

CAVELIER

ABOGADOS

www.cavelier.com
cavelier@cavelier.com

EDIFICIO SISKI
CARRERA 4 No. 72 - 35
BOGOTA 8, COLOMBIA

78 ~~78~~
Teléfono: (57-1) 347 3611
Telefax: (57-1) 211 8650
(57-1) 540 0860
Fax in U.S.A.: (1-305) 381 9660

Señora Jefe de la
DIVISION DE NUEVAS CREACIONES
Superintendencia de Industria y Comercio
E. S. D.

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 06-090484-00004-0000

Dep. 2020 NUECREACIONES
Dep. 2020 FASENACIONAL
Folios: 37

Trámite : 011
Evento : 378
Actuación : 444

Referencia : Expediente No. 06.090.484
Asunto : Solicitud de Patente para **PRODUCTO
ABSORBENTE CON PANEL LATERAL
RESELLABLE**
Solicitante : SCA HYGIENE PRODUCTS AB
Fecha de Solicitud : 8 de Septiembre de 2006

1. Yo, Emilio FERRERO, obrando como apoderado del solicitante en el asunto antes identificado, me refiero al oficio No. 16821 notificado por fijación en lista de 28 de diciembre de 2007.

2. Mediante oficio No. 16821 se puso en conocimiento del solicitante el informe que contiene las observaciones hechas por su Despacho sobre la presente solicitud de patente. Atiendo a las observaciones de la manera siguiente:

2.1 Descripción

Respecto a la descripción, su Despacho consideró que se presentan defectos relacionados con la redacción y que por lo tanto de dificulta la comprensión plena del texto. De acuerdo con el Examinador, existen errores en la utilización de los tiempos verbales y la presencia de diferentes errores de redacción dificultan la comprensión en general.

2.2 Reivindicaciones

De la misma manera, el Examinador menciona que en el capítulo reivindicativo se encontraron algunos defectos relacionados con la redacción, así como con las reivindicaciones 5 y 6 que relacionan un método dependiente de las reivindicaciones 1 a 4, cuando dichas reivindicaciones (1 a 4) no contemplan ningún método.

3. Modificación de la solicitud en trámite

Con el objeto de subsanar las objeciones presentadas por su Despacho y de acuerdo con el artículo 34 de la Decisión 486 de la Comisión de la Comunidad Andina, donde se establece que la modificación de una solicitud es posible en cualquier momento del trámite mientras no implique una ampliación de la solicitud inicial, me permito presentar un nuevo capítulo descriptivo corregido y un nuevo capítulo reivindicatorio también corregido y compuesto por 13 reivindicaciones.

Las modificaciones realizadas fueron las siguientes:

- Teniendo en cuenta los errores de redacción, se realizaron algunas correcciones en los capítulos descriptivo y reivindicatorio. Se cambiaron algunas palabras, entre ellas se cambió "red" por "banda" y algunas expresiones se rescribieron. De esta manera se espera superar la dificultad de comprensión. Sin embargo, cabe notar que las explicaciones con respecto a las etapas de los métodos son por sí solas difíciles de redactar y comprender al constituir una descripción de hechos físicos.
- Con respecto a las reivindicaciones 5 y 6, se cambió la expresión "método" por "producto absorbente (32)" para superar la objeción presentada.

CAVELIER

ABOGADOS

4. Puesto que se han atendido a cabalidad las observaciones hechas por su Despacho sobre la presente solicitud de patente, atentamente solicito que se continúe su tramitación.

5. ANEXOS

- Nuevo capítulo descriptivo con correcciones.
- Nuevo pliego reivindicatorio conformado por 13 reivindicaciones corregidas.
- Formulario para modificaciones.
- Recibo por concepto de modificaciones en solicitud pendiente.

Bogotá,
Señora Jefe,



EMILIO FERRERO

T.P.A. No. 31.929

COLO-11256-841-101-4

✓ JMS\JMS\ID-121955\WPC11256
No. M-2008-121955\JMS

FORMULARIO UNICO DE CORRECCIONES Y MODIFICACIONES

1	SOLICITUD DE: ☐ Corrección de Error Material ☒ Modificación a una solicitud	
2 SOLICITANTE	Nombre: SCA HYGIENE PRODUCTS AB Sociedad constituida y existente bajo las leyes de Suecia. Dirección: 405 03 Göteborg, Suecia Domicilio: Göteborg, Suecia Teléfono: 546 09 70 Fax: 249 40 70 E-mail: clientes@cavelier.com	IDENTIFICACION C.C. ☐ NIT ☐ C.E. ☐ Otro ☐ Número: _____
3 REPRESENTANTE O APODERADO	Nombre: Emilio FERRERO Dirección: Carrera 4ª No. 72-35 Teléfono: 347 36 11 Fax: 217 92 11 E-mail: cavelier@cavelier.com	IDENTIFICACION C.C. ☒ NIT ☐ C.E. ☐ Otro ☐ Número: <u>438.019</u> TP <u>31.929</u>
4	Número de expediente: <u>06.090.484</u>	
5	Descripción de la corrección o modificación solicitada: Presento nuevos capítulos descriptivo y reivindicatorio compuesto por 13 reivindicaciones con el fin de superar las objeciones hechas por Su Despacho a la presente solicitud y pido que el examen de patentabilidad sea efectuado sobre estas nuevas reivindicaciones presentadas.	
6	Comprobante de pago No. <u>08-23.307</u> Fecha: <u>17 de marzo de 2008</u>	
7	Anexos ☒ Comprobante de pago de la tasa por \$103.000.00 por concepto de modificaciones. ☐ Poderes, si fuere el caso ☐ Documento que acredita la existencia y representación legal de las partes, cuando sean personas jurídicas.	
8	NOMBRE: EMILIO FERRERO FIRMA:  C.C. 438.019 de Usaquén T.P.A. 31.929	

82
82

PRODUCTO ABSORBENTE CON PANEL LATERAL RESELLABLE

CAMPO TÉCNICO

5 La presente invención se relaciona con un producto absorbente, tal como un pañal de halar, que comprende un panel delantero, un panel trasero y, entre ellos, dos paneles laterales opuestos y una sección de entrepierna. La invención además se relaciona con un método para elaborar un panel
10 lateral para un pañal de halar.

TÉCNICA ANTERIOR

Los pañales para halar, a diferencia de los pañales estándar,
15 están configurados con paneles laterales completos. Los pañales para halar están caracterizados porque, para su uso, ellos tienen que ser deslizados sobre las piernas y caderas del usuario. Los pañales para halar dan un buen ajuste y buena estabilidad, ya que están configurados en una sola
20 pieza. Los pañales para halar son utilizados por niños y también por adultos que sufren de incontinencia.

Se conoce previamente que la configuración de los pañales para halar con paneles laterales, comprende una costura
25 lateral configurada para dividirse cuando se someten a una carga por encima de un cierto nivel. Tal carga es generada preferiblemente por la persona encargada del cuidado o por el usuario que desee abrir el panel lateral al rasgar éste a lo

largo de la costura. Después de haber abierto el pañal para halar por vía de la costura lateral, el usuario o el encargado, pueden inspeccionar el interior del pañal para evaluar que tan necesario es el cambio. En pañales para halar previamente conocidos es también conocido equipar el pañal para halar con un dispositivo de fijación resellable en la forma de una lengüeta equipada con medios de fijación. El dispositivo de fijación es anclado de manera fija sobre un lado de la costura y sobre el otro lado de la costura existe una zona de adherencia destinada a recibir y atraer los medios de fijación. Cuando el usuario desea volver a sellar el pañal para halar, la lengüeta es acercada sobre la costura abierta por rasgado y entonces los medios de fijación se colocan sobre la zona de adherencia. El dispositivo de fijación puede comprender medios de aseguramiento mecánicos, por ejemplo cinta Velcro, o medios de aseguramiento en forma de adhesivo.

Un problema con la técnica anterior, es que la lengüeta/dispositivo de fijación tiene que ser asegurado en el panel lateral en un lugar específico, creando un factor que limita la velocidad de producción. Más aún, la zona de adherencia tiene que ser aplicada en un lugar específico sobre el panel lateral, lo cual también limita la velocidad de producción. Otro problema es que el panel lateral comprende una costura rasgable que debe ser especialmente configurada y, en segundo lugar, puede ser difícil de abrir para un usuario. Más aún, la costura puede tocar contra la

84

piel del usuario de tal manera que el usuario experimenta incomodidad. Problemas adicionales son que la lengüeta puede ser fácilmente abierta por un niño.

5 Existe por lo tanto un requerimiento de un pañal para halar mejorado en el cual se eliminan los problemas anteriores.

10

RECuento DE LA INVENCIÓN

La presente invención tiene por objeto resolver los problemas descritos anteriormente, a través de un pañal para halar con funcionamiento mejorado y un método para elaborar tal pañal.

15

La presente invención se relaciona con un producto absorbente, tal como un pañal para halar, que comprende un panel delantero, un panel trasero y, entre ellos, dos paneles laterales opuestos y una sección de entrepierna. El pañal para halar comprende, ventajosamente, además, un cuerpo de absorción que se extiende desde el panel delantero al panel trasero por vía de la sección de entrepierna.

20

La invención se caracteriza porque al menos un panel lateral comprende una primera sección de panel configurada con una primera lengüeta y además una segunda sección de panel configurada con una segunda lengüeta. La primera lengüeta traslapa y se asegura mediante medios de aseguramiento, de

25

88

tal forma que se puede abrir y volver a sellar, hacia un lado exterior presente sobre la segunda sección de panel. La segunda lengüeta se traslapa y se asegura por medios de aseguramiento, de tal forma que puede abrirse y volverse a sellar, hacia un lado exterior presente sobre la primera sección de panel. El lado exterior de la primera sección de panel, se enfrenta de la misma forma que el lado exterior de la segunda sección de panel.

- 10 La primera lengüeta y la segunda lengüeta están por lo tanto localizadas sobre el mismo lado del panel lateral. Tanto la primera como la segunda sección de panel se pueden configurar para formar paneles laterales completos, pero también se pueden configurar para constituir sólo una cantidad parcial
15 del panel lateral respectivo.

Una ventaja de la invención es que el panel lateral, en razón de la ubicación de las secciones de panel, permanece flexible, aunque los medios de aseguramiento puedan estar
20 constituidos por materiales intrínsecamente duros/rígidos. Las lengüetas constituyen partes flexibles del panel lateral, que hacen al panel lateral más plegable.

Otra ventaja es que las fuerzas de corte generadas en el
25 panel mientras el pañal está en uso, son absorbidas mejor que en los productos que comprenden paneles laterales completos. Las lengüetas constituyen partes del panel lateral que distribuyen las fuerzas de corte mejor, comparado con un



panel lateral completo. Un panel lateral completo tiene riesgo de arrugarse, en lugar de, como las lengüetas, absorber la fuerza de corte de magnitud variable.

- 5 Una ventaja adicional con la invención es que las lengüetas se ajustan sobre el mismo lado del panel lateral, es decir, sobre el lado exterior o el lado interior del panel lateral, lo que le da al usuario fácil acceso a todas las lengüetas. Las lengüetas son abiertas por cada lengüeta alterna halada
- 10 en una dirección y cada tercera lengüeta alterna en la dirección opuesta. Esto es ventajoso, ya que un usuario adulto o un encargado del cuidado pueden fácilmente abrir el panel lateral al halar las lengüetas en la dirección opuesta. De otra parte, tal maniobra es dura para un niño, por lo
- 15 tanto tiene dificultad para abrir el panel lateral por sí mismo. Si el panel lateral hubiera sido ensamblado con sólo una lengüeta, el niño habría sido capaz de abrir el pañal fácilmente al guiar la lengüeta en una dirección, dicha posibilidad es indeseable.
- 20 Otra ventaja de esta invención es que las lengüetas pueden producir una estructura abierta en el panel lateral, haciéndolo más respirable que un panel lateral completo.

El panel lateral es producido por un método en el cual, éste

25 es fabricado de una banda de material que tiene un segmento medio el cual, en la dirección latitudinal, está limitado por primeros y segundos segmentos laterales localizados a cada lado. Dichos segmentos laterales, como el segmento medio,

877

corren en una dirección de producción. El método comprende las etapas de:

- 5 - Alinear el segmento medio de la banda de material en la dirección de producción con unos medios de aseguramiento, que se fijan sobre éste.

- 10 - Dividir la banda de material alineada en una primera sección de panel y una segunda sección de panel, en la dirección de producción, al rasgar la banda de material, en un patrón curvado continuo ondulado alrededor de una línea central presente sobre la banda de material, de tal forma que las rasgaduras cortan el segmento medio con cada tirón transversal, en la primera sección de panel una primera lengüeta que se forma en la dirección
15 alejada del primer segmento lateral hacia el segundo segmento lateral, y en la segunda sección de panel una segunda lengüeta que se forma en la dirección alejada del segundo segmento lateral hacia el primer segmento
20 lateral.

Formar el panel lateral mediante:

- 25 - Acercar una primera sección de panel hacia la segunda sección de panel de tal forma que la primera lengüeta traslapa un lado exterior presente sobre la segunda sección de panel y en donde la segunda lengüeta traslapa

88
88

un lado exterior presente sobre la primer sección de panel en donde los dos lados exteriores se enfrentan de la misma manera;

- 5 - Asegurar la primera lengüeta, de tal forma que esta se puede abrir y volver a sellar, por el lado exterior de la segunda sección de panel;
- 10 - Asegurar la segunda lengüeta, de tal forma que ésta se pueda abrir y volver a sellar, por el lado exterior de la primera sección de panel;
- 15 - Dividir la banda de material, antes o después de que la primera sección de panel haya sido acercada hacia la segunda sección de panel, esencialmente de manera perpendicular a la dirección de producción a lo largo de una primera línea y una segunda línea esencialmente paralela con la primera línea, en donde la primera lengüeta y la segunda lengüeta están localizadas entre
20 la primera línea y la segunda línea.

En aquellos casos en donde la banda de material es dividida antes de que la primera sección de panel haya sido acercada hacia la segunda sección de panel, el panel lateral es hecho
25 en tandas, es decir, panel por panel.

89
88

En aquellos casos donde la banda de material es dividida después de que la primera sección de panel es acercada hacia la segunda sección de panel, el panel lateral es fabricado en un proceso continuo. El proceso continuo comprende un punto
5 después del cual los segmentos laterales han sido juntados de tal forma que todas las lengüetas están localizadas en el mismo lado de la banda y en donde el tamaño de los paneles se puede escoger al dividir lateralmente la banda recogida en un sitio adecuado.

10

Una ventaja con el método de acuerdo con la invención es que el panel ventajoso descrito anteriormente es fabricado sin desperdicio de material. Otra ventaja es que el tamaño del panel lateral se puede determinar fácilmente por el ancho de
15 la banda de material.

20

En una modalidad de la invención, la rajadura se lleva a cabo en un patrón continuo en el cual se hace un primer corte esencialmente en la dirección de producción, seguido por un
segundo corte a través del segmento medio esencialmente perpendicular a la dirección de producción, seguido por un
tercer corte esencialmente en la dirección de producción, seguido por un cuarto corte a través del segmento medio. El
primer corte, el segundo corte y el cuarto corte forman la
25 primera lengüeta de la primera sección de panel. El segundo corte, el tercer corte y otro cuarto corte forman la segunda lengüeta de la sección de panel.

El primer corte está fabricado ventajosamente en el segundo segmento lateral a una distancia del segmento medio. La distancia entre el segmento medio y el primer corte crea una parte de la primera lengüeta que está libre de medios de
5 aseguramiento y, que, por lo tanto, constituyen ventajosamente una primer parte de agarre. El tercer corte está ventajosamente hecho en el primer segmento lateral a una distancia del segmento medio. La distancia entre el segmento medio y el tercer corte crea una parte de la segunda lengüeta
10 que está libre de medios de aseguramiento y que, por lo tanto, constituyen ventajosamente una segunda parte de agarre. Las partes de agarre pueden ser ventajosamente utilizadas por un usuario para despegar las lengüetas.

15 En una modalidad de la invención, la primera línea coincide con un cuarto corte y la segunda línea coincide con otro cuarto corte. La primera línea está al menos a tal distancia de la primera línea que la primera lengüeta y la segunda lengüeta están localizadas entre las líneas. Dependiendo de
20 donde están localizadas sobre la banda de material la primera línea y la segunda línea, se pueden obtener más de dos lengüetas entre las líneas, es decir, en el panel lateral. Es posible, por ejemplo, para la segunda línea coincidir con el segundo corte, a tal distancia de la primera línea que las
25 dos primeras lengüetas, y una segunda lengüeta situada entre ellas, están localizadas entre las líneas.

21

De acuerdo con una modalidad, las lengüetas son de igual tamaño. Tanto la primera lengüeta como la segunda lengüeta son ventajosamente rectangulares, pero pueden estar constituidas por diferentes geometrías adecuadas que le permitan a las secciones de panel ser capaces de ser juntadas de tal forma que todas las lengüetas terminen al mismo lado del panel lateral.

De acuerdo con una modalidad de la invención, los medios de aseguramiento comprenden unos medios de aseguramiento mecánicos. Los medios de aseguramientos mecánicos están preferiblemente constituidos por elementos (miembro macho) de la clase que mecánicamente se fija en el material que forma el panel lateral. Tales elementos adecuados son, por ejemplo, en forma de gancho, en forma de protuberancia, en forma de cabeza de flecha, u otros miembros machos configurados adecuadamente de otra forma, que puedan fijarse en la estructura del panel lateral. Es conocido utilizar el así llamado material Velcro con miembros macho que puedan comprender cualquiera de los tipos de elementos anteriormente mencionados y que están dispuestos para fijarse a un material receptor. El material receptor está constituido preferiblemente por miembros hembra, es decir, un material que tiene una estructura que permita a los miembros machos fijarse en los miembros hembra. Los miembros hembra pueden estar constituidos por, por ejemplo, ojales o dispositivos similares a argolla. El material receptor puede, también, estar, en ciertos casos, constituido por miembros macho, es

decir, un miembro macho en los medios de aseguramiento se fija en otro miembro macho en el material receptor.

La banda de material está alineada con los medios de
5 aseguramiento de tal forma que, en el panel lateral, cubra
parte o todas las lengüetas. El material de aseguramiento
está destinado a fijarse en la estructura de material que
constituye la banda de material, es decir, la banda de
material comprenderá una estructura que comprende miembros
10 hembra en los cuales se pueden fijar los miembros macho.
Tales miembros hembra pueden estar constituidos, por ejemplo,
por ojales o estructuras abiertas o semiabiertas similares.
Los miembros de aseguramiento de las lengüetas son, por lo
tanto, ventajosamente, fijados por los miembros machos en
15 miembros hembra presentes en la sección de panel. Tales
materiales adecuados son, por ejemplo, materiales de fibra no
tejida, es decir, los así llamados no tejidos, o materiales
tejidos u otros materiales adecuados para el propósito.

20 Con el fin de impedir que los medios de aseguramiento se
agarren en el material del panel lateral cuando las secciones
de panel se juntan una hacia la otra, los medios de
aseguramiento se pueden alinear con una capa de material que
se fija a los medios de aseguramiento pero que evita que los
25 medios de aseguramiento se agarren en la sección de panel.
Una vez las lengüetas están en el lugar correcto, la capa de
material es removida y las lengüetas se pueden fijar sobre
los lados exteriores respectivos de las secciones del panel.

43
A

La capa de material puede consistir de una tira ubicada sobre los medios de aseguramiento antes de que los medios de aseguramiento se apliquen en el segmento medio, o si no la capa de material se puede ubicar sobre los medios de aseguramiento después de que los medios de aseguramiento se han fijado sobre la sección media.

Los medios de aseguramiento se pueden fijar a la banda de material en el segmento medio mediante un adhesivo o algunos otros medios de aseguramiento adecuados.

