

[54] **ABSORBENT ARTICLE WITH DISPOSAL MEANS**

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[57] **ABSTRACT**

A disposable diaper comprising, an absorbent pad assembly having a pair of waistline portions, a front surface, and a back surface. The diaper has a disposal bag having a cavity and opening means communicating with the cavity. The bag is formed into a configuration of reduced dimensions and may be located in one of the waistline portions of the pad assembly, in order that the bag may be extended to enlarged dimensions after use of the diaper for placement of the soiled diaper in the bag and retention therein.

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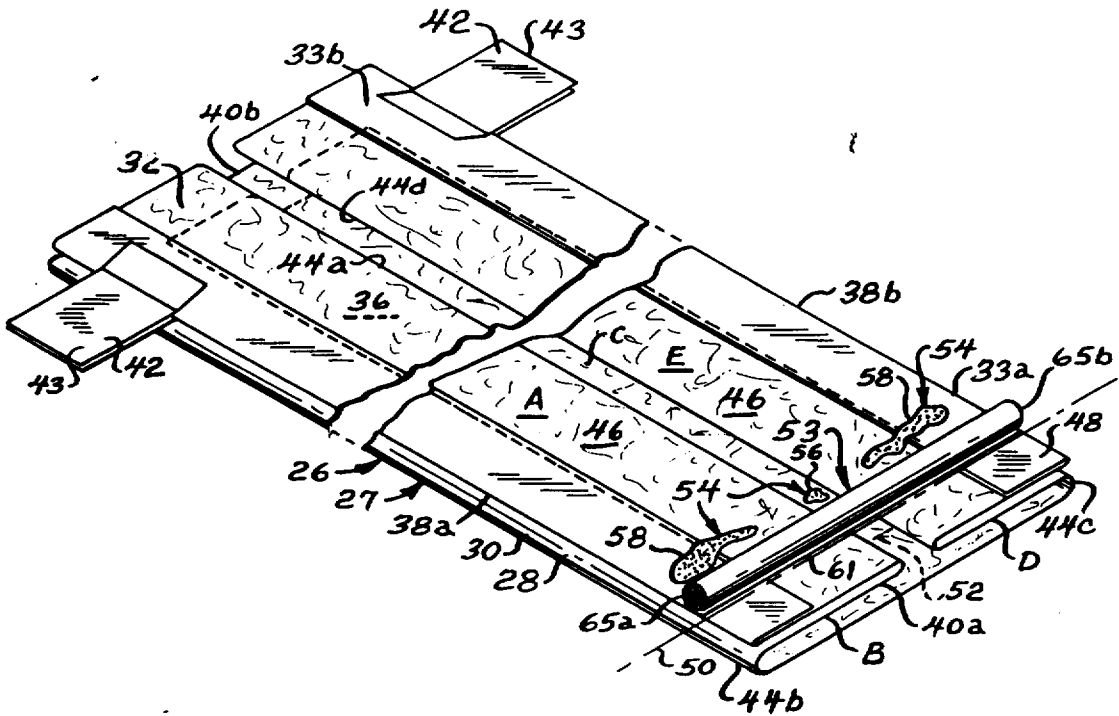
[51] Int. Cl.² A61F 13/16

[58] Field of Search 128/287, 284, 290 R

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25 Claims; 14 Drawing Figures



