An improved fastener for a disposable diaper including an elongated tab having zones of coating thereon whereby the projecting portion of the tab can be folded on itself prior to use.

5 Claims, 7 Drawing Figures
FASTENER FOR DISPOSABLE DIAPER

BACKGROUND AND SUMMARY OF THE INVENTION

The inventive fastener is intended to take the place of conventionally used safety pins in securing together opposite ends of the same relatively elongated side of a diaper. Although safety pin fastening has been superseded to some extent by adhesive-equipped tabs, certain disadvantages have been found in the existing products. In particular, where secure fastening is desired, a suitable length of projecting tab is required and this can interfere with the packaging and/or application of the diaper to an infant. Further, in certain instances, the prior art constructions have made use of “release” strips — such as interleaved layers of silicone-coated material which have to be detached incident to the application of a diaper to an infant and thus constitute a loose item which could prove injurious to the infant.

According to the invention, an improved tape fastener is provided which has an elongated tab with the length thereof divided into three zones. The first zone is adhesive-equipped and secured to the diaper proper. The third zone, adjacent the other and projecting end of the tab is also adhesive-equipped and is folded over the intermediate or second zone which second zone is equipped with release surface means to facilitate unfolding of the tab incident to application of the diaper to an infant. Also I provide a projecting end portion which serves as an advantageous unfolding tab part.

DETAILED DESCRIPTION

The invention is described in conjunction with the accompanying drawing, in which

FIG. 1 is a perspective view of a diaper in the “installed” configuration and featuring tape fasteners according to the instant invention;

FIG. 2 is a perspective view of one form of the inventive fastener in the configuration assumed prior to diaper application;

FIG. 3 is a fragmentary perspective view of a portion of the diaper equipped with the tab in the configuration assumed after installation or application;

FIG. 4 is a schematic longitudinal view of the showing in FIG. 2;

FIG. 5 is a view similar to FIG. 4 but showing a modified form of fastener, viz., with a different tab part;

FIG. 6 is a view similar to FIG. 2 but of a modified form of fastener, viz., with a different second zone; and

FIG. 7 is a view similar to FIG. 3 but relating to the modified form seen in FIG. 6.

Referring now to FIG. 1, the numeral 10 designates generally a disposable diaper and disposed in the configuration assumed when it is installed on an infant (not shown). Advantageously, the diaper 10 includes three portions or layers, the outermost layer 11 usually being constructed of polyethylene or like moisture impervious material. The innermost layer 12 is usually constructed of a non-woven material which is moisture pervious. Confined between the layers 11 and 12 which are usually connected about the perimeter thereof is a layer of absorbent material, generally “fluff” or like cellulosic material. Also, the diaper in its lay flat condition is generally rectangular and, in any event, presents a pair of opposed relatively elongated sides 13 and 14, which may be curved or straight. The diaper may also be pleated or lay flat.

It is the end portions of each side 13 or 14, as the case may be, which are connected by means of the inventive tape fastener generally designated 15 and seen in FIG. 1 with reference to the elongated side 14. Here it will be appreciated that the inventive fastener 15 can be applied with equal facility to either the interior or exterior of the diaper, depending upon the interest of the manufacturer.

The details of construction of the inventive fastener can be better seen from a consideration of FIG. 3 which is essentially an enlarged version of that previously referred to in connection with FIG. 1. It will be noted in FIG. 3 that the tape fastener is a relatively elongated tab with the length of the tab divided into three zones generally designated 16, 17 and 18, constituting first, second and third zones, respectively. The extreme projecting end (see FIG. 3) of the fastener 15, i.e., in the third zone 18, is coated differently outward of a transverse line 19 to develop a finger engageable tab part 20. The portion 20 facilitates the unfolding of the third zone of the tab incident to application, i.e., converting the tab from the FIG. 2 configuration to that of FIG. 3.

Referring now to FIG. 4, it is seen that the carrier portion 21 of the tab 15 has several zones of adhesive coating applied thereto. The first zone 16 is equipped on one face thereof with a pressure sensitive adhesive 16a for connecting the tab to the diaper 10. Conventionally, the fastener 15 extends generally normally, i.e., perpendicularly to the length of the side 14. The third zone 18 is also equipped with a pressure sensitive adhesive 18a and constitutes the means for securing the ends of a given side together, i.e., in the fashion shown in FIG. 1.

