United States Patent

Mohl et al.

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[54] ARTIFICIAL BREAST

[72] Inventors: **Wilhelm Mohl**, Grossburgwedel; **Heinz Kruger**, Thonse, both of Germany

[73] Assignee: **F. A. Otto Thamert Textil-u Kunststoff GmbH & Co., KG**, Grossburgwedel, Germany

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[30] **Foreign Application Priority Data**

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[52] **U.S. Cl.** **3/36**

[51] **Int. Cl.** **A41c 3/10**

[58] **Field of Search** 3/36; 128/DIG. 20, 462

[56] **References Cited**

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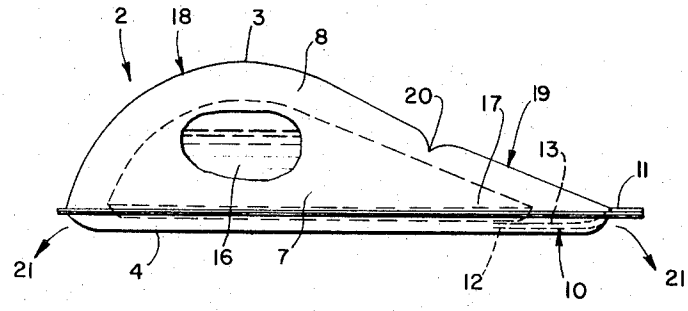
Primary Examiner—Charles F. Rosenbaum
Assistant Examiner—J. Yasko
Attorney—Krafft & Wells

[57] **ABSTRACT**

An artificial breast is disclosed which is made up of two approximately similar but differently sized plastic bags, one disposed inside the other. The inner bag is filled with a liquid substance adapted to impart to its wearer the feeling of the weight of a natural breast. The outer bag is inflated by air blown into the space between the inner and the outer bag through a flap valve which is part of the outer bag. Inflating serves for adjusting the size and shape of the artificial breast to the size and shape of the remaining natural breast.

3 Claims, 4 Drawing Figures



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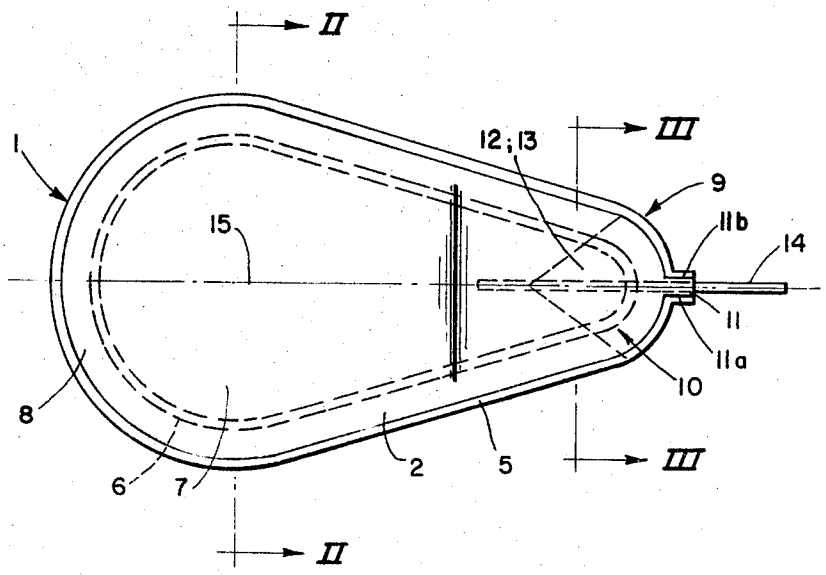

