

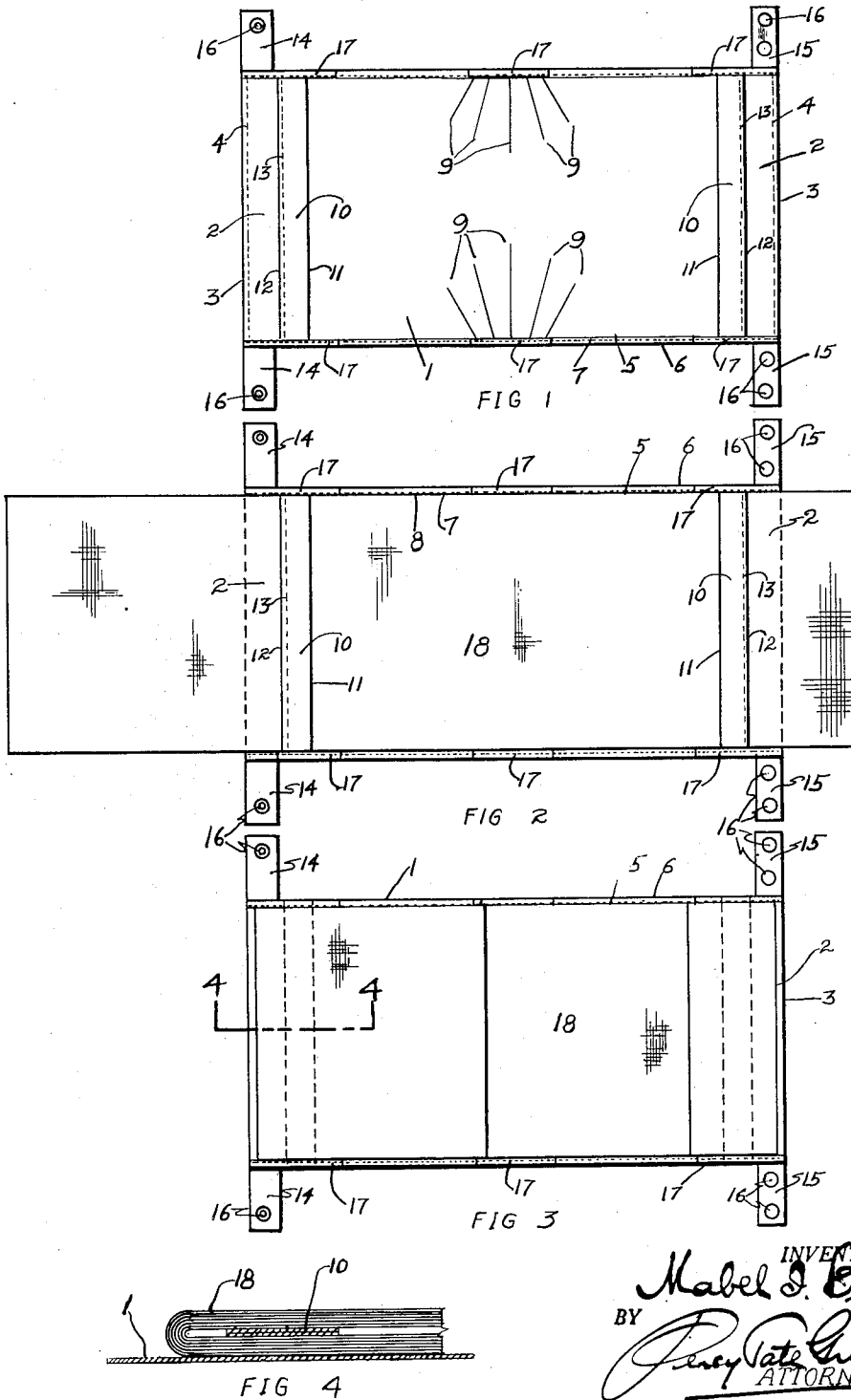
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DIAPER PROTECTOR AND RETAINER

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DIAPER PROTECTOR AND RETAINER

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This invention relates to diapers and covers or protectors therefor, of the class in which an inner diaper of the usual absorbent material lies next to the body of the infant, and a waterproof outer element is provided exteriorly thereof. There have been various devices of this general character, with varying degrees of satisfaction, but nothing so far that has achieved widespread recognition as a complete solution to the problem.