In the manufacture of the tab 15 a web of carrier material (ultimately becoming a carrier portion 21) is coated along two longitudinally extending portions with adhesive — these ultimately becoming the portion 16a and 18a. Two other longitudinally extending portions are coated with a silicone release material, these ultimately becoming the portions 17 and 20. In FIG. 4 I refer to the release coatings for the portions 17 and 20 by means of the numerals 17a and 20a respectively. Thereafter, the elongated carrier web is transversely severed to provide tabs of the nature illustrated. In operation, it is only necessary for the mother to insert her finger under the portion 20 (as seen in FIG. 2) and unfold the tab to the condition seen in FIG. 3. Thereafter the adhesive 18a in zone 18 is adapted to attach the projecting portion of the tab 15 to the side portion of the diaper 10 adjacent the longitudinal edge 14a (see FIG. 1).

A slightly modified form of tab can be seen in FIG. 5 wherein the tab generally is designated by the numeral 115. As before, the first and second zone are equipped, respectively, with an adhesive coating 16a and a release coating 17a. The difference between FIGS. 4 and 5 resides in the fact that the third zone adhesive coating 18a extends to the very edge of the tab with the edge portion being folded on itself along a transverse line 119 to form a finger engageable tab part 120. A still further modification of the invention is seen in FIGS. 6 and 7 wherein the essential difference resides in the character of the second zone 217. In the embodiment of FIGS. 6 and 7, instead of having the second zone coated with a release coating, I provide a sheet 222 coated with release material. The extreme end por-
tion of the zone 18 is equipped with a reverse fold as at 120 (about the line 119) in fashion depicted in FIG. 5. This particular tab 215 can be advantageously produced by coating the entire surface of the carrier 221 with adhesive, thereafter applying the release sheet 222 and, as in the case of FIG. 5, folding the edge portion 120 about the line 119. The release strip 222 may be advantageously of cellulose or like material suitably coated with a silicone release material.

In the illustration of the invention given in FIGS. 6 and 7, the fastener 215 is initially disposed in the condition illustrated in FIG. 6, i.e., with the intervening release strip 222 constituting a release surface means associated with the second zone so as to facilitate unfolding the projecting portion of the fastener 215. Once the tab or fastener 215 has been unfolded to the FIG. 7 form, the third zone 18 may be immediately applied to the other end of the side 14 — as at 14a in FIG. 1, and without the need for disposing of the release strip 222 — which could be accidently swallowed by the infant if the same were detached.

In both embodiments of the invention, the intermediate or second zone is equipped with a release surface means confronting the adhesive in the third zone 18 or 215 as the case may be which facilitates unfolding of the tab. In the form of the invention illustrated in FIGS. 2–5, the surface release means or the zone 17 is essentially co-planar with the adhesive coatings on the zones 16 and 18. In the form of the invention illustrated in FIGS. 6 and 7, the release of the surface means is elevated by the thickness of the release strip 222. In either event however, it is possible to obtain a relatively elongated tape tab for diaper application without initially having a tab of disadvantageous length. Also, no problem is posed relative to the disposal of a release strip.

A prominent advantage of the invention is the simplicity of operation — it is possible to open the tab and put it on to the other side of the diaper, preferably with one hand holding the diaper and the other hand opening and placing the tab.

I claim:

1. In a disposable diaper having a pair of opposed, relatively elongated sides with end portions of each side being adapted to be connected together to secure the diaper on an infant,

an improved tape fastener for each side secured to said diaper adjacent an end of its corresponding side and comprising a relatively elongated tab projecting generally normally outwardly from its corresponding side,

each tab having its length divided into three zones to provide a first zone at one tab end equipped with a pressure sensitive adhesive constituting the means for securing each tab to said diaper,
a third of said zones being at the other end of said tab and equipped also with a pressure sensitive adhesive to constitute the means for securing the ends of each diaper side together, said third zone having a length approximately equal to the length of the second zone and prior to application of the diaper to an infant being folded over said second zone,
said second zone being equipped with release surface means confronting the adhesive in said third zone to facilitate unfolding of said tab,
said release surface means being substantially integral with said second zone whereby said release surface means remains associated with said second zone upon unfolding and detaching said third zone from said second zone.

2. The structure of claim 1 in which said release surface means includes release material coated surface on said second zone confronting the adhesive on said third zone.

3. The structure of claim 1 in which said release surface means includes a release strip interposed between confronting faces of said second and third zones.

4. The structure of claim 1 in which the end position of said third zone is transversely folded on itself.

5. The structure of claim 1 in which the end part of said zone is equipped with a release coating.