

Drigard & Castr

Abogados

Anotado 3692

SUPERINDUSTRIA Y COMERCIO

Radicacion : 00075405 00000004

Folios: 2

Fecha (AMD): 2002-11-25 16:57:43

Tramite : 002 PATENTES D 1 REGISTRO/ 538 PETICION 6

----- PARA NOTIFICACION DE DECISIONS ADMINISTRATIVAS -----

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Señores

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

DIVISION DE NUEVAS CREACIONES

E. S. D.

REF.: Expediente No. 00 075.405 solicitud de Patente a nombre de
KIMBERLY – CLARK WORLDWIDE, INC.

RAMIRO CASTRO DUQUE, vecino de Bogotá, portador de la tarjeta profesional No. 1003 del Consejo Superior de la Judicatura, obrando como apoderado de la Sociedad **KIMBERLY – CLARK WORLDWIDE, INC.**, según lo acredita el documento de poder protocolizado en la Secretaría General bajo el No. 17397, de acuerdo con el Artículo 44 de la Decisión 486 de la Comisión de la Comunidad Andina, me permito solicitar que se examine si la invención contenida en la solicitud en referencia es patentable.

De acuerdo con lo anterior, me permito anexar el recibo oficial de caja No. 02-77,415 por valor de \$318.000.

Señor Superintendente,


RAMIRO CASTRO DUQUE
C.C. No. 170.322 de Bogotá
Código 340
T.P. No.1003 del C.S.J.
Cra. 7 No. 16-56 Piso 9

Noviembre 21, 2002
CPB/hsr

Industria y Comercio
SUPERINTENDENCIA

NIT : 800176089-2

SUPERINTENDENCIA Y COMERCIO
Radicacion : 00020405 00000004 Folios: 2
Fecha (MM): 2002-11-25 16:57:43
Tramite : 002 PATENTES D 1 REGISTRAR/ 530 PETICION

RECIBO OFICIAL DE CAJA : 02 - 77,415
FECHA : NOVIEMBRE 20 DE 2002

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PAGO	Vr. PAGO
BRIGAR & CASTRO LTDA	CONSIGNACION	BANCO POPULAR	050-00110-6	7316842	19/11/2002	33,082,000.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01	SOLICITUDES	
		112 PTC CAP-I EXAMEN DE PATENTIBILIDA	318,000.00
		TOTAL :	\$ 318,000.00

SOM: TRESCIENTOS DIEZ Y OCHO MIL PESOS

RECIBIBLE :

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

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Bogotá, D.C., Colombia

392
376

(12) **UK Patent Application** (19) **GB** (11) **2 294 865** (13) **A**

(43) Date of A Publication 15.05.1996

(21) Application No 9522568.6

(22) Date of Filing 03.11.1995

(30) Priority Data

(31) 9403832 (32) 08.11.1994 (33) SE

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(51) INT CL⁸

A41B 9/14, A81F 13/72

(52) UK CL (Edition O)

A3V V1B3A1 V6C4 V6H1

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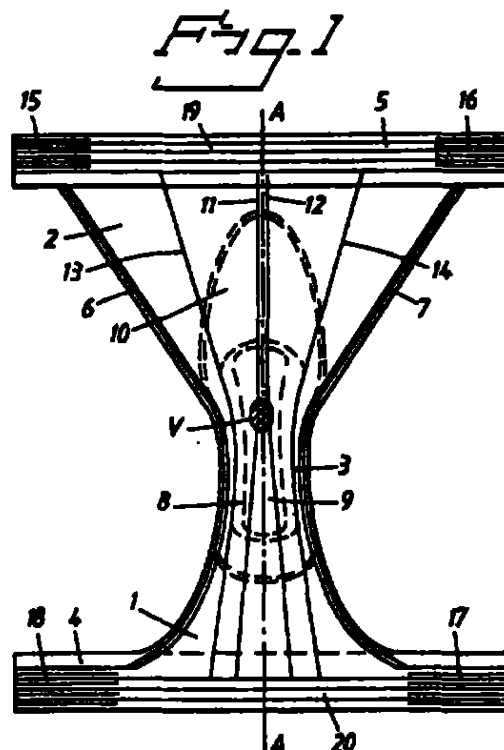
(58) Field of Search

UK CL (Edition O) A3V

INT CL⁸ A41B 9/00 9/04 9/12 9/14, A81F 13/72

(54) A pants-type sanitary napkin

(57) A pants-type sanitary napkin or incontinence guard for women, comprises a front part (1), a back part (2) and an intermediate crotch part (3). The opposing side parts (15, 18 and 16, 17 respectively) of the front part and the back part are joined together and comprise an elastically stretchable waist border or edge (4, 5) which extends peripherally around the free end-edges of the front and the back napkin parts. When no load acts on the napkin the elastically waist border has a greater resistance to stretch in parts (15 - 18) thereof than in remaining parts. Elastication is also provided at 6, 7, 11, 12, 13 and 14.



GB 2 294 865 A

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

393
377

United States Patent [19]
Dravland

[11] **Patent Number:** **4,906,243**
[45] **Date of Patent:** **Mar. 6, 1990**

[54] **COMBINATION DIAPER AND TRAINING PANTS**

[76] **Inventor:** Mary Dravland, 2611 Moeller Dr., Hamilton, Ohio 45014

[21] **Appl. No.:** 151,597

[22] **Filed:** Feb. 2, 1988

[51] **Int. Cl.⁴** A61F 13/16

[52] **U.S. Cl.** 604/394; 604/385.2

[58] **Field of Search** 604/393, 394, 358, 378, 604/385.1, 385.2, 386, 387, 397, 400, 401

[56] **References Cited**

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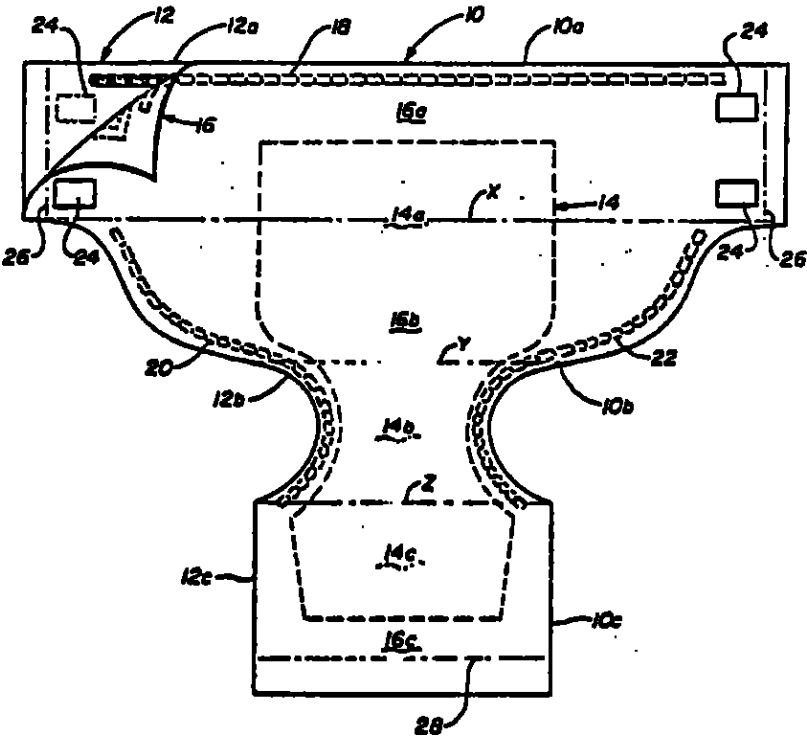
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Primary Examiner—C. Fred Rosenbaum
Assistant Examiner—Sharon Rose

[57] **ABSTRACT**

A garment comprising combination diaper and training pants includes an outer layer formed of water impervious material, an inner liner formed of thin absorbent material, and a core formed of water absorbent material sandwiched between the outer layer and the inner liner. The garment has a back section, a front section and an intermediate section. The back section of the garment extends partially around the waist of a wearer and is fastened to the front section. The intermediate section of the garment is generally hourglass shaped with a special contour to cover the wearer's seat and crotch areas without excessive bulkiness in the crotch area while forming a pocket in the garment adjacent the seat area for collecting waste.

4 Claims, 2 Drawing Sheets



394
378



12 **EUROPEAN PATENT APPLICATION**

21 Application number: **91105104.3** 51 Int. Cl.5: **A61F 13/15**
22 Date of filing: **28.03.91**

30 Priority: 02.04.90 US 504158	Menasha, Wisconsin 54952(US) Inventor: Morris, Marlon Clyde 16 Silver Spur Lane Appleton, Wisconsin 54915(US) Inventor: Rooyakkers, John Anthony 716 Lori Lane Little Chute Wisconsin 54140(US) Inventor: Winter, Cathy Lee 2418 Cortland Drive Appleton, Wisconsin 54914(US)
43 Date of publication of application: 09.10.91 Bulletin 91/41	
64 Designated Contracting States: BE DE FR GB IT LU NL	
71 Applicant: KIMBERLY-CLARK CORPORATION 401 North Lake Street Neenah Wisconsin 54957-0349(US)	
72 Inventor: Fahrenkrug, Anne Marie 4127 Oakridge Road Oshkosh, Wisconsin 54904(US) Inventor: Rollins, Neal Alan 1016 Stardust Drive	74 Representative: Patentanwälte Grünecker, Kinkeldey, Stockmair & Partner Maximilianstrasse 58 W-8000 München 22(DE)

64 **Stretchable shaped absorbent garment.**

67 A stretchable absorbent garment having a fluid-pervious inner layer, an outer layer, and an absorbent structure located between said inner and outer layers, and at least two generally parallel elastomeric strands stretch bonded to the garment along its length such that when in a relaxed state, all of the above described elements are reduced in length.

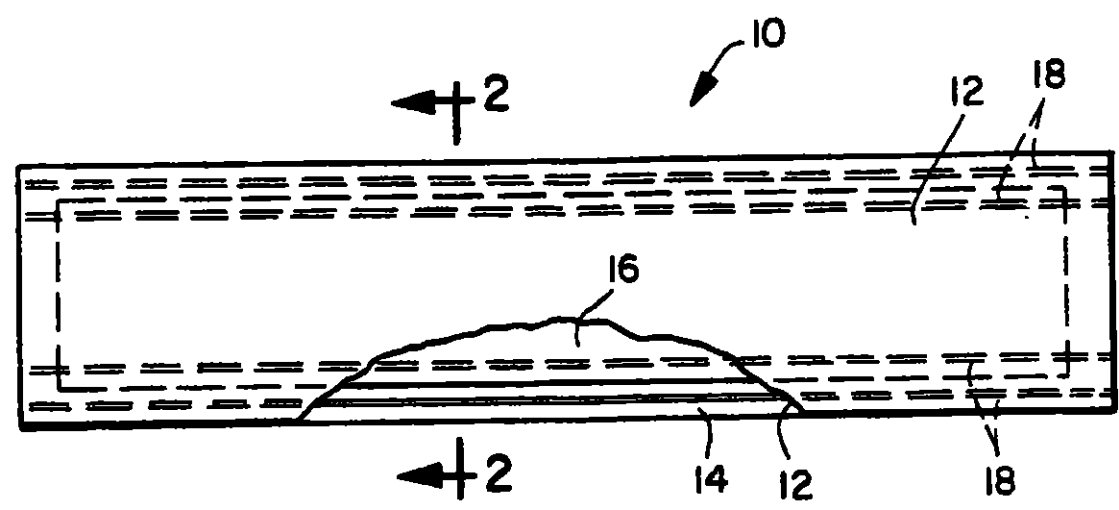


FIG. 1

EP 0 450 541 A2

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US005370634A

United States Patent [19]

Ando et al.

[11] Patent Number: 5,370,634

[45] Date of Patent: Dec. 6, 1994

[54] DISPOSABLE DIAPER

[75] Inventors: Kenji Ando; Mitsue Ushiwata, both of Ichikai, Japan

[73] Assignee: Kao Corporation, Tokyo, Japan

[21] Appl. No.: 123,981

[22] Filed: Sep. 21, 1993

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Related U.S. Application Data

[63] Continuation of Ser. No. 908,888, Jul. 7, 1992, abandoned, which is a continuation of Ser. No. 695,001, May 2, 1991, abandoned.

[30] Foreign Application Priority Data

May 9, 1990 [JP] Japan 2-48216[U]
May 31, 1990 [JP] Japan 2-142815

[51] Int. Cl.³ A61F 13/15; A61F 13/20

[52] U.S. Cl. 604/385.1; 604/358;
604/385.2; 604/386; 604/389; 604/393;
604/394; 604/396; 604/400

[58] Field of Search 604/358, 382-386,
604/389, 393-394, 396, 400, 402

[56] References Cited

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Primary Examiner—Jerome L. Kruter

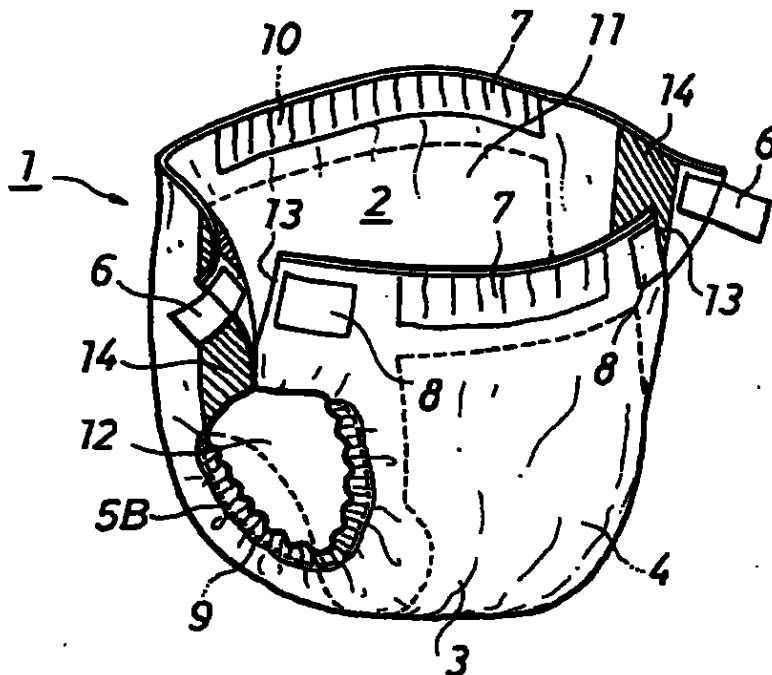
Assistant Examiner—P. Zuttarelli

Attorney, Agent, or Firm—Birch, Stewart, Kolasch & Birch

[57] ABSTRACT

In an underpants type disposable diaper comprising a liquid permeable top sheet, a liquid impermeable back sheet, an absorbent member disposed therebetween, an elastic expandable member for forming a gather each to a pair of leg portions and front and rear waist body portions formed around the absorbent member, the front and rear waist body portions being connected and fixed together at both sides to form a waist opening portion and a pair of leg opening portions, respectively, at least a part of each area formed between the waist opening portions and the pair of leg opening portions at both side portions of the waist portion is provided with a vertical split portion, respectively and connection means are provided to each of the side portions.

