

Description

Title of Invention: DISPOSABLE DIAPER

Technical Field

[0001] The present invention relates to a pants-type disposable diaper.

Background Art

[0002] A pants-type disposable diaper which has a waist opening at an upper end and a pair of leg openings on a lower part is conventionally used as one type of absorbent product for receiving excrement from a wearer. Such a disposable diaper has an outer covering sheet where a front part and a back part, to be positioned on a front side and a back side of a wearer, are continuous with each other via a middle part, and left and right ends of the front part are bonded to left and right ends of the back part, respectively, to form a waist opening and a pair of leg openings. In addition, an absorbent body to absorb excrement from the wearer is attached on the outer covering sheet so as to lie from the front part to the back part. In Japanese Patent Application Laid-Open No. 2007-97979, a pair of end holding sheets which is bonded to a front part and a back part, respectively to cover both end portions of an absorbent body in a longitudinal direction is disclosed, and the end holding sheets prevent skin of a wearer from being irritated by edges of the end portions of the absorbent body.

[0003] A disposable absorbent product disclosed in Japanese Patent Application Laid-Open No. 8-66426 (Document 2) has a bulky portion since an absorbent panel is formed by folding an absorbent layer (absorbent core) upon itself. In the absorbent product of Document 2, the absorbent layer and the absorbent panel don't contact with skin of a wearer directly, because they are covered with a top sheet.

[0004] In a disposable diaper having end holding sheets, when compared to a disposable diaper where end holding sheets are omitted, texture in the waist region becomes hard, air permeability decreases and manufacturing cost increases. On the other hand, in a disposable diaper where end holding sheets are omitted, there may be a case where an edge of an end portion of an absorbent body irritates skin of a wearer when the end portion is curled up and the like. Thus, a disposable diaper, where end holding sheets are omitted and skin of a wearer can be prevented from being irritated by an edge of an end portion of an absorbent body, is required.

[0004A] Any discussion of documents, acts, materials, devices, articles or the like which has been included in the present specification is not to be taken as an admission that any or all of these matters form part of the prior art base or were common general knowledge in the field relevant to the present disclosure as it existed before the priority date of each claim of this application.

[0004B] Throughout this specification the word “comprise”, or variations such as “comprises” or “comprising”, will be understood to imply the inclusion of a stated element, integer or step, or group of elements, integers or steps, but not the exclusion of any other element, integer or step, or group of elements, integers or steps.

Summary of Invention

[0005] ~~The present invention is intended for~~ disclosure is directed to a pants-type disposable diaper which has a waist opening at an upper end and a pair of leg openings on a lower part. ~~It is an object of the present invention to prevent skin of a wearer from being irritated by an edge of an end portion of an absorbent body.~~

[0006] ~~The disposable diaper according to the present invention~~ comprises: an outer covering sheet which is folded in a middle part lying between a front part and a back part, the front part and the back part ~~being~~ to be positioned respectively on a front side and a back side of a wearer, left and right ends of the front part being bonded to left and right ends of the back part, respectively, to form a waist opening at upper ends of the front part and the back part and form a pair of leg openings under the front part and the back part, the pair of leg openings lying in left and right of the middle part; and a sheet-like absorbent body ~~which is~~ having a top sheet, a back sheet and an absorbent core which is located between said top sheet and said back sheet, said absorbent body being attached on an inner surface of the outer covering sheet to contact with the wearer and absorb excrement from the wearer, the absorbent body lying from the front part to the back part; ~~wherein one~~ said back sheet being positioned between said inner surface of said outer covering sheet and said absorbent core, said top sheet being positioned on an inner surface of said absorbent core; wherein portions of said back sheet and said top sheet protrude from an edge of said absorbent core in a longitudinal direction of said absorbent body, said portions are bonded to each other as a bonded end portion, said bonded end portion of the absorbent body which is positioned in the front part or the back part is folded toward the inner surface of the outer covering sheet to be bonded on the inner surface and an edge of said bonded end portion of said absorbent body is positioned between said inner surface of said outer covering sheet and said absorbent core of said absorbent body.

