



Industria y Comercio
SUPERINTENDENCIA

PETITORIO

SUPERINDUSTRIA Y COMERCIO
Radicación : 04037295 00000000 Folios: 141
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Trámite : 011 PCT-PATENT 379 FASE NACI 411 PRESENTA
Dependencia: 2029 DIVISION DE NUEVAS CREACIONES

FORMULARIO UNICO DE SOLICITUD DE PATENTE PCT ENTRADA EN FASE NACIONAL

SOLICITUD DE:

1

☒ Patente de Invención.
☐ Capítulo I.

☐ Patente de Modelo de Utilidad.
☒ Capítulo II.

2

SOLICITANTE
(71)

Nombre: **SCA HYGIENE PRODUCTS AB**
sociedad constituida y existente bajo las
leyes de Suecia.

Dirección: S-405 03 Göteborg,
Suecia.
Domicilio: Göteborg, Suecia.

IDENTIFICACIÓN

C.C. ☐ NIT ☐
C.E. ☐ Otro ☐
Cual _____
Número _____

3

REPRESENTANTE
O APODERADO

Nombre: **EMILIO FERRERO**
Dirección: Carrera 4ª. No. 72-35
Teléfono: 347 38 11
Fax: 217 92 11
E-mail: clientes@camyp.com.
Domicilio: Bogotá, Colombia.

IDENTIFICACIÓN

C.C. ☒ NIT ☐
C.E. ☐ Otro ☐
Cual _____
Número 438.019 T.P 31.929

4

INVENTOR (ES)
(72)

1. **Ken OLSSON**
Rundradlogatan 2,
S-421 35 Västra Frölunda,
Suecia.
3- **Helena CORNELIUSSON**
Uppegårdsvägen 28,
S-445 34 Bohus,
Suecia.

2. **Marie JOHANSSON**
Skogsbackevägen 17,
S-435 37 Mölnlycke
Suecia.

5

PCT (86)

Solicitud Internacional No. PCT/EP03/03384

Fecha: 1 de abril de 2003

Publicación Internacional No. WO 03/082167 A2

Fecha: 9 de octubre de 2003

6

Título (54)

PRODUCTO ABSORBENTE PREFIJADO CON LADOS RECERRABLES
ELÁSTICOS Y MÉTODO PARA PRODUCIRLO

7

Clasificación Internacional (51) A61F 13/15

8

Prioridad

SI ☒ NO ☐

(33) País de Origen

EP.

(32) Fecha

2 de abril de 2002

(31) Número de Solicitud

02007499.3

9

Comprobante de pago No.: 04 – 76.085

Fecha: 27 de septiembre de 2004

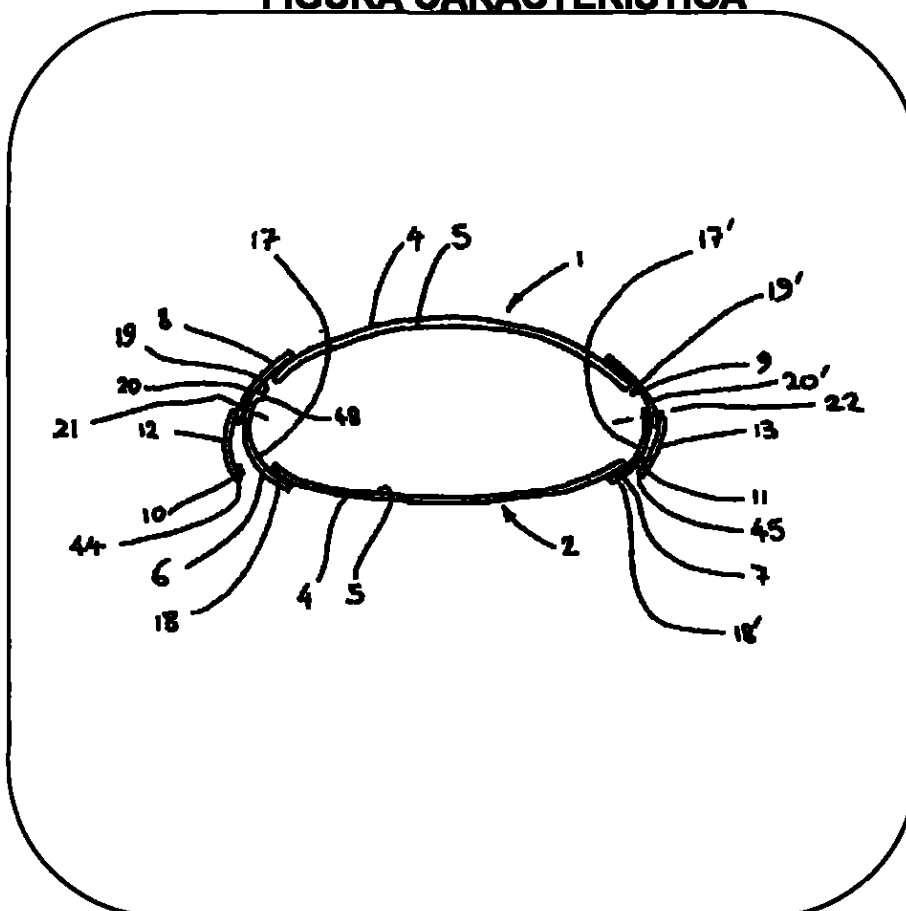
10

Anexos:

- ☒ Comprobante de pago de la tasa de presentación de la solicitud por \$ 422.000.00.
- ☐ Comprobante de pago por reivindicación de prioridad.
- ☒ Documento que acredita la existencia y representación legal cuando el solicitante sea persona jurídica.
- ☒ Poderes, si fuere el caso.
- ☐ Documento de cesión del inventor al solicitante o a su causante.
- ☐ Declaraciones.
- ☒ Copia de la solicitud internacional. (Resumen, descripción, reivindicaciones, dibujos)
- ☒ Traducción de la solicitud internacional al castellano. (Resumen, descripción, reivindicaciones, dibujos)
- ☒ Copia del examen preliminar efectuado por la IPEA.
- ☐ Traducción del examen preliminar efectuado por la IPEA.
- ☐ De ser el caso, copia del contrato de acceso.
- ☐ De ser el caso, documento que acredite la licencia o autorización de uso de conocimientos tradicionales de las comunidades indígenas.
- ☐ De ser el caso, certificado de depósito del material biológico.
- ☒ Arte final 12x12
- ☐ De ser el caso, información sobre otras solicitudes de patente o títulos obtenidos en el extranjero por el mismo titular o su causante, relacionadas parcial o totalmente con la invención de esta solicitud.
- ☐ Otros

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FIGURA CARACTERÍSTICA



12

Solicito la concesión de la patente,

NOMBRE: EMILIO FERREROFIRMA: *Emilio Ferrero*

C.C. 438.019 de Usaquén T.P. 31.929

PRP

For patents, utility models, industrial designs, trademarks, commercial names, trade emblems, slogans.

Para patentes, modelos de utilidad, diseños industriales, marcas de fábrica, nombres comerciales, enseñas, lemas comerciales.

REPRESENTACION Y PODER

REPRESENTATION AND POWER OF ATTORNEY

I (we), the undersigned/Yo (nosotros), abajo firmado (s)
SCA HYGIENE PRODUCTS AB

of/domiciliado (s) en \$405 03 Gotaborg,
SWEDEN

por el presente nombramos a EMILIO FERRERO, tpa. 31929; GONZALO PERDOMO, tpa. 831; LUZ CLEMENCIA DE PAEZ, tpa. 23555 y GERMAN CAVELIER, tpa. 832, domiciliados en la Carrera 4ª N° 72-35, Bogotá, Colombia, en obediencia a lo dispuesto en el parágrafo 1º del Artículo 543 del Código de Comercio, el primero como principal y los demás como suplentes, en su orden, como mis (nuestros) representantes en todos los asuntos de propiedad industrial con facultad para recibir notificaciones y nombrar apoderados judiciales o extrajudiciales. El primer representante suplente reemplazará al principal en caso de ausencia o impedimento temporal o definitivo de aquél. La misma regla se aplicará cuando el segundo representante suplente haya de reemplazar al primero, o el tercero al segundo. En tales casos, el representante principal, o el primero, o segundo suplente, en su caso, o ambos, declararán su intención de no ejercer la representación mediante declaración autenticada por Notario Público en Colombia, o por Notario u otro Funcionario Público, o Cónsul de Colombia, en el extranjero; y si se tratare de impedimento, con el certificado respectivo. Si alguno de los nombrados faltare definitivamente, el siguiente tomará su lugar. Cuando cesare la ausencia o impedimento del representante principal, o de su primero o segundo suplentes, en su caso, podrán ejercer la representación, en su orden, uno u otros según el caso, asumiéndola por el solo hecho de ejercerla, cesando en ese momento el ejercicio de la representación por el primero, segundo o tercer suplente en su caso.

