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E. H. BERNHARDT

2,593,002

BUST FORM

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Fig. 1.

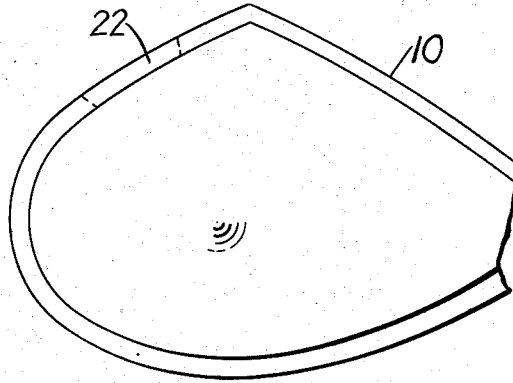
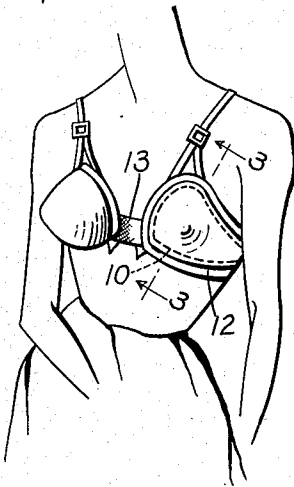


Fig. 2.

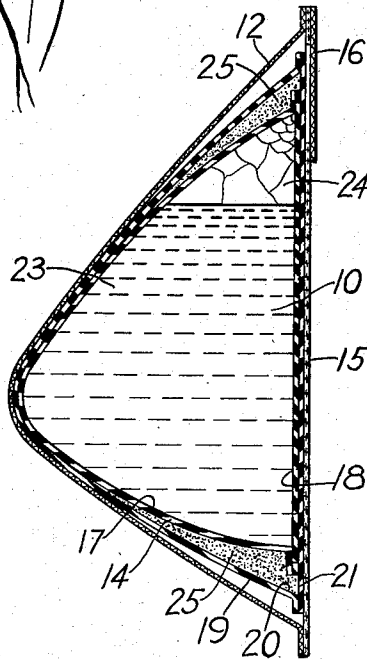


Fig. 3.

INVENTOR.
Ella H. Bernhardt
BY *Kenyon & Kenyon*
ATTORNEYS

UNITED STATES PATENT OFFICE

2,593,002

BUST FORM

Ella H. Bernhardt, New York, N. Y.

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13 Claims. (Cl. 2-267)

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This application is a continuation-in-part of my application Ser. No. 91,967 filed May 7, 1949, and entitled "Prosthetic Device" (now U. S. Patent 2,542,619, issued February 20, 1951).

The present invention is essentially an improved way of rendering liquid containing bust forms, particularly those of the kind disclosed in the above-mentioned application, proof against leakage due to accidental puncturing, rupturing and like causes. In general, it contemplates the provision within a double walled breast form, such as disclosed in the aforesaid application, of a liquid absorbent material outside the inner liquid retaining cell but within the outer envelope and which will absorb liquid escaping or leaking from the inner cell. In an improved form, this material is such as will react with liquid leaking from the inner cell to form a glue-like cementing agent to seal punctures and the like.

The full nature of the invention together with further objects and advantages thereof will best be understood from the illustrative embodiment hereinafter described with reference to the accompanying drawing in which:

Fig. 1 is a perspective view of a breast form worn with a brassière and shown in position on a female figure, the form being positioned in a pocket in the brassière and outlined in dotted lines;

Fig. 2 is a partial plan view of the form;

Fig. 3 is a cross sectional view along the lines 3-3 of Fig. 1.

Referring to the drawings, the bust form 10, indicated in dotted lines, is located in the brassière cup 12 of brassière 13 adapted to support and conform inner liquid retaining cell 14 of form 10 to the human breast as explained in the aforementioned application. As shown in Fig. 3, the brassière cup 12 is provided with a form retainer 15 which may be a piece of soft textile material sewn along the sides and bottom of the inside of the brassière cup. A flap 16 is provided to cover the opening at the top of the brassière cup.

