Oct. 5, 1965 R. F. ROWELL 3,209,756

BREAST FRAMES FOR BRASSIERES AND OTHER GARMENTS

Original Filed March 5, 1963

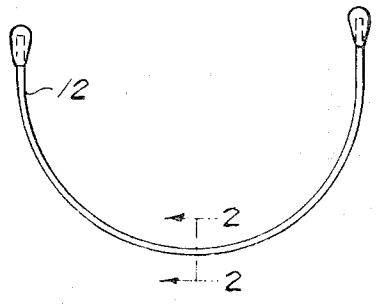


Fig. 1

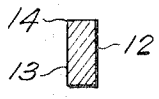


Fig. 2

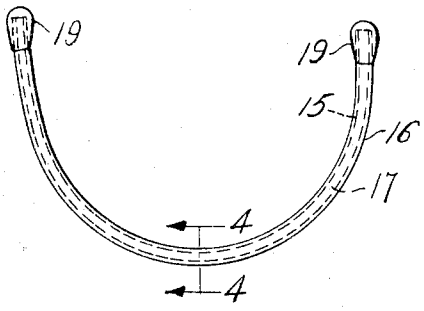


Fig. 3

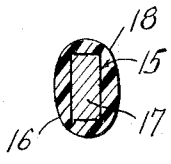


Fig. 4

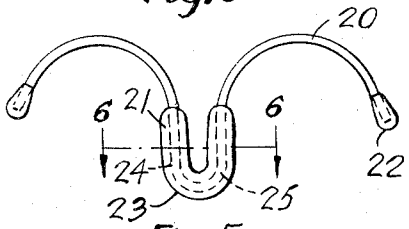


Fig. 5

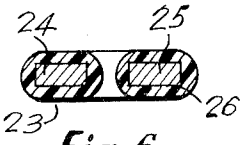


Fig. 6



Fig. 7

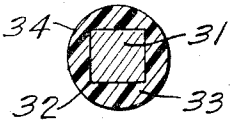


Fig. 8

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BREAST FRAMES FOR BRASSIERES AND OTHER GARMENTS

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Original application Mar. 5, 1963, Ser. No. 262,925. Divided and this application July 30, 1964, Ser. No. 386,199

3 Claims. (Cl. 128—476)

This invention is a divisional application taken from the original patent application for improvements in breast frames for brassieres and other garments and filed in the United States on March 5, 1963, under Serial No. 262,-925. The invention relates to improvements in breast frames for brassieres and other garments, as described in the present specification and illustrated in the accompanying drawing that forms a part of the same.

The invention consists essentially of the novel features of construction as pointed out broadly and specifically in the claim for novelty following a description containing an explanation in detail of acceptable forms of the invention.

The use of arcuate shaped breast frames in brassieres and other garments, that form the stiffening members for the breast cups and their surrounding panel portions, are for the purpose of keeping the shape of that portion of the brassiere engaging with and containing the breast cups and to aid in supporting the brassiere to the bust of the person, when worn, and furthermore, to maintain the wearer's breasts firmly in the breast cups of the brassiere so as to minimize any displacement of the breasts from the breast cups of the brassiere, and thus avoid embarrassment and disconcertion to the wearer. Such purposes have been known for a great many years and used with more or less success.

During the past number of years, there have been many variations as to the shapes of the breast frames, changes in their cross-sectional configurations, differences in respect to their rigidity in longitudinal and lateral directions, and of course, in the use of many different kinds of material for the manufacture of the breast frames, which form the stiffening members for the brassieres and other garments, in aiming to achieve the ultimate in quality, comfort and satisfaction to the wearer.

These variations included brassiere frames having double arcuate or U-shaped stiffening members provided with or without yokes or breast separators, different types of single arcuate or U-shaped brassiere frames that are adapted to surround the underside and sides of the breast cups, breast frames that completely encircle the breast cups, breast frames that simply surround the top side and adjacent sides of the breast cups, and others which encircle one side of the breast cup and the adjacent top and undersides thereof. All these different variations were made in accordance with the style of the brassiere or other garment and the type of breast frame that the garment manufacturer believed would be more efficient in bringing out the outline of the bust portion of the garment, better support for the breast cups in retaining the breasts of the wearer, and with the least discomfort to the wearer.

