

June 23, 1970

J. B. GREENOUGH

3,516,414

VARIABLE VOLUME BREAST PAD

Filed June 20, 1968

2 Sheets-Sheet 1

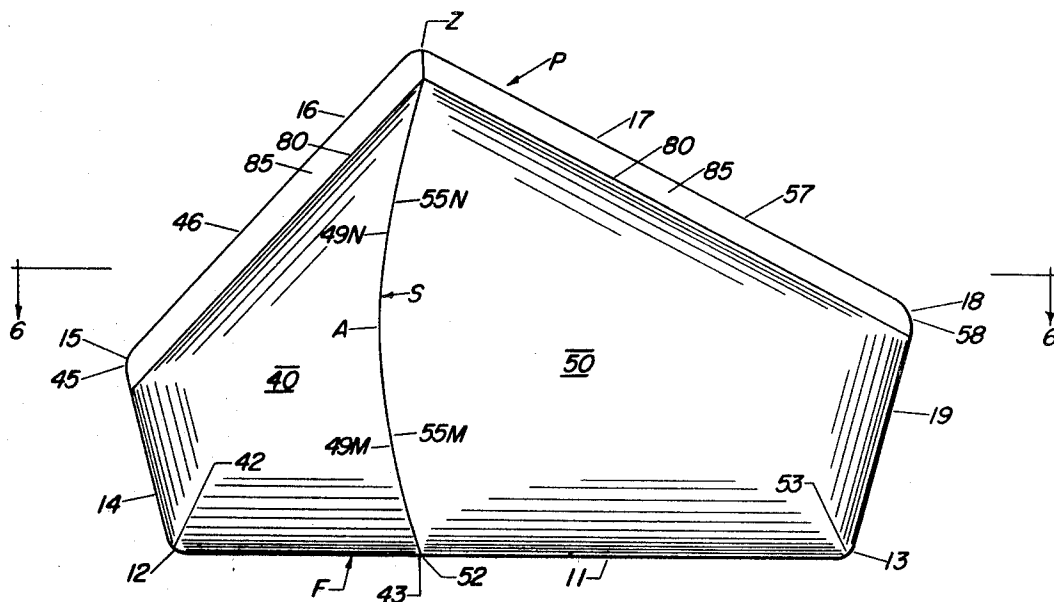


Fig. 1

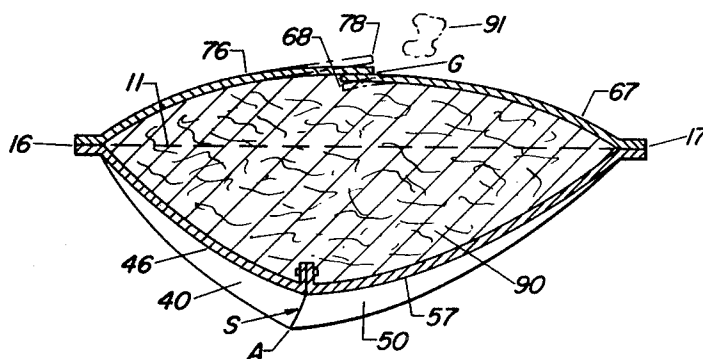


Fig. 6

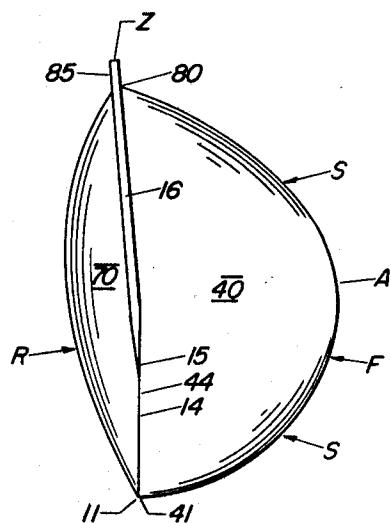


Fig. 2

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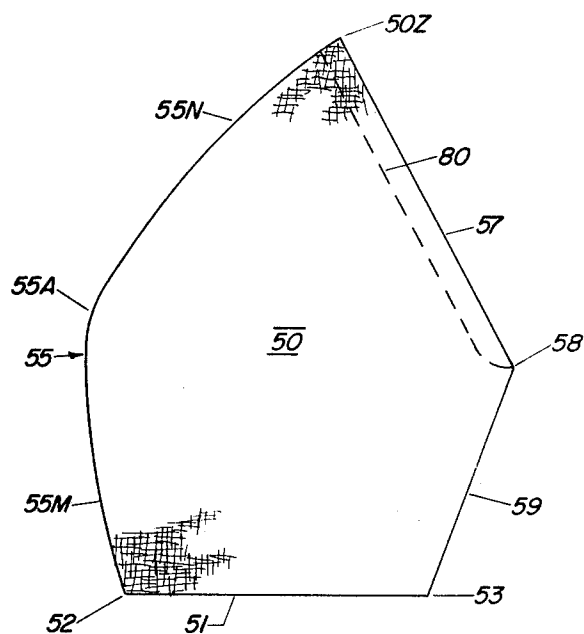
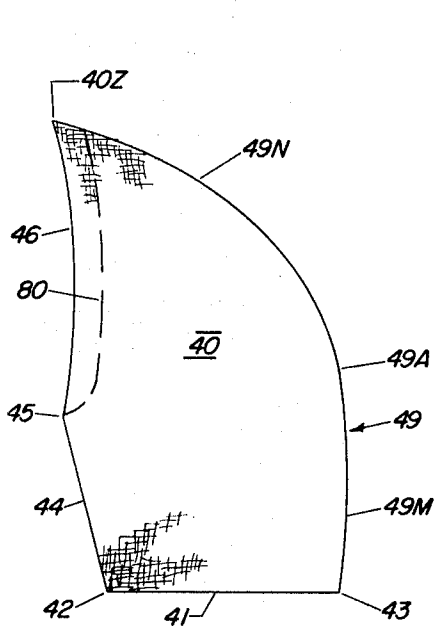
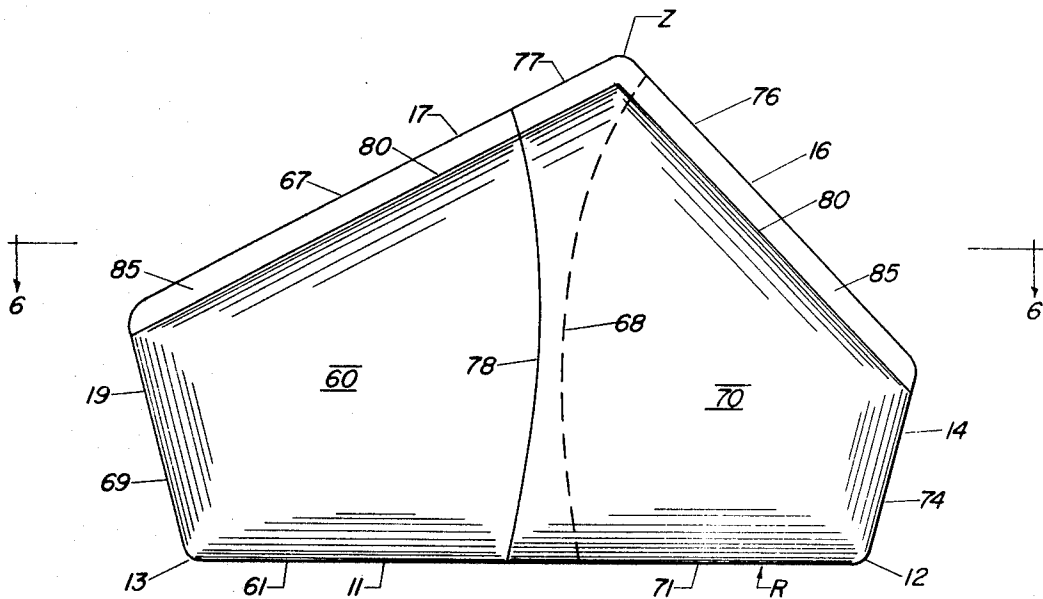
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VARIABLE VOLUME BREAST PAD

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3 Claims

ABSTRACT OF THE DISCLOSURE

A variable volume breast pad suitable alternatively for cosmetic and for prosthetic use and that assimilates several characteristics of a natural breast, and in particular this invention provides a variable volume breast pad that is exceedingly comfortable to wear, that maintains the desired characteristics even when laundered, and that is adaptable to the physical requirements of a wide range of female human subjects.