Además, confiero (conferimos) poder a los abogados arriba nombrados, para obtener la protección de mi (nuestra) propiedad industrial y contra la competencia desleal, a cuyo efecto autorizo (amos) a los dichos apoderados para que me (nos), representen ante cualesquiera entidades o personas, ejerzan o no jurisdicción, especialmente ante las del orden administrativo, contencioso-administrativo y judicial, así como los tribunales de arbitramento, en todo lo concerniente a los siguientes asuntos: a) Obtención de patentes de invención, modelos de utilidad, y diseños industriales; el registro de marcas de fábrica, colectivas, defensivas, de servicio, lemas comerciales, nombres comerciales, enseñas, variedades vegetales y denominaciones de origen; su renovación, traspaso, cambio de nombre o domicilio, cancelación voluntaria; y el registro de licencias de uso de esos derechos; b) Las acciones de competencia desleal, protección del consumidor, oposiciones u observaciones, cancelación administrativa y judicial, nulidad, medidas cautelares, concesión de licencias, la tutela, la protección de secretos industriales, y en general los juicios civiles, penales, administrativos o contencioso-administrativos relacionados con estos derechos; acciones y procesos que promovamos o se nos promuevan. Y para que en todos los asuntos arriba determinados, puedan sustituir este mandato, transigir, conciliar, admitir los hechos del proceso, desistirse, cancelar, recibir, renunciar, y ratificar los actos de agentes oficiosos.

In due compliance with the terms of paragraph 1st. of article 543 of the Commercial Code, do hereby appoint EMILIO FERRERO, tpa. 31929; GONZALO PERDOMO, tpa. 831; LUZ CLEMENCIA DE PAEZ, tpa. 23555 and GERMAN CAVELIER, tpa. 832, domiciled at Carrera 4ª N° 72-35, Bogotá, Colombia, the first as principal and the others as alternates, in the order of their appointment, as our representatives for all industrial property matters with faculty to receive notifications and to appoint attorneys in and out of Court. The first alternate shall replace the principal in case of his absence or of temporal or definitive impediment. The same rule will apply when the second alternate representative is to replace the first one, or when the third is to replace the first or second alternates in their turn both of them, second. In such cases, the principal representative, or the first or second alternates in their turn, or both of them, shall state their intention not to act as representatives through a declaration given before a Notary Public in Colombia, or before a Notary or another Public Official or a Colombian Consul abroad; and in case of impediment, the appropriate certificate shall suffice. If any of the appointees were to be definitely absent, the following alternate shall take his place. When the absence or impediment of the principal representative, or of the first or second alternate in their turn ceases, the representation can be taken again in their sequence, by the principal, the first or second alternate depending on case, and the mere fact or its exercise will suffice. The exercise of the representation by the first, second or third alternates in their turn shall end at such time.

In addition, we grant a Power of Attorney in favor of the above-named attorneys-at-law so that they may obtain the protection of my (our) industrial property and against the unfair competition, for which purpose I (we) authorize the said attorneys to represent me (us) before any authorities or persons, with or without jurisdiction, especially before administrative, administrative contentious and judicial, as well as before Arbitration Court, in all matters concerning the following: a) Obtainment of patents, utility models and industrial designs; the registration of trademarks, collective, defensive and service marks, slogans, commercial names, trade emblems, vegetal varieties and denominations of origin; its renewal, assignment, change of name or domicile, voluntary cancellation; and the registration of license of use of the above rights; b) Actions of unfair competition, protection to the consumer, oppositions or observations, administrative or Court cancellation, nullity, infringement, granting of licenses, the action for writ mandamus, the protection of trade secrets, and in general the civil, penal, and administrative suits relating to those rights; actions and suits instituted by me (us) or against me (us). And that in all the above matters they may substitute this Power of Attorney, compromise, conciliate, admit the facts of the case, desist, cancel, receive, resign, and ratify acts done by representatives without a power of attorney.

Given and signed this/Dado y firmado hoy _____

Gothenburg 19 February 1999

In/en _____

Signature

Bengt Forshult
Head of Patent Department

Firma

SCA Hygiene Products AB

TRADUCCION No.: 17.07.199

MARIA ELVIRA MARTELO
Traductora e Interprete Oficial
Inglés - Español - Inglés
Res. No. 2879 Min. Justicia

LEGALIZACION

El Señor Cónsul de Colombia debe expedir un certificado consular sobre (1) la existencia legal de la compañía que otorga el poder, (2) que ésta ejerce su objeto social, y (3) que las personas que otorgan el poder están autorizadas para darlo. A este efecto les solicitamos que muestren al Señor Cónsul las pruebas que acreditan esos hechos (1), (2) y (3).

LEGALIZATION

The Colombia Consul must issue a consular certificate, on (1) the legal existence of the company which grants the Power-of-Attorney, (2) that it is in actual exercise of its company purposes, and (3) that the persons who execute the Power of Attorney is authorized to do so. To this effect, please show the Consul the evidence to prove the above facts (1), (2) and (3).

TRADUCCION No. 1707199

MARIA ELVIRA MARQUELO

Traductora e Interprete Oficial

Inglés - Español - Inglés

Res. No. 2879 Min. Justicia

NO SE ASUME
RESPONSABILIDAD POR EL TEXTO
2009 FEB 14 A 11:50
DE LEGALIZACIONES
DE BOGOTÁ D.C.

I, the undersigned, RICKARD STRÖM, Notary Public of Gothenburg, Sweden, do hereby certify,

that Bengt Forshult

has personally signed this document overleaf, and

according to a Power of Attorney, dated 1998-08-11, signed by GUNNAR ANDERSSON and SVEN-ERIK WINLÖF, who are duly authorized

to sign jointly for and on behalf of

SCA HYGIENE PRODUCTS AKTIEBOLAG - Org.No. 556007-2356

According to a Swedish Certificate of Registration, dated

1998-07-20, Bengt Forshult is duly authorized

to sign such a document on behalf of the company.

Gothenburg, this 25th day of February 1999

MINISTERIO DE RELACIONES
EXTERIORES

COMO NOTARIO, ME L. 1707199
DE BOGOTÁ, D.C. CERTIFICO QUE LA
FOTOCOPIA QUE SE PRESENTA ES UNA
CÓPIA FIDEL DEL ORIGINAL
QUE SE ENTREGÓ A LA VISTA
28 SET 2004

NOT. 1707199
The Ministry for Foreign
Affairs in Stockholm, hereby
certifies that
Mr. Richard Ström
Notary Public of
Gothenburg
has issued and signed the
foregoing attestation in his
official capacity

Fee Stockholm this 2nd day of March

Kr 1200 PAID 1977

Lige Högberg

MARIA SMITH RUEDA
Excmo. Sr. de las Funciones

MA Smith Rueda

Fecha 1999-03-05

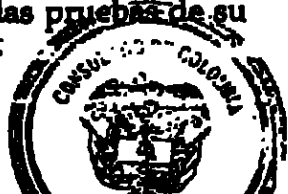
No. 072

quien firma el documento que antecede
ejerce para la SCA Hygiene Products
de la Sociedad SCA Hygiene Products
Aktiebolag
que existe en las leyes de
según se han producido en los países que
tuve a la vista

PAGADO
Impuesto de Timbre
Cinco
dólares US\$ 7
Dien

CERTIFICA:
Que el Sr. Bengt Forshult

NOTA PARA EL SEÑOR CONSUL DE COLOMBIA: Según los artículos 65 del C. de P.C. y 480 del C. de Co., si el poderdante es una sociedad, el Señor Cónsul debe certificar que tuvo a la vista las pruebas de su existencia, que ejerce su objeto social y que quien confiere el poder es su representante:



