

# United States Patent

3,599,643

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[54] **BRASSIERE FRAME**  
**6 Claims, 4 Drawing Figs.**

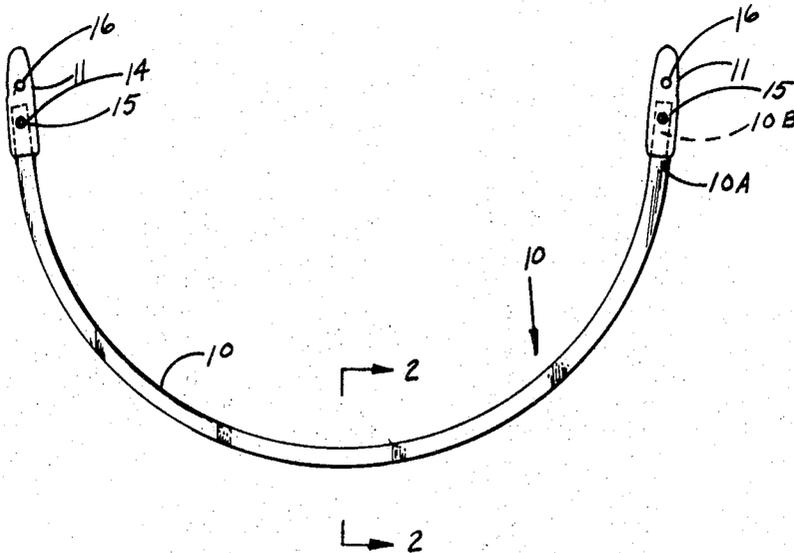
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128/567

[51] Int. Cl. .... **A41c 1/16**

[50] Field of Search ..... 128/465,  
466—476, 456, 477, 567, 568, 570; 2/255, 260,  
264; 287/115, 104, 20.92 B, 20.92 E

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**ABSTRACT:** This disclosure is directed to an arcuate brassiere wire or frame for framing the lower circumferential portion of a brassiere cup to more firmly support the breasts of a wearer. The frame is formed of a flat stock material the ends of which are provided with a protective cover specifically constructed and arranged to protect against wearing through the fabric of the brassiere and to facilitate the sewing of the frame in place in the brassiere cup.