En una modalidad de la invención, los paneles laterales están constituidos por un material no elástico. Los paneles laterales pueden, sin embargo, consistir de un material elástico. El panel lateral está ventajosamente fabricado de un material de fibra no tejida, conocido como no-tejido, pero también puede ser fabricado de otro material adecuado que tenga una estructura que le permita a los medios de aseguramiento fijarse en el material del panel lateral.

20

En un pañal para halar, el panel lateral se puede suplir por medio de una costura que conecta la primera sección de panel con la segunda sección de panel. La costura es ventajosamente de tal clase para que pueda ser rota por un usuario, en la medida en que surja la necesidad. Un ejemplo de tal ocasión es cuando el producto absorbente ha sido utilizado durante un buen tiempo y un usuario, encargado o pariente desee revisar el contenido del producto. En este caso, la costura es rota y

94
94

el panel lateral es abierto, posteriormente una simple inspección visual de los contenidos se hace posible. Si se cree en la inspección visual que es posible seguir utilizándolo, entonces las lengüetas son utilizadas como
5 medios para volver a sellar en el panel lateral. La costura se puede formar por cualquier tipo de método adecuado, por ejemplo engomado, o soldado.

La invención también se relaciona con un producto absorbente
10 tal como un pañal para halar, que comprende un panel lateral que puede ser fabricado por un método de acuerdo con lo anterior.

DESCRIPCIÓN DE LAS FIGURAS

15

La invención está descrita en relación con un número de figuras en las cuales:

La figura 1 muestra una banda de material para hacer un panel
20 lateral de acuerdo con la invención;

La figura 2 muestra una modalidad de la invención en la cual la banda de material ha sido dividida a lo largo de la primera y segunda líneas mostradas en la figura 1;

25

La figura 3 muestra una vista lateral de un panel lateral de acuerdo con la figura 2;

La figura 4 muestra una vista superior de un panel lateral de acuerdo con la figura 2 y la figura 3 en la dirección de la flecha A en la figura 3;

- 5 La figura 5 muestra una modalidad de la invención en la cual la banda de material ha sido dividida a lo largo de la primera y tercera líneas mostradas en la figura 4;

La figura 6 muestra una vista superior de un panel lateral de
10 acuerdo con la figura 5;

La figura 7 muestra un pañal para halar de acuerdo con la invención, y

- 15 La figura 8 muestra una modalidad de un proceso continuo para elaborar un panel lateral de acuerdo con la invención.

MODALIDADES PREFERIDAS

- 20 La figura 1 muestra una banda de material 1 para elaborar un panel lateral 2 de acuerdo con la invención. La banda de material 1 corre en una dirección de producción, la cual, en la figura 1, está marcada por una flecha 39 que apunta hacia la dirección de producción. La banda de material 1 tiene un
25 segmento medio 3, el cual, en la dirección latitudinal (dirección lateral en relación con la dirección de producción) está limitada por un primer y segundo segmentos laterales 4, 5, dichos segmentos laterales, como el segmento

medio 3, tienen una extensión en la dirección de producción.

La figura 1 ilustra que el segmento medio 3 de la banda de material ha sido alineado en la dirección de producción con unos medios de aseguramiento 6. La banda de material 1 tiene un lado superior 3 y un lado inferior 8 y está limitada en la dirección lateral por un primer borde 17 y un segundo borde 18. La figura 1 ilustra que los medios de aseguramiento 6 se fijan al lado superior 7.

La figura 1 muestra además que la banda de material alineada está dividida en una primera sección de panel 9 y una segunda sección de panel 10. La división es hecha mediante hacer cortes, en la dirección de producción, en un patrón curvado continuo ondulante alrededor de la línea central 38. La figura 1 ilustra un primer corte 11 hecho esencialmente en la dirección de producción, seguido por un segundo corte 12 realizado a través del segmento medio 3 esencialmente perpendicular a la dirección de producción, seguido por un tercer corte 13 hecho esencialmente en la dirección de producción, seguido por un cuarto corte 14 realizado a través del segmento medio 3. Los cuatro cortes 11-14 son repetidos continuamente a lo largo de la totalidad de la banda de material 1 en la medida en que la banda de material 1 avanza en la dirección de producción.

25

La figura 1 muestra una primer línea 19 que se extiende en la dirección lateral y que coincide con el cuarto corte 14'. La figura 1 muestra además una segunda línea 20 que se extiende

en la dirección lateral y que coincide con otro cuarto corte 14 a una distancia desde la primera línea 19. La primera línea 19 y la segunda línea 20 constituyen dos líneas adecuadas a lo largo de las cuales la banda de material se puede cortar en la dirección lateral con el fin de obtener de esta manera la estructura básica para el panel lateral 2. Después de que la banda de material 1 ha sido cortada a lo largo de la primera línea 19 y la segunda línea 20, el panel lateral 2 comprende la primera sección de panel 9 y la segunda sección de panel 10.

La primera sección de panel 9 comprende una primera porción lateral 15 y una primer lengüeta 16. La primera porción lateral 15 está limitada por el primer borde 17, la primer línea 19, la segunda línea 20 y la tercer línea 21 coinciden con el tercer corte 13. La primera lengüeta 16 tiene también una configuración rectangular, pero es más pequeña que la primera porción lateral 15 y tiene una extensión en la dirección de producción esencialmente entre el cuarto corte 14' y el segundo corte 12. La primera lengüeta 16 está limitada en su extensión lateral por la tercera línea 21 y el primer corte 11.

La segunda sección de panel 10 comprende una segunda porción lateral 22 y una segunda lengüeta 23. La segunda porción lateral 22 está limitada por el segundo borde 18, la primer línea 19 y la segunda 20 y una cuarta línea 24 coincide con el primer corte 11. La segunda lengüeta 23 también tiene una

configuración rectangular, pero es más pequeña que la segunda porción lateral 22 y tiene una extensión en la dirección de producción esencialmente entre el segundo corte 12 y el cuarto corte 14. La segunda lengüeta 23 está limitada en su extensión lateral por la cuarta línea 22 y el tercer corte 13.

La figura 1 muestra un rodillo 25 provisto con herramientas de corte 26, que son presionadas contra la banda de material 1 de tal forma que las herramientas de corte 26 seccionan continuamente la banda de material 1 de acuerdo con el patrón curvado en la medida en que la banda de material 1 es alimentada en la dirección de producción. El rodillo 25 gira en la dirección mostrada por la flecha 40. Los cortes 11-14 no necesitan ser realizados con un rodillo 25, sino que pueden ser realizados utilizando cualquier método adecuado que sea, por ejemplo punzado, cortado o un método de corte basado en agua (el así llamado chorro de agua).

La figura 1 muestra que el cuarto corte 14', el primer corte 11 y el segundo corte 12 forman la primera lengüeta 16 de la primera sección de panel 9 y que el segundo corte 12, el tercer 13 y el cuarto corte 14 forman la segunda lengüeta de la segunda sección de panel 10. La primera lengüeta 16 se extiende desde el primer segmento lateral 4 en la dirección del segundo segmento lateral 5. La segunda lengüeta 23 se extiende desde el segundo segmento lateral 5 en la dirección del primer segmento lateral 4.

La figura 1 muestra una quinta línea 27, paralela con la primera y las segundas líneas 19, 20, que corren esencialmente perpendiculares a la dirección de producción. Las líneas paralelas 19, 20, 27 marcan lugares que dividen la

5 banda de material con el fin de obtener, por ejemplo, un tamaño de panel lateral deseado 2 o un número de lengüetas deseadas 16, 23. Si la banda de material es dividida a lo largo de la primer línea 19 y la segunda línea 20, el panel lateral adquiere dos lengüetas, a saber la primer lengüeta 16

10 y la segunda lengüeta 23. Si, de otra parte, la banda de material es dividida a lo largo de la primer línea 19 y de la quinta línea 27, el panel lateral 2 adquiere 3 lengüetas, a saber dos primeras lengüetas 16, 16' y una segunda lengüeta 23 situada entre ellas. De manera similar, al dividir la

15 banda de material 1 en lugares apropiados, más de tres lengüetas pueden ser escogidas. El tamaño del panel lateral 2 no necesita, sin embargo, incrementarse con el número de lengüetas 16, 23; en vez de eso, las lengüetas 16, 23 pueden hacerse más estrechas, dando un numero creciente de lengüetas

20 16, 23 por longitud dada de banda de material 1 en la dirección de producción. Si las lengüetas 16, 23 se hacen más estrechas, se obtiene un panel lateral 2 con un número mayor de lengüetas 16, 23, aunque el tamaño del panel lateral 2 se mantenga. El tamaño de las lengüetas 16, 23 varía con la

25 configuración del patrón curvado. Entre más cortos se hagan el primer y tercer cortes 11, 13 y más estrechas se vuelvan las lengüetas 16, 23 mayor será el número de lengüetas 16, 23

100
~~100~~

que se puedan acomodar dentro de la estructura de dos líneas a una distancia de separación constante.

La figura 1 ilustra que el primer corte 11 se sitúa en el
5 segundo segmento lateral 5 y que el tercer corte 13 se sitúa en el primer segmento lateral opuesto 4. Este da como resultado medios de aseguramiento 6 que solamente cubren partes de las lengüetas 16, 23, lo que tiene la ventaja de que una parte de la lengüeta 16, 23 pueden constituir una
10 parte de agarre 28, 29. En la figura 1 se puede ver que la primer lengüeta 16 se extiende desde el primer segmento lateral 4 a través del segmento medio 3 y en el segundo segmento lateral 5. La primer parte de agarre 28 consiste aquí de partes del segundo segmento lateral 4. De manera
15 similar, la segunda lengüeta 23 se extiende desde el segundo segmento lateral 5 a través del segmento medio 3 y en el primer segmento lateral 4. La segunda parte de agarre 29 consiste aquí de partes del primer segmento lateral 4. El Consiste
primer corte 11 y el tercer corte 13 no necesitan ser
20 ubicados en los segmentos laterales 4, 5, sino que en vez de eso, se pueden ubicar en el corte limite entre los segmentos laterales 4,5 y el segmento medio 3. Las lengüetas 16, 23 están en este caso completamente alineadas con los medios de aseguramiento 6.

25

Se muestra en la figura 2 una primera modalidad de la invención, en la cual la banda de material 2 ha sido dividida a lo largo de la primera y segunda líneas 19, 20 mostradas en

101
104

la figura 1. La primera lengüeta 16 y la segunda lengüeta 23 están localizadas entre la primer línea 19 y la segunda línea 20.

5 La figura 2 muestra que el panel lateral 2 está formado tanto por la primera sección de panel 9 como por la segunda sección de panel 10 que han sido dobladas hacia abajo en relación con el plano en el cual descansa la banda de material 1. Para ponerlo de otra manera, la primera sección de panel 9 ha sido
10 girada alrededor de un eje que constituye la tercer línea 21 y la segunda sección de panel 10 ha sido girada en la dirección opuesta alrededor de un eje que constituye la cuarta línea 24. Como resultado del doblar hacia abajo/rotación, todas las lengüetas 16, 23 son enfrentadas en
15 la misma dirección. El doblar/rotación no necesita ser fabricado con ningún ángulo particular, sino en su lugar el propósito del doblar es evitar que las lengüetas 16, 23 descansen en el mismo plano. Las lengüetas 16, 23 deberían tener un ángulo con respecto a sí mismas. Una alternativa
20 para doblar/rotar la totalidad de la primera y la totalidad de la segunda secciones de panel 9, 10 es doblar justo las lengüetas 16, 23. Las lengüetas 16, 23 no tienen necesariamente, por supuesto, que ser dobladas hacia abajo, sino que pueden ser dobladas hacia arriba si el lado inferior
25 8 de la banda de material 2 ha sido alineado con el material de aseguramiento 6 en lugar de, como en la figura 1, el lado superior 7. Esto es, sin embargo, una cuestión del punto de referencia de un observador.

La figura 2 muestra además que la primera sección de panel 9 ha sido acercada hacia la segunda sección de panel 10 de tal forma que la primer lengüeta 16 traslapa un lado exterior 30 presente sobre la segunda porción lateral 22 y que la segunda lengüeta 23 traslapa un lado exterior 31 presente sobre la primera porción lateral 15. La figura 2 ilustra que los dos lados exteriores 30, 31 se enfrentan hacia la misma dirección, lo que es esencial para la invención en ya que de otra manera el traslapo deseado no hubiera sido obtenido. Los dos lados exteriores 30, 31 coinciden en la banda de material 2 con el lado inferior 8 de la banda de material.

La figura 2 describe que la primera sección de panel 9 y la segunda sección de panel 10 han sido juntadas de tal forma que el borde que pertenece al primer corte 11 en la segunda porción lateral 22 está alineado con el borde que pertenece al tercer corte 13 en la primera porción lateral 15. Para ponerlo de otra forma, con referencia a la figura 1, la primera sección de panel 9 ha sido acercada hacia la segunda sección de panel 10 de tal forma que la tercera línea 21 y la cuarta línea 24 coincidan.

La figura 3 muestra una vista lateral de un panel lateral de acuerdo con la figura 2, en la cual la primer lengüeta 16 se ha asegurado por los medios de aseguramiento 6 al lado exterior 30 de la segunda sección de panel 10 y la segunda lengüeta 23 ha sido asegurada por los medios de aseguramiento

103
103

6 al lado exterior 31 de la primer sección de panel 9. Los medios de aseguramiento 6 se pueden abrir y volver a sellar y consisten, preferiblemente, de medios de aseguramiento mecánico.

5

La figura 3 ilustra que los medios de aseguramiento 6 sólo constituyen una parte de las lengüetas 16, 23. Una ventaja con esto es que la parte exterior de cada lengüeta 16, 23 pueda constituir la parte de agarre 28, 29 descrita
10 anteriormente, dicha parte de agarre puede ayudar a un usuario que tiene que retirar las lengüetas 16, 23.

La figura 4 muestra una vista superior de un panel lateral de acuerdo con la figura 2 y la figura 3, en la cual es evidente
15 que las dos lengüetas 16, 23 se fijan juntas al panel lateral 22 por medio de los medios de aseguramiento 6. La vista superior se muestra en la dirección de la flecha A en la figura 3. La figura 4 muestra las lengüetas 16, 23 ubicadas en el lado inferior del panel lateral observado desde la
20 vista superior en cuestión. Las lengüetas 16, 23 son marcadas por lo tanto con líneas punteadas.

En la figura 5 se muestra una segunda modalidad de la invención, en la cual la banda de material 1 ha sido dividida
25 a lo largo de la primer y quinta líneas 19, 27 mostradas en la figura 1. La primer lengüeta 16 y la segunda lengüeta 23 están localizadas entre la primer línea 19 y la quinta línea 27 junto con una primer lengüeta adicional 16'.

104
104

La figura 5 muestra que el panel lateral 2 está formado tanto por la primer sección de panel 9 como por la segunda sección de panel 10 que han sido doblados hacia abajo con relación con un plano común. Como en la modalidad descrita en relación con la figura 3, ésta puede ser descrita de otra forma en términos de que la primer sección de panel 9 ha sido girada alrededor de un eje que constituye la tercer línea 21 y la segunda sección de panel 10 ha sido girada en la dirección opuesta alrededor de un eje que constituye la cuarta línea 24. Como resultado del doblar hacia abajo, todas las lengüetas 16, 23 son enfrentadas en la misma dirección. El doblar hacia abajo/rotación no necesita hacerse con ningún ángulo en particular, sino que el propósito del doblar hacia abajo es para que las lengüetas 16, 23 no descansen en el mismo plano sino que formen un ángulo entre ellas. Una alternativa para doblar la primer y segunda sección de panel 9, 10 es doblar hacia abajo justo las lengüetas 16, 23. Las lengüetas 16, 23 no necesariamente tienen, por supuesto, que ser dobladas hacia abajo, sino que también pueden ser dobladas hacia arriba cuando los medios de aseguramiento 6 estén dispuestos sobre el lado inferior 8 de la banda de material 2. Esto es una cuestión del punto de referencia de un observador.

25

La figura 5 muestra además que la primer sección de panel 9 ha sido acercada hacia la segunda sección de panel 10 de tal forma que la primer lengüeta 16 traslapa el primer lado

105
108

exterior 30 presente sobre la segunda porción lateral 22 y que la segunda lengüeta 23 traslapa el segundo lado exterior 31 presente sobre la primera porción lateral 15. La figura 5 ilustra que los dos lados exteriores 30, 31 enfrentan la misma dirección, lo que es esencial para la invención ya que, de otra manera, no se hubiera obtenido el traslapo deseado. Los dos lados exteriores 30, 31 coinciden en la banda de material 2 con el lado inferior 8 de la banda de material.

La figura 5 describe que la primera sección de panel 9 y la segunda sección de panel 10 han sido juntadas de tal forma que el borde que pertenece al primer corte 11 en la segunda porción lateral 22 está alineado con el borde que pertenece al tercer corte 13 en la primera porción lateral 15. Para ponerlo de otra manera, con referencia a la figura 1, la primera sección de panel 9 ha sido acercada hacia la segunda sección de panel 10 de tal forma que la tercer línea 21 y la cuarta línea 24 coincidan.

La figura 6 muestra una vista superior de un panel lateral de acuerdo con la figura 5, en la cual es evidente que las tres lengüetas 16, 16', 23 se fijan juntas al panel lateral 2. La figura 6 muestra las lengüetas 16, 16', 23 ubicadas sobre el lado inferior del panel lateral vistas desde la vista superior en cuestión. Las lengüetas 16, 16', 23 son marcadas por lo tanto con líneas punteadas.

La figura 7 muestra un pañal para halar 32 de acuerdo con la invención, que comprende un panel delantero 33, un panel trasero 34 y, entre estos, dos paneles laterales opuestos 35, y una sección de entrepierna 36. El pañal para halar también
5 comprende un cuerpo de absorción 37 destinado a recibir y a absorber total o parcialmente la orina, los fluidos menstruales y el excremento de un usuario. La figura 7 ilustra que un panel lateral 35 está constituido por un panel lateral 2 de acuerdo con la invención descrita en relación
10 con las figuras 2-4. La figura 7 muestra las lengüetas 16, 23 ubicadas sobre el lado exterior del panel lateral 2, es decir sobre aquel lado del panel lateral 2 que se enfrenta alejado de un usuario cuando el pañal para halar 32 está en uso. En otra modalidad de la invención, las lengüetas 16, 23 se
15 pueden ubicar sobre el lado interior del pañal para halar 33. La figura 7 ilustra que el panel lateral 2 corresponde al panel lateral 35, pero el panel lateral 2 puede constituir una cantidad parcial del panel lateral 35.

20 La figura 8 muestra una modalidad de la invención en la cual la primera sección de panel 9 es acercada hacia la segunda sección de panel 10 en un proceso continuo. Después de que las secciones de panel 9, 10 han sido juntadas, las lengüetas 16, 23 son fijadas a los respectivos lados exteriores 30, 31
25 de acuerdo con la descripción de las modalidades en relación con las figuras 1-7.

107
~~107~~

En dicha modalidad, una capa removible (no mostrada) está dispuesta sobre los medios de aseguramiento 6. La capa removible está constituida, preferiblemente, por un material que no se une al material que constituye el panel lateral. La
5 capa removible le permite a las dos secciones de panel 9, 10 ser empujadas una hacia la otra sin que los medios de aseguramiento de manera inadvertidamente tomen la acción de sujetar antes de que las lengüetas 16, 23 estén en la posición correcta. Una vez que las lengüetas 16, 23 están en
10 la posición correcta, la capa removible es extraída y entonces los medios de aseguramiento fijan las lengüetas 16, 23 a los lados exteriores 30, 31 de las porciones laterales 15, 22. Después de que las lengüetas 16, 23 han sido fijadas juntas, la banda de material juntada o recogida se puede
15 cortar en los sitios apropiados con el fin de obtener un panel lateral de acuerdo con la invención descrita en cualquiera de las modalidades de acuerdo con las figuras 1-7.