MINISTERIO DE RELACIONES
EXTERIORES

Maria Smith Rueda
202032
Cuya firma aparece en el
documento de semperna
las funciones indicadas

JEFE
CAN

MINISTERIO DE RELACIONES
EXTERIORES
NO SE ASUME
RESPONSABILIDAD DEL TEXTO
079530
ANULADO
JEFE DE LEGALIZACIONES
SANTAFE DE BOGOTA D.C.
Cuya firma aparece en el
documento de semperna
las funciones indicadas

44
TRADUCCION No. 707199
MARIA ELVIRA MARTELO
Traductora e Interprete Oficial
Inglés - Español - Inglés
Res. No. 2879 Min. Justicia

COMO NOTARIO DEL CIRCULO
DE BOGOTA, PAGO CONSTAR QUE LA
FOTOCOPIA COINCIDE CON EL ORIGINAL
QUE HE TENIDO A LA VISTA
28 SET 2004
PABLO MENDEZ
NOTARIO



EL CONSULADO DE COLOMBIA EN
ESTOCOLMO, SUECIA

Fecha.....1999-07-01..... No:.....1329

Previa la confrontación correspondiente DA
FE de que la firma que aparece en este docu-
mento es similar a la REGISTRADA aquí por

Impr. Höglberg, Min. Relaciones
Exteriores, Suecia

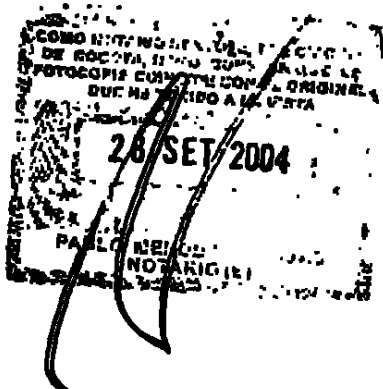
M. Smith-Rueda

MARIA SMITH-RUEDA
Encargada de las Funciones Consulares



PAGADO	
Impuesto de Timbre	
<i>Siete</i>	dólares US\$ <i>7</i>
Derechos Consulares	
<i>Quince</i>	dólares US\$ <i>15</i>

TRADUCCION No: 1209799
MARIA ELVIRA MASTELO
Traductora e Interprete Oficial
Ingles - Español - Ingles
Res. No. 2879 Min. Justicia



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TRADUCCIÓN OFICIAL No. 17.07/99 preparada por María Elvira Martelo, Traductora Oficial aprobada por el Ministerio de Justicia por Resolución 2879 de 1995 y reconocida por el Ministerio de Relaciones Exteriores.

(A continuación se traducen los sellos y legalizaciones de un documento escrito en inglés y español, por el cual SCA HYGIENE PRODUCTS AB otorga poder a EMILIO FERRERO, GONZALO PERDOMO, LUZ CLEMENCIA DE PAEZ Y GERMAN CAVELIER). Dado y firmado el 19 de febrero de 1999 en Gothenburg. (Firma ilegible) Bengt Forshult, Jefe del Departamento de Patentes.

Yo, el abajo firmante RICKARD STRÖM, Notario Público de Gothenburg, Suecia, por el presente certifico,

que Bengt Forshult

ha firmado personalmente el documento anterior y

que de acuerdo con el poder de fecha 1998-08-11, firmado por

GUNNAR ANDERSSON y SVEN-ERIK WINLÖF, quienes están debidamente autorizados para firmar conjuntamente por y a nombre de SCA

HYGIENE PRODUCTS AKTIEBOLAG - Org. No. 556007-2356; según

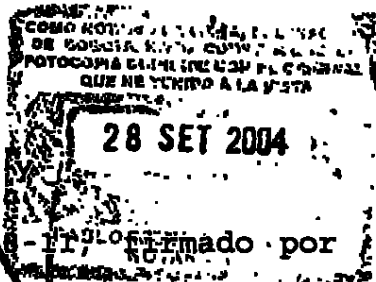
Certificado de Registro Sueco de fecha 1998-07-20, Bengt Forshult está debidamente autorizado para firmar dicho documento a nombre de la compañía.

Gothenburg, 25 de febrero de 1999.

Ex oficio: (Firma ilegible), RICKARD STRÖM (Sello notarial).

Exp. No.: 79234

Derechos: SEK 350:-.



No. 3066

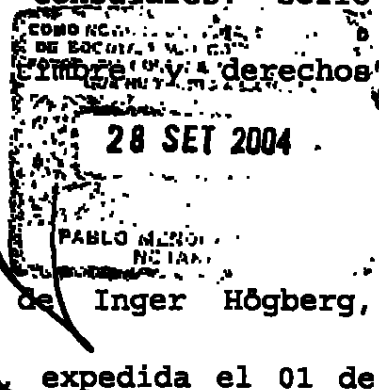
El Ministerio de Relaciones Exteriores en Estocolmo por el presente certifica que el Sr. Rickard Ström, Notario Público de Goteborg, ha expedido y firmado la declaración anterior en su capacidad oficial.

Derechos Estocolmo, 25 de marzo

Kr. 120 PAGADOS de 1999

(Firma ilegible) Inger Högberg. (Sello en tinta) Ministerio de Relaciones Exteriores.

(En español) Certificación de la capacidad legal de Bengt Forshult y de la existencia legal de SCA HYGIENE PRODUCTS AKTIEBOLAG expedida el 5 de marzo 1999 por el Consulado de Colombia en Estocolmo bajo el No. 022. (Firma) M. Smith. MARÍA SMITH RUEDA, Encargada de las Funciones Consulares. Sello consular en tinta. Pagados impuesto de timbre y derechos consulares.



(En español) Certificación de la firma de Inger Högberg, Ministerio de Relaciones Exteriores, Suecia, expedida el 01 de julio de 1999 por el Consulado de Colombia en Estocolmo bajo el No. 001329. (Firma) M. Smith. MARÍA SMITH RUEDA, Encargada de las Funciones Consulares. Sello consular en tinta. Pagados impuesto de timbre y derechos consulares.

(Al anverso) Legalización de la firma que antecede expedida por

→

COLO 11256-801-014-7

Id. 108

Feb. 15/00

Traducción No. 170799
MARIA ELVIRA MANTELO
Traductora e Interprete Oficial
Inglés - Español - Inglés
Res. No. 2879 Min. Justicia

28 SET 2004

MINISTERIO DE ECONOMIA
EXTENDERS

220552

01/16/1970

CUYA FIRMA APARECE EN EL
TITULO DE CEMENTERIA
DE EMPLEADOS HONORARIOS

2000 FEB 16 11 02

SECRETARIA DE EDUCACION
SECRETARIA DE INDUSTRIA

3

COMO NOTARIO SEÑALO DEL ORDEN DE LA FECHA
HONSTA, HAGO CONSTAR QUE
[Signature]
CONFIRMO CON LA FIRMA REGISTRADA POR
EL MEXICO EN ESTA NOTARIA
A LA FECHA DE 16 FEB 2000


COMO NOTARIO SEÑALO DEL ORDEN DE LA FECHA
HONSTA, HAGO CONSTAR QUE
CONFIRMO CON LA FIRMA REGISTRADA POR
EL MEXICO EN ESTA NOTARIA
A LA FECHA DE 25 SET 2004
[Signature]
PABLO MONDEZ PARAJAS
NOTARIO (E)

PATENT COOPERATION TREATY

WIPO 03/08216/
PCT/EP03/03384

From the INTERNATIONAL BUREAU

PCT

NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

To:

20. Okt. 2003

HARRISON, Michael, C.
Albthns GmbH
Grassenstrasse 10
80339 München
ALLEMAGNE

Date of mailing(day/month/year) 09 October 2003 (09.10.03)		IMPORTANT NOTICE	
Applicant's or agent's file reference P 001 623 PC			
International application No. PCT/EP03/03384	International filing date(day/month/year) 01 April 2003 (01.04.03)	Priority date(day/month/year) 02 April 2002 (02.04.02)	
Applicant SCA HYGIENE PRODUCTS AB			

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this notice:

AU, AZ, BY, CH, CN, CO, DE, DZ, HU, JP, KG, KP, KR, MD, MK, MZ, RU, TM

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:

AE, AG, AL, AM, AP, AT, BA, BB, BG, BR, BZ, CA, CF, CU, CZ, DK, DM, EA, EC, EE, EP, ES, FI, GB, GD, GE, GH, GM, HR, ID, IL, IN, IS, KE, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MG, MN, MW, MX, NI, NO, NZ, OA, OM, PH, PL, PT, RO, SC, SD, SE, SG, SK, SL, TJ, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW

The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this notice is a copy of the international application as published by the International Bureau on 09 October 2003 (09.10.03) under No. 03/082167

4. **TIME LIMITS** for filing a demand for international preliminary examination and for entry into the national phase

The applicable time limit for entering the national phase will, subject to what is said in the following paragraph, be 30 MONTHS from the priority date, not only in respect of any elected Office if a demand for international preliminary examination is filed before the expiration of 19 months from the priority date, but also in respect of any designated Office, in the absence of filing of such demand, where Article 22(1) as modified with effect from 1 April 2002 applies in respect of that designated Office. For further details, see *PCT Gazette* No. 44/2001 of 1 November 2001, pages 19926, 19932 and 19934, as well as the *PCT Newsletter*, October and November 2001 and February 2002 issues.