The object of my invention is to provide such a device that will scientifically meet the requirements of first offering the most comfort to the infant; second, arranging the diaper in the best fashion to absorb the fluid and confine it and other matter to a small area, and retain the said diaper in that position until it can be attended to and replaced; third, furnishing an outer protector that will prevent the egress of fluid to the greatest extent possible, so that it will be directed to the absorbent action of, the whole inner diaper-body, avoiding dripping down the legs, or contacting other clothing or linens; fourth, preventing the dislodgement or unfolding of the inner diaper-body after once being properly disposed in situ; fifth, preventing the shifting of either the inner diaper-body or the exterior protector relatively; sixth, to avoid any undue pressure upon the body of the infant at any time, and apply such fastening pressure as may be a necessity of any diaper or diaper-device in a carefully devised manner not to be perceptible to the infant, or make any visible mark; seventh, to enable inspection of the condition of the inner diaper-body without disturbance of the same or of the exterior protector.

With these and other minor objects in view, my invention consists in the novel construction of exterior diaper protector, and in the combination thereof with a diaper adapted to be arranged and fitted therein in a form and manner to cooperate therewith in the accomplishment of the stated objects.

In the accompanying drawings forming part of this specification, in which like reference numerals designate like parts in the several views:

Figure 1 is a plan view of the exterior diaper protector embodying my invention, seen from its inner side;

Figure 2 is an exactly similar view with the diaper body inserted in the protector, with its ends projecting beyond said protector, ready to be folded over upon itself within the confines of the protector;

Figure 3 is a similar view, of the same, with

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the said projecting ends folded over, and ready to be applied to the body of the infant;

Figure 4 is a much enlarged cross-section of one end of the device, taken on the line 4—4 of Figure 3.

In constructing my invention, I first cut a rectangular sheet of translucent fluidproof material 1, thin and very pliable, of oblong form, and substantially uniform width throughout, and uncolored. It is of a size determined by what is requisite for enclosing within it both a diaper folded as hereinafter described, to comprise quite a number of folds of material, with consequent thickness, and the body portion of an average infant.

At each end of the sheet 1 I fold over said sheet upon itself inwardly in a fairly wide fold 2, to leave a smooth edge 3, and secure said folds by stitching 4, close to the smooth edge 3, leaving the inner edge of the fold free; all for reasons which will appear in the further development of this specification. Each side of the sheet 1 I also fold over inwardly in a very narrow fold 5, leaving likewise smooth outer edge 6, and secure said fold 5 by stitching 7, close to the inner edge 8 of said fold 5, to leave no free edge whatever on these sides. In making the side fold 5, I introduce five radial folds 9 at a point on each side of the sheet 1, midway of the sheet longitudinally; the median one of the five on each side intersecting the median line of the sheet, with the others evenly spaced apart; the said five folds beginning at the smooth edge 6, widening inwardly and vanishing at their inner ends. These radial folds 9 are stitched at the edges 6, and unstitched at their inner ends; it is immaterial whether they are stitched by the same stitching 7 that binds the edges 5, or by additional stitching as well, since they will be further secured by certain reinforcing strips, to be shortly described hereinafter.

On the inner face of the sheet 1, at each end, just inside of the free edge of the wide fold 2, I affix double thickness lateral strips 10, extending from one side edge of the sheet 1 to the other, and made by folding over a portion of the same material as the sheet 1, to form a smooth edge 11, and a double edge 12, secured by close stitching 13. The double strip 10 is secured to the sheet 1 only at the side edges of said sheet, leaving the said strips unattached and free or open throughout, except at their ends; they are secured with their smooth edges 11 away from the folds 2, and their stitched double edges next to the said folds 2, by the side stitching 7 primarily.

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Upon the inside of the sheet 1, at each end, and at each side thereof, in line with the wide folds 8, I affix short double straps 14 and 15. The straps 14 are made of elastic material, and the straps 15 of non-elastic material; the first kind being at one end of the sheet 1, and the latter kind at the opposite end. They are preferably about the same width as the fold 2, for reasons which will appear hereinafter, and are secured primarily by the side-stitching 7, and have ball and socket fasteners 16, one on each strap 14, and two on each strap 15, spread apart.

