

Sept. 20, 1971

H. L. SCHWARTZ  
BREAST SUPPORTING FRAMES

3,605,753

Filed April 3, 1970

FIG. 1.

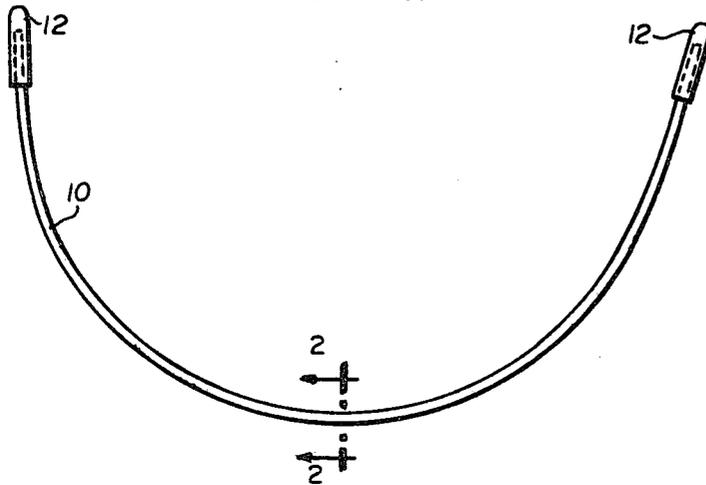


FIG. 2.

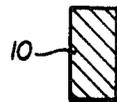


FIG. 3.

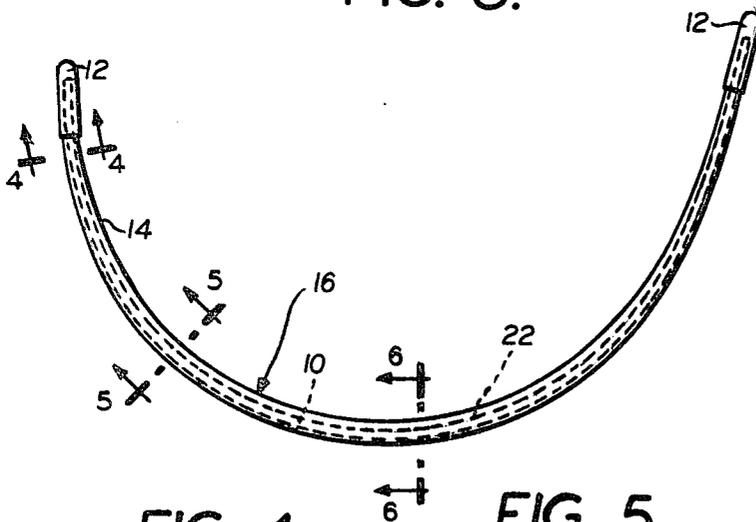


FIG. 4.

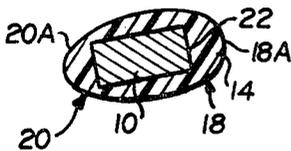


FIG. 5.

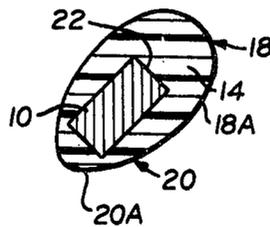
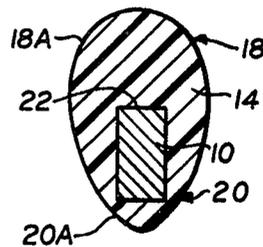


FIG. 6.



INVENTOR  
HERBERT L. SCHWARTZ

BY

*Irving Reisman*

ATTORNEYS.

1

3,605,753

**BREAST SUPPORTING FRAMES**

Herbert L. Schwartz, Kew Garden Hills, N.Y., assignor  
to S. & S. Industries Inc., Bronx, N.Y.  
Filed Apr. 3, 1970, Ser. No. 25,383  
Int. Cl. A41c 1/14

U.S. Cl. 128—476

4 Claims

**ABSTRACT OF THE DISCLOSURE**

A breast supporting frame including an arcuate shaped resilient wire and a sleeve-like member encasing the wire; said sleeve-like member having a pear-shape cross section with the bulbous portion thereof disposed along the concave edge of the wire.

**BACKGROUND OF THE INVENTION**

**Field of the invention**

This invention relates generally to brassieres, and more specifically, to an improved breast supporting frame for use in such brassieres or other similarly related foundation garments.