In practice, time limits other than the 30-month time limit will continue to apply, for various periods of time, in respect of certain designated or elected Offices. For regular updates on the applicable time limits (20, 21, 30 or 31 months, or other time limit), Office by Office, refer to the *PCT Gazette*, the *PCT Newsletter* and the *PCT Applicant's Guide*, Volume II, National Chapters, all available from WIPO's Internet site, at <http://www.wipo.int/pct/en/index.html>.

For filing a demand for international preliminary examination, see the *PCT Applicant's Guide*, Volume I/A, Chapter IX. Only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination (at present, all PCT Contracting States are bound by Chapter II).

It is the applicant's sole responsibility to monitor all these time limits.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Judith Zahra
Facsimile No. (41-22) 740.14.35	Telephone No. (41-22) 338.91.11

Form PCT/IB/308 (April 2002)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
9 October 2003 (09.10.2003)

PCT

(10) International Publication Number
WO 03/082167 A2

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(22) International Filing Date: 1 April 2003 (01.04.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 02007499.3 2 April 2002 (02.04.2002) EP

(71) Applicant: SCA HYGIENE PRODUCTS AB [SE/SE]: S-405 03 Göteborg (SE).

(72) Inventors: OLSSON, Ken: Rundradiogatan 2, S-421 35 Västra Frölunda (SE); JOHANSSON, Marie: Skogsbacksvägen 17, S-435 37 Mölnlycke (SE); CORNELIUSSON, Helena: Uppgårdsvägen 28, S-445 34 Bohus (SE).

(74) Agents: HARRISON, Michael, C. et al.; Albius GmbH, Grasserstrasse 10, 80339 München (DE).

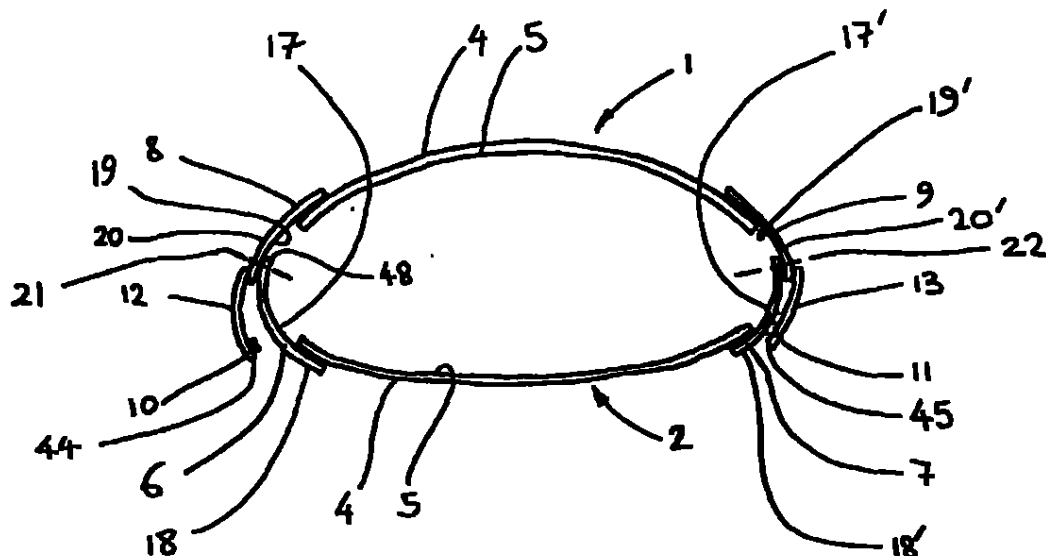
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(54) Title: PREFASTENED ABSORBENT PRODUCT WITH ELASTIC RECLOSABLE SIDES AND METHOD FOR PRODUCING SAME



(57) Abstract: An absorbent prefasted product in the form of a disposable pants diaper is provided with a side closure arrangement on each side. The side closure includes front and rear side flaps having elastic portions where an inner surface (19, 19') of a rear side flap (8, 12, 9, 13) is overlapped and welded to an outer surface (18, 18') of a front side flap (6, 7). Each side flap (8, 12, 9, 13) is also provided with one part of a releasable fastening system (10, 11, 15, 16) located such that the weld is located on at least one of the elastic portions and such that it lies inward of the releasable fastening system in the prefasted state. A method of forming the absorbent product is also provided, in which an overlapped attachment is formed by joining front and rear side flap members (7a, 9a, 13a) together and attaching the side flap members (7a, 9a, 13a) to an absorbent chassis member.

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Title: Prefastened absorbent product with elastic reclosable sides and method for producing same

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Field of the invention:

The present invention relates to an absorbent product for absorbing human exudate, such as a diaper or training pants. In particular, the invention relates to absorbent pants (e.g. training pants) of the disposable type, i.e. of the type which are to be discarded when soiled and are not intended to be washed and re-used. Still more particularly, the invention relates to an absorbent pants diaper which is manufactured in a closed state, i.e. a prefastened state, ready to be pulled on for wearing, yet which comprises side closures which can be opened for example for removal or inspection of the product, and which further comprises means allowing the sides of the product to be reclosed by use of a releasable attachment means such as a mechanical or adhesive releasable attachment means.

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Background to the invention:

Disposable training pants are well known and several different designs are available. For example, disposable training pants having front and rear portions fixedly attached together are known from WO-A-95/29657 and WO-96/31178. These designs provide adjustability of the waistband size to a range of users due to various elastic arrangements, but they must be removed like a normal pair

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of pants since the waist regions are formed with substantially continuous waistbands.

WO-A-00/35396 also discloses training pants with side
5 panels which can be elastic. The side panels are formed overlapped and attached together in a prefastened state by means of releasable fastening means. The side closures further include an adhesive between them, in order to limit accessibility to the reclosable fastening means.
10 The adhesive is placed so as to connect the outer flap of the overlapped flaps to the inner flap at a distal end location of the outer flap beyond the location of the releasable fastening means thereon. This provides a child-safety function. The adhesive bond is then opened
15 to gain access to the reclosure element. Since the adhesive must allow access to the reclosure means without destruction of the side panels during opening of the adhesive bond (otherwise the product would be ruined) a low bond force must be used for the adhesive. In
20 preferred embodiments the glue should remain tacky to allow repeated opening and reclosure.

GB-A-2 267 024 discloses a prefastened absorbent product providing the possibility of rupture of the side seams
25 for removal or inspection of the product, and then the further possibility of re-closure. The absorbent garment has a rear portion, a front portion and a crotch portion therebetween, in which the rear portion and the front portion are united together by a seam. The seam is
30 constituted by a line of attachment passing through the outer edges of the front and rear portions at each side of the garment. To allow opening of the article by tearing, the front portion is provided with a line of weakening at either side, at a location spaced inwardly
35 from the seam. Also, a re-closure possibility (i.e.

releasable fastening means) is provided by two additional side panels on the front portion. A first edge of each of the side panels is fixedly attached to the outside of the front portion in the same seam as used for the rear and front portions, and a second edge of each side panel is provided with releasable attachment means which can releasably attach to the front portion.