La invención no está limitada a las modalidades anteriormente
20 establecidas, sino que puede variar dentro del alcance de las siguientes reivindicaciones de patente. Como un ejemplo se puede citar que las lengüetas pueden ser elásticas y pueden estar equipadas con marcaciones que indiquen que tanto han sido estiradas las lengüetas. Tal estiramiento, combinado con
25 el conocimiento del material en la lengüeta, suministra información sobre la carga a la cual es sometido el pañal, es decir, la presión ejercida por el pañal sobre un usuario.

108
108

Otro ejemplo es que el patrón curvado de la figura 1, que es dentado, se pueda llevar a cabo en otros patrones. Como un ejemplo se puede citar que el segundo y cuarto corte 12, 14 se pueden hacer en un ángulo de tal forma que las lengüetas
5 adquieran la forma de un trapecio paralelo. El segundo y cuarto corte 12, 14 no requieren ser rectos, sino que pueden ser de hecho curvados, por ejemplo, partes de una forma sinusoidal. Tiene que establecerse, sin embargo, que el primer y segundo cortes deben ser cortes rectos esencialmente
10 paralelos con la dirección de producción.

109
109

REIVINDICACIONES

1. Un producto absorbente (32), tal como un pañal para
halar que comprende un panel delantero (33), un panel
5 trasero (34) y, entre ellos, dos paneles laterales
opuestos (2, 35), una sección de entrepierna (36)
caracterizado porque al menos un panel lateral (2, 35)
comprende una primera sección de panel (9) configurada
con una primera lengüeta (16) y una segunda sección de
10 panel (10) configurada con una segunda lengüeta (23), en
donde la primera lengüeta (16) se traslapa y es
asegurada por medios de aseguramiento (6) de tal forma
que ésta puede ser abierta y vuelta a sellar, a un lado
exterior (30) presente sobre la segunda sección de panel
15 (10), en donde la segunda lengüeta (23) se traslapa y es
asegurada por medios de aseguramiento (6) de tal forma
que ésta puede ser abierta y vuelta a sellar, en un lado
exterior (31) presente en la primer sección de panel
(9), y en donde el lado exterior (31) de la primer
20 sección de panel (9) se enfrenta en la misma dirección
que el lado exterior (30) de la segunda sección de panel
(10).

2. Un producto absorbente (32) de acuerdo a la
25 reivindicación 1, caracterizado porque el panel lateral
(2, 35) consiste de un material no elástico.

110
110

3. Un producto absorbente (32) de acuerdo a la reivindicación 1 o 2, caracterizado porque las lengüetas (16, 23) son de igual tamaño.
- 5 4. Un producto absorbente (32) de acuerdo con cualquiera de las reivindicaciones 1-3 caracterizado porque la primer lengüeta (16) y la segunda lengüeta (23) son rectangulares.
- 10 5. Un producto absorbente (32) de acuerdo con cualquiera de las reivindicaciones 1-4 y caracterizado porque los medios de aseguramiento (6) son mecánicos y comprenden miembros macho.
- 15 6. Un producto absorbente (32) de acuerdo con cualquiera de las reivindicaciones 1-5, caracterizado porque la banda de material (1) de la cual es hecho el panel lateral (2, 35) tiene una estructura que comprende miembros hembra.
- 20 7. Un método para producir un panel lateral (2, 35) para un producto absorbente, tal como un pañal para halar (32), proveniente de una banda de material (1) que tiene un segmento medio (3) el cual, en la dirección latitudinal, está limitado por primeros y segundos segmentos
- 25 laterales (4, 5) localizados a cada lado, dichos segmentos laterales, tal como el segmento medio (3), corren en una dirección de producción, en donde el método comprende las etapas de:

11/11

- Alinear el segmento medio (3) de la banda de material (1) en la dirección de producción con unos medios de aseguramiento (6) que se fijan sobre éste;
- Dividir la banda de material alineada (1) en una primer sección de panel (9) y una segunda sección de panel (10), en la dirección de producción, al rasgar la banda de material (1), en un patrón curvado continuo ondulante alrededor de una línea central imaginaria (38) sobre la banda de material (1), de tal forma que el rasgado corta al segmento medio (3) con cada tirón transversal. En la primera sección de panel (9) una primera lengüeta (16) es formada en la dirección que se aleja del primer segmento lateral (4) hacia el segundo segmento lateral (5), y en la segunda sección de panel (10) una segunda lengüeta (23) es formada en la dirección que se aleja del segundo segmento lateral (5) hacia el primer segmento lateral (4);
- Formar el panel lateral (2, 35) mediante:
- Acercar la primera sección de panel (9) hacia la segunda sección de panel (10) de tal forma que la primera lengüeta (16) traslapa un lado exterior (30) presente sobre la segunda sección de panel (10) y en donde la segunda lengüeta (23) traslapa un lado exterior (31) presente sobre la primer sección de panel (9), en donde los dos lados exteriores (30, 31) se enfrentan en la misma dirección;
- Asegurar la primera lengüeta (16) por medios de aseguramiento (6) de tal forma que ésta pueda abrirse y volverse a sellar, por el lado exterior (30) de la segunda sección de panel (10);
- Asegurar la segunda lengüeta (23) por medios de aseguramiento (6) de tal forma que ésta pueda abrirse y volverse a sellar, por el lado exterior (31) de la primera sección de panel (9);
- Dividir la banda de material (1), antes o después de que la primera sección de panel (9) haya sido acercada hacia

112
#2

la segunda sección de panel (10), esencialmente de manera perpendicular en la dirección de producción a lo largo de la primera línea (19) y una segunda línea (20) esencialmente paralela con la primera línea (19), en donde la primera lengüeta (16) y la segunda lengüeta (23) están localizadas entre la primera línea (19) y la segunda línea (20).

8. Un método de acuerdo con la reivindicación 7, caracterizado porque el rasgado es realizado en un patrón continuo en el cual un primer corte (11) es hecho esencialmente en la dirección de producción, seguido por un segundo corte (12) a través del segmento medio (3) esencialmente perpendicular a la dirección de producción, seguido por un tercer corte (13) esencialmente en la dirección de producción, seguido por un cuarto corte (14', 14) a través del segmento medio esencialmente perpendicular a la dirección de producción; en que el cuarto corte (14'), el primer corte (11) y el segundo corte (12) forman la primera lengüeta (16) de la primera sección de panel; en que el segundo corte (12), el tercer corte (13) y el cuarto corte (14) forman la segunda lengüeta (23) de la segunda sección de panel (10).

9. Un método de acuerdo con la reivindicación 8, caracterizado porque la primera línea (19) coincide con el cuarto corte (14') y porque la segunda línea (20)

113
113
coincide con el segundo corte (12) o el cuarto corte
(14) a una distancia desde la primera línea (19).

5 10. Un método de acuerdo con cualquiera de las
reivindicaciones 7-9, caracterizado porque los medios de
aseguramiento (6) son mecánicos y comprenden miembros
macho fijados en la respectiva sección de panel (9, 10).

10 11. Un método de acuerdo con la reivindicación 10,
caracterizado porque los miembros macho de los medios de
aseguramiento (6) son fijados en miembros hembra
presentes en la respectiva sección de panel (9, 10).

15 12. Un método de acuerdo con cualquiera de las
reivindicaciones 7-9, caracterizado porque los cortes
(11-14) son realizados de tal forma que a las lengüetas
(16, 23) se les dan los mismos tamaños.

20 13. Un producto absorbente, tal como un pañal para halar
(32), que comprende un panel lateral (2, 35) que puede
ser fabricado mediante un método de acuerdo con
cualquiera de las reivindicaciones 7-12.

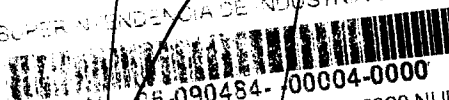
119
11

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

RECIBO OFICIAL DE CAJA : 08 - 23,307
: MARZO 17 DE 2008

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



NO. 06-090484-00004-0000

Dep 2020 NUECREACIONE
Eve: 378 FASENACIONALI
Folios: 37

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
CAVELIER ABOGADOS	RECIBO DE CAJA			23181	17/03/2008	48,918,000.00

***** CONCEPTO *****

CANT.	RENTISTERO	CONCEPTO	TOTAL CONCEPTO
1	50000-04-03	CAMBIO DE MODALIDAD Y MODIFICA	
		12 MARCAS Y LEMAS COMERCIALES	103,000.00
		TOTAL :	\$ 103,000.00

SON: CIENTO TRES MIL PESOS

RESPONSABLE :

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

Coto 1256-041-101-4

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

2020

Bogotá, D. C., 8 de abril de 2008

Doctor

EMILIO FERRERO

Representante **SCA HYGIENE PRODUCTS AB**

ASUNTO

Radicación **06-090484**
Trámite **002**
Evento **001**
Actuación **430**
Oficio **5269**
Folios **031**

Patente de Invención

☒

Patente de Modelo de Utilidad

☐

Vía Nacional

☐

Vía PCT (fase nacional)

☒

Cap. I

☐

Cap. II

☒

No. Sol. Internacional

PCT/SE2004/000341

Fecha de Presentación Internal.

10 de marzo de 2004

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

- 1.1. Descripción: Folios: 25 a 46 tal como se radicó inicialmente
Folios 82 a 108 tal como se modificó el 19 de marzo de 2008
- 1.2. Reivindicaciones: Folios 47 a 50 tal como se radicó inicialmente
Folios 109 a 113 tal como se modificó el 19 de marzo de 2008
- 1.3. Dibujos: Folios 52 a 57 tal como se radicó inicialmente
- 1.4. Prioridad: Ninguna

2. Modificaciones (artículo 34 D.486 y art. 22 Tratado PCT)

Se aceptan las modificaciones realizadas por el solicitante toda vez que no amplían el objeto inicial de la solicitud.

3. Objeto de la invención

- Título de la solicitud (folio 1) PRODUCTO ABSORBENTE CON PANEL LATERAL RESELLABLE
- Las reivindicaciones 1 a 13 de la solicitud en estudio se refieren a un producto absorbente (32), tal como un pañal de halado que comprende un panel delantero (33), un panel trasero (34) y, entre ellos, dos paneles laterales opuestos (2, 35), una sección de entrepierna (36) **caracterizada** porque al menos un panel lateral (2, 35) comprende una primer sección de panel (9) configurada con una primera lengüeta (16) y una segunda sección de panel (10) configurada con una segunda lengüeta (23), en donde la primera lengüeta (16) traslapa y se asegura por medio de aseguramiento (6) de tal forma que ésta pueda ser abierta y vuelta a sellar, en un lado exterior (30) presente sobre la segunda sección de panel (10), en donde la segunda lengüeta (23) traslapa y se asegura por medio de aseguramiento (6) de tal forma que ésta pueda ser abierta y resellada, en un lado exterior (31) presente en la primer sección de panel (9), y en donde el lado exterior (31) de la primer sección de panel (9) se enfrenta de la misma forma que el lado exterior (30) de la segunda sección de panel (10).
- El anterior producto busca mejorar las características de artículos absorbentes desechables
- La Clasificación Internacional de Patentes (IPC) para esta solicitud es A61F13/15.

4. Determinación del Estado de la Técnica

- La fecha que se ha tenido en cuenta para determinar el estado de la técnica es 10 de marzo de 2004
- Teniendo en cuenta la fecha indicada se realizó la búsqueda en el estado de la técnica de documentos relacionados con la solicitud encontrándose los siguientes documentos más relevantes:

Nº	Documento	Título	Fecha de publicación*
D1	US2003/0212377	method of production of diaper pants	13.11.2003
D2	WO 02/11657	The absorbent article with improved fastening system	14.02.2002
D3	EP 0 755 665	Disposable undergarment having a tape fastener	29.01.1997

5. Análisis de patentabilidad (artículo 14 D486)

El solicitante pretende que se le proteja un producto absorbente con un panel delantero, un panel trasero, dos paneles laterales opuestos entre ellos, una sección de entrepierna **CARACTERIZADO** porque al menos un panel lateral comprende una parte con una primera lengüeta y otra parte de dicho panel contiene una segunda lengüeta, en donde la primera lengüeta traslapa y se asegura por medio de un medio de aseguramiento de tal forma que sea resellable en un lado exterior sobre la segunda sección de panel, en donde la segunda lengüeta traslapa y se asegura por medio de un medio de aseguramiento de tal forma que sea resellable en un lado exterior presente en la primer sección de panel y en donde el lado exterior de la primer sección de panel se enfrenta de la misma forma que el lado exterior de la segunda sección de panel. En esencia lo que el solicitante pretende proteger es el mecanismo de aseguramiento del artículo absorbente donde a partir de un panel lateral del artículo absorbente se

muestran dos medios de lograr dicho aseguramiento ubicados en dos partes diferentes del panel lateral, de tal forma que cada medio se asegura en la parte contraria del panel.

De acuerdo a lo anterior, se observa que el documento D2 WO0211657 en algunas de sus modalidades contempla exactamente el mismo objeto de la presente solicitud. Obsérvese especialmente las figuras 1, 2, 6, 8, 8A y 24 a 27, y las páginas 5, 13, 14, 15 17, 18, 19.

Algo similar ocurre con el documento D1.

El documento D3 EP 0 755 665 si bien presenta diferencias menores, es factible para un técnico conocedor del arte obtener lo reivindicado en esta solicitud partiendo de dicho documento, ya que la diferencia básica radica en la ubicación de los medios de aseguramiento. La idea es básicamente la misma, la ubicación es lo que difiere.

6. Conclusión:

Los requisitos de patentabilidad de la presente solicitud se encuentran afectados así:

N°	Documento N°	Reivindicaciones afectadas	Requisito que afecta
D1	US2003/0212377	1 - 13	Novedad
			Nivel Inventivo
D2	WO 02/11657	1 - 13	Novedad
			Nivel Inventivo
D3	EP 0 755 665	1 - 13	Novedad
			Nivel Inventivo

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que debe dar respuesta dentro del término de SESENTA días contados a partir de la fecha de notificación de la presente comunicación. 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 en 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 de División de Nuevas Creaciones

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

CONCEPTO TÉCNICO No. 1001	EXAMINADOR TÉCNICO Código No. 202003
---	--



US 2003/0212377A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2003/0212377 A1
Karlsson et al. (43) Pub. Date: Nov. 13, 2003

(54) METHOD FOR PRODUCTION OF DIAPER PANTS

Publication Classification

(75) Inventors: Birgitta Karlsson, Molnlycke (SE);
Ken Olsson, Vstra Frolunda (SE);
Cecile Sandin, Molndal (SE);
Elsabeth Lakso, Stenungsund (SE);
Anna-Carin Elstrom, Torshanda (SE);
Robert Albino, Pixbo (SE)(51) Int. Cl.⁷ A61F 13/15; B65B 1/00
(52) U.S. CL. 604/387; 156/60

(57) ABSTRACT

Correspondence Address:
BURNS, DOANE, SWECKER & MATHIS,
LLP.
P.O. Box 1404
Alexandria, VA 22313-1404 (US)(73) Assignee: SCA Hygiene Products AB, Goteborg
(SE)

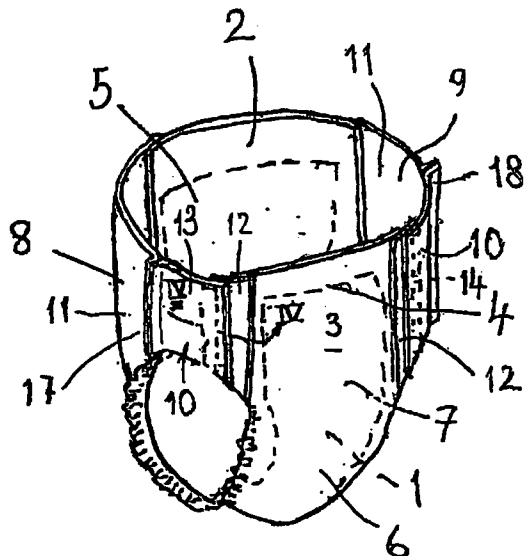
(21) Appl. No.: 10/401,733

(22) Filed: Mar. 31, 2003

Related U.S. Application Data

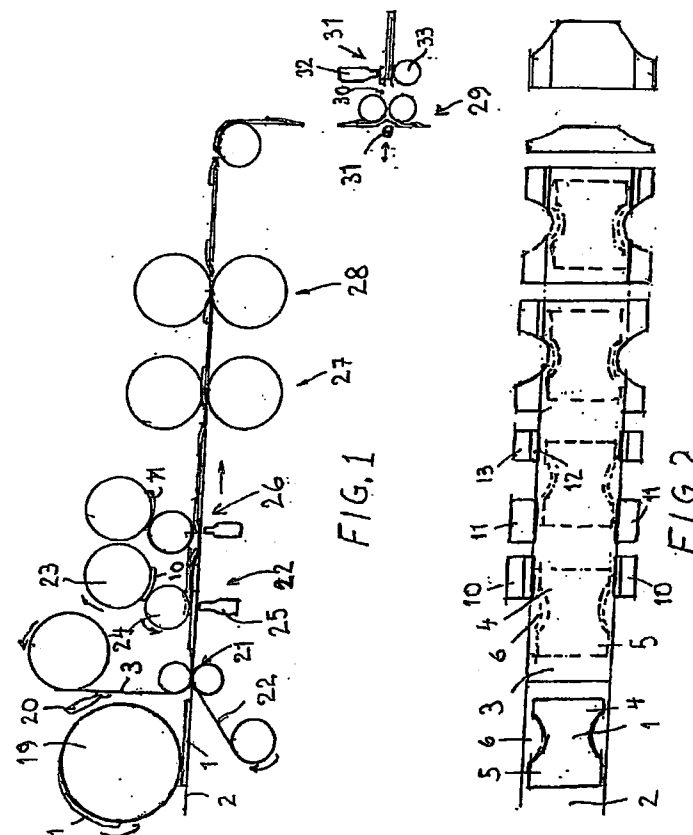
(60) Provisional application No. 60/368,954, filed on Apr. 2, 2002.

A method of production of disposable diaper pants or disposable sanitary pants with openable and resealable side panels. A row of absorption bodies is applied on a continuous web of inner or outer cover sheet material, after which a continuous web of outer or inner cover sheet material is applied and secured to the web with absorption bodies at parts lying outside the absorption bodies to form a web of diaper pants blanks. First side panels having two parts connected by a detachable and resealable connection are secured to the diaper pants blanks at a side of a front or rear portion. Second separate side panels are secured to the side portions of the front or rear portions of the diaper pants blanks which do not have side panels. Individual diaper pants blanks with side panels are cut out, folded along a transverse axis in the crotch, and secured.

