Dec. 6, 1960 H. CLOVER 2,963,023

SUPPORT STRUCTURE

Filed April 4, 1960 2 Sheets-Sheet 1

FIG. 1

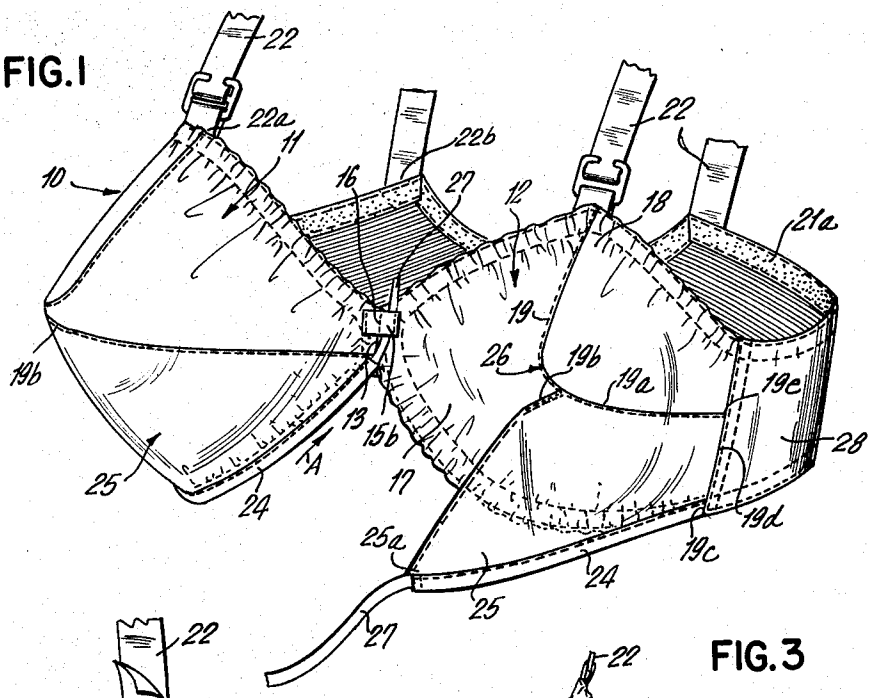


FIG. 2

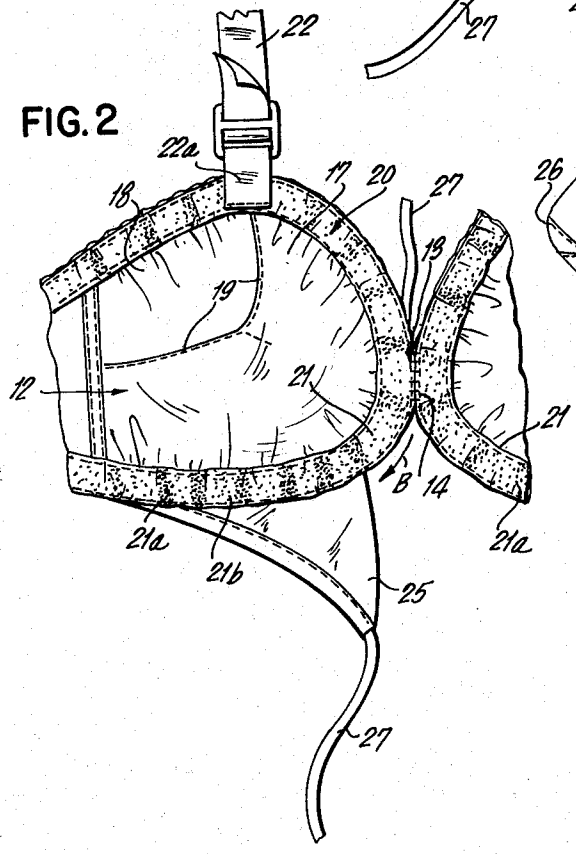


FIG. 3

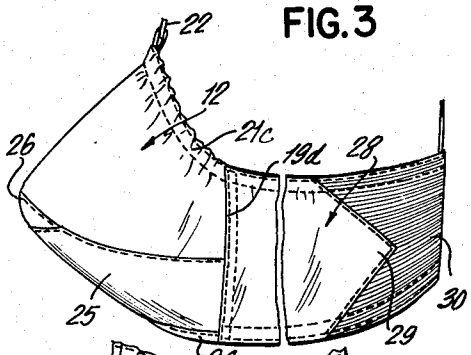
