

Nov. 26, 1935.

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2,022,609

SANITARY PAD SHIELD AND THE LIKE

Filed Jan. 23, 1934

3 Sheets-Sheet 1

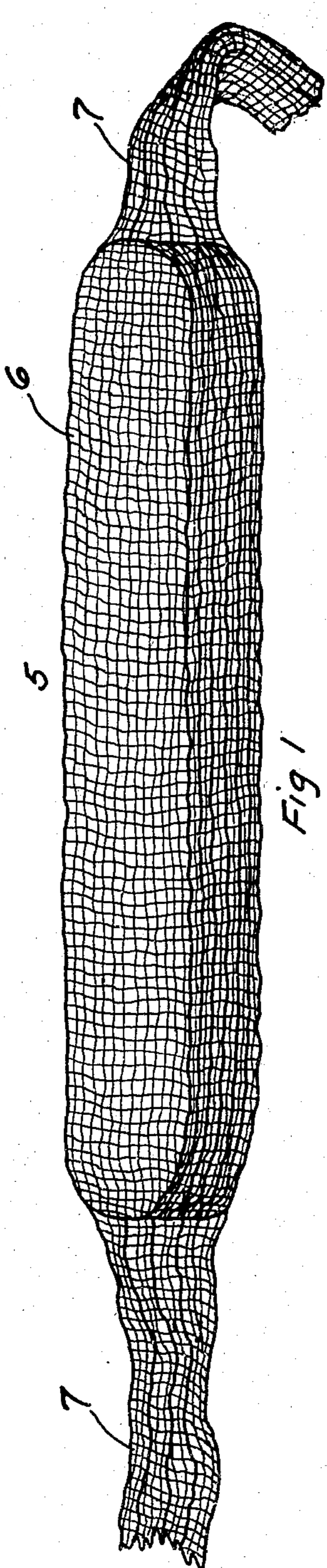


Fig 1

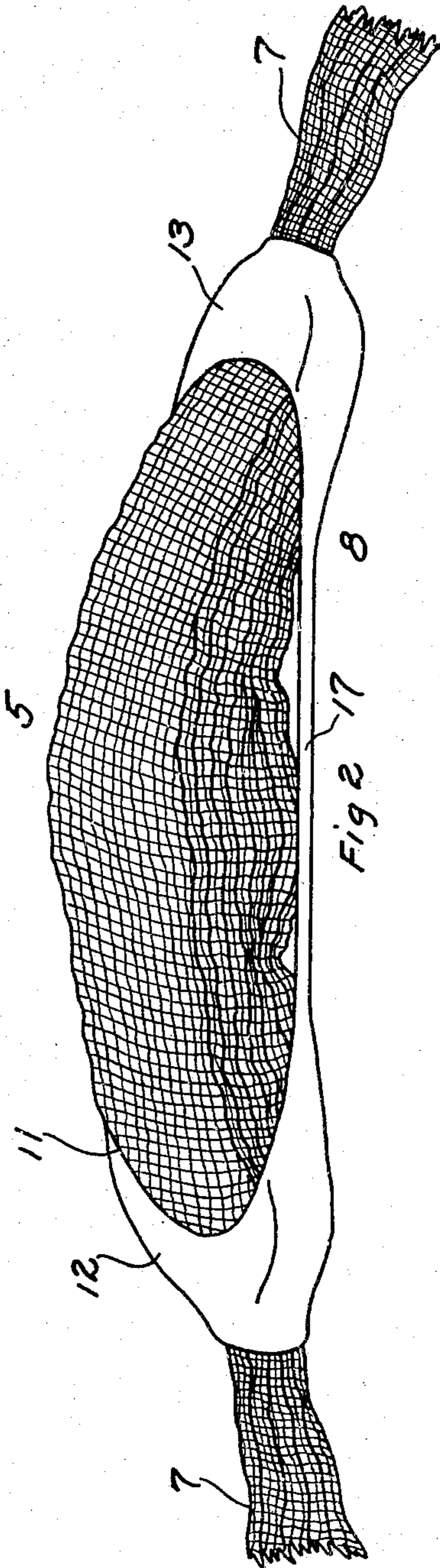


Fig 2

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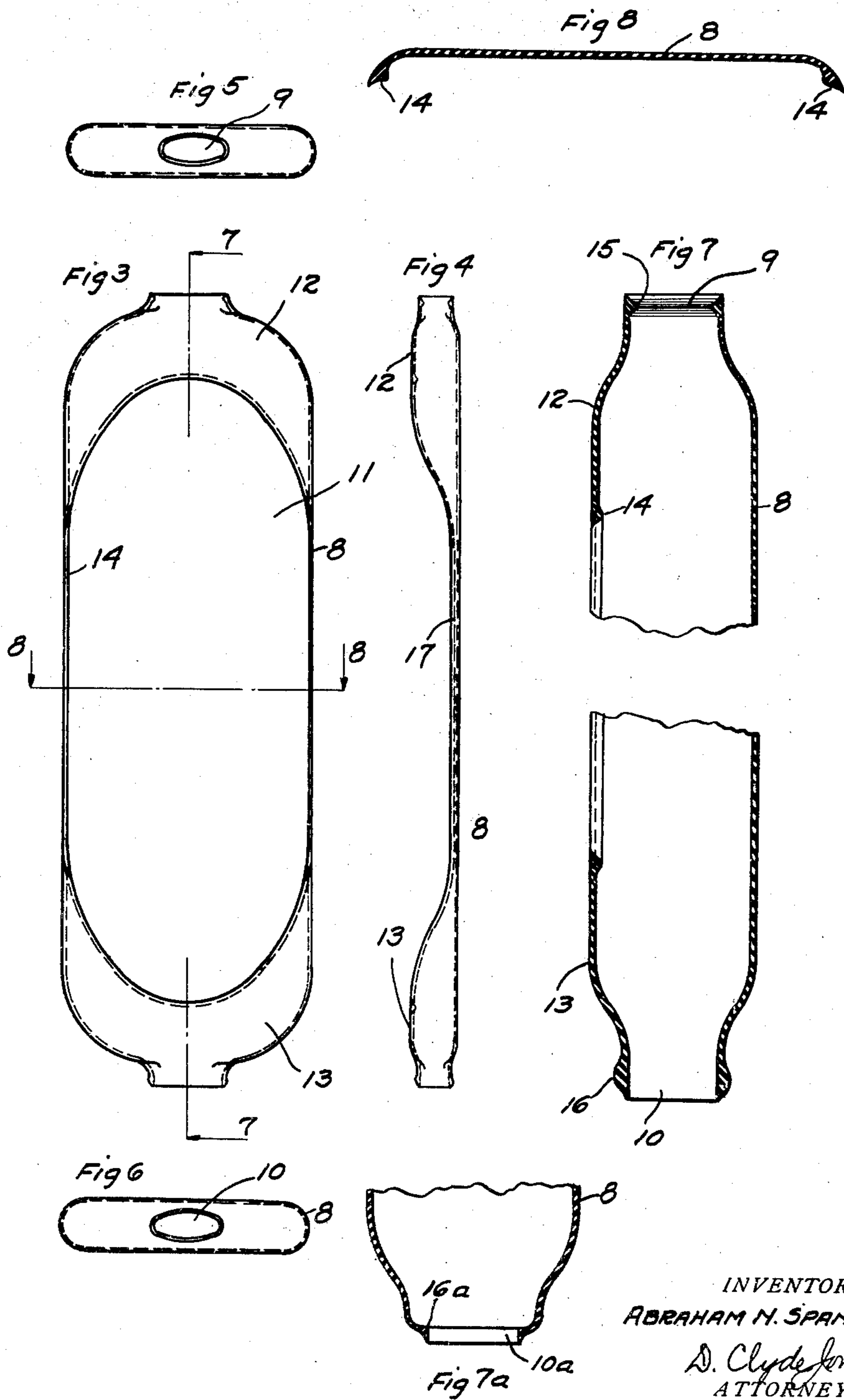