Constant-volume pads for assimilating the contour of a natural female breast are well known in the prior art, and such constant-volume pads have been used both for cosmetic purposes and also prosthetically by breast amputees. However, constant-volume breast pads have the serious limitation in that they should be tailor-made appropriate to the related physical endowments of the specific prospective wearer in order to provide the desired cosmetic effects. Obviously, a tailor-made breast pad is apt to be expensive, and most female subjects are reluctant and embarrassed to consent to the tailor-making of breast pads for themselves.

More recent workers in the prior art have provided variable-volume breast pads in order that a single pad might readily lend itself for wearing by variously endowed feminine forms. However, the volumetric variability of many prior art pads requires an uncomfortable fluid-impervious bag-like structure that is inflated to the desired degree with pressurized air or liquids. Not only are such fluid-impervious bag-like structures uncomfortable to wear and practically impossible to maintain in a sanitary and cleansed condition, they are apt to leak and deflate and provide embarrassment to the wearer, and moreover, their fluid-impervious outer shell gives the breast pad an unnatural appearance.

It is accordingly the general object of the present invention to provide a variable volume breast pad that overcomes the several objections and disadvantages of the prior art.

It is a specific object of the present invention to provide a variable volume breast pad that will provide for a wide range of female human subjects a contour closely assimilating that of a natural well-developed breast.

It is another object to provide a variable volume breast pad that is readily launderable in aqueous soap or detergent solutions and that can be thereafter quickly dried, both without impairing the shape of the breast pad.

It is a further object of the present invention to provide a light weight variable volume breast pad that can be worn comfortably and unobtrusively both by those with under-developed breast for cosmetic purposes, and by single or double breast amputees as an orthopedic appliance.

With the above and other objects and advantages in view, which will become more apparent as this description proceeds, the variable volume breast pad of the present invention comprises the novel combination, configuration and arrangement of elements, as especially pointed out in the appended claims, reference being had to the accompanying drawing wherein like characters refer to like parts in the several views and in which:

FIG. 1 is a forward elevational view of a preferred embodiment of the variable volume breast pad of the present invention, showing in particular the dual-panel front-wall construction including an inward-front panel and an outward-front panel.

FIG. 2 is a side elevational view from the inward, here-in leftward, side of FIG. 1.

FIG. 3 is a rearward elevational view of the breast pad of FIG. 1.

FIG. 4 is a top plan view of the patterned sheet material employed for the inward-front panel of FIG. 1.

FIG. 5 is a top plan view of the patterned sheet material employed for the outward-front panel of FIG. 1.

FIG. 6 is a sectional plan view taken along line 6—6 of FIGS. 2 and 3.

Variable volume breast pad P of the present invention comprises a generally convex front-wall F having a continuous annular (herein pentagonal) periphery, said annular periphery being disposed along an upright plane and being defined by stations Z, 18, 13, 12, and 15. The said annular periphery includes for the minor proportions thereof a substantially horizontal lower edge 11 having an inward (herein leftward) terminus 12 and an outward (herein rightward) terminus 13. The remaining or major proportion of the pad annular periphery commences upwardly from said inward terminus 12, thence upwardly and outwardly to a zenith Z, thence downwardly and outwardly from the zenith, and finally downwardly to outward terminus 13. More specifically, said periphery major proportion includes an upright inward edge 14 commencing at 12 and terminating at 15, an upper-inward peripheral edge 16 extending upwardly and outwardly of 15 and terminating at zenith Z, an upper-outward peripheral edge 17 extending downwardly and outwardly of Z and terminating at 18, and an upright outward edge 19 disposed between 18 and 13. Upright outward edge 19 is loftier than upright inward edge 14 whereby corner 18 is disposed vertically above corner 15. Moreover, upper-outward edge 17 is lengthier than upper-inward edge 16 whereby the intersection Z of edges 17 and 16 is disposed nearer to the inward extremity e.g. 12, of pad P than to the outward extremity thereof e.g. 13. Front-wall F has for the forward extremity thereof an apex A whereby front wall F generally resembles the contour of a natural female breast.

Breast pad P, including front-wall F, is preferably readily launderable in aqueous media, and for this reason sheet-like textile fabrics, such as cotton muslin, are normally employed for front-wall F and for rear-wall R. A pair of launderable sheet-like panels, for example an inward-front panel 40 and an outward-front panel 50, joined together at dimensionally and geometrically similar seam edges 55 and 49, as by stitching to provide a dual-panel front-wall F. The upright medial seam S, resulting from sewing seam-edges 55 and 49 together, provides a cosmetically desirable frontal curvature for breast pad P wherein apex A is disposed along upright seam S. As shown in FIG. 1, upright seam S extends downwardly from zenith Z and terminates between lower edge termini 12 and 13, nearer to inward terminus 12.

