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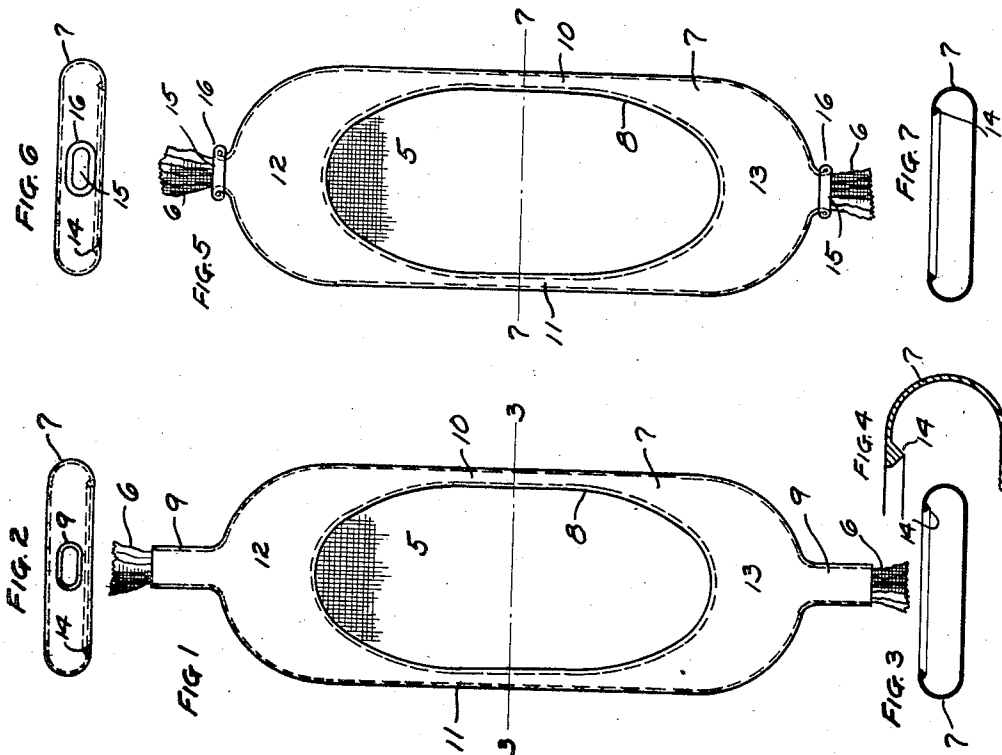
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METHOD AND APPARATUS FOR MAKING SANITARY PAD SHIELDS