The materials utilized, in the manufacture of the above type of breast frames and other, were diversified such as the use of whalebone, plastic, wire, metal, fiber glass and/or impregnated canvas, as well as other type or kind of relatively firm material capable of being formed into brace or bust supporting units.

The utilization of such breast frames in brassieres and other garments are rather mandatory, since it is important to maintain a supporting unit in the brassiere to aid in the uplift in the woman's breasts to keep the breasts

in proper position within the garment and with relation with one another, thereby creating a healthful effect to the mind and body of the wearer.

It has been found that it is important for the breast frames, inserted in the channels of the brassiere cups of the brassiere, to be in tight abutment with the body of the wearer so that they will actually receive the pressure or thrust while helping to support and maintain the breasts in the pockets or cups of the brassiere for effecting the uplift to the brassiere cups, and to stiffen the garment so that it will retain its shape and keep its position when secured to the body of the wearer. It was therefore thought that unless the arcuate shaped brassiere frame had great resistance it would be useless to the garment and be impracticable for its purpose.

Although, to a certain extent, these breast frames were satisfactory, it created great suffering to the wearer, and even materially interfered with and impeded the natural tendencies of the breasts to expand and contract under normal movements and functions, furthermore, these breast frames affected the proper breathing of the wearer, as well as other discomforts.

In order to ameliorate the suffering to the wearer caused by the use of these unyielding breast frames, it was necessary to find a material of sufficient resiliency that would permit the arcuate shaped brassiere frame to expand and contract, in a longitudinal direction, to a limited degree so as to reduce the pressure and thrust against the wearer's body, particularly at the sides of the breasts of the wearer, that was ordinarily transmitted thereto by the pressure and thrust absorbed by the arcuate shaped breast frame.

It was ascertained that the most acceptable type of material for use in the manufacture of arcuate shaped breast frames was metal wire of required resiliency, and which would provide the necessary expansion and contraction in the longitudinal direction, such as the wires of round, oval or other equivalent configurations in cross-section. These metal breast frames, provided with the required resiliency in the longitudinal direction, were partially successful as they succeeded, to a limited extent, in relieving the pain caused by the pressure against the body of the wearer in one direction only.

This partial relief, however, only accentuated the pain against the body of the wearer, through pressure in the lateral direction, particularly where the wire frames were usually of substantially U-shaped formation, and were so disposed within the brassiere that the lower arcuate portion of the frame was disposed beneath the breast cup and with the outer portions or legs of the frame spread apart and disposed at each side of the breast cup. In such instances, when the brassiere was worn by the wearer, the longitudinal tension of the frame would only intensify the pressure of the lower arcuate portion of the frame inwardly against the body of the wearer.

Attempts were made to overcome this problem by inserting padding at that point, but without any noticeable result, as this only aggravated the situation and also created an unsightly bulge to that portion of the garment.

Arcuate shaped resilient wire brassiere breast frames of rectangular cross-section were also made and used before, during and after the development of the breast wire frames of round cross-section. These wire frames of rectangular cross-section were designed and constructed to minimize the pressure against the body of the wearer in both longitudinal and lateral directions. This to a certain extent reduced some of the discomfort to the wearer, but it also presented additional problems, because, while reducing the pressure against the body of the wearer, owing to its rectangular cross-sectional configuration, wherein greater lateral flexibility to the wire frame was created, when the brassiere, containing these

breast wire frames of rectangular cross-section, was worn by the wearer, the longitudinal tension pull on the breast frame effected a twisting to the frame in a lateral direction. It may also be mentioned that even if the breast frame of the rectangular cross-section was made from other materials, the result would be the same, as the longitudinal pull to the frame would create a twisting in a lateral direction to the frame.

Consequently, the sharp edges or corners of such brassiere frames of rectangular cross-section would be brought into pressure engagement with the body of the wearer, and when forced pressure and tension would be applied, through the fastening of the garment to the wearer and by the physical movement of the wearer, this would cause the corners or edges of the breast frame to an action of rubbing off, wearing or digging into the body of the wearer. This often resulted and still results in possible skin abrasions and soreness to the skin of the wearer, as well as often damaging the garment itself.

Further attempts were made to overcome the problem by the use of padding between the frame and the fabric of the garment, but this was of little avail, as it only succeeded in adding to the intensity of the pressure and created an unsightly bulging appearance to the garment, particularly around the contour of the breast cups.

