Sept. 16, 1958 A. LIVINGSTON ET AL 2,851,692

ADJUSTABLE PROSTHETIC DEVICE

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FIG. 1.

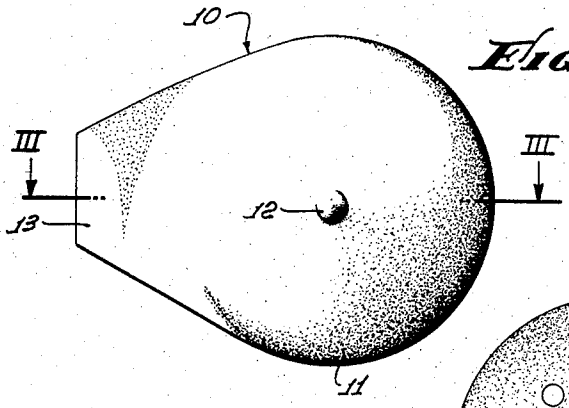

FIG. 2.

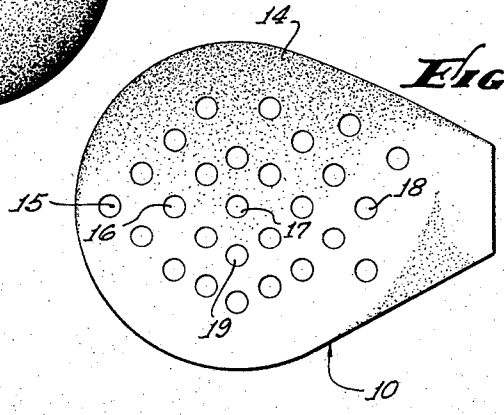

FIG. 3.

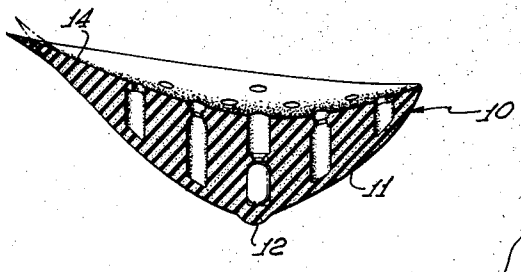

FIG. 4.

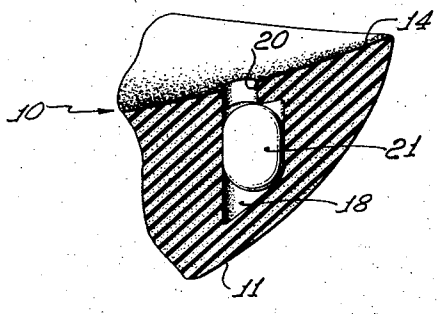

FIG. 5.

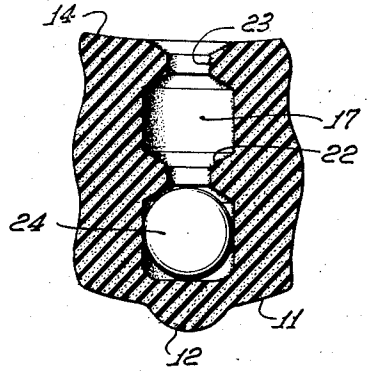

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FIG. 6.

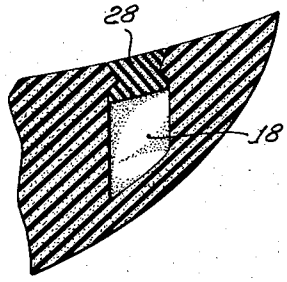
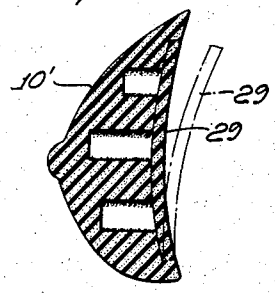


FIG. 7.



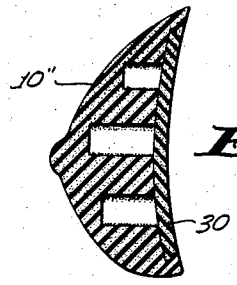


FIG. 8.

FIG. 9.

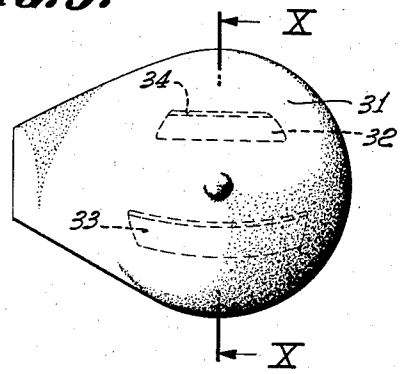
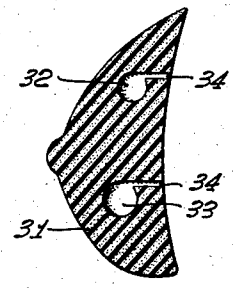


FIG. 10.