19 Claims, 8 Drawing Sheets



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380

Fig. 1

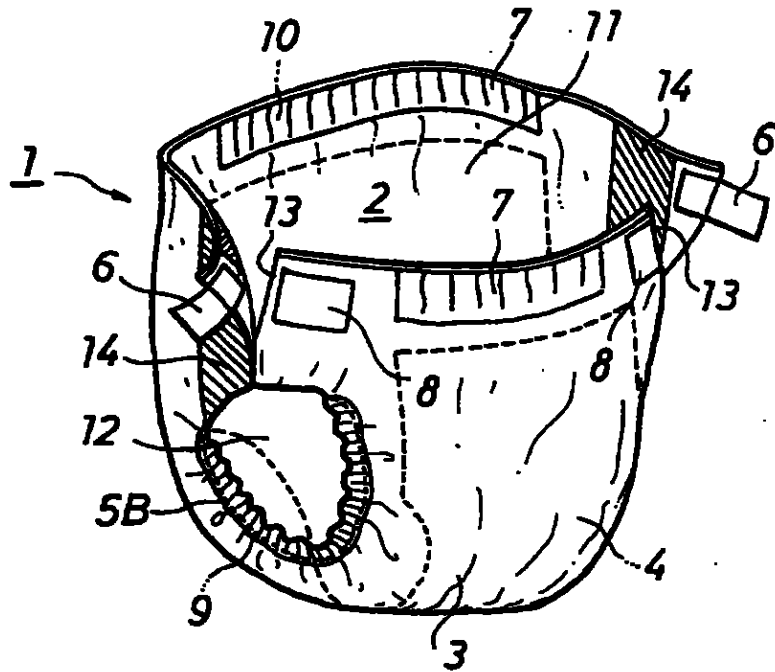
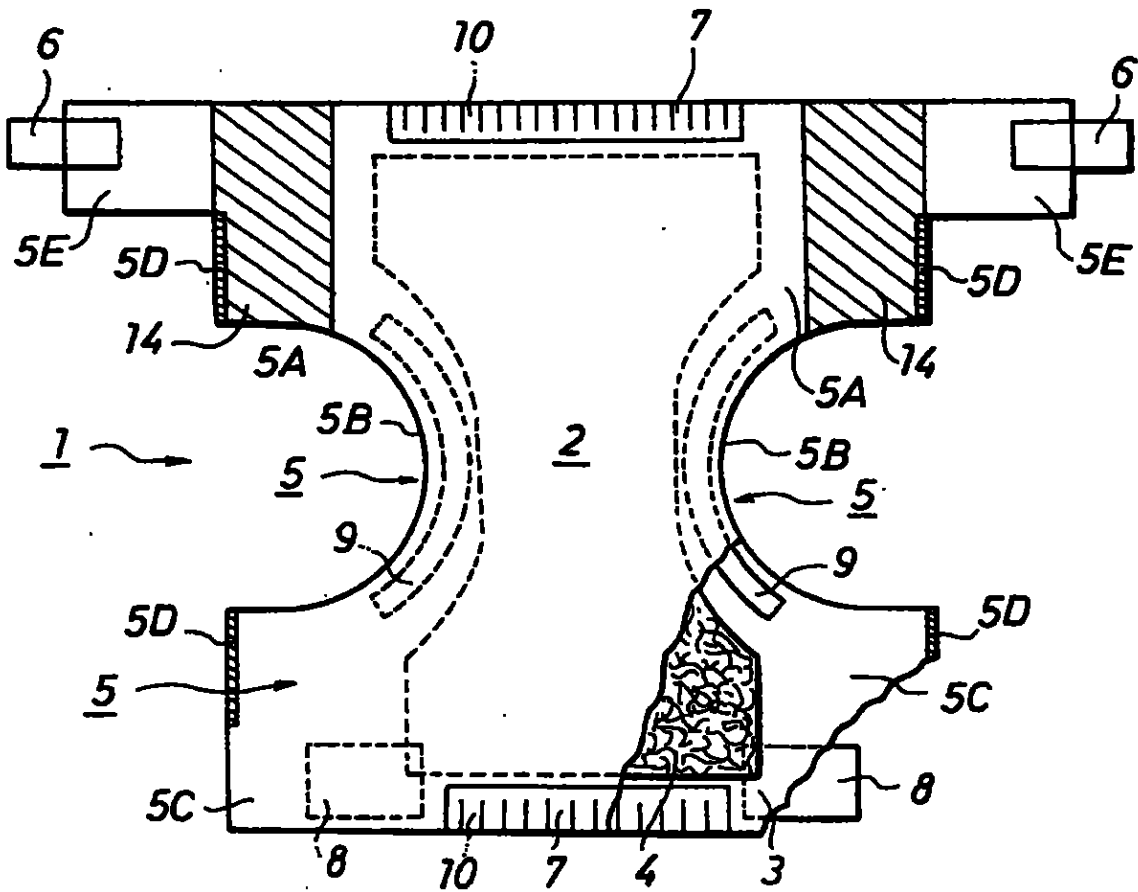


Fig. 2



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Fig .3

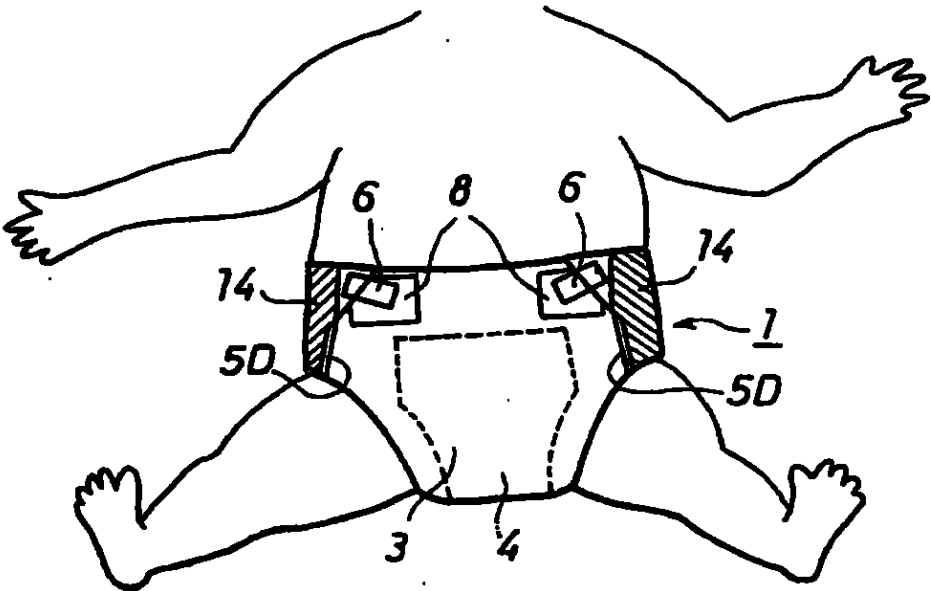
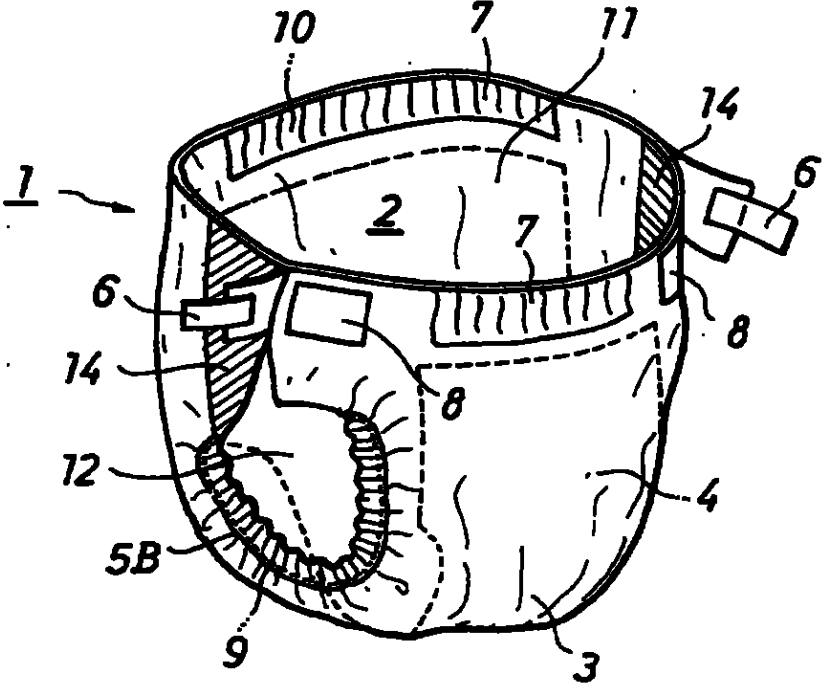


Fig .4



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Fig . 6

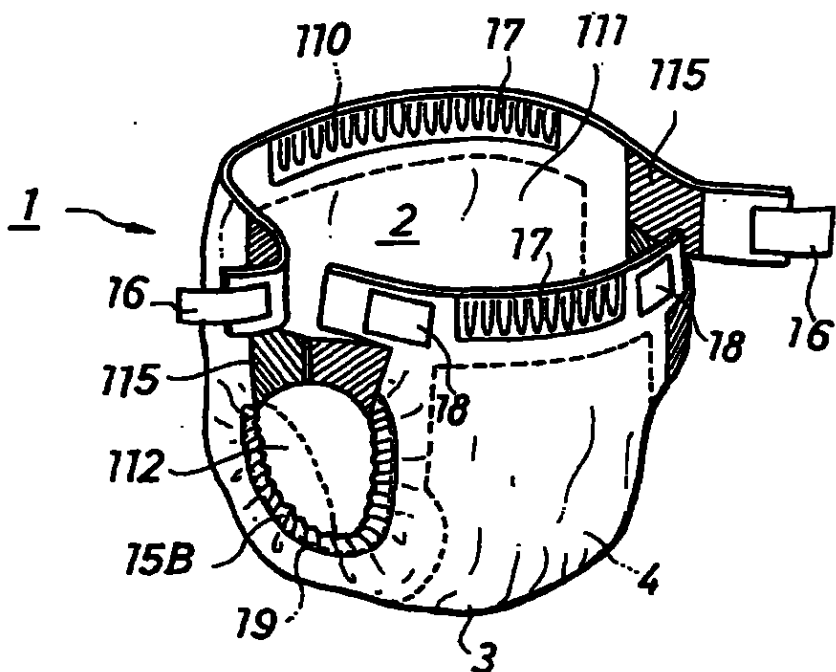
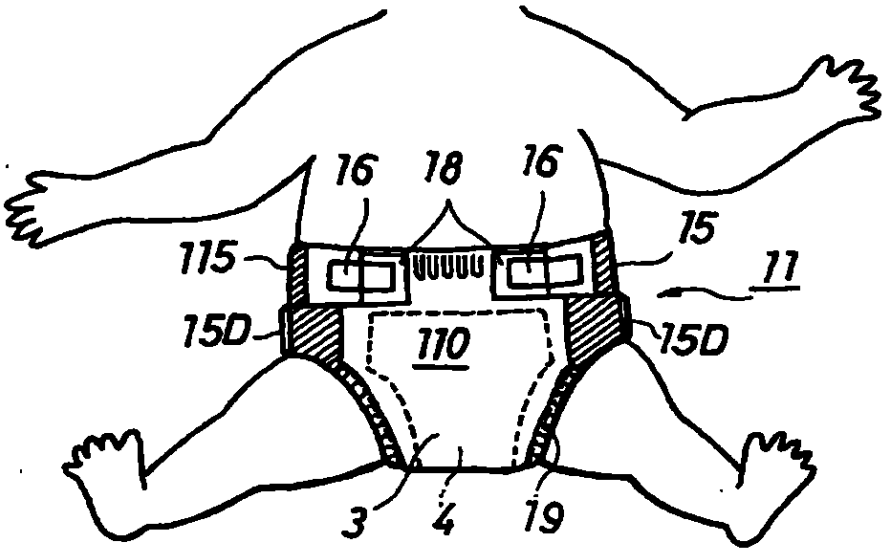
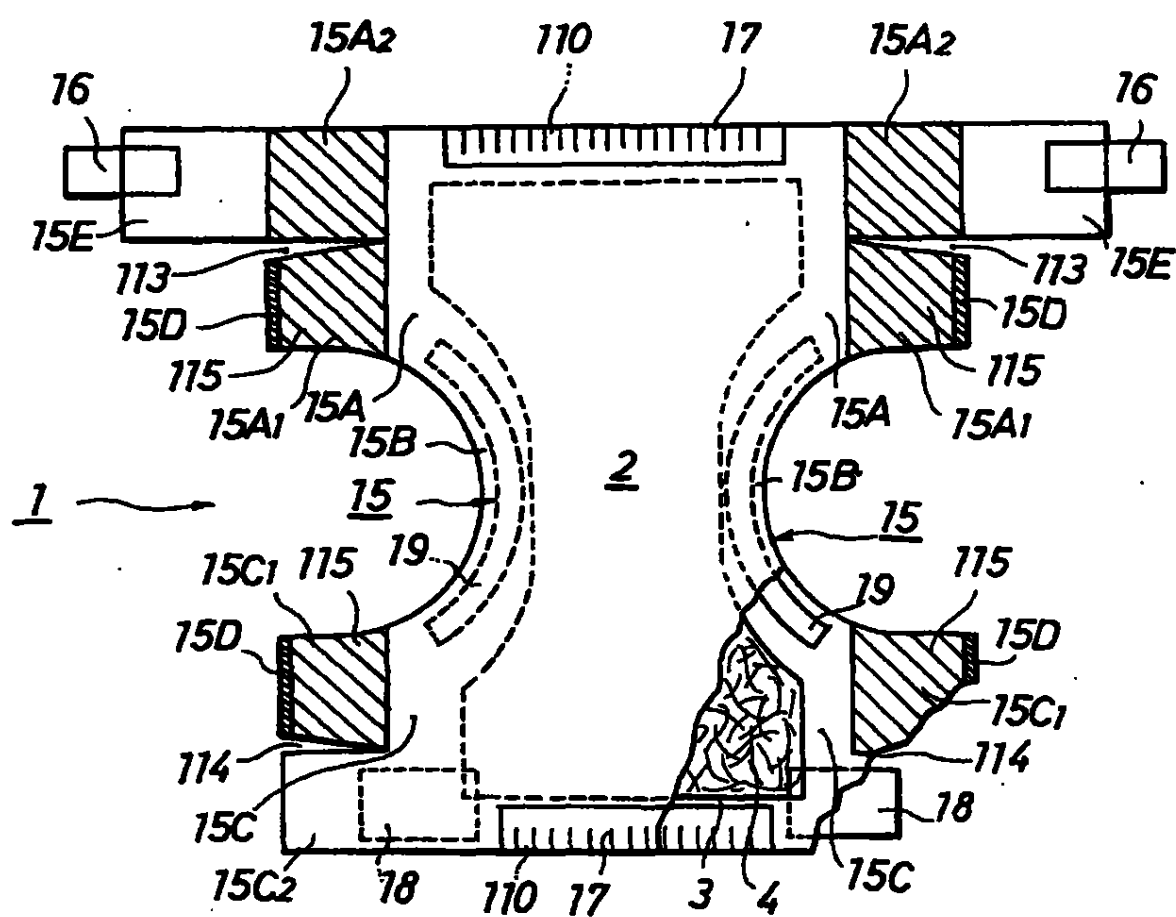