GB-A-2 267 024 presents several disadvantages. Firstly, in order to prevent the front and rear portions of the diaper from separating involuntarily due to the forces arising due to the wearer's movement which act directly on the seams from inside the product, the seam has to be made particularly strong. Bonding using a force of 1000g/inch (393.7g/cm) or more is thus required. At the same time, the line of weakening in each of the front portions has to possess a force of rupture below the bonding force level in the side seams, to avoid the seam being pulled apart when opening the diaper, yet still sufficiently high to prevent the line of weakening from being ruptured involuntarily.

The balance between these forces is difficult to achieve reliably, especially in high-speed production, particularly since the seam has to extend through three layers of material. Producing a reliable seam extending through all three separate layers of the product adds a further difficulty to be taken into account when producing the required bond strength.

Still further, the releasable attachment means on the front portion side flaps is releasably attached to the front portion of the product with a strength which should prevent the product from coming apart involuntarily when only the front portion side flaps are used to hold the

product together. Due to this arrangement, when the front portion is to be pulled away from the rear portion at the lines of weakening, the releasable attachment means will exert a force on their line of attachment in the seam unless the reclosable means is first undone. This force may rupture the seam between either the front and rear portions or the front portion and the front side flaps.

A further known solution using a flush and welded connection between two side portions of a diaper is disclosed in US-A-5 370 634. The flush seal is subject peel forces arising from the normal movements of the wearer. Likewise the sealed area presents outwardly extending edge portions which are sealed at their outermost edges, thereby producing relatively hard combined edge portions. This is not only unsightly, but the hard free edge can easily come into contact with the user's skin at the upper and or lower edges thereof, causing discomfort.

The seam produced in GB-A-2 267 024 also has further disadvantages in that not only two, but three panels are combined with their outer cut edges lying outside the seam. As in US-A-5 370 634, this produces a stiff edge arrangement, since the seam lies just inside the edges of the three panels. This again can affect comfort when the wearer's clothes press against the hard seam edge for example, as well as resulting in discomfort at the upper and lower edges of same. The flush seams in both US-A-5 370 634 and GB-A-2 267 024 nevertheless allow production in a flattened condition.

WO-A-99/65438 discloses a further garment arrangement in which the outer edges of a front waist section are overlapped by two rear side panels f a rear waist

portion. The outer ends of the front waist portion are fixedly attached by means of passive bonds to the inner surface of the rear waist portion and to the leg elastic at the rear part of the garment. The rear side panels further comprise two different type of reclosure means in the form of hook and loop fasteners which are releasably secured to the front waist portion. In this way, the passive bonds provide added shear strength to assist the reclosure means. Such an arrangement can provide a stable side closure system as a result of the passive bond locations. However such products suffer from a lack of adaptability and poor comfort and must rely on the waist band to provide some limited elasticity.

The invention has the object of providing an absorbent product with an improved side closure construction which allows low attachment forces to be used in releasable and non-releasable (i.e. fixed) attachment areas, while maintaining a closure arrangement which is reliable yet which allows a high degree of elasticity in the side closure and at the same time providing a good fit in the wearer.

The present invention also seeks to provide a method for producing an absorbent article of the type described above which obviates the problems with a flush seam and yet which can be easily formed in a flat condition during production.

Summary of the invention

The main objectives are achieved by an absorbent product and method having the features defined in the independent product and method claims respectively. Preferred features of the invention are defined in the dependent claims.

Further features of the invention will be apparent to the reader of this specification.

5 In accordance with the invention, the absorbent product comprises at least two sets of closure means, a first closure means which forms a fixed attachment between the elastic side flaps of the front and rear portions by means of a weld, and a second closure means which is in
10 the form of a releasable fastening means.

The fixed attachment by means of a weld refers to a type of permanent attachment between two parts which is not intended to be opened unintentionally and once pened
15 cannot be reformed. The weld is preferably formed by ultrasound welding or by heat welding, but other f rms of welding may be used. The weld may be such that it can be opened by applying peeling forces which results in peeling apart (typically with some tearing) of the weld,
20 or may be made at a strength such that the weld remains substantially intact while a specific part of the side flap adjacent the weld will be made to rupture.

The releasable fastening means is, on the other hand, a
25 type of attachment which is capable of being opened and re-closed. Such releasable fastening means comprise two members which cooperate to give a releasable attachment when a relatively light pressure is applied forcing the two members together. Such releasable attachment means
30 may be of the mechanical type. One form of such a mechanical fastener is the hook and loop type, whereby one member comprises material having hooks or other projections thereon (e.g. mushroom-head projections), and the other member comprises complementary loops, receiving
35 apertures or receiving spaces. Nonwoven material can for

example by itself form a loop member, whereby the hooks of the complementary hook part can releasably attach to the nonwoven material. Many other types of releasable mechanical fasteners are known. A further type of releasable fastener may be an adhesive type of fastener, whereby a pressure sensitive adhesive is coated on one component and a complementary component is provided to which the pressure sensitive adhesive may adhere. Such releasable attachment means are well known in the field of absorbent products.

In the claims, reference has been made to front and rear portions. The rear portion of an article is that portion which is intended to be placed at the rear of a wearer in use, whilst the front portion is that portion intended to be placed at the front of the wearer during use. However, it will be apparent to one skilled in the art that the front and rear portions can be inverted and that the front and rear side flaps described below may thus be fitted to either of the front and rear portions without altering the underlying nature of the invention.

Brief description of the drawings

The invention will now be explained in more detail with reference to certain non-limiting embodiments thereof and with the aid of the accompanying drawings, in which:

Fig. 1 shows a plan view of an absorbent product according to the invention in an opened-up condition, before the side flaps of the diaper have been fixedly attached together,

Fig. 2 shows a side view of an absorbent product according to the invention similar to that in

Fig. 1, in which the side flaps having been fixedly attached together by means of a weld,

5 Fig. 3 shows a view from above of an absorbent product according to Fig. 2, showing the connections of the various layers before rupture of the side attachments,

10 Fig. 4 shows a view similar to that in Fig. 3, of a product in which the front side flaps are additionally provided with lines of weakening which have been ruptured,

15 Fig. 5 shows a cross-sectional view through a laminate material which may be used in the front and/or side flaps,

20 Fig. 6 shows a series of steps, from top to bottom in the drawing, exemplifying the method of the present invention,

25 Fig. 7 shows a view from above, of one half of a further embodiment of a side closure arrangement,

 Fig. 8 shows a further embodiment in a view from above similar to that in Fig. 7, depicting the overlapped portions of the side flaps,

30 Fig. 9 shows an embodiment of the second (laterally outer) portion of the outer side flap in Fig. 8, in a view from above and enlarged,

35 Fig. 10 shows a further embodiment of the invention in a view from above similar to Fig. 8,

- Fig. 11 shows a further embodiment of the invention in a view from above similar to Fig. 10,
- 5 Fig. 12 shows a further embodiment of the invention in a view from above similar to Fig. 11,
- Fig. 13 shows a side view of the embodiment in Fig. 12,
- 10 Fig. 14 shows a side view of a further embodiment of the overlapped side flaps,
- Fig. 15 shows a further embodiment in a view similar to that in Fig. 14,
- 15 Fig. 16 shows a still further embodiment of the invention in a view similar to that shown in Fig. 15,
- 20 Fig. 17 shows an embodiment of the invention similar to that shown in Fig. 15, depicting particular dimensions,
- 25 Fig. 18 shows two steps (a) and (b) of a test method for measuring peel strength, and
- Fig. 19 shows a further embodiment of the invention in a view similar to that shown in Fig. 17,
- 30 provided with an additional child-safety closure.

Detailed description of preferred embodiments:

In Fig. 1, the absorbent product is shown in a flattened state with the inner side of the absorbent product

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uppermost. The absorbent product comprises three portions, a rear portion 1, a front portion 2 and a crotch portion 3 extending between these portions. The length of the portions is not precise, but generally each of these portions occupies about one third of the length of the product in a flattened condition. The rear portion 1 has an edge 42 at its outer end and the front portion 2 has an edge 43 at its outer end. In the depicted condition, a longitudinal axis Y-Y and a lateral axis X-X are shown, these axes extending generally perpendicular to each other, the longitudinal axis extending generally between the middle of the rear portion 1 of the product and the middle of the front portion 2 of the product.