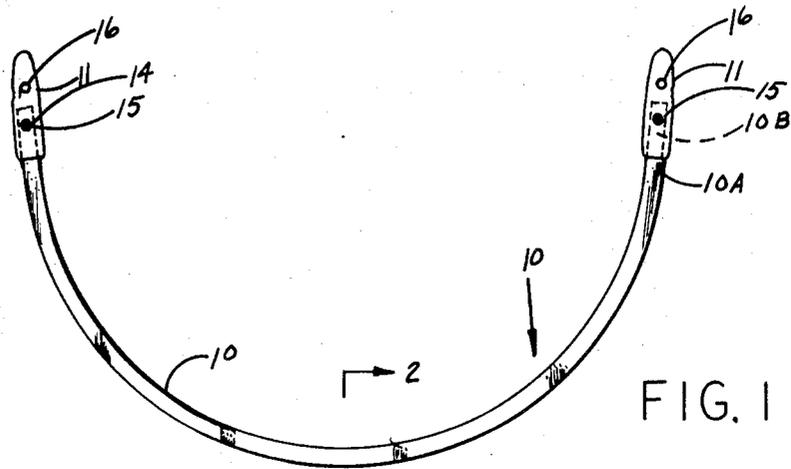


FIG. 1



FIG. 2

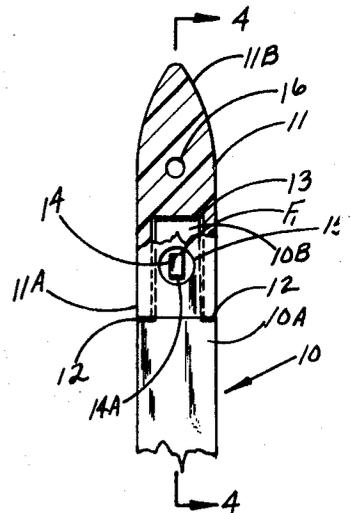


FIG. 3

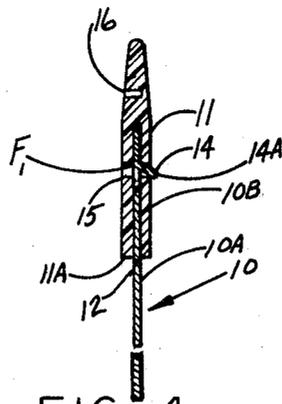


FIG. 4

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## BRASSIERE FRAME

## PROBLEM AND PRIOR ART

Heretofore, it has been customary to reenforce or frame a brassiere cup with a wire frame for added support. Such frames comprised generally an arcuate shape wire, the tips of which were generally dipped with a resin material to protect the sharp end portions from wearing through the brassiere fabric and/or from injuring the wearer. It has been noted that the dipping or coating of the ends of such wire frames created certain undesirable handling problems. Also difficulty has been encountered in firmly securing the end portions of the wire in place within the brassiere. This was because a needle can not be passed through the tip end of the coated frame. For this reason there was present some limited motion of the frame end portion relative to the channel or brassiere cups which in time would result in the tip ends wearing through the fabric of the brassiere.

## OBJECTS

It is therefore an object of this invention to provide an improved brassiere frame in which the ends of the wire are provided with an attachable cap or cover which is frictionally secured to the ends of the frame.

Another object is to provide a wire frame with a frictionally secured cap or cover constructed so that the same can be readily penetrated by a needle so as to be firmly held in place with respect to the brassiere cup.

Another object is to provide a brassiere frame of relatively flat wire having a substantially rectangular cross section having the longer dimension extending radially of the curve and having a greater degree of lateral flexibility than longitudinal flexibility, and the ends of which are protected by an attachable cap or cover.

## BRIEF DESCRIPTION OF THE INVENTION

The foregoing objects, and other features and advantages are attained by a brassiere frame formed of flat stock material having an arcuate configuration conforming substantially to the lower circumferential portion of a brassiere pocket or cup. The stock material is preferably formed with a substantially rectangular cross section having its longer dimension extending radially of the curve so as to have a greater degree of lateral flexibility than longitudinal extensibility. The respective ends of the frame are protected by an attachable cover or cap formed of a plastic material which is frictionally secured to the frame in a positive manner. The cap is preferably formed of a suitable plastic or resilient material formed with an opening in one end for receiving the end or tip portion of the arcuate frame. Complementary means are formed in the tip end of the frame and the associated cap or cover for frictionally securing the cap thereof. The complementary means include a bent tab blanked out of the plane of the frame in which the free end of the tab is remote from the end of the frame. The cap or cover is provided with a hole adapted to receive the free end of the tab. The arrangement of the holding tab is such that the cap or cover may be frictionally slipped over the holding tab during assembly, and which holding tab when in engagement with the hole will resist the removal or displacement of the cap or cover from the end of the frame. The cover or cap is also provided with needle holes formed in the end thereof to facilitate the passing of a needle thereto for securing the tip or cap end to the brassiere.

## FEATURES

A feature of this invention resides in the provision of protecting the tip end of a brassiere wire or frame with a readily attachable end cap or cover which can be positively sewed in place within the fabric of a brassiere cup.

Another feature resides in the provision of a readily attachable cap or cover to facilitate the assembly and manufacture of brassiere cup wires or frames.

Other features and advantages will become more readily apparent when considered in view of the drawings.

FIG. 1 is a plan view of one of a pair of brassiere wires which comprises a frame for a brassiere cup.

FIG. 2 is a cross sectional view taken along line 2-2 on FIG. 1.

FIG. 3 is an enlarged detailed plan view of the tip end construction of the frame of FIG. 1.

FIG. 4 is a vertical section view taken along line 4-4 on FIG. 1.

Referring to the drawings, numeral 10 represents one of a pair of wires forming the supporting frame for a brassiere cup. The frame 10 is of an arcuate configuration which is adapted to substantially correspond to the lower circumferential portion of a brassiere cup. Preferably the frame 10 is formed of a hypereutectoid steel wire having a substantially rectangular cross sectional area as best seen in FIG. 2. The frame 10 is thus formed so that the longer dimension extends radially of the curvature to provide for a greater degree of lateral flexibility than longitudinal extensibility. It will be understood however, that the frame may be formed of other materials, e.g. metals other than steel, plastic, fiber glass etc.