Fig . 8

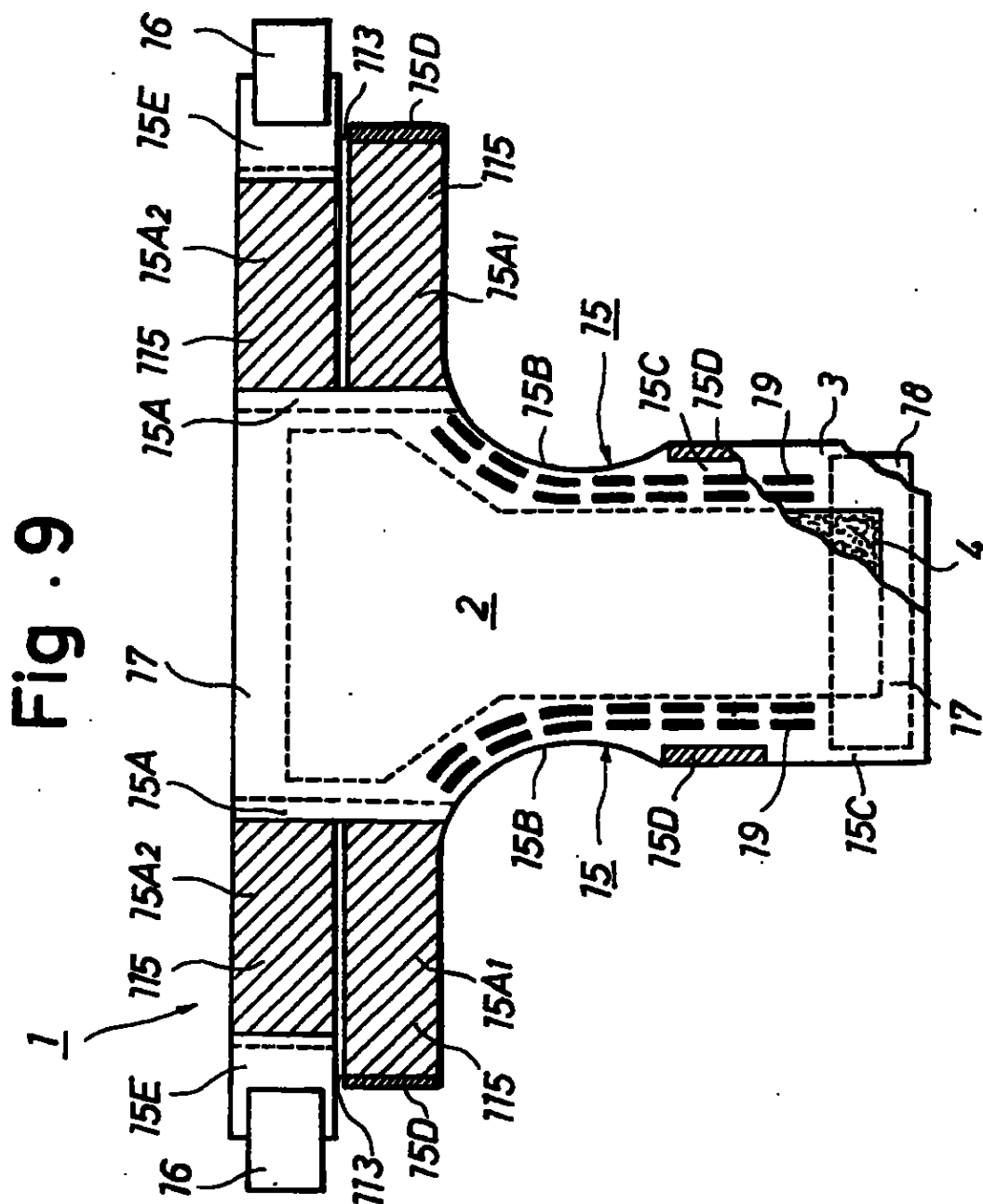


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Fig. 7

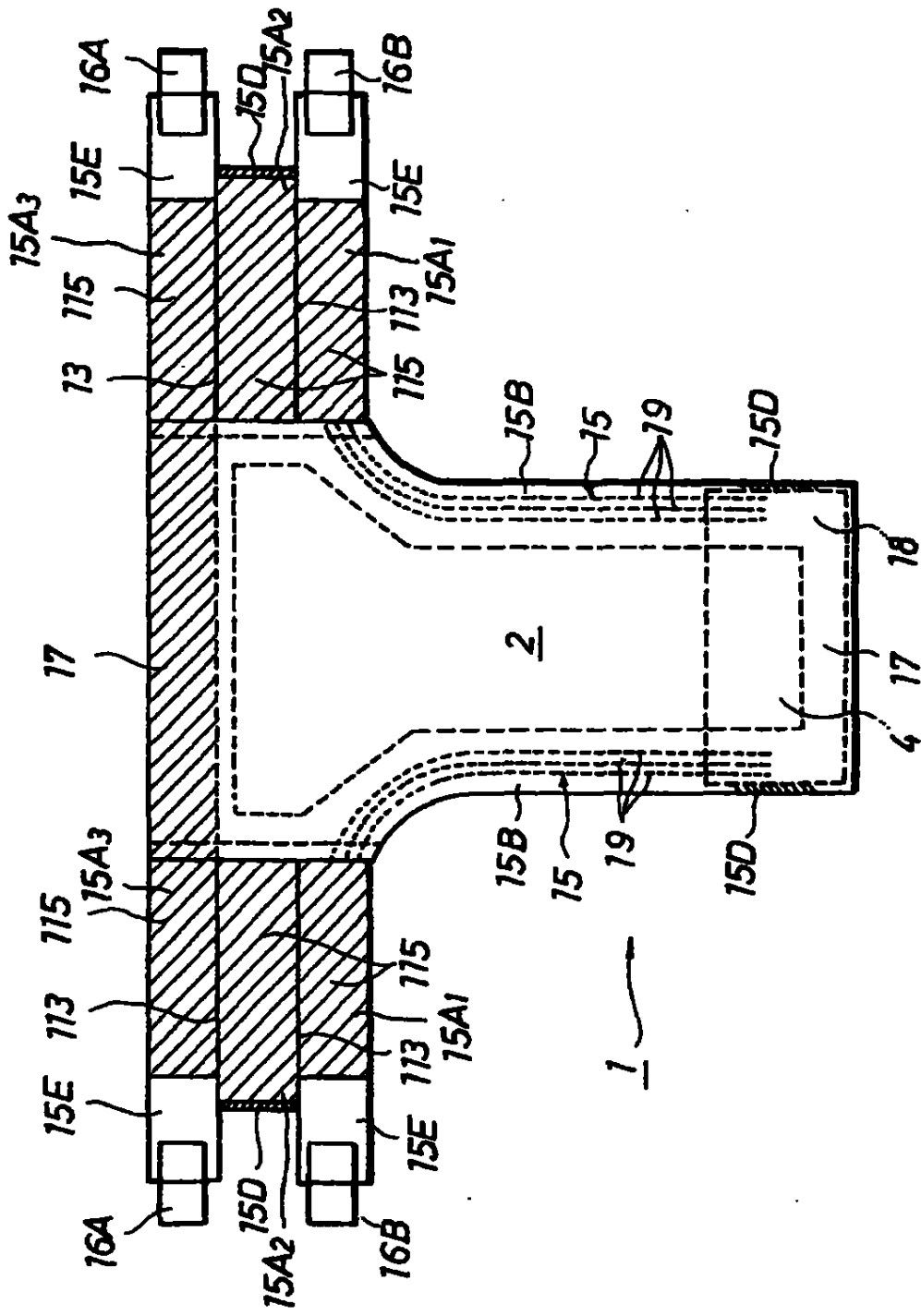


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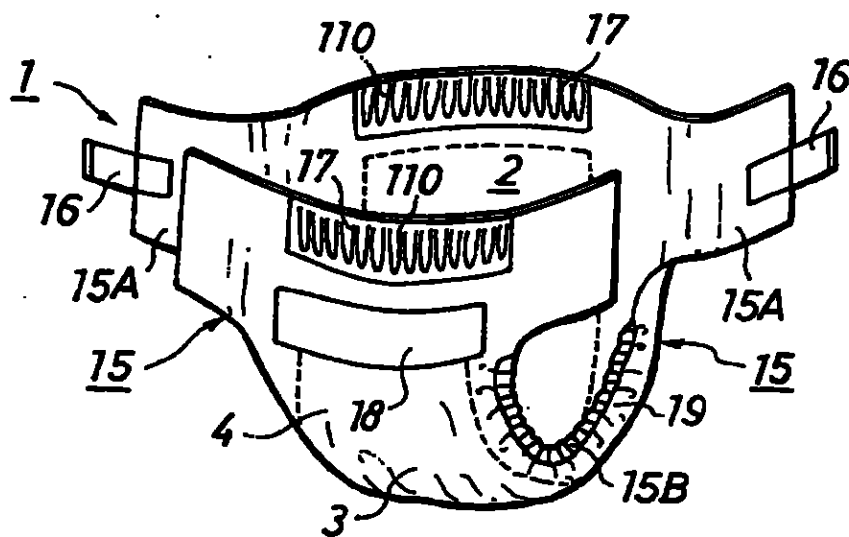
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Fig. 10



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387

Fig .11



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DISPOSABLE DIAPER

This application is a continuation of application Ser. No. 07/908,888 filed on Jul. 7, 1992, now abandoned which is a continuation of application Ser. No. 07/695,001 filed on May 2, 1991, now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a disposable diaper for the use of infants, adults or incontinent persons.

2. Description of the Prior Art

Heretofore, many kinds of disposable diapers have been proposed. One typical disposable diaper is a so-called flat type which comprises a liquid permeable top sheet, a liquid impermeable back sheet, an absorbent member disposed therebetween, and a pair of side flaps, a pair of tape fasteners, disposed at both side edges of a waist portion on the back side of the side flaps, being fastened to the wearer's stomach side. Another example of such flat type disposable diaper is a disposable diaper 1 shown in FIG. 11. As is shown in FIG. 11, the disposable diaper 1 comprises, like the above-mentioned flat type disposable diaper, a top sheet 2, a back sheet 3, an absorbent member 4, and a pair of side flaps 15, 15, waist portions 15A, 15A in the back side of the side flaps 15, 15 being expanded sidewardly respectively, thereby forming a pair of expanded portions for covering the wearer's body portion, a pair of tape fasteners 16, 16 each provided to the corresponding expanded portions being fastened to an area-to-be-fastened 18 formed on a waist body portion 7 in the stomach side. Leg portions 15B and waist body portions 17 in the side flaps 15, 15 are provided with elastic members 19 and 110, respectively, in order to enhance fitness when the wearer wears the disposable diaper (Japanese Patent Publication No. Sho 52-40267).

Recently, a so-called underpants or drawers type disposable diaper was proposed, in which both side edges in the stomach side and back side of a pair of side flaps are attached and fixed together to form a pair of leg opening portions and a pair of waist opening portions, respectively (Japanese Patent Early Laid-open Publication No. Sho 61-207606). This drawers type disposable diaper is expansible at the leg and waist opening portions respectively so that it is intimately fitted to the wearer regardless of the wearer's figure. The wearer can usually wear such drawers type disposable diaper in the wearer's standing attitude. Therefore, this is very useful when used as toilet training, or for the-use of incontinent persons or adults who have difficulty in walking. Such drawers type disposable diaper also has an appearance of sewing finish which a good sewn product usually has and is intentionally made as a disposable underwear.

However, although the conventional drawers type disposable diaper has a flexible fitness to infants of high months age who moves actively, it has as a shortcoming that since the size of the waist opening portion is limited, it is difficult for the wearer to insert legs smoothly and the wear usually gives a feel of being narrow and tight. When the wearer flutters the feet, even more difficulty is encountered for wearing such drawers type disposable diaper. Moreover, the conventional drawers type disposable diaper has also a shortcoming that the wearer is always compelled to keep an awkward atti-

tude when wearing whether the disposable diaper is for the use of infants or adults.

Furthermore, the conventional drawers type disposable diaper has as a shortcoming that it is not easy to tell whether there are waste materials discharged in the diaper while the wearer wears the diaper, which requires relying on the wearer's expression as an indication in order to make sure that the waste materials are already therein. Moreover, since no tape fastener is provided, it has another shortcoming that when the used disposable diaper is disposed, it is impossible to fasten the diaper using a tape fastener after waste materials are wrapped up within the diaper.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a disposable diaper, in which the wearer is not compelled to keep an awkward attitude when wearing; the diaper can comparatively easily be put on even when the wearer is fluttering his or her feet; waste materials discharged in the diaper can easily be recognized from outside; and discharged waste materials can be wrapped up within the diaper for immediate disposal.

As a result of extensive study on the structure of a drawers type disposable diaper made by the inventors of the present invention, it was found that the above object can be achieved by providing a particular structure to connected portions at both sides of the front and rear waist body portions (wearer's stomach side and back side).

The present invention has been accomplished on a basis of the above-mentioned finding. According to the present invention, there is provided in a drawers type disposable diaper comprising a liquid permeable top sheet, a liquid impermeable back sheet, an absorbent member disposed therebetween, an elastic expansible member for forming a gather at each of a pair of leg portions and front and rear waist body portions formed around the absorbent member, said front and rear waist body portions being connected and fixed together at both sides to form a waist opening portion and a pair of leg opening portions, respectively, a disposable diaper being characterized in that at least a part of each area formed between said waist opening portions and said pair of leg opening portions at both side portions of said waist portion is provided with a vertical split portion, respectively and connection means are provided at each of said side portions.

According to the present invention, the diaper can be put on the wearer simply by fastening the connection means provided at both side portion of the waist portion after the wearer's feet are put into the pair of leg opening portions through the waist opening portion.

In the disposable diaper of the present invention, since at least a part of each area formed between the waist opening portions and the pair of leg opening portions at both side portions of the waist portion is provided with a vertical split portion, respectively, and connection means are provided at each of the side portions, the diaper can easily be put on the wearer without compelling the wearer to keep an awkward attitude when wearing and even when the wearer is fluttering his or her feet. Moreover, waste materials discharged in the diaper can easily be recognized from the outside and waste materials can be wrapped up within the diaper for immediate disposal.

The present invention also provides in a drawers type disposable diaper comprising a liquid permeable top

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sheet, a liquid impermeable back sheet, an absorbent member disposed therebetween, a pair of side flaps extending outwardly in the width direction of said absorbent member from each side edge in the longitudinal direction of said absorbent member, an elastic expandable member for forming a gather at each of the pair of side flaps, a disposable diaper being characterized in that at least a back side waist portion of each of the pair of side flaps is provided with a lateral split portion so that the waist portion is divided into at least two side flap elements, at least a pair of the side flap elements being connected and fixed to stomach side waist portions of the pair of side flaps to form a waist opening portion and a pair of leg opening portions, a pair of divided non-connected side flap elements being provided with a fastener means, respectively.

In the above-mentioned disposable diaper of the present invention, since at least a back side waist portion of each of the pair of side flaps is provided with a lateral split portion so that the waist portion is divided into at least two side flap elements, at least a pair of the side flap elements being connected and fixed to stomach side waist portions of the pair of side flaps to form a waist opening portion and a pair of leg opening portions, a pair of divided non-connected side flap elements being provided with a fastener means, respectively, the waist opening portion and the leg opening portions have sufficient room for inserting a wearer's legs, the wearer is not compelled to keep an awkward attitude when wearing and the disposable diaper can easily be put on the wearer even when the wearer is fluttering his or her legs. Moreover, according to the disposable diaper of the present invention, discharged waist materials contained in the disposable diaper can easily be recognized from the outside by peeling off the fastener means. Furthermore, since the connected and fixed side flaps can easily be torn in the vertical direction at the connected portions, the disposable diaper is not required to be pulled down to the wearer's feet when the disposable diaper is taken off. Therefore, there is no fear that the wearer's skin and clothing are dirtied by waste materials. Moreover, the disposable diaper containing waist materials discharged therein can be wrapped up with the diaper and fastened by the fastener means for immediate disposal.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view showing one embodiment of a disposable diaper according to the present invention;

FIG. 2 is a plan view of an intermediate product, partly cut away, showing an outer surface side of the disposable diaper of FIG. 1 spread out;

FIG. 3 is a perspective view showing the disposable diaper of FIG. 1 which is already put on an infant;

FIG. 4 is a perspective view corresponding to FIG. 1 but showing another embodiment of a disposable diaper according to the present invention;

FIG. 5 is a perspective view corresponding to FIG. 2 of the disposable diaper of FIG. 4;

FIG. 6 is a perspective view showing still another embodiment of a disposable diaper according to the present invention;

FIG. 7 is a plan view of an intermediate product, partly cut away, showing an outer surface side of the disposable diaper of FIG. 6 spread out;

FIG. 8 is a perspective view of the disposable diaper of FIG. 6 which is already put on an infant;

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FIGS. 9 and 10 are plan views corresponding to FIG. 7 but showing still another embodiment of a disposable diaper according to the present invention; and

FIG. 11 is a perspective view showing one embodiment of a conventional flat type disposable diaper.

DETAILED DESCRIPTION OF THE EMBODIMENT

The present invention will be described hereinafter with reference to FIGS. 1 through 5.

A disposable diaper 1 of this embodiment is a drawers type disposable diaper and comprises, as shown in FIG. 1, a liquid permeable top sheet 2, a liquid impermeable back sheet 3, an absorbent member 4 disposed between the sheets 2 and 3, a pair of elastic expandable members 9 and 10 for forming a gather at each of a pair of side flap portions 5, 5 and of front and rear waist body portions 7, 7 formed outside the outer periphery of the absorbent member 4, the front and rear waist body portions 7, 7 being connected and fixed together at both sides to form a waist opening portion 11 and a pair of leg opening portions 12, 12, respectively. The side flaps 5, 5 are formed by extended portions of the top sheet 2 and back sheet 3 extending outwardly in the width direction from both side edge portions of the absorbent 4 and overlapped with each other. Leg portions 5B, 5B curved inwardly are formed at crotch areas of the side flaps 5, 5 as shown in FIG. 2.

At least a part of each area formed between the waist opening portions 11 and the pair of leg opening portions 12, 12 at both side portions of the waist portion is provided with a vertical split portion 13, respectively, (that is, each area starting from the upper edge of the waist opening portion 11 and ending at a mid-way to each leg opening portion 12 in this embodiment) and connection means (tape fasteners) 6 is provided for each split portion 13. The tape fasteners 6, 6 are formed on both sides of the rear waist body portion 7 separated by the split portions 13, 13 and are able to be fastened to viscous areas-to-be-fastened 8, 8 formed at both side portions of the front waist body portion 7. The tape fastener 6 is preferably a pressure sensitive adhesive tape, which has an adhesive sufficient enough not to be peeled off the area-to-be-fastened 8 when the wearer wears the diaper, the strength being at least 600 to 3000 g per inch in width, and more preferably, 1000 to 2000 g per inch in width.