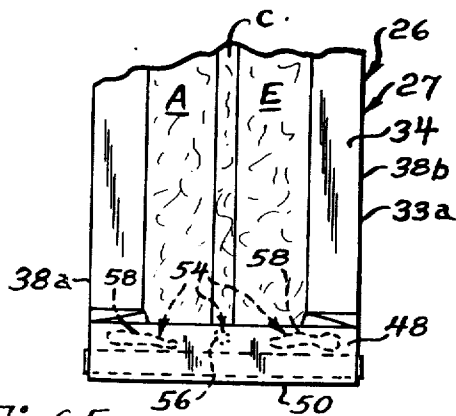
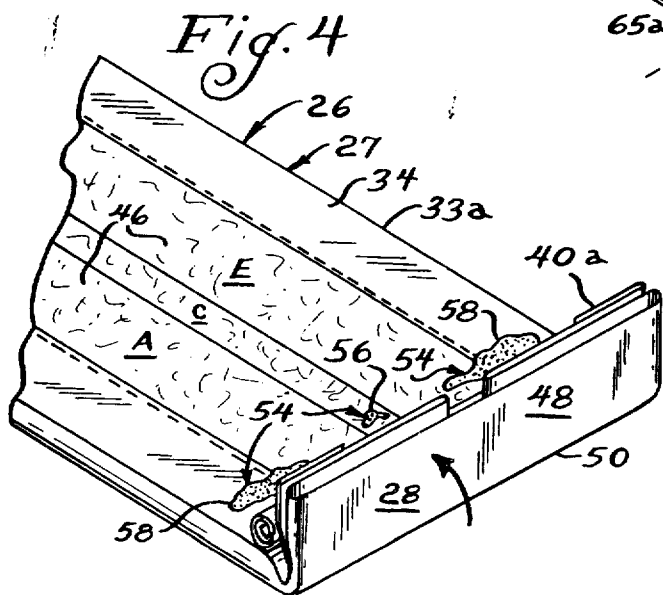
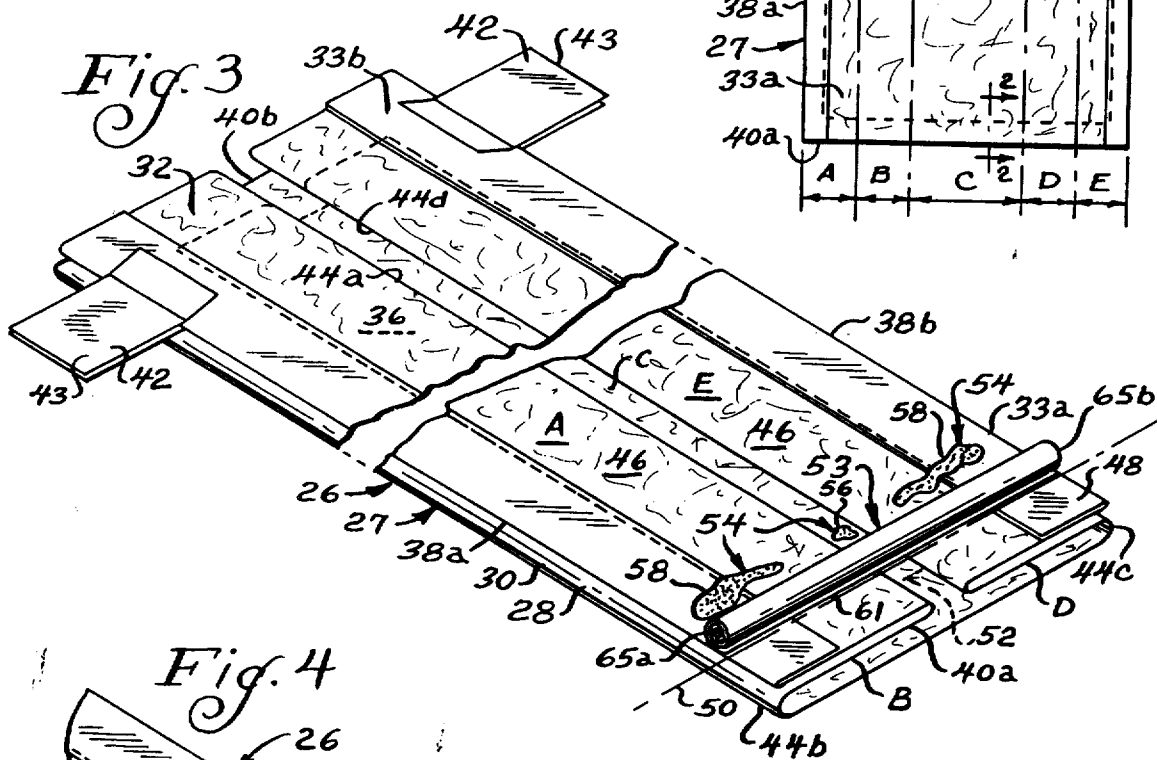
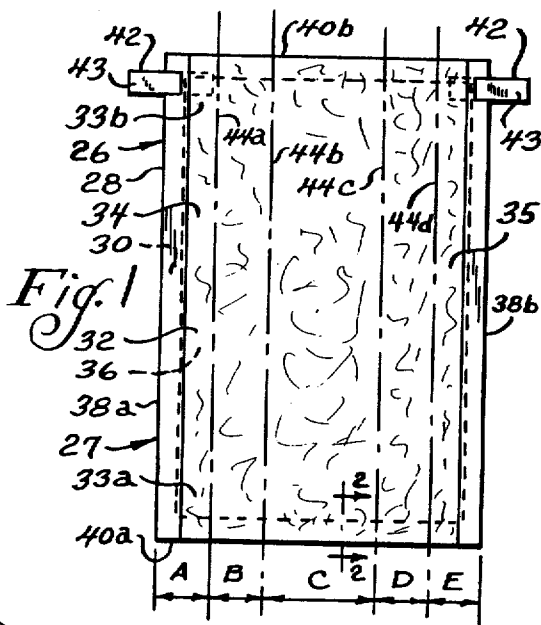
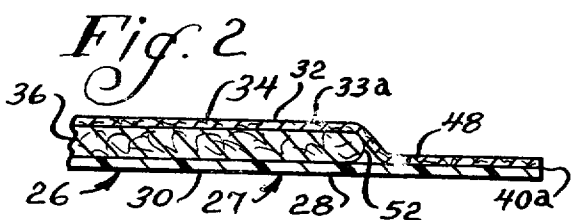