As shown in Fig. 2, an unsealed portion 22 of the form 10 is provided as a means of placing the contents in the form. After this operation, this portion 22 is sealed.

As seen in Fig. 3, the form 10 is double walled so as to form the inner cell 14 having front wall 17 and back wall 18, as well as the outer envelope 19 having front wall 20 and rear wall 21. The walls of both inner cell 14 and outer envelope 19 are formed of water impervious flexible sheet material suitably joined and sealed along the edges, for example the materials indicated in my mentioned application.

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Within the inner cell 14 there is provided a conformable liquid filling means 23 such as shown and claimed in my aforesaid application.

Preferably, the filling means is of such character as to minimize sounds of its own movement and includes a sealing agent which, upon leakage of the filling means, tends to seal punctures and ruptures. Water with the addition of a foaming agent to produce sound minimizing foam 24 or an agent giving it a surface tension sufficiently reduced to minimize sound will perform the former of these two functions. However, an aqueous solution of methylcellulose, the material hereinafter more fully described, will tend to perform both the functions of sound minimizing and sealing; if its concentration be made high it may be given a more flesh like consistency and a surface tension sufficiently reduced to minimize sound, if its concentration be low, it will produce foam 24 when agitated.

The filling means 23 may also include a germicide and a coloring agent, for example, to give it a flesh-like color.

Within the space between the cell 14 and envelope 19 I provide, as previously mentioned in the aforementioned application, a quantity 25 of a highly water absorbent material in powdered or other suitable form, such as powdered bentonite, to absorb leaking which may occur from cell 14. However, I prefer the improved arrangement now to be described. This improvement lies in selecting a material which not only absorbs the liquid leakage but which will react with it or its water content to form a sealing agent such as by coagulation or air drying. Such agent will then serve to seal any ruptures or punctures which occur in the walls of either cell 14 or envelope 19, thus rendering the breast form more reliably self-sealing. Preferably, the material is in powdered or like finely divided form to lend pliability and softness to the breast form.

I have found that one very useful material for this purpose is methylcellulose, a material sold under the trade-mark "Methocel" by the Dow Chemical Company. This material has been described as a water soluble cellulose ether which may form aqueous solutions varying in viscosity from that of water itself to that of a thick gluey paste, although I believe it more accurate to term it a dispersion in water. At any rate, powdered methylcellulose will absorb more than its own weight of water and then, upon further addition of water, will form a viscous glue-like substance which coagulates by swelling of the methylcellulose to produce a hard tough highly flexible film well suited to the self-sealing properties sought for the breast form. Solutions of proper consist-

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ency will have a surface tension sufficiently reduced to minimize sound and those of proper dilution also produce foam when agitated in the presence of gas for which reasons they may advantageously also be used as the liquid filler in cell 14.

As an example, if a relatively dilute solution of methylcellulose be used as the liquid filler for cell 14, it will be found that the walls of the cell are self-sealing to some extent because leakage, if not great, may tend to dry in air immediately after it escapes from the cell. If, however, a quantity 25 of powdered or otherwise finely divided methylcellulose be provided in the outer compartment between cell 14 and envelope 19, the form acquires additional self-sealing properties because the powder will add to the viscosity of the leaked solution and bring about the described sealing coagulation which will seal ruptures or punctures of the size normally encountered in practice in either of the walls of the bust form. It has been observed that with such ruptures or punctures the coagulated mixture of leaked filler and powdered methylcellulose will seep through the puncture or rupture and almost immediately form a tough sealing film thereabout.

Another material useful for the same purpose, is sodium carboxymethylcellulose, a product sold under the trade-mark CMC by the Hercules Powder Company. This will coagulate much like the methylcellulose to perform the sealing actions described.

Other materials performing the function of the methylcellulose or sodium carboxymethylcellulose as above described will occur to those skilled in the art.

