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Sneider

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[54] **DISPOSABLE SANITARY LINER FOR A GARMENT**

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[52] **U.S. Cl.** **128/280**

[51] **Int. Cl.** **A61m 1/06**

[58] **Field of Search** 128/280, 461–464, 128/479–480

[56] **References Cited**

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[57] **ABSTRACT**

The invention contemplates a disposable sanitary pad in which a high absorbency fill member is retained and protected by a thin absorbent cover, both being attached to a thin flexible impermeable back member having a thickness in the order of one or a few mils. This back member, on its opposite side, is provided with a non-toxic adhesive surface which, in its shipping and stored condition, is protected by a pull-away cover. The non-toxic adhesive, in its exposed or uncovered condition, and the shape of the pad enable the sanitary pad to be removably attached and conformed to a concave portion of a garment such as a brassiere pocket or cup.

20 Claims, 4 Drawing Figures

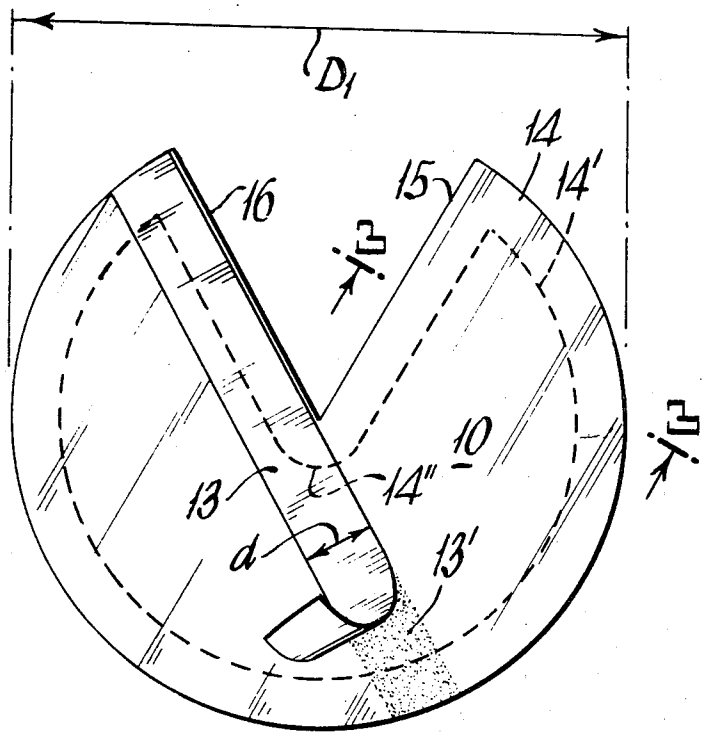


Fig. 1.

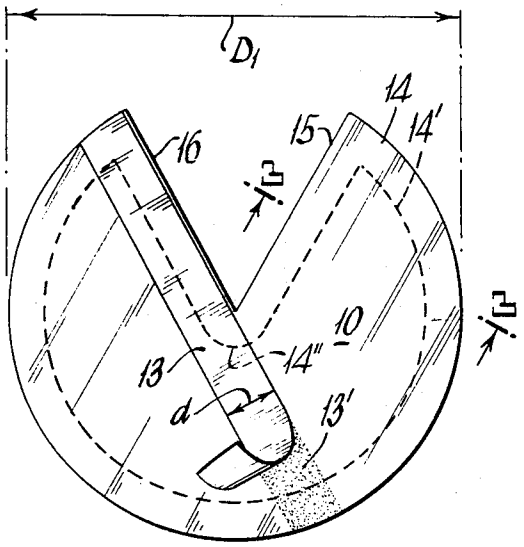


Fig. 2.