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2 Sheets-Sheet 1



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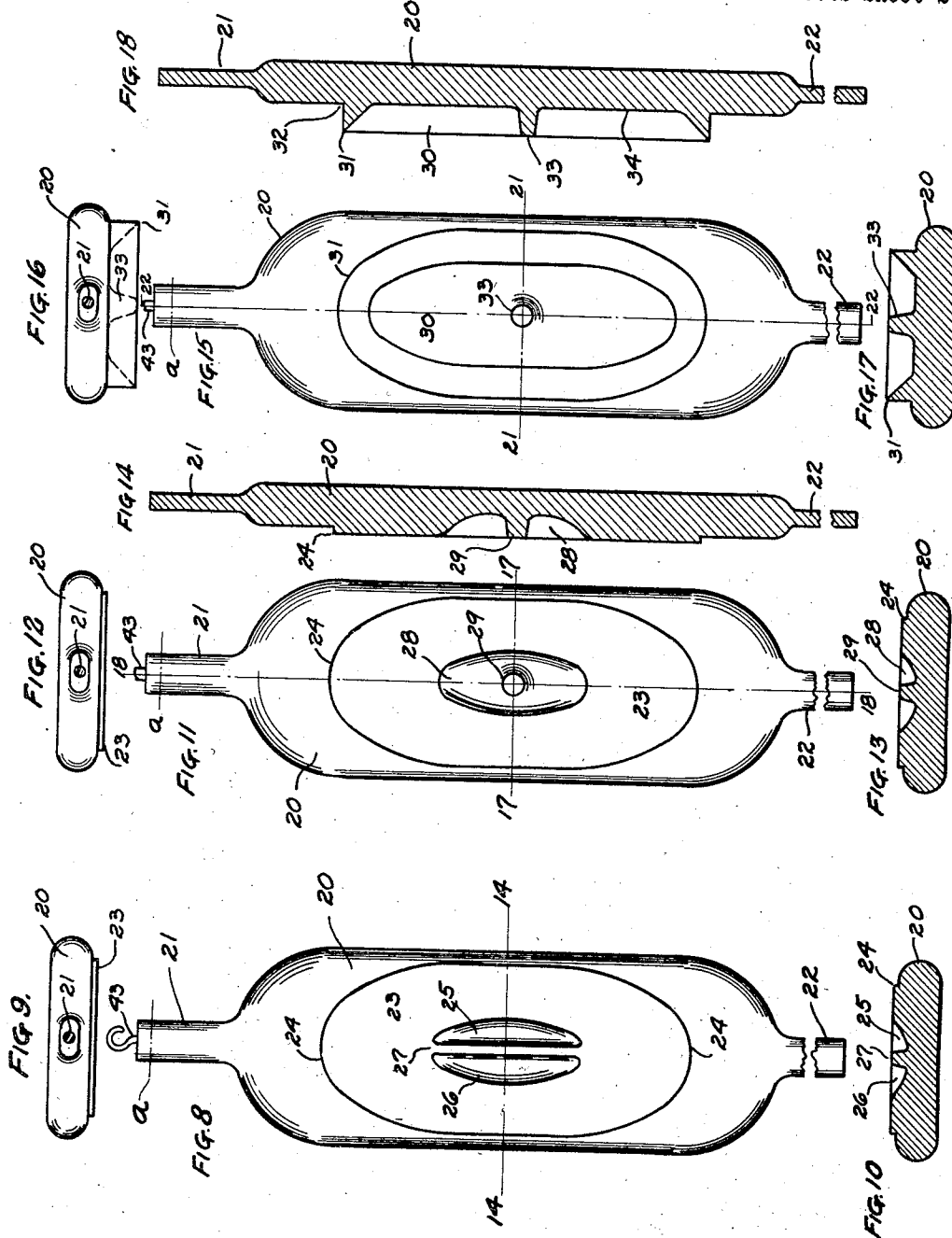
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METHOD AND APPARATUS FOR MAKING
SANITARY PAD SHIELDS

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13 Claims. (Cl. 18—41)

This invention relates to sanitary pad shields and to the method of and to apparatus for making the same.

The usual sanitary pad is formed of fibrous substance such as cotton or some form of cellulosic material enclosed in a loosely woven strip of cloth which is of rather coarse texture and therefore tends to chafe the wearer's legs, and although such pads are bulky they do not afford complete protection to the garments of the wearer.

In accordance with one feature of the present invention, a sanitary pad shield is provided which is formed of soft, flexible, water-proof material and which is of such construction that it readily lends itself to economical methods of manufacture.

Another feature of the invention relates to a novel method of manufacturing sanitary pad shields economically in large quantities.

A further feature of the invention relates to forms on which sanitary pad shields may be deposited from an aqueous dispersion of rubber or the like and thereafter finished and reinforced on the forms with a minimum number of operations.

