

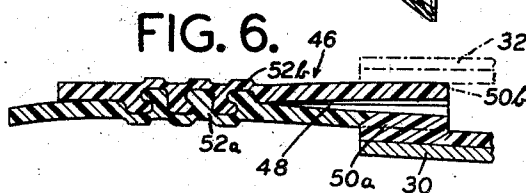
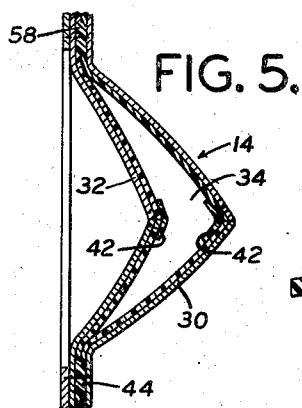
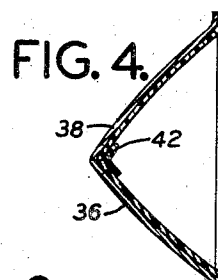
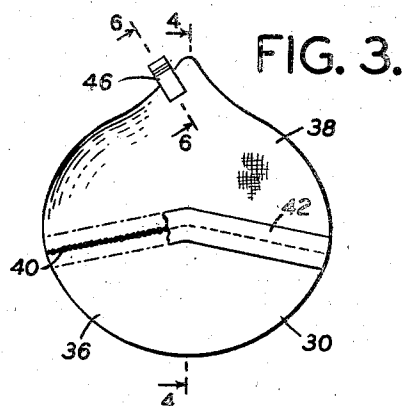
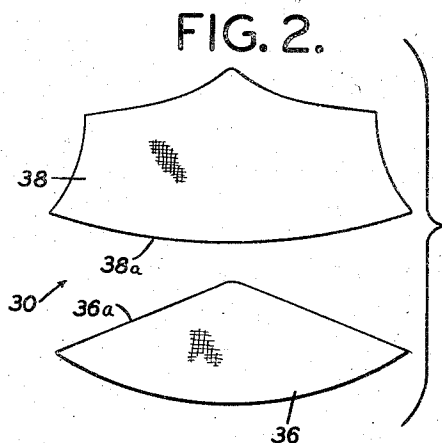
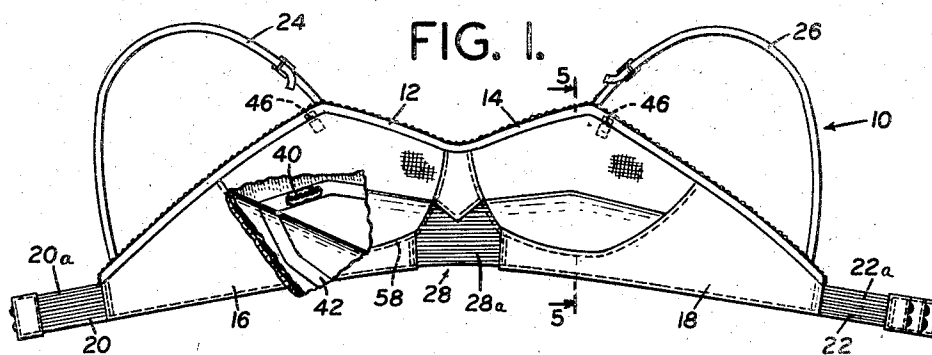
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INFLATABLE BRASSIERE

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INFLATABLE BRASSIERE

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The present invention relates to inflatable brassieres, in particular to an integral brassiere construction having inflatable cup sections which are unitary with the brassiere and not readily distinguished therefrom in inflated or non-inflated conditions. In realizing the non-distinguishing character of the inflatable brassiere cups from the remaining portions of the brassiere, the present invention employs air-impervious fabrics for the cups which are of the same material as the remaining portions of the brassiere.

Numerous brassiere constructions of the padded or inflatable types are available for filling out the contour of the female figure in the bust regions. A typical inflatable construction involves the use of removable or non-removable inserts received within fabric pockets formed in the brassiere. These inserts may be initially sealed with air entrapped therein, or in the alternative may be provided with appropriate closeable air inlets. Among the many disadvantages of the constructions using inserted bust-forming devices are the potentially embarrassing situations which the wearer is in fear of in that their use may be discovered during laundering, drying, dressing or disrobing; the fear that the inserts may be dislodged from their respective cloth pockets, may be misplaced and/or found by others; the adverse psychological reaction experienced in the process of inserting, handling, and wearing; and in the non removable type, where the inserts are permanently sewed into the cloth pockets, the possibility of the inserts shifting, bunching or wrinkling unnaturally through frequent laundering and wear. Since the cup portions cannot be ironed with a hot iron, wrinkled cups are a never ending source of irritation and concern. This may be the principal reason for most inflatable device brassieres on the market being of the removable-insert type. Even if the removable inserts are not readily discovered, the presence of insert-receiving pockets in the brassiere per se is a tell-tale reminder.