**Description of the prior art**

Heretofore, it has been proposed to provide brassieres having a pair of spaced breast receiving cups or pockets with arcuate, generally U-shaped supporting frames which extend along the side and bottom peripheral portions of the cups. The use of such supporting frames, that form the stiffening members for the breast cups and their surrounding panel portions, serves to keep the shape of that portion of the brassiere engaging with and containing the breast cups. The supporting frames further serve the purpose of supporting the brassiere to the bust of the wearer, and maintaining the wearer's breasts firmly in the breast cups of the brassiere so as to minimize displacement of the breasts from the breast cups.

Originally, the supporting frames were formed of wire having a round cross-section. However, it was found that if the round cross-section was of suitable diameter to sufficiently resist relative movement of the ends of the frame toward and away from each other and thus provide adequate support, the resistance to flexing of the arcuate frame out of its normal flat plane so as to conform to the contours of the wearer's body was too great, and hence resulted in discomfort to the wearer. Accordingly, it was proposed in U.S. Patents Nos. 2,705,800 and 2,746,052 to form each brassiere frame with a substantially rectangular cross-section having its longer dimension extending radially with respect to the curvature of the frame and thereby having a far greater degree of lateral flexibility than a round wire of the same cross-sectional area, while presenting at least as much resistance to movement of the ends of the frame toward and away from each other as such round wire of equal cross-sectional area.

The utilization of the aforesaid breast frames in brassieres and other garments affords the basis for a proper supporting structure in such garments. However, certainly at least with respect to brassieres, it has been found that in order for the breast supporting frames to satisfactorily perform their intended function, they must be located and positioned in tight abutment with the body of the wearer thereby creating a high degree of discomfort to the wearer. For example, even in the case of support wire frames having a rectangular cross-section, the construction of which to a certain extent reduced some of the discomfort to the wearer, it was found that the longitudinal tension pull on the breast frame resulting from

2

the physical movement of the wearer effected a twisting to the frame in a lateral direction which resulted in the sharp edges or corners thereof being brought into increased pressure engagement with the body of the wearer.

Further efforts were made to reduce the aforesaid discomfort to the wearer, such as by embedding the wire support frame in a suitable coating of predetermined thickness and viscosity; said encasement defining a sleeve-like member of round cross-section which sought to prevent the sharp edges or corners on the breast frame from causing said increased pressure discomfort to the wearer. In this connection, specific reference is made to U.S. Patent No. 3,209,756 which is directed to providing the aforesaid encasement for the breast support frame. Although the invention embodied in U.S. Patent No. 3,209,756 reduced some of the difficulties heretofore described in connection with breast support frames, it was found that the encasement provided for therein, being of particular arcuate cross-section, did not give an optimum distribution of the encasement material with respect to the wire support frame. Thus, it was found that with the major portion of the encasement material disposed along the concave edge portion of the support frame, the discomfort to the user due to the aforesaid increased pressure at the juncture of the underportion of the breast and the body proper is materially reduced. Accordingly, the present invention is directed to disposing the encasement member in such a manner as to provide for the optimum distribution thereof.

**SUMMARY OF THE INVENTION**

The breast supporting frame of the present invention includes an arcuate shaped resilient wire, representing a stiffening member, preferably having a rectangular cross section. A sleeve-like member of polymeric material is provided which encases the wire stiffening member for substantially the entire longitudinal extent thereof. The sleeve-like member is formed having a pear-shape cross section thus defining a bulbous portion and a tapered portion, with the bulbous portion extending along the concave edge of the wire stiffening member and projecting radially inwardly thereof. The present invention further provides for the bulbous portion of the sleeve-like member to progressively decrease in cross section from the mid-section of the wire stiffening member toward the opposite ends thereof.

Accordingly, it is apparent from the aforesaid summary, that an object of the present invention is to provide an encasement member for the wire support frame, which encasement is of such cross section as to result in the optimum distribution thereof to materially reduce the pressure discomfort to the wearer of garments constructed incorporating therein such wire support frames.

A further object and feature of the present invention is to provide an improved breast support frame that is relatively simple in construction and inexpensive to manufacture.

The above and other features and advantages of the present invention will become more apparent from the consideration of the following detailed description when taken in conjunction with the accompanying drawing.

**BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a front elevational view of an arcuate shaped breast frame of rectangular cross section prior to embedding same in an encasement member;

FIG. 2 is a sectional view taken through line 2—2 of FIG. 1;

FIG. 3 is a front elevational view of the arcuate shaped breast frame of FIG. 1, illustrating further the encasement member thereon constructed in accordance with the present invention; and

FIGS. 4, 5 and 6 are each sectional views taken respectively through lines 4—4, 5—5 and 6—6 of FIG. 3.

#### DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, particularly FIGS. 1 and 2, numeral 10 represents an arcuate generally U-shaped resilient wire breast frame representing a stiffening member for the breast cups of a brassiere. The use of such stiffening members and the manner in which they are assembled in a brassiere garment are well known in the art. In the preferred embodiment, it is proposed to construct stiffening member 10 of a resilient metal material having a rectangular cross-section, as shown in FIG. 2, with the longer dimension of such cross-section extending radially of the curvature of the frame. However, it is readily apparent that other frames may be used, for example, formed of a resilient, relatively rigid plastic and/or having circular or other cross-sectional shapes. Accordingly, the specific substance used to construct stiffening member 10 and the preferred rectangular cross-sectional shape thereof are not to be deemed limitations on the present invention. The terminal ends of stiffening member 10 are provided with synthetic resin tips 12 to prevent the end edges from damaging the associated garment and piercing same to the injury of the wearer of such garment. Tips 12 further serve to seal or otherwise lock the marginal end portions of the sleeve-like outer layer or coating member around the case of stiffening member 10 in a manner more fully apparent upon reference to FIG. 3.

Referring now to FIGS. 3 through 6 of the drawing, stiffening member 10 is provided with the aforesaid sleeve-like member 14, defining an encasement for said stiffening member 10. Elements 10, 12 and 14 representing, respectively, the aforesaid stiffening member, tips and sleeve-like member constitute, in combination, the breast frame of the present invention designated generally by the numeral 16.

Sleeve-like member 14 is preferably constructed of a polymeric material; such as polyvinyl chloride, polystyrene, polyesters, etc., and encases a substantial portion of stiffening member 10 along the longitudinal extent thereof. The manner of applying or forming the sleeve-like member 14 on the stiffening member 10 can be accomplished by immersion, partial immersion, dipping spraying or molding operations, or by other techniques more fully disclosed in U.S. Patent No. 3,209,756. The thus coated stiffening member is subjected to suitable heat treatment in an oven whereby the stiffening member is rotated in a selective manner to achieve the desired cross-sectional shape thereof. Upon completion of the heat treatment process, the breast frames are removed from the oven for the tipping or other necessary operations, as more fully described in said patent.

In accordance with the present invention, the sleeve-like member 14 or encasement is constructed or formed having a pear-shape cross section including a bulbous portion 18 having an arcuate surface 18A and a tapered portion 20 extending from the bulbous portion and having

an arcuate surface 20A which merges with arcuate surface 18A. The construction is such that bulbous portion 18 extends along the concave edge 22 of stiffening member 10 and projects radially inwardly thereof. In other words, the radial and transverse dimensions, in cross section, of bulbous portion 18 are much greater than the corresponding radial and transverse dimensions of tapered portion 20; more particularly at the midsection of breast frame 16 and the portions adjacent thereto as generally indicated in FIGS. 5 and 6. The cross section of sleeve-like member 14 is disposed relative to encased stiffening member 10 so as to make said cross section of sleeve-like member 14 symmetrically related to stiffening member 10.

The present invention further provides that the radially projecting bulbous portion 18 progressively decreases in cross section, in the radial and transverse dimensions thereof, from the mid-section of breast frame 16 toward the opposite terminal ends thereof.

It follows that the maximum cross section of bulbous portion 18, as indicated in FIG. 6, is located at the point of greatest relative pressure developed between the breast frame and the underportion of the breast.

While a specific embodiment of the invention has been shown and described in detail, it will be readily understood and appreciated that various changes or modifications thereof may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

I claim:

1. In combination with a breast frame for brassieres including an arcuate shaped resilient wire stiffening member and a sleeve-like member of polymeric material encasing a substantial portion of said stiffening member along the longitudinal extent thereof, wherein the improvement comprises:

- (a) said sleeve-like member having a pear-shape cross section including a bulbous portion and a tapered portion extending therefrom;
- (b) said bulbous portion extending along the concave edge of the stiffening member and projecting radially inwardly thereof.

2. The breast frame as recited in claim 1, wherein the radially projecting bulbous portion progressively decreases in cross section from the mid-section of the breast frame toward the opposite ends thereof.

3. The breast frame as recited in claim 1, further including tip members enclosing the ends of the stiffening member.

4. The breast frame as recited in claim 1, wherein said stiffening member is of rectangular cross section and is substantially symmetrically disposed relative to the cross section of the sleeve-like member.

#### References Cited

##### UNITED STATES PATENTS

3,114,374	12/1963	Chalfin et al. ....	128—476X
3,209,756	10/1965	Rowell .....	128—476
3,378,012	4/1968	Schwartz .....	128—476

RICHARD J. SCANLAN, JR., Primary Examiner