From the foregoing, it will be noted that great efforts have been made in the past to provide stiffening members that would fulfill the requirements and at the same time avoid discomfort to the wearer.

Up to the present time, no satisfactory solution has been discovered to design and manufacture an arcuate shaped breast frame that will have the proper resiliency and flexibility in both the longitudinal and lateral directions, and at the same time minimize any discomfort to the wearer. It is also important that consideration has to be given to the delicate fabrics that are used in the manufacture of brassieres, with their dainty natural lines, for the present day wear and in which an unsuitable breast frame could ruin the garment or mar its appearance.

The preferred type of arcuate shaped breast frame would therefore contain the good features of the arcuate or U-shaped breast frames that are approximately round or rectangular in cross-section, and eliminating the bad features of both. The new type of arcuate shaped breast frames must also contain the proper resilient flexibility in the longitudinal and lateral directions, together with the proper rigidity to give it the necessary strength and of the lightest weight possible, as well as providing the breast frames with an approximate circumferential configuration in cross-section.

After many experiments it was found that a new type of material must be added to the arcuate shaped breast frames that have one or more flat surfaces in their cross-sectional configurations in order to overcome the objectionable features of such breast frames while retaining their advantages and adding to the same.

The new added material was to enclose the arcuate shaped stiffening member, forming the core, and to change the cross-sectional configuration of the breast frame into an approximate round formation, in other words, the outer surface should be in a continuous unbroken curvature and have a comparatively smooth surface, soft to the touch, yet with resistance yielding qualities. The surface should not be sticky, yet of sufficient frictional qualities so that the new breast frame may be easily inserted into and removed from a channel surrounding or partially surrounding a breast cup of the brassiere, but sufficiently frictional as to minimize the possibility of any displacement of the frame once it is inserted and placed in the proper location in the breast cup channel.

In further experimentations, it was found that one of the best type of materials containing the properties that would lend itself to the necessary treatment and methods of application would be a coating or encasement for the

core or stiffening member. This material would emanate from the classification of a liquid fluid mix, more specifically, a liquid polymer coating, for the purpose of making a breast frame that would achieve the above-mentioned results.

In order to utilize such liquid polymer coatings, further experiments were necessary to perfect the desired formulae, the required viscosity, heat treatment, time periods and other steps that would require the proper handling of the mix and the core for the purpose of completing a new arcuate shaped breast frame that will result in obtaining the aforementioned achievements desired in such breast frames.

From such experiments, a new arcuate shaped breast frame was developed to meet the requirements, and which, hereinafter will be more particularly described.

The objects of the invention are to devise an arcuate shaped breast frame for brassieres and other garments that will have the proper rigidity and resiliency in both the longitudinal and lateral directions, and which is provided with a curved outer circumference that will eliminate all corners or edges commonly found in other types of breast frames having one or more flat surfaces, as well as to reduce unwanted pressure against the breast of the wearer, when the garment, containing the breast frames, is worn by the wearer.

Another object of the invention is to avoid the necessity of using padding in the brassiere for protecting the breasts of the wearer from contact and pressure by the ordinary type of breast frames.

A further object of the invention is to devise a method whereby an arcuate shaped stiffening member having one or more flat surfaces in cross-section, is changed into a circumferential cross-sectional configuration.

A further object of the invention is to effect a coating or encasement made from a mix of the desired viscosity and thickness to an arcuate shaped stiffening member of substantially rectangular cross-section so that when the arcuate shaped breast frame is completed it will be substantially circumferential in cross-section configuration, and will be comparatively smooth and soft to the touch and yet having resistance yielding qualities.

Still another object of the invention is to devise a method whereby stiffening members, of various cross-sectional shapes, are encased in a predetermined type of prepared coating so as to change the cross-sectional shape of the stiffening member into a configuration of approximately round cross-section, where it has been applied, and thereby eliminating the showing of the corners or edges of the stiffening member from appearing and forming a part of the configuration of the breast frame at the location of the encasement.

A still further object of the invention is to have the arcuate shaped stiffening member, of substantially rectangular cross-section, embedded in a layer, formed of a suitable coating of predetermined thickness and viscosity, in such a way that the stiffening member may turn or twist without effecting the cross-sectional curvature of the configuration thus formed by the combination of the stiffening member and the layer.

