April 8, 1958 F. F. DEXTER 2,829,647

INFANT'S DIAPER

Filed July 26, 1954 4 Sheets-Sheet 1

Fig. 1

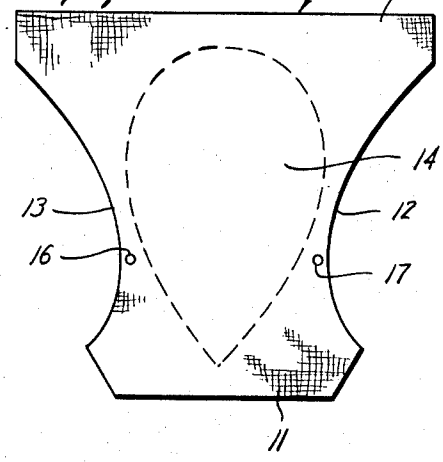

Fig. 2

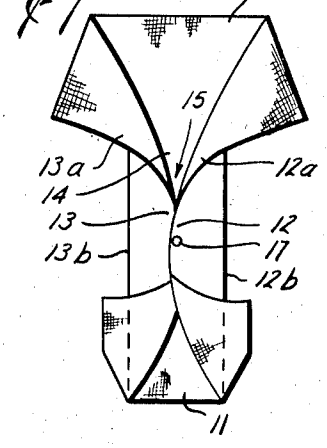

Fig. 3

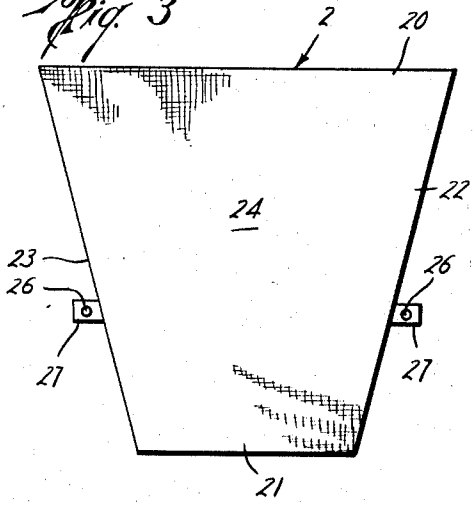

Fig. 4

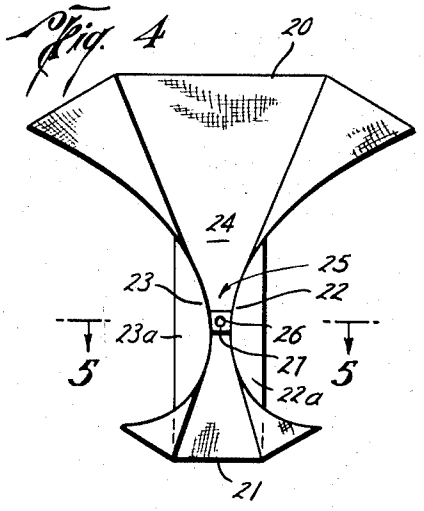

Fig. 5

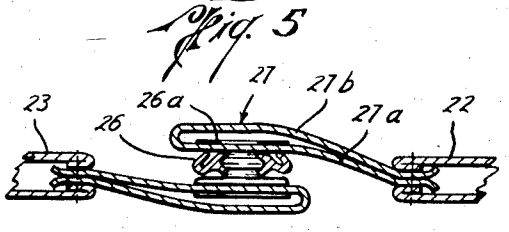

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Fig. 6

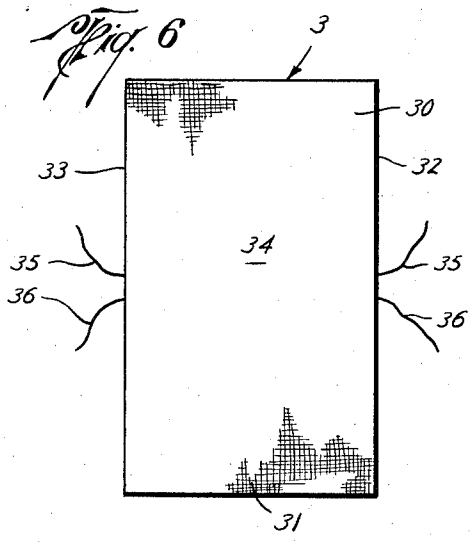

Fig. 7