The disadvantages attendant to use of the inflated-type of insert find equal application to those fabricated wholly or partially of padding materials, such as sponge rubber, felts, interfacings and other similar porous and sometimes water-absorbing materials. Even though the water absorbency of certain material, such as sponge rubber may be overcome by a waterproof lining, other disadvantages exist or are created. Little can be done to overcome density, bulk, and weight and in general the physical character and appearance of brassieres using these devices. In trying to overcome disadvantages, such as water absorbency, other factors may be introduced, for example increased cost and complexity in fabrication.

Accordingly, it is an object of the present invention to provide an inflatable brassiere obviating one or more of the aforementioned difficulties. It is within the contemplation of the invention to provide a brassiere construction characterized in that the body contouring is incorporated in a manner completely compatible with a natural looking unpadded brassiere and without introducing appurtenances of any kind.

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It is a further object of the present invention to provide a brassiere having the characteristics in contouring of those brassieres employing inserted devices, yet embodying the flexibility and natural appearance of conventional unpadded brassieres.

It is a still further object of the present invention to provide an inflatable brassiere construction which is similar in appearance and function to conventional unpadded and unenhanced brassiere constructions.

It is a still further object of the present invention to perfect a brassiere which looks exactly like and feels like a conventional brassiere, does not employ any bust-forming inserted or insertable devices of any kind or type, yet accomplishes the bust-forming function of these devices.

It is a further object of the present invention to perfect a brassiere which looks exactly like and feels like a conventional brassiere, does not employ any bust forming inserted or insertable devices of any kind or type, yet accomplishes the bust forming function of these devices and can be laundered in the conventional manner without the risk of wrinkling or the necessity of ironing the cup portions. In this sense, the cup portions of the brassiere may be considered wrinkle-resistant.

In accordance with one aspect of the invention, a brassiere is formed including a pair of bust-receiving cups each fabricated of cloth having one surface integrally coated with an air-impervious and heat-sealable thermoplastic film. Each of the bust-receiving cups is constructed of first and second cup-forming members fashioned from the cloth and having their respective coated surfaces innermost and in face to face relation, that is with the coated surfaces completely hidden from view and all exposed surfaces having the natural appearance of the cloth. The cup-forming members are joined peripherally by a heat-sealed band formed by fusing the respective coated surfaces together, such that the coatings cooperate to define an air-retaining space.

The above objects and brief description as well as further features and advantages of the present invention may be best understood by reference to the following detailed description of a presently preferred embodiment, when taken in conjunction in the accompanying drawings, wherein:

Fig. 1 is an elevational view, with parts broken away, folded back and sectioned showing a brassiere embodying features of the present invention;

Fig. 2 is a plan view of illustrative fabric blanks used in constructing a brassiere cup of a type incorporated in the brassiere of Fig. 1;

Fig. 3 is an inside elevational view, with parts broken away, showing partially completed brassiere cup;

Fig. 4 is a sectional view on a reduced scale taken substantially along the lines 4—4 of Fig. 3 and looking in the direction of the arrows;

Fig. 5 is a sectional view, on an enlarged scale, taken along the lines 5—5 of Fig. 1 and looking in the direction of the arrows; and

Fig. 6 is a sectional view on an enlarged scale taken along the lines 6—6 of Fig. 3 and looking in the direction of the arrows.

Referring now specifically to the drawings, there is shown in Fig. 1 a brassiere 10 illustrating a preferred form of the present invention which includes a pair of bust-receiving cups 12, 14, front and body-encircling bands or panels 16, 18, back body-encircling bands or panels 20, 22, and adjustable shoulder straps 24, 26. Except for the details of the respective breast-receiving cups 12, 14 and the manner of their incorporation into the illustrative brassiere the remaining details of the brassiere may follow any of the well known and accepted forms. In the illustrative construction shown, bands or

panels 16, 18 are joined together and to the breast-receiving cups 12, 14 by a separating or spacer panel 28 having an insert 28a of horizontally stretchable material, such as elastic. Likewise, the back body-encircling bands or sections 20, 22 are provided with elastic inserts 20a, 22a.

In accordance with the present invention, both of the breast-receiving cups 12, 14, as well as various other portions of the brassiere 10, are constructed from well known brassiere fabrics, such as satin, nylon, cotton, or broadcloth. However, the material used in forming the breast-receiving cups 12, 14 additionally is treated in a preliminary operation by the application thereto of an air-impervious thermoplastic coating or film of heat-sealable material, such as a vinyl plastic. This coating may be readily applied to any of the wide variety of materials suitable for construction of brassieres in accordance with techniques and practice well understood per se. It is to be stressed that only one surface of the material used in forming the brassiere cups is provided with the heat-sealable plastic coating, and the presence of the coating on this one surface in no way affects the outward appearance of the fabric. Likewise, the presence of the thermoplastic coating does not materially affect the feel or hand of the uncoated surface of the coated fabric and accordingly the coating is not readily discernable by touch or appearance.