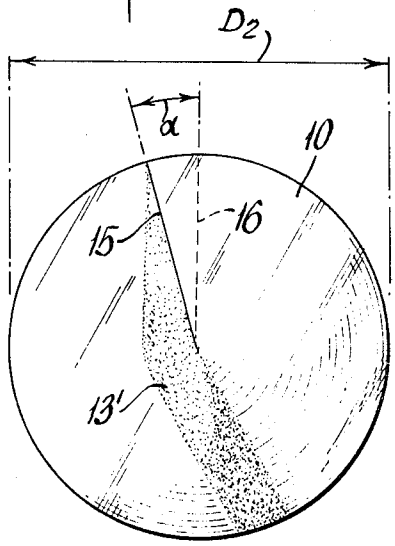


Fig. 3.

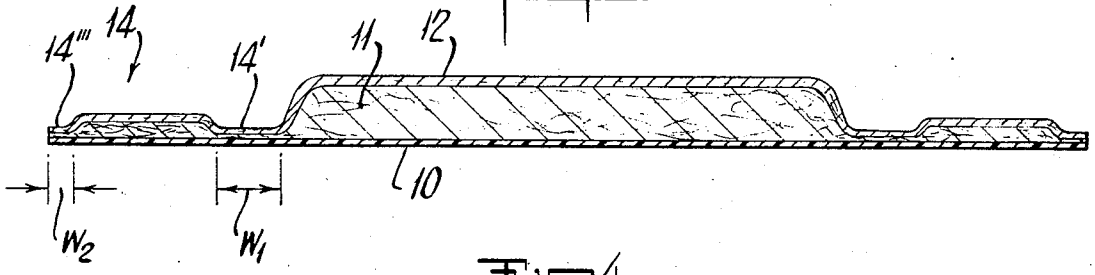
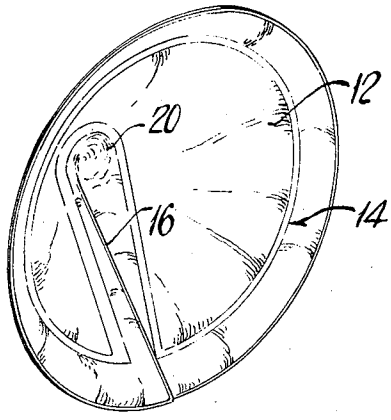


Fig. 4.



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DISPOSABLE SANITARY LINER FOR A GARMENT

This invention relates to the general class of surgery and in particular to the subclasses of "bandaging;" "pads" and particularly to the subclass of "receptors."

Sanitary pads, breast pads and the like are of course well known in both commerce and the art, and a constant program of research has brought improvements in the art to a more-or-less high degree of development. It is to be noted that many women, particularly at times associated with child-birth, are troubled with the problem of a light breast discharge. There are various pads which have been satisfactory, but they and their holding devices must be characterized as too bulky and uncomfortable for everyday use, and they present various other problems in use and in assembly for use. Thus, there is a need for a pad which will receive such discharges while being easy to assemble and to wear, every day and without discomfort.

It is an object of the invention to provide an improved disposable absorbent-pad construction, having its own means of protection of the garment within which it is worn.

Another object is to provide an improved pad of the character indicated, which is of minimum and uniform thickness, which has tapered peripheral edges, and which involves no folds of material.

Another object is to provide such a pad with its own means of self-adhering one part to another, in order to retain a desired concave formation thereof.

A further object is to meet the above objects with a construction which may be self-adherent to the garment and which will flexibly conform to the flexing of the garment.

It is also an object to provide a thin pad of the character indicated, without folds, and wherein absorbent capability is confined essentially within the peripheral limits of the pad.

It is a specific object of the invention to provide a disposable pad which may be easily mounted in the cup portion of a brassiere without use of snaps, fasteners, or other special retaining means.

Other objects and various further features of novelty and invention will be pointed out or will occur to those skilled in the art from a reading of the following specification in conjunction with the accompanying drawing. In said drawings, which show, for illustrative purposes only, a preferred form of the invention:

FIG. 1 is an illustrative view of the planform of a pad configuration of the invention;

FIG. 2 is a similar view of the pad of FIG. 1 after formation to conical shape, looking at the convex side;

FIG. 3 is an enlarged sectional view, taken on the line 3—3 of FIG. 1; and

FIG. 4 is a perspective view, looking generally toward the other or concave side of the formed pad of FIG. 2.