What is claimed is:

1. A breast form comprising a flexible liquid-retaining cell having a liquid filler therein, a flexible envelope enclosing and spaced from said cell, and a quantity of liquid absorbent material within said envelope and without said cell for absorbing liquid leakage of said filler from said cell.

2. A breast form comprising a flexible liquid-retaining cell having a liquid filler therein, a flexible envelope enclosing and spaced from said cell, and a quantity of liquid absorbent powder within said envelope and without said cell for absorbing liquid leakage of said filler from said cell.

3. A breast form comprising a flexible liquid-retaining cell having a liquid filler therein, a flexible envelope enclosing and spaced from said cell, and a quantity of material within said envelope and without said cell, said material comprising a substance which when mixed with the liquid of said filler forms a sealing agent for punctures in said form whereby said form is self-sealing.

4. A breast form comprising a flexible liquid-retaining cell having a liquid filler therein, a flexible envelope enclosing and spaced from said cell, and a quantity of powdered material within said envelope and without said cell, said material comprising a substance which when mixed with the liquid of said filler forms a sealing agent for punctures in said form whereby said form is self-sealing.

5. A breast form comprising a flexible liquid-retaining cell having a liquid filler therein, a flexible envelope enclosing and spaced from said cell, and a quantity of material within said envelope and without said cell, said material comprising a material which upon admixture with liquid of said filler leaked from said cell forms a sealing agent for normal punctures in said form.

6. A breast form comprising a flexible liquid-

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retaining cell having a liquid filler therein, a flexible envelope enclosing and spaced from said cell, and a quantity of powdered material within said envelope and without said cell, said material comprising a material which upon admixture with liquid of said filler leaked from said cell forms a sealing agent for normal punctures in said form.

7. A breast form comprising a flexible liquid-retaining cell having a liquid filler therein, a flexible envelope enclosing and spaced from said cell, and a quantity of material within said envelope and without said cell, said material comprising a substance which when dispersed in the liquid of said filler forms a coagulated sealing agent for punctures in said form whereby said form is self-sealing.

8. A breast form comprising a flexible liquid-retaining cell having a liquid filler therein, a flexible envelope enclosing and spaced from said cell, and a quantity of finely divided powder-like material within said envelope and without said cell, said material comprising a substance which when dispersed in the liquid of said filler forms a coagulated sealing agent for punctures in said form whereby said form is self-sealing.

9. A breast form comprising a flexible liquid-retaining cell having a liquid filler therein, a flexible envelope enclosing and spaced from said cell, and a quantity of material within said envelope and without said cell, said material comprising a substance which when dispersed in the liquid of said filler forms a coagulatable sealing agent which upon seepage through a puncture in said form forms a coagulated film about said puncture whereby said form is self-sealing.

10. A breast form comprising a flexible liquid-retaining cell having a liquid filler therein, a flexible envelope enclosing and spaced from said cell, and a quantity of finely divided powder-like material within said envelope and without said cell, said material comprising a substance which when dispersed in the liquid of said filler forms a coagulatable sealing agent which upon seepage through a normal puncture in said form forms a coagulated film about said puncture whereby said form is self-sealing.

11. A breast form comprising a liquid-retaining cell having a methylcellulose solution as a liquid filler therein, a flexible envelope enclosing and spaced from said cell, and a quantity of finely divided solid methylcellulose between said cell and envelope.

12. A self-sealing breast form comprising a flexible liquid-retaining cell having an aqueous filler therein, a flexible envelope enclosing and spaced from said cell, and a quantity of finely divided methylcellulose within said envelope and without said cell.

13. A self-sealing breast form comprising a flexible liquid-retaining cell having an aqueous filler therein, a flexible envelope enclosing and spaced from said cell, and a quantity of finely divided sodium carboxymethylcellulose within said envelope and without said cell.

ELLA H. BERNHARDT.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,543,499	Kausch	Feb. 27, 1951