right side edge region 56 of the upper cup part 42a extends across but is in no way connected to the upper or left side region 52 of the upper cup part 42b. However, these side edge regions 50 and 56 are provided with stitching 58 starting at the lower or right side edge region 60 of the upper cup portion 42b and extending therefrom so that in this way the upper cup part 42a also has an elongated intermediate region 62 which is in no way connected to the upper cup part 42b.

Elongated elastic edging 64 extends along the lower edges of the underbust band portions 46a and 46b as well as along the lower edges of the back portions 48a and 48b, and this elastic edging extends across the central region 34 to define with the edges 50 and 60 where the underbust band portions extend uninterruptedly from the upper cup portions a triangular aperture which is filled by a triangular filler member 66 also made of stretch fabric and joined to the edges 50 and 60 as well as to the elastic edging 64.

Thus, as may be seen from FIG. 6 the stitching along the side edge 60 is interrupted at the intermediate portions 62 and 54 of the upper cup parts. In addition, FIG. 7 shows how the stitching along the edge 52 terminates at the edge 50 of the upper cup part 42a and does not extend any further upwardly beyond the edge 50. Thus, these portions 62 and 54 are completely separate from each other to provide complete freedom of movement of the pair of upper cup portions 42a and 42b at the places where they extend uninterruptedly from the underbust band portions 46b and 46a, respectively, so that in this way it is possible to provide a reliable support and at the same time a high degree of freedom of movement. Thus, this construction provides in effect an open slot between the upper cup portions 42a and 42b and the underbust band portions 46b and 46a, respectively extending uninterruptedly therefrom, to achieve a free and unbroken flow of the tension

from the bottom ends 24a and 24b of the shoulder straps all the way to the opposed ends of the back portions 48b and 48a, respectively. This structure of the invention will accommodate itself to size variances within the same bust size. For example, a 34B brassiere will adjust to 34— or 34+.

The crossing elastic sections of the brassiere of the invention which are not connected to each other create a self-adjusting separation between the bust permitting the brassiere to fit the different needs of different wearers. This self-adjusting center front region, combined with the uninhibited stretch of the different elastic sections provide a complete freedom of body movement without distortion or restrictions. The bust is thus kept in perfect alignment at all times and remains in the proper position without falling out of place.

The embodiment of the invention which is illustrated in FIGS. 8—10 is identical with that of FIGS. 1—7 except for the differences shown in FIGS. 8—10. With this embodiment the upper side edge region 56 of the upper cup part 42a extends across the upper side edge region 52 of the upper cup part 42b without being connected to the latter, and the intermediate portions 62 and 54 also are completely separate from each other. However, in this embodiment the stitching 68 along the left or downwardly directed edge 50 of the upper cup part 42a extends without interruption across the intermediate region 54. In the same way the stitching 70 along the edge 60 of the upper cup part 42b extends without interruption across the intermediate part 62 of the upper cup part 42a. Thus, with this embodiment the upper edges 52 and 56 are unconnected to each other where they cross each other and where they extend along the intermediate portions 54 and 62, respectively. However, the upper cup parts 42a and 42b are directly connected to each other along their lower edges 50 and 60, respectively, even where these edges extend across the intermediate regions 54 and 62 of the upper cup parts 42b and 42a, respectively. This embodiment of the invention will achieve the same results as that of FIGS. 1—7, with perhaps a somewhat less extent of freedom of movement. However, this embodiment will provide by the added stitching a more stabilized separation for women who require more support.

With a preferred embodiment of the invention which is illustrated in FIGS. 11—14, the upper cup portion 42a is identical with that of FIGS. 1 and 2 and extends uninterruptedly from the underbust band portion 46b which is connected in the same way to the cup 32b. However, in this embodiment, the underbust band portion 47a, which corresponds to the underbust band portion 46a, terminates in an end 72 while the cup 32b is provided with a separate upper cup portion 43b forming the upper part of the upper component of the cup 32b. This upper cup part 43b has a top end 74 connected directly to the bottom end 24b of the shoulder strap 22b, and this upper cup part 43b terminates in a bottom end 76. The upper end 72 of the underbust band portion 47a is stitched to the lower or left side edge region 50 of the upper cup part 42a with the uninterrupted line of stitching 78, shown most clearly in FIG. 13. The end 76 of the upper cup part 43b is directly connected to the opposed edge 56 of the upper cup part 42a by an uninterrupted line of stitching 80. Thus, with this embodiment the intermediate elongated portion 62 of the upper cup part 42a forms the only component situated precisely at the center region 34 with the upper cup part 43b of the cup 32b being separated from the underbust band portion 47a of the other cup 32a by the width of the elongated intermediate portion 62. Because of the complete freedom of the portion 62 to stretch, preferably with a two-way stretch, all of the freedom of movement of the other embodiments are maintained. However, with this particular construction an even more definite separation is achieved. Otherwise all of the advantages of the other embodiments are maintained with this construction.

It will be seen that with the embodiment of FIGS. 11—14 there is at the central region of the brassiere only a single thickness of stretch fabric so that this particular embodiment is exceedingly light and comfortable and is free of any over-

lapping layers which might rub one against the other during stretching and contraction. By making at least the intermediate region 62 of a two-way stretch fabric, capable of stretching both longitudinally and transversely, the longitudinal stretching and contraction provides an adjusting along the upper cup portion 42a and the underbust portion 46b, and transverse stretching and contraction of the intermediate elongated portion 62 transmits the stretching and contraction between the upper cup portion 43b and the underbust band portion 47a while maintaining the single thickness of fabric so that a lightweight, comfortable brassiere is provided.

