

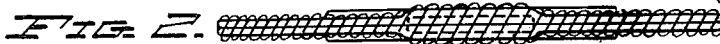
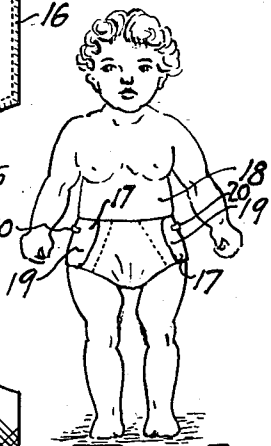
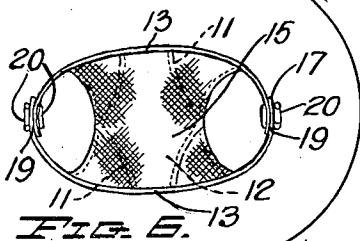
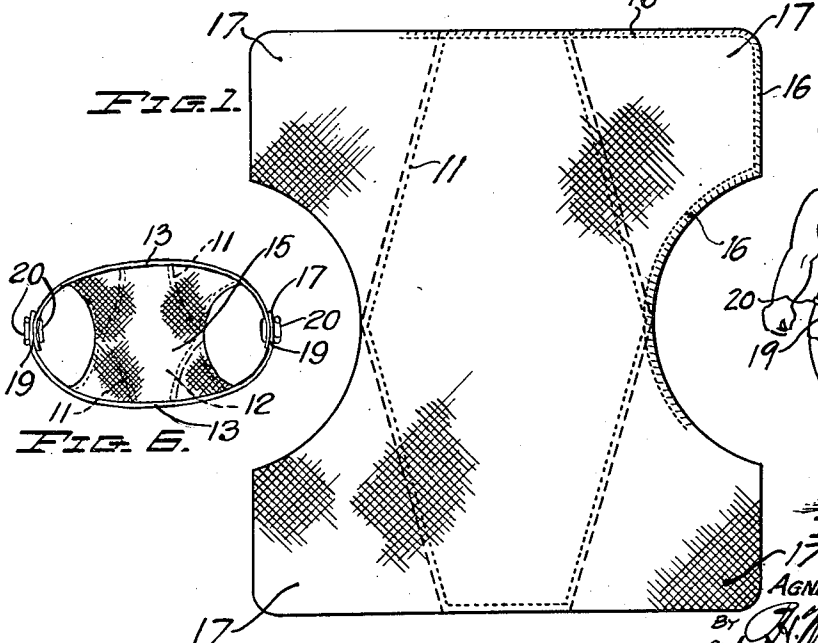
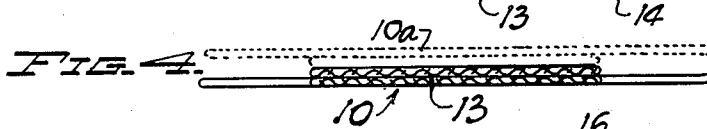
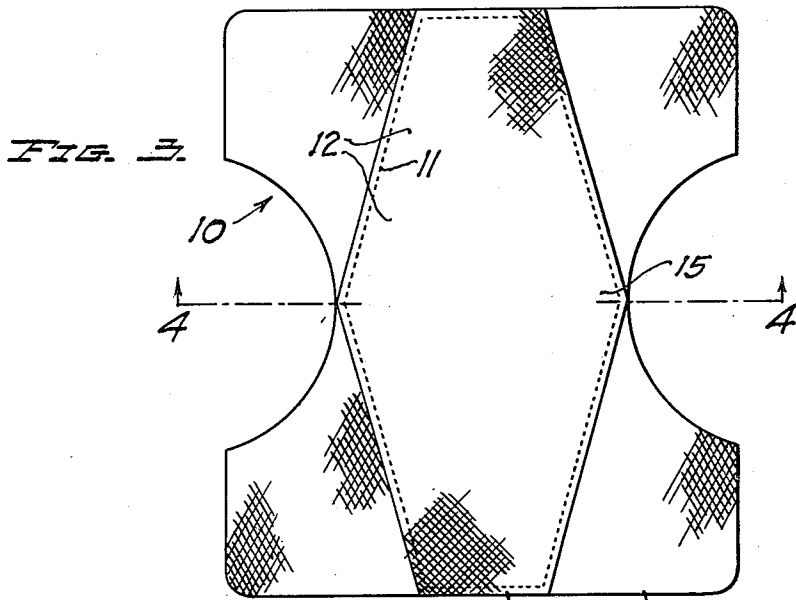
March 4, 1952

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2,588,113

DIAPER

Filed Feb. 26, 1948



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# UNITED STATES PATENT OFFICE

2,588,113

DIAPER

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Application February 26, 1948, Serial No. 10,999

6 Claims. (Cl. 128—284)

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This invention relates to diapers, and particularly to a no-fold diaper.