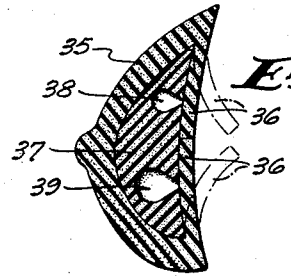


FIG. 11.

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ADJUSTABLE PROSTHETIC DEVICE

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Application August 20, 1956, Serial No. 605,118

4 Claims. (Cl. 2—267)

This invention pertains to a prosthetic device and is particularly directed to a resilient body having the general contours of a female breast adapted to be worn as a restoration for the natural female breast in cases of mastectomy.

A very large proportion of cases of carcinoma originate in the female breast, necessitating mastectomy. In addition to the physiological shock resulting from this operation, the woman often exhibits psychological changes due to the stress and tension occasioned by the loss of her organ or organs, such stress or tension sometimes resulting in psychomatic instability and the development of neuroses. Previously, various pads and molded prosthetic devices, simulating the form of the natural breast have been worn by the patient and although the figure has been filled out by the use of such previous devices they have not completely and satisfactorily answered all of the requirements and have not given the wearer the necessary confidence and feeling of stability.

One of the disadvantages of prior prosthetic devices was the way that they were made of sponge-like materials, pads, felts, etc. which did not have the same resiliency nor the same mass as the natural breast. As a result, a woman whose one breast was removed did not feel secure nor evenly balanced, the remaining natural breast differing greatly in mass as well as resiliency from the replacement which she was wearing. Such unbalance was particularly noticeable while dancing, walking or performing other bodily movements.

The present invention is directed to a prosthetic device which has a resiliency comparable to that of a natural breast and which is capable of adjustment as to mass whereby the entire device may be adjustably weighed so as to balance the body of the wearer, the repacement having the same mass as the remaining organ. Moreover, the device of the present invention permits selective placement of weighted members whereby the harmonic motion of the prosthetic device during walking, running or other bodily movements of the wearer is rendered substantially identical to the harmonic motion of the natural breast.

Generally stated, therefore, the present invention relates to a prosthetic device which is adjustable as to mass, comprising a resilient body having the frontal contours of a femal breast and a rear surface adapted to conform to the residual surface of the human body, a plurality of recesses being formed in the body of such device for the reception of weighted members of appreciably greater density than the body. An object of this present invention is to disclose and provide a new and novel prosthetic device adjustable as to mass and particularly adapted for use as a replacement for a natural breast.

A further object of the invention is to disclose and provide a prosthetic device of novel construction including removably contained weighted members.

Other objects, advantages and various modifications of the invention will become apparent from the following

description, exemplary forms being illustrated in the appended drawings wherein:

Fig. 1 is a front elevation of one form of prosthetic device.

Fig. 2 is a rear elevation of such device.

Fig. 3 is a section taken along the plane III—III in Fig. 1.

Fig. 4 is an enlarged view of a portion of a device made in accordance with this invention.

Fig. 5 is an enlarged sectional view of another portion of a device illustrating a modified form of weight-receiving recess.

Fig. 6 is a sectional view through a portion of a device of this invention illustrating a further modification.

Figs. 7 and 8 are sectional views of modified forms employing exemplary closure means on the rear surface.

Figs. 9 and 10 are elevation and section views of a further modification.

Fig. 11 is a vertical section through a still further modification.

A prosthetic device of the character forming the subject matter of this invention should conform to numerous requirements. It should be relatively light when first worn after a mastectomy so as not to bear against or irritate the scar tissues. It should also be resilient, conformed to the contours of the human body and have an external contour which simulates, as closely as possible, the contours of the original breast. The prosthetic device should permit the underlying skin to be ventilated; it should resist body oils and perspiration and be readily washed or cleaned. After the underlying scar tissues have properly healed, the prosthetic device should be adjustable as to mass so as to balance the body of the wearer and assume the resiliency, mass, harmonic movements, etc. of a normal or residual breast.

The prosthetic device contemplated by the present invention is preferably made from a finely porous rubber or synthetic resin composition which can be molded to contours and sizes corresponding to the various contours and sizes of breasts found in nature. Aerated latex compositions are effective although urethane sponge compositions of suitable resiliency are preferred.

As illustrated in Figs. 1, 2 and 3, the prosthetic device comprises a body portion generally indicated at **10** provided with a frontal, generally convex and substantially smooth surface **11** having the contour of a female breast. In the form of device illustrated, it will be seen that the representation of the nipple **12** is asymmetrically positioned, the prosthetic device terminating in a relatively thin, wedge-shaped portion **13** adapted to overlie a portion of the side of the body. It is to be understood, however, that the precise contours are subject to many variations.

The body **10** is also provided with a rear plano-concave surface **14** adapted to conform to the residual skin surface of the human body. As previously indicated, the body portion of the device is made of a resilient, spongy, preferably molded and light-weight material, the frontal surface being preferably smooth and skin-like.