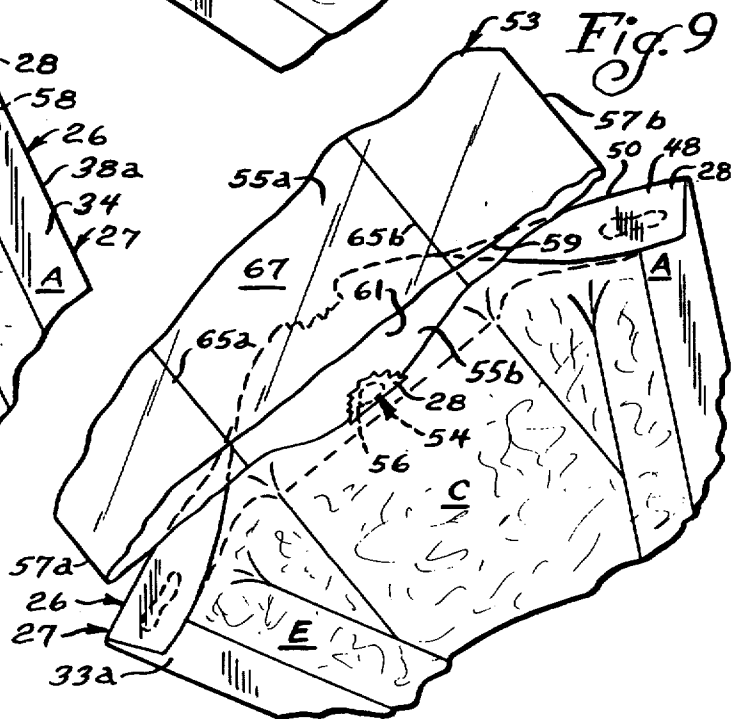
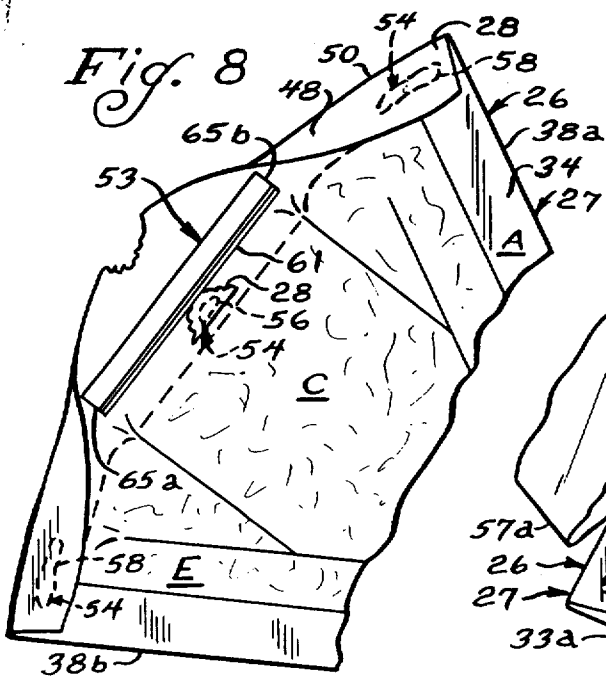
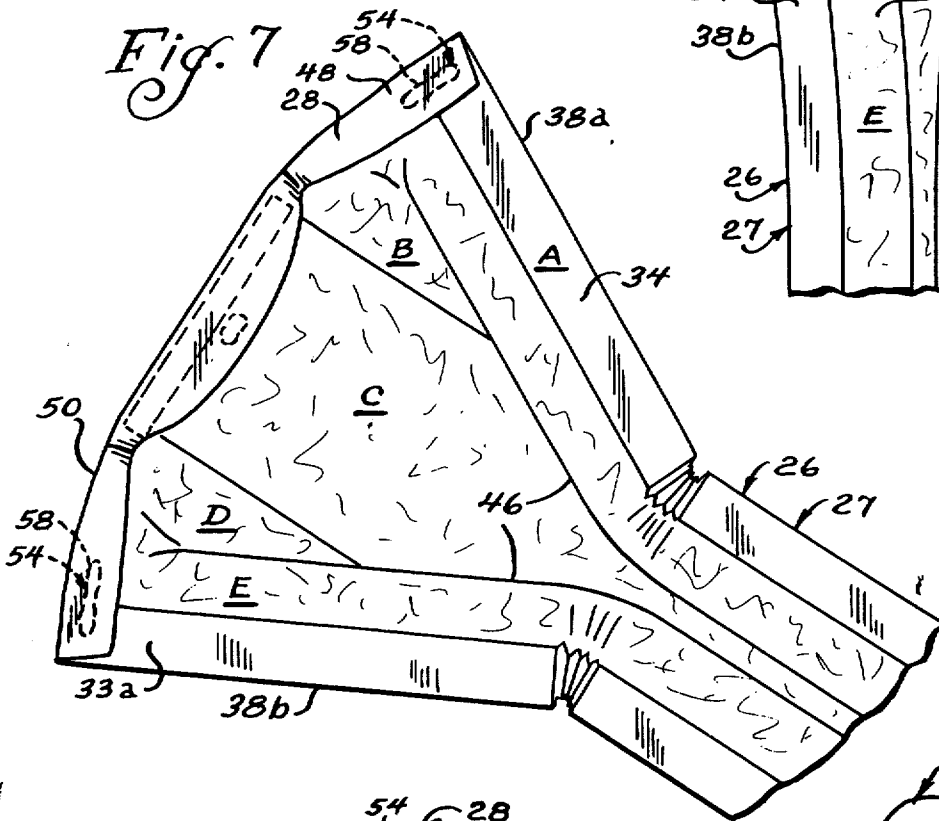
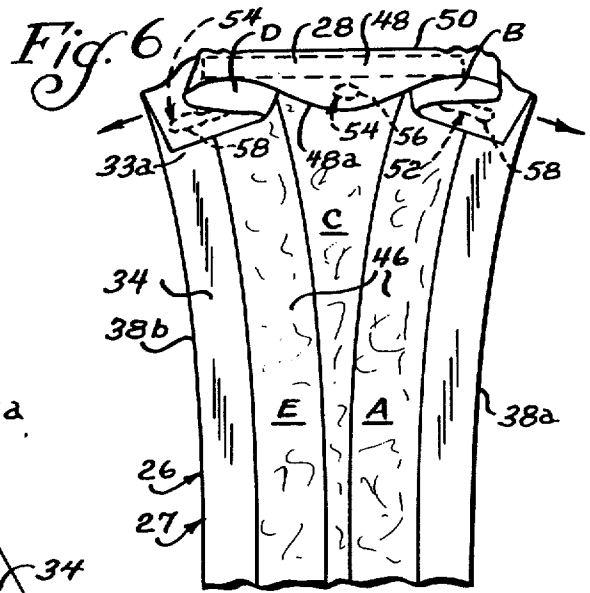