Specific reference will now be made to Figs. 2 to 5 inclusive, wherein there is shown, in sequence, typical forming operations in the construction of the respective breast-receiving cups 12, 14, each of which is seen to include in Fig. 5 in front and rear cup-forming members 30, 32 each curved concavely forwardly in relation to a reference plane extending through peripheral portions of the breast-receiving cup. The front and rear cup-forming members 30, 32 define an air space 34 therebetween and are essentially the same in construction, except that the rear cup-forming member 32 is somewhat less concave than the front cup-member 30 and therefore it will suffice to describe only one in detail. Specifically, the front cup-forming member 30 is constructed of a pair of cutouts or blanks 36, 38 formed with adjacent contoured edges 36a, 38a adapted to be sewn together such that the joined-together blanks assume the desired configuration of the well known brassiere cup. Numerous other cup constructions are equally within the contemplation of this invention, such as cups having respective sections or blanks joined together along a vertically-extending seam, or a one-piece blank darted or pleated to obtain the desired contouring. When the sections or blanks 36, 38 are joined together by stitching 40 or the like, as a special feature of the invention air-sealing means 42 are disposed coextensive with the seamed together edges internally of the cup-forming member 30. With the coated surfaces of the fabric sections 36, 38 disposed internally of the cup-forming member 30, the sealable means 42 may take form of a strip of plastic material which is heat sealed along both sides of the seam 40 throughout its length; in the alternative, the sealable means 42 may be in form of a strip of fabric impregnated or coated with a heat-sealable plastic capable of forming an intimate bond on both sides of the seam with adjoining regions of the plastic-coated fabric of the cup. The presence of the binding or sealing strip 42 internally of the cup-forming member 30 does not affect the feel or outward appearance of the brassiere, and in a sense is advantageous due to its fashioning effect in that it serves as a lateral reinforcement. The inner or back cup-forming member 32 is constructed in a manner similar to the outer or front cup-forming member 30 except that it is slightly less curved and cooperates with the outer cup-forming member 32 to define the air cavity or chamber 34.

The cup-forming members 30, 32, are peripherally joined together by a relatively wide swath or band 44

formed by heat sealing the confronting faces of the respective air-forming members 30, 32. The heat-sealed band 44 may be formed by well known heat-sealing equipment, with special provision to obtain the required annular weld which is of a width sufficient to provide for the complete air-sealing of the cavity 34. The described assembly for forming the respective breast-receiving cups 12, 14 assures the provision of a completely air-tight cavity or enclosure 34. As described the entrapped air within the chamber or enclosure 34 provides a contouring effect. However, as a preferred form of the invention, the chamber or enclosure 34 is rendered selectively inflatable such that the contouring effect may be varied at the will of the wearer. This may be accomplished by provision of appropriate air-inlet means, designated by reference numeral 46. In addition to providing adjustability as to contouring, the air-inlet 46 permits the contents of the respective air chambers to be completely exhausted except for residual air contained therein, as when it is desired to wear the brassiere without any contouring or padding effect. It is to be stressed that in the illustrative arrangement of Fig. 5, the difference in shape of the front and rear cup-forming members 30, 32 has been somewhat exaggerated, these members being substantially coextensive and virtually in contact with each other except when the chamber 34 is inflated. In this sense, the brassiere can selectively take on the forming characteristics of the unenhanced conventional brassieres, or the padded contouring brassieres that contain inserted devices.

One form of air inlet 46 advantageous for incorporation in the brassiere of the present invention includes an elongated relative flat conduit 48 of plastic material sealed at one end, as by welds or heat seals 50a, 50b to the adjacent internal coated surfaces of the respective cup-forming members 30, 32. Traversing the conduit or tube 48 are transversely-extending cooperating male and female parts 52a, 52b which are formed to releasably interlock and are separable by spreading the overlying and interlocking male and female parts. Terminal portions of the air inlet tube 48 are arranged to provide pull tabs or the like such that the several rows of transverse sealing parts may be disengaged by a simple manual operation. Although other releasable closures or seals are within the contemplation of this disclosure it is to be noted that the described form is readily incorporated into the brassiere construction and is substantially flat so that it may be disposed in relation to the components of the brassiere to be hidden from view, as shown in the drawings.