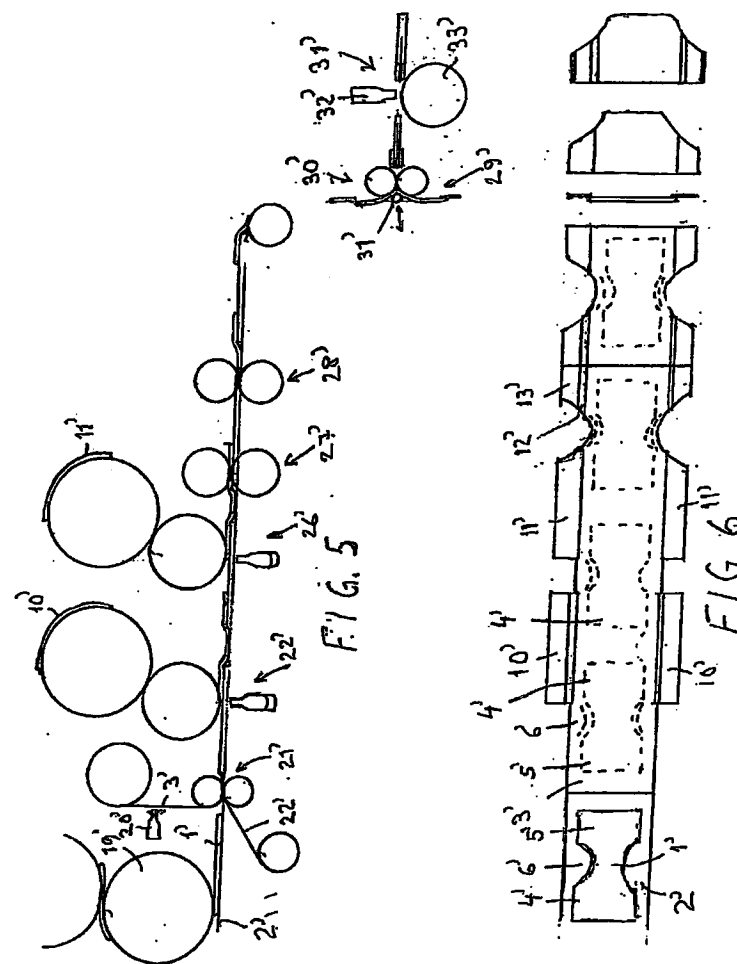
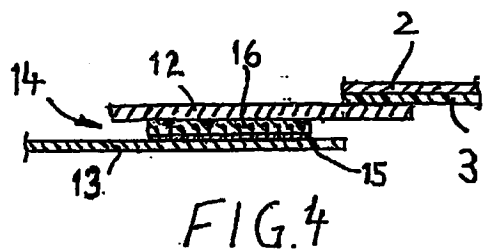
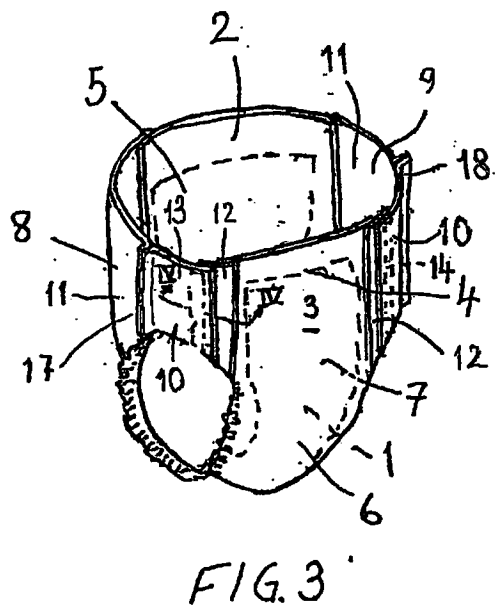


Patent Application Publication Nov. 13, 2003 Sheet 1 of 4

US 2003/0212377 A1



118



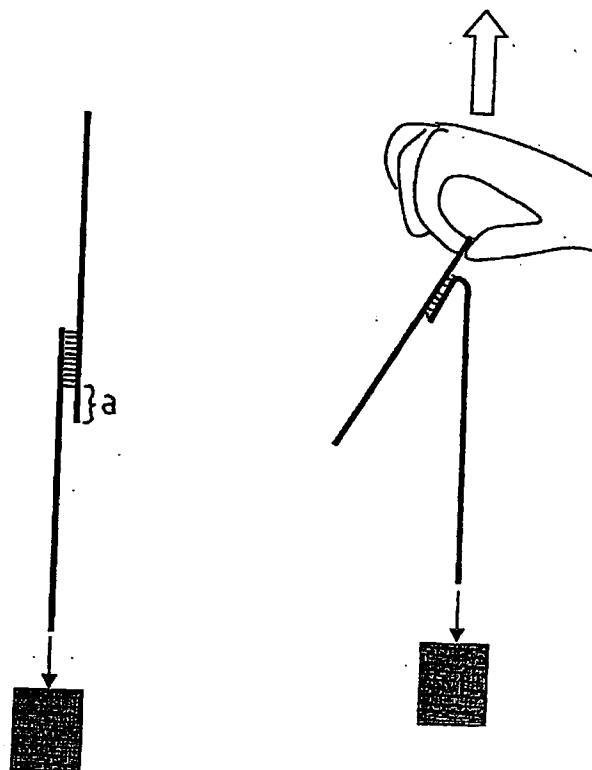


FIG. 7

METHOD FOR PRODUCTION OF DIAPER PANTS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims the benefit of U.S. Provisional Application No. 60/368,954, filed in the United States on Apr. 2, 2002, the entire contents of which are hereby incorporated herein by reference.

BACKGROUND OF THE APPLICATION

[0002] 1. Technical Field

[0003] The present invention relates to a method for production of disposable diaper pants or of a sanitary panty of the disposable type with openable and resealable side panels and to disposable diaper pants or a disposable sanitary panty produced by means of this method.

[0004] 2. Background Art

[0005] Diaper pants with openable and resealable side panels combine the advantages of conventional diaper pants and conventional diapers. They are produced with sealed side panels and, like conventional diaper pants, can be taken off and put on in the same way as underpants. By means of the side panels being openable, they can also be taken off in the same way as conventional diapers, as a result of which soiling of the infant can be avoided when changing the diaper pants. Moreover, the fact that they are resealable means that a parent can open the diaper pants in order to check whether they need to be changed and can seal the diaper pants again if this is not the case. It is therefore of advantage to be able to produce such diaper pants in an economic way. WO 99/65439, WO 99/65441, WO 00/37007 and WO 00/37010 all disclose methods for producing diaper pants in which side panels are fastened in a detachable and resealable manner to side portions of the unit of the diaper pants which encloses the absorption body. These methods require great precision when applying the side panels, and they also make it difficult to design the openable and resealable connection as a childproof connection.

[0006] It is an object of the present invention to make available a method for production of disposable diaper pants or of a sanitary panty of the disposable type with openable and resealable side panels, the method requiring less precision than in previously known methods for applying side panels to a web of continuous diaper pants blanks arranged in succession. Further objects are to reduce the required precision for cutting individual diaper pants blanks from the web, and to permit application of childproof connections in a simple manner.

SUMMARY OF THE INVENTION

[0007] These and other objects are achieved by means of a method for production of disposable diaper pants or of a sanitary panty of the disposable type with openable and resealable side panels, comprising the step in which a web of interconnected diaper pants blanks, which each comprise an absorption body enclosed between an inner cover sheet of liquid-permeable material and an outer cover sheet of liquid-impermeable material and have a front portion and a rear portion and an intermediate crotch portion, is formed by means of a row of absorption bodies being applied on a continuous web of inner or outer cover sheet material, after

which a continuous web of outer or inner cover sheet material is applied to the web with absorption bodies and secured to it in those parts thereof which lie outside the absorption bodies. The method includes:

[0008] first separate side panels, which each comprise two parts connected to each other by means of a detachable and resealable connection, are secured to the side portions of the front portions or rear portions of the diaper pants blanks;

[0009] second separate side panels are secured to the side portions of those of the front portions or rear portions of the diaper pants blanks which are not provided with or are intended to be provided with first side panels; after which

[0010] individual diaper pants blanks provided with side panels are cut out from the web of interconnected diaper pants blanks; after which

[0011] each diaper pants blank is folded about a transverse axis in the crotch portion so that the front and rear portions of the blank lie against each other; after which

[0012] the first and second side panels of each diaper pants blank which have been folded toward each other are secured to each other.

[0013] Because the detachable and resealable connection is made in the two-part front or rear side panel, the detachable and resealable connection can be delivered to the processing line for diaper pants production in the assembled state, which reduces the precision requirements in the processing line compared to the situation where sealing of the connection takes place in the processing line. Moreover, such a design means that the connection can be made childproof outside the processing line, which is advantageous from the point of view of production technology.

[0014] In a preferred embodiment, the absorption bodies are arranged such that front and rear portions of the absorption bodies are directed towards each other in adjacent absorption bodies in the row of absorption bodies, and such that the first and second side panels of adjacent diaper pants blanks extend across both the mutually adjacent front and rear portions. The first and second side panels are secured to the outer or inner cover sheet of the diaper pants blanks. Alternatively, the first and second side panels are placed between the outer and inner cover sheet of the diaper pants blanks and secured to both of these sheets. Moreover, the side panels at least partially consist of elastic material, and the detachable and resealable connection, which connects the two parts of each first side panel to each other, preferably consists of a childproof connection.

[0015] Embodiments of the invention also relate to disposable diaper pants or a sanitary panty of the disposable type with a front portion, a rear portion and an intermediate crotch portion, which comprises an absorption body enclosed between an inner cover sheet of liquid-permeable material and an outer cover sheet of liquid-tight material and separate side panels which, on both sides of the absorption body, extend outside the inner and outer cover sheets and connect the front and rear portions of the diaper pants to each other, so that the diaper pants acquire a pants-like configuration with a waist opening and two leg openings.

which side panels comprise front and rear parts which are connected to each other by a seam. Each side panel is elastic and comprises two parts which are connected to each other by means of a detachable and resealable connection member.

[0016] In a preferred embodiment, the detachable and resealable connection consists of a childproof connection member. Alternatively, in addition to the detachable and resealable connection, each side panel also comprises a second childproof connection, which is detachable and is destroyed upon opening the side panel for the first time. The force needed to open a childproof connection is greater than 4 N, preferably greater than 6 N, more preferably greater than 8 N, and most preferably greater than 10 N but less than 20 N, preferably 15 N. Moreover, the elastic side panels comprise parts of nonelastic material in those sections to which parts of the connection members are secured.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The invention will now be described with reference to the attached figures, of which:

[0018] FIGS. 1 and 2 are diagrammatic representations, in a side view and plan view respectively, of an arrangement for producing diaper pants according to a first embodiment of the invention,

[0019] FIG. 3 shows a diagrammatic perspective view of diaper pants produced in an arrangement according to FIGS. 1 and 2,

[0020] FIG. 4 shows a cross-sectional view along the line IV-IV in FIG. 3,

[0021] FIGS. 5 and 6 show views, similar to FIGS. 1 and 2, of an arrangement according to a second embodiment of the invention, and

[0022] FIG. 7 is a diagrammatic representation of a method for testing the childproof nature of a connection.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0023] FIGS. 1 and 2 are diagrammatic representations of an arrangement for producing the diaper pants according to FIG. 3. The diaper pants shown in FIG. 3 comprise an absorption body 1 enclosed between an inner cover sheet 2 of liquid-permeable material and an outer cover sheet 3 of liquid-tight material. The cover sheets 2 and 3 are connected to each other by adhesive bonding or welding in parts lying outside the absorption body. The unit 7 formed by the cover sheets and the absorption body has a front portion 4, a rear portion 5 and an intermediate narrower crotch portion 6. The diaper pants 3 also comprise side panels 8, 9 which extend between the front and rear portions of the unit 7 lying on the same sides of the absorption body and connect these portions to each other so that the diaper pants acquire a form similar to underpants.

[0024] The side panels 8, 9 each comprise a front side panel 10 and a rear side panel 11 which are connected to each other by outward seams 17, 18. The seams 17, 18 expediently consist of weld seams but can also be adhesive seams. The front side panels 10 are in turn each made up of two parts 12, 13, which parts are connected to each other by means of a detachable and resealable mechanical connection 14 which, in the example shown, is of the velcro type, i.e.

one part 13 is provided with a fastening element 15, or male element, having a number of hooks which project outward from the surface of the fastening element, and the other part 12 is provided with a fastening element 16, or female element, having a number of loops or eyelets in which the hooks engage. In the illustrative embodiment shown, some of the hooks of the male element are also firmly connected to the female element, e.g. firmly welded in the female element by point welding. In this way it is possible to obtain a connection which is difficult or impossible for an infant to open but is easy for an adult to open. It has indeed been found that infants like to manipulate their diaper pants, and for this reason there is a need for a childproof connection. The number of weld points should be chosen so that the force needed to open such a connection is greater than 4 N, preferably greater than 6 N, more preferably greater than 8 N, and most preferably greater than 10 N but less than 20 N, preferably 15 N, in order to ensure childproofing and yet make the connection easy for an adult to open. The opening force can be easily measured, in the manner shown diagrammatically in FIG. 7, by coupling a weight to that part of the two parts of the connection which is overlapped, and thereafter taking hold of the grip part of the overlapping part and then lifting the connection. If the weight remains suspended from the connection for more than 30 seconds without the connection opening, the connection is considered sufficient to hold the weight.

[0025] Another factor which influences the childproof aspect is the length of the grip tab, i.e. the length a (see FIG. 7) of that part of the overlapping side panel which projects beyond the connection. It has been found that if the grip tabs are shorter than 7 mm, it is very difficult for the children themselves to open the connection. For this reason, the length of the grip tab should lie between 3 and 7 mm, preferably between 4 and 6 mm.

[0026] The childproofing can also be obtained in another way by means of the fact that, outside the mechanical connection 14, the overlapping portions of the two parts 12, 13 of the front side panels are connected to each other by means of a second openable but not resealable connection, for example a weld connection or adhesive connection, with an opening force in accordance with the above. A second connection of this kind is destroyed when the side panels are opened for the first time. The outermost edge part of the overlapping part of the two parts 12, 13 can also be firmly connected to the underlying part of the side panel, in which case opening is obtained by means of a line of weakening in the overlapping part situated between the connection 14 and the firmly connected outermost edge part.

[0027] The side panels 8, 9 are elastic and are preferably made of elastic material. However, in those parts which include the securing elements 15, 16, the side panels are preferably made of nonelastic material in order to simplify the attachment of the securing elements. The elastic material can consist of elastics made from block copolymers, such as polyurethanes, copolyether esters, polyamide-polyether block copolymers, ethylene-vinyl acetates (EVA) and the like, including polyurethanes available from E. I. Du Pont de Nemours Co., USA, under the name LYCRA® (also known as "spandex"); elastomeric styrene-butadiene copolymers, including those such as KRATON® material, which are available from Shell Chemical Company of Houston, Tex., USA; tetra-block copolymers, including elastomeric sty-

rene-poly(ethylene-propylene) block copolymers available from Shell Chemical Company of Houston, Tex., USA, under the trade name KRATON®; polyamides including polyether block amides available from Ato Chemical Company, USA, under the trade name PEBAX®; polyesters, such as those available from E. I. Du Pont de Nemours Co. under the trade name HYTREL®; single-site or metal-locene-catalyzed polymers, including single-site or metal-locene-catalyzed polyolefins with a density of less than about 0.89 gram/cm³ from Dow Chemical Co., USA, under the trade name AFFINITY®; and natural and synthetic rubber. The nonelastic material can include of a nonwoven material, for example a spunbond nonwoven, a carded nonwoven, a meltblown nonwoven or a nonwoven laminate, for example a spunbond-meltblown-spunbond (SMS) laminate. The fibers used to build up the nonwoven materials can be fibers of polyolefins, for example polyethylene or polypropylene, or of polyester. Moreover, the nonwoven material can be a mixture of several different types of fibers, or of fibers which include several different polymers, called copolymers. It is also possible for the nonelastic material to be a plastic film. In the preferred embodiment, therefore, at least the parts 13 of the two detachable parts 12, 13, of which the front side panels 10 consist, are in turn made up of at least two parts. For the sake of simplicity, however, the parts 13 are shown as single material pieces in the figures. The material of the side panels can also be air-permeable in order to increase comfort.

[0028] The aim of the elastic side panels is to give the diaper pants a good fit. It should be noted that the side panels are of course dimensioned to give the elastic force necessary, but not more. It is therefore conceivable that the side panels also have parts of nonelastic material at locations other than at the securing elements.

[0029] As material for the side panels, it is also conceivable to use two nonwoven sheets between which elastic material, elastic bands or elastic threads are secured in the stretched state. With such a material, the elastic and non-elastic parts of the side panels consist of portions with and without such elastic material.

[0030] To improve access to the detachable and resealable connections 14, the parts 13 of the front side panels 10 can have a considerably greater extent in the circumferential direction than the parts 12 cooperating with them. In this way, the connections 14 will be situated on the front of the diaper pants, which makes them easier to get access to for a parent who wishes to open or take off the diaper pants from an infant lying on his/her back. In the embodiment shown in FIG. 3, the parts 12 which have a small extent in the circumferential direction are advantageously made entirely of nonelastic material, for example a nonwoven.

[0031] It is of course also possible for the parts 13 to have a small extent in the circumferential direction instead of the parts 12, in which case the connections 14 will be close to the side seams 17, 18. In such a design, the connections are situated on the user's side and are thus more difficult to handle. However, such a design provides slightly better comfort for the wearer and reduces the risk of chafing. It is also possible to arrange the detachable and resealable connections in the rear side panels instead of in the front ones.

[0032] As will be seen from FIG. 3, the unit 7 also comprises leg elastic comprising one or more elastic threads

which are arranged between the cover sheets 2 and 3 and are secured to these, in the stretched state, on both sides of the absorption body 1.

[0033] The liquid-permeable cover sheet 2 can be, for example, a nonwoven of spunbond polypropylene. Other materials which are used for liquid-permeable cover sheets, so-called top sheets, of absorbent articles, such as nonwovens of synthetic and/or natural fibers, perforated plastic sheets or laminates of such materials, can of course also be used as cover sheet 2.

[0034] The liquid-tight outer cover sheet 3 can be a plastic sheet, preferably of the breathable type, or a laminate of a plastic sheet and a nonwoven. All materials used as so-called backing sheets for absorbent articles can be used.

[0035] The absorption body 1 preferably comprises a layer of cellulose fibers with or without admixture of superabsorbents and/or binder fibers. Other materials such as foamed material or moss can be used. The absorption body can also be made up of several layers and advantageously comprises a layer of material with high permeability, for example a wadding.

[0036] An embodiment of a method for production of diaper pants according to FIG. 3 will now be described with reference to FIGS. 1 and 2. To simplify a comparison with the diaper pants in FIG. 3, the components in FIGS. 1 and 2 have been given the same reference numbers as corresponding components of the finished diaper pants in FIG. 3. For example, the web of liquid-permeable material in FIGS. 1 and 2 has been given the same reference number as the cover sheet 2 of the finished diaper pants.

[0037] The diaper pants according to FIG. 3 can be produced in the following way.

[0038] Absorption bodies 1 are placed on a running material web 2 of liquid-permeable material with the aid of a transfer wheel 19 on which absorption bodies 1 formed in a mat former wheel (not shown) have been deposited. If the absorption bodies 1 can be formed in synchrony with the advance of the material web 2, the transfer wheel can be omitted and the wheel 19 can be a mat former wheel.

[0039] A material web 3 of liquid-tight material is then placed on top of the row of absorption bodies 1. The material web 3 passes a gluing unit 20 immediately before application and is secured, with the aid of a pair of rollers 21, to the material web 2 in parts lying outside the absorption bodies 1. If appropriate, the material web 3 is also secured to the rear side of each absorption body 1. Elastic threads or elastic bands 22 are inserted with the aid of a feed unit (not shown) between the webs 2 and 3 and are secured to these with the aid of the pair of rollers 21. Transverse elastic elements, waist elastic, are also expediently applied between the webs 2 and 3 before these pass through the pair of rollers 21. For the sake of clarity, this elastic is not shown in the figures. It should be noted that the production stages described above are conventional and well known to the skilled person.

[0040] The combined web 1, 2, 3 of continuous diaper pants blanks then runs through a first unit 22 in which front side panels 10 are applied to the front portion of each diaper pants blank. Each front side panel 10 has two parts 12, 13 which are connected to each other by a connection 14 (not shown in FIGS. 1 and 2) which is described with reference

121

121

to FIGS. 3 and 4. The unit 22 can be arranged in such a way that, on both sides of the web of continuous diaper pants blanks, it can deliver and then secure rectangular front side panels 10 from a store of these, or the unit can also be arranged to separate rectangular side panels from a storage roller and then deliver these and secure them to the web of continuous diaper pants blanks. The side panels are attached by adhesive bonding or welding, and the unit 22 thus also comprises, in the case of adhesive bonding, a gluing unit and a stamp or the like and, in the case of welding, a welding device, for example an ultrasonic welding device. In FIG. 1, front side panels 10 are transferred from a roller 23 to a counter-roller 24 and past an ultrasonic welding device 25 in which the front side panels 10 are firmly welded in the cover sheets 2, 3. If appropriate, the welding device can also be arranged to secure the cover sheets 2, 3 to each other in parts lying outside the absorption bodies 1, in which case the gluing unit 20 can be omitted.