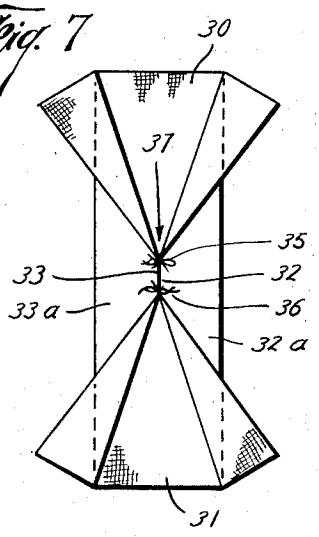

Fig. 8

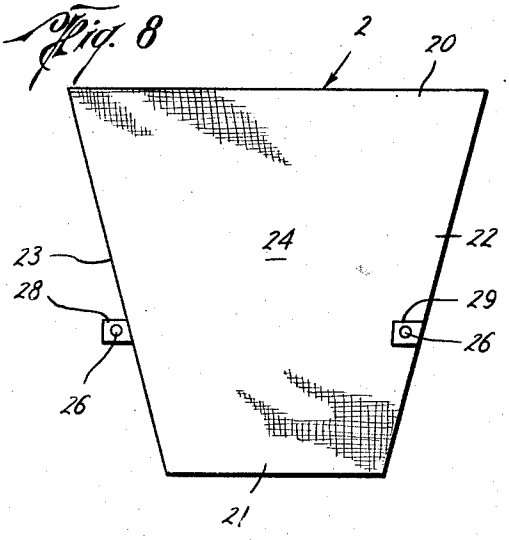

Fig. 9

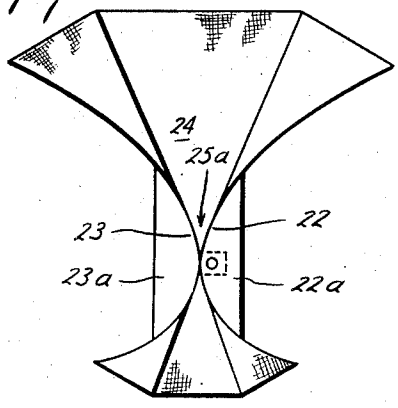

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Fig. 10

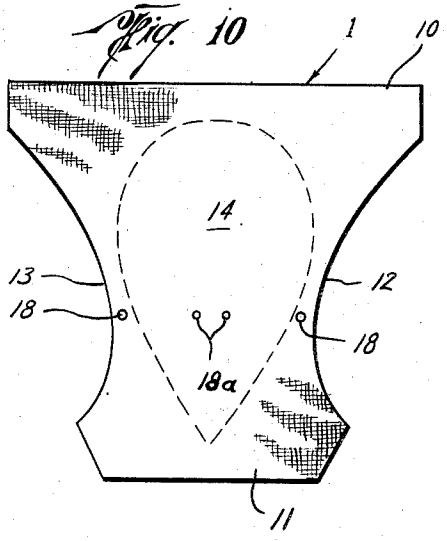

Fig. 11

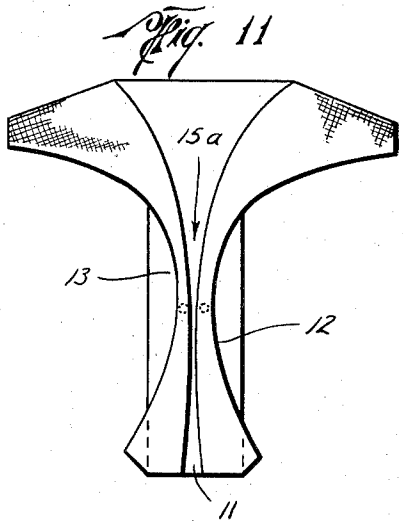

Fig. 12

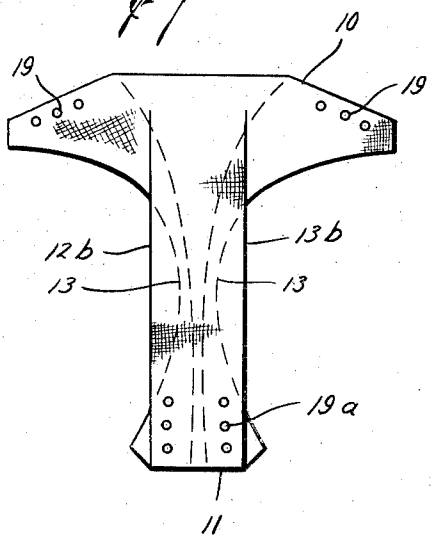

Fig. 13

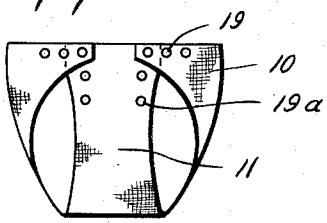

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Fig. 14