As alluded to in FIGS. 4 and 5, outward-front panel 50 is larger in area than is inward-front panel 40, to provide the cosmetically desirable situation wherein zenith Z and apex A are both nearer to inward terminus 12 than to outward terminus 13. Outward-front panel 50 comprises four edges including a substantially horizontal lower edge 51 providing the outward and major portion of the horizontal lower edge 11 of front-wall F and thus the outward extremity 53 of lower edge 51 is disposed at peripheral corner 13 while the inward extremity 52 of lower edge 51 is disposed at the lower extremity of up-

right seam S. Outward-front panel 50 also includes: an upright outward edge 59 extending upwardly from 53 and terminating at 58, said upright outward edge 59 being coextensive along peripheral side 19; and an upper-outward edge 57 extending upwardly and inwardly from 58 and terminating at 50Z, said upper-outward edge 57 being coextensive along peripheral upper-outward edge 17. Fourthly and finally, outward-front panel 50 has for the longest edge a seam-edge 55 extending generally arcuately from 52 to 50Z, said edge 55 being coextensive along upright forward seam S. Seam-edge 55 has two portions including a shorter and flatter lower portion 55M commencing at 52 and a longer and more-convex portion 55N commencing at 50Z, the intersection 55A of portions 55M and 55N being disposed at the pad forward apex A.

Referring now to FIG. 4, inward-front panel 40 comprises four edges including a substantially horizontal lower edge 41 providing the inward and minor portion of the front-wall lower edge 11, and thus, the inward extremity 42 of lower edge 41 is disposed at peripheral corner 12 while the outward extremity 43 of lower edge 41 is located at the lower extremity of seam line S at 52. Inward-front panel 40 also includes: an upright inward edge 44 extending upwardly from 42 and terminating at 45, said upright inward edge 44 being coextensive along peripheral side 14; and an upper-inward edge 46 extending upwardly and outwardly from 45 and terminating at 40Z, said upper-inward edge 46 being coextensive along peripheral upper-inward edge 16. As has been alluded to earlier, the length of edge 59 exceeds that for edge 44, the length of edge 51 exceeds that for edge 41, and the length of edge 57 exceeds that for edge 46. Fourthly and finally, inward-front panel 40 has for the longest edge thereof, and comprising at least four-ninths the periphery of panel 40, a seam-edge 49 extending generally arcuately from 43 to 40Z, said edge 49 being coextensive along upright seam S. Seam-edge 49 has two portions including a shorter and flatter lower portion 49M commencing at 43 and a longer and more-convex portion 49N commencing at 40Z, the intersection 49A of portions 49M and 49N being disposed at the pad forward apex A.

Rear-wall R comprises a continuous annular periphery substantially coextensive along the said Z-18-13-12-15 continuous periphery of pad P and front-wall F. Rear-wall R is provided by a pair of substantially parallel upright overlapping panels 60 and 70 of launderable sheet-like fabric. Each of the rear-panels 60 and 70 has a continuous border, a major portion of the border for each rear-panel being attached, as by stitching, to the front-wall periphery. A minor portion of the border e.g. edge 68 and edge 78 for rear-panels 60 and 70, respectively, is an upright hemmed free-edge whereby the overlapping portions of rear-panels 60 and 70 between edges 68 and 78 provide an opening or access G into the breast pad interior having batting 90 therein.

Outward-rear panel 60 and inward-rear panel 70 are each smaller in area than outward-front panel for reasons to be explained later. Outward-rear panel 60 comprises four edges including: a substantially horizontal lower edge 61 coextensive along and attached to the outward portion of the front-wall horizontal edge 11, 51; an upright outward edge 69 coextensive along and attached to the front-wall outward-edge 19, 59; an upper-outward edge 67 coextensive along and attached to the front-wall upper-outward edge 17, 57; and the aforescribed upright hemmed free edge 68 disposed forwardly of and obscured by inward-rear panel 70.