Referring to the drawings, the invention is shown in application to a disposable local lining or pad for a garment, specifically for the brassiere cup. The linking is manufactured flat and is marketable flat, but it incorporates its own means of ready assembly to conical proportions adapted to the user's requirements.

As a disposable sanitary pad, a presently preferred basic flat article (FIGS. 1 and 3) comprises:

a. a moisture-impervious thin pliant backing sheet or layer **10**; this may be a plastic, such as polyethylene, e.g., of one-half mil thickness;

b. an absorbent wadding or fill layer **11**, about 0.001-inch or more in thickness, depending on requirements; this may be of bleached cellulose, plied to achieve desired thickness or bulk, for example to five-ply or greater weight;

c. a porous and flexible thin outer cover or top sheet **12**; this may be a thin non-woven fabric, such as a variety of product known as "Masslin," produced by Chicopee Manufacturing Company, and containing a non-toxic thermoplastic material, with a thickness of about 0.005 inch, i.e., in the range 0.002 to 0.010 inch; and

d. a tear or rip-strip **13** of thin flexible plastic or paper, to protect an adhesive coat **13'** on backing **10** until ready for use.

The said pad may be characterized by a continuous peripheral edge **14** of reduced thickness, not involving any fold of material. Actually, the reduced thickness results from a bonding step, applied marginally, e.g., to an inner extent **14'**, in the course of manufacture. The techniques of manufacture may be much the same as described for a similar product in my copending application, Ser. No. 11,388, filed Feb. 16, 1970, and therefore I make reference to said application for such detail.

It is a feature of the invention that the planform of my article is generally circular, and that it shall include a generally radial locally cut portion. As shown, the generally circular profile has the diameter D1 (FIG. 1), and the radial cut is a sector of limited angular width, as for example about 45 degrees about the center of the platform. In FIG. 1, the sector cut-out is defined between straight radial edges **15–16**, and the reduced thickness margin **14** extends along the entire peripheral edge of the article, including those portions which define the cut-out **15–16**. It is my preference that the inner limit **14'** of the margin **14** shall include a small circular-arc portion **14''**, tangentially continuous with the two straight radial portions along edges **15–16**.

In manufacture, as more particularly set forth in said application, the various layers are superposed from payed-out sheeting, before cutting to the planform of FIG. 1. The procedure also involves compression with heated mating dies, used to establish the marginal bonding and reduced peripheral edge region **14**. It will be understood that bonding of sheets **10–11–12** to each other, and the bonded compressionally reduced fill **11** (at **14**), result from local flow and consolidation of thermoplastic material as is contained in sheet **12** (such flow locally permeating the layer **11**), and from contact of fill **11** with spaced local adhesive coatings on the adjacent surface of the plastic sheet **10**.

The self-sticking adhesive **13'** on the other side of the plastic layer **10** may be over the entire area of the material from which the layer **10** is cut, or it may be a straight narrow swatch, local only to a limited width *d* of the material. Preferably, the sheet material for layer **10** is procured complete with an applied ribbon of the self-sticking adhesive **13'**, and with a protective rip strip **13** of suitable (i.e., corresponding) width. The cutting and heat-bonding dies are so oriented with respect to the locus of this ribbon **13'** (and strip **13**) as to transverse a large chord or substantially a diameter of the planform, with part of the locus alongside one of the edges of the radially cut portion; as shown, the adhesive **13'** and its peel-off cover **13** are aligned to run alongside the edge **16**.

In commercial use of the invention as a disposable sanitary brassiere-cup liner, the planform of the article is of 4.25-inch diameter. The region **14** of reduced thickness is substantially three-eighths inch wide; and it comprises the inner margin **14'** about one-tenth inch wide, an outer margin **14'''** about 0.05 inch wide, and an intermediate margin which is not as compressed as the regions **14'–14'''** but which is nevertheless of lesser thickness than the main body of the article. The width *d* of adhesive **13'** is about one-fourth inch.