An additional object of the invention is the development of a quick and efficient method of application of a coating to an arcuate shaped stiffening member for the formation of an encasement therearound, of a predetermined thickness and of a circumferential curvature, and forming a different cross-sectional configuration to the cross-sectional structure of the stiffening member to complete a breast frame.

A further object of the invention is to utilize the arcuate shaped breast frame as a carrier for a deodorant, and which, when inserted in a brassiere, will not only exude a fragrance but will materially offset any unpleasant odor emanating from perspiration which often occurs around the breasts of a person, furthermore, the deodorant will aid in dispersing any obnoxious odor which might emerge

from the brassiere itself, particularly when the breast cups of a brassiere are made from foam rubber or other material, that after the brassiere has been washed and dried will occasionally emit the odor of the material.

Another object of the invention is to devise breast frames that, when inserted in the breast cups of a brassiere or other garment, will maintain such breast cups in proper engaging position with the wearer's breasts and keep the breast cups from sagging and to bring out their outlines, and enhance the shape and peakness of the breast configurations.

Other objects, advantages and improvements of the means and methods not specifically set forth hereinbefore will be apparent upon the consideration of the following description with the accompanying drawing, in which:

FIGURE 1 is a plan view of an arcuate shaped breast frame of a rectangular cross-section that has been used in the past.

FIGURE 2 is a cross-sectional view as taken along the line 2—2 in FIGURE 1.

FIGURE 3 is a plan view of an arcuate shaped breast frame made in accordance with the present invention.

FIGURE 4 is a cross-sectional view as taken along the line 4—4 in FIGURE 3.

FIGURE 5 is a plan view of a double breast frame made in accordance with the present invention.

FIGURE 6 is a longitudinal sectional view as taken along the line 6—6 in FIGURE 5.

FIGURE 7 is a sectional view of another form of a breast frame structure.

FIGURE 8 is a sectional view of a further form of a breast frame structure.

Like numerals of reference indicate corresponding parts in the various figures.

In describing the following acceptable forms of breast frames made in accordance with this invention, it will be noted that the stiffening members are made of a resilient metal material, but it is to be pointed out that stiffening members may be made from other materials and used as the cores for the breast frames, and that coatings could be applied thereto in accordance with the methods and liquid fluid mix as hereinafter described, with modifications, ramifications and variations as to the methods and of the mix without departing from the spirit of the invention.

In the use of arcuate shaped resilient wire breast frames of round cross-section, it has been found that such wires have too much flexibility in a longitudinal direction and too much rigidity in the lateral direction, and if the rigidity is increased longitudinally then there is no longer any resiliency either in a longitudinal or in a lateral direction. Thus, the very effectiveness and adaptability of the round cross-sectional wire breast frame is lost.

In the use of the arcuate shaped resilient wire breast frames of rectangular cross-section, proper flexibility longitudinally and laterally may be obtained in accordance with the tension desired in a breast frame. However, as previously stated, this very structure creates a lateral twisting of the breast frame when tension is applied to the breast frame in a longitudinal direction and thereby causing the edges or corners of the breast frame to come into pressure contact with the breast of the wearer wearing a brassiere containing such breast frames.

The formation of arcuate shaped stiffening members of various cross-sectional shapes, with at least one flat surface, and the transformation of such cross-sectional formations into approximately round or oval cross-sectional configurations, is accomplished through the application of a liquid mix, and more specifically of a liquid polymer coating such as plastisol, latex or other variations of the coating in accordance with the kind of material that is used in the manufacture of the stiffening members.

The application of the coating to the stiffening members may be accomplished in many different ways, as for example through immersion, partial immersion, dipping, spraying, rolling or by other applications. This coating structure, that envelopes the core and provides a circumferential configuration in cross-section, permits the arcuate shaped breast frame, that is thus formed, to retain the advantages derived from both the arcuate shaped breast frames of rectangular and approximately round in cross-section, while eliminating the edges or corners from appearing in the circumferential configuration in cross-section of the developed arcuate shaped breast frame, and also provides the required flexibility and rigidity to the arcuate shaped breast frame in both the longitudinal and lateral directions.