[0041] The web of continuous diaper pants blanks then runs past a unit 26 in which rear side panels 11 are applied to the rear portion of each diaper pants blank. The unit 26 is designed in the same way as the unit 22.

[0042] It is of course possible to apply the side panels 10 and 11 in the reverse order by switching the positions of the units 22 and 26 in the processing line.

[0043] After application of the side panels, the web of continuous diaper pants blanks runs through a cutter device 27 in which leg cutouts are formed and then through a blade roller 28 in which the web is divided up into individual diaper pants blanks. In the illustrated embodiment of the diaper pants according to the invention, part of the leg openings is included in the side panels 8, 9. It is of course possible to cut out the leg openings in the web of continuous diaper pants blanks before the application of side panels, especially if the diaper pants are designed such that that part of the side panels included in the leg openings can be straight. Instead of rectangular side panels, it is of course also possible to apply side panels which have leg recesses. However, this is not as preferred because it can considerably increase the precision requirements for application of the side panels. The leg recesses are therefore preferably cut out after the side panels have been secured to the web of continuous diaper pants blanks. In the embodiment shown, cutting of the leg recesses and of the individual diaper pants blanks takes place in two separate stages, but it is possible to use the same blade roller for cutting leg openings and for dividing the web of continuous diaper pants blanks into individual diaper pants blanks.

[0044] After the division of the web of continuous diaper pants blanks, the individual diaper pants blanks are fed to a folding device 29 via a guide arrangement (not shown), for example a guide rail and a suction conveyor. In the embodiment shown, the device 29 comprises a pair of rollers 30 and a member 31 which executes a reciprocating movement and which drives the crotch portion of the diaper pants blank into the nip 30 of the roller pair when the diaper pants blank is situated at the nip. In this way, the diaper pants blank is folded double so that the front edge is situated level with the rear edge.

[0045] After leaving the folding device 29, the double-folded diaper pants blank runs past an ultrasonic welding device 31 including an ultrasound horn 32 and a counter-

roller 33, in which the edges of the front and rear side panels folded against each other are joined together.

[0046] The finished diaper pants are then fed to a packaging device (not shown).

[0047] FIGS. 5 and 6 show a second embodiment of an arrangement for production of diaper pants, which arrangement differs from the arrangement shown in FIGS. 1 and 2 mainly in that the front and rear side panels 10', 11' of two adjacent diaper pants blanks are arranged in one piece in the processing line and are divided upon division of the web of continuous diaper pants blanks. The components in the arrangement shown in FIGS. 5 and 6 which are similar to corresponding components in the arrangement in FIGS. 1 and 2 have been given the same reference numbers, with addition of a prime marker.

[0048] A precondition for being able to arrange the front and rear side panels 10', 11' of two adjacent diaper pants blanks in one piece is that the front and rear portions of adjacent diaper pants blanks are directed toward each other. For this purpose, the moulds of the mat former wheel can be expediently designed such that the absorption bodies leaving the mat former wheel have front ends and rear ends directed toward each other. If this is not the case, the transfer from the mat former wheel takes place in such a way that every second absorption body is turned 180° before the absorption bodies are placed on the transfer wheel 19. The absorption bodies 1' are then placed on the material web 2' in a row with front portions and rear portions of adjacent absorption bodies directed toward each other. A consequence of the front and rear portions of the diaper pants blanks being directed toward each other is that, after leaving the folding device 29', front and rear portions will alternately be situated uppermost in the double-folded diaper pants blank. Otherwise, the arrangement shown in FIGS. 5 and 6 functions in the same way as the arrangement shown in FIGS. 1 and 2.

[0049] In the embodiments described, the web 3, 3' of liquid-tight material is placed on top of the web 2, 2' of liquid-permeable material after the absorption bodies have been placed thereon. It is of course possible to switch the webs around so that absorption bodies are placed on the web of liquid-tight material, and the web of liquid-permeable material is applied last.

[0050] In the embodiments described, the side panels have the same extent in the lateral direction, which means that their side edges lie level with each other after the diaper pants blanks have been folded about a transverse axis. It is of course possible to give the side panels different extents in the lateral direction and to fold the side panel with the greatest lateral extent in across the other panel so that the edges of the side panels overlap each other before the panels are secured to each other.

[0051] By virtue of the fact that the detachable and resealable connected two-part side panels are applied to the web of continuous diaper pants blanks in the sealed state, the precision requirements when arranging the side panels on the web of continuous diaper pants blanks are reduced compared to the situation where the parts including the male and female elements of the seal are to be applied individually, because a deviation from the desired position of the side panels, for example in the longitudinal direction, does not entail an offset of the mutual positions of the parts included

in the resealable connection. In the event of such a deviation of a side panel whose free end contains a male element which is intended to interact with a female element secured to the outer cover of the diaper pants, the male and female elements of the securing arrangement will be offset in relation to each other. This means that the resistance to opening of the connection is less than intended, the diaper pants have a less attractive appearance, and the fit after opening and resealing is not as good as intended, if one assumes that the male and female elements after opening are joined together so that they completely overlap each other. In this method, therefore, greater deviations in the longitudinal direction upon application of the side panels can be tolerated than in previously known methods.

[0052] The arrangement of the diaper pants blanks so that the front and rear portions of adjacent diaper pants blanks are directed toward each other also means that two side panels can be arranged in one piece and then divided by a straight cut in connection with the cutting of individual diaper pants blanks. This can ensure that the waist edges of the side panels and the part of the diaper pants containing the absorption body are always at the same level, which can be difficult to achieve upon application of individual side panels. It should be noted that in a web of continuous diaper pants blanks in which the front portions are directed in the same sense so that the front portion of one diaper pants blank is directed toward the rear portion of the nearest leading diaper pants blank, very great precision is needed when dividing the web into individual diaper pants blanks by means of straight cuts, so as to ensure that part of the rear portion does not end up in the front portion, or part of the front portion end up in the rear portion. If the front and rear portions have the same width and the same material composition, this has no great effect, but, if these portions have a different width or different material composition, it is of course preferred to ensure that the cut is made in exactly the right place. In the method described with reference to FIGS. 1 and 2, the front and rear side panels of adjacent diaper pants blanks are placed at a slight distance from each other so that the continuous diaper pants blank can be divided without any risk of part of the front and rear side panels being included in the wrong diaper pants blank after division of the web. The consequence of this is that the inner and outer cover sheets extend slightly beyond the side panels of the diaper pants produced by means of the method described in FIGS. 1 and 2. By means of the method described with reference to FIGS. 5 and 6, the division of the side panels takes place simultaneously with the division of the web of diaper pants blanks. The tolerances for the positioning of the side panels are thereby increased, and at the same time the position of the dividing cuts requires less precision compared to methods in which a separate side panel for each front portion is applied.

[0053] In addition, the childproof connection can be made with great care and precision since this is done in a production step before the actual diaper production. It is thus possible to use optimum web speeds, which can be considerably slower than the web speeds normally pertaining in process lines for diaper production. A number of parallel side panel blanks can be produced simultaneously if the web width is great enough. In this way, a large number of side panels can be prefabricated per unit of time without the web speed being too high.

[0054] The described method can of course be modified within the scope of the invention. For example, the side panels 10, 11 can be applied to the material web 2 before the material web 3 is applied, so that the side panels are arranged between the material webs 2 and 3 and are secured to both of these webs. The side panels can also be secured to the liquid-permeable inner cover sheet. The absorption bodies 1 can be completed with further layers, such layers being applied on top of the bodies 1 by means of further transfer or mat former wheels being added to the arrangement shown in FIGS. 1 and 2. Moreover, members for providing liquid barriers, so-called standing gathers, can be added to the arrangement. The absorption bodies can have a shape other than that shown, for example they can be rectangular or T-shaped. Types of securing elements other than velcro members can be used, for example different types of snap-fit connections, which can also be made childproof. The components included in the arrangement described are of a type generally used in production of diapers, diaper pants and similar articles and can be replaced by other components with the same function, for example the blade roller can be replaced with a punch device. The invention is therefore limited only by the content of the attached patent claims.

[0055] Although only preferred embodiments are specifically illustrated and described herein, it will be appreciated that many modifications and variations of the present invention are possible in light of the above teachings and within the purview of the appended claims without departing from the spirit and intended scope of the invention.

What is claimed is:

1. A method for production of disposable diaper pants or of a sanitary panty of the disposable type with openable and resealable side panels, comprising:

forming a web of interconnected diaper pants blanks, each diaper pants blank including an absorption body enclosed between an inner cover sheet of liquid-permeable material and an outer cover sheet of liquid-impermeable material, each diaper pants blank having a front portion and a rear portion and an intermediate crotch portion, said forming including applying a row of absorption bodies on a continuous web of inner or outer cover sheet material;

applying a second continuous web of outer or inner cover sheet material to the web of interconnected diaper pants blanks and securing the second web to the first web in parts of the first web lying outside the absorption bodies;

securing first separate side panels, each of the first separate side panels comprising two parts connected to each other by means of a detachable and resealable connection, to side portions of the front portions or rear portions of the diaper pants blanks;

securing second separate side panels to the side portions of those of the front portions or rear portions of the diaper pants blanks which are not provided with or are intended to be provided with first side panels; and thereafter

cutting individual diaper pants blanks provided with side panels from the web of interconnected diaper pants blanks;

folding each diaper pants blank about a transverse axis in the crotch portion so that the front and rear portions of the blank lie against each other; and thereafter

securing the first and second side panels of each diaper pants blank which have been folded toward other to each other.

2. A method according to claim 1, wherein the absorption bodies are arranged such that front and rear portions of the absorption bodies are directed towards each other in adjacent absorption bodies in the row of absorption bodies, and in that the first and second side panels of adjacent diaper pants blanks extend across both the mutually adjacent front and rear portions.

3. The method according to claim 1, wherein the first and second side panels are secured to the outer or inner cover sheet of the diaper pants blanks.

4. The method according to claim 1, wherein the first and second side panels are placed between the outer and inner cover sheets and secured to both the inner cover sheet and the outer cover sheet.

5. The method according to claim 1, wherein the side panels at least partially comprise elastic material.

6. The method according to claim 1, wherein the detachable and resealable connection, which connects the two parts of each first side panel to each other, comprises a childproof connection.

7. A disposable diaper pants or a disposable sanitary panty having a front portion, a rear portion and an intermediate crotch portion, the diaper pants or sanitary panty comprising:

an absorption body enclosed between an inner cover sheet of liquid-permeable material and an outer cover sheet of liquid-tight material;

separate side panels which, on both sides of the absorption body, extend outside the inner and outer cover sheets and connect the front and rear portions of the diaper pants to each other, so that the diaper pants acquire a pants-like configuration with a waist opening and two leg openings, the side panels each having front and rear parts which are connected to each other by a seam, each

side panel being elastic and having two parts connected to each other by a detachable and resealable connection member.

8. The diaper pants or a sanitary panty according to claim 7, wherein the detachable and resealable connection comprises a childproof connection member.

9. The diaper pants or a sanitary panty according to claim 7, wherein in addition to the detachable and resealable connection, each side panel also comprises a second childproof connection, the second childproof connection being detachable and being destroyed upon opening the side panel for a first time.

10. The diaper pants or a sanitary panty according to claim 7, wherein the elastic side panels comprise parts of nonelastic material in those sections to which parts of the connection members are secured.

11. The diaper pants or a sanitary panty according to claim 8, wherein the force needed to open the childproof connection is greater than 4 N.

12. A diaper pants or a sanitary panty according to claim 7, wherein the overlap of the two parts of each side panel which are connected to each other by means of a detachable and resealable connection member protrudes beyond the connection member and forms a grip tab with an extent of 3-7 mm.

13. A diaper pants or sanitary panty according to claim 8, wherein the force needed to open the childproof connection is greater than 8 N.

14. A diaper pants or sanitary panty according to claim 8, wherein the force needed to open the childproof connection is greater than 10 N and less than 20 N.

15. A diaper pants or sanitary panty according to claim 8, wherein the force needed to open the childproof connection is greater than 10 N and less than 15 N.

16. A diaper pants or sanitary panty according to claim 8, wherein the force needed to open the childproof connection is greater than 6 N.

17. A diaper pants or sanitary panty according to claim 12, wherein the extent is 4 mm to 6 mm.

* * * * *

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
14 February 2002 (14.02.2002)

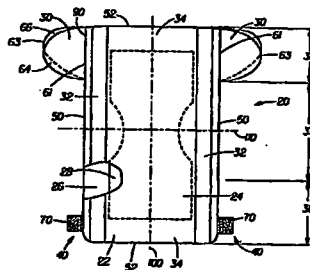
PCT

(10) International Publication Number
WO 02/11657 A2

- (51) International Patent Classification: A61F 13/15 (US). MAGEE, Luke, Robinson; 2847 Minto Avenue, Apt. B, Cincinnati, OH 45203 (US).
- (21) International Application Number: PCT/US01/24596
- (22) International Filing Date: 3 August 2001 (03.08.2001)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 09/633,423 7 August 2000 (07.08.2000) US
- (71) Applicant: THE PROCTER & GAMBLE COMPANY [US/US]; One Procter & Gamble Plaza, Cincinnati, OH 45202 (US).
- (72) Inventors: HAMILTON, Raymond, Scott; 5646 Santa Fe Trail, Mason, OH 45040 (US). DOBRIN, George, Christopher; 4407 Hyacinth Drive, Mason, OH 45040 (US). KLINE, Mark, James; 6318 Alert New London Road, Okema, OH 45053 (US). GLACKIN, George, Bartol, III; 320 Pleasant Hill Drive, Wyoming, OH 43215
- (74) Agents: REED, T., David et al.; The Procter & Gamble Company, 5299 Spring Grove Avenue, Cincinnati, OH 45217-1087 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, FR, GB, GR, GT, HK, HU, IL, IN, IS, JP, KR, KZ, LG, LI, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, SM, ST, SV, TH, TJ, TM, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BI, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: ABSORBENT ARTICLE WITH IMPROVED FASTENING SYSTEM



(57) Abstract: An article to be worn about a wearer including a fastening system joined to the article including a receiving member having at least a first receiving fastening element and a second receiving fastening element. The first receiving fastening element is disposed on a flap having a proximal portion joined to the article and a distal portion extending from the proximal portion. The second receiving fastening element is disposed so as to be generally in face to face relationship with the first receiving fastening element when the receiving member is in a closed configuration. An engaging member includes at least a first engaging fastening element and a second engaging fastening element. The first engaging fastening element is engageable with at least the first receiving fastening element and the second engaging fastening element is engageable with at least the second receiving fastening element. The fastening system may be unbalanced; the second flap may be substantially unjoined to the article; the receiving member may have a hinge oriented substantially parallel to a primary direction of load bearing; and/or the fastening system may have a pool resistance in a direction other than the primary direction of load bearing greater than or equal to about 1000 grams.

WO 02/11657

PCT/US01/24596

as absorbent articles (i.e., they are intended to be discarded after a single use and, preferably, to be recycled, composted or otherwise discarded in an environmentally compatible manner). A "unitary" absorbent article refers to absorbent articles which are formed of separate parts united together to form a coordinated entity so that they do not require separate manipulative parts like a separate holder and/or liner. A preferred embodiment of an absorbent article of the present invention is the unitary disposable absorbent article, diaper 20, shown in Figure 1. As used herein, the term "diaper" refers to an absorbent article generally worn by infants and incontinent persons about the lower torso. The present invention is also applicable to other absorbent articles such as incontinence briefs, incontinence undergarments, absorbent inserts, diaper holders and liners, feminine hygiene garments, wipes, mops, bandages and the like.

Figure 1 is a plan view of the diaper 20 of the present invention in a flat-out, state with portions of the structure being cut-away to more clearly show the construction of the diaper 20. The portion of the diaper 20 which faces the wearer is oriented towards the viewer. As shown in Figure 1, the diaper 20 preferably comprises a liquid pervious topsheet 24; a liquid impervious backsheet 26; an absorbent core 28 which is preferably positioned between at least a portion of the topsheet 24 and the backsheet 26; side panels 30; elasticized leg cuffs 32; a waist feature 34; and a fastening system generally designated 40. The diaper 20 is shown in Figure 1 to have a first waist region 36, a second waist region 38 opposed to the first waist region 36 and a crotch region 37 located between the first waist region 36 and the second waist region 38. The periphery of the diaper 20 is defined by the outer edges of the diaper 20 in which longitudinal edges 50 run generally parallel to the longitudinal centerline 100 of the diaper 20 and end edges 52 run between the longitudinal edges 50 generally parallel to the lateral centerline 110 of the diaper 20.

The chassis 22 of the diaper 20 comprises the main body of the diaper 20. The chassis 22 comprises at least a portion of the absorbent core 28 and preferably an outer covering including the topsheet 24 and/or the backsheet 26. If the absorbent article comprises a separate holder and a liner, the chassis 22 generally comprises the holder and the liner. (For example, the holder may comprise one or more layers of material to form the outer cover of the article and the liner may comprise an absorbent assembly including a

125

The diaper 20 may also comprise at least one waist feature 34 that helps to provide improved fit and containment. The waist feature 34 may be elastic and/or extensible, or neither elastic or extensible. If the waist feature 34 is elastic or extensible, it will generally be designed to dynamically fit the wearer's waist. The waist feature 34 preferably extends at least longitudinally outwardly from at least one waist edge of the absorbent core 28 and generally forms at least a portion of the end edge 52 of the diaper 20. Disposable diapers are often constructed so as to have two waist features, one positioned in the first waist region 36 and one positioned in the second waist region 38. Further, while the waist feature 34 or any of its constituent elements may comprise one or more separate elements affixed to the diaper 20, the waist feature 34 may be constructed as an extension of other elements of the diaper 20, such as the backsheet 26, the topsheet 24, or both the backsheet 26 and the topsheet 24.

The waist feature 34 may be constructed in a number of different configurations including those described in U.S. Pat. No. 4,515,595 issued to Klevit et al. on May 7, 1985; U.S. Pat. No. 4,710,189 issued to Lash on December 1, 1987; U.S. Pat. No. 5,151,092 issued to Buell on September 9, 1992; and U.S. Pat. No. 5,221,274 issued to Buell on June 22, 1993. Other suitable waist configurations may include waistcap features such as those described in U.S. Pat. No. 5,026,364 issued to Robertson on June 25, 1991 and U.S. Pat. No. 4,816,025 issued to Foreman on March 28, 1989. All of the above mentioned references are incorporated herein by reference.

The diaper 20 may also comprise side panels 30. The side panels 30 may be elastic or extensible to provide a more comfortable and contouring fit by initially conformably fitting the diaper 20 to the wearer and sustaining this fit throughout the time of wear well past when the diaper 20 has been loaded with exudates since the elasticized side panels 30 allow the sides of the diaper 20 to expand and contract. The side panels 30 may also provide more effective application of the diaper 20 because even if the diaperer pulls one elasticized side panel 30 farther than the other during application, the diaper 20 will "self-adjust" during wear.

While the diaper 20 of the present invention preferably has the side panels 30 disposed in the second waist region 38, the diaper 20 may be provided with side panels 30

disposed in the first waist region 36 or in both the first waist region 36 and the second waist region 38. The side panels 30 may be constructed in any suitable configurations. Examples of diapers with elasticized side panels are disclosed in U.S. Patent 4,857,067, entitled "Disposable Diaper Having Shirred Bars" issued to Wood, et al. on August 15, 1989; U.S. Patent 4,381,781 issued to Sciaraffa, et al. on May 3, 1983; U.S. Patent 4,938,753 issued to Van Gompel, et al. on July 3, 1990; the herein before referenced U.S. Pat. No. 5,151,092 issued to Buell on September 9, 1992; U.S. Pat. No. 5,221,274 issued to Buell on June 22, 1993; U.S. Patent No. 5,669,897 issued to LaVon, et al. on September 23, 1997 entitled "Absorbent Articles Providing Sustained Dynamic Fit"; and U.S. Patent No. 6,004,306 entitled "Absorbent Article With Multi-Directional Extensible Side Panels" issued to Robles et al. on December 21, 1999; each of which is incorporated herein by reference.