The split portions 13, 13 will be further described with reference to an intermediate product of the spread-out disposable diaper 1 of FIG. 2. The split portions 13, 13 are formed at both sides of the front and rear waist body portions 7, 7 as described above. More specifically, non-connected portions and connected portions 5D, 5D are continuously formed along the side edges of the respective waist portions 5A and 5C in the back side and stomach side of the side flaps 5, 5, the respective connected portions 5D, 5D are connected and fixed together, and the above-mentioned split portions 13, 13 are formed by the remaining respective non-connected portions. Furthermore, extending flaps 5E, 5E extending outwardly in the width direction are connected with the non-connected portions of the respective waist portions 5A, 5A in the back side, and the respective extending flaps 5E, 5E are provided with fasteners 6, 6. The connected portions 5D, 5D are inclined outwardly as it goes away from the leg portions 5B, 5B in FIG. 2. In the case where the waist opening portion 11 is formed, it is preferably formed such that the waist open-

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ing portion 11 is gradually expanded in the edge direction of the opening. The connected portion 5D is preferably 2 to 100 mm in length and more preferably 15 to 50 mm. The extending length of the extending flap 5E is preferably 5 to 100 mm, more preferably 20 to 70 mm and most preferably 25 to 50 mm. The tape fastener 6 is preferably equal in length to the extending length of the extending flap 5E and more preferably shorter than the extending length of the extending flap 5E.

Furthermore, elastic expansible members 14, 14 are arranged at the waist portions 5A, 5A in the back side of the respective side flaps 5, 5. It is preferably designed such that the elastic expansible members 14, 14 are expansible in the width direction about the wearer's body when the wearer wears the diaper.

The disposable diaper of this embodiment will be described in more detail. The absorbent member 4 is formed in a twisted hourglass shape at its under crotch area, and the top sheet 2 and back sheet 3 are also curved in conformity at under crotch areas thereof with the configuration of the absorbent member 4 as mentioned above. As is shown in FIG. 2, the elastic expansible members 9, 9 are stretched around the leg portions 5B, 5B of the respective side flaps 5, 5 and interposed between the sheets 2 and 3. Both the elastic expansible members 9, 9 are contracted in free states to form leg gathers shown in FIG. 1 in order to enhance fitness to the under crotch area. Two or more tape fasteners 6 may be provided to each of the extending flaps 5E, 5E.

The top sheet 2 used in the disposable diaper 1 of this embodiment is a liquid permeable sheet for permeating waste materials to the absorbent 4 and which preferably has a feel something like that of an underwear. Examples of such liquid permeable sheet are preferably woven fabrics, nonwoven fabrics, perforated films and the like. To prevent permeation leakage of waste materials such as urine and the like from the edge portion of the top sheet, a water repellent treatment may be applied to the edge portion of the top sheet by a method for applying a hydrophobic compound such as silicon series oil solution, paraffin wax and the like to the edge of the top sheet or by a method for applying a hydrophilic compound such as alkyl phosphoric ester to the edge of the top sheet in advance and then cleaning the edge with hot water.

The back sheet 3 used in the disposable diaper 1 is preferably a moisture permeable and liquid impermeable sheet able to permeate vapor therethrough and formed of a thermoplastic resin and filler added thereto and stretched and more preferably a sheet having a feel something like that of an underwear. Examples of such liquid impermeable sheet are preferably a composite material of film and woven fabric or a composite material of film and non-woven fabric.

The absorbent member 4 used in the disposable diaper 1 of this embodiment is preferably comprised of an open cell pulp as a chief component material and a high molecular water absorbent polymer as a secondary material, or a mixture of a thermoplastic resin, a cellulosic fiber and a high molecular water absorbent polymer subjected to heat treatment. The existing position of the high molecular water absorbent polymer may be in an upper layer, an intermediate layer or a lower layer, and the high molecular water absorbent polymer may be mixed with pulp. The high molecular water absorbent polymer preferably has an ability for absorbing and holding liquid more than twenty times the dead weight thereof and is in a grain shape having a property able to

be gel led. Examples of such high molecular water absorbent polymer are preferably starch-acrylic (salt) graft copolymer, a saponified material of starch-acrylonitrile copolymer, bridged material of sodium carboximethylcellulose, acrylic (salt) polymer and the like.

The elastic expansible materials 9 and 10 used in the disposable diaper of this embodiment are preferably yarn rubbers, flat rubbers, film type rubbers, and preferably 70 to 100 g when stretched 100%. The elastic expansible member 14 is preferably of non-woven fabric type having expansibility and breathability.

Since the disposable diaper 1 of this embodiment has the above-mentioned constitution, when the diaper is to be put on, for example, an infant, the waist opening portion 11, as shown in FIG. 3, is spread at the split portions 13, 13 first and then the waist opening portion 11 is further stretched by stretching the elastic expansible members 14, 14. After both legs of the infant are inserted into the pair of leg opening portions 12, 12, the split portions 13, 13 at both sides of the waist body portions 7, 7 are pulled nearer and the extending portions 5E, 5E are overlapped at the waist body portion 7 on the stomach side of the infant. Then, the tape fasteners 6, 6 are fastened to the areas-to-be-fastened 8, 8.

Therefore, according to the disposable diaper 1 of this embodiment, since the disposable diaper 1 can be put on the wearer simply by connecting the split portions 13, 13 through the tape fasteners 6, 6 after the pair of legs are inserted into the pair of leg opening portions 12, 12 through the waist opening portion 11 loosened by the split portions 13, 13 at the upper edge, the diaper can easily be put on the wearer without compelling the wearer to keep an awkward attitude. Even when the wearer is moving actively in such a manner as to flutter the legs hard, the diaper can easily be put on the wearer simply by inserting the legs through the widely spread waist opening portion 11. Also, in the disposable diaper 1 of this embodiment, the inside can easily be recognized simply by unfastening the tape fasteners 6, 6 from the areas-to-be-fastened 8, 8. Furthermore, the disposable diaper 1 already containing waste materials discharged by the wearer can simply be wrapped up within the diaper and fastened by the tape fasteners 6, 6 for immediate disposal.

FIGS. 4 and 5 show another embodiment of the present invention. The disposable diaper 1 of this embodiment is constituted in the same way as the preceding embodiment except that a pair of vertical split positions 13, 13 are respectively formed at both side portions of the waist body portions 7, 7, starting from a pair of leg openings 12, 12 toward the waist opening portion 11 and ending at mid-way to the waist opening portion 11 and the leg opening portion 12, and a pair of tape fasteners 6, 6 are arranged in such a manner as to be one-sided toward the waist opening portion 11 as shown in FIG. 4 and 5. Therefore, according to the disposable diaper 1 of this embodiment, since the leg opening portions 12, 12 are loosened, it has such advantages as that the legs of the wearer can easily be inserted into the leg opening portions 12, 12, and the wearer can be free from a feel of tightness when the wearer wears the diaper, besides the advantages already mentioned above in connection with the preceding embodiment.

It is noted that the positions of the split portions and the connection means are not limited to the above-mentioned embodiment as long as vertical split portions are formed in at least a part of each area between the waist

opening portion and a pair of leg opening portions at both side portions of the waist portion, connection means are formed at both side portions thereof, respectively, and elastic expansible members are arranged at both side portions thereof, respectively.

Next, the present invention will be described with reference to FIGS. 6 through 10.

The expression "side flap(s)" used in this specification refers to the extending portion(s) extending outwardly in the width direction of the absorbent member from both side edges in the longitudinal direction of the absorbent member, the expression "waist body portion" refers to a portion around the waist portion (the portion denoted by the numerals 7 17 in the drawings), and the expression "waist portion(s)" refers to a waist portion(s) of the side flap(s), i.e., the flaps on both side edges of the back side or stomach side waist body portion.

The disposable diaper 1 of this embodiment comprises, as shown in FIG. 6, a liquid permeable top sheet 2 forming the side contacting the wearer's skin, a liquid impermeable back sheet 3 corresponding to the top sheet 2, an absorbent member 4 disposed and fixed between the sheets 2 and 3 and adapted to absorb waste materials, a pair of side flaps 15, 15 extending outwardly in the width direction from both side edges of the back side first edge and of the stomach side second edge in the longitudinal direction of the absorbent member 4, and a pair of elastic expansible members 19, 19 for forming gathers to the leg portions 15B, 15B of the pair of side flaps 15, 15, the back side waist body portion 17 and the stomach side waist body portion 17', as will be described afterward, being partly connected and fixed at both ends thereof to form a waist opening portion 111 and a pair of leg opening portions 112, 112, respectively. The side flaps 15, 15 are formed by the top sheet 2 and back sheet 3 extending outwardly in the width direction from both side edges of the absorbent member 4 and overlapped with each other, and a pair of leg portions 15B, 15B curved inwardly as shown in the drawings are formed in the under crotch areas of the side flaps 15, 15.

In the disposable diaper 1 of this embodiment, as is shown in a spread-out state in FIG. 7, the back side waist portions 15A, 15A of the above-mentioned pair of side flaps 15, 15 are provided with lateral split portions 113, 113, respectively, so that the waist portions 15A, 15A in the pair of side flaps 15, 15 are divided into two side flap elements 15A₁, 15A₂, respectively. On the other hand, the stomach side waist portions 15C, 15C of the above-mentioned pair of side flaps 15, 15 are also provided with similar lateral split portions 114, 114, so that the pair of side flaps 15C, 15C are divided into two side flap elements 15C₁, 15C₂, respectively. The back side opposed side flap elements 15A₁, 15A₁ and the stomach side opposed side flap elements 15C₁, 15C₁, which are located on the side of the leg portions 15B, 15B, are connected to each other at the respective connected portions 15D, 15D to form a waist opening portion 111 and a pair of leg opening portions 112, 112 (see FIG. 6).

Furthermore, it is preferable in view of function that elastic expansible members 115, 115 are disposed on the entirety of the respective side flap elements 15A₁, 15A₂, and elasticity is provided to the respective side flap elements 15A₁, 15A₂ so that the respective side flap elements 15A₁, 15A₂ can be independently expanded and contracted, the elastic expansible members 115, 115 being expanded or constructed in the width direction when the wearer wears the disposable diaper. Also, as

the connected and fixed side flaps 15A₁, 15C₁ are preferably designed such as to be able to be torn in the vertical direction, so that the skin of the wearer is not dirtied, the disposable diaper can easily be torn at the connected portions 15D, 15D, and the disposable diaper 1 can easily be taken off and disposed of. The elastic expansible member 115 is preferably provided to the entire length in the extending direction of the side flaps 15A₁, 15A₂ and to at least a part thereof in the width direction.

Furthermore, it is preferable that the connected portions 15D, 15D use a raw material able to be connected by, for example, hot melt adhesive or ultrasonic welding and these portions 15D, 15D are soft in touch even after being connected (welded). The length of each of the connected portions 15D, 15D is preferably 2 to 100 mm and more preferably 15 to 50 mm.

Furthermore, the flaps 15E, 15E extending outwardly in the width direction are connected with the side edges of the pair of back side non-connected side flap elements 15A₂, 15A₂, the respective extending flaps 15E, 15E are provided with fastener means (tape fasteners) 16, 16, and the tape fasteners 16, 16 are fastened to the areas-to-be-fastened 18, 18 formed on both side edges of the stomach side waist body portion 17 to have the wearer wear the disposable diaper. The length of the tape fastener 16 is preferable equal to or shorter in viscous surface than the extending length of the extending flap 15E. The tape fastener 16 is preferably a pressure sensitive adhesive tape, the tape fastener 16 preferably has strength enough not to be peeled off the area-to-be-fastened 18 when the wearer wears the disposable diaper and the strength is preferably at least 600 to 3000 g and more preferably 1000 to 2000 g per inch in width when it is pulled in the horizontal direction in plane. Also, the tape fastener 16 preferably has expansibility. By using a tape fastener 16 having such expansibility, the disposable diaper 1 can easily put on the wearer and the fastening force of the tape fastener 16 can be adjusted. The raw material of the tape having such expansibility is preferably an elastic member expansible 30 to 400% with a tensile force of 1000 to 1500 g/cm, and in order to obtain effective fitness to the waist portion of the wearer, the permanent distortion of the elastic member, when expanded 100%, is preferably 30% or less. The extending length of the extending flap 15E is preferably 5 to 100 mm and more preferably 25 to 50 mm.

Furthermore, the disposable diaper 1 of this embodiment is formed at an under crotch area thereof in a twisted hourglass shape, and the top sheet 2 and back sheet 3 are also curved in the under crotch area in conformity with the configuration of the absorbent member 4 as mentioned above. The side flaps 15, 15 are provided at the leg portions 15B, 15B with elastic expansible members 19, 19 stretched between the sheets 2 and 3 in the curved states as shown in FIG. 7. These elastic expansible members 19, 19 are contracted in the free states to form leg gathers so as to be well fitted to the under crotch area as shown in FIG. 6. Two or more tape fasteners 16 may be provided to each of the extending flaps 15E, 15E, respectively.

The component materials of a diaper such as top sheet 2, back sheet 3, absorbent member 4, elastic member and the like which are used in this embodiment and in the embodiment(s) to be described hereinafter are the same used in the corresponding parts of the embodiment shown in FIG. 2. The elastic expansible member

115 is preferably of non-woven fabric type having expansibility and breathability.

Since the disposable diaper 1 of this embodiment has above-mentioned construction, as shown in FIG. 8, the tape fasteners 16, 16, when wearing, are spread side-wardly to widen the a waist opening portion 111 first, then the elastic expansible member 115 is expanded in the connected side flaps 15A₁, 15C₁ and the legs of the infant are inserted into leg opening portions 112, 112, and thereafter non-connected extending flaps 15E, 15E at both side portions of the waist portions 17, 17 are pulled nearer to overlap the extending flaps 15E, 15E at stomach side side flap elements 15C₂, 15C₂, and then the tape fasteners 16, 16 are fastened to the areas-to-be-fastened 18, 18.

Therefore, according to the disposable diaper 1 of this embodiment, simply by fastening the tape fasteners 16, 16 to the stomach side areas-to-be-fastened 18, 18 after the wearer's legs are inserted into the leg opening portions 112, 112 through the waist opening portion 111 loosened at an upper end thereof by two pairs of non-connected side flap elements 15A₂, 15C₂, the disposable diaper 1 of this embodiment can be put on the wearer. Since the waist opening portion 111 and the leg opening portions 112, 112 are wide and these opening portions 111, 112 have sufficient room at a stage before the tape fasteners 16, 16 are fastened, the disposable diaper 1 can easily be put on the wearer without compelling the wearer to keep an awkward attitude. Also, even when the wearer is moving actively in such a manner as to flutter the legs hard, the disposable diaper can easily be put on the wearer simply by inserting the legs through the widened waist opening portion 111, and after the disposable diaper is put on the wearer, the entire periphery of the leg portion starting from elastic expansible members 19, 19 forming the entire periphery of the leg portions 15B, 15B and ending at the side flap elements 15A₁, 15A₁ exhibits independent expansibility from the entire periphery of the waist portions starting from the tape fasteners 16, 16 and ending at the waist flap via the side flap elements 15A₂, 15A₂, thereby ensuring sealing performance at the leg portions. It is noted that a disposable diaper in which the entirety of the diaper or a part thereof starting from the waist opening portions at both sides and ending at the leg opening portions are formed of a same elastic expansible member is already commercially available. However, since such type of a disposable diaper is integral in the elastic expansible member from the waist opening portion to the leg opening portions, the expanding and contracting force of the leg portions caused by movement of the legs such as walking is transmitted to the waist portions to enhance slipping-off of the disposable diaper or otherwise, the dimension about the waist portions is changed owing to change in the wearer's attitude and this change is transmitted to the leg portions to enhance slipping-off of the disposable diaper. In the disposable diaper 1 of this embodiment, however, since expanding forces of the waist portions and leg portions function independently, it does not have the above-mentioned inconvenience. Moreover, by using different raw materials having different expanding forces to the respective elastic expansible members 115, 115 for the side flap element 15A₁ on the leg opening portion side and for the side flap element 15A₂ on the waist opening portion side, fitness of the disposable diaper 1 can be obtained in its best mode.