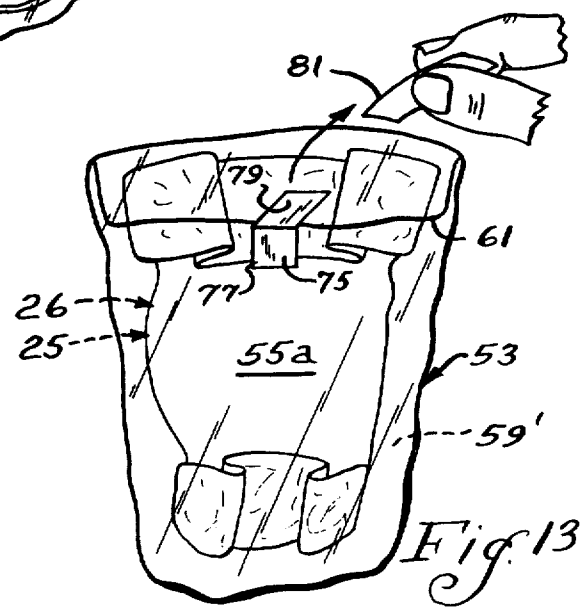
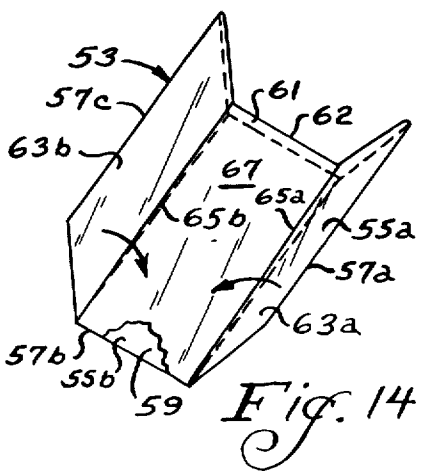
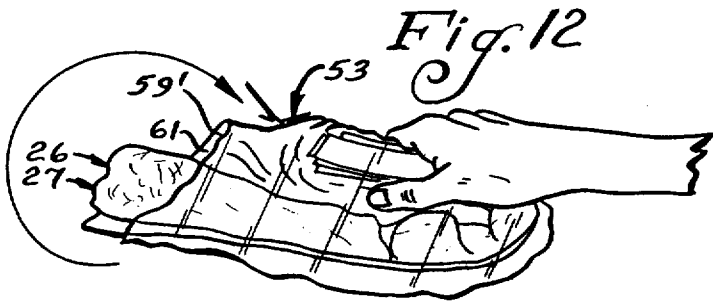
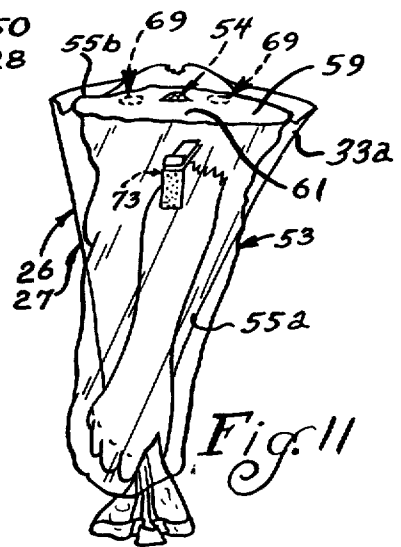
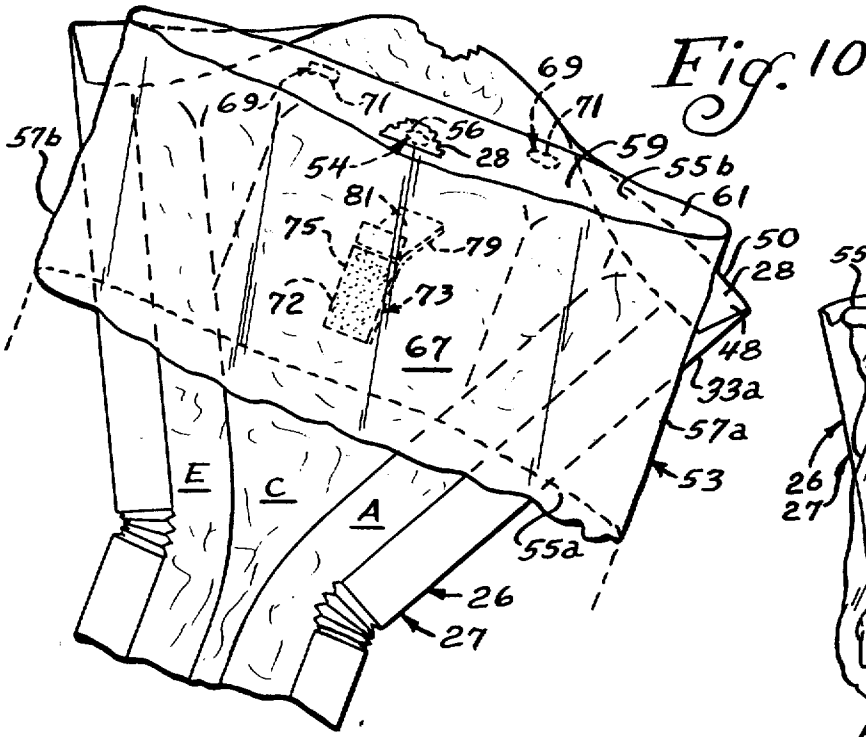