Among the principal objects of the invention are the following:

- (a) To be ready for use without preliminary folding;
- (b) To provide comfort for the wearer by assuring freedom from chafing;
- (c) To eliminate the unnecessary bulk of conventional diapers;
- (d) To provide maximum moisture absorptive capacity;
- (e) To be readily washable;
- (f) To be adaptable to a form known as dispensable;
- (g) To be inexpensive.

It is well known that ordinary diapers must be folded before applying them and even if the folding is done carefully, there still remains the objection that an excessive amount of material is located where it results in discomfort for the wearer and serves no useful purpose, besides being liable to chafe the legs of an infant.

According to the invention the diaper is so shaped and constructed that it conforms easily to the body of an infant, but at the same time there is present a sufficient amount of absorptive material which is located where it is needed.

The improved diaper in general, when spread out flat, has a configuration that conforms largely to a rectangle, preferably a square. Two opposing edges of the diaper are substantially straight and parallel to each other, while the other two opposing edges, though preferably symmetrical, are each broken, at least in part, by an indented or re-entrant arcuate configuration. This defines four tabs, one in proximity to each of the four corners of the diaper, and leaves a narrowed, central neck between the two re-entrant arcuate portions.

In applying the diaper, it is placed so that the central neck thereof comes in position in the crotch of the baby while the two straight-edge portions are brought up, one in front and the other in back, and that the respective two tab portions on each side shall come into a position where these suitably overlap each other for convenient fastening with safety pins or other means.

An important feature of the invention is the provision of a reinforcement member that gives structural stability, besides aiding in smoothly placing the material of the four corner tabs of the diaper. This assures maximum comfort to the wearer by doing away with piling up of annoying folds that result from haphazard creasing.

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To that end the reinforcement member is of a conventionalized four-sided "diamond" shape. This includes front and back apex portions and two opposing side apices that lie along the aforesaid central neck. Each of the four sides of the diamond-shape is positioned to intersect the straight line joining the two side apices to each other, in an angle of appreciably less than ninety degrees. The exact size of this angle may vary somewhat according to the build of the wearer.

In the accompanying drawing, which illustrates one embodiment of the invention,

Fig. 1 represents a plan of the diaper ready for use;

Fig. 2, a front elevation;

Fig. 3, an inside plan corresponding to Fig. 1;

Fig. 4, a section taken on the line 4—4 in Fig. 3;

Fig. 5, a view in perspective of a baby wearing the diaper; and

Fig. 6, a top plan of the diaper alone, pinned up in the position in which it is worn.

Referring to the drawing, the numeral 10 denotes the pattern in which a piece of cloth is cut to form one of the outside or cover layers, it being understood that it requires two cover portions 10 for each diaper, these cover portions in the finished diaper being inverted relatively to each other. Suitably attached to the inside surface of the cover 10, for instance by sewing a perimetral seam 11, is a reinforcing piece or strip 12, this strip being of the same fabric as is the cover 10, or of any other suitable material.

The reinforcing strip 12 is preferably of a shape approximating what is generally called "diamond," but with the long apex-to-apex dimension or major axis is stubbed-off as at 13, so as to coincide with the corresponding straight sides 14 of a cover layer 10. At the same time, the short apex-to-apex dimension or minor axis of the diamond, registers substantially along the transverse center line, with the central neck 15 of the corresponding cover 10, all as illustrated in Fig. 3.

Each of the perimetral seams 11, Fig. 3, represents a side of the diamond-shape and forms an angle with the line 4—4, that joins the side apices to each other, of appreciably less than ninety degrees. The length of each diamond side thereby constitutes a crease determinant for the respective one of said four corner portions, said crease determinant being coextensive with the distance from the respective side vertex to the respective upper or lower vertex portion.