These and other features of the invention will appear from the detailed description and claims when taken with the drawings in which Fig. 1 is a front elevation of a sanitary pad shield of the present invention illustrated as enclosing a sanitary pad; Fig. 2 is an end elevation of this shield; Fig. 3 is a cross sectional view of the shield only taken on the line 3—3 of Fig. 1 and Fig. 4 is an enlarged detailed view of the reinforced edge of the material defining the lateral opening in the shield; Fig. 5 is a front elevation of a slightly modified form of sanitary pad shield with a sanitary pad enclosed therein; Fig. 6 is an end view thereof and Fig. 7 is a cross-sectional view of the shield alone taken on the line 7—7 of Fig. 5; Fig. 8 is a front elevation of a form on which the sanitary pad shields of Figs. 1 to 7 inclusive may be deposited; Fig. 9 is an end view of this form while Fig. 10 is a cross sectional view thereof taken on the line 14—14 of Fig. 8; Fig. 11 illustrates a modified type of form on which the sanitary pad shield of Figs. 1 to 7 inclusive may also be deposited; Fig. 12 is an end view of this last-mentioned form; Fig. 13 is a cross-sectional view thereof taken on the line 17—17 and Fig. 14 is a vertical section taken on the line 18—18 of Fig. 11; Fig. 15 shows still a different type of form; Fig. 16 is an end view thereof and Fig. 17 illustrates a cross-sectional

view of the same taken on the line 21—21 of Fig. 15, while Fig. 18 discloses a vertical section taken on the line 22—22 also of Fig. 15.

In the drawings, 5 designates a sanitary pad made of absorbent fibrous substance such as cotton or cellulosic material enclosed in a strip of cloth 6 of rather open weave. In accordance with the present invention a thin waterproof shield 7 of flattened tubular shape which is composed of soft, flexible material, preferably of dipped rubber or latex, closely engages and encloses a substantial portion of the sanitary pad. This shield has a flattened elliptical opening 8 in one side wall thereof through which a considerable area of one of the large faces of the pad is exposed, while the ends of the shield proper merge into flattened tubular necks 9 open at their ends, through which the ends of the enclosing cloth 6, project. It should be noted that the opening 8 in the shield, is spaced from the edge thereof to provide borders 10 and 11 to engage the lateral margins of the pad 5 while the ends of the opening 8 are spaced a substantial distance from the ends of the shield to provide seamless end yokes 12 and 13 to engage a substantial portion of each end of one face of the pad. The entire edge of the material defining the opening 8 is reinforced, as indicated at 14 (Fig. 4), by a thickened integral ridge formed as an accumulation of the deposited layer.

In Figs. 5, 6, and 7 there is illustrated a modified form of shield 7 which differs from the shield of Figs. 1, 2, 3 and 4 in that the necks 9 have been replaced by openings 15 in the ends of the shield, the margins 16 of which openings are reinforced such as by a bead or by ring-rolling the material of the shield back upon itself. The remaining portions of this shield are identical with the first-mentioned type of shield and the corresponding identical parts of the two shields are identified by the same reference characters.

The shields shown in Figs. 1 to 7 inclusive may be made by dipping either the form shown in Figs. 8, 9 and 10 or that shown in Figs. 11, 12 and 13 into an aqueous dispersion of rubber or the like according to the method to be hereinafter set forth. The form illustrated in Figs. 8, 9 and 10 has a flattened oblong body portion 20 having rounded corners and having a thickness indicated in Figs. 9 and 10. The body portion at each end terminates in flattened necks 21 and 22 of which the neck 21 is provided with a hook 23 or other support by which the form may be suspended from a frame (not shown). The neck 22, however, terminates in an abrupt lower edge

the purpose of which will be further set forth. One flat face of the body portion is provided with a raised panel 23 of flattened elliptical outline corresponding with the size and shape of the desired opening 8 in the shield to be deposited on the form. This panel rises abruptly from the face of the form to an elevation sufficient to afford a neat trim of the margin of the shield at the opening 8 therein while the angular relation between the side wall of the panel and the face of the form at the junction of these parts, is such that a reinforcing ridge 14 will be built up in the deposited layer by surface tension. The panel near its center portion is provided with two depressions 25 and 26 defining a longitudinal rib 27.

The form illustrated in Figs. 11 to 14 inclusive is substantially the same as that just described except that the openings 25 and 26 and the rib 27 are replaced by a generally elliptical depression 28 surrounding a button or knob 29. The remaining parts of this last-mentioned form are identical with the other parts of the form just described and are designated by the same reference characters.