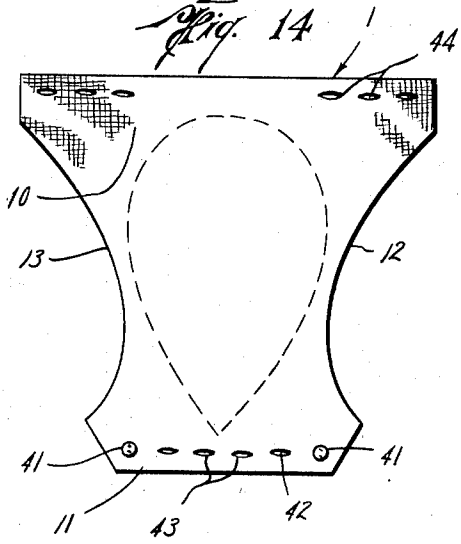


Fig. 15

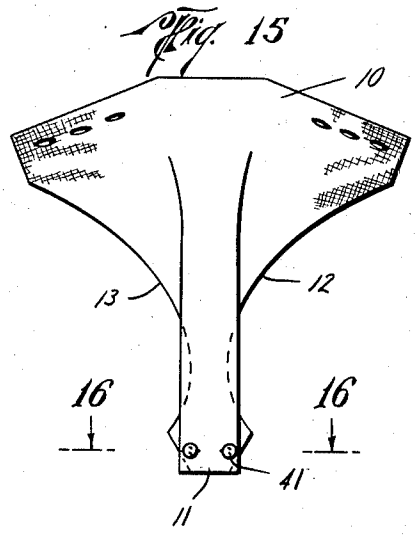


Fig. 17

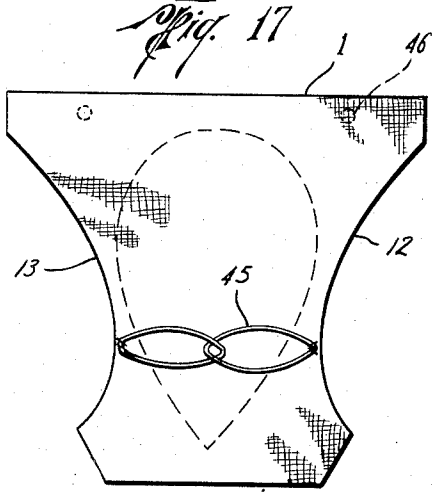


Fig. 18

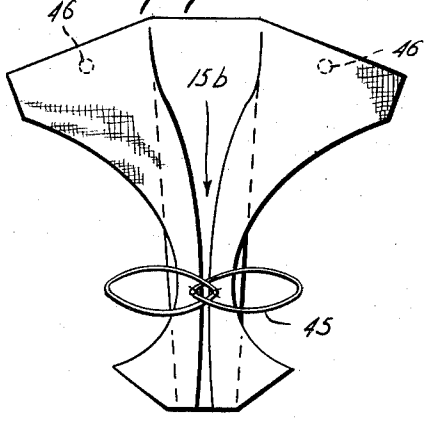
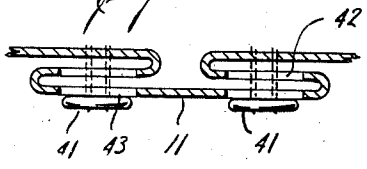


Fig. 16



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United States Patent Office 2,829,647 Patented Apr. 8, 1958

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INFANT'S DIAPER

Fred F. Dexter, Houston, Tex.