It should be observed that Fig. 1 depicts the absorbent product in a condition before the product has been fixed together in its final (prefastened) state, i.e. before the front side flaps 6, 7 and rear side flaps 8, 12 and 9, 13 have been overlapped and fixedly as well as refastenably attached together (the overlapped and attached arrangement will be explained further below).

The absorbent product includes an absorbent product chassis member comprising at least a back sheet 4 and a top sheet 5. The back sheet 4 is preferably impervious to liquids. The top sheet 5 is a liquid permeable layer. Materials suitable for these layers are well known and typically the back sheet layer 4 may be formed entirely from or including a polyethylene (PE) film. Such a back sheet may for example be a textile-like back sheet formed from a laminate of PE and spunbonded polypropylene (PP) nonwoven material, where the PE has for example a surface weight between 12 g/m² and 20 g/m² and the PP has a surface weight between 10 g/m² and 20 g/m². The top sheet layer 5 may be formed from a nonwoven polypropylene (PP)

fibr us web (e.g. a spunbonded PP web) for example. Sandwiched between the back sheet layer 4 and the top sheet layer 5 is an absorbent core 37, the absorbent core comprising a batt of e.g. cellulosic fibres, preferably mixed with superabsorbent material in a homogeneous, or layered distribution or in a distribution which varies in the depth direction and/or in the major plane of the core. The absorbent core may take many shapes and forms and may consist of several layers with differing properties so as to improve absorption characteristics. The back sheet and top sheet layers 4, 5 are preferably of equal size and are preferably sealed to each other around their peripheries in a manner known in the art.

Elasticated waistband means 38, 39 are preferably provided at each end of the absorbent product chassis member and serve to provide a means of improved comfort, fit and containment in the product. Such elasticated waistband means are well known in the art. The elastic waistband means 38, 39 are shown as lying outside the absorbent core 37, although it will be understood that they may partially cover the area bounded by the absorbent core 37. Similarly, the waistband means may extend up to the longitudinal side edges 40, 41 and/or up to the end edges 42 and 43.

Further elements can of course also be included in the absorbent product even though these are not shown in the Figures. Such elements include for example leg elastics to provide a better fit around the wearer's upper legs, standing gathers, edge gaskets as well as other barriers and seals to prevent leakage.

Two front side flaps 6 and 7 are provided. Each side flap is formed as a single piece in the embodiment shown,

although a plurality of pieces laterally or longitudinally in series, or a plurality of layers or panels e.g. in series or partially or fully overlapping, may be used to form each side flap. In the preferred case
5 a single piece may be used comprising a plurality of layers, one of which is elastic. The side flaps are each formed with an elastic portion, such as provided by an elastic laminate. The elastic portion may extend so as to cover the whole area of flaps 6 and 7, but preferably
10 should at least cover the area thereof which lies outside the edges 40, 41 of the chassis up to the laterally outward edge of the flaps 6 and 7. Each front side flap 6, 7 is fixedly attached (by welding, adhesive, stitching or other known methods of fixed attachment) to a
15 respective side of the chassis member at attachment locations 35 and 36, preferably on to the external surface of the back sheet 4 as shown. However it should be understood that the side flaps 6, 7 may be attached to the internal or external surface of the top sheet 5 or
20 the back sheet 4 if desired, or to both the back sheet 4 and top sheet 5. A still further possibility is that either the back sheet 4 or the top sheet 5, or a part thereof, may itself be included as part of the side flaps and thus form one of the layers of material constituting
25 the side flaps 6, 7, 8, 12, 9, 13 (this variation will also be explained below in respect to a further embodiment similar to that shown in Fig. 5).

At the rear portion of the absorbent chassis, there are
30 two rear side flaps 8, 12, 9, 13. In the preferred embodiment shown, the rear side flaps are separate flaps comprising a first portion 8, 9 and a second portion 12, 13. The second portion 12, 13 is fixedly attached (by welding, adhesive, stitching or other known methods of
35 fixed attachment) to the respective first portion 8, 9 at

attachment locations 26 and 24 respectively on the external surfaces 20, 20' of the first portions. Each second portion 12, 13 is fixedly attached at a location laterally outwardly of the attachment locations 23 and 27, such that the second portions 12, 13 lie laterally outwardly with respect to the rear side flap first portions 8, 9.

Each of the second portions 12, 13 in such a structure is not intended to lie directly against the skin of the wearer (see Fig. 3 explanation below) and thus the second portions 12, 13 may be formed stiffer than the first portion, e.g. by using a stiffer material for the second portions 12, 13. The second portions are each preferably formed to be inelastic. Being inelastic allows the second portions 12, 13 to provide a more stable panel structure avoiding any folding or wrinkling effects for example.

An arrangement with two portions 8, 9 and 12, 13 is not however limiting for the invention, as long as a portion of the flaps are elastic. Thus the rear side flaps may each be composed of only a single portion, or in a further embodiment of three or more portions. Each of the rear side flaps is fixedly attached (by welding, adhesive, stitching or other known methods of fixed attachment) to a respective side of the chassis member at attachment locations 23 and 27, preferably on the external surface of the back sheet 4 as shown. However it should be understood that the side flaps 8, 12 and 9, 13 may be attached to the internal or external surface of the top sheet 5 or the back sheet as desired, or to both the back sheet 4 and the top sheet 5.

In the preferred embodiment shown using two portions, at least a substantial part of the area of the first portion

8, 9 is formed of elastic material, and preferably the whole area of the first portion 8, 9 is formed of elastic material, such as an elastic laminate material. In a more preferable embodiment which avoids waste of elastic material without reducing elasticity, the elastic material is placed in that area of the first portion 8, 9 lying outside the attachment zone 23, 27 up to the attachment zone 24, 26 (i.e. in the portion of the flap which is free for elastic extension).

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Each of the rear side flaps carries one member of a releasable fastening means 10, 11 at its outer end. Each member 10, 11 of the releasable fastening means in the shown embodiment is preferably constituted by a hook-type member preferably in the form of a strip of hook-type material extending between the upper and lower edges of the second portions 12 and 13 of the rear side flaps. Although a single strip is shown, several strips may instead be used, which can then be intermittently spaced from one another in a vertical direction. Similarly, the vertical extent of the members 10, 11 is shown as extending almost the whole longitudinal length of the side flap portions 12, 13 leaving a suitable distance from the upper and lower edges of the flap portions for manufacturing tolerances. Preferably the longitudinal length of members 10, 11 on the rear side flaps is between 25% and 75%, preferably between 25% and 60%, of the longitudinal length of the front side flaps 6, 7 at the intended attachment location thereon. This substantially avoids any contact of the member 10, 11 with the body. The members 10, 11 may however extend the whole length of the flap portions 12, 13.

It is however preferred that where hook and loop members are used, the loop member of the releasable attachment

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means should have a larger surface area than the hook member.

Similarly, the outer portions 12, 13 of the rear side flaps may consist entirely of nonwoven loop material, requiring thereby that a hook member be positioned on the outer surface of the inner (front) side flap in the overlapped condition.

These members 10, 11 are adapted to releasably engage with corresponding members 15, 16 of the releasable fastening means on the front side flaps 6 and 7. If the second portions 12, 13 are made relatively stiff compared to the first portions as explained above, this will allow them to provide a more stable base for the strip members 10 and 11 and thus can assist in forming a more reliably attached and more easily handled releasable fastening arrangement.

In the embodiment shown, the front side flaps themselves include an external covering material to which the members 10, 11 can releasably be fastened, although, if desired, separate additional strips of material, e.g. loop material pieces (not shown) may be added. An example of an elastic laminate suitable for this purpose will be explained further below with regard to Fig. 5.

Although it is shown in the drawings that the front and rear side flaps are separate pieces from one another, it will however be understood by the skilled person that the front and rear side flaps on each respective side of the chassis member may be formed as a single continuous member, attached along the entire respective side edges 40, 41 of the chassis member. Alternatively, the rear side flaps and the front side flaps may remain as

separate members in the manner shown in the Figures, but may be extended in the longitudinal direction to simply overlap each other in the area of the crotch region 3.