An acceptable type of coating is that of plastisol, which consists of a base of polyvinyl chloride, a plasticizer such as, a phthalate ester, phosphate, diabasic acid, asipate, resins, etc.; a stabilizer such as, tin organics, barium cadmium, zinc, lead stabilizers or equivalents, a filler such as, calcium carbonate, clay, a clay filler, or a wood flour, a pigment such as titanium oxide; and to this mix may be added, if desired, a masking deodorant, perfume or other scent.

The percentages and tolerances of the ingredients differ in accordance with the viscosity, density and other essentials desired of the mixture. A suitable example would be:

The Mix	Percentage	Tolerance
Base	58	55-65
Plasticizer	27	25. 50
Combined stabilizer, filler, pigment and deodorant	15	10-25

The above-mentioned preparation would provide a liquid fluid mix of the proper viscosity and density for its application to the arcuate shaped stiffening members, and in regards to the softness and hardness of the coating required.

The proper testing of the viscosity is generally made by a standard dipping viscosity measured on a Brookfield viscosimeter or a similar device for measuring the viscosity or resistance to flow.

A preferable type of stiffening member, to be used as a core for the breast frame, would be a resilient arcuate shaped stiffening member of rectangular cross-section, made from metal and having the proper rigidity and flexibility in the longitudinal and the lateral directions.

These resilient arcuate shaped stiffening members are inserted into a thermostatically controlled oven for preheating in a temperature that will be approximately between the range of 300 degrees and 1,000 degrees Fahrenheit, and subjected to the selected heat temperature for a predetermined period of time.

This selected preheat temperature of the stiffening members must be sufficient to permit a loss of up to approximately 100 degrees Fahrenheit over and above the critical heat temperature desired for the stiffening members when they are immersed in the mix. This is to allow any heat loss that may occur between the time of removing the stiffening members from the oven and submitting them to the mix.

The stiffening members, heated to the approximate heat temperature desired, are now immersed into the mix and allowed to remain there until the required coating is applied to all parts of the stiffening members, that are submerged in the mix, and then removed therefrom.

The thus-coated cores or stiffening members are now ready for complete fusion and are placed into an oven for the heat treatment. The range from which the desired critical heat temperature is taken, and that will be most suitable for the fusion of the coating to the core or stiffening member, is generally between 500 degrees and 1,000 degrees Fahrenheit. Again depending upon the type of mix used, the viscosity, the kind of material used for the core or stiffening member and the cross-sectional shape of the core, as well as the cross-sectional thickness and

curvature of the breast frame configuration that is to be desired.

The coated cores are then permitted to remain in the oven for a predetermined period, at the selected heat temperature and then removed therefrom for the tipping or other necessary operations for the completion of the breast frames.

Another type of liquid fluid mix that may be used for making a liquid polymer coating is that of latex. This latex may consist of a base formed of butadiene, styrene, neoprene or other substances; as for the curer, sulfide, zinc oxide or accelerator could be used; a filler of calcium carbonate; a pigment of titanium oxide; this composition of matter may or may not include a deodorant, according to the wishes of the trade.

The proportions of the substances in the mix may be varied in accordance with the requirements, such as the cross-sectional shape of the stiffening member, the kind of material from which the stiffening member is made, the viscosity of the mix, the thickness of the coating, the curvature of the cross-sectional configuration, and the hardness or softness qualities desired in the coatings for the breast frames.

In using the latex type of liquid polymer coating, it is unnecessary to preheat the arcuate shaped stiffening members. These stiffening members are simply immersed in the latex mix and allowed to remain there for a sufficient time until the desired coating is applied to all parts of the stiffening members that are submerged in the mix.

The coated stiffening members are removed from the mix and placed in a thermostatic controlled oven, and subjected to the heat temperature selected between an approximate range of 500 degrees and 1,000 degrees Fahrenheit for a predetermined period of time and then handled in a similar manner as that described for the plastisol mix.

It may be noted that there are many variations of liquid polymer coatings, depending upon their origin, such as for example the polyvinyl chloride forming the base, and therefore the percentages and the tolerances may have to be changed accordingly, as well as the plasticizers, stabilizers and fillers to insure the right percentage, viscosity and tolerance, together with the inclusion of a thinning agent, if required.

