

[54] DISPOSABLE DIAPER

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[51] **Int. Cl.**..... **A41b 13/02**

[58] **Field of Search**..... 128/287, 286, 284

|           |         |                    |         |
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## [57]

## ABSTRACT

A diaper is provided in which, with respect to a fold line extending from the front waistline portion to the back waistline portion equidistant from the diaper lateral margins, a portion of the surface for contact with the diaper wearer on one side of the fold line is secured to a portion of that surface on the side of the fold line, those first and second portions being symmetrically located with respect to the fold line.

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## 7 Claims, 2 Drawing Figures

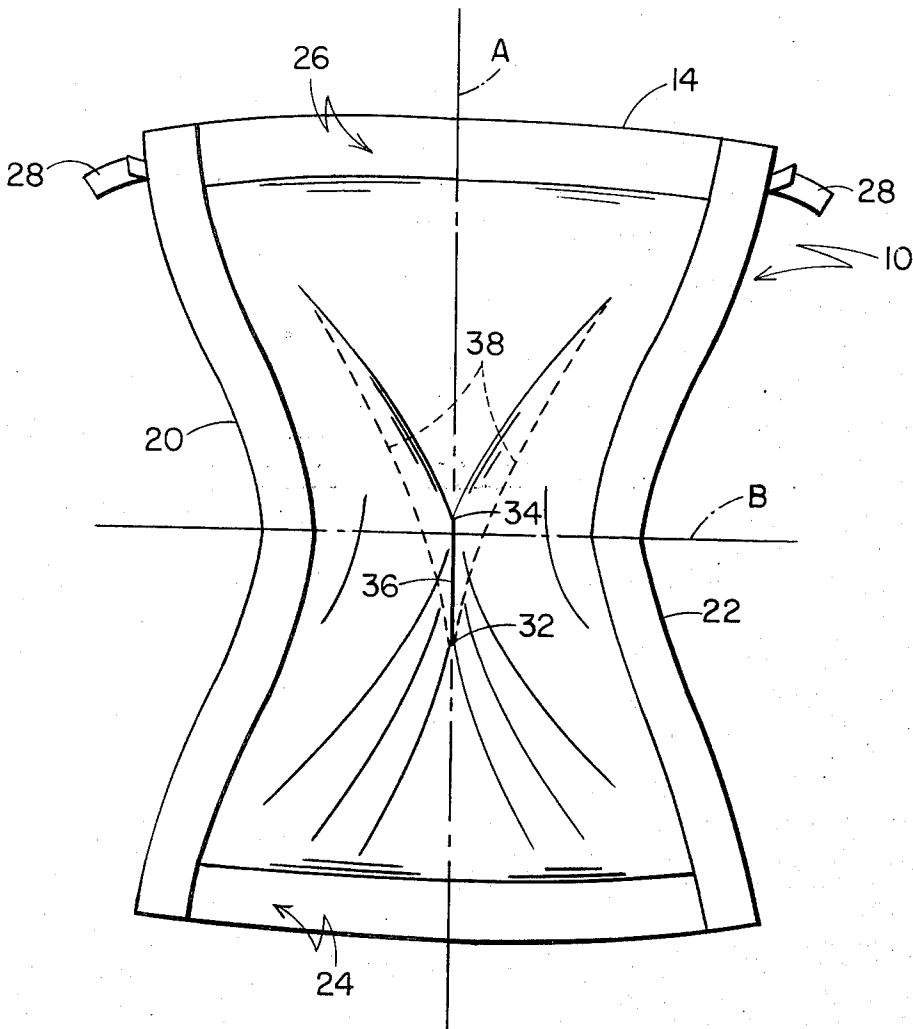


FIG 1

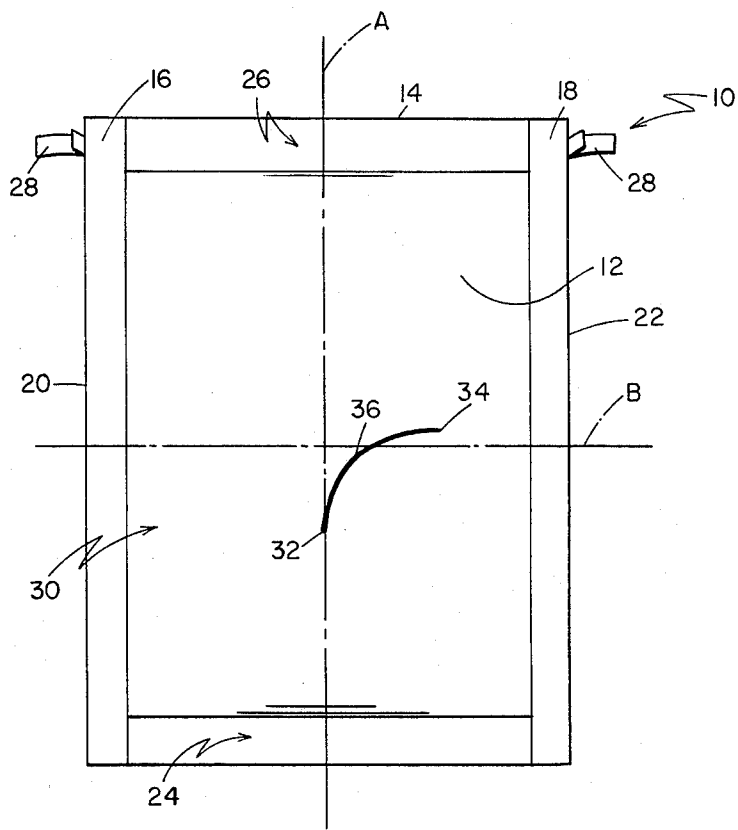
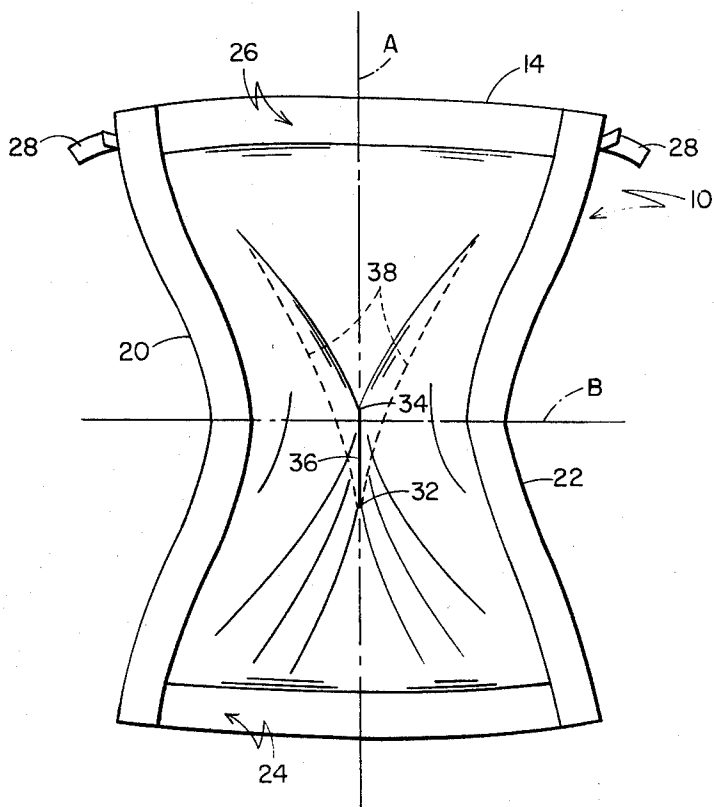


FIG 2



## DISPOSABLE DIAPER

## BACKGROUND OF THE INVENTION

This invention relates to diapers, the inventive features being particularly suitable for incorporation into disposable diapers.

## SUMMARY OF THE INVENTION

It is a principal object of the present invention to provide a diaper construction that fits well in the crotch region of the diaper, will accept a surge of liquid without leakage, and prevents, to a degree, fecal matter from moving about within the diaper.

The features of the present invention are incorporated in a diaper having front and back waistline portions, a crotch portion therebetween, lateral margins extending between the waistline portions, and a surface for contact with the diaper wearer. In such a diaper a fold line is provided extending from the front waistline portion to the back waistline portion equidistant from the lateral margins. According to the present invention, with respect to that fold line a first portion of the above-mentioned surface on one side of the fold line is secured to a second portion of that surface on the other side of the line, said surface portions being symmetrically located with respect to the reference line. Each such surface portion is in the form of a line extending from a location adjacent the fold line, toward a lateral margin. In preferred embodiments those surface portions are secured by adhesive, and each line comprises an arc, the tangent to the arc at any predetermined point thereof making an angle with the fold line which is at least as great as the angle made by the tangent of any other point of the arc closer to the fold line.