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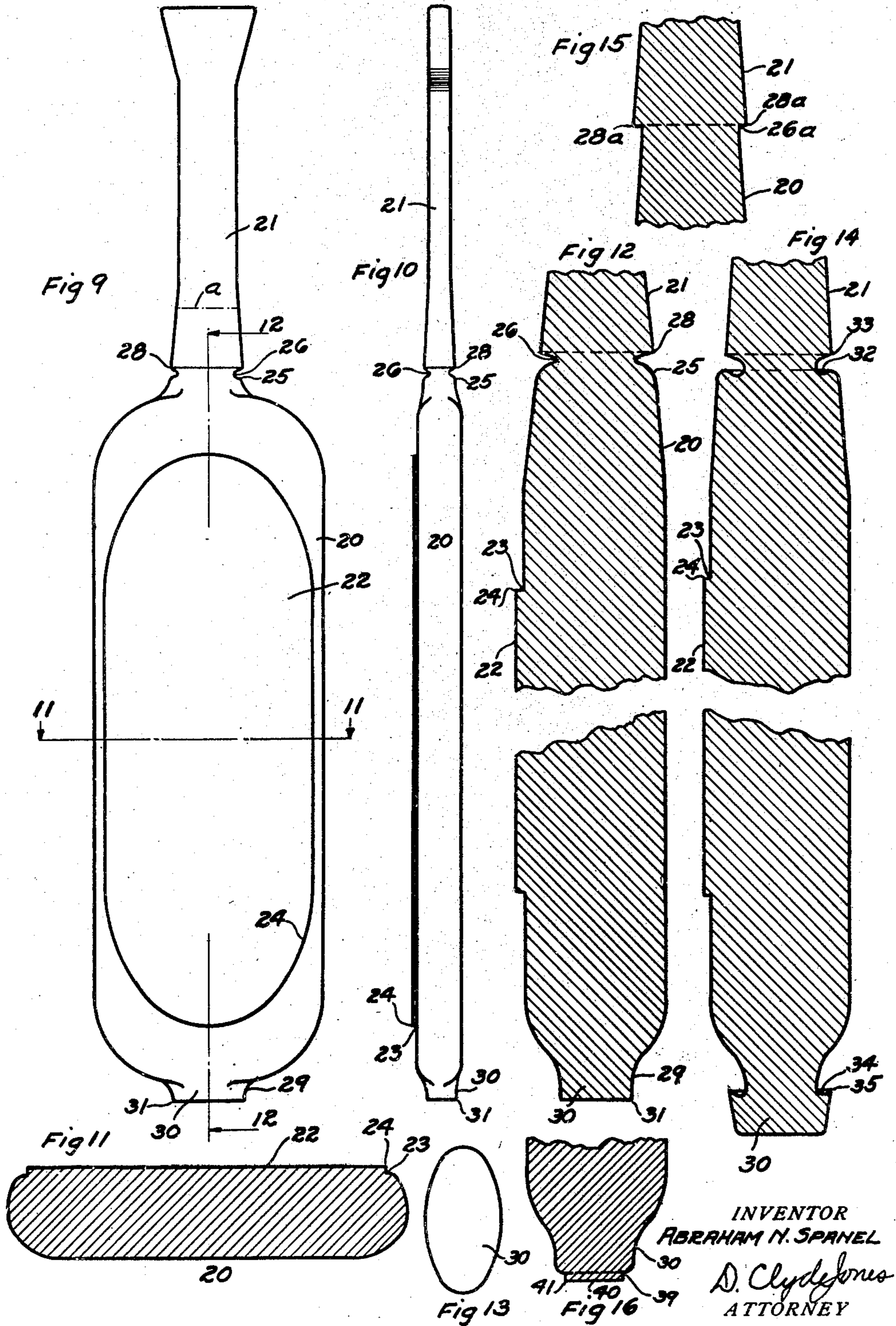
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# UNITED STATES PATENT OFFICE