At the following six places upon the inside face of the said sheet 1, namely, at each side of each end, and centre, I affix reinforcement strips 17, each of approximately the same width as the narrow side folds 5, and secured by both the side stitching and, if desired, or needed, additional stitching. These reinforcement strips 17 extend from the top corner edges down the sides a short distance, and a similar distance or length at both sides of the medial line. At the corners, they reinforce the attachment of the cross-strips 10 and the straps 14 and 15; they reinforce the edge of the sheet 1 to withstand the strain of such strips and straps, and they extend down the side edge far enough to hold firmly and keep that edge from tearing. At the centre they hold the radial folds 9, and reinforce the middle of the protector, and extend from the median line on both sides to cover an adequate distance of protection.

Coming now to the inner diaper body, I employ preferably a diaper of the general size and shape of an extra long towel, that is, rectangular primarily, elongated, oblong, made of absorbent and soft material, such as usually chosen for diapers, of light color which shows wet stains, even through the protector this being transparent. As shown in the drawings, it consists of a sheet 18, which is folded first across its face from end to end almost wholly, to make it double for most of its length, while reducing that length almost to half its original. Then each side of the sheet 17 is folded over on itself into three equal parts longitudinally, so that it is left substantially of the same width as the protector, and of six folds or layers for most of its length. This diaper thus folded, is laid on the inside surface of the exterior protector, as shown in Figure 2, with its ends inserted under the lateral strips 10 and projecting beyond the said protector at both ends thereof; not necessarily projecting equal distances beyond the same. By folding over these projecting ends of the diaper, the same is enclosed wholly within the area of the protector, as shown in Figure 3. It being essential that the same thin pliable fluid-proof material be used for the lateral strips 10, I accomplish this by doubling and stitching the material to enable using it for an element sustaining much strain. The fold 2 also permits using the outer straps 14, 15.

It will thus be noted that I form certain zones or divisions of relative strength and sturdiness and resistance in the outer body or protector cover of the device. First, at top and bottom, or the two opposed ends, I, as stated above, fold over the sheet upon itself, in a wide fold. This makes two lateral edge-sections that are not merely doubled in strength against strains or tearing or ripping, but manifold-increased by so doing. Second, each side zone is also folded over on a thin fold to reinforce the said side portions.

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Third, where the end and side folds meet at the four corners, said corners are also manifoldly increased in sturdiness by folding over one of said folds on the other. Fourth, all these folds are stitched through. Fifth, just below the corner fold-on folds, the cross strips, braces, and retainers 10 are inserted in the side-folds and stitched in there, for further strength (as well as other additional functions) at each end. Sixth, at each longitudinally median line, at each side of centre, are stitched the reinforcing strips 17, which make a centre zone of strength. Seventh, like reinforcing strips 17, at each of the four corners. The centre zones also are doubly stitched, once through the side folds, and at direct centres through both fold and reinforcement. It will also be noted, that this entire system of zones of relative strength and resistance to rip and tear, leaves a complete smoothness of exterior surface and that the folds are inward toward the interior, with any tendency toward roughness being on the inside, where the absorptive interior body cushions the flesh of the infant against contact with them. The exterior is important to keep smooth, since there is of course no cushion on it, and it might in many cases rub badly on the rest of the body of the child at some points. For this reason furthermore, the folds at all edges are designed to make smooth those points, where otherwise the nature of the waterproof material would mean the existence of cutting edges, and the folds there are inward because if outward they might not only cut, but would be liable to catch and tear, which they are not likely to do if lying against a soft internal cushion.

The operation of the invention and the purpose of its various elements will not be difficult to comprehend from the foregoing description when taken in connection with the accompanying drawings and the following statement thereof. In the position shown in Figure 3, the device is now ready for application to its functions. It is placed under the infant, or the latter is laid or seated thereon, and the ends of the exterior protector brought up to the child's waist, with the ends containing the non-elastic straps 15 in front, and the elastic straps in the rear. This is the preferable position, as it is found easier to fasten the device this way; but as both ends are practically interchangeable, little harm if any, is done by this procedure being reversed. Usually more of the projection of the diaper ends beyond the protector ends in fitting the diaper inside the protector, is to be left at whatever is chosen as the front of the device, so as to arrange the greatest substance or folds and thickness at the front, for obvious efficiency, and as shown in Figure 2, this is done by directing this thickness to the end carrying the non-elastic straps 15, which is treated as the front; which arrangement leaves twelve folds at that part and six folds at the back. The protector is then fastened by placing the fastening elements of the straps 14 into connection with the registering elements of the straps 15; either the first or the second of these latter being chosen, according to how tightly it is desired to have the diaper fit the child, and of course much depending upon its size. As the lateral strips 10 hold the diaper in position on the body, it is not necessary to have the device as tight as otherwise. In addition, the diaper can be placed in the protector tightly or loosely longi-

tudinally, and when folded over the strips 10 as described is thereby clamped in such stretched or loose condition. Since many children are more or less active, restless, rompish preceding sleep and during play, this enables the mother or nurse to adjust the diaper both on the strips 10 and by the straps 14 and 15, to fit the child better.