The article is packaged and sold in multiple, being flat and as described in connection with FIGS. **1** and **3**. When one of the liners is selected for use, the strip **13** is first peeled off and discarded, exposing the full length of the self-sticking adhesive swatch **13'**. The article is then conically formed to the desired shape by lapping the edge **16** over the tacky region **13'** of the adjacent edge **15**. Finger pressure at the overlap is adequate to establish the assembly. In FIG. **2**, the overlap has been accomplished to the angular extent α, which will of course vary in accordance with individual needs, and the overall projected diameter has been correspondingly reduced, as suggested at D_2. It is important to note that the remainder of the adhesive swath **13'** is exposed to provide secure assembly to the intended garment. FIG. **4** shows the assembled article, viewed from the opposite side, and it is noted that the central arcuate margin formation **14''** materially aids the customer in establishing a clean non-buckling central pocket region (identified **20** in FIG. **4**) near the location at which the overlapped edges **15–16** intersect.

The adhesive **13'** is selected to be non-toxic and may be of a rubber-base variety; the coat is selected and applied to sheet **10** so as to remain adhered to sheet **10** and to resist permanent adherence to the garment. Thus, after use, the pad of the invention is simply pulled from the garment, without damage to the garment, and leaving little or no residue of adhesive on the garment.

It will be seen that I have described an improved article which meets all the stated objects. The article is light and simple to use, and is flexibly devised to permit assembly in a variety of conical shapes, as needed by different users. The peripheral bonding along margin **14** provides a barrier resisting moisture seepage to the edges, and of course the backing is impervious, thus assuring that the basic garment will not be soiled in any way.

While the invention has been described in detail for the preferred form shown, it will be understood that modifications may be made without departing from the invention. For example, in addition to or apart from the sanitary absorbent features described, the structure lends itself to individual shaping of pads as may be desired by the particular user for enhancement of her physical appearance; in such event, the padding or fill **11** may be of other-than-uniform thickness and may be thicker than for the sanitary-pad embodiment specifically shown and described.

What is claimed is:

1. A flat disposable body-contact pad of generally circular planform and having a local generally radially extending cut portion, said pad being adapted to be removably carried by self-adhesion to an inner concave surface of a garment, comprising (a) a layer of high-absorbency fill material, (b) a relatively thin top cover layer of flexible porous material, said top layer and said fill layer being continuously secured to each other at their margin about the periphery of said pad and along the margins of said cut portion, (c) an impervious thin pliable back layer adhered to the underside of said fill layer, (d) a non-toxic contact-type adhesive surface on the exposed surface of said pliable back layer, the adhesive providing sufficient tack to retain the mounted pad to the inner fabric surface of a garment, said adhesive being disposed to remain on the pliable cover as the used pad is peeled from the garment, and (e) a pull-away cover sized to cover the non-toxic adhesive surface of the back layer, the pull-away cover being disposed for ready release from the adhesive.

2. A pad according to claim **1**, in which said radially cut portion is generally sector-shaped.

3. A pad according to claim **1**, in which said adhesive surface extends at least generally along one edge of the radially cut portion, whereby a conical cup is formed upon lapping the other edge of the cut portion to part of said adhesive surface.

4. A pad according to claim **1**, in which one of said first two mentioned layers includes a thermoplastic material, said margins being defined by consolidated thermoplastic material and by reduced thickness of said first two mentioned layers.

5. The pad of claim **4**, in which the effective width of said margin of reduced thickness adjacent each of the edges of said radially cut portion is of such extent as to permit a range of selected overlap thereof for assembly of said pad to a desired one of several depths.

6. A pad according to claim **5**, in which the thickness of the overlappable margins is at least no greater than substantially one half of the thickness of the main absorbent body of the pad.

7. The pad of claim **5**, in which said margin of reduced thickness includes a generally circular arc about the central end of the cut portion and joined to the respective courses along sector edges, whereby conical formation and assembly about the center of said arc is facilitated.