2,022,609

## SANITARY PAD SHIELD AND THE LIKE

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Application January 23, 1934, Serial No. 707,955

20 Claims. (Cl. 128—290)

This invention relates to sanitary pad shields.

The usual commercial sanitary pad is formed of layers of fibrous substance, such as cotton or some form of cellulosic material, enclosed in a loosely woven strip of cloth. Such pads do not afford complete protection to the garments of the wearer and it has therefore, been proposed to provide water-proof shields which enclose the pads except for a portion of one surface thereof. However, such shields have been of substantially the same size as the pads with which they were used, but since the pads actually become reduced in size when used, the result has been that the shields became misplaced on the pads and therefore have failed to give the degree of protection for which they were designed. Furthermore, such shield and pad combinations have been uncomfortable due to the relatively large areas of rubber which hang loosely from the pads when they become reduced in size.

In accordance with the main feature of the present invention, a novel sanitary pad shield has been developed which is securely held in its proper position on the sanitary pad and at the same time presents a minimum area of rubber in contact with the legs of the wearer.

Another feature of the invention relates to a sanitary pad shield which is somewhat shorter and narrower than the pad with which it is to be used, with the result that when it is placed on the pad, the pad tends to bow away from the shield and when the combination is being worn the shield is placed somewhat under tension.

A further feature of the invention relates to a sanitary pad shield having seamless end yokes of appreciably narrower width than the pad with which it is to be used, so that the yokes tend to engage the ends of the pad to form a substantial means for gripping the shield to the pad.

An additional feature of the invention relates to a sanitary pad shield having at its intermediate portion, side walls of such width that a substantial portion of the side edges of the pad are exposed, thereby keeping the rubber from coming in contact with the legs of the wearer.

A still further feature of the invention relates to a product such as a sanitary pad shield having at least one opening therein, the material at the margin of said opening being reinforced by a ridge having a torn and/or a feather edge.

Still another feature of the invention relates to a sanitary pad shield having end openings, the margins of which openings are of gradually increasing thickness and in which one of the re-

inforcing margins is of greater strength than that of the other, so that the end of the shield that is subjected to the greatest strain has the greatest reinforcement.

A further feature of the invention relates to a sanitary pad shield which is economical to manufacture because it obviates the need for any "ring-rolled" reinforcements at the margins of the openings in the shield, thereby greatly simplifying and reducing the number of manufacturing operations. This application is a continuation in part of applicant's copending application Serial No. 688,122, filed September 5, 1933, relating to Sanitary pad shields and the method and apparatus for making the same.

Other features of the invention will appear from the detailed description and claims when taken with the drawings in which Fig. 1 is a perspective view of a sanitary pad; Fig. 2 is likewise a perspective view of the sanitary pad with a water-proof shield applied thereto showing the manner in which the shield is placed under tension by the pad; Fig. 3 is a plan view and Fig. 4 is a side view of the shield shown in Fig. 3; Figs. 5 and 6 are views of the respective ends of this shield; Fig. 7 is an enlarged fragmentary sectional view taken on the line 7—7 of Fig. 3, while Fig. 8 is an enlarged cross-sectional view of the shield taken on the line 8—8 also of Fig. 3; Fig. 7a is an enlarged fragmentary sectional view of a modified type of reinforcement for the opening in the lower end of the shield; Fig. 9 is a plan view and Fig. 10 is a side view of a form on which the shield can be made; Fig. 11 is an enlarged cross-sectional view of the form taken on the line 11—11 of Fig. 9; Fig. 12 is a fragmentary sectional view thereof, enlarged, taken on the line 12—12 of Fig. 9; Fig. 13 is an enlarged end view of the extreme lower portion of the form as shown in Fig. 9; Fig. 14 is a fragmentary sectional view similar to that shown in Fig. 12 but illustrating a modified construction for providing a different kind of reinforcement which is deposited in the layer of the shield at the margins of the end openings therein; Fig. 15 is an enlarged fragmentary sectional view showing a modified arrangement at the upper portion of the form (as shown in Fig. 9) whereby a reinforcement may be deposited in the layer of the shield at the margin of the opening in one end thereof; and Fig. 16 is an enlarged fragmentary sectional view showing a modified arrangement of the lower portion of the form (as shown in Fig. 9) whereby a reinforcement of the kind

shown in Fig. 7a is formed in the shield at the boundary of the lower end opening therein.