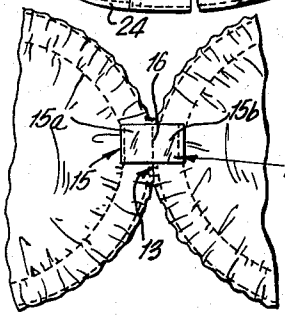


FIG. 4



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SUPPORT STRUCTURE

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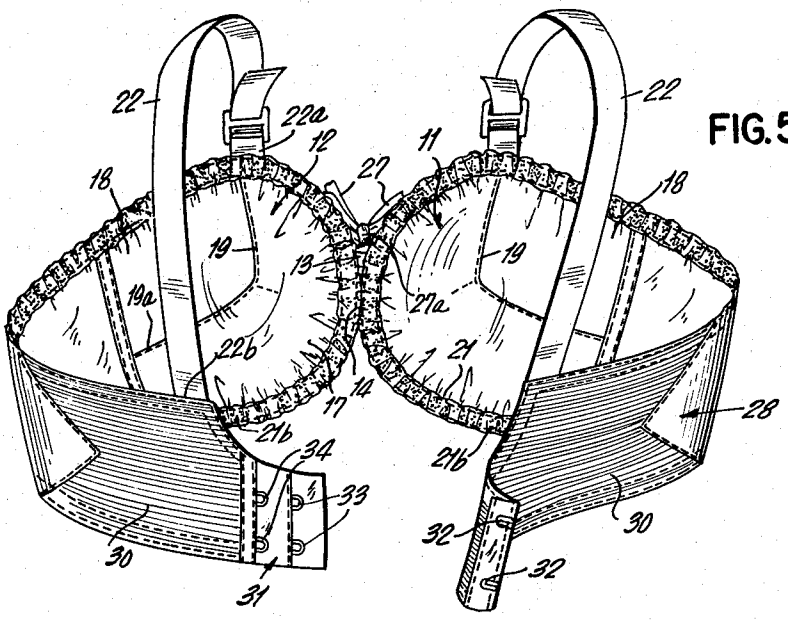