Fig. 5





ABSORBENT ARTICLE WITH DISPOSAL MEANS

BACKGROUND OF THE INVENTION

The present invention relates to absorbent articles, and more particularly to disposable diapers.

During recent years diapers of the disposable type have come into widespread use. Such diapers are generally constructed having a fluid impervious backing sheet, a fluid pervious top sheet and an absorbent pad located between the top and backing sheets. Although disposable diapers have attained a high degree of popularity with parents since they are discarded after a single use and need not be laundered, proper disposal of the used diapers may pose difficulty for the parent. At certain times, for example during travel in an automobile, immediate disposal of the soiled diapers may not be possible. At other times, for example at an individual's residence, disposal of the diapers may prove troublesome or unsanitary. It has been suggested that the backing sheet could be removed from the soiled diaper, and the remainder of the diaper may be disposed of in a flush toilet. However, conventional top sheets have sufficient wet strength to prevent their disintegration under use, and the wet strength properties may result in difficulties in sewage disposal systems, for example in septic tank systems, after flushing the diapers. Thus, more commonly, the soiled diapers are discarded into trash containers until they may be permanently disposed through other refuse disposal systems. Although stored only temporarily in a trash container, the unsanitary aspect in this manner of disposal is apparent. Moreover, many parents feel that handling of soiled disposable diapers is objectionable.

SUMMARY OF THE INVENTION

A principal feature of the present invention is the provision of a disposable diaper of simplified construction which may be handled and discarded after use in a sanitary and convenient manner.

The diaper of the present invention comprises, an absorbent pad assembly having a pair of waistline portions, a front surface, and a back surface. The diaper has a disposal bag having a cavity and opening means communicating with the cavity. The bag is formed into configuration of reduced dimensions and may be located in one of the waistline portions of the pad assembly.

Thus, a feature of the present invention is that the bag may be extended to enlarged dimensions after use of the diaper for placement of the soiled diaper in the bag.

Another feature of the present invention is that the bag retaining the diaper may be discarded for disposal of the solid diaper in a sanitary manner.

Yet another feature of the invention is that the user's hand may be placed in the cavity of the bag to grasp the soiled diaper through the bag, after which the bag is inverted to draw the soiled diaper into the bag without contacting the soiled surface of the diaper with the hand.

Thus, a feature of the present invention is that the soiled diaper may be placed in the bag in a simplified and sanitary manner.

Yet another feature of the invention is that in a preferred embodiment the diaper includes an end section which covers the bag of reduced dimensions during use of the diaper by the infant.

Still another feature of the present invention is the provision of securing means in the bag cavity for closing the opening means of the bag after the bag has been inverted with the soiled diaper retained inside the bag.

Further features will become more fully apparent in the following description of the embodiments of this invention and from the appended claims.

DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a front plan view of a flat disposable diaper; FIG. 2 is a fragmentary sectional view taken substantially as indicated along the line 2—2 of FIG. 1;

FIG. 3 is a fragmentary perspective view of the diaper of FIG. 1 after having been folded into a box-pleat configuration, and illustrating a disposal bag in a waistline portion of the diaper according to the present invention;

FIG. 4 is a fragmentary perspective view illustrating the formation of a diaper according to the present invention;

FIG. 5 is a fragmentary front plan view of an embodiment of a diaper of the present invention;

FIGS. 6 and 7 are fragmentary plan views illustrating configurations of the diaper of FIG. 5 as the diaper is unfolded for placement on an infant;

FIG. 8 is a fragmentary plan view illustrating an end section of the diaper being unfolded for access to the disposal bag;

FIG. 9 is a fragmentary plan view of an embodiment of the diaper and bag, showing the bag as unfolded preparatory to placement of the soiled diaper in the bag;