Referring to Fig. 1, 5 generally designates a sanitary pad formed of layers 6 of cotton or other absorbent cellulosic material, which pad is enclosed in a strip of cloth 7 of rather coarse weave. It will be noted that the pad, as manufactured, is substantially flat and that its ends are rounded. In accordance with the present invention, a water-proof shield 8 preferably formed of dipped latex engages the pad and has openings 9 and 10 (Figs. 5, 6 and 7) in its ends through which the ends of the strip of cloth 7, extend. The shield has end yokes 12 and 13 to grip the ends of the pad 5 and an elongated lateral opening 11 through which a substantial portion of the pad projects. The shield is shorter than the pad for which it is designed for use, while the width of each of the end yokes 12 and 13 is substantially narrower than that of the mentioned pad so that when the shield is applied to the pad, the shield is placed somewhat under tension and tends to bow the pad away from the intermediate portion of the shield. This tension, which is increased as the pad is bowed in the reverse direction when the combined shield and pad are applied to the wearer, causes the end yokes 12 and 13 of the shield to grip the ends of the pad so firmly that the shield does not tend to become misplaced with respect to the pad, while it is being worn. It will further be noted that the bowing of the pad due to the application of the shield thereto, tends to expose a substantial part of the intermediate portions of the sides of the pad and that only a very narrow strip 17 of the shield is exposed at the sides and thus only a very small area of rubber, if any, comes into contact with the legs of the wearer.

The details of the construction of the shield will best be understood by reference to Figs. 3 to 8 inclusive of the drawings, wherein the parts thereof are represented in substantially the same positions which they occupy when supported on the form on which they are made. It will be understood that the thickness of the shield layer is such that it is normally not completely self-supporting. In these views, the shield 8 is shown with the lateral opening 11 having its margin reinforced at 14 on its inner surface as best indicated in Figs. 7 and 8. This reinforcement is of gradually increasing thickness to a point near the edge of the opening from which point the thickness of the layer decreases to a thin edge, in certain instances to a feather-edge which flares outwardly from the general plane of the adjacent portion of the shield layer (Fig. 8). The end opening 9 (Fig. 7) at the inner shield surface is likewise reinforced as indicated at 15 by a margin also gradually increasing in thickness to a point from which the thickness of the reinforcement decreases to an edge in certain instances approximating a feather edge. The opening 10 in the other end of the shield is likewise reinforced on the outer shield surface by a margin 16 of gradually increasing thickness having its edge terminating in the general plane of the adjacent portion of the shield layer, although the outer contour of this reinforcement is somewhat different from and its strength is greater than that of the reinforcement 15, owing to the manner in which it is deposited. It will be appreciated that the margin 16 affords greater strength at the end of the shield which is subjected to the greatest strain. It will be noted that the reinforcement 14 for the lateral opening 11 and the reinforcement 15 for the end opening 9 are on

the inside surface of the shield to render the shield more comfortable to the wearer. However, the reinforcement 16 for the end opening 10 is deposited on the outside surface of the shield to give greater strength to that portion of the shield which is worn rearwardly in relation to the body.

The mentioned shield is made by dipping the form 20 into liquid rubber such as a solution of rubber or a water dispersion of rubber commonly known as latex. This form is of generally oblong shape with rounded corners and has the thickness indicated in Fig. 10. A support 21 is provided at the upper end of the form by which it can be dipped into the liquid rubber, preferably by moving it vertically along its principal axis. One of the faces of the form is provided with a raised rib or a panel 22, generally elliptical in outline, rising abruptly from the main body of the form to provide a junction 23 adjacent the abrupt edge 24 thereof.

The upper end of the form merges into the support 21 by a curved surface 25 leading into an annular recess 26. This recess is formed by the junction of two surfaces, one of which terminates in the abrupt edge 28. The lower end of the form tapers by a curved surface into a projection 30 which is generally elliptical in cross-section and which terminates in an abrupt edge 31.

The shield is made by dipping the form one or more times substantially as far as the dotted line "a" (Fig. 9) into liquid rubber with a proper drying interval between the dips. The dipping is continued until a shield of the proper thickness is deposited on the form.