8. The pad of claim **1**, in which said first-mentioned layer contains the thermoplastic material.

9. The pad of claim **7**, in which said first-mentioned layer is a non-woven fabric.

10. The pad of claim **1**, in which said second layer is bleached cellulose wadding.

11. The pad of claim **1**, in which said pliable back layer is a polyethylene sheet.

12. The pad of claim **11**, in which said polyethylene sheet is of thickness in the order of one-half mil.

13. A disposable pad comprising registering multiple layers of essentially the same generally circular planform, said planform having a local generally radially extending cut portion, and said layers comprising:

a cover of relatively thin flexible porous material;

b. a wadding of absorbent material;

c. a flexible plastic sheet having a tacky adhesive for self-sticking to a garment; and

d. a protective sheet partably carried by said adhesive;

and wadding being adhered to said plastic sheet, and said cover and wadding being secured continuously along the circumferential and radial margins of said planform locally consolidated by bonding material permeating adjacent marginal regions of said cover and of said wadding.

14. The pad of claim 13, in which the bonding material is thermally sensitive and is contained in said cover material and is locally released into the margin of said wadding by local marginal compression of said layers in the presence of heat.

15. A disposable pad of generally circular planform which is locally radially cut to permit conical formation upon overlap of the cut edges, a flexible plastic sheet having on one side a tacky adhesive for self-sticking to a garment, a protective sheath partably carried by said adhesive, and a layer of high-absorbency material adhered to and substantially covering the other side of said sheet, said sheet and layer being continuously bonded essentially only along the circular and radial margins of said pad.

16. The pad of claim 15, in which a relatively thin top porous flexible layer covers said high-absorbency material and is adhered to aid high-absorbency material along said circular and radial margins.

17. The pad of claim 15, in which the margin includes a continuous edge of most-reduced thickness, and an adjacent continuous strip of less-reduced thickness which is at least no greater than substantially one half the thickness of the main body of the pad.

18. A flat disposable body-contact pad of generally circular planform and having a local generally radially extending cut portion, said pad being adapted to be removably carried by self-adhesion to an inner concave surface of a garment, comprising (a) a layer of high-absorbency fill material, (b) a relatively thin top cover layer of flexible porous material, said top layer and said fill layer being continuously secured to each other about the periphery of said pad, (c) an impervious thin pliable back layer adhered to the underside of said fill layer, (d) a non-toxic contact-type adhesive surface on the exposed surface of said pliable back layer, the adhesive providing sufficient tack to retain the mounted pad to the inner fabric surface of a garment, said adhesive being disposed to remain on the pliable cover as the used pad is peeled from the garment, and (e) a pull-away cover sized to cover the non-toxic adhesive surface of the back layer, the pull-away cover being disposed for ready release from the adhesive; said adhesive surface being characterized by a relatively narrow and straight course extending substantially diametrically across said planform and aligned generally along one edge of the radially cut portion, whereby upon removal of the pull-away cover, the adhesive along the cut edge serves to retain a formed generally conical shape and the remaining adhesive serves to detachably retain assembly to a garment.

19. A disposable pad comprising registering multiple layers of essentially the same generally circular planform, said planform having a local generally radially extending cut portion, and said layers comprising:

a. a cover of relatively thin flexible porous material;
b. a wadding of absorbent material;
c. a flexible plastic sheet having a tacky adhesive for self-sticking to a garment; and
d. a protective sheet partably carried by said adhesive; said wadding being adhered to said plastic sheet, said cover and wadding being secured continuously along the circumferential and radial margins of said planform locally consolidated by bonding material permeating adjacent marginal regions of said cover and of said wadding, and the adhesive area including a first region lapped by adjacent edges of the cut portion to retain a formed-up generally conical shape and a second region which is not so lapped.

20. The pad of claim 19, in which the adhesive area is a single straight swath of width less than the diametrical extent of said planform and extending continuously along substantially one chord of said planform.

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