In the complete diaper, two cover portions

according to Fig. 3, are mutually inverted and stitched together as at 16, along the boundaries thereof. This ordinarily results in the finished diaper having a quadruple thickness of material at the central portion and a double thickness at the remaining tab portions 17.

Fig. 5 shows approximately the appearance of the diaper in the wearing position on an infant 18, the respective tabs 17 being overlapped as indicated at 19 in Fig. 6, and pinned as at 20. Thus, there is practically no tendency to form irritating folds in the tabs 17. This is because the thickness of the diamond-shaped reinforcement forms virtually a definite crease determinant that causes any tendency to form folds in the tabs to be eliminated. Especially is this tendency emphasized since the boundary 11 of the diamond-shape is substantially coextensive with the distance from an apex 15 to the corresponding front or back boundaries 14 of the diaper.

The foregoing description is limited in scope only by the terms of the following claims.

I claim:

1. A diaper, having in developed outline an initial, substantially rectangular configuration, said diaper comprising a diamond-shaped inner portion, each side of which, together with the short apex-to-apex line of the diamond-shape, defines an angle appreciably less than ninety degrees, and a cover portion having two double-tab portions directly applicable to a baby's body without any preliminary conventional folding, whereby each tab of each double-tab cover has its creasing axis along the corresponding diamond side; said diamond-shaped inner portion having its major apices stubbed-off so as to constitute two opposing edge portions of appreciable length which are secured permanently to edge portions of said cover portion so as to be located respectively at the front and back of said diaper in the wearing position thereof.

2. A diaper comprising two mutually inverted cover portions configured in outline substantially as a quadrilateral, two opposite sides of said quadrilateral being substantially straight and parallel to each other; the other two opposite sides having deep, re-entrant cut-out portions; and a connecting neck-portion at least partially defined by said re-entrant cut-out portions, said neck portion being adapted to fit into the crotch of the wearer; and substantially diamond-shaped reinforcements having stubbed-off, opposing apex portions of appreciable length permanently secured along the perimeters thereof to the inside of the respective cover portions, with the result that in the finished diaper the diamond-shaped reinforcements are sandwiched between the cover portions in positions such that the sides of the diamond-shaped reinforcements extend obliquely across the respective corner portions of the diaper from said neck portion inwardly of said quadrilateral, said stubbed-off apex portions being permanently secured to, and along, said straight sides of the quadrilateral.

3. A diaper directly applicable to the wearer without preliminary folding, comprising a cover sheet having the overall configuration of substantially a rectangle of which two opposite sides

are straight and substantially parallel to each other, the other two sides of said rectangle being deeply and symmetrically indented so as to define a neck portion between the indented portions; and a reinforcing piece of diamond configuration having stubbed-off apex edge portions at the extremities of one axis thereof, said reinforcing piece around the perimeter thereof being permanently attached to said cover sheet so that said apex edge portions substantially coincide with said opposite straight sides, and so that the other axis of the diamond shape coincides with the axis passing through both said indented portions, and further, so each side of said diamond configuration cuts angularly across a respective corner of the diaper thereby defining tabs, each tab being adapted to flex about its respective diamond side.

4. A diaper according to claim 3, wherein two of said cover sheets, each with its respective reinforcing pieces, are inverted so said reinforcing pieces are in superficial contact with each other; and wherein said cover sheets are stitched together along the boundary edges thereof.

5. A diaper according to claim 3, wherein said neck portion fits the crotch of the wearer and wherein one of said straight sides fits along the front of wearer's body, while the other straight side fits along the back of wearer's body so the two said straight sides mutually overlap; and means applicable to fasten each overlapping two portions together.

6. A diaper comprising a sheet having a front edge portion, a back edge portion and four corner tab portions; and a diamond-shaped reinforcing member attached to said sheet; said reinforcing member having four sides defining at least partially a stubbed-off front apex portion, at least partially a stubbed-off back portion and two mutually opposing side apices; the respective stubbed-off portions being permanently secured to said front and said back edge portions; and further, each of said four sides being disposed to intersect a straight line joining said side apices to each other in an included interior angle appreciably less than ninety degrees, whereby each of said sides constitutes a definite crease determinant for the respective one of said four corner tab portions, said crease determinant being substantially coextensive with the distance from the respective side apex to the corresponding front or back apex portion, as the case may be.

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