The frame 10 defined in generally sewed into a channel or seam circumscribing the lower portion of a brassiere cup. To prohibit the end portions of the frame or wire from wearing through the fabric of the brassiere cup, and also to protect the wearer from the sharp end edges, a protective cap or cover 11 is attachedly secured to the respective end portions of the frame 10.

As best seen in FIG. 3, the end portion 10A of the frame 10 is provided with a reduced tip end portion 10B. The reduced tip end portion 10B thus defines end shoulders 12 spaced inwardly from the tip ends of the frame.

The protective cap or cover 11 which is adapted to be fitted to the respective end portions 10B of the wire 10 comprise an elongated member preferably having a rounded or smooth end portion as best seen in FIGS. 1 and 2. The cap or cover 11 is suitably formed of a resilient or plastic material; as for example, rubber, a resilient plastic, polyethylene and the like. One end 11A of the cover 11 is provided with an opening 13 for receiving the reduced tip end portion 10B of the frame 10. The opening 13 is provided with a depth corresponding substantially to the length of the reduced tip end portion 10B of the wire so that in the assembled position, the end 11A of the cap or cover is disposed in abutting relationship to the shoulders 12. The shoulders 12 thus function as a stop to limit the insertion of the tip end 10B of the wire into the end 11A of the cap or cover 11. It is to be noted that the opening 13 formed in the end of the cap or cover 11 is dimensioned so as to snugly receive the reduced tip end portion 10B of the frame as best seen in FIGS. 3 and 4. The other end 11B of the cap or cover 11 extends beyond the tip end 10B of the frame and is tapered so as to facilitate the sliding of the arcuate frame 10 through the channel or seam formed in the circumferential portion of the brassiere cup.

Means are provided for positively securing the cap or cover 11 to the end 10B of the frame 10. As best seen in FIGS. 3 and 4 a holding tab 14 is blanked out of the plane of the reduced tip end portion 10B. Referring to FIG. 4 it is to be noted that the holding tab 14 is blanked out of the plane of the tip end portion 10B of the frame about a fold or bend line F1 so that the free end 14A of the tab is remotely disposed from the end of the wire. That is, the fold line F1 about which the tab 14 is bent is disposed between the tip end of the frame 10 and the free end 14A of the holding tab 14. As best seen in FIG. 4, the cap or cover 11 can be readily slipped onto the end 10B of the frame 10 by inserting the end 10B of the frame 10 into the opening 13 formed in the rear end of the cap or cover 11. In doing so the holding tab 14 is deflected so as to permit the insertion of the tip end 10B into the end opening 13 of the cover 11.

Extending transversely to the end opening 13 formed in the cover or cap 11 is a laterally extending aperture 15. The aperture 15 is located at a position so as to overlie the free end por-

tion 14A of the holding tab 14 when the cap or cover member 10 is in abutting position against the shoulders 12, as best seen in FIGS 3 and 4. Because the frame 10 is formed of a resilient or springlike material, it will be noted that the inherent resiliency of the holding tab 14 will permit the free end 14A to spring into the lateral aperture 15 when the aperture 15 is disposed in alignment or opposite the free end 14A. Referring to FIG. 4, it will be noted that with the cap or cover 10 seated in position on the end of the frame 10, the holding tab 14 will tend to resist displacement of the cap or cover 11 away from the end of the wire. In this manner it is to be noted that a detachable cap or cover 11 can be readily fixed to the end 10B of the frame 10, and when in the assembled position cannot be readily removed therefrom, since the free end 14A of the holding tab 14 will resist the removal of the cover or cap from the end of the wire.