FIG. 1

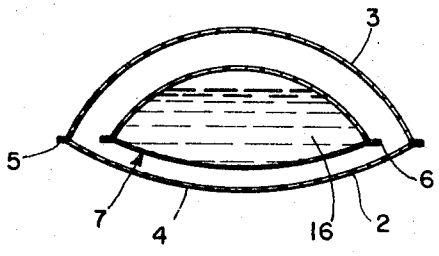

FIG. 2

INVENTORS
WILHELM MÖHL
HEINZ KRÜGER

BY Krafft & Wells

ATTORNEYS

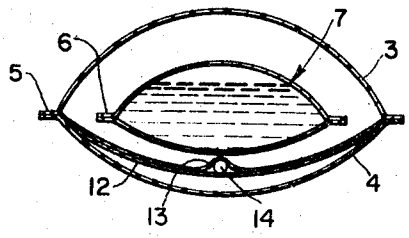

FIG. 3

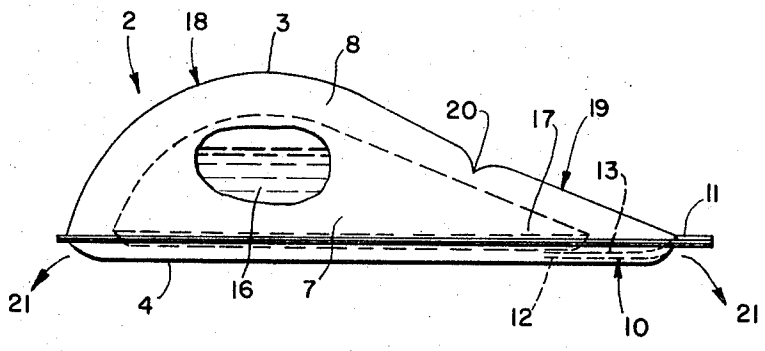

FIG. 4

INVENTORS
WILHELM MÖHL
HEINZ KRÜGER

BY Krafft & Wells

ATTORNEYS

ARTIFICIAL BREAST

BACKGROUND OF THE INVENTION

The field of the invention is artificial body members and particularly artificial breasts.

The state of the prior art may be ascertained by reference to U.S. Pat. Nos. 2,542,619 of Bernhardt, dated Feb. 20, 1951; 3,067,431 of Kausch, dated Dec. 11, 1962; and 3,099,839 of Kester, dated Aug. 6, 1963. Bernhardt discloses an artificial breast filled with a gel and gas while Kester discloses a brassiere for holding an artificial breast. Kausch discloses a liquid filled artificial breast form. The breast of Kausch is liquid filled by inserting a hypodermic needle through a rubber plug in the envelope. The fluid material may be a self-sealing fluid such as "Sealex," "Tire Fluid," "Never Leak," "U.S. Rubber Tire Seal" or the sealer may be mixed with a mixture of glycol and cellulose.

Artificial breasts are already known which comprise an outer plastic and an inner bag being filled with a liquid. An advantage of such prior art design resides in the fact, that the liquid filling gives to the artificial breast a weight about equal to the weight of a natural breast, so that the wearer of such an artificial breast is completely restored to her anatomic balance. Further, the outer plastic bag of such design provides the advantage of an additional safety measure against inadvertent leakage of the liquid.

It is, however, a disadvantage of such design, that from a certain breast size upwards no gradual adjustment of the breast to the body form of the wearer on the one hand and to the size of the bra on the other hand is possible.

Further, there are artificial breasts known which comprise only one bag provided with a valve through which the breast may be air inflated prior to wearing. In such breasts the disadvantage is inherent that they are not of the weight of a natural breast. As a result they are not suitable to give to the wearer the extremely psychological important sense of physical balance. Moreover, if the breast happens to become damaged, for example by a brooch needle or the like, the air will escape rapidly, as a consequence whereof the breast will immediately lose its shape completely in a most unsightly manner.

It is therefore an object of the present invention to provide an artificial breast which is suitable for imparting to its wearer the feeling of physical balance and which can also be readily adjusted in size and shape to the size and shape of the remaining breast and/or to the size of the bra.

It is a further object of the invention to provide an air inflated breast which is protected against complete collapse if the air suddenly escapes as a result of damage or leakage in the inflated bag.

SUMMARY OF THE INVENTION

The above-stated objects are attained by an artificial breast comprising two bags, one being disposed inside the other. The smaller one thereof is filled with a liquid while the outer one is provided with a flap valve through which air may be introduced into the space between the two bags.

Such design makes it possible to tension the outer surface of the outer bag more or less by blowing more or less air into the interspace between the bags, thereby adjusting the breast to the anatomy of the wearer. Yet, independently from such adjustment, the preestablished weight of the breast will remain unchanged.