Application July 26, 1954, Serial No. 445,680

4 Claims. (Cl. 128—284)

This invention relates to new and useful improvements in baby diapers.

Previous diapers have failed to provide sufficient absorbency without sacrificing ease of laundering and/or length of service to a growing infant. Such diapers, when applied frequently cover or bind the baby's stomach to spread harmful moisture to innocent areas and cause harmful pressures which may hinder digestion and even retard the healthy development of the child. Such diapers additionally may bind or bow the baby's legs preventing complete comfort and freedom of movement, or may fit the rectal area so closely as to make baby's bowel movements difficult. If applied in such a manner as to be loose fitting, however, such diapers are not reliable in trapping the bowel waste.

It is, therefore, an object of my invention to provide a diaper that is flexible in use and which may be expanded to "grow" with the baby.

It is a further object to provide a diaper that is adaptable to the baby's body contour so as to permit greater freedom of leg movement and to obviate any covering or binding of the baby's stomach.

It is a further object of this invention to provide a diaper having a natural pocket in the rectal area to permit free bowel movement and to receive waste.

It is a further object of my invention to provide a diaper which presents extra thicknesses of material for additional absorbency when applied to the baby without bulk enough to bow the baby's legs, and which may be washed and dried quickly and easily.

It is a further object of my invention to provide an infant's diaper which is simple in construction, reliable in use, and which can be manufactured economically.

With these objects in mind I have shown and described for purposes of illustration, several embodiments of my invention, all of which are part of my generic inventive concept.

In carrying out my invention I utilize a conventional diaper, which may be square, rectangular, triangular, trapezoidal or of irregular contour. The central portions of the side edges are folded over in wallet fashion and preferably are releasably secured by fastening means positioned along the side edges of the diaper. The back and abdomen covering end portions are then unfolded to full width so that the diaper as applied assumes the general outline of an airplane, with the wings covering the baby's back, the tail section covering the baby's lower abdomen and the fuselage of extra thickness extending between the baby's legs. The inwardly folded side edges present a loose-fitting receptacle or pocket near the rectal area for the reception of waste. The pocket further serves as a receptacle for a pad formed, for example, by folding a second diaper, thus providing adequate absorbency for night diapering.

The features of my invention which I believe to be novel are set forth with particularity in the appended claims. My invention itself, however, together with further objects and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying drawings, in which Fig. 1 is a plan view of an unfolded, fitted, contour type diaper; Fig. 2 is a plan view of the diaper of Fig. 1 in its folded position, with the edges fastened; Fig. 3 is a plan view of an unfolded trapezoidal diaper having the fastening means fixed to tabs secured to the side edges of the diaper; Fig. 4 is a plan view of the diaper of Fig. 3 in folded position, with the edges fastened; Fig. 5 is a section view taken along line 5—5 of Fig. 4; Fig. 6 is a plan view of an unfolded rectangular diaper having tie string fastening means on the side edges; Fig. 7 is a plan view of the diaper of Fig. 6 in folded position, with its side edges secured together; Fig. 8 is a plan view of the trapezoidal diaper of Fig. 3; Fig. 9 is a plan view of the diaper of Fig. 8 in folded position, with the side edges secured together; Fig. 10 is a plan view of another unfolded contour type diaper; Fig. 11 is a plan view of the diaper of Fig. 10 in its folded position, with the edges fastened; Fig. 12 is a plan view of another contour type diaper in folded position; Fig. 13 is a plan view of the diaper of Fig. 12 as secured in use; Fig. 14 is a plan view of another unfolded contour type diaper; Fig. 15 is a plan view of the diaper of Fig. 14 in its folded position; Fig. 16 is a section view taken along line 16—16 of Fig. 15; Fig. 17 is a plan view of another unfolded contour type diaper; and Fig. 18 is a plan view of the diaper of Fig. 17 in folded position.