Inward-rear panel 70 comprises five edges including: a substantially horizontal lower edge 71 coextensive along and attached to the inward portion of front-wall edge 50 commencing at 42 and 12; an upright inward edge 74 coextensive along and attached to front-wall outward edge 14, 44; an upper-inward edge 76 coextensive along and attached to the front-wall upper-inward edge 16, 46; a downward outward edge 77 attached to and coextensive

to the upper portions of front-wall upper-outward edge 57 commencing at 50Z; and the aforescribed upright free hemmed edge 78.

There is secondary stitching 80 attached between front-wall F and rear-wall R. Stitching 80 commences immediately below corner 18 and proceeding upwardly and inwardly substantially parallel to upper-outward edge 17 and engaging panels 50 and 60 until the stitching reaches a point immediately below zenith Z, and thence, stitching 80 proceeds downwardly and inwardly substantially parallel to upper-inward edge 16 and engaging panels 40 and 70 and terminates immediately below corner 15. Thus, the stitching 80 which is spaced substantially parallel to and immediately below the pad upper periphery at 16-17 provides a minor attenuated upper band 85, devoid of batting 90; said upper band 85 is adapted to taper against the upper chest of the wearer in comfortable and cosmetically desirable fashion and tends to maintain the shape of pad P.

A non-hydroscopic batting 90 is removably disposed between front-wall F and rear-wall R whereby the volume of breast pad P, including the forward-rearward distance between walls F and R, can be varied at will depending upon the amount of batting introduced into or withdrawn from rear-wall opening G. Batting 90 comprises finite-length filaments whereby the batting is subdividable into discrete or finite clumps, as indicated in phantom line in FIG. 6, and thus, small clumps 91 can be introduced into or withdrawn from gap G and the pad volume can be incrementally varied. Batting 90, including sub-divided clumps 91 thereof, is inaudibly resiliently-compressible to provide a comfortable pad P of natural characteristics including a cosmetically desirable forward contour at F. Further, batting 90 is preferably readily launderable with aqueous cleaning solutions, either separated from pad P, and preferably so launderable and readily air-dryable even when disposed internally within pad P. Batting 90, having the several characteristics mentioned in this paragraph, can be provided by utilizing finite lengths of polyester resin Dacron filaments of very fine denier (10-50 denier) and having a pre-compressed or normal batting density of about 0.05 ounce per cubic inch.

When the variable volume breast pad P of the present invention is being used for cosmetic purposes by one having underdeveloped breasts, the pad is only partially filled with batting 90 whereby the pressure of the natural breast during wearing of pad P forces rear-wall R into a forwardly-extending convex configuration. However, when pad P is being worn for prosthetic-cosmetic purposes by a breast amputee, the pad P is nearly filled with batting 90 whereby rear-wall R is normally rearwardly convex to give the wearer the required full appearance.

FIGS. 1-6 of the drawing show the preferred embodiment of the present invention having a pad contour to be worn at the wearer's left breast position. To provide a pad for the wearer's right breast position, mirror images of panels 40, 50, 60, and 70 would be employed, to result in the required mirror image for the breast pad.

While the variable volume breast pad has been described and illustrated in conjunction with one specific embodiment thereof, it will be understood that many variations and modifications may occur to those skilled in the art without departing from the spirit and scope of the invention as defined in the appended claims.

I claim:

1. A variable volume breast pad suitable both for cosmetic use and for prosthetic use by breast amputees, said breast pad comprising:

(A) a generally convex front-wall comprising a continuous annular periphery disposed along a substantially vertical plane, said annular periphery including for the minor portion thereof a substantially horizontal lower edge having an inward terminus and an outward terminus, the remaining major por-

tion of the front-wall annular periphery commencing at the lower edge inward terminus and terminating at the outward terminus of the said horizontal lower edge of the front-wall, said periphery major portion having a zenith medial portion disposed above the front-wall horizontal lower edge, said front-wall having an apex at the forward extremity thereof, disposed in vertical elevation between the periphery zenith and the horizontal lower edge,

(B) a rear-wall comprising a continuous annular periphery substantially coextensive along the said continuous periphery of the front-wall, said rear-wall being provided by a pair of substantially parallel panels, each of said pair of rear-panels each having a continuous border a major portion of which is attached to the periphery of the front-wall, and a minor portion of which is an unattached free edge, the free edge of the two rear-panels overlapping each other to provide an opening access into the interior of the breast pad, and

(C) readily sub-dividable batting removably disposed between the front-wall and rear-wall whereby the volume of the breast pad including the distance between the front-wall and rear-wall thereof can be varied depending upon the amount of batting introduced into or withdrawn from said rear-wall opening.