The form illustrated in Figs. 15 to 18 inclusive differs from the forms just described in that it is provided with a plane which has an abrupt edge 31 and its union 32 with the body portion forms a rather abrupt junction. The center portion of the panel except for a circular knob 33 is depressed as indicated at 34. The various forms referred to above may be made of any suitable material such as glass or aluminum.

In making the shields as illustrated in Figs. 1 and 4, either of the forms of Figs. 8 and 11 while suspended by a hook such as 43, is dipped one or more times vertically into such as an aqueous dispersion of rubber or the like as far as broken line "a" until the desired thickness of shield is deposited on the form. After the deposited layer has been dried, the portion of the layer deposited over the depressions 25 and 26, as well as the rib 27 are grasped against this rib by placing the thumb and forefinger into these depressions so that the part of the layer as far as the abrupt edge 24 of the panel can be parted therefrom by pulling. This stripping is possible since the aqueous dispersion of rubber tends to flow away from the sharp edge such as 24 during the dipping, thereby defining a weakened outline thereat in the strip. The portion of the deposited layer covering the lower end of the neck 22 can likewise be stripped away since the abrupt edge of this neck also defines a weakened outline in the layer so that an opening is formed in the other end of the shield. It should be pointed out that at the junction of the edge of the panel with the body portion, the deposited layer accumulates therein, due to the phenomenon of surface tension. This accumulation of the deposited layer provides the ridge 14 defining the opening 8, as best illustrated in the enlarged detail view of Fig. 4. The deposited layer or shield can now be removed from the form on which it was deposited by stretching that portion of the shield including the seamless yoke 13 until the neck 22 and the adjacent portion of the form can be withdrawn through the opening 8. The remainder of the shield including the seamless yoke 12 can be removed from the form by withdrawing the form including the neck portion 21 through the opening 8, or this last-mentioned portion of the shield can be stripped from the form by turning it inside out while pulling it over the upper portion of the form, including the neck 21 thereof.

When it is desired to make the modified form of shield best shown in Fig. 5, the form is dipped in the manner just described and the remaining operations are performed, but before the shield is removed from the form, the necks 9 of the deposited layer are rolled back on themselves to provide a bead or ring-rolled margin such as 16 for the openings 15 in the end of the shield.

In case the forms shown in Figs. 11 to 14 inclusive are used, the methods of procedure are the same as those just described, except as to removing the area of the deposited shield corresponding to the opening 8 in the finished shield. When it is desired to strip off this portion of the area of the shield, the operator by grasping the portion of the layer about the knob 29 with his thumb and forefinger, and twisting the same, can easily strip away the portion of the layer as far as the abrupt edge 24 of the panel by pulling. The remaining steps may be the same as those described.

It will be understood by skilled artisans that the aqueous dispersion of rubber or other rubber in liquid form may be vulcanized in any suitable way either before or after depositing the same on a form to produce the shield.

While several embodiments of the invention have been disclosed, it will be understood that this invention is capable of still further modifications and that this disclosure is intended to cover any variations, uses or adaptations of the invention falling within the scope of the appended claims.

What I claim is:

1. The method of making a sanitary pad shield, which comprises providing a form having the general shape of the desired shield and having an abrupt edge on a substantially flat face of the form, dipping said form into an aqueous dispersion of rubber or the like to develop a deposited coating thereon and to provide adjacent said abrupt edge, a reinforcing ridge as an integral part of a flattened lateral wall of the deposited coating and of greater thickness than the adjacent portions of said coating, and removing the portion of the coating within said ridge.

2. The method of making a sanitary pad shield, which comprises providing a form having the general shape of the desired shield and having an abrupt continuous edge on a substantially flat face of the form, dipping said form into an aqueous dispersion of rubber or the like to develop a deposited coating thereon and to provide adjacent said abrupt edge, a reinforcing ring as an integral part of the lateral wall of the deposited coating and of greater thickness than the adjacent portions of said coating, tearing away the portion of the coating within said ring, and providing an opening in each end of the deposited layer.