FIG.5

FIG.7

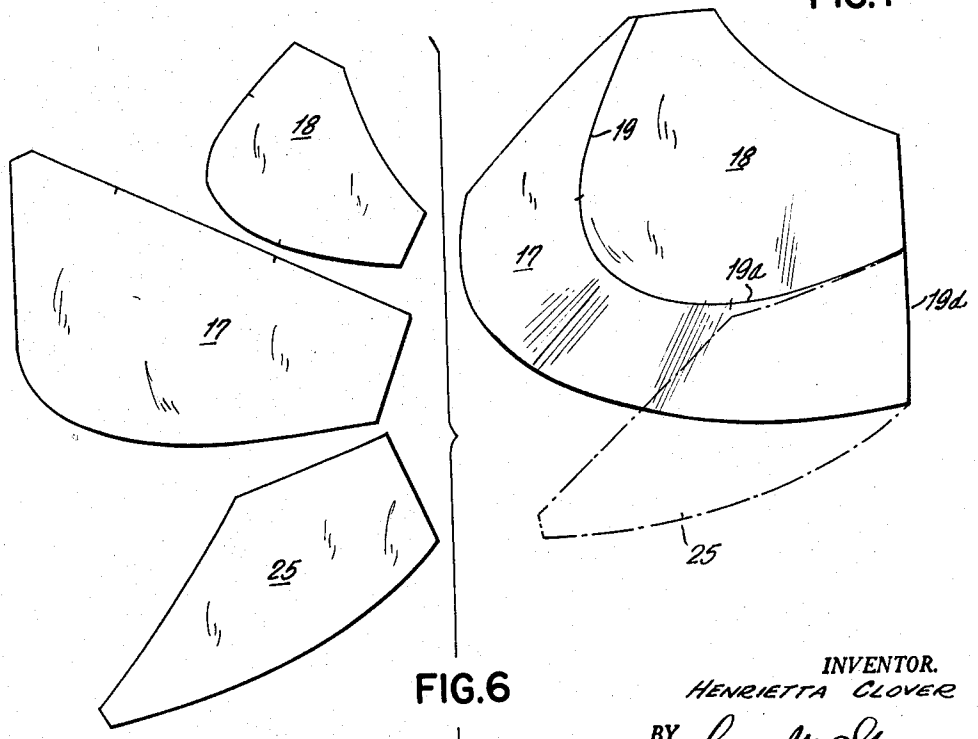


FIG.6

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SUPPORT STRUCTURE

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5 Claims. (Cl. 128—483)

This invention relates to garment structures and more specifically to foundation garments such as brassieres.

It is one of the objects of the present invention to provide means facilitating the support of a person's bust in a highly efficient and non-pressure exerting fashion, so that the person wearing a brassiere of the aforesaid type will experience great comfort without any deleterious effects to the body.

It is another object of the present invention to provide means affording a very economical and highly efficient brassiere structure resulting in a substantially even distribution of the propping forces in particular applied to the bust therebelow and via predetermined parts of the brassiere srtucture.

Yet another object of the present invention is to provide means conducive to a smooth, readily applicable and regulatable brassiere structure which is devoid of any stiffening means, such as bones, wire, plastic inserts and the like and, nevertheless, brings about a highly efficacious hold for the bust of a person without damage to delicate skin areas but conforming with sufficient elasticity to the shape and outline of a wearer's bust, to achieve great comfort, no shifting action and easier breathing for the wearer.

It is still another object of the present invention to provide means ensuring the manufacture of a relatively inexpensive, easily launderable and expandable cup structure for a brassiere for which cup no rubber bands or the like may be employed, and which, on the one hand, conforms to the configuration of the individual bust of the wearer and, on the other hand, sustains the bust in a desired lifted position due to the adjustable parts of the brassiere, which bring about a so-called scissor effect acting, in particular, below the bust.

A further object of the present invention is to provide means contributing to a brassiere structure which is easy to wear, is prevented from riding up from below the bust, keeps the bust in shape, provides good breast cup separation even for a heavier bust, and effectuates extra support and a lifting effect as a resultant of opposed propping actions emanating from lower parts of each bust cup which are oriented in opposite directions.

These and other objects of the present invention will become further apparent from the following detailed description, reference being made to the accompanying drawings, showing preferred embodiments of the invention.

In the drawings:

Fig. 1 is a perspective front view of a brassiere pursuant to the invention, a flap thereof being shown in non-applied position.

Fig. 2 is a fragmentary elevation view of the brassiere as seen toward the inside of the right-hand cup of the brassiere of Fig. 1.

Fig. 3 is a side elevation view of the brassiere drawn on a reduced scale, parts being broken away.

Fig. 4 is a fragmentary front elevation view of the bust separating parts of the brassiere.

Fig. 5 is a perspective view of the brassiere of Fig. 1, seen toward the interior thereof.

Fig. 6 shows pattern parts employable in the manufacture of the brassiere.

Fig. 7 shows the pattern parts of Fig. 6 in the state of being partly assembled.

Referring now more particularly to the drawings, there has been disclosed in Fig. 1 a brassiere **10** having the breast cups **11**, **12** and the median separating part **13** at which the two cups are joined together, as by stitchings **14** and by a crosspiece **15**. Crosspiece **15** has a central stitch **16** dividing crosspiece **15** into channel-shaped parts **15***a* and **15***b*.

As can be seen from Fig. 2, each cup consists of a larger lower cup forming portion **17** and an upper shorter cup forming portion **18**, whereby the larger portion **17** extends from below the bust somewhat rearwardly thereof and toward the median part of the bust, thereby affording a natural lift to the bust when the aforesaid portions **17**, **18** of each cup are sewn together along respective seams **19**.