The liquid rubber will accumulate by surface tension in the recess 26 (Figs. 9, 10 and 12) to develop a reinforcement such as 15 shown in Fig. 7, while at the abrupt edge 28 of the form, the deposited layer will be weakened for easy parting. The liquid rubber will also tend to accumulate by surface tension at the junction 23 on the face of the form while it will be deposited at abrupt edge 24, as a very thin, weak and easily parted layer (when dry), thereby making it easy to remove the portion of the layer deposited on the face of the panel 22. At the lower end of the form the liquid rubber will tend to accumulate above the abrupt edge 31, as indicated at 16 in Fig. 7, but at the abrupt edge 31 the deposited layer will be very thin and easily parted thereat.

After the shield is in proper condition to be handled, the portion of the layer on the lower end of the projection 30 is torn away or removed as far as the line of weakness developed by the abrupt edge 31 of the form. Also the portion of the deposited layer within the region defined by the abrupt edge 24 may be torn away or removed while the excess portion of the shield between the dotted line "a" and the abrupt edge 28 of the form is torn away or removed as far as this edge. The shield is then removed from the form by stretching the shield until the lower end of the form can be removed through the lateral opening 11 in the shield. Thereafter, the upper end of the form and its support 21 are withdrawn through this lateral opening 11 and the end opening 9 in the shield.

In Fig. 14 there is indicated a slightly modified type of form on which a different shape of reinforcement is developed at the margin of the end openings in the shield. At the junction of the form 20 with its support 21, there is provided a ledge or gutter 32 in which the liquid rubber accumulates by gravity, while at the

abrupt edge 33, the deposited layer is weakened so that the excess portion of the shield can be easily separated from the remainder thereof. Similarly, at the lower end of the form, there is likewise provided a ledge or gutter 34 in which the liquid rubber can also accumulate by gravity. The abrupt edge 35 on this form serves to develop a region of weakness in the deposited layer so that the excess portion of the shield on the lower end of the projection 30, can be removed as far as the edge 35. The remainder of the method of depositing a shield on this modified type of form, is similar to that already described and need not be further set forth herein.

In Fig. 15 it is indicated how the junction between the form 20 and the support 21 may be further modified. In this instance, the recess 26a is formed by the intersection of a plane surface with a substantially cylindrical surface, while an abrupt annular edge 28a is also provided adjacent the recess 26a. In this arrangement as in the case of the form disclosed in Figs. 9 to 13, the liquid rubber tends to accumulate in the recess by surface tension while the abrupt edge 28a develops a line of weakness in the deposited layer whereby the excess portion of the layer can be readily parted at this line.

In the fragmentary sectional view of Fig. 7a, there is shown a different kind of lower end for the shield 8, as shown in Fig. 7. In this modified shape of shield, the reinforcement 16a for the end opening 10a is in the form of a tapered accumulation of the material on the inside surface of the shield. In this modified form of shield, the remainder thereof will be substantially the same as that shown in the upper portions of Figs. 3, 4, 5 and 7.

This modified type of shield may be made by vertically dipping a form similar to that shown in Figs. 9, 10, 11 and 12 when the lower end portion or projection 30 is modified as shown in Fig. 16. This projection merges with the main body of the form and terminates at a junction 39 defined by a raised panel 40 having the abrupt edge 41.

The method of making this modified form of shield is similar to that already described and need not be further set forth, except to state that the reinforcement 16a (Fig. 7a) accumulates at the junction 39. In the further stages of finishing the shield, the portion of the deposited layer over the panel 40 is torn away or removed to provide the end opening 10a in the shield.

It will be understood by skilled artisans that the liquid rubber such as a rubber solution or an aqueous dispersion of rubber may be vulcanized in any suitable way either before or after depositing the same on the form to produce the shield. The "dip and dry" or acid coagulation processes may be used in depositing the shield on the form.

The present disclosure is given merely by way of example and is not to be taken in a limiting sense for there may be many variations and modifications within the scope of the appended claims without departing from the spirit of the present invention.

What I claim is:

1. A sanitary pad shield of elongated form provided with a lateral opening therein having a deposited reinforced margin with a torn free edge.

2. A dipped sanitary pad shield of elongated form provided with a lateral opening therein

having a deposited reinforced margin with a feather edge.

3. A dipped sanitary pad shield of elongated form provided with an opening in each end thereof and having a lateral opening therein bounded by a reinforced deposited margin with a torn edge.

4. A dipped sanitary pad shield of elongated form provided with end openings and having a lateral opening therein defined by a thickened deposit with a feather edge.