It is another advantage of the present artificial breast over the prior art devices that upon unintentional damage of the outer bag, or in case of some other occurring leakage, the air can only escape from the interspace between the two bags, to the effect that the breast will retain its overall shape, form and weight. However, in such a case the adjustment of the breast to the anatomy of the wearer will be destroyed.

A further advantage resides in the fact that the bag inside the outer bag and the space therebetween provide an additional protection against needle perforations of the inner bag with its liquid filling, mainly by the distance existing between the bag walls.

The air inlet valve being part of the outer bag is preferably a flap valve. This flap valve comprises two triangularly shaped flaps in side-by-side position which are hermetically sealed along the curved outer edge together with the edge of the outer bag. According to the invention, the tips of the triangular flaps are directed into the space between the bags, thus forming a very flat air inlet means which does not interfere with the bags or their adjustment. An air inlet aperture is provided through which a small tube may be introduced for blowing the air into the bag. This only connection between the air inside the bag and the atmosphere, however, is sealed off by the flaps which are pressed together by the air inside the bag.

It has proven particularly advantageous if the artificial breast is of oval form with the flap valve being arranged at the narrow side thereof. A breast of this form is worn in such a way that the narrow side with the valve is positioned under the arm of the wearer, where it rests well protected against external influences.

A further improvement in adjusting the artificial breast to the body form of the wearer may be achieved if the front surface of the outer bag is provided with at least one compensation fold which extends transversely to the longitudinal axis of the breast, i.e., in parallel to the vertical axis of the body. The fold should be provided at a distance from the valve of one-third of the total length.

As a result of the attachment of the breast to one body half and its bending around the body below one arm, the outer surface of the bag will be more tensioned than the inner surface. The fold provided will compensate for this additional stress and will thus help to retain the rounded shape of the breast and will also prevent the formation of other folds. In order not to exert any pressure on the body of the wearer and in order not to damage the bag, care must be taken to avoid any formation of folds on the inner surface of the bag when putting the breast on for wearing.

DESCRIPTION OF THE DRAWINGS

The invention will be more readily comprehended from the following description when taken in conjunction with the appended drawings, wherein:

FIG. 1 is a schematic plan view of the artificial breast;

FIG. 2 is a sectional view of the artificial breast, cut along line II—II in FIG. 1;

FIG. 3 is a sectional view of the artificial breast, cut along line III—III in FIG. 1; and

FIG. 4 is a schematic side view of the artificial breast.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIG. 1, it will be recognized that the artificial breast 1 comprises an outer bag 2, preferably made of plastic material, such as latex, rubber, polyethylene, polypropylene, nylon, etc. As shown in FIG. 2, the outer bag 2 comprises a curved outer half 3 and a relatively flat inner half 4. Both halves are connected to one another by a welded or adhering seam 5.

Inside the outer bag 2 is disposed an inner bag 7 which is also made up of two halves, connected by a welded or adhering seam 6. The inner bag 7 is filled with a liquid or a quasi-liquid, for example a coherent gel. Since the inner bag 7 is of smaller size than the outer bag 2, there is an interspace 8 which may extend across all of the front surface of the inner bag, depending on the position of the inner bag 7 inside the outer bag 2.

In order to fill the inner bag 7, the curved parts are clamped in oval, shell-like high frequency electrodes. Subsequently, the gel is injected by dosage according to the weight desired. The electrodes are previously prepared by a coating of foil prior to welding on an RF machine. After welding the plastic, the scrap (the projecting foil border) is torn away leaving the liquid-filled inner bag.

As can be seen from FIG. 1, the breast is of about oval form having a narrow side 9 wherein a flap valve 10 is disposed. Valve 10 comprises an air inlet aperture 11 arranged at the

edge of the outer bag **2** and formed by outwardly extending portions of this outer bag which are welded together along the edges **11***a*, **11***b*. Inside the bag there are provided two triangular flaps **12, 13** which are hermetically welded along one side to the seam **5**. The tips of the flaps **12, 13** project into the space between the bags **2** and **7**. The internal air pressure squeezes the flaps **12, 13** together, thereby hermetically sealing off the inlet aperture.