FIG. 10 is a fragmentary plan view of a diaper and bag of another embodiment of the present invention, showing the bag as unfolded preparatory to placement of the soiled diaper in the bag;

FIG. 11 is a plan view of the diaper of FIG. 10 showing the hand of a user inserted into the bag preparatory to inverting the bag and placing the soiled diaper in the bag;

FIG. 12 is a perspective view of the diaper of FIG. 11 after the bag has been inverted and the soiled diaper has been placed in the bag;

FIG. 13 is a plan view of the diaper of FIG. 12 after placement of the soiled diaper in the bag, and showing opening means in the bag being closed by securing means; and

FIG. 14 is a perspective view of a disposal bag of the present invention in a partially folded state for placement in the diaper.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to FIGS. 1 and 2, there is shown a flat diaper designated generally 26 having an absorbent pad assembly 27. The pad assembly 27 has a fluid impervious backing sheet 28 defining a back surface 30 of the pad assembly, a fluid pervious cover or top sheet 32 defining a substantial portion of a front surface 34 of the pad assembly, an absorbent pad 36 positioned intermediate the backing sheet 28 and cover sheet 32, front and back waistline portions 33a and 33b, and a crotch portion 35 intermediate the waistline portions 33a and b. The diaper or pad assembly has a pair of side edges 38a and 38b, and a pair of end edges 40a and 40b connecting the side edges 38a and b. The diaper 26 may also have a pair of conventional tape fasteners 42

adjacent one end edge **40b** of the pad assembly, with securing portions **43** of the fasteners **42** extending past the side edges **38a** and **b** of the pad assembly for securing the diaper about an infant. As best shown in FIG. 2, the top and backing sheets **32** and **28**, respectively, may extend to the end edges of the diaper.

The flat diaper **26** of FIG. 1 may have a plurality of longitudinally extending folds about fold lines **44a**, **44b**, **44c**, and **44d** defining a box-pleat configuration of the diaper, as shown in FIG. 3. As illustrated in FIGS. 1 and 3, the box-pleat diaper **26** has a longitudinally extending central panel **C**, a pair of first panels **B** and **D** extending from and overlying the central panel **C**, and a pair of outermost panels **A** and **E** extending from and overlying the first panels **B** and **D**. The pleat means **46** of the box-pleat diaper may be spaced apart in a lateral central portion of the diaper, as shown in FIG. 3, for a purpose which will be described below. As is apparent, the outermost panels **A** and **E** may be moved laterally in the waistline portions **33a** and **b** of the pad assembly to laterally expand the pleat means.

As illustrated in FIGS. 2-4, the box-pleat diaper **26** has an end section or flap **48** adjacent the end edge **40a**, which may be folded about a lateral fold line **50** over the front surface **34** of the diaper, such that the front surface **34** of the end section or flap means **48** engages against the front surface **34** of the diaper adjacent the end section **48**. Preferably, the end edge **52** of the absorbent pad **36** most adjacent the end edge **40a** of the diaper is spaced from the end edge **40a**, and the fold line **50** of the end section **48** is located adjacent the end edge **52** of the absorbent pad **36**, in order that the backing sheet **28** in the end section **48** overlies an end portion of the absorbent pad when the end section is folded into place on top of the diaper.

As illustrated in FIG. 3, the diaper has a disposal bag or receptacle generally designated **53** located on the front surface **34** of the outermost panels **A** and **E** adjacent the fold line **50** in the waistline portion **33a**. As shown in FIG. 14, the bag **53** has a pair of flexible side walls **55a** and **55b** joined together along side edges **57a**, **57b**, and **57c**, and defining a cavity **59** intermediate the side walls **55a** and **b**. The bag **53** has an opening or opening means **61** opening into or communicating with the cavity **59** adjacent a longitudinal end **62** of the bag. Longitudinal side sections **63a** and **63b** of the bag may be laterally folded about longitudinally extending fold lines **65a** and **65b** against a surface of a central section **67**, as shown, to reduce the lateral dimensions of the bag. The dimensions of the bag may be further reduced by rolling the laterally folded bag into the configuration shown in FIG. 3, although the longitudinal dimensions of the bag may be reduced in any other suitable manner, such as by folding, if desired. Thus, the bag **53** of reduced configuration is placed on the outermost panels **A** and **E** adjacent the fold line **50**, and in one embodiment the opening means **61** of the bag may face toward the end edge **40a**, as shown.

The diaper also has securing means **54**, such as adhesive, to retain a portion of the front surface **34** of the end section **48** against the underlying front surface **34** of the box-pleat diaper. Although for convenience the securing means **54** is described in connection with the use of adhesive, it will be understood that other suitable securing means may be utilized to retain the front surface of the end section to the underlying front surface of the diaper, such as by heat sealing. The securing means **54** may comprise a spot of adhesive **56** interme-

diating the spaced pleat means **46** on the front surface **34** of the central panel **C**, and a pair of adhesive lines or spots **58** on the front surface of the outermost panels **A** and **E**, such that the bag **53** is located intermediate the securing means **54** and the fold line **50**. The adhesive spot **56** retains the front surface **34** of the central panel **C** in the end section **48** against the underlying front surface **34** of the central panel **C** of the diaper. Similarly, the adhesive lines **58** retain the front surface **34** of the outermost panels **A** and **E** in the end section **48** against the front surface **34** of the underlying portions of the outermost panels in the diaper.