Referring now to the drawings, there are shown several conventional diapers of various configurations in which my invention has been incorporated. In Figs. 1 and 2, for example, there is shown a conventional fitted, contour type diaper **1** having a top or seat portion **10** adapted to cover the lower back and sides of the infant, a bottom portion **11** adapted to cover the abdomen of the infant and sides **12** and **13** which pass between the infant's legs. If desired, an extra thickness of material may be included at the body **14** of the diaper in order to achieve additional absorbency. To prepare the diaper for application according to my method, the central portion of the side edges are longitudinally folded in wallet fashion at **12***b* and **13***b* respectively, so as to extend inwardly over the body **14** of the diaper **1**. With the top portion **10** and bottom portion **11** unfolded the diaper assumes the configuration of an airplane with the folded edges **12***b* and **13***b* forming a "fuselage" between the "wings" or seat portion **10** and the "tail section" or abdomen-covering portion **11**. While the folded edges **12***b* and **13***b* are illustrated as being parallel, they may if desired converge toward the bottom portion **11** of the diaper. When the side edges **12** and **13** are folded in this manner over the body **14** of the diaper, there is presented a crotch covering portion of reduced width having a double material thickness. My "airplane" fold additionally presents a natural pocket **15** between the infolded side edges **12** and **13** and the seat or back covering portion of the body **14** of the diaper. When the diaper is applied, the pocket **15** is presented to the rectal area of the baby with only the outwardly turned portions **12***a* and **13***a* of the side edges snugly contacting the infant in that region, thus providing a loose fitting receptacle for waste. It is obvious that since the body **14** of the diaper is spaced by the outwardly turned portions **12***a* and **13***a* of the side edges from the baby's rectal area, the infant's bowel movements are less strained and subsequent cleaning of both the diaper and the baby are facilitated. It is further apparent that the pocket **15** is readily adaptable for the reception of a pad formed, for example, by folding over a second diaper, thus presenting a multi-layered thickness of material at the baby's crotch for night diapering.

Preferably, releasable fastening devices are provided

to facilitate folding the diaper to "airplane" configuration and to retain the shape and, hence, the utilitarian function of the waste pocket **15**. By way of illustration, I have shown, on my improved diaper, several embodiments of such fastening means, all of which are part of my generic inventive concept. In the embodiment shown in Figs. 1 and 2, the fastening means **16**, **17** are secured directly to the face of the diaper immediately adjacent to the side edges **12** and **13** and intermediate the top **10** and the bottom **11** to secure the central portions of the side edges together to properly form the waste trap or pocket **15**. The fastening device **16**, **17** may be, for example, a button, a releasable snap, a hook and eye assembly or any other conventional fastener.

Referring next to Figs. 3 to 5, there is shown a conventional diaper **2** of trapezoidal configuration, in which my invention has been incorporated, having a seat portion **20**, front portion **21** and side edges **22** and **23**. When the diaper **2** is folded, as shown in Fig. 4, the intermediate portions of the side edges **22** and **23** are folded toward each other in near abutting relationship to present the pocket **25** for the reception of waste or additional padding, as well as extra absorbent areas **22***a*, **23***a* of a double thickness of material. To releasably secure the side edges **22** and **23** in this pocket-forming position, a modified form of fastening means are provided. Cooperating fastening means **26**, such as are used in the embodiment of Figs. 1 and 2, for example, are fixedly secured to a narrow strip of relatively strong material which is subsequently cut to short lengths and folded over to form tabs **27** of double thickness. The ends of these tabs are then sewn into the side edges **22** and **23** of the diaper **2** as shown in Fig. 5. Securing means **26***a* are used to mount the fasteners **26** through only the bottom layer or thickness **27***a* of the tab so that the top layer **27***b* covers any otherwise exposed portion of the securing means **26***a*. As thus applied, when the snaps or fasteners **26** are secured together they are completely covered so that no metal touches the baby's skin when the diaper is applied. The tabs **27** are preferably made of a fine weave material such as broadcloth, having a relatively high tensile strength. It is understood, of course, while this is a preferred means of attaching the fasteners **26**, either or both of the cooperating parts of the fastener may, if desired, be applied to a single thickness unfolded tab.