2. The variable volume breast pad of claim 1 wherein the lower horizontal edge of the continuous annular periphery of the front-wall has an inward terminus and an outward terminus, said front-wall comprising a pair of launderable sheet-like fabric panels including an inward-front panel and an outward-front panel joined together at a forward upright seam disposed between the inward and outward termini of the front-wall horizontal edge nearer to the inward terminus than to the outward terminus thereof the forward-apex of the front-wall being disposed along said forward upright seam, said outward-front panel being areally larger than said inward-front panel; wherein the two rear-wall panels comprise launderable fabric; wherein the overlapping free edges of the dual-panel rear-wall are each upright with respect to the lower horizontal peripheral edge; and wherein the batting material is resiliently compressive and comprises non-hydroscopic resin filaments.

3. The variable volume breast pad of claim 2 wherein the continuous annular periphery of the front-wall comprises an upright inward edge, an upright outward edge loftier than said inward edge, an upper-outward edge extending upwardly and inwardly from the upper extremity of the outward edge, and an upper-inward peripheral edge extending upwardly and outwardly from the upper extremity of the inward edge, the said upper-outward and upper-inward peripheral edges intersecting at a zenith medial portion for said continuous annular periphery; wherein said outward-front panel comprises four edges including: a substantially horizontal lower edge providing the outward and major portion of the horizontal lower edge of the front-wall, an upright outward edge providing the upright outward edge of the front-wall, an upper-outward edge providing the upper-outward edge of the front-wall, and a fourth and longest edge disposed along the forward-wall upright forward seam, said fourth edge comprising a shorter and flatter lower portion commencing at the lower edge and a longer and more-convex portion commencing at the upper-outward edge, the in-

tersection of said two portions of the fourth edge providing the apex at the forward extremity of the front-wall, said apex being disposed in elevation between the zenith and the lower edge of the front-wall; wherein the said inward-front panel comprising four edges including: a substantially horizontal lower edge providing the inward and minor portion of the front-wall lower horizontal edge, an upright inward edge providing the upright inward edge of the front-wall, an upper-inward edge providing the upper-inward edge of the front-wall, and a fourth and longest edge comprising about four-ninths of the inward-front panel periphery and being a substantial mirror image of and lying coextensively along and attached to the fourth edge of the outward-front panel to provide the upright forward seam of the front-wall; wherein said dual-panel rear-wall includes an outward-rear panel and an inward-rear panel, said outward-rear panel and said inward-rear panel each being areally smaller than the outward-front panel; the borders of said outward-rear panel comprising four edges including: a substantially horizontal lower edge coextensive along and attached to the outward portion of the front-wall horizontal edge, an upright outward edge coextensive along and attached to the outward edge of the front-wall, an upper-outward edge coextensive along and attached to the upper-outward edge of the front-wall, and an upright unattached hemmed free edge extending downwardly of the peripheral zenith; the borders of said inward-rear panel comprising five edges including: a substantially horizontal lower edge coextensive along and attached to the inward portion of the front-wall horizontal edge, an upright inward edge coextensive along and attached to the inward edge of the front-wall, an upper-inward edge coextensive along and attached to the upper-inward edge of the front-wall, a downward-outward edge commencing at the upper extremity of the upper-inward edge and coextensive along and attached to the upper portion of the upper-outward edge of the front-wall, and an upright unattached hemmed free edge disposed between the horizontal lower edge and the downward-outward edge of the said inward-rear panel with the free edge of the inward-rear panel being disposed rearwardly and outwardly of the free edge of the outward-rear panel whereby the space between said hemmed free edges provides an opening access into the interior of the breast pad; wherein there is secondary-stitching attached between the front-wall and rear-wall parallel to and below the upper-outward and upper-inward edges of the front-wall periphery to provide an attenuated upper edge for the breast pad; and wherein the non-hydroscopic batting comprises polyester resin filaments, said batting having a normal precompressed density of about 1/20 ounce per cubic inch and wherein the filament denier is within the range of 10-50.

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ADELE M. EAGER, Primary Examiner

U.S. Cl. X.R.

3-36; 128-280