For inflating the breast with air a small tube **14** is inserted through the aperture **11** between the flaps **12, 13**. Through tube **14** the interspace **8** may then be filled with air, however, in like manner air may also be released from the bag.

The breast illustrated in FIG. **1** is to be worn in such a way that its longitudinal axis **15** extends transversely to the vertical axis of the body of the wearer, with the narrow breast side **9** being positioned under the wearer's arm so that the air inlet aperture will be protected.

FIG. **2** represents a sectional view cut along line II—II in FIG. **1**, and shows the position of the inner bag **7** relative to the outer bag **2**, as well as the curvature of the outer half **3** and the inner half **4** of the outer bag in cross sectional direction. Further, it will also be recognized that the curvature of the inner bag **7** is similar to the curvature of the outerbag **2**. FIG. **2** also shows the liquid filling which is denoted by the numeral **16**.

FIG. **3** illustrates in a sectional view the position of the flaps **12, 13** when the latter are forced apart by tube **14** for the purpose of blowing air into or releasing it from the bag. For reasons of clarity, the width of the flaps has been exaggerated.

FIG. **4** is a schematic side view of the artificial breast with the inner bag being represented in hatched lines. As is readily discernible, the triangular flaps **12, 13** which project into the inner space of the outer bag **2**, are disposed underneath the end **17** of the inner bag **7** so as to extend in parallel to the flat inner half **4**. In order to facilitate understanding, the flaps **12, 13** are shown apart from one another. However, for sealing off the air inlet aperture, normally the flaps rest tightly squeezed together by the air pressure prevailing in the interspace **8** unless, of course, tube **14** is inserted. By this particular position underneath the inner end **17**, the flaps **12, 13** are additionally fixed in their position.

It will be further recognized from FIG. **4** that the artificial breast has a more curved portion **18** positioned in front of the chest region of the wearer and a comparatively flat portion **19** wherein valve **10** is mounted. At least one compensation fold **20** is provided in the outer half **3** of the outer bag **2** making it possible to bend the breast in the direction of the arrows **21** around the body of the wearer without distoring the breast or causing undue strains therein. The compensation fold extends transversely to the longitudinal axis of the breast (FIG. **1**), i.e., in parallel to the vertical body axis of the wearer and is arranged about one-third of the total breast length from the air inlet valve **10** in the transitional range between the breast portions **18** and **19**.

We claim:

1. An artificial breast comprising an external air-filled bag (**2**) of plastic material and an internal liquid filled bag (**7**), said internal bag (**7**) being completely separate from said external bag (**2**), said internal bag (**7**) being freely disposed within said external bag (**2**) when said external bag (**2**) is air-filled, said external bag (**2**) having an air valve (**10**), arranged at an edge (**5**) thereof, said air valve (**10**) having an inlet opening (**11**) terminating in the interspace (**8**) between said external bag (**2**) and said internal bag (**7**) in two superposed flaps (**12, 13**), said flaps (**12, 13**) being connected, in the area of the inlet opening (**11**) at the margins thereof (**11***a*, **11***b*), together with the edge (**5**) of said external bag (**2**) to form an airtight seal, said flaps (**12, 13**) having a substantially triangular shape and extending with the triangular apex within the interspace (**8**) between the two bags (**2, 7**) underlying said internal bag on the under side of that portion (**17**) of said internal bag (**7**) extending in the direction of the air valve (**10**).

2. An artificial breast according to claim **3**, characterized in that the outer surface of the external bag (**2**) is provided with at least one compensating fold (**20**) extending at right angles to the longitudinal axis (**15**) of the device (**1**) in the zone of the inlet opening thereof, as seen from the air valve (**10**), said fold comprising a linear indentation found in the surface of the external bag.

3. An artificial breast according to claim **1**, wherein the device has an approximately oval shape and exhibits a stronger initial curvature (**18**) in the breast region and a flatter terminating end (**17**); and wherein the air valve (**10**) is arranged on the narrow oval side (**9**), so that the terminating end (**17**) faces the air valve (**10**).

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