The diaper 20 preferably further includes leg cuffs 32 which provide improved containment of liquids and other body exudates. Leg cuffs 32 may also be referred to as leg bands, side flaps, barrier cuffs, or elastic cuffs. U.S. Patent 3,860,003 describes a disposable diaper which provides a contractible leg opening having a side flap and one or more elastic members to provide an elasticized leg cuff (a gasketing cuff). U.S. Patent Nos. 4,808,178 and 4,909,803 issued to Aziz et al. on February 28, 1989 and March 20, 1990, respectively, describe disposable diapers having "stand-up" elasticized flaps (barrier cuffs) which improve the containment of the leg regions. U.S. Pat. Nos. 4,695,278 and 4,795,454 issued to Lawson on September 22, 1987 and to Dragoo on January 3, 1989, respectively, describe disposable diapers having dual cuffs, including gasketing cuffs and barrier cuffs. In some embodiments, it may be desirable to treat all or a portion of the leg cuffs 32 with a lotion, as described above.

Embodiments of the present invention may also include pockets for receiving and containing waste, spacers which provide voids for waste, barriers for limiting the movement of waste in the article, compartments or voids which accept and contain waste materials deposited in the diaper 20, and the like, or any combinations thereof. Examples of pockets and spacers for use in absorbent products are described in U.S. Patent 5,514,121 issued to Roe et al. on May 7, 1996, entitled "Diaper Having Expulsive

125

Spacer"; U.S. Patent 5,171,236 issued to Dreier et al. on December 15, 1992 entitled "Disposable Absorbent Article Having Core Spacers"; U.S. Patent 5,397,318 issued to Dreier on March 14, 1995 entitled "Absorbent Article Having A Pocket Cuff"; U.S. Patent 5,540,671 issued to Dreier on July 30, 1996 entitled "Absorbent Article Having A Pocket Cuff With An Apex"; PCT Application WO 93/25172 published December 3, 1993 entitled "Spacers For Use In Hygienic Absorbent Articles And Disposable Absorbent Articles Having Such Spacer"; U.S. Patent 5,306,266 entitled "Flexible Spacers For Use In Disposable Absorbent Articles" issued to Freeland on April 26, 1994; and U.S. Patent 5,997,520 entitled "Disposable Absorbent Article With Selectively Expandable or Inflatable Component" issued to Ahr et al. on December 7, 1999. Examples of compartments or voids are disclosed in U.S. Patent 4,968,312 entitled "Disposable Fecal Compartmenting Diaper" issued to Khan on November 6, 1990; U.S. Patent 4,990,147 entitled "Absorbent Article With Elastic Liner For Waste Material Isolation" issued to Freeland on February 5, 1991; U.S. Patent 5,62,840, entitled "Disposable Diapers" issued to Holt et al on November 5, 1991; and U.S. Patent 5,269,755 entitled "Trisection Topsheets For Disposable Absorbent Articles And Disposable Absorbent Articles Having Such Trisection Topsheets" issued to Freeland et al on December 14, 1993. Examples of suitable transverse barriers are described in U.S. Pat. No. 5,554,142 entitled "Absorbent Article Having Multiple Effective Height Transverse Partition" issued September 10, 1996 in the name of Dreier et al.; PCT Patent WO 94/14395 entitled "Absorbent Article Having An Upstanding Transverse Partition" published July 7, 1994 in the name of Freeland, et al.; and U.S. Patent No. 5,653,703 Absorbent Article Having Angular Upstanding Transverse Partition issued Aug. 5, 1997 to Roe, et al. Examples of other structures especially suitable for management of low viscosity feces are disclosed in U.S. Patents 5,941,864 issued to Roe et al. on August 24, 1999; U.S. Patent No. 5,977,430 issued to Roe et al. on Nov. 2, 1999 and 6,013,063 issued to Roe et al. on January 11, 2000. All of the above-cited references are hereby incorporated by reference herein.

The diaper 20 may also include a fastening system 40. The fastening system 40 preferably maintains the first waist region 36 and the second waist region 38 in a configuration so as to provide lateral tensions about the circumference of the diaper 20 to

hold the diaper 20 on the wearer. The fastening system 40 preferably comprises tape tabs and/or hook and loop fastening components, although any other known fastening means are generally acceptable. Some exemplary fastening systems are disclosed in U.S. Patent 3,848,594 entitled "Tape Fastening System for Disposable Diaper" issued to Buell on November 19, 1974; U.S. Patent B1 4,662,875 entitled "Absorbent Article" issued to Hirotsu et al. on May 5, 1987; U.S. Patent 4,846,815 entitled "Disposable Diaper Having An Improved Fastening Device" issued to Scripps on July 11, 1989; U.S. Patent 4,894,060 entitled "Disposable Diaper With Improved Hook Fastener Portion" issued to Nestegard on January 16, 1990; U.S. Patent 4,946,527 entitled "Pressure-Sensitive Adhesive Fastener And Method of Making Same" issued to Battrell on August 7, 1990; the herein before referenced U.S. Pat. No. 5,151,092 issued to Buell on September 9, 1992; and U.S. Pat. No. 5,221,274 issued to Buell on June 22, 1993. Another exemplary fastening system is disclosed in co-pending U.S. Application Serial No. 09/143,184 entitled "Absorbent Article Fastening Device" in the names of Kline et al. filed on August 8, 1998. The fastening system 40 may also provide a means for holding the article in a disposal configuration as disclosed in U.S. Pat. No. 4,963,140 issued to Robertson et al. on October 16, 1990. The fastening system may also include primary and secondary fastening systems, as disclosed in U.S. Pat. No. 4,699,622 entitled "Disposable Diaper Having An Improved Side Closure" issued to Toussant et al. on October 13, 1987. to reduce shifting of overlapped portions or to improve fit as disclosed in U.S. Pat. No. 5,242,436 entitled "Absorbent Article With Fastening System Providing Dynamic Elasticized Waistband Fit" issued to Weil et al. on September 7, 1993; U.S. Pat. No. 5,499,978 entitled "Absorbent Article With Dynamic Elastic Waist Feature Having A Predisposed Resilient Flexural Hinge" issued to Buell et al. on March 19, 1996; U.S. Pat. No. 5,507,736 entitled "Absorbent Article With Dynamic Elastic Waist Feature Comprising An Expansive Tummy Panel" issued to Clear et al. on April 16, 1996; U.S. Pat. No. 5,591,152 entitled "Absorbent Article With Dynamic Elastic Waist Feature Having A Predisposed Resilient Flexural Hinge" issued to Buell et al. on January 7, 1997. Each of these patents and the co-pending application are incorporated herein by reference. In alternative embodiments,

opposing sides of the article may be seamed or welded to form a pant. This allows the article to be used as a pull-on type diaper, such as a training pant.

In one preferred embodiment of the present invention, the fastening system 40 includes a receiving member and an engaging member. As shown in Figure 2, the receiving member 60 may be disposed in at least a portion of the second waist region and may include two or more flaps 62, such as first flap 64 and second flap 66. Each of the flaps has an inner surface 67, an outer surface 69, a proximal portion 61 and a distal portion 63. The proximal portion 61 of the flap 62 is that portion of the flap 62 which is joined to the article 20, either directly or indirectly. The distal portion 63 of the flap 62 is the portion which extends from the proximal portion 61 and is generally not permanently joined to the underlying structure of the article 20. For example, as shown in Figure 1, the proximal portion 61 of the flap 62 may be joined to the article and the distal portion 63 of the flap 62 may be unjoined to the underlying structure of the chassis 22 and may extend laterally outwardly from the proximal portion 61. It should be noted however, that embodiments are contemplated and further disclosed wherein the distal portion 63 may extend longitudinally outwardly, laterally inwardly and/or longitudinally inwardly from the proximal portion 61, depending on the orientation of the receiving member 60 on the article 20.

In some preferred embodiments of the present invention the receiving member 60 of the fastening system 40 may also include one or more hinges 90. The hinge 90 may be located at the connection of one or more of the flaps 62 to the diaper 20, or at the connection of one flap to another flap. As shown in Figure 1, the hinge 90 may be located between the first flap 64 and the second flap 66. In an alternative embodiment, as shown in Figure 6, the hinge 90 may be disposed adjacent the location where the flap 62 is joined to or extends from the article 20. In any case, the hinge 90 may be oriented generally in the primary plane of the load bearing and in a direction generally perpendicular to, generally parallel to or at an angle between generally perpendicular to and parallel to the primary direction of load bearing 95. The primary direction of load bearing 95 of a diaper in a fastened configuration on a wearer is generally directed around the waist circumference formed by the first and second waist regions in a fastened configuration

such as shown in Figure 23. The primary plane of load bearing of a diaper in a fastened configuration on a wearer is generally directed to the plane formed by the surface of the product generally parallel to the surface of the wearer's body at any given point when fastened in a configuration for wearing.

Configuring the hinge 90 in a direction angled or otherwise non-perpendicular relative to the primary direction of load bearing may provide several advantages. For example, the hinge 90 may be oriented to further isolate the flap fastening elements 68 from multi-directional peel forces, such as forces directed at the bottom edge of the flap fastening elements 68, or the top edge of the flap fastening elements 68. Such configurations may be especially advantageous for pull-on application of a diaper. This is because the act of pulling the diaper into position on the wearer may provide the diaper's fastening system with peel forces from multiple different directions. For example, the user may grasp the side panels 30 from the lower edge to pull the product up. Orienting the hinge 90 parallel to the primary direction of load bearing and locating it near the lower edge of the flap fastening elements 68 may isolate the flap fastening elements 68 from forces that might otherwise cause the flap fastening elements 68 to disengage in such a scenario. Further, as described in more detail below, configuring the hinge 90 in a direction angled relative to the primary direction of load bearing can improve fit and reduce the risk of skin marking. Thus, locating the hinge 90 in a particular direction on the article may allow for greater peel resistance for particular product configurations as well as improved fit and/or reduced skin marking.

In certain embodiments, the receiving member 60 may include multiple flaps 64 and 66 each having distinct hinges 91 and 93. The hinges 91 and 93 may vary in location and/or orientation relative to the primary direction of load bearing. For example, at least one hinge 91 of one flap 64 of the receiving member 60 may be oriented in a different direction relative to the primary direction of load bearing relative to the hinge 93 of at least one other flap 66. Alternatively, at least one flap 64 may include a hinge 91 in one location and/or orientation relative to the primary direction of load bearing and at least one other flap 66 may include a hinge 93 that is laterally and/or longitudinally offset from the

hinge 91 of at least one other flap 64 and/or may be oriented differently relative to the primary direction of load bearing than the hinge 91 of the at least one other flap 64.

In the embodiment shown in Figures 24 and 25, for example, the receiving member 60 includes two flaps 64 and 66 and base 92. Base 92 is at least partially joined to the underlying structure of the article. Alternatively, base 92 may be replaced with a portion of the backsheet or another structure of article 20 or may be a separate element joined to the article 20. Flaps 64 and 66 extend outwardly from the base 92 at hinges 91 and 93, respectively. In this embodiment, the hinges 91 and 93 are oriented parallel to the primary direction of load bearing 95 and are longitudinally offset from each other. At least one of the flaps 64 and 66 at least partially overlap the engaging member 70 in a fastened configuration as shown in Figure 25. Preferably, the flaps 64 and 66 at least partially overlap each other in a fastened configuration. Each of the flaps 64 and 66 include at least one fastening element 68 that may engage with a fastening element 72 of the engaging member 70 or with a supplemental fastening element 65 of another flap. Any suitable fasteners may be used as the supplemental fastening element 65 such as hooks, loops, snaps, adhesive, cohesive, magnets, hermaphroditic fasteners, tab and slot fasteners, interlocking projections and receptacles fasteners, buckles or any combination of any of these or other fasteners. Examples of hermaphroditic fasteners, for example, are described in United States Patent No. 5,845,375 issued to Miller et al. on December 8, 1998 and in United States Patent No. 5,713,111 issued to Hattori et al. on February 3, 1998. Examples of interlocking projections and receptacles fasteners are described in United States Patent No. 5,324,279 issued to Lancaster et al. on June 28, 1994, United States Patent No. 5,269,776 issued to Lancaster et al. on December 14, 1993, United States Patent No. 5,545,159 issued to Lancaster et al. on August 13, 1996, United States Patent No. 5,342,344 issued to Lancaster et al. on August 30, 1994, and published patent applications WO 98/47781 published October 29, 1998 by May and WO 98/03328 published January 29, 1998 by Johnson. Hinges 91 and 93 in this embodiment prevent the engaging member 70 from disengaging with the receiving member 60 in a peel mode due to a force oriented primarily in a direction perpendicular to the primary direction of load bearing 95.

Alternatively, the receiving member 60 may include hinges oriented in varied directions relative to the primary direction of load bearing 95 such as shown in Figures 26 and 27. In this embodiment, the receiving member 60 includes flaps 64 and 66 and base 92 similar to those shown and described with respect to Figures 24 and 25. The receiving member 60 further includes a third flap 98 having a third hinge 97. Hinge 97 is oriented perpendicular to the primary direction of load bearing 95 and serves to prevent the engaging member from disengaging at hinge 97 with the receiving member 60 in a peel mode due to a force oriented primarily in a direction parallel to the primary direction of load bearing 95. Alternatively, the receiving member 60 may include fewer or more flaps. For example, the receiving member 60 may include flaps 64 and 98 without flap 66 or may include flaps 66 and 98 without flap 64.

The first and second flaps 64 and 66 of the receiving member 60 may be the same or different in size, shape, material and/or construction. Further, either or both the first flap 64 and second flap 66 may be separate pieces of material joined to the chassis 22 or may comprise a portion of a different part of the article, such as the topsheet, backsheet, cuff material, waist member, etc. In any case, all or a portion of either or both first and second flaps 64 and 66 may be extensible, non-extensible or elastomeric. For example, a vacuum formed elastomer material such as described in United States Patent Application Serial No. 08/816,106 filed on March 14, 1997, which is incorporated by reference, may be used. Any other extensible and/or elastomeric/elastic materials, including those previously referenced herein, may also be used. Further, one or both of the flaps 62 may be at least partially breathable and/or water vapor permeable, liquid pervious or impervious.

The flaps 62 of the receiving member 60 may include one or more flap fastening elements 68, preferably disposed on at least a portion of the inner surface of the flap 62. The flap fastening elements 68 may comprise any known fastening means, such as hooks, loops, snaps, adhesive, cohesive, magnets, hermaphroditic fasteners, tab and slot fasteners, buckles or any combination of any of these or other fasteners. Further, the flap fastening elements 68 may be discrete pieces of material added to the flaps 62 or may be integrally formed from the material making up all or a portion of the flaps 62. As shown in Figure 2,

the flap fastening elements 68 may be substantially similar in size, shape and material to each other and may be disposed on the inner surface of each of the flaps 62. Alternatively, the flap fastening elements 68 may be different from each other in type, shape, size, location and/or fastening characteristics. One example of an alternative embodiment is shown in Figure 5 wherein the receiving member 60 includes a first flap 64 comprising a loop-type 82 flap fastening element 68 and a second flap 66 comprising a hook-type 80 flap fastening element 68. Another example is shown in Figure 3 wherein the location of the flap fastening element 68 disposed on the first flap 64 is at least partially offset from the flap fastening element 68 disposed on the second flap 66. Although Figure 3 shows the location of the flap fastening element 68 offset in the lateral direction (i.e. parallel to the lateral centerline 110 of the article 20), the location of the fastening elements 68 can be varied in either or both the longitudinal or lateral directions, as desired.

As shown in Figures 1 and 2, the fastening system of the present invention preferably also includes at least one engaging member 70. The engaging member 70 may be configured to engage with the receiving member 60 to fasten the article 20 about the wearer or in a configuration for disposal. In any case, the engaging member may be any suitable element joined to or integral with the article. In one preferred embodiment, as shown in Figure 1, the article 20 may include an engaging member 70 extending laterally outwardly from each of the longitudinal edges 50 in the first waist region 36. However, as with the receiving member 60, the engaging member 70 may be disposed anywhere on the article so as to provide the intended fastening purpose. In at least one preferred embodiment, at least one receiving member 60 is disposed in the second waist region 38 and at least one engaging member 70 is disposed in the first waist region 36. In this configuration, the corresponding receiving member 60 and engaging member 70 can be fastened or engaged to form a closure and fasten the article 20 about the wearer, or provide a convenient means for disposal of the article 20.

The engaging member 70 may be the same or different in size, shape, material and/or construction as the first and second flaps 64 and 66 of the receiving portion 60. The engaging member may be separate pieces of material joined to the chassis 22 or may comprise a different portion or part of the article, such as the topsheet, backsheet, cuff

material, waist member, etc. In any case, all or a portion of the engaging member 70 may be extensible, non-extensible or elastomeric. Again, a vacuum formed elastomer or other extensible and/or elastomeric/extensible material may be used. Further, the engaging member 70 may be at least partially breathable, and/or water vapor permeable, as well as liquid pervious or impervious.

Similar to the receiving member 60, the engaging member 70 of the fastening system 40 may form all or a portion of the primary fastening system and/or a secondary fastening system such as a disposal fastening system. As noted above, the disposal feature may be designed to provide a means for conveniently disposing of the article after use. In such cases, the engaging member 70 for the disposal feature may be the same as or different from any of the engaging member(s) 70 of the primary fastening system 40.

The engaging member 70 may include one or more fastening elements 72 to engage with the fastening elements 68 of the receiving member 60. The fastening elements may be disposed on at least a portion of one or more surfaces of the engaging member 70. The fastening elements 72 may comprise any known fastening means, such as hooks, loops, snaps, adhesive, cohesive, magnets, hermaphroditic fasteners, tab and slot fasteners, buckles or any combination of any of these or other fasteners. Further, the fastening elements 72 may be discrete pieces of material added to the engaging member 70 or may be integrally formed from the material making up all or a portion of the engaging member 70. As shown in Figure 2, the fastening elements 72 may be substantially similar in size, shape and material to each other and may be disposed on one or more surfaces of the engaging member 70. Alternatively, the fastening elements 72 may be different from each other in type, shape, size, location and/or fastening characteristics. One example of an alternative embodiment is shown in Figure 5 wherein the engaging member 70 includes a first surface 74 comprising a hook-type 80 fastening element 72 and a second surface 76 comprising a loop-type 82 fastening element 72. Another example is shown in Figure 3 wherein the location of the fastening element 72 disposed on the first surface 74 is at least partially offset from the fastening element 72 disposed on the second surface 76. Although Figure 3 shows the location of the fastening elements 72 offset in the lateral direction (i.e.

parallel to the lateral centerline 110 of the article 20), the location of the fastening elements 72 can be varied in either or both the longitudinal or lateral directions, as desired.

The performance of the fastening system 40 of the present invention may be varied in order to optimize the performance of the fastening system 40 to a particular application. For example, the fastening system 40 may include different types of fastening elements 68 and/or 72 on one or more of the flaps 62 and/or engaging members 70, fastening elements 68 and/or 72 disposed on different locations of the one or more flaps 62 and/or engaging members 70, and/or different size fastening elements 68 and/or 72 disposed on the one or more flaps 68 and/or engaging members 70.