Furthermore, in the disposable diaper 1 of this embodiment, since the inside of the disposable diaper 1 can

easily be recognized from outside by unfastening the tape fasteners 16, 16 from the areas-to-be-fastened 18, 18 and the connected and fixed side flaps 15A₁, 15C₁ can easily be torn in the vertical direction, the disposable diaper 1 is not required to be pulled down to the feet when the disposable diaper 1 is taken off. As a result, there is no fear that the wearer's clothing is dirtied with waste materials discharged. Also, the disposable diaper 1 containing waste materials already discharged therein can be wrapped up with the diaper and fastened with the tape fasteners for immediate disposal.

FIG. 9 is a view showing another embodiment of the present invention. In the disposable diaper 1 of this embodiment, the side flap elements 15A₁, 15A₂ on the back side are longer in the width direction than those of the above-mentioned embodiment, while the side flaps 15C, 15C on the stomach side integrally extend less without forming split portions in the width direction from both side edges of the absorbent member 4. That is, the total length of the length in the width direction of the side flap element 15A₁ on the back side and the length in the width direction of the side flap 15C on the stomach side is approximately equal to the total length of the length in the width direction of the side flap element 15A₁ on the back side in the above-mentioned embodiment and the length in the width direction of the side flap element 15C on the stomach side therein. And the side flap elements 15A₁, 15A₁ on the side of the leg portions 15B, 15B are connected with the narrow side flaps 15C, 15C on the stomach side, respectively. The elastic expansible members 115, 115 for providing expansibility to the respective side flap elements 15A₁, 15A₂ are preferably formed over the entire length in the extending direction thereof and in at least a part in the width direction thereof. The width is preferably 5 to 150 mm and more preferably 30 to 80 mm. The absorbent member 4 is formed wide in a hip portion thereof and the remaining portion thereof has the same width. Two strip-like elastic expansible members 19 are disposed along both side edges of the absorbent member 4, respectively. An area-to-be-fastened 18 is formed over the entirety of the stomach side waist body portion 17. The disposable diaper 1 of this embodiment may also be designed such that the side flaps 15C, 15C on the stomach side are omitted and the side flap element 15A₁ on the back side is directly attached to the back sheet 3 and/or top sheet 2 located at the side edges of the absorbent member 4. Accordingly, the disposable diaper 1 of this embodiment exhibits the similar function and effect as in the disposable diaper 1 of the above-mentioned embodiment.

FIG. 10 shows still another embodiment of a disposable diaper of the present invention. In the disposable diaper 1 of this embodiment, the side flap 15A on the back side is divided into three portions. The extending flaps 15E, 15E of the side flap elements 15A₁, 15A₃ on the side of the leg opening portion 112 and on the side of the waist opening portion 111 are provided with tape fasteners 16A, 16B, respectively. The connected portion 15D of the central side flap element 15A₂ is connected and fixed to the connected portion 15D on the stomach side of the waist portion. Each of the side flap elements 15A₁, 15A₂ and 15A₃ is formed of elastic expansible member having breathability. Particularly, the side flap element 15A₃ on the side of the waist opening portion 111 is formed by extending an elastic expansible member of a waist gather. All the remaining parts are constructed in the same manner as the above-mentioned

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embodiments. Accordingly, the disposable diaper 1 of this embodiment also exhibit the similar function and effect as in the disposable diaper 1 of the above-mentioned embodiments. In addition, since two pairs of tape fasteners are provided to the disposable diaper 1 of this embodiment, the fastening portion is long and thus suitable when used for adults and incontinent persons.

The disposable diaper 1 of this embodiment suffices if at least the waist portions on the back side of the pair of side flaps are provided with split portions in the width direction, respectively so that the waist portions are divided into at least two side flap elements, at least a pair of side flap elements being connected and fixed to the waist portion on the stomach side to form a waist opening portion and a pair of leg opening portions, the non-connected side flap elements being provided with faster means respectively. Particularly, for the use of infants, the side flap elements located on the leg portion side are preferably connected, and for the use of adults, the side flaps are preferably divided into three parts and two pairs of tape fasteners are provided thereto because such designed disposable diaper properly fits to the length of the wearer's body and a favorable feel of fitness is available. It is noted, however, that the number of split portions, the number of fastener means, the length of the side flap elements, etc. are not limited to the above-mentioned embodiments as long as they do not jeopardize the function of the disposable diaper.

What is claimed is:

1. An underpants type disposable diaper comprising an integrated sheet, said integrated sheet including a liquid permeable top sheet, a liquid impermeable back sheet, and an absorbent member having a periphery, said absorbent member being disposed between said top sheet and said back sheet, said integrated sheet having a front waist body portion and a rear waist body portion and first and second side portions, each of said side portions having a concave section, said front waist body portion and said rear waist body portion each having a first waist flap and a second waist flap, each of said first waist flaps and said second waist flaps having a first portion and a second portion, each said first portion of said first waist flaps being fixedly interjoined by a manually tearable pre-connected portion to form a first joint and each said first portion of said second waist flaps being fixedly interjoined by a manually tearable pre-connected portion to form a second joint such that a pair of leg opening portions and a waist opening portion are formed, each of said first and second joints being separable by tearing along a longitudinal axis thereof, respectively, a plurality of elastic expansible members for forming a gather adjacent to the periphery of said absorbent member at each of said leg opening portions, one of each said second portion of said first and second waist flaps containing first and second connection means, respectively, for removably connecting each of said first waist flaps together and each of said second waist flaps together, respectively.

2. The disposable diaper as claimed in claim 1, wherein said plurality of elastic expansible members include a pair of leg opening elastic expansible members, one of said pair of leg opening elastic expansible members being disposed adjacent each said concave section.

3. The disposable diaper as claimed in claim 1, wherein said first and second connection means are disposed adjacent said waist opening portion on said

second portions of said first waist flaps and said second portions of said second waist flaps, respectively.

4. The disposable diaper as claimed in claim 1, wherein each of said first portions of said first waist flaps and of said second waist flaps are adjacent to one of said pair of leg opening portions, respectively.

5. The disposable diaper as claimed in claim 1, wherein each of said first portions of said first waist flaps and of said second waist flaps are adjacent to said waist opening portion.

6. A disposable diaper comprising an integrated sheet, said integrated sheet including a liquid permeable top sheet, a liquid impermeable back sheet, and an absorbent member, said absorbent member being disposed between said top sheet and said back sheet, said integrated sheet having a front waist body portion, a rear waist body portion and first and second side portions, each of said side portions having a concave section, said front waist body portion having a first front waist flap and a second front waist flap, and said rear waist body portion having a first rear waist flap and a second rear waist flap, each of said waist flaps being split apart into a first element and a second element, said second elements of said first front waist flap and of said first rear waist flap being interjoined by a manually tearable pre-connected portion to form a first joint and said second elements of said second front waist flap and of said second rear waist flap being interjoined by a manually tearable pre-connected portion to form a second joint such that a pair of leg opening portions and a waist opening portion are formed, each of said first and second joints being separable by tearing along a longitudinal axis thereof, respectively, and first and second fastener means for removably fastening said first elements of said first front waist flap and said first rear waist flap together, and said first elements of said second front waist flap and said second rear waist flap together, respectively.

7. The disposable diaper as claimed in claim 6, wherein each said first element includes an expansible portion.

8. The disposable diaper as claimed in claim 6, wherein each of said first and second elements include an expansible portion.

9. The disposable diaper as claimed in claim 6, wherein each of said fastener means includes an expansible portion.

10. The disposable diaper as claimed in claim 6, wherein each of said first front waist flap, said second front waist flap, said first rear waist flap and said second rear waist flap includes an elastic expansible member adapted to form a gather.

11. A pull-on type disposable diaper comprising:

an integrated sheet including a liquid permeable top sheet, a liquid impermeable back sheet, and an absorbent member disposed between said top sheet and said back sheet;

a front waist body portion, a rear waist body portion, and first and second side portions provided on said integrated sheet, each of said side portions having a concave section defining leg openings of said diaper;

a first longitudinally manually tearable pre-connected portion connecting each of said side portions of said integrated sheet together; and

a second selectively fastenable portion at each of said side portions of said integrated sheet;

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wherein said pull-on type disposable diaper is applied to a wearer in a pull on manner followed by fastening of said second selectively fastenable portion and removed from a wearer by releasing said second selectively fastenable portion and longitudinally tearing said pre-connected portion.

12. The pull-on type disposable diaper as claimed in claim 11, wherein said leg openings include a pair of leg opening elastic expansible members, one of said pair of leg opening elastic expansible members being disposed adjacent each said concave section.

13. The pull-on type disposable diaper as claimed in claim 11, wherein each of said front waist body portion and said rear waist body portion include an elastic expansible member adapted to form a gather.

14. The pull-on type disposable diaper as claimed in claim 11, wherein said tearable preconnected portion is positioned adjacent an upper edge of said pull-on diaper and coextensively with said second selectively fastenable portion.

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15. The pull-on type disposable diaper as claimed in claim 11, further including a slit portion formed at each of said first and second side portions from said leg openings to a height not greater than an upper edge of each of said first and second side portions.

16. The pull-on type disposable diaper as claimed in claim 11, wherein said first longitudinally tearable preconnected portions are laterally split from said second selectively fastenable portions.

17. The pull-on type disposable diaper as claimed in claim 11, wherein said first and second side portions are formed of an elastically expansible material.

18. The pull-on type disposable diaper as claimed in claim 11, wherein said tearable preconnected portion extends at least one-half a height of the side portion of the integrated sheet.

19. The pull-in type disposable diaper as claimed in claim 18, wherein said selectively fastenable portion is positioned above said tearable preconnected portion.

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US005817087A

United States Patent

Takabayashi et al.

[11] Patent Number: 5,817,087
[45] Date of Patent: Oct. 6, 1998

[54] SHORTS TYPE DISPOSABLE DIAPER

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[21] Appl. No.: 911,023

[22] Filed: Aug. 13, 1997

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Related U.S. Application Data

[63] Continuation of Ser. No. 656,362, filed as PCT/JP95/02022,
Oct. 4, 1995 published as WO96/11656, Apr. 25, 1996.

[30] Foreign Application Priority Data

Oct. 14, 1994 [JP] Japan 6-249762
Jan. 31, 1995 [JP] Japan 7-014577

[51] Int. Cl.⁵ A61F 13/15

[52] U.S. Cl. 604/385.2; 604/393

[58] Field of Search 604/385.2, 393,
604/396

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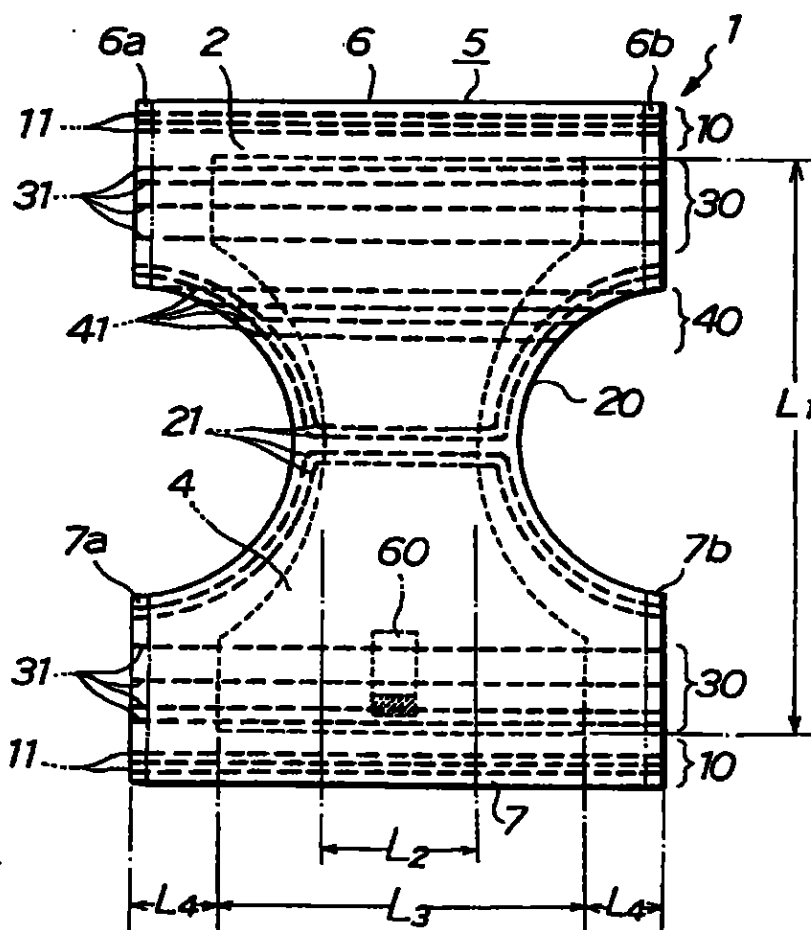
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6 Claims, 4 Drawing Sheets

[57] ABSTRACT

A shorts type disposable diaper comprising an absorbent body which comprises a liquid permeable topsheet, a liquid impermeable backsheet, and an absorbent member interposed between the topsheet and the backsheet, the absorbent body having a front waist body portion located on the stomach side of a diaper wearer when the diaper is worn and a rear waist body portion located on the back side of the wearer, the front and rear waist body portions being joined and sealed together at opposing lateral side edges thereof to form a waist opening portion and a pair of leg opening portions, characterized in that the topsheet and/or the backsheet have a mechanical strength of about 1,500 gf/50 mm or more in the longitudinal direction of the diaper.