[0007] ~~In the present invention~~ an embodiment, it is possible to prevent skin of the wearer from being irritated by an edge of the ~~one~~ bonded end portion of the absorbent body when the disposable diaper is worn.

[0008] According to a preferred embodiment ~~of the present invention~~, the absorbent body has a middle bond part which lies at a middle portion in the longitudinal direction and which is bonded on the inner surface ~~of the outer covering sheet~~, and a portion of the absorbent body which lies between a folding position of the ~~one~~ bonded end portion and

the middle bond part is not bonded to the ~~one~~ bonded end portion and the outer covering sheet. Therefore, the vicinity of the folding position in the absorbent body can contact with the wearer closely.

[0009] According to another preferred embodiment of ~~the present invention~~, an entire edge of the ~~one~~ bonded end portion of the absorbent body is positioned between the inner surface of the outer covering sheet and the other portion of the absorbent body. It is therefore possible to surely prevent skin of the wearer from being irritated by the edge of the ~~one~~ bonded end portion of the absorbent body.

[0010] According to an ~~aspect of the present invention~~, ~~the absorbent body comprises: an absorbent core; a back sheet which is positioned between the inner surface of the outer covering sheet and the absorbent core; and a top sheet which is positioned on an inner surface of the absorbent core; the back sheet and the top sheet are bonded to each other in the one end portion of the absorbent body, and~~ embodiment, a folding position of the ~~one~~ bonded end portion is overlapped with an edge of the absorbent core or is positioned between the edge of the absorbent core and the waist opening.

[0011] In this such a case, an entire edge of the ~~one~~ bonded end portion of the absorbent body ~~is~~ may be positioned between the inner surface of the outer covering sheet and the absorbent core. This makes it possible to surely prevent skin of the wearer from being irritated by the edge of the ~~one~~ bonded end portion of the absorbent body. Preferably, the absorbent body further comprises a pair of side wall parts which lies on left and right side portions thereof and which is standing from the top sheet, and the pair of side wall parts is bonded on the top sheet at the folding position.

[0012] According to another ~~aspect of the present invention~~ embodiment, the disposable diaper further comprises an elastic member which contracts the ~~one~~ bonded end portion of the absorbent body in a width direction of the absorbent body to form gathers in the ~~one~~ bonded end portion. It is therefore possible to surely prevent skin of the wearer from being irritated by an edge of the ~~one~~ bonded end portion of the absorbent body.

[0013] More preferably, the other end portion of the absorbent body is folded toward the inner surface of the outer covering sheet to be bonded on the inner surface. This makes it possible to prevent skin of the wearer from being irritated by edges of the both end portions of the absorbent body.

[0014] These and other objects, features, aspects and advantages of the present invention will become more apparent from the following detailed description of the present invention when taken in conjunction with the accompanying drawings.

Brief Description of Drawings

[0015] [Fig. 1] Fig. 1 is a perspective view showing an appearance of a disposable diaper in accordance with a first preferred embodiment.

[Fig. 2]Fig. 2 is a plan view of the disposable diaper in a state where the disposable diaper is developed.

[Fig. 3]Fig. 3 is a cross-sectional view of the disposable diaper.

[Fig. 4]Fig. 4 is a cross-sectional view of the disposable diaper.

[Fig. 5]Fig. 5 is a view to explain a part of manufacturing process of an absorbent body.

[Fig. 6]Fig. 6 is a view showing a disposable diaper in accordance with a second preferred embodiment.

[Fig. 7]Fig. 7 is a cross-sectional view of the disposable diaper.

[Fig. 8]Fig. 8 is a view showing a disposable diaper in accordance with a third preferred embodiment.

[Fig. 9]Fig. 9 is a view showing another example of disposable diaper.

Description of Embodiments

[0016] Fig. 1 is a perspective view showing an appearance of a disposable diaper 1 in accordance with a first preferred embodiment of the present invention. As shown in Fig. 1, the disposable diaper 1 is a pants-type (i.e., pull-up type) diaper which has a waist opening 11 at an upper end being an end on the upper side of Fig. 1 and a pair of leg openings 12 on a lower part, and it receives excrement from a wearer. An up-down direction of Fig. 1 is not limited to the direction of gravity.