Regardless of whether similar type fastening elements 68 are used on the first and second flaps 64 and 66, the fastening characteristics of the fastening element 68 of the first flap 64 may be different from those of the fastening elements 68 of the second flap 66. For example, a fastening system including multiple loop and hook type fastening elements 68 may be configured such that at least one of the fastening elements 68 has different peel, shear or other fastening characteristics than one or more of the remaining fastening elements 68 when engaging with the fastening elements 72 of the engaging member. In one particular embodiment, for example, use of a hook fastener, such as an Aplix style 960e, in combination with a loop available from M&W (style # PK 6048.010) results in resistance to disengagement under shear load in excess of 5000 grams/inch. Other combinations may result in lower cost loop and/or hook materials and, depending on the exact choice of loop and/or hook may be tailored to deliver varying shear load capability. For example, loop materials disclosed in United States Patent No. 5,595,567 entitled "Nonwoven Female Component For Refastenable Fastening Device" and issued to King et al. on January 21, 1997; United States Patent No. 5,624,427 entitled "Female Component For Refastenable Fastening Device" and issued to Bergman et al. on April 29, 1997; and United States Patent No. 5,735,840 entitled "Disposable Diaper With Integral Backsheet Landing Zone" and issued to Kline et al. on April 7, 1998, each of which is incorporated by reference, may be tailored to give a range of performance levels and a range of costs. For example, performance can be reduced to below 1000 grams/inch shear capability by

projection or receptacle of the receiving member 60, respectively. Figure 18, for example, shows an embodiment in which the receiving member 60 includes a receptacle 54 positioned adjacent to the hinge 90 of the receiving member 60. The receptacle 54, however, may alternatively, or additionally, be located anywhere on one or more of the flaps 62. The engaging member 70 shown in Figure 18 includes a projection 56 that may be slidably engageable with or may snap into the receptacle 54 of the receiving member 60. The receptacle 54 may further include a cap 58 or other form of stop on one or more of the ends of the receptacle 54 to prevent the projection from sliding beyond the cap. For example, the receptacle 54 may include a cap 58 on the bottom edge of the receptacle 54 so that the projection 56 may slide into the top edge of the receptacle 54 and may slide into the receptacle 54 until the bottom edge of the projection 56 comes into contact with the cap 58 on the bottom edge of the receptacle 54. The receptacle 54 may also include a cap 58 on both ends and the projection 56 may snap into the receptacle 54, and the caps may prevent the projection 56 from sliding out of the receptacle 54. In these embodiments, the fastening elements 72 of the engaging member 70 may be either or both horizontally and vertically aligned with the fastening elements 68 of the receiving member, thereby ensuring a proper contact of the fastening elements 68 and 72.

In certain embodiments the flap fastener elements 68 may be integral with the first flap 64 and/or second flap 66. Similarly, the fastening elements 72 of the engaging member 70 may be integral with the engaging member 70. For example, either the first flap 64, the second flap 66 or the engaging member 70 may be made of a fastening material, including but not limited to a loop material, a hook material, or a fastening tape. In certain preferred embodiments, at least a portion of the outer surface of the product may be a fastening material and may form at least one of the fastening elements 68 or engaging member fastening elements 72 of the fastening system 40. For example, the outer surface of an ear or a side panel may be made of a fastening material such as a hook or loop material and may form the engaging member 70. Exemplary loop-type materials suitable as integrated backsheet landing zones are disclosed in previously referenced U.S. Patent No. 5,595,567 entitled "Nonwoven Female Component For Refastenable Fastening Device" and issued to King et al. on January 21, 1997; U.S. Patent No. 5,624,427 entitled

"Female Component For Refastenable Fastening Device" and issued to Bergman et al. on April 29, 1997; and U.S. Patent No. 5,735,840 entitled "Disposable Diaper With Integral Backsheet Landing Zone" and issued to Kline et al. on April 7, 1998.

In yet another embodiment, the receiving member 60 and/or the engaging member 70 may include at least an extensible portion and preferably an elastomeric portion. The extensible or elastomeric portion may be on one or both flaps 62 of the receiving member 60, and preferably the extensible and/or elastomeric portion is located laterally inboard of flap fastening elements 68 such that once the engaging member 70 and receiving member 60 are configured in a wearing configuration, the extensible and/or elastomeric portion is free to extend and/or contract after being extended and conform to the wearer as the wearer moves. Similarly, if the extensible and/or elastomeric portion is on the receiving member 60, preferably it is located laterally inboard of fastening elements 72 such that once the engaging member 70 and receiving member 60 are configured in a wearing configuration, the extensible and/or elastomeric portion is free to extend and/or contract after being extended and conform to the wearer as the wearer moves.

In yet other preferred embodiments, the flaps 62 of receiving member 60 may form separate waist and thigh panels as described in United States Patent Nos. 6,004,306 and 5,997,521 issued to Robles and published application WO 95/13775 in the name of Don Roe, each of which is incorporated by reference. The waist and thigh panels may be inextensible, extensible, or elastomeric. Most preferably, at least one panel, the waist or the thigh panel, is elastomeric. In any case, if the flaps 62 form waist and thigh panels, the fastening elements 72 of engaging member 70 mate with flap fastener elements 68 on the waist panel flap 62 and thigh panel flap 62 as described already herein to secure the first waist region to the second waist region. In such embodiments, the locations at which the flaps attach to the article may occupy at least a portion of the same longitudinal or lateral space or may not share any common longitudinal or lateral space. Thus, the location the first flap 64 is joined to the article may be at least partially laterally and/or longitudinally offset from the location the second flap 66 is joined to the article. In any case, in embodiments which include waist and thigh panels, preferably receiving member 60 is

attached to the waist region of the product intended to be placed against the back waist of the wearer's body.

In other preferred embodiments, the product may be delivered to the consumer at least partially pre-fastened. For example, flap fastening elements 68 of at least one flap 62 of at least one receiving member 60 may be joined with fastening elements 72 of at least one engaging member 70 during the article's manufacture. Preferably, flap fastening elements 68 of first flap 64 are joined with fastening elements 72 on first surface 74 of engaging member 70 and flap fastening elements 68 of second flap 66 are joined with fastening elements 72 on second surface 76 of engaging member 70 during the article's manufacture. Prefastening of the product during its manufacture allows the consumer to slip the product over the wearer's feet and pull it in place about the torso as one does a traditional pull on article. Yet, the fasteners enable the user to disengage the fasteners if they so choose and fasten the article about the wearer without needing to remove lower body clothing, such as pants, stockings, or shoes.

Figures 20 and 21 show an example of an alternative embodiment of the present invention such as a sanitary napkin or light incontinent pad that includes the fastening system 140 of the present invention to hold the sanitary napkin or light incontinent pad in a configuration wrapped around a wearer's panties or underwear. For example, the fastening system 140 may be used to fasten wings 121 of a sanitary napkin 120 about a wearer's panties. Fastening the wings 121 of a sanitary napkin about the wearer's undergarment may help ensure that the sanitary napkin 120 will stay in place while in use and provides a means for reducing the likelihood that the undergarment will be soiled if the core of the sanitary napkin 120 should leak. The fastening system 140 of the sanitary napkin 120, for example, may include a receiving portion and an engaging portion. As shown in Figures 20 and 21, for example, the receiving member 160 and the engaging member 170 may extend outwardly from the longitudinal edge 150 of the sanitary napkin 120. Alternatively, the receiving member 160 or the engaging member 170 may be disposed on a portion of the backsheet 126 of the sanitary napkin 120 in a configuration similar to any of the embodiments described above with respect to a diaper and/or shown in Figures 6 through 11. As described above with respect to other embodiments of the

What is claimed is:

1. An article to be worn about a wearer comprising:
an unbalanced fastening system joined to the article including
a receiving member having at least a first receiving fastening element and a second receiving fastening element, the first receiving fastening element being disposed on a flap having a proximal portion joined to the article and a distal portion extending from the proximal portion, the second receiving fastening element being disposed so as to be generally in face to face relationship with the first receiving fastening element when the receiving member is in a closed configuration; and
an engaging member having at least a first engaging fastening element and a second engaging fastening element disposed thereon, the first engaging fastening element being engageable with at least the first receiving fastening element and the second engaging fastening element being engageable with at least the second receiving fastening element.
2. The article of Claim 1, wherein the first receiving fastening element is a different type of fastener from the second receiving fastening element.
3. The article of Claim 1, wherein the first receiving fastening element includes hooks and the first engaging fastening element includes loops.
4. The article of Claim 1, wherein the first receiving fastening element includes loops and the first engaging fastening element includes hooks.
5. The article of Claim 1, wherein the first receiving fastening element includes hooks and the first engaging fastening element includes hooks.
6. The article of Claim 1, wherein the fastening system is unbalanced in one or more of the group of: performance characteristics of one or more fastening element, technology type of one or more fastening element, size, shape and location.
7. The article of Claim 1, wherein the fastening system has an unbalance ratio of at least 1.1.

8. The article of Claim 1, wherein the fastening system has an unbalance ratio of at least 1.5.
9. The article of claim 1, wherein the flap includes a hinge.
10. The article of Claim 1, wherein at least a portion of the flap is selected from one or more of the group of: extensible and elastomeric.
11. The article of Claim 1, further comprising a second flap having a second proximal portion joined to the article and a second distal portion extending from the second proximal portion, the second receiving fastening element being disposed on the second flap so as to be generally in a face to face relationship with the first receiving fastening element when the receiving member is in a closed configuration.
12. The article of Claim 11, wherein the flap and the second flap extend outward from an edge of the article.
13. The article of Claim 11, wherein the second flap is made from a portion of one or more of the group selected from: a topsheet and a backsheet.
14. The article of Claim 11, wherein the flap and the second flap include a hinge.
15. The article of Claim 14, wherein the hinge of the second flap is oriented in a different direction relative to the hinge of the flap.
16. The article of Claim 11, wherein the hinge may be oriented in a direction selected from one of the group of: substantially perpendicular to a primary direction of load bearing, substantially parallel to a primary direction of load bearing or at an angle between substantially perpendicular to and substantially parallel to a primary direction of load bearing.
17. The article of Claim 1, wherein the article is an absorbent article and the flap is made from a portion of one or more of the group selected from: a topsheet and a backsheet.
18. The article of Claim 1, wherein the flap is joined to a belt of the article.

19. The article of Claim 1, wherein the first receiving fastening element and the second receiving fastening elements are laterally offset.
20. The article of Claim 1, wherein the first receiving fastening element and the second receiving fastening elements are longitudinally offset.
21. The article of Claim 1, wherein the fastening system includes a secondary fastener member.
22. The article of Claim 21, wherein the secondary fastener member includes one or more from the group selected from: a tab and slot fastener, an interlocking projection and receptacle fastener, a snap, a hook, a loop, an adhesive, a cohesive, a magnet and a buckle.
23. The article of Claim 1, wherein the distal portion of the flap is joined to the article in an open configuration prior to use.
24. The article of Claim 1, wherein the flap is held in an open configuration on the article prior to use via one or more of the group selected from: a perforation, score, bond and slit.
25. The article of Claim 1, wherein the article is one or more of the group selected from: an absorbent article, a disposable diaper, a sanitary napkin and a body wrap.
26. The article of Claim 1, wherein the fastening system has a primary direction of load bearing and has a peel resistance in a direction other than the primary direction of load bearing greater than or equal to about 1000 grams.
27. The article of Claim 26, wherein the fastening system has a peel resistance in the primary direction of load bearing less than the peel resistance in a direction other than the primary direction of load bearing.
28. The article of Claim 1, wherein the engaging member is at least partially extensible or elastic.

29. The article of Claim 1, wherein a closure member major axis of at least one of the fastening elements is oriented at an angle to a primary direction of load bearing.
30. The article of Claim 29, wherein the fastening element is a hook.
31. The article of Claim 1, wherein the fastening system of the article is pre-fastened.
32. An article to be worn about a wearer comprising:
a fastening system joined to the article including
a receiving member having at least a first receiving fastening element and a second receiving fastening element, the first receiving fastening element being disposed on a flap having a proximal portion joined to the article and a distal portion extending from the proximal portion, the flap being substantially unjoined to the article, the second receiving fastening element being disposed on a second flap so as to be generally in face to face relationship with the first receiving fastening element when the receiving member is in a closed configuration, the second flap being substantially unjoined to the article; and
an engaging member having at least a first engaging fastening element and a second engaging fastening element disposed thereon, the first engaging fastening element being engageable with at least the first receiving fastening element and the second engaging fastening element being engageable with at least the second receiving fastening element.
33. The article of Claim 32, wherein the flap and the second flap extend outward from a longitudinal edge of the article.
34. The article of Claim 32, wherein a substantial portion of the second flap is free to lift away from the article.
35. The article of Claim 34, wherein the distal edge of the second flap is substantially unjoined to the article.
36. The article of Claim 32, wherein the fastening system has a primary direction of load bearing and has a peel resistance in a direction other than the primary direction of load bearing greater than or equal to about 1000 grams.

37. The article of Claim 32, wherein the fastening system is unbalanced in one or more of the group of: performance characteristics of one or more fastening element, technology type of one or more fastening element, size shape and location.

38. The article of Claim 32, wherein at least one fastening element is oriented at an angle relative to the a primary direction of load bearing.

39. The article of Claim 38, wherein the fastening element is a hook.

40. The article of Claim 32, wherein at least a portion of the receiving member is one or more of the group of: extensible and elastomeric.

41. The article of Claim 32, wherein at least a portion of the engaging member is one or more of the group of: extensible and elastomeric.

42. An absorbent article to be worn about a wearer comprising:
a fastening system joined to the article including

a receiving member having at least a first receiving fastening element and a second receiving fastening element, the first receiving fastening element being disposed on a flap having a proximal portion joined to the article and a distal portion extending from the proximal portion, the second receiving fastening element being disposed so as to be generally in face to face relationship with the first receiving fastening element when the receiving member is in a closed configuration, the receiving member having a hinge oriented substantially parallel to a primary direction of load bearing; and
an engaging member having at least a first engaging fastening element and a second engaging fastening element disposed thereon, the first engaging fastening element being engageable with at least the first receiving fastening element and the second engaging fastening element being engageable with at least the second receiving fastening element.

43. An article to be worn about a wearer comprising:
a fastening system joined to the article including

a receiving member having at least a first receiving fastening element and a second receiving fastening element, the first receiving fastening element being disposed on a flap having a proximal portion joined to the article and a distal

portion extending from the proximal portion, the second receiving fastening element being disposed so as to be generally in face to face relationship with the first receiving fastening element when the receiving member is in a closed configuration; and

an engaging member having at least a first engaging fastening element and a second engaging fastening element disposed thereon, the first engaging fastening element being engageable with at least the first receiving fastening element and the second engaging fastening element being engageable with at least the second receiving fastening element;

wherein the fastening system has a primary direction of load bearing and has a peel resistance in a direction other than the primary direction of load bearing greater than or equal to about 1000 grams.

44. The article of Claim 43, wherein the fastening system has a peel resistance in a direction other than the primary direction of load bearing greater than or equal to about 1300 grams.

45. The article of Claim 43, wherein the fastening system has a peel resistance in a direction other than the primary direction of load bearing greater than or equal to about 1600 grams.

46. The article of Claim 43, wherein the fastening system has a peel resistance in a direction other than the primary direction of load bearing greater than or equal to about 2000 grams.

47. The article of Claim 43, wherein the fastening system has a peel resistance in the primary direction of load bearing less than the peel resistance in a direction other than the primary direction of load bearing.

49. The article of Claim 43, wherein the direction other than the primary direction of load bearing includes at least the range from an angle 70 degrees from the primary direction of load bearing to an angle 110 degrees from the primary direction of load bearing.

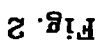
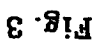
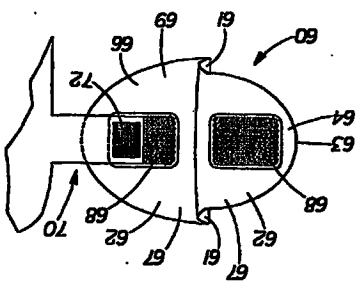


Fig. 1



2/13

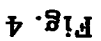
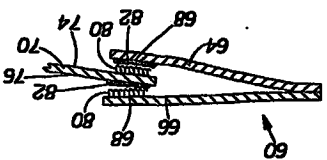


Fig. 5



3/13

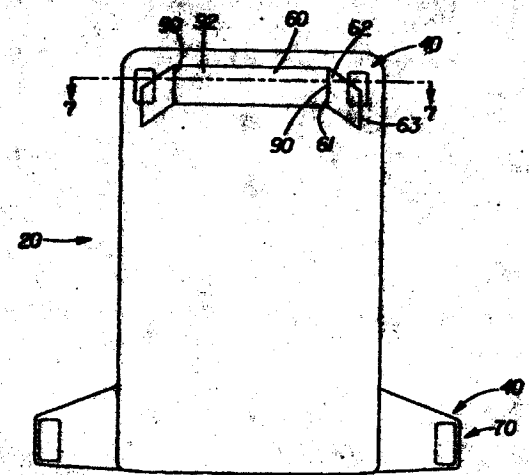


Fig. 6

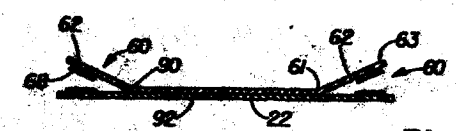


Fig. 7

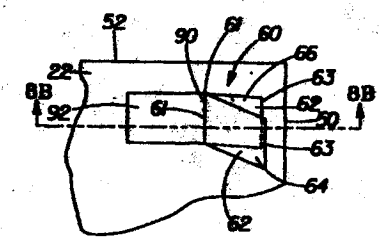


Fig. 8

4/13

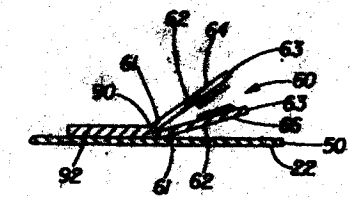


Fig. 8A

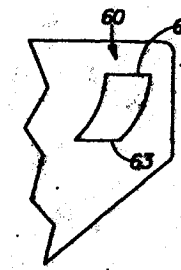


Fig. 9

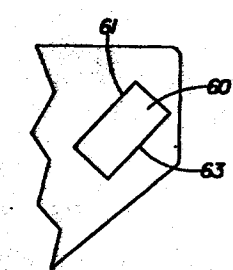


Fig. 10

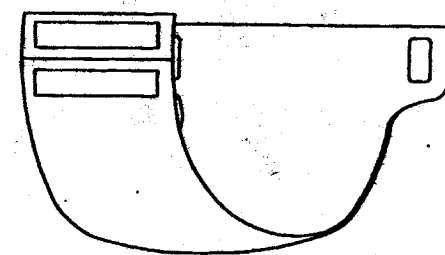


Fig. 11

5/13

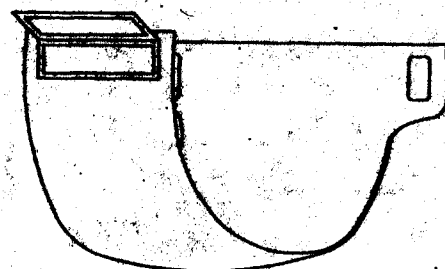


Fig. 12

6/13



Fig. 13

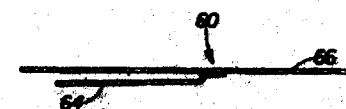


Fig. 14

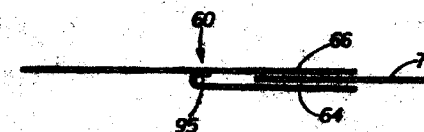


Fig. 15



Fig. 16

WO 02/15457

PCT/US2002/000006

WO 02/15457

PCT/US2002/000006

7/13

Fig. 17

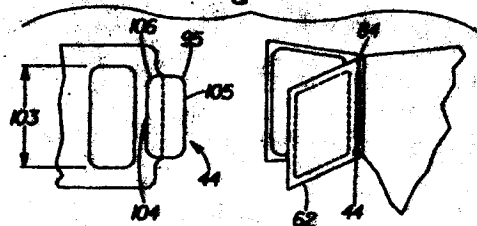


Fig. 18

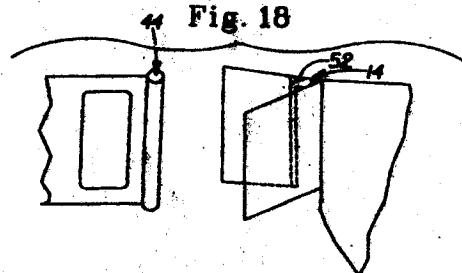
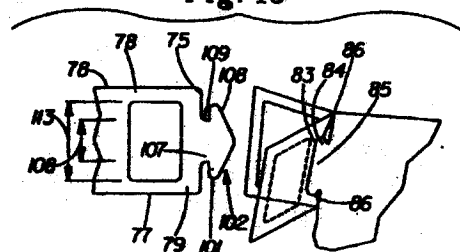