4x2
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FIG. 1

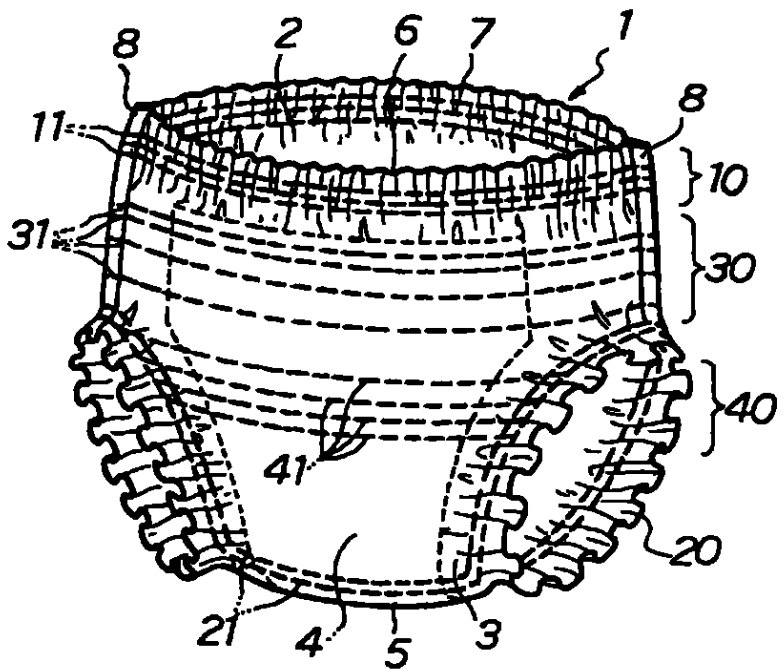
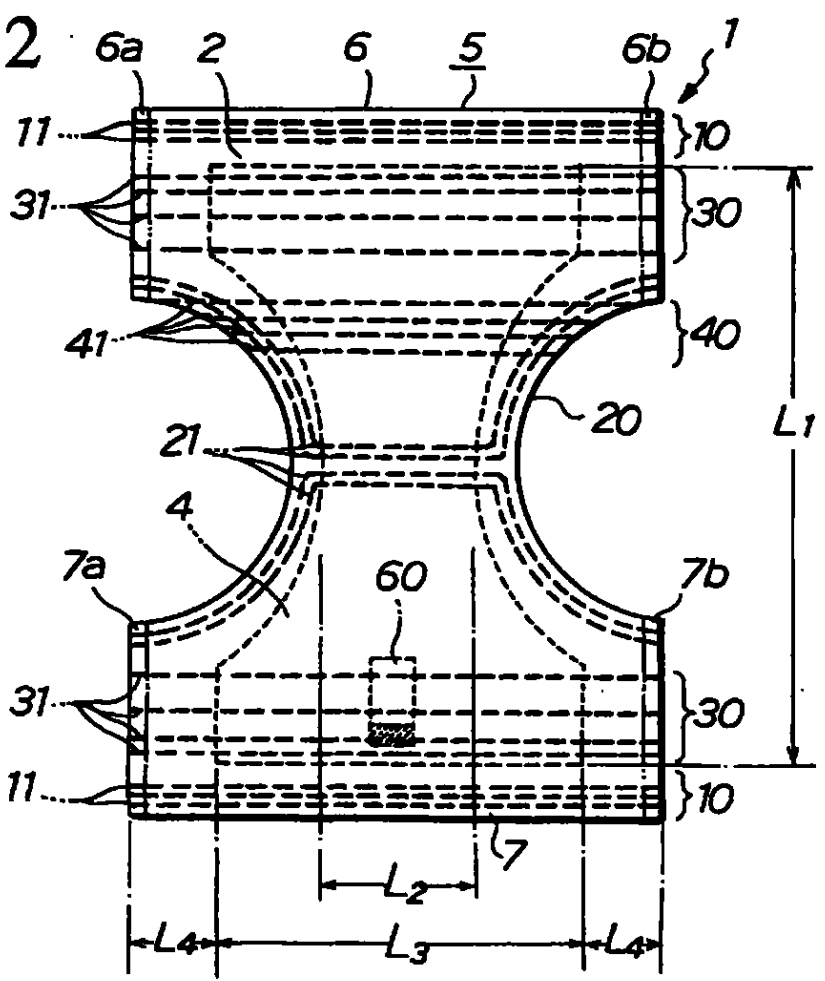
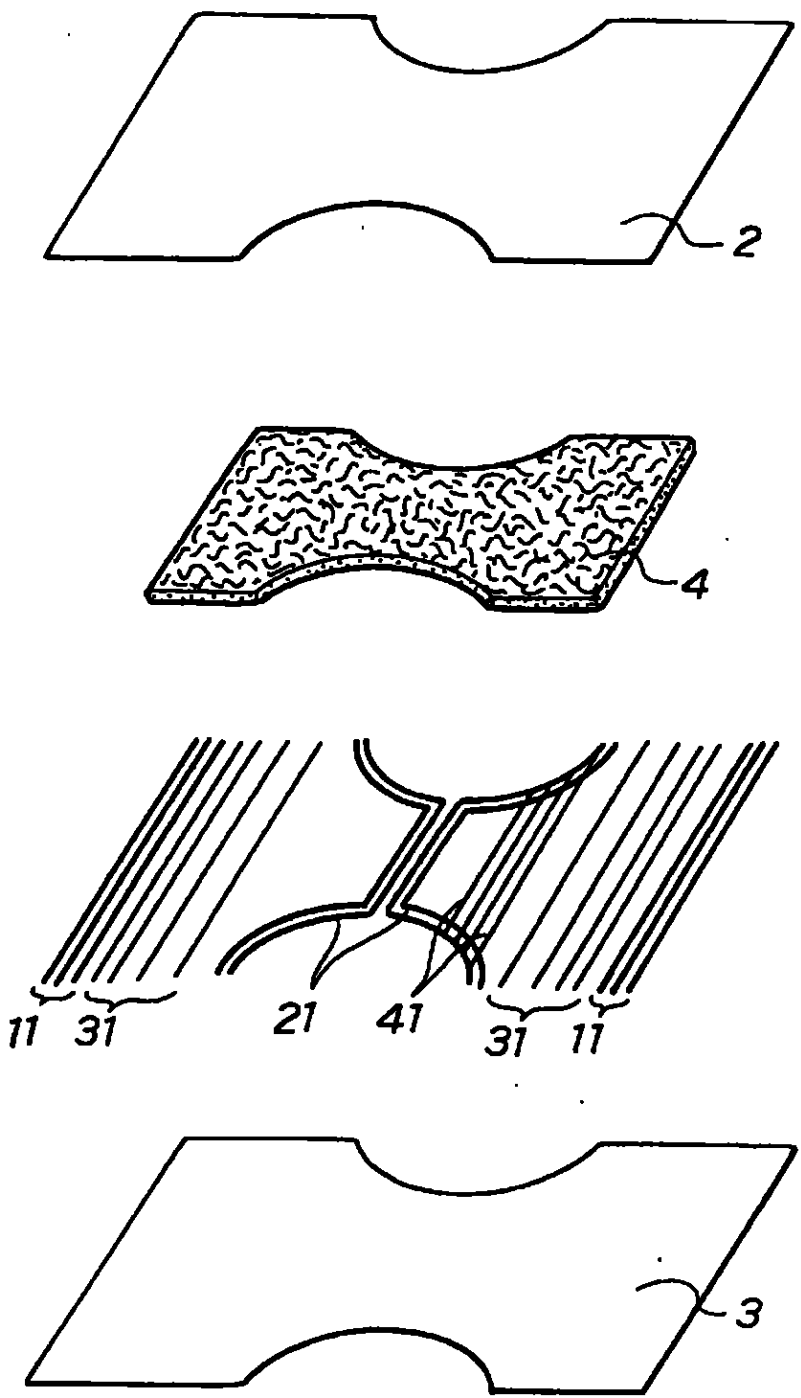


FIG. 2



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FIG. 3



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FIG. 4

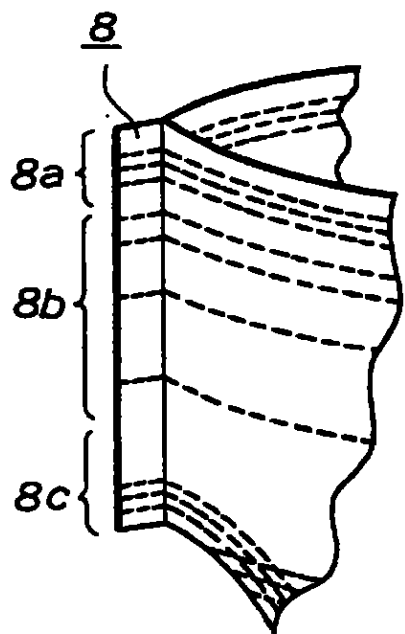
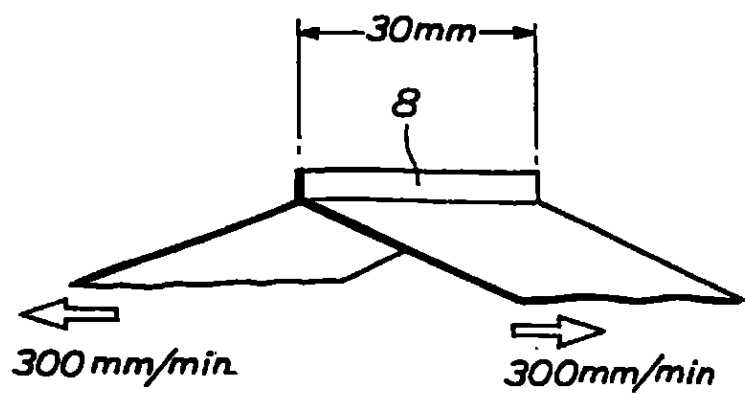
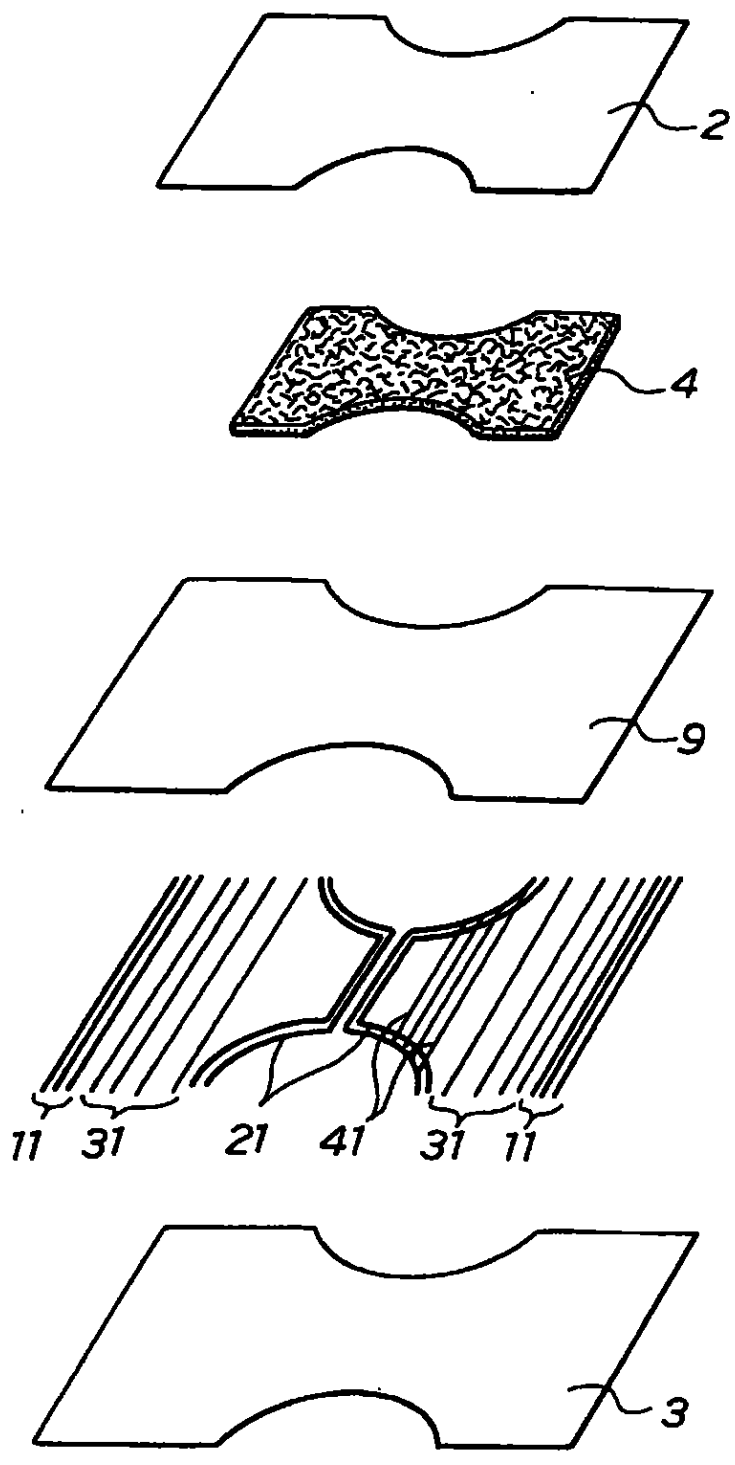


FIG. 5



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FIG. 6



SHORTS TYPE DISPOSABLE DIAPER

This application is a continuation of application Ser. No. 08/656,362 filed on Jun. 14, 1996, now abandoned.

This application claims the benefit of priority of International Application PCT/JP95/02022, filed Oct. 4, 1995 published as WO96/11656, Apr. 25, 1996.

TECHNICAL FIELD

This invention relates to a shorts type disposable diaper having a front waist body portion and a rear waist body portion joined together.

BACKGROUND ART

Recently there is an increasing demand for shorts type disposable diapers chiefly for babies who begin to walk.

This seems to be because a conventional flat type diaper is hard to fit whereas a shorts type diaper can be put on simply by pulling it up while a baby is standing, affording great convenience to mothers.

However, a shorts type diaper is inconvenient when it is removed from a wearer after solid waste materials are discharged.

That is, a flat type diaper can easily be removed after use, even after solid waste materials are discharged, by detaching a fastening tape. In order to remove a shorts type diaper, on the other hand, the front waist body portion and the rear waist body portion should be torn apart at the joint (as a matter of course, a shorts type diaper may be taken off by pulling it down, but it is very likely that the waste materials will get on the wearer's leg). It is desirable that the front and rear portions be firmly joined while a diaper is worn because force tends to concentrate in the joint portion. A problem of conventional shorts type diapers is that the strength of the joint portion is so high that a considerable force is needed to manually tear the joint apart (the first problem).

As another problem, when the joint is to be torn apart, the materials of the diaper are torn off in the width direction, resulting in a substantial failure to tear apart. Further, other materials such as an elastic member (e.g., a rubber band) remains un torn. If one tries to manually tear off the elastic member by force, the elastic member extended to its full length strikes against one's hand, hindering the manual tearing action (the second problem).

In order to solve these problems, a diaper in which the joint portion has a specific seal pattern has been proposed in Japanese Utility Model Application Laid-Open 6-31721. According to this technique, a solution to the above-described first problem is provided, but the second problem still remains unsolved. Besides, the proposed seal pattern is complicated and makes the manufacturing process control laborious. It has also been proposed to specify the strength of the joint portion as an approach to the solution of the first problem, but neither does this proposal solve the second problem.

It has been proposed to perforate the side of the sealed part so as to improve tearability in a broad sense as disclosed in Japanese Utility Model Laid Open 1-141711. According to this proposal, although tearability is surely improved, there are some cases in which the diaper is torn at the perforations and removed from a wearer during use.

Under these circumstances, a technique which solves both of the above-described first and second problems has not yet been proposed, and such a technique has been desired.

DISCLOSURE OF THE INVENTION

It is therefore an object of the present invention to provide a shorts type disposable diaper which can easily be torn apart at the joint portion thereof and is therefore convenient for use.

The present invention provides a shorts type disposable diaper comprising an absorbent body which comprises a liquid permeable topsheet, a liquid impermeable backsheet, and an absorbent member interposed between the topsheet and the backsheet, the absorbent body having a front waist body portion located on the stomach side of a diaper wearer when the diaper is worn and a rear waist body portion located on the back side of the wearer, the front and rear waist body portions being joined and sealed together at opposing lateral side edges thereof to form a waist opening portion and a pair of leg opening portions, characterized in that the topsheet and/or the backsheet have a mechanical strength of 1,500 gf/50 mm or more in the longitudinal direction of the diaper (hereinafter referred to as a first invention), thereby achieving the above object of the present invention.

The present invention also provides a shorts type disposable diaper comprising an absorbent body which comprises a liquid permeable topsheet, a liquid impermeable backsheet, and an absorbent member interposed between the topsheet and the backsheet, the absorbent body having a front waist body portion located on the stomach side of a diaper wearer when the diaper is worn and a rear waist body portion located on the back side of the wearer, the front and rear waist body portions being joined and sealed together at opposing lateral side edges thereof to form a waist opening portion and a pair of leg opening portions, characterized in that said absorbent body has a covering sheet for covering elastic members, the covering sheet being disposed between the absorbent member and the backsheet; the opposing lateral side edges of each of said front and rear waist body portions are provided on the covering sheet and the backsheet; the opposing lateral side edges of each of said front and rear waist body portions are joined together in such a manner that opposing side edges of the covering sheet are brought into contact with each other; and either one of the covering sheet and the backsheet has a mechanical strength of 1,500 gf/50 mm or more in the longitudinal direction of the diaper (hereinafter referred to as a second invention), thereby achieving the above object of the present invention.

According to the present invention, at least one of the sheets constituting the joint portion formed by joining and sealing the opposing lateral side edges of the absorbent body has a high mechanical strength in the longitudinal direction of a diaper. Therefore, the diaper is not torn in the width direction when it is torn in a usual manner, and the joint portion of the diaper can easily be torn in the longitudinal direction.

Further scope of applicability of the present invention will become apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more fully understood from the detailed description given hereinbelow and the accompanying drawings which are given by way of illustration only, and thus are not limitative of the present invention, and wherein:

FIG. 1 is a perspective view of a shorts type disposable diaper according to the first invention.

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FIG. 2 is a plan view of the shorts type disposable diaper of FIG. 1 in an unfolded condition.

FIG. 3 is an exploded perspective view of the shorts type disposable diaper shown in FIG. 2 in an unfolded condition.

FIG. 4 is an enlarged perspective view of the joint portion 8 of the diaper shown in FIG. 1.

FIG. 5 is a schematic view illustrating the method of measuring the sealing strength of the joint portion 8.

FIG. 6 is an exploded perspective view (corresponding to FIG. 3) of a shorts type disposable diaper according to the second invention in an unfolded condition.

DETAILED DESCRIPTION OF THE INVENTION

Preferred embodiments of the present invention will be described in detail by referring to the accompanying drawings.

To begin with, an embodiment of the shorts type disposable diaper according to the first invention is illustrated with reference to FIGS. 1 through 5.