[0017] Fig. 2 is a plan view of the disposable diaper 1 in a state where the disposable diaper 1 is developed and in Fig. 2, the disposable diaper 1 is viewed from the wearer's side.

CLAIMS

[Claim 1]

A pants-type disposable diaper (1, 1a, 1b) which has a waist opening at an upper end and a pair of leg openings on a lower part, comprising: an outer covering sheet (4, 4b) which is folded in a middle part (402) lying between a front part (401) and a back part (403), said front part and said back part ~~being~~ to be positioned respectively on a front side and a back side of a wearer, left and right ends of said front part being bonded to left and right ends of said back part, respectively, to form a waist opening (11) at upper ends of said front part and said back part and form a pair of leg openings (12) under said front part and said back part, said pair of leg openings lying in left and right of said middle part; and a sheet-like absorbent body (20, 20a) ~~which is having a top sheet, a back sheet and an absorbent core which is located between said top sheet and said back sheet,~~ said absorbent body being attached on an inner surface (40) of said outer covering sheet to contact with said wearer and absorb excrement from said wearer, said absorbent body lying from said front part to said back part, said back sheet being positioned between said inner surface of said outer covering sheet and said absorbent core, said top sheet being positioned on an inner surface of said absorbent core; wherein portions of said back sheet and said top sheet protrude from an edge of said absorbent core in a longitudinal direction of said absorbent body, said portions are bonded to each other as a bonded end portion, ~~one~~ said bonded end portion of said absorbent body which is positioned in said front part or said back part is folded toward said inner surface of said outer covering sheet to be bonded on said inner surface and an edge of said bonded end portion of said absorbent body is positioned between said inner surface of said outer covering sheet and said absorbent core of said absorbent body.

[Claim 2]

The disposable diaper according to claim 1, wherein said absorbent body has a middle bond part (201) which lies at a middle portion in said longitudinal direction and which is bonded on said inner surface, and a portion of said absorbent body which lies between a folding position (240) of said ~~one~~ bonded end portion and said middle bond part is not bonded to said ~~one~~ bonded end portion and said outer covering sheet.

[Claim 3]

The disposable diaper according to claim 1 or 2, wherein

an entire edge (241) of said ~~one~~ bonded end portion of said absorbent body is positioned between said inner surface of said outer covering sheet and the other portion of said absorbent body.

[Claim 4]

The disposable diaper according to claim 1 or 2, wherein

~~said absorbent body comprises:~~

~~an absorbent core (22);~~

~~a back sheet (23) which is positioned between said inner surface of said outer covering sheet and said absorbent core; and~~

~~a top sheet (21) which is positioned on an inner surface of said absorbent core;~~

~~said back sheet and said top sheet are bonded to each other in said one~~

~~end portion, and~~ a folding position of said ~~one~~ bonded end portion is overlapped with an edge (221) of said absorbent core or is positioned between said edge of said absorbent core and said waist opening.

[Claim 5]

The disposable diaper according to claim 4, wherein

an entire edge (241) of said ~~one~~ bonded end portion of said absorbent body is positioned between said inner surface of said outer covering sheet and said absorbent core.

[Claim 6]

The disposable diaper according to claim 4 or 5, wherein

said absorbent body further comprises a pair of side wall parts (34)

which lies on left and right side portions thereof and which is standing from said top sheet, and

said pair of side wall parts is bonded on said top sheet at said folding position.

[Claim 7]

The disposable diaper according to any one of claims 1 to 6, wherein the other end portion of said absorbent body is folded toward said inner surface of said outer covering sheet to be bonded on said inner surface.

[Claim 8]

The disposable diaper according to any one of claims 1 to 7, wherein said absorbent body has an approximately rectangular shape, and left and right corners of said ~~one~~ bonded end portion of said absorbent body have chamfered shapes.

[Claim 9]

The disposable diaper according to any one of claims 1 to 8, further comprising

an elastic member (25) which contracts said ~~one~~ bonded end portion of said absorbent body in a width direction of said absorbent body to form gathers in said ~~one~~ bonded end portion.