The coating that encircles the core of the stiffening member may be in the form of a tight sleeve, in which the stiffering member may twist without affecting the coating, or the coating may adhere to or otherwise frictionally engage with the stiffffening member, in such instances, any twisting of the stiffening member will have no effect on the coating, due to the approximate round cross-sectional configuration of the breast frame.

After the coating operations, the arcuate shaped breast frame is then completed by dipping the ends of the frame into an epoxy resin or other mix for forming the tips and sealing the ends of the breast frame.

The breast frames with the epoxy resin tips are then baked in an oven for a period of time, after which they are removed and are ready to be used. Alternately, instead of baking the breast frames with their tipped ends, they may be allowed to dry in room temperature, all depending on the type of mix used and other circumstances surrounding the type of coating, the kind of material forming the core and other problems that may have to be taken into consideration.

The tips, closing and sealing the ends of the frame also overlap and engage with the end portions of the coating or outer layer of the breast frame and lock the sleeve-like coating in proper position on the core or stiffening member.

It is of course understood that other mixes may be used to form the tips, or that the coating or outer layer may form its own tips for the free ends of the breast frame.

In FIGURES 1 and 2 of the drawings, a standard

type of breast frame is shown, which is in the form of an arcuate shaped resilient wire brassiere frame, as indicated by the numeral 12, of a rectangular cross-section and having the flat surfaces 13 and the corners or edges 14. The free ends of the stiffening members are tipped or otherwise covered and this completes the structure of the breast frame.

In FIGURES 3 and 4, the breast frame, as made under the present invention, is shown in the form of an arcuate or U-shaped breast frame 15 provided with an outer layer or coating 16 that completely envelops an arcuate or U-shaped core or stiffening member 17, made from a resilient metal material and which is rectangular in cross-section and has the usual sharp corners or edges.

The outer layer or coating is formed of a continuous curvature 18 around its circumference, while its inner perimeter closely abuts and follows the outline of the rectangular cross-section of the core. The ends of the breast frame are provided with the tips 19 for sealing the same and locking the sleeve-like outer layer or coating in fixed position around the core of the breast frame.

Thus the arcuate shaped breast frame is provided with the proper resilient flexibility in the longitudinal and lateral directions, together with the proper rigidity so as to give the breast frame the desired strength, and is made of the lightest weight, all being accomplished through the combination of the structure of the core and the structure of the coating in cross-sectional configuration of the breast frame.

As previously mentioned in the foregoing description, the objectionable features in using the old type of arcuate shaped brassiere frame of rectangular cross-section, is that when the brassiere, containing such breast frames, is worn by the wearer, a longitudinal tension pull is applied to a breast frame, it causes a twisting to the breast frame in the lateral direction. Thus the sharp edges or corners of the rectangular cross-sectional breast frames are brought into engagement with the body of the wearer.

In this invention, such objectionable features are completely eliminated through the creation of a coating or layer around the stiffening member that has a continuous curvature around its circumference and an inner perimeter that closely follows and engages the outline of the rectangular cross-section of the core or stiffening member.

This coating, or what might be called an encasement or sleeve, is shaped, in cross-sectional configuration, similar to the approximate cross-section of an arcuate shaped breast frame that has been used in the past. In this way, the favorable qualities of the arcuate shaped resilient wire breast frame of round or oval cross-section is maintained without retaining its defects, such as too much resiliency longitudinally and too much rigidity laterally.

FIGURES 5 and 6 illustrate a double breast frame, as made in accordance with this invention, formed of a double arcuate shaped resilient stiffening member 20, having the yoke 21 and the usual tips 22 that are secured to or form an integral part of the ends of the stiffening member.

The double arcuate shaped breast frame is partially immersed in the mix so as to apply the necessary coating 23 to the yoke 21 and which will include an encasement of the portions 24 and 25 of the frame, thus changing the longitudinal section of the yoke into a circumferential configuration.

This partial immersion of the double breast frame is made when it is only desirable to encase the yoke portion of the breast frame so as to relieve pressure at that point against the breasts of the wearer, and to prevent the edges or corners of the yoke portions of the stiffening member from coming into direct contact with the brassiere material and pressure engagement with the body of the wearer.

The sectional view of FIGURE 7 illustrates another

cross-sectional form of configuration of a breast frame in which the stiffening member **27** has one flat surface **28** and the corners or edges **29**, and, after the coating **30** has been applied, a cross-sectional circumferential configuration is effected.