Each cup is further defined by a shirred end piece **20** of material to which is joined coextensively with said piece of material an expandable band forming a strip layer **21**, such as sold on the market under the trademark "Helanca." This band or strip is devoid of any rubber and has due to its thread construction the tendency to contract and when applied to the body to follow the contour and expand sufficiently so as to readily conform to the wearer's bust.

Thus, the aforesaid piece of material together with the expandable band carried thereon comes to lie below the bust line without cutting into the skin. To this end, the aforesaid stretchable band is provided with a velveted layer **21***a* facing the skin of a wearer's body. The expandable band **21** as shown in Fig. 2, defines the line of separation of the bust, extends below the bust at **21***b* and is further prolonged to reach above the bust at least to a location at **22***a*, at which the strap **22** of the brassiere is attached to the upper part of the respective cup.

As seen in Fig. 2, the band **21** when in fully expanded position may also reach beyond the attachment of strap **22**, if desired.

Coincident with seam **19** of the shorter cup part **18** at **19***a* there is disposed a flap-shaped substantially unstretchable piece of material **25** which terminates at seam **19***b* located a predetermined distance from the center **26** of the cup **12** near seam **19**. Flap **25** is further affixed at **19***c* and along seam **19***d* and has a lower terminal binding **24**. Operatively connected to binding **24** is a tie ribbon **27** which extends through channel-shaped part **15***b* of crosspiece **15**, as more clearly seen in Fig. 1.

When flap **25** is thus swing to overlie the shirred and expandable band **21** it imparts to the respective cup a further lift or prop and prevents exposure of the expanded shirred terminal piece of material **20** with the underlying band **21**, as can be more clearly visualized from cup **11** of Fig. 1.

In this operative position and as clearly depicted in Fig. 1, flap **25** exerts an action in the direction of arrow A while band **21** underlying flap **25** exerts a pulling action in the direction of arrow B. Thus propping forces for the bust become effective at the lowermost part of the bust in a scissor-like fashion as one action is oriented in the direction of arrow A whereas the opposite action is directed in accordance with arrow B.

Fig. 3 shows cup **12** in side elevation view with flap **25** in applied position, whereby the band part **21***c* has been sufficiently expanded to further contribute to a lifting action on the bust and to further effectively contribute to the line of separation between the breast parts.

As can be further seen from Fig. 3, seam **19***d* extends

in the embodiment shown across the entire side or terminal edge of the cup **12**. From said side edge **19***d* extends rearwardly a further piece of material **28** terminating in a V-shaped end **29** for a purpose later described.

The rear part of the brassiere structure consists of a stretchable preferably rubberized material **30** to which is attached a non-stretchable endpiece **31** provided with hooks and eyes **32, 33, 34** for suitably adjusting the brassiere to a person's body.

To the stretchable rear part **30** is attached, as at **22***b*, strap **22**, whose forward end engages the respective cup **12**, as more clearly seen in Fig. 5.

It is further to be noted that the seam **19** by which the V-shaped component **18** is attached to the respective lower component **17** runs from approximately the location of attachment **22***a* downwardly toward apex **26** of the cup and then sidewardly along seam **19***a* to terminate approximately midway at **19***e* of side part **28** of the brassiere.

As can be further seen from Fig. 1, the sideward boundary of the cup **12** is defined by seam **19***d*. Flap **25** is fixed between locations **19***c* and **19***e* along the aforesaid seam **19***a* and is then free for draping purposes at its end **25***a* to which is attached a tie band **27** for being threaded through one of the channel-shaped parts **15***a* or **15***b* of the crosspiece **15**. Thereafter the tie means **27** of both opposite flaps **25** may be interconnected as at **27***a* (Fig. 5).

Figs. 6 and 7 show the V-shaped component **18**, the lower component **17** and flap **25** in pattern form and connected to each other, respectively, along seams **19**, **19***a*, and **19***d*.