The strips 10 being folded with the smooth edge inward, and the double edge stitched firmly down together on the side next the fold 2, the diaper is thus folded over a stiffer and more durable edge, which holds its shape better, and also the folded edge of the diaper protects against contact of that stiffer edge with any part of the body. The reinforcement strip 17 on top of the stitched side fold, prevents the lateral strip 10 from being torn off or loosened under the repeated strains of service. The fold 2 being stitched close to the end of the protector, makes that end firm, while said fold is not stitched at its free end, which might make a tendency for it to break off, as it would weaken the sheet there, under the pull of the straps 14 or 15. It will be noticed that there is no stitching whatever throughout the entirety of the protector, except at its extreme edges, and there is thus no avenue for leakage of the protector body even after considerable term of service; the stitching of the cross-strips 10 of course does not enter the protector. The straps 14 and 15 being in line with the fold 2 of said protector, exert their pull on this strengthened end of the protector, in fact it is practically as though one strap were connected strongly to the other as a species of integrality. It will also be noticed that by this construction, the straps 14 and 15 do not pull on the cross-strips 10 to bind them and the diaper upon the flesh of the child, but contrarily said strips 10 are loose enough to receive the diaper beneath them lightly, while the straps 14 and 15 are located out of line with said strips 10 and in continuing line with the end portion above them, as stated, thus relieving said strips 10 accordingly.

The reinforcements 17 at these ends, and those at the middle, strengthen the edges just where they would be most likely to tear if not so protected, while leaving the rest of the side edges of the protector just sufficiently sustained by the narrow side fold 5, and adapted to adjust themselves to the plumper portions of the body of the child and not bind it thereat. The radial folds 9, where the central part of the diaper and protector fit under the infant, adjust that essential and usually vulnerable leakage point with closer contact, while spreading out the other portions of the diaper relatively, where more room is required for form fitting.

By reason of the many folds and thickness of the diaper due to the manner in which the protector and its strips 10 and other structural features adjust and fit it to the child, among them the location of the strips 10 a slight distance away from the ends, the diaper when folded over those strips upon itself and upon the protector, will just extend to and cover the edges of the protector and thoroughly protect the person of the wearer from contact with such edges. All the seams are inward, the reinforcements are inside, and this complete coverage by the diaper follows the same protective plan throughout. Holding the diaper in this multifold form against detachment, slipping, unfolding, its substance is measurably confined to the space of origin of the fluids demanding it, and such fluids are held and absorbed more and more into the folded fabric

of the diaper, instead of dripping down the legs or elsewhere. This not only concerns the comfort and disposition of the infant, its cleanliness and sanitary condition, the avoidance of undue rashes and irritation, but it also protects the surrounding garments, linens, of the child, its parents or servants, guests and others, against soiling and damage, until such time as the child's condition is discovered, and attention or replacement given it.

As the protector in my invention is made of translucent material, even casual inspection of the child reveals the condition, bad or good, and it is the easy work of just a few moments to remove the diaper portion from the protector, insert another, and fasten the clasps, with any other detail attention needed.

I am aware, as I stated in the preamble hereof, that diaper covers have been made before, and I do not claim broadly this idea; and I am also aware that ball and socket fasteners have been used for years in all sorts of garments, including these covers, but my invention is independent of any special kind of fastener. My own invention, as I have fully described it, accomplishes the objects hereinbefore outlined, which are not achieved by any other existent device; this only do I claim, as described herein, with any modifications or improvements properly falling within the purview of my invention and the appended claims.