Fig. 19



8/13

Fig. 19A

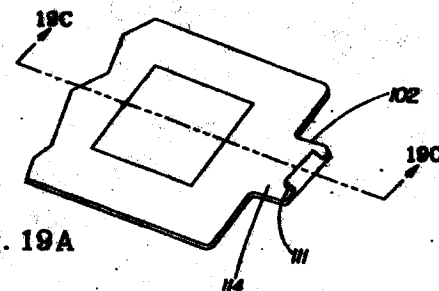


Fig. 19B



9/13

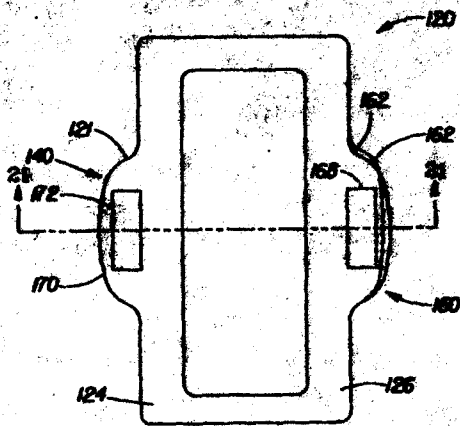


Fig. 20

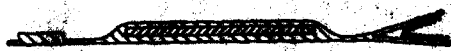


Fig. 21

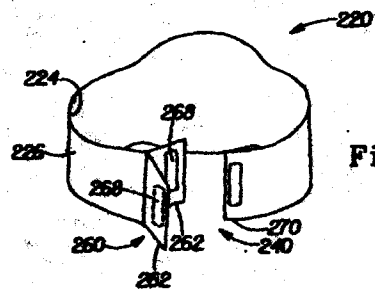


Fig. 22

10/13

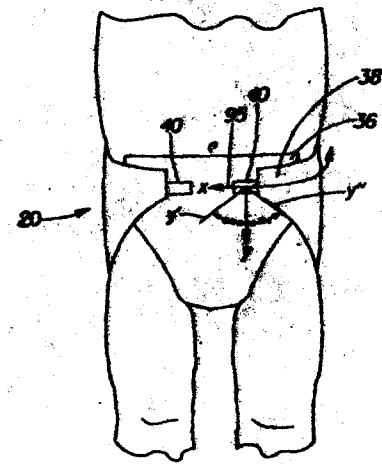


Fig. 23

12/13

Fig. 24

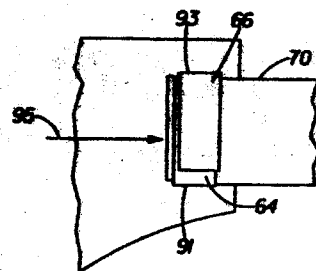
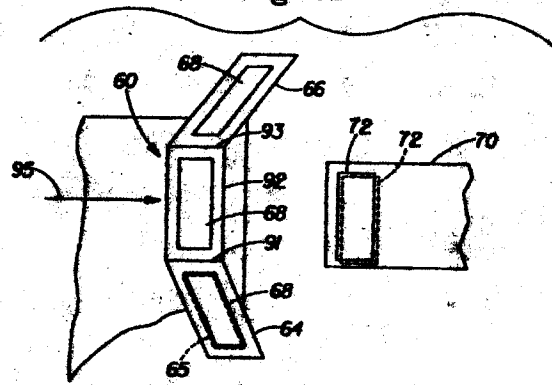


Fig. 25

12/13

Fig. 26

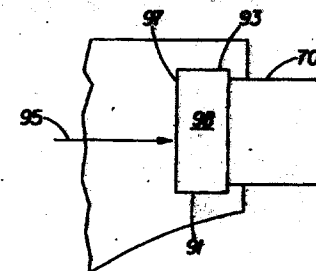
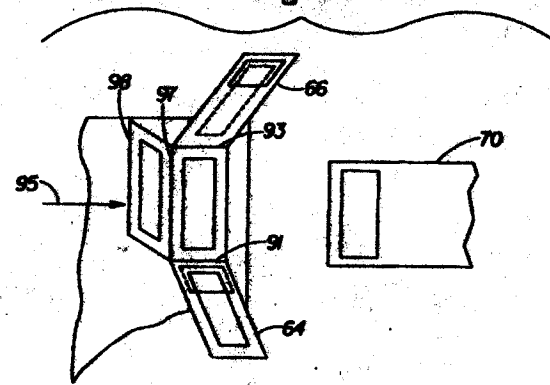


Fig. 27

13/13

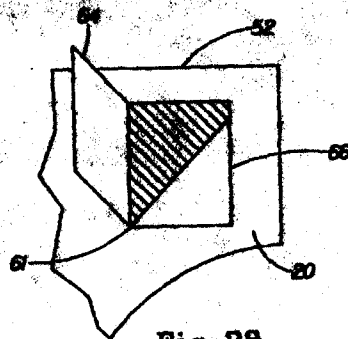


Fig. 28

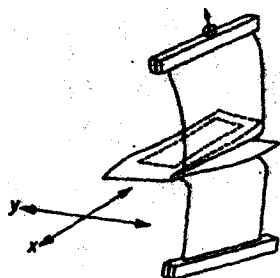


Fig. 29

142

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication: 29.01.1997 Bulletin 1997/05

(51) Int. Cl.⁶: A61F 13/08

(21) Application number: 96303071.1

(22) Date of filing: 10.07.1996

(84) Designated Contracting States:
BE DE FR GB IT NL SE

(30) Priority: 28.07.1995 JP 193580/95

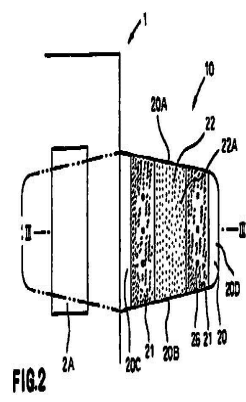
(71) Applicant: UNI-CHARM CORPORATION
Kawanoe-shi Ehime-ken (JP)

(72) Inventors:
• Hisada, Kenichi
Kawanoe-shi, Ehime-ken (JP)

(74) Representative: Murgatroyd, Susan Elizabeth et al
Baron & Warren
18 South End
Kensington
London W8 8BU (GB)

(54) Disposable undergarment having a tape fastener

(57) A disposable undergarment (1) has a tape fastener (10) for releasably joining front and rear regions of the undergarment to each other. The tape fastener (10) comprises a relatively soft base panel member (20) laterally extending outward from a transverse side edge of the undergarment (1) and relatively rigid fastening panel members (21) provided at longitudinally spaced apart locations of the base panel member (20).



EP 0 755 665 A1

Printed by Rank Xerox (UK) Business Services
2,13,135A

BEST AVAILABLE COPY

1

EP 0 755 665 A1

2

Description

The present invention relates to a disposable undergarment having a tape fastener and, more specifically to such an undergarment such as a disposable diaper for babies, a disposable incontinence diaper for adults, or disposable training pants for babies and the like.

Japanese Laid-Open Utility Model Application No. Hei6 - 61227 discloses a disposable diaper having a pair of tape fasteners laterally extending outward from transversely opposite edges of a rear body of the diaper. The tape fastener may be engaged with the other tape fastener bonded to an outer surface of a front region of the diaper for releasably joining the front and rear regions to each other along their transversely opposite edges. An example of such tape fasteners is known under the trade mark of Velcro or Magic Tape.

At least one of hook and loop components forming the tape fastener is sometimes selected to have a relative rigidity so as to be easily engaged with and/or disengaged from the other component. For disposable diapers, the component having a relatively high rigidity is often bonded to tape fasteners laterally extending outward from transversely opposite edges of one of the front and rear regions of the diaper so that this component having a relatively high rigidity may be engaged with and/or disengaged from the other relatively soft component provided on an outer surface of the other region. When the one component of the tape fastener is selected to have a relatively high rigidity, an engaging or disengaging operation will be facilitated, but a disengaging force exerted on one end of this component may propagate through the entire component at once and the tape fastener may be unintentionally disengaged. As a result, body fluids may leak sideways if this occurs during use of the diaper.

Accordingly, it is a principal object of the invention to eliminate the problem that the whole of the tape fastener might be unintentionally disengaged at once.

According to the invention, there is provided a disposable diaper having a tape fastener laterally extending outward from a transverse side edge of one of front and rear regions for releasably joining these front and rear regions to each other, characterized in that:

the tape fastener comprises a relatively soft base panel member laterally extending outward from said transverse side edge and having a base end and a free end, and at least two relatively rigid fastening panel members bonded to an inner surface of the base panel member; and the fastening panel members are provided at longitudinally spaced apart locations of the base panel member to be engaged with a fastening region provided on an outer surface of the other of said front and rear bodies.

The invention will be described by way of example, with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view showing a disposable diaper as an example of an undergarment of the invention, as partially broken away;

Fig. 2 is a plan view of a tape fastener;

Fig. 3 is a sectional view taken along a line III-III in Fig. 2;

Fig. 4 is a perspective view showing the diaper as rolled up; and

Fig. 5 is a view similar to Fig. 2 but showing a tape fastener different from that shown by Fig. 2.

Fig. 1 is a partially broken away perspective view showing a diaper 1 as it would be worn on a user's body. As shown, the disposable diaper 1 comprises a liquid-permeable topsheet 2, a liquid-impermeable backsheet 3 and a liquid-absorbent core 4 disposed between these two sheets 2, 3. The diaper 1 is composed of a front region 5, a rear region 6 and a crotch region 7 longitudinally extending between these two regions 5, 6. Tape fasteners 10 laterally extend outward from transversely opposite side edges 8A of the rear region 6, respectively, and respective inner surfaces of these tape fasteners 10 are engaged with fastening regions 11 provided on an outer surface of the front region 5 at its transversely opposite edges. The diaper 1 is formed with a waist-opening 12 and a pair of leg-openings 13 as the front and rear regions 5, 6 are joined to each other in such a manner described above. The respective openings 12, 13 are circumferentially provided with elastically stretchable members 15, 16, respectively, which are bonded to at least one of respective inner surfaces of the top- and backsheet 2, 3.

The tape fastener 10 of which the inner side is shown by Fig. 2 comprises a soft base panel member 20 formed by a nonwoven fabric made of thermoplastic synthetic fibers and fastening panel members 21 made of plastic material having a rigidity higher than that of said sheet member 20. The fastening panel members 21 extend between upper and lower edges 20A, 20B of the base panel member 20 at locations spaced apart from each other, i.e., at a location adjacent a base end 20C and at a location adjacent a free end 20D with respect to the associated edge of the rear region 6 from which this tape fastener 10 laterally extends outward, and are fixedly bonded to the base panel member 20 by means of an adhesive agent 22A and heat-sealing spots 26. The base panel member 20 is provided between the two fastening panel members 21 with an adhesive region 22 carrying the adhesive agent 22A exposed thereon. The free end 20D of the base panel member 20 is non-adhesive and serves as a pick-up means. The tape fastener 10 is shown in its position before use by an imaginary line in Fig. 2. Specifically, the tape fastener 10 is folded back onto the associated side edge's inner surface of the diaper 1 with the adhesive region 22 being provisionally fixed to a releasing strip 24 on the diaper 1.

Fig. 3 is a sectional view taken along a line III-III in Fig. 2. As shown, a part of the base panel member 20 is bonded to respective inner surfaces of the top- and

142

143

backsheet 2, 3 by means of hot melt adhesive 27. The spaced apart fastening panel members 21 are bonded to an upper surface of the adhesive agent 22 and heat-sealed to the base panel member 20 by means of the heat-sealing spots 26. It should be understood that the adhesive region 22 lies at a level lower than that of the fastening panel members 21. Each fastening panel member 21 comprises a plurality of hook elements of the tape fastener which are known as the trade mark of Valcro or Magic Tape and made of nylon or other suitable plastics. Each fastening region 11 with which the respective fastening panel members 21 are engaged comprises a bulky nonwoven fabric made of crimped fibers and corresponds to a plurality of loop elements of said known tape fastener. The fastening region 11 presents a plurality of vertically extending stripes as seen in Fig. 1 so that each of these stripes may be used as a positioning indicator when the fastening panel members 21 are engaged with the fastening region 11. Such striped pattern is obtained by bonding a nonwoven fabric as material for the fastening region 11 to the backsheet 3 with use of colored hot melt adhesive, wherein the nonwoven fabric is applied with the colored hot melt adhesive in the desired striped pattern. Referring to Fig. 1, sections 28A are destined to be bonded to the backsheet 3 and present the color of the hot melt adhesive therethrough while sections 28B are not bonded to the backsheet 3 and present the color of the nonwoven fabric itself. The pattern in which the nonwoven fabric is applied with the hot melt adhesive and which serves as the positioning indicator may be selected from a group of appropriate patterns other than the striped pattern as adopted by the illustrated embodiment, so far as the adhesive is applied to the nonwoven fabric intermittently along the waist line.

Fig. 4 shows the diaper 1 as rolled up after use and maintained in such a rolled up state with the adhesive region 22 being fastened to the diaper 1 at an appropriate location thereof.

Fig. 5 shows a tape fastener 10 including a fastening panel member 21 which has a configuration different from that shown by Fig. 2 as viewed in the plan view. According to this embodiment, the respective fastening panel members 21 extending between the upper and lower edges 20A, 20B of the base panel member 20 are transversely dimensioned so as to be relatively narrow in the proximity of the upper and lower edges 20A, 20B and relatively large at their vertically middle portions. Generally, the fastening panel member 21 is rather rigid and tends to irritate the user's skin particularly at the region in the proximity of the upper and lower edges 20A, 20B. However, the tape fastener 10 according to this embodiment can alleviate such undesirable irritation, since the fastening panel member 21 is transversely dimensioned to be relatively narrow in the proximity of the upper and lower edges 20A, 20B as previously described. In this case, the fastening effect of the tape fastener 10 is concentrated in its vertically middle portion which is substantially larger than its vertically

opposite end portions in the proximity of the upper and lower edges 20A, 20B.

To implement the invention, a nonwoven fabric or soft plastic film may be employed as the base panel member 20 of the tape fastener 10 and the known hook or loop material may be employed as the fastening panel member 21. The invention can be effectively implemented even when the tape fastener 10 is not provided with the adhesive region 22. It is also possible without departing from the scope of the invention to bond the fastening panel member 21 to the base panel member 20 by use of means having an adhesion force higher than an adhesion force of the adhesive agent 22A, for example, hot melt adhesive. The fastening region 11 may be of any suitable material other than a nonwoven fabric so far as the fastening panel member 21 can be disengaged therefrom.

It should be understood that not only the adhesive agent such as hot melt adhesive but also the heat-sealing technique may be employed for bonding of the respective members, the latter being useful for the members made of a heat-sealable material.

According to the invention, the soft base panel member 20 laterally extending outward from the transverse side edge of the diaper is provided with a pair of fastening panel members 21 spaced apart from each other, i.e., at a location adjacent the base end 20C and at a location adjacent the free end 20D thereof, so that, even if one of the spaced apart fastening panel members 21, for example, the one provided in the proximity of the free end 20D of the base panel member 20 is unintentionally disengaged from the fastening region 11, the other one provided in the proximity of the base end 20C of the base panel member 20 will not be affected by the disengaging force exerted on the fastening panel member 21 provided in the proximity of the free end 20D of the base panel member 20. The invention thereby can avoid an apprehension that unintentional release of one fastening panel member 21 might lead at once to release of the tape fastener 10 as a whole.

With an embodiment in which the base panel member 20 is provided with an adhesive region 22 between the pair of fastening panel members 21, this adhesive region 22 may serve as an effective means by which a used diaper can be rolled up. Advantageously, formation of such an adhesive region 22 requires no enlargement of the base panel member's dimensions. In particular its length.

Claims

1. A disposable undergarment having a tape fastener laterally extending outward from a transverse side edge of one of front and rear regions of said undergarment for releasably joining said front and rear regions to each other, characterized in that:
said tape fastener comprises a relatively soft base panel member laterally extending outward

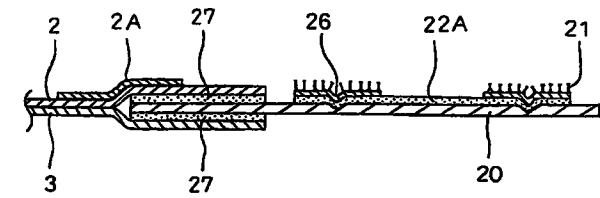
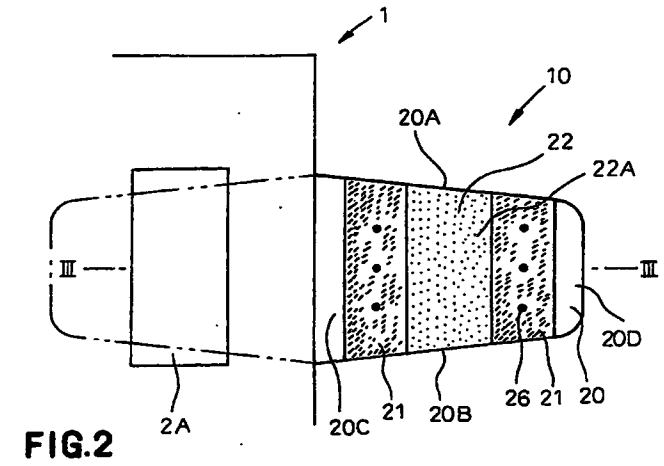
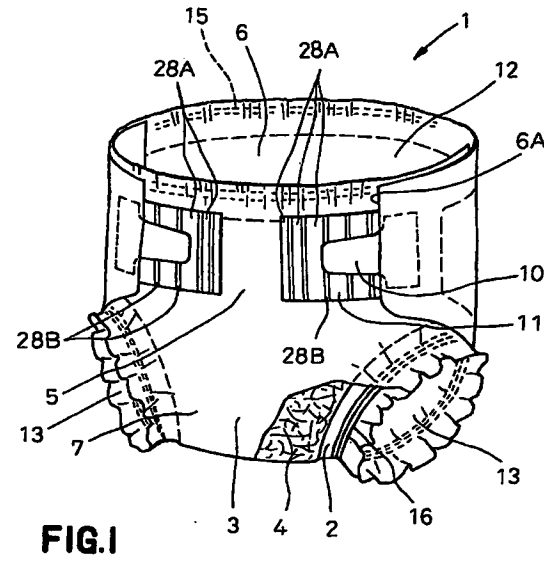
from said transverse side edge and having a base end and a free end, and at least two relatively rigid fastening panel members bonded to an inner surface of said base panel member; and said fastening panel members are provided at longitudinally spaced apart locations of said base panel member to be engaged with a fastening region provided on an outer surface of the other of said front and rear regions.

2. A disposable undergarment according to Claim 1, wherein said fastening panel members are at least at a location adjacent the base end and a location adjacent the free end of said base panel member.

3. A disposable undergarment according to Claim 1 or 2, wherein said base panel member is provided on an inner surface thereof with an adhesive region extending between said spaced apart fastening panel members.

4. A disposable undergarment according to Claim 1, 2 or 3, wherein said fastening panel members comprise a plurality of hook elements and said fastening region comprises a plurality of loop elements.

143



124

541
145