It is to be noted that in all of the embodiments the illustrated cups 32a and 32b are composed not of only three parts but instead of four parts. Thus, the cups respectively have the lower components 36a and 36b which are made of a nonstretch fabric such as a suitable lace, for example. Also the cups respectively have the lower parts 40a and 40b of the upper components 38a and 38b, and these parts 40a and 40b are also preferably made of the same nonstretch fabric as the components 36a and 36b to which they are connected. The cups have the above-described upper parts 42a and 42b of the upper components. In addition, however, they have upper parts 82a and 82b which may be made of the same stretch fabric as the parts 42a and 42b. Moreover, elastic edging may be provided at all of the free upper and lower peripheral edges such as along the upper edges of the parts 82a and 82b and the upper edges of the back portions 48a and 48b.

Moreover, the underbust band portions and back portions need not be one continuous length of fabric. For example, it is possible to provide beneath the cups, at the lowest parts thereof, short vertical lines of stitches each interconnecting an underbust band portion with a back portion, while still retaining all the advantages of the invention and without changing the manner in which the parts function. Furthermore, such short vertical stitch lines, extending downwardly from the lowest parts of the cups, improve the fit of the brassiere.

It is therefore apparent that with the construction of the invention a high degree of freedom of movement in all directions without any distortion or restriction is achieved, while at the same time maintaining a completely reliable stability in the positioning of the brassiere with self-adjusting thereof at the central region 34. Moreover, a fully adequate support is provided with a very definite separation. With the embodiment of FIGS. 11-14, in particular, outstanding results are achieved because of the comfort and light weight of the brassiere, together with the stretchability along crossing diagonal lines. The stretch along one of these lines is achieved through longitudinally stretching of the intermediate portion 62 of FIG. 12. The stretch along the other of these lines is achieved by transverse stretching of this intermediate portion 62. Thus, with this simple, comfortable, lightweight construction the stretchability in the required directions is achieved, with all of the other advantages of the invention.

We claim:

1. In a brassiere, rear releasable fastening means, a pair of shoulder straps respectively having front bottom ends, a pair of cups situated on opposite sides of a central brassiere region, each cup having a lower component and an upper component, said upper component of each cup including a lower part connected to said lower component and an upper part connected to said lower part, said upper parts of said upper cup components respectively extending from said central region up to and being connected with said bottom ends of said straps, a pair of underbust band portions extending along and connected to edges of said lower cup components which are distant from said upper cup components, and a pair of back portions respectively extending from said underbust band portions up to said releasable fastening means, said upper parts of upper cup components, said underbust band portions, and said back portions all being made of an elastic fabric of at least one way stretch, the upper part of the upper component of at least one cup forming an uninterrupted extension of the underbust band portion connected to the other cup and having

between opposed side edge regions at said central brassiere region an elongated intermediate portion extending across but unconnected with at least one side edge region and an adjoining intermediate portion of the upper part of the upper component of the other cup.

2. The combination of claim 1 and wherein said upper part of said upper cup component of said other cup forms an uninterrupted extension of said underbust band portion of said one cup.

3. The combination of claim 1 and wherein said upper part of said upper component of said other cup terminates at and is connected to an upper side edge region of said upper part of said upper component of said one cup while said underbust band portion of said one cup terminates at and is connected to a lower side edge region of said upper part of said upper component of said one cup, said upper part of said upper component of said one cup and said underbust band portion of said one cup being separated from each other by the intermediate portion of said upper part of said upper component of said one cup which extends between said side edge regions which are respectively connected to said upper part of said upper component of said other cup and said underbust band portion of said one cup.

4. The combination of claim 2 and wherein both of said upper parts of said upper cup components have at said central region elongated intermediate portions crossing each other but completely unconnected to each other.

5. The combination of claim 4 and wherein the upper part of the upper component of said one cup extends over the upper part of the upper component of said other cup at said central region with a lower side edge region of said upper part of said upper component of said one cup connected to said upper part of said upper component of said other cup only at opposed side edge regions of the latter while the upper side edge region of said upper part of said upper component of said one cup extends across the upper side edge region of the upper part of the upper component of said other cup without being connected thereto while being connected to the upper part of the upper component of said upper cup only at a lower side edge region thereof.

6. The combination of claim 2 and wherein both of said upper parts of said upper cup components are connected to each other at said central region along lower side edge regions of said upper parts of said upper cup components.

7. The combination of claim 1 and wherein both of said upper parts of said upper cup components respectively have upper free side edge regions, and a pair of elongated elastic edgings respectively extending along and fixed to said upper side edge regions of both of said upper parts of said upper cup components.

8. The combination of claim 1 and wherein each cup has a second upper part of its upper component extending from the bottom end of a strap away from the central region of the brassiere.

9. The combination of claim 1 and wherein the fabric of said upper parts of said upper cup components, and said underbust band portions and said back portions are all a two-way stretch fabric.

10. The combination of claim 1 and wherein elongated elastic edging extends along and is connected to lower edge regions of said back and underbust band portions, said elastic edging extending across the central region of the brassiere and forming a substantially triangular aperture with lower side edge regions of said underbust band portions which extend upwardly from said elastic edging at said central brassiere region, and a triangular elastic filler member filling said aperture and joined to said lower edging and underbust band portions at the edge portions of the latter which define said aperture.

11. The combination of claim 3 and wherein said intermediate portion of said upper part of said upper component of said one cup is made of a two-way stretch fabric capable of stretching longitudinally and transversely so that, with a single thickness of stretch fabric at the said central brassiere region,

stretch and contraction between said upper part of said upper component of said other cup and said underbust band portion of said one cup are transmitted transversely through said inter-

mediate portion of said upper part of said upper component of said one cup.

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