In the modification shown in Figs. 8 and 9, a similar trapezoidal diaper **2** is illustrated having tabs **28** and **29** of a single thickness of material secured to the side edges **23** and **22** respectively. The tab **29**, to which is secured one of the cooperating members **26** of the fastening device, is folded over and is secured, as by sewing, to the upper surface **24** of the diaper **2**. In that way when the diaper is folded as shown in Fig. 9, the side edges **22** and **23** meet in abutting relationship with the tab **28** extending under the opposite side portion **22***a* so that the cooperating parts of the fastening means **26** are not exposed. Again, as in previous modifications, a pocket **25***a* is formed between the seat portion of body **24** of the diaper and the intermediate side portions **22***a*, **23***a* so as to provide a receptacle for bowel waste or for a pad for night diapering. It is understood, of course, that the other tab **28** may be folded under and secured to the under surface of the diaper if it is desired to have the side edges overlap.

In the modification shown in Figs. 6 and 7, a conventional rectangular diaper **3** is shown having a top portion **30**, bottom portion **31** and side edges **32** and **33**. Secured to the side edges **32** and **33** intermediate the ends thereof, are tie strings **35** and **36**. When the side edges **32** and **33** are folded inwardly at their intermediate portions and opposing tie strings **35** and **36** are interconnected, a pocket **37** is formed between the body **34** of the diaper and the side portions **32***a*, **33***a*. Again, the side edges **32** and **33** meet in abutting, or slightly overlapping, relation to form a double thickness of material at the crotch portion for additional absorbency.

In the modification shown in Figs. 10 and 11, there is a conventional fitted diaper **1** having a top or seat portion **10**, a bottom portion **11** and side edges **12** and **13**. Spaced inwardly from each side edge, intermediate the ends thereof, is one element **18** of a releasable snap fastener. The other element **18***a* of each snap fastener is secured to the face **14** of the diaper so that the intermediate side portions of the diaper are secured directly to the face of the diaper to form the waste pocket **15***a*. With the snap fasteners spaced from the side edges **12** and **13**, the side edges may be folded back as shown in Fig. 11 to cover any exposed portion of the snap fastener.

In Figs. 12 and 13, there is illustrated a diaper already prepared as by any of the previously described means, to form the outline of an airplane. To each end of the waist band forming top portion **10**, I secure a row of female snap fasteners **19**, three being used in the illustration. To engage the female snap fasteners **19**, I provide two parallel rows of male snap fasteners **19***a* secured to the abdomen covering portion of the diaper and extending parallel to the folded edges **12***b* and **13***b*. With the snap fasteners thus disposed, when the abdomen covering portion **11** is folded upwardly (Fig. 13) as when being applied to the baby, any one of the female snap fasteners at each end of the top portion **10** may be selectively engaged with any one male snap fasteners in the adjacent row to adjust both the length of the waist band and the length of the abdomen covering portion. It is to be understood that the parallel rows of male fasteners **19***a* are secured close enough to the vertical center line of the diaper to be within the "fuselage" portion of the prepared diaper and are, therefore, particularly adaptable for my "airplane" folded diaper. The parallel rows additionally function as a guide to aid a person in properly preparing that fold.