FIG. 1 is a perspective view of an embodiment of a shorts type disposable diaper of the first invention. FIG. 2 is a plan view of the shorts type disposable diaper shown in FIG. 1 in its unfolded condition. FIG. 3 is an exploded perspective view of the shorts type disposable diaper shown in FIG. 2 in its unfolded condition. FIG. 4 is an enlarged perspective view showing a joint portion of the diaper shown in FIG. 1. FIG. 5 is a schematic view illustrating the method of measuring the sealing strength of the joint portion.

The shorts type disposable diaper 1 of the embodiment shown in FIGS. 1 to 3 comprises an absorbent body 5 which comprises a liquid permeable topsheet 2, a liquid impermeable backsheet 3, and an absorbent member 4 interposed between the topsheet 2 and the backsheet 3. Opposing lateral side edges of a front waist body portion 6 corresponding to the front waist side of a wearer and those of a rear waist body portion 7 corresponding to the rear waist side of a wearer are joined and sealed together thereby forming a waist opening portion 10 and a pair of leg opening portions 20.

Going into details, the lateral side edge 6a of the front waist body portion 6 and the lateral side edge 7a of the rear waist body portion 7 are joined and sealed together, and the lateral side edge 6b of the front waist body portion 6 and the lateral side edge 7b of the rear waist body portion 7 are joined and sealed together to form the joint portions 8 on each side.

The elastic members 11 and 21 are provided on the entire circumference of the waist opening portion 10 and the pair of leg opening portions 20, respectively, to form substantially continuous gathers. Further, a plurality of elastic members 31 are provided at a body-surrounding portion 30 which is located between the waist opening portion 10 and the pair of leg opening portions 20 and at which the absorbent member 4 is provided, to thereby form substantially continuous gathers along the entire circumference of the body-surrounding portion 30.

The opposing lateral side edges of the front and the rear waist body portions 6 and 7 are each provided on the topsheet 2, the backsheet 3, and the elastic members 11, 21 and 31, and the corresponding side edges are joined and sealed together in such a manner that the corresponding side edges of the topsheet 2 are brought into contact with each other.

Three pieces of elastic members 11 are provided at the waist opening portion 10 of each of the front and rear waist

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body portions 6 and 7 at regular intervals. The elastic members 11 on the front waist body portion 6 and those on the rear waist body portion 7 are connected together by the above-mentioned joining and sealing to form substantially continuous gathers along the entire circumference of the waist opening portion 10.

Any of the elastic members conventionally employed in disposable diapers can be used as the elastic member 11 with no particular limitation. The elastic member 11 is a string or a band made of natural rubber, synthetic rubber, foamed polyurethane, etc. and is continuously joined to the topsheet 2 and the backsheet 3. In this embodiment, an elastic member of band form is used. The elongation of the elastic member preferably ranges from 80% to 140%. The term "elongation" as used herein has such a definition that when an elastic member having a length of e.g., 10 cm can be extended to 20 cm, that is, twice its own length, the elongation is 100%.

Two elastic members 21 are provided at the leg opening portions 20 of each of the front and rear waist body portions 6 and 7 at regular intervals. The elastic members 21 on the front waist body portion 6 and those on the rear waist body portion 7 each cross the absorbent member at the crotch portion of the diaper and are connected together by the above-mentioned joining and sealing to form substantially continuous gathers along the entire circumference of the leg opening portions 20.

Any of the elastic members conventionally employed in disposable diapers can be used as the elastic member 21 with no particular limitation. The elastic member 21 is a string or a band made of natural rubber, synthetic rubber, foamed polyurethane, etc. and is continuously joined to each of the topsheet 2 and the backsheet 3. In this embodiment, an elastic member of string form is used. The elongation of the elastic member 21 preferably ranges from 60% to 100%.

Four pieces of the elastic members 31 are provided at the body-surrounding portions 30 of each of the front and rear waist body portions 6 and 7 in such a manner that the interval of the elastic members becomes narrower towards the waist opening portion 10. The elastic members 31 on the front waist body portion 6 and those on the rear waist body portion 7 are connected by the aforesaid joining and sealing to form substantially continuous gathers along the entire circumference of the body-surrounding portion 30.

Any of the elastic members conventionally employed in disposable diapers can be used as the elastic member 31 with no particular limitation. The elastic member 31 preferably has a string form and an elongation of from 80% to 120%.

It is preferable that the elongation of elastic member 31 increases as it approaches the waist opening portion 10. The rate of increase in elongation is preferably about 40%.

As shown in FIGS. 1 and 2, the shorts type disposable diaper 1 according to this embodiment has four elastic members 41 arranged at regular intervals in the urination point 40 located below the body-surrounding portion 30 and in the vicinity of the urination portion of a wearer, to thereby form continuous gathers in the width direction of the diaper.

The term "in the vicinity of the urination portion" as referred to above means the portion corresponding to the urination portion of a wearer and the surrounding portions thereof. Specifically, it means the crotch portion of the front waist body portion 6 which is located between the pair of leg opening portions 20.

The topsheet 2, the backsheet 3, and the absorbent member 4 each has a sandglass shape with its central portion narrowed. These members can be fabricated of the following materials.

The topsheet 2 is made of a liquid permeable sheet which transmits excretions to the absorbent member 4 and preferably feels like underwear. Such a liquid permeable sheet preferably includes woven fabric, nonwoven fabric, and porous film. Leakage of urine, etc. due to oozing from the periphery of the topsheet 2 can be prevented by a water-repellent treatment comprising coating the peripheral portion of the topsheet 2 with a hydrophobic compound such as silicone oil and paraffin wax or once coating the entire surface of the topsheet 2 with a hydrophilic compound such as an alkyl phosphate and then washing the peripheral portion with warm water.

In this embodiment, nonwoven fabric having a mechanical strength of about 3500 gf/50 mm in the longitudinal direction of the diaper and of about 1500 gf/50 mm in the width direction of the diaper was used as the topsheet 2. That is, the longitudinal direction of continuous nonwoven web corresponds to the width direction of the diaper, and the width direction of the web to the longitudinal direction of the diaper.

A liquid impermeable and vapor permeable sheet obtained by stretching a filler-containing thermoplastic resin film is preferably used as the backsheet 3. Materials having a feeling close to underwear, such as a composite material composed of a film and nonwoven fabric or a composite material of a film and woven fabric, are used.

In this embodiment, a composite material composed of a film and nonwoven fabric and having a mechanical strength of about 3000 gf/50 mm in the longitudinal direction of the diaper and of about 600 gf/50 mm in the width direction of the diaper is used. That is, the longitudinal direction of continuous nonwoven web corresponds to the width direction of the diaper, and the width direction of the web to the longitudinal direction of the diaper.

The mechanical strength as referred to above is the maximum value as measured in accordance with JIS (Japanese Industrial Standard) L1096 6.12 at a distance of 150 mm between chucks.

A combination comprising comminuted pulp as a main component and an absorbent polymer is preferably used as a material of the absorbent member 4. Additionally, a heat-treated mixture of a thermoplastic resin, cellulose fiber and an absorbent polymer is also preferred. The absorbent polymer may be present in any of the upper, middle and lower layers of the absorbent member 4 and may be present as an admixture with pulp. The absorbent polymers preferably include those capable of absorbing and retaining 20 or more times its own weight of liquid and gelling on liquid absorption. Such absorbent polymers include a saponified starch-acrylic acid (or a salt thereof) graft copolymer, crosslinked sodium carboxymethyl cellulose, and an acrylic acid (or a salt thereof) polymer.

The absorbent member 4 preferably has the longitudinal length L1 of about 300 to about 600 mm (about 430 mm in this embodiment), the narrowest width L2 of about 80 to about 110 mm (about 100 mm in this embodiment), and the broadest width L3 of about 120 to about 350 mm (about 200 mm in this embodiment) in the opposing front and rear waist sides. The side flap of the diaper which extends from each side of the absorbent member 4 preferably has a width (L4) of about 10 to about 150 mm (about 90 mm in this embodiment).

As shown in FIG. 2, a fastening tape 60 for disposal is provided on the outer surface of the rear waist body portion 7. A used diaper can be disposed hygienically by means of the fastening tape 60.

The joint portion 8 is formed by a known sealing technique, such as ultrasonic sealing, heat sealing or radiofrequency sealing. In this embodiment, heat sealing is adopted.

Thus, the topsheet 2 and/or the backsheet 3 in shorts type disposable diaper 1 according to this embodiment have a mechanical strength of about 1500 gf/50 mm or more, preferably from about 2000 to 4500 gf/50 mm, in the longitudinal direction of the diaper. In this embodiment, the strength of the topsheet in the longitudinal direction is 3500 gf/50 mm, and that of the backsheet is 3000 gf/50 mm.

If the strength were less than 1500 gf/50 mm, when the joint portion 8 is torn apart in the longitudinal direction for disposal, a tear would initiate in the width direction of the diaper, making the manual tearing action difficult.

The mechanical strength as referred to above is the maximum value as measured in accordance with JIS (Japanese Industrial Standard) L1096 6.12 at a distance of 150 mm between chucks.

The joint portion 8 is roughly divided into three parts according to the gathers, i.e., a waist gathers part 8a, a body-surrounding part 8b, and a leg gathers part 8c as illustrated in FIG. 4. There is a possibility that these three parts are different in sealing strength, even sealed under the same conditions.

The parts 8a, 8b, and 8c each preferably have a sealing strength of not less than about 1000 gf/30 mm, still preferably from about 1000 to 3000 gf/30 mm, and particularly preferably from about 1500 to 2000 gf/30 mm, as measured as follows. The joint portion 8 is crosswise cut into 30 mm wide strips, and each strip is pulled in the directions indicated by arrows in FIG. 5, i.e., at a peel angle of 180°, at a pulling speed of 300 mm/min. The maximum force in the pulling is measured. In this embodiment, the above-mentioned three parts all have a sealing strength of about 1800 gf/30 mm in average.

That is, in the present invention, the sealing strength of opposing lateral side edge of the diaper forming the joint portion 8 is preferably about 1000 gf/30 mm or more.

If the sealing strength in each part exceeds 3000 gf/30 mm, it may be practically difficult to manually tear apart the joint portion 8. If it is less than 1000 gf/30 mm, the joint portion 8 may tend to be torn while the diaper is worn. Therefore, it is preferable that the sealing strength falls within the above-recited range.

Because of the above-mentioned structure, the shorts type disposable diaper of this embodiment does not suffer tearing at the joint portion 8 during use and is easy to manually tear apart at the joint portion 8 when it is to be removed from a wearer and disposed. When the joint portion 8 is torn apart, the material constituting the diaper does not undergo tearing in the width direction (at a right angle with the tearing direction).

While the embodiment of the first invention has been described with reference to a particular structure in which both the topsheet and the backsheet have a mechanical strength falling within the above-described specific range, any structure will do so long as either one of the topsheet and the backsheet satisfies the above requirement of mechanical strength.

Further, while the embodiment of the first invention has been described with reference to a particular structure in which each of the side edges is formed of two sheets, the topsheet and the backsheet, the side edges may be formed of either one of the topsheet and the backsheet and another

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compliant sheet. In other words, each of the side edges of the shorts type disposable diaper of the present invention may be formed of two sheets including at least the topsheet and/or the backsheet. At least one of the topsheet and the backsheet forming each side edge should satisfy the afore-
 said strength requirement in the longitudinal direction of the
 diaper. It is preferable that the joint portion 8 at which the
 two sheets are joined and sealed has a sealing strength of
 about 1000 gf/30 mm or more.

A preferred embodiment of the second invention will be illustrated with reference to FIG. 6.

FIG. 6 is an exploded perspective view of a shorts type disposable diaper according to the second invention in an unfolded condition (corresponding to FIG. 3). Unless particularly described in detail, the explanation given to the embodiment of the first invention applies to the following embodiment appropriately.

Similarly to the embodiment of the first invention shown in FIGS. 1 and 2, a shorts type disposable diaper 1 of this embodiment comprises an absorbent body 5 which comprises a liquid permeable topsheet 2, a liquid impermeable backsheet 3, and an absorbent member 4 interposed therebetween. Opposing lateral side edges of a front waist body portion 6 corresponding to the front waist side of a wearer and those of a rear waist body portion 7 corresponding to the rear waist side of a wearer are joined and sealed together thereby forming a waist opening portion 10 and a pair of leg opening portions 20.

The side edges 6a and 6b are joined and sealed with the side edge 7a and 7b, respectively, to form joint portions 8 on each side of the diaper. The elastic members 11 and 21 are provided on the entire circumference of the waist opening portion 10 and the pair of leg opening portions 20, respectively, to form substantially continuous gathers. Further, a plurality of elastic members 31 are provided at a body-surrounding portion 30 which is located between the waist opening portion 10 and the pair of leg opening portions 20 and at which the absorbent member 4 is located, to thereby form substantially continuous gathers along the entire circumference of the body-surrounding portion 30.

The above-mentioned structure is the same as in the embodiment of the first invention.

In the embodiment of the second invention shown in FIG. 6, the topsheet 2 is made smaller than the backsheet 3 and the covering sheet 9 covering the elastic members, being sized just enough to cover the absorbent member 4. Similarly to the embodiment of the first invention, a fastening tape 60 which may be used at the time of disposal is provided on the outer surface of the backsheet 3 of the rear waist body portion 7. When a used diaper, particularly after the solid waste materials are discharged, is disposed, the diaper can be folded or rolled up and fastened with the fastening tape 60.

In the shorts type disposable diaper 1 of the second invention shown in FIG. 6, the absorbent body 5 has a covering sheet 9 for the elastic members which is disposed between the absorbent member 4 and the backsheet 3, and the opposing lateral side edges of the front and rear waist body portions 6 and 7 comprise the covering sheet 9 for the elastic members, a backsheet 3, and elastic members 11, 21, and 31. The lateral side edges are joined and sealed together in such a manner that the lateral side edges of the covering sheet of the front waist body portion 6 and the corresponding lateral side edges of the covering sheet of the rear waist body portion 7 are brought into contact with each other.

The elastic members 11, 21, 31, and 41 are each sandwiched and fixed between the covering sheet 9 and the backsheet 3.

In the shorts type disposable diaper according to the present invention, at least one of the covering sheet 9 and the backsheet 3 has a mechanical strength of about 1,500 gf/50 mm or more, preferably from about 2000 to 5000 gf/50 mm, in the longitudinal direction of the diaper.

If the strength were less than 1500 gf/50 mm, when the joint portion 8 is torn apart in the longitudinal direction for disposal, a tear would initiate in the width direction of the diaper, making the manual tearing action difficult.

The covering sheet 9 for the elastic members preferably comprises nonwoven fabric, etc. which has water repellency and air permeability and feels like underwear. The covering sheet 9 for the elastic members preferably has a mechanical strength of about 4000 gf/50 mm or more, still preferably from about 4500 to 8500 gf/50 mm, in the width direction of the diaper (in the machine direction of the nonwoven fabric web forming the covering sheet) and of from about 2000 to 5000 gf/50 mm in the longitudinal direction of the diaper (in the width direction of the nonwoven fabric web forming the covering sheet).

In this embodiment, nonwoven fabric which has not been rendered hydrophobic is used as the covering sheet. The strength of the nonwoven fabric is about 3000 gf/50 mm in the longitudinal direction of the diaper (in the width direction of the nonwoven fabric web) and is about 5000 gf/50 mm in the width direction of the diaper (in the machine direction of the nonwoven fabric web). That is, continuous nonwoven web is used as the covering sheet 9 with its longitudinal direction as a width direction of the diaper and its width direction as a longitudinal direction of the diaper.

In this embodiment, nonwoven fabric is used as the topsheet 2. The nonwoven fabric has a mechanical strength of about 600 gf/50 mm in the longitudinal direction and of about 2500 gf/50 mm in the width direction. A composite material composed of a film and nonwoven fabric is used as the backsheet 3. The nonwoven fabric of the composite material has a mechanical strength of about 600 gf/50 mm in the longitudinal direction and about 2500 gf/50 mm in the width direction, and the composite material has a mechanical strength of about 600 gf/50 mm in the longitudinal direction and about 3000 gf/50 mm in the width direction.

In this embodiment, the opposing lateral side edges of the diaper forming the joint portion 8 has a sealing strength of about 1000 gf/30 mm in average in each of the above-mentioned three parts.

Also in the shorts type disposable diaper of this embodiment, the similar advantageous effects to those obtained in the embodiment of the first invention can be produced. In addition, since the topsheet 2 and the covering sheet 9 for the elastic members are separately provided, it is feasible to provide a product having an excellent feeling when worn by fabricating the topsheet 2 of sheeting with good texture and fabricating, for example, the covering sheet 9 of sheeting having the above-described mechanical strength.