From the aforesaid disclosure it becomes further apparent that the lower cup component **17** is gathered at least along the extent from the fixation location at **22***a* of strap **22** beyond the inner edge portions at **13** of the circumferential edge **20** as far as the location **19***c*, as clearly depicted in Figs. 1 and 5. The expandable band or strip **21** is substantially coextensive with said shirred circumferential edge of the cup. The expandable strip or band **21** may, however, extend further beyond location **22***a* toward the side part **28** of the brassiere and in like manner this expandable band may still further extend beyond the location **19***c* to the full extent of the side part **28** and, if desired, to the rear part **30** up to end piece **31**.

It is further noteworthy that side part **28** terminates in a pointed end **29** in order to allow for sufficient stretch on the top and on the bottom along **21***a* of the side parts **28** while the median part terminating in pointed end **29** is substantially devoid of any streachability.

Considerable advantages have been observed and are derived from this particular construction of the brassiere. By avoiding any stiffening means such as wire, bones, etc., the brassiere is easily wearable and launderable, affords an excellent feel and comfort for the wearer, but due to its gathered and expandable circumferential edge together with the expandable band **21** hereinabove set forth, sufficient elasticity is created to bring about easier breathing, to prevent riding up of the cups of the brassiere and cutting into the skin of the wearer.

Due to the specific construction of a combination of drapable flaps with the expandable circumferential edge defining the breast cups, and in conjunction with the particular arrangement of shoulder straps a definite separation even of closely juxtaposed breasts is afforded. The breasts cannot move away or out of the cups and the readily expandable and contractable circumferential edge of the cups keeps the bust in shape without any binding effect.

In combination with the expandable circumferential edge of each cup which is forced in the direction toward the rear of the brassiere when in applied condition (see arrow B), there is created due to the provision of flaps **25** to be tied at the location of interconnection of the cups at crosspiece **15** a further molding and uplift action (according to arrow A) which counteracts somewhat the stretching action of the circumferential edge of the cups in a crosswise or scissor-like fashion so that extra support and uplift from the lower part of the breast is attained and to an extent as may be adjusted by manipulation of tie means **27**.

The brassiere has been found to be suitable for heavier as well as for smaller breast formations and the aforesaid flaps impart an esthetic and pleasing appearance to the brassiers structure as the flaps in applied positions on the cups conceal the lower shirred or gathered parts of the circumferential edge and thus fulfill a dual purpose of lifting action and concealment.

The brassiere cups may be made from cotton, lace and similar materials and rubber rear part **30** may be readily replaced or interchanged, as desirable, without destroying the main and underlying features of the invention as hereinabove outlined.

In certain cases it might be further desirable to use a padding of any construction to be placed between the outer surface of the breast cups and the inner surfaces of the flaps in order to individually shape the bust of the wearer.

It is preferred to use for the side parts and cups substantially unstretchable material such as lace material either internally lined or not. It is further to be noted that the flaps **25** leave completely free the nipples of the breast along seams **19***b*, as clearly depicted in Fig. 1.

The new brassiere according to the invention may be rolled up for packing or storing purposes. Due to the shoulder strap arrangement, the cups in wear position open up from their contracted position, embrace the breast parts, maintain same in completely separated condition and contribute to uplift thereof, which latter action is still further regulatingly and adjustably enhanced by the particular flaps to be anchored at the line of breast separation (crosspiece **15**).

It can thus be seen that there has been provided according to the invention a support of the character described having a pair of breast cups interconnected at adjacent inner portions of their circumferential edges and wherein each cup comprises a lower component and an upper component, respectively, said lower component extending in an arc formation from the bottom of the breast toward the rearward part of said cup as well as toward the part along the inner circumferential edge and therebeyond to overlie the upper breast section, said upper component being substantially V-shaped and being located on top of the breast and joined to said lower component along a substantially V-shaped seam with the apex thereof located adjacent the breast nipple to thereby bias the lower component, the circumferential edge of the cup being gathered and forming the outer boundary of said lower component, an expandable shirred band substantially coextensive with and completely attached to the inner face of said gathered circumferential edge, thus uplifting by means of said cup the breast from below the bust, a flap adapted to partly overlie said cup, said flap being attached at one end to a predetermined location of said circumferential edge of said lower component and extending from said location toward a further location at which the cups are interconnected with each other, so that the gathered circumferential edge of said lower component of said cup may be substantially covered by said flap in applied position of said cup, tie means fixed to an opposite end of said flap, and means facilitating connection of said tie means to said further location thereby to additionally uplift the breast.