A plurality of recesses is formed in the body, each recess opening onto the rear surface. The recesses may be cylindrical or polygonal in cross section and may be arranged in any desired manner. Fig. 2 illustrates an exemplary arrangement of substantially cylindrical recesses such as **15**, **16**, **17**, **18**, **19**, etc. The recesses may be of any desired depth but at least certain of such recesses should have bottoms in proximity to the frontal surface of the device. These recesses are adapted to receive weighted members of appreciably greater density than the density of the body **10** and to be removably contained in such recesses.

Weighted members of various types may be employed. They may be made of plastic composition, wood, metal, be in the form of capsules or impervious containers filled with a suitable liquid, or of any other desired material.

Means are provided for removably retaining the weighted elements in the recesses and such means may assume a great variety of forms. Such means may be integral with the body of the device as illustrated in Figs. 4 and 5. As shown in Fig. 4, for example, the body **10** is provided with a recess **18** having a bottom in proximity to the frontal surface **11**. The entrance into the recess **18** is restricted by means of an inwardly extending lip **20**. The lip **20**, being of the resilient composition constituting the body **10**, permits insertion of the weighted member **21**, retains the member **21** within the recess and simultaneously prevents contact of the weighted member with the skin of the wearer.

In order to emphasize the mass of the replacement breast, it may be desirable to provide a weight adjacent the frontal surface. As illustrated in Fig. 5, the inner walls of the recess **17** may be provided with a plurality of spaced, inwardly extending lips or flanges such as **22** and **23** permitting the insertion of a weighted member such as **24** into the outermost portion of the recess, adjacent the frontal surface **11** and spaced from the rear surface **14** of the prosthetic device.

It is desirable that the rear surface of the device be relatively smooth so as not to cause damage to scar tissue or the like and preferably means should be provided for spacing the weighting members from the skin of the wearer. As illustrated in Fig. 6 (which is an enlarged cross section of a portion of a device), the rearwardly directed opening of the recess **18'** may be plugged with a removable and resilient element **28**, said element being of a configuration adapted to cooperate with inwardly extending lips, flanges or the like formed in the side walls of the recess **18'**. Any weighted member placed in the recess **18'** will be therefore isolated.

Other methods of construction producing closures for recesses are illustrated in Figs. 7 and 8. As shown in Fig. 7, the body portion **10'** includes an integral rear flap **29** normally closing the rearwardly directed openings of the various recesses, such rear flap being movable into dash line position in order to permit insertion or removal of weighted members from the recesses. In the modification illustrated in Fig. 8, a rear closure member **30** is removably carried by the rear portions of the body **10''**, edges of the closure member **30** interlocking with lips formed in the rear surface of body **10''**.

It is not necessary that the various recesses be horizontally disposed or extend in a direction substantially normal to the rear surface of the prosthetic device. Figs. 9 and 10 illustrate an embodiment wherein the body portion **31** is provided with substantially horizontally disposed recesses **32** and **33**, each recess being provided with a relatively narrow, rearwardly extending entry port such as **34**. Suitable weighted members or impervious casings filled with viscous liquid may be inserted through such entry ports into the recesses. In some instances, a single oval or horseshoe-shaped recess may be formed so as to accommodate a preformed weighted member.

Fig. 11 illustrates a still further modification wherein the prosthetic device comprises an external portion **35** made of relatively light-weight, finely porous synthetic or natural rubber composition or of a synthetic resin, such exterior shell having the feel and coloration of a natural breast. The back wall of the relatively hollow body portion **35** may be horizontally split as indicated at **36** so as to provide two flexible closure elements adapted to receive, fold and protect a centrally disposed element **37** provided with recesses **38**, **39**, such recesses being capable of retaining weighted members. This inner portion **37** may also be made of porous, resilient material, but may be of somewhat greater density than the external portion **35**.

It will be evident that by varying the number of weighting members employed, their location or distribution within the device and the density of the weighting members, any desired mass can be imparted to the device and the mass effect or harmonic motion obtained during walking, running and other bodily exercises may be varied at will and caused to closely simulate if not duplicate the mass and response characteristics of the natural breast.

Although a number of modifications have been described, the invention is not limited thereto.

We claim:

1. A prosthetic device adjustable as to mass, comprising: a resilient body having frontal, substantially smooth and generally convex contours of a female breast and a rear, plano-concave surface, said body being made of a resilient material of relatively low density; a plurality of recesses formed in said body, each opening onto the rear surface, each opening being partially restricted by an inwardly extending lip integral with the body and adapted to retain a weighting member inserted into a recess; and a weighted member of appreciably greater density than said body adapted to be removably contained within at least one of said recesses, said weighted member being spaced from frontal and rear surfaces of the body.

2. A prosthetic device as stated in claim 1, wherein the body is composed or urethane sponge.

3. A prosthetic device as stated in claim 1, including means for retaining the weighted member in the recess out of contact with the body of the wearer of the device.

4. A device as stated in claim 1, the body of the device being provided with a rearwardly inclined, tapering portion adapted to extend toward a side of the wearer, said body portion being composed of urethane sponge.

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