5 Similarly, although the rear side flaps 8, 12 and 9, 13 and the front side flaps 6, 7 are shown as being separate members fixedly attached at respective longitudinal side edges 40, 41 of the chassis member rear portion 1 and front portion 2, the rear side flaps could alternatively
10 be combined as a single separate piece (not shown) extending laterally across the rear portion 1 and extending as side flaps beyond the longitudinal side edges 40, 41 of the chassis member. Similarly the front side flaps 6, 7 could be formed by a single separate
15 piece (not shown) attached laterally across the front portion 2 of the chassis member.

In order to form the absorbent product of the invention, a fixed, welded attachment has to be provided between the
20 front side flaps 6, 7 and the respective rear side flaps 8, 12 and 9, 13 in the prefastened condition. In order for this to occur, the chassis member must be folded at some stage, substantially along or parallel to the lateral axis X-X, such that the front and the rear side
25 flaps can overlap. In an alternative embodiment, the front side flaps and rear side flaps can however be made to first overlap and then be welded, before folding of the chassis member, and then the rear and/or front side flaps attached to the chassis. This is also explained
30 with respect to the various steps and various order of steps of manufacture described further below.

The form of the overlap is important to provide good seam security, good comfort and to allow a high degree of
35 elasticity. The overlap required is shown externally in

Fig. 2 and from above in more detail in Fig. 3 and 4 for example. As these Figures show, each one of the front side flaps 6, 7 is fixedly welded to a respective one of said rear side flaps 8, 12, and 9, 13 such that the outer surface 18, 18' of each one of the front side flaps 6, 7 lies against the inner surface 19, 19' of a respective rear side flap 8, 12, and 9, 13.

In Figs. 2 and 3, it can be seen that the area of the weld 21, 22 is formed at the end portion of the first portions 8, 9 and the end portions of the corresponding front side flaps 6 and 7, so as to fixedly (i.e. non-releasably) join these portions together. In this regard the term "end portion" refers to that portion of each front side panel which overlaps each rear side panel first portion 8, 9. Such an overlap may be of the order of 0.5 to 3.5 cm and preferably between 0.5 and 2 cm.

In the closed condition as shown in Figs. 2 and 3, it can be seen that the releasable fastening means 10, 11 on the second portions 12 and 13 are already in contact with the corresponding fastening members 15, 16 of the outer surface 18, 18' of the front side flaps 6, 7. Thus a strong force is provided preventing separation of the front and rear side flaps, consisting of the force provided by both the releasable fastening means 10, 11, 15, 16 and the welds 21, 22.

Since the flaps 6, 7 lie against the wearer's skin, it is preferable if the outer edges of these are formed so as to be soft. Where for example the front side flaps 6 and 7 are formed of an elastic laminate having nonwoven outer surface material such as spunbonded PP, this edge can clearly be soft without the addition of further outer end edge arrangements.

Moreover, due to the overlapping relationship of the front and rear side flaps, with the inner surface of one lying against, and welded to, the outer surface of the other, the forces acting from the wearer during movements (e.g. sitting, standing etc.) to separate the front and rear side panels at the welds 21, 22 are not peeling forces as in much of the prior art, but instead are shear forces. Since it is easier to rupture an area of fixed attachment such as a seam by peeling than it is by applying shear forces, it will therefore be apparent that it is extremely difficult to rupture the area of attachment by the movements of the body. Therefore a reliable seal is provided.

The provision of a reliable seal by this overlap structure thus allows attachment forces to be used which have a force value against peeling of less than 1000g/inch (394g/cm), as measured by the method disclosed in GB-A-2 267 024. Thus attachment forces having a peeling strength force of less than 350g/cm and preferably less than 300g/cm, more preferably less than 200g/cm can be used.

At the same time, it will be observed that in the preferred embodiments shown only two panels are included in the area of the welds 21, 22, namely the front side flaps 6, 7 and the rear side flap first portions 8, 9. This allows a reliable and easily controllable seam to be made. Furthermore the product is more comfortable to handle and wear than products where the front and rear parts of the absorbent pants are attached at their sides in a flush arrangement, since there are no relatively rigid parts pointing outwardly. Further panels can of course be included.

In one embodiment, the second portions 12, 13 of the rear side panels are fixedly attached (by welding, adhesive, stitching or other known methods of fixed attachment) at attachment locations 26, 24 to the first portions 8, 9, which locations 26, 24 are laterally outward of the areas of welds 21, 22 as seen with respect to the lateral axis and with respect to the rear portion 1 of the chassis. However, it will be understood that the attachment locations 24, 26 may be laterally inward of the areas of the welds 21, 22 if desired, whilst still allowing only two panels to be used in the welds 21, 22. This can be arranged for example by fixedly attaching the panels 12 and 13 after first forming the welds 21, 22. The attachment area of portions 12 and 13 to portions 8 and 9 could however also be made to coincide with the welds 21 and 22 and the welds 21, 22 may also be made such as to extend through all three panels (i.e. front side flaps 6, 7, rear side flap first portions 8, 9 and second portions 12, 13). This is easily possible, even if less desirable, since the strength of the weld for resisting peel forces need not be so great due to the provision of the overlapped inner and outer surfaces of the side flaps. No more than four material layers should however be included in the welded regions, preferably no more than three, and most preferably only two. In whichever way the weld 21, 22 is formed, it is important that the weld is placed laterally inwardly with respect to the releasable fastening means 10, 11 at the outer ends of the rear side flaps proximate the outer end edges 44, 45 thereof, such that the weld 21, 22 in each of the rear side flaps 8, 12, 9, 13 lies laterally inwardly with respect to the releasable fastening means 10, 11 positioned in its respective rear side flap.

In other words, in the embodiment shown where the rear side flaps 8, 12, 9, 13 overlap the front side flaps 6, 7, the rear flaps form an outer side flap and the front side flap forms an inner side flap of the whole side closure structure. The releasable fastening means 10, 11 is thus positioned closer to the outer edge 44, 45 of the outer flap than the weld 21, 22.

Also, the position of the weld with respect to the elastic portions is important in order to give a maximum degree of elasticity to the side closure structure. In this regard the weld 21, 22 should be positioned proximate the laterally outer edge of the elastic portion of at least one of the front and rear side flaps 6, 7, 8, 12, 9, 13. In this way, there is little or no elastic material which remains inactive outside the welds 21, 22 and thus the maximum amount of elastic material is available for providing the required elasticity in the side closures.

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In the embodiment shown, the welds 21, 22 are positioned proximate the laterally outer edge 48 of each of the front side flaps 6, 7, each of the front side flaps being elastic. The welds 21, 22 are also placed proximate the laterally outer edge 47 of the elastic portion (first portion 8, 9) of each of the rear side flaps. In this way, the area of elastic material which is elastically inactive is kept to a minimum thereby allowing the maximum lateral extent of elastic material to be fully used in both front and rear side flaps. In terms of the meaning "proximate" in this regard, this means less than 1.5 cm from the end edge of the elastic portion. It is however preferred if the distance is less than 1 cm and still more preferable if the distance is less than 0.5 cm.

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As shown in Fig. 2, the weld 21 extends between the upper edge of front side flap 6 and the lower edge of same. Preferably the area of the weld extends the entire distance between these upper and lower edges and the line of weld tool application may even extend beyond the upper and lower edges. The attachment area may however be shorter, although the advantage with an extension all the way between the upper and lower edges is that the product has no loose side flap corners which may possibly fold over and become unsightly during storage. Similarly a more secure/stable fit during use is obtained by arranging the weld to extend all the way between the upper and lower edges. This can be important when the elastic portions are placed between the welds 21, 22 and each of the side edges 40, 41.

When the absorbent product, in the form of disposable pants as shown in Fig. 2, are to be inspected to check whether they have been soiled, or when they are to be removed entirely, it is convenient if the entire pants do not have to be removed over the wearer's legs and feet. Thus the areas of attachment provided at welds 21, 22 simply have to be ruptured by being peeled open. This destroys the welded seal and does not allow reclosure. This can be done in any suitable way, preferably however by gripping and pulling rearwardly the free edge of the side flap second portion 12, 13 lying in front of the releasable attachment member 10, 11 while at the same time holding the front flap 6, 7 with the fingers of the other hand. The attachment welds 21, 22 will thus be peeled open vertically by the application of peeling forces thereto.