After the end section **48** has been folded over the bag and top of the diaper, as indicated by the direction of the arrow in FIG. 4, the end section **48** may be pressed against the underlying portion of the diaper to obtain a good set of the adhesive and retain the end section **48** in place. Thus, as shown in FIG. 5, when the end section **48** is attached to the underlying front surface of the diaper, the disposal bag **53** of reduced configuration is captured beneath the end section **48** by the securing means **54**. Although, for convenience, the bag **53** is described as placed in the one waistline portion **33a** of the diaper, it is apparent that the bag may be placed in the other waistline portion **33b**, if desired.

The use of the disposal bag **53** in conjunction with the folded over end section **48** is described as follows. As shown in FIGS. 6 and 7, as the end of the box-pleat diaper **26** adjacent the end section **48** is unfolded during placement of the diaper on an infant, the spots of adhesive **56** and **58** or securing means **54** maintain front surface portions of the end section **48** against the underlying front surface **34** of the diaper, and retain the bag **53** in place beneath the end section **48**. Thus, as the outermost panels **A** and **E** are spread outwardly, the outermost panels of the end section **48** are unfolded from under the central panel **C** of the end section, and the outermost panels of the underlying diaper are unfolded from beneath the bag **53**, with the spot of adhesive **56** retaining the bag in place beneath the end section **48**, as shown in FIG. 7. When the end of the diaper is completely unfolded, the securing means **54** retains the entire length of the end section **48** in an overlying relationship with a portion of the diaper adjacent the end section **48**. In this configuration of the diaper, adhesive spot **56** retains the central panel **C** of the end section **48** against the underlying portion of the diaper central panel, as well as the bag **53** in place beneath the end section **48**, while the adhesive lines **58** retain the outermost panels of the end section **48** against the underlying outermost panels of the pad assembly. As shown, the end section **48** covers the disposal bag **53** to prevent contact of the bag against the skin of the infant during use.

As shown in FIG. 8, after use of the diaper and removal from the infant, the end section **48** may be broken away from the adhesive spot **56** to expose the disposal bag **53**. The bag **53** is shown in this drawing as having its opening means **61** facing away from the fold line **50** to demonstrate that the opening means may face either way. The bag **53** may be removed from the diaper, after which it may be unrolled and unfolded to its full dimensions. The soiled diaper may then be inserted directly through the opening means **61** into the cavity of the bag, if desired. Alternatively, the user may place his hand in the cavity of the unfolded bag to grasp the soiled diaper through the bag, after which the bag is inverted to cover the soiled diaper, as described below.

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In one embodiment of the diaper of the present invention, as illustrated in FIG. 9, a portion of the bag side wall 55b adjacent the opening means 61 is secured to the front surface of the pad assembly by the adhesive spot 56 to retain the end wall 55b of the bag in place on the pad assembly. The bag 53 is shown in the drawing after it has been unrolled and unfolded about the longitudinal fold lines 65a and b. In this embodiment of the diaper, the bag has its opening or opening means 61 facing toward the other waistline portion 33b of the diaper. Alternatively, as shown in FIG. 10, the opening means 61 may face away from the other waistline portion 33b of the diaper. Additionally, the bag 53 may be secured to the front surface of the pad assembly by additional securing means 69, such as adhesive spots 71, to firmly anchor the end of the bag adjacent the opening means 61 to the pad assembly, as shown. Securing means 73 is also provided in the cavity 59 of the bag 53 to close the bag after the soiled diaper has been covered by the inverted bag. The securing means 73 may comprise a tape strip 75 having a first portion 77 secured to one of the side walls adjacent the opening means 61, such as side wall 55a, and a second securement portion 79 having adhesive releasably covered by a release sheet 81.

The use of the bag in the diaper of FIG. 10 to cover the soiled diaper by inverting the bag is described in connection with FIGS. 11-13, although it will be understood that any of the diapers previously described may be utilized in a similar manner. As shown in FIG. 11, the user inserts his hand through the opening means 61 into the cavity 59 of the bag 53, which overlies the front surface of the pad assembly, and grasps a lower portion of the soiled diaper through a side wall of the bag, the side wall serving as a protective member for the hand, similar to a glove, to prevent soiling of the user's hand when contacting the diaper. Next, the user withdraws his hand from the cavity 59 through the opening means 61 while grasping the diaper through the side wall, causing the bag 53 to be inverted. In this configuration, the original inner surfaces of the bag side walls are turned outwardly, and the soiled diaper has been placed into the cavity 59 of the inverted bag 53, as shown in FIG. 12, with the soiled diaper covered by the bag. Finally, as shown in FIG. 13, the release sheet 81 is removed from the securement portion 79 of the tape strip 75, and the securement portion 79 of the tape strip 75 may be utilized to close the opening means 61 of the bag, providing a closed cover for the soiled diaper to permit sanitary disposal of the diaper. During inversion of the bag 53 in the diaper of FIG. 9, the bag overlies the back surface of the pad assembly.