The tip end 11B of the cap or cover 11 extending beyond the end opening 13 is provided with one or more holes 16 for facilitating the passage of a sewing needle therethrough. In the illustrated form of the invention the needle hole 16 extends substantially through the thickness of the cap or cover 11. Accordingly it will be noted that with the frame in position within the circumscribing seam or channel of a brassiere cup, the same can be readily sewed thereto by a sewing needle passing through the tip end portion 11B of the cap 11. By thus securing the free end or tip end of the wire frame 10 to the brassiere cup, relative movement between the frame and the brassiere cup is prohibited in the assembled brassiere, thereby prohibiting excess wear from occurring between the frame tip and the brassiere. This restriction in relative movement between the wire frame and the covering brassiere fabric thus prohibits the ends of the frame from wearing through the fabric of the brassiere cups. For this reason the brassiere utilizing the frame construction of the described invention has a longer useful life.

It is also to be noted that the construction of the wire frame 10 is such that the frame has sufficient rigidity in the longitudinal plane to take care of varying sizes and yet be provided with sufficient flexibility in the transverse directions so as to exert little or no pressure against the body.

From the foregoing description it is to be noted that the brassiere frame described not only provides the proper and necessary support to the brassiere cup, but further that the tip ends of the frame are provided with a protective cap or cover 11 which greatly extends the useful life of the brassiere and at the same time protects the wearer from discomfort due to sharp frame ends. Also the cover or cap 11 construction protecting the ends of the frame 10 are constructed and arranged so that the same may be readily secured to the fabric of the brassiere in a positive manner, as for example, by sewing, as to prohibit relative movement between the tip ends and the brassiere fabric.

While the invention has been described with respect to a particular embodiment of the invention it will be readily understood that variations and modifications may be made without departing from the spirit or scope of the invention.

What I CLAIM IS:

1. A brassiere frame adapted for use in a breast pocket for

supporting the breast comprising  
 an arcuate shaped wire for circumscribing the bottom circumferential portion of a breast pocket,  
 and means for covering the opposed tip ends of said wire,  
 said latter means comprising a flexible member having an opening extending into one end thereof adapted to snugly receive the end portion of said wire,  
 and complementary means formed on said wire and said cover member for detachably securing said cover member to said wire, said complementary means including means defining a hole formed in said cover member disposed in communication with the opening in the end of said cover member and extending substantially laterally of said opening, and a holding tab formed out of the plane of said wire adjacent the end thereof, said tab being received in the hole retaining the cover member onto the tip of said wire.

2. The invention as defined in claim 1 wherein the end portion is provided with a reduced tip end portion.

3. The invention as defined in claim 2 wherein said holding tab is blanked out of the plane of said reduced tip end portion.

4. The invention as defined in claim 3 wherein the holding tab is blanked out of the plane of said reduced tip end portion and is bent about a fold line disposed substantially normal to the longitudinal axis of said wire,

and the free end of said holding tab being remote from the free end of said wire.

5. A brassiere frame adapted for use in a breast pocket for supporting the breast comprising

an arcuately shaped wire adapted to circumscribe the bottom edge of a breast pocket,

means for covering the opposed tip end of said wire,  
 said means comprising a flexible plastic cap having an opening in one end thereof for snugly receiving the end portion of said wire,

the end of said wire having a reduced tip end defining a shoulder stop,

said reduced tip end being adapted to be extended into the end opening of said cap whereby the end of said cap is disposed in abutting relationship with said shoulder portions,

said wire having a substantially rectangular cross section with its longer dimension extending radially of the curvature thereof, and having a greater degree of lateral flexibility than longitudinal extensibility,

means for frictionally securing said cap to the respective ends of said wire,

said latter means comprises a holding tab blanked out of the plane of said reduced tip end portion,

said holding tab being bent out of the plane of said tip end portion about a bend line substantially normal to the longitudinal axis of said wire, whereby the free end of said tab is disposed remote from the end of said wire,  
 said cap having a hole for receiving the free end of said tab to secure the tab in position on the end of the wire.

6. The invention as defined in claim 5 and means formed in the end of said cups to facilitate the sewing thereof to a breast cup of a brassiere.

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**Disclaimer**

3,599,643.—*Marcus Schwartz*, Forest Hills, N.Y. BRASSIERE FRAME. Patent dated Aug. 17, 1971. Disclaimer filed June 25, 1973, by the assignee, *S. & S. Industries, Inc.*

Hereby enters this disclaimer to claim 1 of said patent.

[*Official Gazette October 30, 1973.*]