3. The method of making a sanitary pad shield, which comprises providing a form having the general shape of the desired shield and having an abrupt continuous edge on a substantially flat face of the form, dipping said form into an aqueous dispersion of rubber or the like to develop a deposited coating thereon and to provide adjacent said abrupt edge, a reinforcing ring as an integral part of the lateral wall of the deposited coating and of greater thickness than the adjacent portions of said coating, removing the portion of the coating within said ring by tearing the material of the coating adjacent said ring, providing an opening in each end of the deposited layer, and reinforcing the coating around at least one of said end openings by increasing the thickness of the deposit thereat.

4. The method of making a sanitary pad shield, which comprises providing a form having the general shape of the desired shield and having an abrupt continuous edge of flattened elliptical outline on a substantially flat face of the form, dipping said form into an aqueous dispersion of rubber or the like to develop a deposited coating thereon and to provide adjacent said abrupt edge a reinforcing ring as an integral part of the lateral wall of the deposited coating and of greater thickness than the adjacent portions of said coating, removing the portion of the coating within said ring, providing an opening in each end of the deposited coating and reinforcing the deposited coating around both of said end openings.

5. The method of making a waterproof, sanitary pad shield which comprises providing a form of the desired shape of the shield, dipping said form into an aqueous dispersion of rubber or the like to deposit a coating of rubber thereon and to form an integral ridge of rubber in a wall of the coating, the plane common to said ridge being in a position other than the horizontal while the ridge is being deposited, tearing away the portion of the coating bounded by said ridge, and providing an opening in each end of the shield.

6. The method of making a waterproof, sanitary pad shield which comprises providing a form of the desired shape of the shield, dipping the form into an aqueous dispersion of rubber or the like to deposit a coating of rubber thereon and to form a reinforcing ring in one wall of the coating, the plane common to said ridge being in a position other than a horizontal one while the ridge is being deposited, and tearing away a portion of the coating within said ring.

7. The method of making a water-proof, sanitary pad shield which comprises providing a form of the desired shape of the shield, dipping the form into an aqueous dispersion of rubber or the like to deposit a coating of rubber thereon and to form a reinforcing ring in one wall of the coating, the plane common to said ridge being in a position other than a horizontal one while the ridge is being deposited, tearing away the portion of the coating within said ring, and providing an opening in each end of the deposited coating with the material at the margin of at least one of said openings reinforced.

8. The method of making a sanitary pad shield which comprises providing a flattened form hav-

ing the general shape of the desired shield, said form on its flattened face having a raised area defined by an abrupt edge, dipping said form into an aqueous dispersion of rubber or the like to deposit a coating thereon and to accumulate a reinforcing ridge in the deposited coating at the junction of the raised area with the main body of the form, and removing the deposited coating at the face of said area as far as the abrupt edge thereof.

9. The method of making a sanitary pad shield which comprises providing a flattened form having the general shape of the desired shield, said form on its flattened face having a raised part defined by an abrupt edge, dipping said form into an aqueous dispersion of rubber or the like to deposit a coating thereon and to accumulate a reinforcing ridge in the deposited coating at the junction of the raised part with the main body of the form, tearing away the deposited layer at the face of said part as far as the abrupt edge thereof, and providing an opening in each end of said coating.

10. The method of making a sanitary pad shield which comprises providing a form having the desired shape of the shield, dipping the form into an aqueous dispersion of rubber or the like to deposit a coating of rubber thereon, providing a lateral opening in said deposited coating with a reinforced torn edge, and providing an opening in each end of said coating.

11. A form for making sanitary pad shields which comprises a flattened body portion having a rounded edge and a raised area with an abrupt edge formed on one flattened side face only of said body portion.

12. A form for making sanitary pad shields, which comprises an oblong body portion having rounded corners, a neck projecting from each end of said body portion along its major axis and a part of flattened elliptical outline rising abruptly from one side face of said body portion.

13. A form for making sanitary pad shields which comprises an oblong body portion having rounded corners, a part of flattened elliptical outline rising abruptly from one side face of said body portion, and a neck projecting from the lower end of said body portion, said neck terminating in an abrupt edge.

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