5. A dipped water-proof sanitary pad shield of elongated form provided with an opening in each end thereof, the material at the margin of at least one of said openings being reinforced by a ridge with a torn edge, said shield having a lateral opening therein.

6. A dipped water-proof sanitary pad shield of elongated form provided with an opening in each end thereof, the material at the margins of both of said end openings being reinforced by ridges with torn edges, said shield having a lateral opening therein.

7. A dipped water-proof sanitary pad shield of elongated form provided with an opening at each end thereof, the material at the margin of at least one of said openings being reinforced by a ridge of the material on the inside surface of said shield, said ridge having a feather edge, said shield also having a lateral opening therein.

8. A dipped water-proof sanitary pad shield of elongated form provided with an opening in each end thereof, the material at the margin of one of said openings being reinforced by a ridge of the material on the inside surface of the shield, said ridge having a torn edge, and the other opening being reinforced by a ridge of the material on the outside surface of said shield, said last mentioned ridge having a torn edge, said shield having a lateral opening therein.

9. A dipped water-proof sanitary pad shield of elongated form provided with an opening in each end thereof, the material at the margin of one of said openings being reinforced by a deposit of the material on the inside surface of the shield and the other opening being reinforced by a deposit of the material on the outside surface of said shield, said shield having a lateral opening therein, the margin of said lateral opening being reinforced by a ridge having a torn edge.

10. A dipped seamless water-proof sanitary pad shield of elongated form provided with an opening in each end thereof, the material at the margins of both of said openings being reinforced by deposits of the shield material on the inside surface of the shield, said deposits having feather edges, said shield having a lateral opening therein, the margin of said lateral opening being reinforced by a deposit of the shield material on the inside surface of said last margin, said last mentioned deposit having a feather edge.

11. A dipped water-proof seamless sanitary pad shield of elongated form provided with an opening in each end thereof and also provided with a lateral opening, the material at the margins of all of said openings being reinforced by deposits on the same surface of said shield, and said deposits having torn edges.

12. An article of the class described, formed of sheet material and provided with an opening therein, the material at the margin of said opening being reinforced by a ridge integral therewith and having a torn free edge flaring out-

wardly from the general plane of the adjacent portion of said sheet material.

13. An article of the class described, formed of sheet material and having two openings therein, said article at the margin of one of said openings being reinforced by a ridge having a feather edge flaring outwardly from the general plane of the adjacent portion of said sheet material and said article at the margin of said other opening being reinforced by a ridge having a feather edge terminating in the general plane of the adjacent portion of said sheet material.

14. A dipped rubber article of the class described provided with a margin, the material at said margin being reinforced by a ridge and having a thin free edge flaring outwardly from the adjacent portion of said article.

15. A dipped rubber article of the class described provided with an opening therein, the material at the margin of said opening being reinforced by a ridge having a thin free edge flaring outwardly from the adjacent surface of said article.

16. An article of the class described formed of thin, dipped rubber material, the material at the margin of said article being reinforced by an accumulation of rubber integral with the article and having a thin free edge flaring outwardly from the general surface of the adjacent portion of said material.

17. An article of the class described, formed of dipped rubber material and having two open-

ings therein, said article at the margin of one of said openings being reinforced by an accumulation of rubber having a thin edge flaring outwardly from the general plane of the adjacent portion of said material and said article at the margin of said other opening being reinforced by an accumulation of rubber having a thin edge terminating in the general plane of the adjacent portion of said material.

18. An article of the class described formed of thin rubber material, the material at a margin of said article being reinforced by a ridge of rubber integral therewith, said ridge in cross section being generally defined by two intersecting lines and by a concave line intersecting one of said lines, said concave line also merging with a line extending in the surface of the article.

19. An article of the class described formed of thin, dipped rubber material, the material at a margin of said article being reinforced by a ridge of rubber integral therewith, said ridge being generally defined by two converging surfaces and by a concave surface intersecting one of said first mentioned surfaces.

20. An article of the class described formed of thin, dipped rubber material, the material at a margin of said article being reinforced by a ridge of rubber integral therewith, said ridge being generally triangular in cross section with one of its sides concave.

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