In Figs. 14 to 16, there is illustrated a further modification, in which only two buttons are required to cooperatively engage a selected combination of button holes to both prepare the "airplane" fold and adjustably fit the diaper on an infant. Buttons **41** are secured to the opposite corners on the outer surface of the abdomen covering portion of the diaper. Side edges **12** and **13** of the diaper are first folded back over the outer surface of the diaper so that buttons **41** engage the adjacent button holes **42** and then folded inwardly over the inner surface of the diaper. This presents a prepared diaper of "airplane" configuration having an extra absorbent "fuselage" or crotch covering area and the waste pocket as in previous embodiments. In applying the diaper to an infant, the abdomen covering portion **11** is merely folded up to form a waist band with the back covering portion **10**. The buttons **41** may be selectively engaged with any button hole **44** at opposite ends of the back-covering portion in order to adjust the length of the waist band.

In the modification of Figs. 17 and 18, I provide interlooped tie strings **45** secured adjacent to the intermediate portions of side edges **12** and **13**. To apply the diaper, the loops **45** are pulled across the face of the diaper to automatically form the "airplane" fold with a waste pocket **15***b*. When applying the diaper to an infant the loops are twisted around buttons **46** secured to the back covering portion to form the waist band.

It is understood, of course, that any one of the fastenings means shown in Figs. 1 to 18 may be employed on any one of the conventional diaper types demonstrated and I do not intend to limit myself to the specific combinations shown in the illustrations.

Referring again to Figs. 1 and 2, the diaper is applied to the infant so that the "waist band" comprises back and side covering portion **10** and abdomen covering portion **11**. For a very small infant the abdomen covering

portion 11 may be folded over upon itself so that the front portion of the "waist-band" will be fastened below the infant's stomach to avoid spreading harmful moisture to innocent areas and to effect increased comfort, particularly after feeding. As the baby grows, this abdomen covering portion 11 may be gradually unfolded to full size thus providing extreme flexibility in use. In this way, the diaper will "grow" with the baby and may be used as "training pants" until the baby is two or three years old. When applied to the baby, the soft, rolled side edges 12*b* and 13*b* form the leg holes for the baby, the relatively narrow width of the crotch portion providing extra protection without bulk enough to bow the baby's leg and affording a great amount of freedom of movement. Only the outwardly turned portions 12*a* and 13*a* of the side edges snugly contact the infant's buttocks, and the seat covering portion of the body 14 of the diaper is not in close contact with the infant's rectal area. As thus applied, the pocket 17 presents a balloon-type seat for the reception of waste or additional padding, as heretofore described, without binding or otherwise discomforting the infant. The diapers of Figs. 3 to 18 are applied in a similar manner and with concomitant advantage.

While the present invention has been described by reference to the particular modifications illustrated, it will be understood that those skilled in the art may make further modifications, therefore, I contemplate that the appended claims cover any such modifications as fall within the true spirit and scope of my invention.

Having described my invention, I claim:

1. A diaper garment formed from a length of absorbent material comprising a top portion of a single thickness of said material adapted to be encircled about the back and sides of an infant, a bottom portion adapted to cover the abdomen of the infant, and an intermediate crotch portion of reduced width, areas of said crotch portion having more than one thickness of said material formed by the intermediate portions only of the opposing side edges of said length of material being folded inwardly over the face of said material to form a pocket therewith, said side edges being continuous and adapted to contact and encircle throughout substantially their entire length the infant's legs.

2. A folded diaper as defined in claim 1 including fastening means carried by the intermediate portions of said side edges, said fastening means being interconnected to positively secure said side edges in pocket forming position.

3. A diaper garment for infants comprising a body of sheet material having an unfolded top back waistband portion, a bottom abdomen covering portion and opposing side edges extending between said waistband portion and said abdomen covering portion, each of said side edges being adapted to encircle an infant's leg, a portion of said side edges spaced from said waistband portion being folded inwardly over the face of said material to form a pocket therewith, and releasable fastening means for securing only the folded portions of said side edges over the face of said material.

4. A diaper garment for infants comprising a body of sheet material having an unfolded top back waistband portion, a bottom abdomen covering portion and opposing side edges extending between said back waistband portion and said abdomen covering portion, each of said side edges being continuous and adapted to encircle an infant's leg, a portion of said side edges spaced from said waistband portion being folded inwardly over the face of said material to form a pocket therewith.

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