## BRIEF DESCRIPTION OF THE DRAWINGS

Other objects, features, and advantages of the invention will appear from the following description of a particular preferred embodiment thereof, taken together with the accompanying drawings. In the drawings:

FIG. 1 is a plan view of a disposable diaper constructed according to the present invention showing its arrangement during a stage of manufacture thereof; and

FIG. 2 is a plan view of the completed diaper.

## DETAILED DESCRIPTION OF A PARTICULAR PREFERRED EMBODIMENT

Referring to the drawings, a disposable diaper 10 comprises an absorbent body 12 and a water impervious backing sheet 14, such as plastic. The sheet 14 overlaps the upper surface of the absorbent body 12 with flaps 16, 18 which define lateral margins 20, 22 of the diaper. The flaps 16, 18 are secured (as by heat sealing) to the absorbent body 12 and to the underlying portion of the plastic sheet 14 in the front and back waistline portions 24, 26. Conventional tape units 28 may be provided for securing the diaper to the infant. A central fold line A extends from the front waistline portion 24 through the central crotch region 30 to the back waistline portion 26 and equidistant from the lateral margins 20, 22. A reference line B may be considered drawn perpendicular to fold line A and equidistant from the front and back waistline portions 24, 26.

According to the present invention, portions of the upper surface of the absorbent body 12 (which typically comprises a non-woven liner which overlies the

bulk of the absorbent material) on one side of the fold line A are secured to portions of that surface on the opposite side of fold line A, the two portions being symmetrically located with respect to the reference line A. In the preferred form, these surface portions comprise elongated arcs which extend from a first location 32 adjacent the fold line A and on the front waistline portion side of reference line B to a second location 34 which is both further from reference line A and from front waistline 24 than is first location 32. In FIG. 1, the surface portion on the right side of the reference line A is indicated by the elongated arc 36 which extends between locations 32 and 34 and intersects reference line B. The location 34 is preferably about equidistant from the fold line A and the lateral margin 22.

In the preferred form of the invention, the arc 36 may simply be the locus of a line of glue applied to the upper surface of the absorbent body 12. The folding of the diaper about the line A while the glue retains tack, will result in the securing of the surface portion which the glue overlies to the symmetrically disposed surface portion on the opposite side of the fold line A. In one particularly preferred form, shown in FIG. 1, the arc 36 is in the form of a quadrant of a circle with the tangent at the location (i.e., location 32) being substantially tangent to the reference line A.

FIG. 2 illustrates the configuration of the completed diaper 10 after the diaper has been unfolded for application to the infant. The glue line 36 now overlies the fold line A and the diaper is no longer confined to a plane. This results in a gathering of the absorbent material in the crotch portion of the diaper with an attendant increase in absorbent capacity for a surge of fluid. Furthermore, this causes the diaper to assume a tapered configuration in the crotch region to assure a better fit of the diaper on the infant. Additionally, a pocket 38, which can limit the movement of fecal matter within the diaper, is formed in the rear portion of the diaper.

While a particular preferred embodiment of the invention has been illustrated in the accompanying drawings and described in detail, other embodiments are within the scope of the invention and the following claims.

I claim:

1. In a diaper having front and back waistline portions, a crotch portion therebetween, lateral margins extending between said waistline portions, and a surface for contact with the wearer, the improvement wherein, with respect to a fold line extending between said waistline portions approximately equidistant from said lateral margins, a portion of said surface on one side of said fold line, and along a line extending toward the diaper lateral margin, is secured to a similarly disposed surface portion on the other side of said fold line thereby forming a pocket in the rear portion of the diaper.

2. The diaper of claim 1 wherein an adhesive secures said first surface portion to said second surface portion.

3. The diaper of claim 2 wherein said adhesive is disposed uninterruptedly along said line on said surface.

4. The diaper of claim 1 wherein said line on said surface portion is in the form of an arc, the tangent to said arc at any predetermined point thereof making an angle with said fold line which is at least as great as the angle made by the tangent at any other point closer than said predetermined point to said fold line.

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5. The diaper of claim 4 wherein said arc intersects a reference line drawn between the midpoints of said lateral margins.

6. The diaper of claim 5 wherein said arc is substantially a quadrant of a circle.

7. The diaper of claim 1 wherein said line on said surface extends from a first location adjacent said fold line to a second location approximately equidistant from said fold line and a diaper lateral margin.

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