In FIGURE 8, another modification of a breast frame is shown in section, and in which the stiffening member **31** is square shaped in cross-section and has the corners **32**. When the coating **33** has been applied, it will be noted, that there again, the breast frame is formed with a circumferential configuration **34** in cross-section.

From the above illustrations, it will be seen that a great many variations of cross-sectional shapes of stiffening members may be used to form the core of the breast frame. Such cores of any cross-sectional shape may be enveloped in a coating, through the methods and applications as hereinbefore described, providing the core has one or more flat surfaces, for the completion of the breast frame and that will be provided with a circumferential cross-sectional configuration.

As hereinbefore mentioned, the breast frame, as made in accordance with this invention, may form a carrier for a deodorant so that it will exude a fragrance and at the same time aid in the offsetting of an unpleasant odor emanating from perspiration which sometimes occurs around the breasts of a person, as well as aiding to disperse any malodorous odor that might occur from the brassiere itself, such as from the material of the breast cups. This is accomplished by the introduction and dispersion of a special quantity of a masking deodorant.

The deodorant may be of any suitable substance that will diffuse an odor which will be pleasant to the smell and suggest the presence of flowers, such as sweet peas, roses, violets and other frangrances, perfumes and other redolences, and at the same time neutralize the odors caused by the insensible evacuation of the fluids from the body of a person through the orifices of the skin.

The arcuate shaped breast frame readily lends itself to be a satisfactory carrier of the deodorant as it fits partially around the curvature of the breast, so that the exhalation of the deodorant is distributed equally around the curved area of the breast. As every brassiere, using stiffening members therein, is provided with either a pair of breast frames or a double breast frame, it will be apparent that the fragrance will be nicely distributed throughout the brassiere.

It will therefore be apparent that the arcuate shaped core or stiffening member will have one or more flat surfaces, in cross-section, at all times, for the proper resilience and flexibility in the longitudinal and lateral directions, together with the required rigidity to be obtained.

This core is enclosed in an encasement made from a specially prepared liquid fluid mix, which is applied to the core by the methods hereinbefore described and thus transforming the cross-sectional shape of the breast frame into a circumferential configuration. This eliminates the corners or edges of the core from coming in contact with the brassiere material and also prevents the corners or edges from effecting an inwad pressure engagement effectively against the breasts of the wearer.

This is, of course, accomplished owing to the circumferential cross-sectional configuration of the breast frame and to the actual type of material used in the formation of the coating or encasement of the core.

It is to be understood that the forms of the invention herewith shown and described are to be taken as acceptable examples of the same, and that various changes in the ingredients and their proportions may be made, and changes in the order or steps resorted to, without departing from the spirit of the invention, or in the scope of the subjoined claims.

What I claim is:

1. A breast frame for brassieres and other garments comprising an arcuate shaped resilient wire stiffening member of rectangular cross section having a sleeve-like member of polymer material of arcuate configuration encasing said member and having a continuous circumferential configuration in cross section, and tips enclosing the ends of the stiffening member and overlapping the end portions of the sleeve-like member.

2. A breast frame for brassieres and other garments as claimed in claim **1**, in which the sleeve-like member of polymer material is so constructed that its inner surface will follow the outline of the configuration of the encased stiffening member in cross-section while the configuration of the sleeve-like member will have a continuous circumferential configuration in cross-section whereby the stiffening member will be permitted a restricted freedom of movement within its encasement without affecting the cross-sectional curvature of the configuration of the breast frame.

3. A breast frame for brassieres and other garments as claimed in claim **1**, in which the sleeve-like member of polymer material forms an encasement of the stiffening member and leaving the free ends thereof exposed, and tips enclosing the exposed ends of the stiffening member and merging therewith for completing the breast frame and retaining the sleeve-like member in a fixed position around the wire stiffening member.

References Cited by the Examiner

UNITED STATES PATENTS

2,608,689	9/52	Van Leuven	128—469
2,923,300	2/60	Ots	128—469
3,033,205	5/62	Walters	128—469
3,114,374	12/63	Chalfin et al.	128—465
3,126,007	3/64	Jonas	128—476
3,130,505	4/64	Markevitch	156—252

FOREIGN PATENTS

871,223	6/61	Great Britain.

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