Both breast-receiving cups 12, 14 constructed in accordance with several principles set forth are incorporated into the brassiere construction, as shown in Fig. 1, by stitching, generally designated by the reference number 58 which may extend through the relatively wide heat sealed swaths or bands 44 and the overlapped layers of the cloth panels 16, 18 and 28. It is to be observed that the stitching 58 is disposed in relation to the sealed band 44 such that the air retention quality of the seal is not disturbed.

When thus incorporated, it is to be again stressed that the breast-receiving cups 12, 14, each of which is formed with a selectively inflatable or permanently inflated air tight cavity, have all of the characteristics of the conventional brassiere, the general appearance of the assembly not being changed by the presence of the air-sealed cups such that they are readily distinguished without careful inspection. It is to be further observed that the position of the respective air inlets 46, is such that when the brassiere is on the wearer, the air inlets are not readily seen. The air inlets can be located at any convenient and accessible position, and preferably at the point which the shoulder straps are joined to the brassiere cups 12, 14 such that the air inlet exerts minimum pressure on the body of the wearer.

In view of the illustrated form of the invention wherein

separable inlets or valves are provided for the individual breast-receiving cups 12, 14, it is within the contemplation of the invention to have a single air inlet having outlets in communication with both breast-receiving cups 12, 14.

A brassiere constructed according to the present invention may be utilized without the inflatable characteristics. However, if it is desirable to enhance the female contour in the bust regions, the respective cups may be individually inflated preliminary to donning the brassiere, or in the alternative distended to the required size after being placed about the body of the wearer. In the latter instance, it may be necessary to use a removable air tube or extension in accordance with well understood practices. The term "brassiere" as employed herein is intended to include brassieres per se, as well as other garments, such as foundations, corsets, bathing suits and the like which incorporate a brassiere section or part.

From the foregoing description it will be appreciated that the several functions of the body contouring have been incorporated in a brassiere construction in which the contouring portions of the brassiere are not readily distinguished from the remaining portions of the brassiere, either by sight or feel, and that the fabric employed for the breast-receiving cups is same as the remaining portions of the brassiere except for the non-visible coatings applied to the inside faces of the respective cups.

While in accordance with the provisions of the statutes, I have illustrated and described the best embodiment of my invention now known to me, it will be apparent to those skilled in the art that changes can be made in the embodiment disclosed without departing from the spirit of my invention as set forth in the appended claims and that in some cases certain features of my invention may be used to advantage without a corresponding use of other features.

What I claim is:

1. In a brassiere, a body portion and a pair of bust-receiving cups, each of said bust-receiving cups being fabricated of air-impervious, heat-sealable thermoplastic material and including first and second cup-forming members fashioned from said material and disposed one within the other and having confronting peripheral portions, said members being joined adjacent said peripheral portions by a heat-sealed band to provide an air-retaining space therebetween, stitching peripherally attaching said bust-receiving cups to said body portion, and closable inlet means in communication with said air-retaining space for admission of an inflating medium to said air-retaining space, said inlet means including confronting plastic walls marginally joined to define a conduit in communication with said air-retaining space, and interlocking and complementary male and female sealing parts formed integrally with and internally of said walls, said sealing parts extending across

said conduit and serving to close said conduit when interlocked.

2. In a brassiere, a body portion and a pair of bust-receiving cups, each of said bust-receiving cups being fabricated of air-impervious, heat-sealable thermoplastic material and including first and second cup-forming members fashioned from said material and disposed one within the other and having confronting peripheral portions, said members being joined adjacent said peripheral portions by a heat-sealed band to provide an air-retaining space therebetween, stitching peripherally attaching said bust-receiving cups to said body portion, and closable inlet means in communication with said air-retaining space for admission of an inflating medium to said air-retaining space, said inlet means including confronting plastic walls marginally joined to define a conduit in communication with said air-retaining space, interlocking and complementary male and female sealing parts formed integrally with and internally of said walls, said sealing parts extending across conduit and serving to close said conduit when interlocked, and integral tabs outwardly of said sealing parts for separating said sealing parts.

3. In a brassiere, a body portion and a pair of bust-receiving cups, each of said bust-receiving cups being fabricated of air-impervious, heat-sealable thermoplastic material and including first and second cup-forming members fashioned from said material and disposed one within the other and having confronting peripheral portions, said members being joined adjacent said peripheral portions by a heat-sealed band to provide an air-retaining space therebetween, the inner one of said members having a fabric face for contact with the body of the wearer, stitching peripherally attaching said bust-receiving cups to said body portion, and closable inlet means in communication with said air-retaining space for admission of an inflating medium to said air-retaining space, said inlet means including confronting plastic walls marginally joined to define a conduit in communication with said air-retaining space, and interlocking and complementary male and female sealing parts formed integrally with and internally of said walls, said sealing parts extending across said conduit and serving to close the same when interlocked.

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