Thus, there has been described a diaper having a disposal bag for the diaper when soiled. The diaper may be placed in the bag in a convenient and simplified manner without soiling the user's hands. After placement in the bag, the diaper may be discarded in a sanitary manner.

The foregoing detailed description is given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, as modifications will be obvious to those skilled in the art. For example, it is contemplated that the bag 53 may be utilized to cover absorbent articles other than diapers, such as sanitary pads. Additionally, the bag may be located against the back surface of the diaper waistline portion, or may be positioned adjacent side edges of the pad assembly. The bag may be utilized with almost any

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configuration of a diaper, such as a flat or inverted pleat diaper, as well as a box pleat diaper. It will also be apparent that the bag 53 may be secured to the pad assembly by means adjacent the side edge 57b of the bag, such that opening 61 of the bag is located remote the securing means when the bag is extended to its enlarged dimensions.

I claim:

1. A disposable diaper, comprising:

an absorbent pad assembly having a pair of waistline portions, a front surface, and a back surface, and a disposal bag having a cavity and opening means communicating with said cavity, said bag being formed into a configuration of reduced dimensions and being located and retained in one of said waistline portions of the pad assembly, whereby said bag may be extended to enlarged dimensions after use of the diaper for placement of the soiled diaper in the bag and retention therein.

2. The diaper of claim 1 wherein said bag is located adjacent the front surface of the pad assembly.

3. The diaper of claim 1 wherein said opening means is located adjacent one end of the bag.

4. The diaper of claim 3 wherein the said opening means is accessible in the reduced configuration of the bag.

5. The diaper of claim 3 wherein the bag is secured to the one waistline portion adjacent said one end of the bag, and the opening means faces toward the other waistline portion of the pad assembly.

6. The diaper of claim 3 wherein the bag is secured to the one waistline portion adjacent said one end of the bag, and said opening means faces away from the other waistline portion of the pad assembly.

7. The diaper of claim 1 wherein the bag is laterally rolled into its reduced configuration.

8. The diaper of claim 7 wherein the bag has at least one longitudinal fold prior to being rolled into its reduced configuration.

9. The diaper of claim 1 wherein the bag is flexible so that it may be inverted during placement of the soiled diaper into the bag.

10. The diaper of claim 1 wherein the bag includes means for closing the bag secured to a sidewall of the bag inside said cavity.

11. The diaper of claim 1 wherein the bag comprises a pair of sidewalls joined around three edges and defining the opening means adjacent a fourth edge of the bag.

12. The diaper of claim 1 wherein the bag is secured to the one waistline portion of the pad assembly.

13. The diaper of claim 10 wherein the closing means is located adjacent the opening means.

14. The diaper of claim 13 wherein the closing means comprises tape means having a first portion secured to said side wall and a second securement portion for closing the bag.

15. The diaper of claim 1 wherein said pad assembly includes an end section in said one waistline portion, said end section being folded over and covering at least a substantial portion of the bag of reduced configuration.

16. The diaper of claim 15 wherein said end section is folded over the front surface of the pad assembly, and including means for securing the end section to the underlying surface of the pad assembly.

17. The diaper of claim 16 wherein the bag is located intermediate the securing means and a fold line defin-

ing the end section.

18. The diaper of claim 16 wherein the securing means retains a portion of the bag to the one waistline portion of the pad assembly.

19. A disposable diaper, comprising:

a flexible disposal receptacle having a cavity and opening means opening into the cavity, said receptacle being formed into a configuration of reduced dimensions; and

an absorbent pad assembly having a front surface, a back surface, a pair of waistline portions, a plurality of longitudinally extending folds defining a longitudinally extending central panel and panel means having a pair of outermost panels overlying the front surface of the central panel, said outermost panels being laterally movable in at least one waistline portion, and the pad assembly having an end section adjacent an end edge in the one waistline portion, said end section being folded against the front surface of the pad assembly and covering at least a substantial portion of the receptacle of reduced configuration; and

means for securing the end section to the underlying surface of the pad assembly with the receptacle located intermediate the securing means and a fold line defining the end section.

20. The diaper of claim 19 wherein the longitudinal folds define a box pleat configuration of the pad assembly having the central panel, a pair of first panels ex-

tending from and overlying the front surface of the central panel, and the pair of outermost panels extending from and overlying the first panels.

21. The diaper of claim 20 in which the securing means retains the front surface of the outermost panels in said end section to the underlying front surface of the outermost panels.

22. The diaper of claim 20 wherein the securing means retains the front surface of the central panel in said end section to the underlying front surface of the central panel.

23. The diaper of claim 22 wherein the securing means retains a portion of the receptacle to said one waistline portion of the pad assembly.

24. An absorbent article, comprising: an absorbent pad assembly having a plurality of marginal edges, and

a disposal bag having a cavity and opening means communicating with said cavity, said bag being formed into a compact shape of reduced dimensions and being located and retained while in said compact shape adjacent one of said edges, whereby said bag may be extended to enlarged dimensions after use of the article for placement of the soiled article in the bag and retention therein.

25. The article of claim 24 wherein said bag is flexible so that it may be inverted during placement of the article in the bag.

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