I claim:

1. A diaper device, protector, and retainer, consisting of an elongated rectangular sheet of thin pliable fluid-proof material, of substantially uniform width throughout, provided with a plurality of zones of sturdy reinforcing sections of the same material whereby a fine soft smooth light weight material for the said sheet may be employed and yet withstand the strains of repeated use; said sections being made and formed as follows: wide folds at each end of said sheet folded over upon itself and equally fluid-proof, and folded upon and toward the inside of the sheet and finished device, to prevent an unfolded edge from cutting and the folded edge from cutting, catching, tearing, and sewed by a line of stitching to act as such reinforcement; very narrow folds at each side of the sheet throughout its length, stitched down likewise on the inside of the sheet, leaving its outer surface smooth and free from edge-danger, said side fold-sections being also, at the four corners of the sheet, folded in upon and with the wide end folds for making four especial reinforcement zones at said corners; central side reinforcement zones at the medium line of the sheet at each side thereof; a pair of extra brace and diaper-retainer strips, one at each end of the sheet, below and closely adjacent to the end-fold reinforcements to act as double reinforcements of both ends, and being formed of doubled material of the same fluidproof character, and fastened to said sheet at each end of each strip, at each side of said sheet, leaving the main portion of each open and unstitched thereto for receiving and retaining adjustably a diaper-body of the length of the sheet, said extra strips lying on the inner surface of the said sheet; a pair of fastening strips at one end of the sheet, lying in the double corner end and side reinforcement folds where they join, and secured within said folds by the same stitching that united them to the sheet; a pair of elastic fastening strips similarly secured at the other end of the said sheet within the said double corner reinforcement folds

thereof; all four of said fastening strips ranging laterally outside of the borders of said rectangular sheet, and equipped with twin registering fastening means; and a soft and absorbent-material cushion comprising a long rectangular sheet folded upon itself laterally in a form to encase and cover the entire inside surface of the fluid-proof sheet, including the inwardly folded reinforcement sections and keep them all from rough contact with the skin and body of the infant wearer, and by said rectangular, uniform width, construction and arrangement of both outer sheet and soft cushion leaving a wide median section to the finished diaper-device, preventing any usual overflow down the legs of the infant and providing adequate absorption protection of said child, its garments and those of others holding it.

2. A diaper device, protector, and retainer, consisting of a substantially rectangular elongated sheet, substantially uniformly wide thin pliable translucent fluid-proof material, provided with a plurality of zones of sturdy reinforcing sections all of the same fluid-proof material, whereby a very fine soft smooth light weight material for the said sheet may be employed and yet withstand the strains of repeated use; said sections being made and formed as follows: wide folds at each end of said sheet, folded over upon itself, and folded over and upon the inside of the sheet and finished device, to prevent an unfolded edge from cutting, and the folded edge from cutting, catching, tearing, and sewed by a line of stitching to act as such reinforcement; very narrow folds at each side of the sheet, throughout its length, stitched down likewise on the inside of the sheet, leaving its outer surface smooth and free from edge-danger, said side fold sections being also at the four corners of the sheet, folded in upon and with the wide end folds for making four especial reinforcement zones, at said corners; central side reinforcement zones at the median line of the sheet at each side thereof; a pair of extra brace and diaper-retainer strips one at each end of the sheet, lying parallel and below and closely adja-

cent to the end-fold reinforcements to act as double reinforcements of both ends, and being formed of doubled material of the same fluid-proof character, and fastened to said sheet at each end of said strip, leaving the main portion of each open and unstitched thereto for receiving and retaining adjustably a diaper body of the length of the sheet, said extra strips lying on the inner surface of said sheet; a pair of fastening strips at one end of the sheet, lying in the double corner end and side folds reinforcement where they join, and secured within said folds by the same stitching that united them to the sheet; a pair of elastic fastening strips similarly secured to the opposite end of the sheet, within the said double corner reinforcement folds thereof; all four of said fastening strips ranging laterally outside of the borders of said rectangular sheet, and equipped with twin registering fastening means; and a soft and absorbent-material cushion of light color adapted to show fluid stains through the translucent protector sheet, and comprising a folded substantially rectangular sheet of such material folded upon itself in a form to cover the entire inside surface of the fluid-proof sheet, including the inwardly folded reinforcement sections and keep them all from rough contact with the skin and body of the infant wearer, and by said rectangular, uniform width, construction and arrangement of both outer sheet and soft cushion, leaving a wide median section to the finished diaper device, preventing any usual overflow down the legs of the infant and providing adequate absorption protection of said child, its garments, and those of other holding it.

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