Various changes and modifications may be made without departing from the spirit and scope of the present invention and it is intended that such obvious changes and modifications be embraced by the annexed claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A support having a pair of breast cups interconnected at adjacent inner portions of their circumferential edges; each cup comprising a lower component and an upper component, respectively, said lower component being of arc formation, said upper component being substantially V-shaped and being joined to said lower component along a substantially V-shaped seam including an apex to thereby bias the lower component and shape each breast cup, the circumferential edge of the cup forming the outer boundary of said lower component, an expandable shirred band substantially coextensive with and completely attached to the inner face of said circumferential edge, a flap adapted to partly overlie said cup, said flap being attached at one end to a predetermined location of said circumferential edge of said lower component and being further stitched to and along a portion of said V-shaped seam, said flap stitching terminating short of said apex, the remainder of said flap extending from said predetermined location unattached toward a further location at which the cups are interconnected with each other, so that the circumferential edge of said lower component of said cup may be substantially covered by said flap in applied position of said cup, tie means fixed to an opposite end of said flap, and means facilitating connection of said tie means to said further location.

2. A brassiere garment having a pair of breast cups with circumferential edges and having inner and outer portions interconnected at their adjacent inner portions, side parts connected to said outer portions and end parts attached to said side parts; each cup comprising a lower fabric component and an upper V-shaped fabric component, respectively, said lower component being arc-shaped and extending from the respective side part to the inner portion of the respective circumferential edge and therebeyond in upward direction, a substantially V-shaped seam with an apex connecting said upper component to said lower component, to thereby bias the lower component, the circumferential edge of each cup being gathered and forming at least a part of the outer boundary of said lower component, an expandable shirred band substantially coextensive with and completely attached to the inner face of said gathered circumferential edge of said lower component, a flap overlying part of said cup, said flap being attached at one end to a predetermined location of said lower component and reaching therefrom toward the inner portion of the cup, so that the gathered circumferential edge of said lower component of said cup may be substantially covered by said flap in applied position of said cup, tie means fixed to an opposite end of said flap, and means facilitating connection of said tie means to said inner portion.

3. In a brassiere garment including a pair of breast cups equipped with shoulder straps at predetermined locations of said cups, each cup having a circumferential edge with an inner and with an outer edge portion, said breast cups being permanently interconnected at their adjacent inner edge portions, side parts extending from said outer circumferential edge portions, end parts attached to said side parts; each cup comprising a lower component, an upper V-shaped component, said lower component being secured to the respective side part and extending therefrom to the inner portion of the respective circumferential edge therealong and reaching said predetermined location at which one of the shoulder straps is affixed to said cup, a substantially V-shaped seam having an apex and connecting said upper component to said lower component and terminating at the respective side part above said lower component, to thereby bias the lower component, the circumferential edge of the cup being gathered and forming at least a part of the outer boundary of said lower component, an expandable, shirred band of non-rubberized material substantially coextensive with and attached to and along the inner face of said gathered circumferential edge of said lower component, a flap adapted to partly overlie said lower component of said cup and attached at one end to the outer portion of said circumferential edge of said lower component at the respective side part and further to a portion of said V-shaped seam adjacent said respective side part, the remainder of said flap being unattached and extending toward said inner portion of the circumferential edge of said cup in applied position, so that the outer face of the circumferential edge of said lower component of said cup is at least partly concealed by said flap in said applied position, tie means fixed to an opposite and free end of said flap, and means located at said inner portion of the circumferential edge of said cup for retaining said tie means thereat.

4. In a garment according to claim 3, said expandable band being provided with a velveted surface facing the skin of the wearer.

5. In a garment according to claim 3, said retaining means being a cross-piece provided with channel means and located at the point of interconnection of said cups, said tie means being adapted to be threaded through a respective channel means.

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