While the embodiment of the second invention has been described with reference to a particular structure in which only the covering sheet 9 for the elastic members has such a strength as falls within the above-described specific range, the present invention is not limited thereto. That is, the backsheet 3 may also be fabricated of a material having such a strength as falls within that range. Further, while the embodiment of the second invention has been described with a particular structure in which the joint portion 8 is composed of the covering sheet 9 and the backsheet 3, it may be composed of covering the sheet 9, the topsheet 2, and the

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backsheet 3. In this case, the topsheet 2 may also be fabricated of a material having such a strength as falls within the above-mentioned specific range. Other modifications can be made in the present invention without departing from the spirit and scope of the present invention.

Industrial Applicability

The shorts type disposable diaper according to the present invention can easily be torn apart at the joint portion thereof and is therefore convenient for use.

The invention being thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art were intended to be included within the scope of the following claims.

We claim:

1. A shorts type disposable diaper comprising an absorbent body which comprises a liquid permeable topsheet, a liquid impermeable backsheet, an absorbent member interposed between the topsheet and the backsheet, the absorbent body having a front waist body portion located on the stomach side of a diaper wearer when the diaper is worn and a rear waist body portion located on the back side of the wearer, the front and rear waist body portions being joined and sealed together at opposing lateral side edges thereof to form a waist opening portion and a pair of leg opening portions, the topsheet and/or the backsheet have a mechanical strength of about 1,500 gf/50 mm or more in the longitudinal direction of the diaper, the opposing lateral side edges of the front and rear waist body portions to be sealed together are provided on at least two sheets including the topsheet and/or the back-sheet to form a joint portion, a maximum force is measured in such a manner that the joint portion is crosswise cut into 30 mm wide strips, and each strip is pulled at a peel angle of 180° at a pulling speed of 300 mm/min, wherein the sealing strength at the opposing lateral side edges of the joint portion is about 1,000 gf/30 mm or more, said joint portion being able to be torn in the longitudinal direction between said waist opening portion and said leg opening portion without tearing occurring in the width direction of the diaper.

2. The shorts type disposable diaper according to claim 1, wherein each of the waist opening portion and the pair of leg opening portions is provided with an elastic member which forms substantially continuous gathers along the entire circumference of the waist opening portion and the leg opening portions.

3. The shorts type disposable diaper according to claim 1, wherein a plurality of elastic members are provided at a

body-surrounding portion which is located between the waist opening portion and the pair of leg opening portions and at which the absorbent member is provided, forming substantially continuous gathers along the entire circumference of the body-surrounding portion.

4. A shorts type disposable diaper comprising an absorbent body which comprises a liquid permeable topsheet, a liquid impermeable backsheet, and an absorbent member interposed between the topsheet and the backsheet, the absorbent body having a front waist body portion located on the stomach side of a diaper wearer when the diaper is worn and a rear waist body portion located on the back side of the wearer, the front and rear waist body portions being joined and sealed together at opposing lateral side edges thereof to form a waist opening portion and a pair of leg opening portions, the absorbent body has a covering sheet for covering elastic members, the covering sheet being disposed between said absorbent member and said backsheet, the opposing lateral side edges of the front and rear waist body portions are provided on said covering sheet and said backsheet, the opposing lateral side edges of the front and rear waist body portions are sealed together in such a manner that the covering sheet at the opposing lateral side edges is brought into contact with each other to form a joint portion, at least one of said covering sheet and said backsheet has a mechanical strength of about 1,500 gf/50 mm or more in the longitudinal direction of the diaper, a maximum force is measured in such a manner that the joint portion is crosswise cut into 30 mm wide strips, and each strip is pulled at a peel angle of 180° at a pulling speed of 300 mm/min, wherein the sealing strength at the opposing lateral side edges of the joint portion is about 1,000 gf/30 mm or more, said joint portion being able to be torn in the longitudinal direction between said waist opening portion and said leg opening portion without tearing occurring in the width direction of the diaper.

5. The shorts type disposable diaper according to claim 4, wherein each of the waist opening portion and the pair of leg opening portions is provided with an elastic member which forms substantially continuous gathers along the entire circumference of the waist opening portion and the leg opening portions.

6. The shorts type disposable diaper according to claim 4, wherein a plurality of elastic members are provided at a body-surrounding portion which is located between the waist opening portion and the pair of leg opening portions and at which the absorbent member is provided, forming substantially continuous gathers along the entire circumference of the body-surrounding portion.

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**SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIVISIÓN DE NUEVAS CREACIONES**

2020

Bogotá, D. C., 19 de Octubre de 2005

Doctor

RAMIRO CASTRO DUQUE

Representante **KIMBERLY - CLARK WORLDWIDE**

ASUNTO	Radicación No.	00-75405	---
	Trámite	002	
	Evento	001	
	Actuación	430	
	Oficio		0025
	Folios	034	

Como resultado del examen de fondo, realizado con fundamento en el artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le comunica

1) Documentos estudiados:

- a) Para el presente estudio se tendrán en cuenta el capítulo descriptivo, comprendido en los folios 5 a 33 de la solicitud en estudio.
- b) Para el presente estudio se tendrán en cuenta los dibujos comprendidos en los folios 56 a 65 de la solicitud en estudio.
- c) Para el presente estudio se tendrá en cuenta el capítulo reivindicatorio que comprende 20 reivindicaciones en los folios 70 a 76 de la solicitud en estudio.
- d) Conforme lo establece los artículos 9, 10 y 11 de la decisión 486 de la Comisión de la Comunidad Andina, la presente solicitud en estudio fue presentada el 4 de octubre de 2000, y en el momento de la radicación **NO** se reclamo prioridad alguna.

2) Objeto de la Invención

- a) Las reivindicaciones 1 a 20 de la solicitud en estudio se refieren a:
 - i) (1.-) Un artículo absorbente que comprende: a) una porción frontal que tiene un primer extremo y un segundo extremo; b) una porción de entrepierna unida en un extremo al segundo extremo de la porción frontal, la porción de entrepierna que tiene primer y segundo bordes laterales, y primer y segundo elásticos de entrepierna cada uno colocado adyacente a uno de los primer y segundo bordes laterales; c) una porción posterior unida a un extremo opuesto de la porción de entrepierna, la porción posterior que tiene un primer extremo, un segundo extremo, la porción posterior que está dividida en una primera sección y una segunda sección, la primera sección que es extensible en

una dirección transversal y que tiene una longitud L2 medida perpendicularmente desde el primer extremo de la porción posterior hasta una línea dirigida paralela a ella, la longitud L2 que es igual o mayor de 5,0 cm, y la segunda sección que tiene una longitud L3 medida perpendicularmente desde el segundo extremo hasta la línea dirigida paralela al primer extremo, la longitud L3 que es igual o mayor de 2,5 cm, la segunda sección que tiene un primer borde lateral y un segundo borde lateral y una primer área A3 y una segunda área A4, la primer área A3 que representa un área limitada por los primer y segundo bordes laterales, el segundo extremo y la línea dirigida paralela al primer extremo, la segunda área A4 que representa un área limitada por primera y segunda líneas, el segundo extremo y la línea dirigida paralela al primer extremo, las primera y segunda líneas que son dirigidas tangenciales a los primer y segundo elásticos de entrepierna en puntos donde los primer y segundo elásticos de entrepierna están colocados más cerca conjuntamente, la primera y segunda líneas que interceptan el segundo extremo y la línea dirigida paralela al primer extremo, y la segunda sección que tiene una relación A3/A4 que varía dentro del rango desde entre 1,5 hasta 5,0; d) primer y segundo sujetadores asegurados a la porción posterior; y e) un absorbente asegurado a por lo menos una de las porciones frontal, posterior o de entrepierna, y cada uno de los primer y segundo sujetadores que es agarrado en forma liberable a la porción frontal para formar un artículo similar a pantaloncito que tiene una abertura de cintura y un par de aberturas de piernas.

ii) (10.-) Un artículo absorbente que comprende...

iii) (15.-) Un artículo absorbente que comprende...

- b) Los anteriores productos buscan artículos absorbentes desechables más cómodos para los usuarios.
- c) Según la Clasificación Internacional de Patentes, la codificación para esta solicitud corresponde a: A 61F 13/15

3) Claridad de la Solicitud

- a) El artículo 30 de la Decisión 486 de la Comisión de la Comunidad Andina establece que

"Las reivindicaciones definirán la materia que se desea proteger mediante la patente. Deben ser claras y concisas y estar enteramente sustentadas por la descripción. Las reivindicaciones podrán ser independientes o dependientes. Una reivindicación será independiente cuando defina la materia que se desea proteger sin referencia a otra reivindicación anterior. Una reivindicación será dependiente cuando defina la materia que se desea proteger refiriéndose a una reivindicación anterior. Una reivindicación será dependiente cuando defina la materia que se desea proteger refiriéndose a una reivindicación anterior.- Una reivindicación que se refiera a dos o más reivindicaciones anteriores se considerará reivindicación dependiente múltiple."

El capítulo reivindicatorio no es claro toda vez que no se precisa la materia sobre la cual se solicita protección. Cómo se explicará en el punto 4), la presente solicitud no posee unidad de invención, por lo que no está definida la materia sobre la cual se solicita protección.

De acuerdo a lo anterior, el capítulo reivindicatorio no cumple con el requisito de claridad de acuerdo a lo establecido en el Art. 30 de la Decisión 486.

4) Evaluación de la Unidad de Invención

El artículo 25 de la Decisión 486 de la Comisión de la Comunidad Andina establece

"La solicitud de patente sólo podrá comprender una invención o un grupo de invenciones relacionadas entre sí, de manera que conformen un único concepto inventivo"

La presente solicitud carece de unidad de invención toda vez que configura **TRES** diferentes objetos. Aunque se dirigen a **artículos absorbentes desechables** la definición de la materia que caracteriza a cada una de las reivindicaciones independientes (1, 10 y 15) es muy diferente entre sí. Esto permite afirmar que no se trata del mismo producto. Todo el problema radica en configurar varias reivindicaciones independientes con materia diferente. El solicitante debe establecer una sola reivindicación independiente dirigida al **producto** en la forma más simple de la solicitud de invención. Partiendo de allí establecer reivindicaciones dependientes que amplíen esa forma más simple hasta su forma más compleja.

De acuerdo a lo anterior, la presente solicitud no cumple con el requisito de unidad de invención de acuerdo al Art. 25 de la Decisión 486.

5) Determinación del Estado de la Técnica

El artículo 16 de la Decisión 486 de la Comisión establece:

"El estado de la técnica comprenderá todo lo que haya sido accesible al público por una descripción escrita u oral, utilización, comercialización o cualquier otro medio antes de la fecha de presentación de la solicitud de patente o, en su caso, de la prioridad reconocida."

"Sólo para el efecto de la determinación de la novedad, también se considerará dentro del estado de la técnica, el contenido de una solicitud de patente en trámite ante la oficina nacional competente cuya fecha de presentación o de prioridad fuese anterior a la fecha de presentación o de prioridad de la solicitud de patente que se estuviese examinando, siempre que dicho contenido este incluido en la solicitud de fecha anterior cuando ella se publique o hubiese transcurrido el plazo previsto en el artículo 40."

Consultadas las bases de datos y los archivos con que cuenta la entidad, especialmente bajo las clasificaciones **A 61 F 13/15** y las más cercanas a ellas, se encontró que antes del 4 de octubre de 2000 (fecha para determinar el estado

de la técnica) habían sido publicados los documentos que se enumeran en la siguiente tabla los cuales se relacionan con artículos absorbentes desechables

De acuerdo con o establecido en el artículo 16 se determinó el estado de la técnica y se encontró el siguiente antecedente:

Nº	Documento	Título	Fecha de Publicación
D1	US 4906243	Combination diaper and training pants	1990.03.06
D2	GB 2294865	A panty type sanitary napkin	1995.11.03
D3	EP 450541	Stretchable shaped absorbent garment	1991.10.09
D4	US 5 370 634	Disposable Diaper	1994.12.06
D5	US 5817087	Shorts type disposable diaper	1998.10.06

6) Evaluación de los requisitos de patentabilidad

El artículo 14 de la Decisión 486 de la Comisión de la Comunidad Andina establece:

“Los Países Miembros otorgarán patentes para las invenciones, sean de producto o procedimiento, en todos los campos de la tecnología, siempre que sean nuevas tengan nivel inventivo y sean susceptibles de aplicación industrial”.

En cumplimiento con este artículo, se procedió a evaluar los requisitos de novedad, nivel inventivo y aplicación industrial con el fin de establecer la patentabilidad de la invención reivindicada en la solicitud en estudio.

a) Evaluación del Nivel Inventivo

El art. 18 de la Decisión 486 de la Comisión de la Comunidad Andina establece:

“Se considerará que una invención tiene nivel inventivo, si para una persona del oficio normalmente versada en el arte en la materia técnica correspondiente, esa invención no hubiese resultado obvia ni se hubiese derivado de manera evidente del estado de la técnica”.

El documento D1 relaciona en esencia todas las partes que el solicitante para Colombia desea proteger. No se observan explícitamente los mismos intervalos que la solicitud colombiana, pero para un técnico medio resultaría obvio entender que dichos intervalos se derivan fácilmente de la técnica usual y de documentos como D1.

Observaciones similares pueden derivarse de D2 y/o D3. Dichos documentos muestran artículos absorbentes que contemplan las mismas partes y de donde se pueden resultar las relaciones que se reivindican.

Los documentos D4 y D5 revelan cada uno de forma más precisa la materia que el solicitante desea proteger. Es aun más evidente la falta de altura inventiva partiendo de uno cualquiera de estos documentos.

b) Resumen

En conclusión los requisitos de patentabilidad de la presente solicitud se podrían ver afectados así:

Nº	Documento	Reivindicaciones afectadas	Requisito que afecta
D1	US 4906243	1 – 20	Nivel inventivo
D2	GB 2294865	1 – 20	Nivel inventivo
D3	EP 450541	1 – 20	Nivel inventivo
D4	US 5 370 634	1 – 20	Nivel inventivo
D5	US 5817087	1 – 20	Nivel inventivo

7) Notificación

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que dentro del término de sesenta días contados a partir de la fecha de la notificación de la presente comunicación debe responder a la notificación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Notifíquese el presente oficio conforme a lo dispuesto por el numeral 5.2, literal e) del capítulo quinto del título primero de la Circular Única N° 10 de 2001


ALIX CARMENZA CÉSPEDES DE VERGEL
Jefe División de Nuevas Creaciones

El anterior requerimiento fue notificado por fijación en la lista, de fecha

27 OCT 2015

Concepto Técnico N°	EXAMINADOR TÉCNICO Código No.	EXAMINADOR JURÍDICO Código No.
1627	202003	

410

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

RADICACIÓN: 0-75405

EDICTO No. 2926

LA SECRETARÍA GENERAL AD-HOC
HACE SABER:

Que esta Superintendencia profirió Resolución No. 1996 de 31-ENE-2006. Que el contenido de la parte resolutive es como sigue: El Superintendente de Industria y Comercio.

RESUELVE

ARTICULO PRIMERO: Negar el privilegio de patente de invención para la solicitud correspondiente a "ARTICULO ABSORBENTE QUE TIENE UN MECANISMO RESUJETABLE".

ARTICULO SEGUNDO: Notificar personalmente el contenido de la presente resolución al doctor Ramiro Castro Duque, o a quien haga sus veces, en su calidad de apoderado de Kimberly-Clark Worldwide, Inc., entregándole copia de la misma, advirtiéndole que contra ella procede el recurso de reposición interpuesto ante el Superintendente de Industria y Comercio, al momento de la notificación o dentro de los 5 días hábiles siguientes a ella.

NOTIFÍQUESE Y CUMPLASE

Dada en Bogotá, D.C., a los 31 ENE. 2006

EL SUPERINTENDENTE DE INDUSTRIA Y COMERCIO,


JAIME RUBIO ESCOBAR

Para notificar a los interesados, se fija el presente EDICTO en lugar visible al público en la SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO, por el término de (10) diez días hábiles contados a partir de las 8:30 a.m. de hoy.

Secretaría General Ad-Hoc 21-FEB-2006 Este edicto se desfija hoy 06-MAR-2006 a las cinco (5:00 p.m.)
Secretaría General Ad-Hoc
EDICTO No. 2926