In an alternative embodiment shown in Fig. 4, a line of weakening 33, 34 can additionally be provided in each front side flap 6, 7, extending at least part way between the upper and lower edges of the respective front side flaps 6, 7 and at a location laterally outwardly of the respective attachment area 21, 22. In a manner similar to that described above, the front side panels and the rear side panels are separated, this time however by rupturing the front side flaps 6, 7 along the lines of weakening 33, 34. The lines of weakening in this regard may also be formed by the outer margin of the areas of welds 21, 22 for example as a result of the welding process in which the outer edge of the weld can be made to provide a weakened area on the inner, front side flap 6, 7.

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Whichever of the structures in the various embodiments is used, the absorbent pants will become separated at the side portions by rupture (either by peeling and/or tearing of the seals and/or by tearing of the front side flaps).

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Once inspected, if the absorbent product is not soiled it can be re-attached to the user by re-closing it. For this re-closure, the releasable fastening means 10, 11, 15, 16 are used, whereby the respective first member 10, 11 of the releasable fastening means is simply pressed into contact with the outer surface 18, 18' provided with the second member 15, 16 of the releasable fastening means. If desired, these releasable fastening members 10, 11, and 15, 16 may be attached and detached from one another several times.

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While the side flaps may be formed of any suitable structure including an elastic portion, a preferred structure is one having nonwoven material 30, 32 on both

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the inside and outside surfaces thereof. In this way, the side flaps feel relatively comfortable against the skin of the wearer and at the same time provide an external surface to which one member 10, 11 of the releasable fastening means can attach. In a further embodiment (not shown) one or more of the layers of nonwoven material could be constituted by a nonwoven layer which is integrally included as part of the top sheet 5 and/or back sheet 4 structure.

In a particularly preferred embodiment, the front side flaps 6, 7 and/or the rear side flaps (i.e. portions 8, 9 only) may comprise an elastic laminate as shown for example in cross-section in Fig. 5. In such a laminate, a central elastic lamina material 31 is used. Such an elastic laminate may have an elastic extensibility at least in the lateral direction of over 100%, preferably over 150%, and even more preferably between 200% and 350%. Elastic materials able to produce this elasticity in the final laminate are well known in the art of absorbent products. These may include for example, elastomers made from block copolymers such as polyurethanes, copolyetheresters, polyamide polyether block copolymers, EVAs (ethyl-vinyl-acetates), elastomeric styrene-butadiene copolymers, tetrablock copolymers, including styrene-poly(ethylene-propylene) elastomeric block copolymers, polyamides, or natural and synthetic rubber materials, etc. One suitable elastomer is for example Extraflex™ CEX 802WR having a surface weight of 54g/m², available from Tredegar film products.

Due to the overlapping nature of the front and rear side flaps, which may occupy between 0.5 cm and 3.5 cm lateral length in each side closure, the overlapped area will be relatively inelastic. Without high elasticity material

constituting the side flap and having at least 100% elasticity (i.e. can be stretched elastically by more than 100% compared to its original length without substantial permanent strain), the elastic material of the respective side flaps lying between the overlapped panels and the edges of the chassis is not able to fully meet the requirements for good fit and comfort for all intended users.

Inelastic members used in this invention such as nonwoven materials, may comprise a continuous or discontinuous sheet, web, layer or fabric for example, which member can be stretched elastically by only small amounts, normally of the order of between 1 to 15%, but typically less than 10%. Such materials may be spunbonded, carded nonwovens or meltblown materials. The fibres can be e.g. polyolefins such as polypropylene or polyethylene. The fibres can also consist of mixtures of different polymers. Suitable nonwoven materials can also consist of several different nonwoven layers such as spunbond-meltblown-spunbond (SMS) laminates. A concrete example is a spunbonded material of polypropylene fibres where the material has a surface weight which can be arranged to lie between 12 and 30 g/m², and having a fibre thickness of between 0.5 and 5 dtex.

Attached on either side of the elastic lamina in a stretched condition are relatively inelastic nonwoven material webs. After attachment, when the elastic laminate is allowed to return to its relaxed state, the attached nonwoven webs contract and form a lightly corrugated surface, with air pockets between the corrugations, thus providing a comfortable feel.

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In a variation (not shown) of the embodiment depicted in Fig. 5, the nonwoven material layer 30 or 32 of the side flap may be constituted by an extension of the material in the top sheet 5 and/or the back sheet 4. For example, the back sheet 4 may be formed of a laminate structure (not shown) of a nonwoven material layer and a polymeric film material layer, whereby an extension of the nonwoven material layer of the back sheet could then be used to form either layer 30 or layer 32 of the side flap. Similarly, where one outer layer 30 or 32 is formed by nonwoven material of e.g. the top sheet, the other outer layer 32 or 32 may be formed by nonwoven material of the back sheet or a separate sheet of material. Additionally, whilst the use of nonwoven materials is preferred, then inelastic materials can of course be used both in the top sheets and/or back sheets and then be extended so as to form at least one of the non-elastic materials in the side flaps.

The product of the invention may be formed in a variety of ways. However, in accordance with the method of the invention a method has been devised which allows the areas of attachment 21, 22 between the front and rear side flaps to be formed easily with the product lying in a flat condition. In this way, forming the areas of attachment 21, 22 is facilitated, especially where the area of attachment 21 is formed by welding.

Fig. 6 shows a series of operations which need to be carried out to produce an absorbent product. Only one side of the product is shown although the operations on the opposite side are the same. The order of operations although shown as (a) to (d) in Fig. 6 can however be varied to some degree as will be understood from the following.

In order to aid understanding, like reference numerals have been used to denote corresponding parts described with respect to the product of the invention, however
5 with the addition of the letter "a" after the numerals.

The production flow is intended to be from step (a) to step (d) in the Figure. In step (a) a first portion 9a of a first side flap member (e.g. rear side flap) is shown
10 with its inner surface 19a uppermost and fixedly attached to a second portion 13a. The attachment of these two portions can occur at the moment they are placed one upon the other (e.g. by adhesive) or it can occur subsequently thereto such as by welding for example.

15 In step (b), an absorbent product chassis member having a top sheet 5a shown uppermost and a back sheet 4a underneath, is laid on the first portion 9a and fixedly attached thereto at an area 23a at one end portion of the
20 chassis member, such that it extends laterally outwardly from a side edge 40a of the chassis member. It is also possible, in an alternative embodiment (not shown), to arrange the first portion 9a to be located between the top sheet 5a and the back sheet 4a and thus conceal the
25 joint 23a between the top sheet 5a and back sheet 4a. This can be done for example by first laying down the back sheet 4a, then attaching the flap portion 9a, then applying the absorbent core and then adding the top sheet 5a.

30 As will also be clear, the chassis member may however be placed first on the production line, followed then by the flap member 9a, 13a if desired, i.e. a reversal of steps (a) and (b). A first portion of a releasable fastening
35 means 11a is added as a strip or the like, as described

previously, to the end of the first (rear) side flap. This may be in either step (a) or step (b) for example.

5 In step (c) the second side flap member 7a is added (e.g. the front side flap 7), with its inner surface 17a upwards and its outer surface facing downwards, whereby the second member 15a of the releasable fastening means is on that downward facing side. In this condition, the inner surface 19a of the first side flap member 9a, 13a
10 lies in an overlapping relationship against the outer surface of the second side flap member (7a) in a flat (i.e. unfolded) state. The fixed attachment area 21a is then formed, for example by welding at the rectangular area indicated by 21a, whereby it is noted that the weld
15 extends between the upper and lower edges of the first and second side flaps.

At this stage, first end portion 1a (e.g. the rear end portion 1) and the second end portion 2a (e.g. the front
20 end portion 2) of the chassis member are still in a flat condition. Thus in order to form the closed product, the portion 2a needs to be folded on to the portion 1a and the second flap member 7a needs to be fixedly secured to the second end portion 2a.

25 This folding operation can be done either by starting at step (c) and then in step (d) folding portion 2a onto portion 1a, and then folding the second flap member 7a over the first flap member 9a, 13a and thus into contact
30 with the outer (back sheet 4a) surface of end 2a. Alternatively, the second flap member 7a can be folded over the first flap member 9a, 13a and then the end portion 2a folded over on top of the outer surface of the second flap member 7a and thus into contact with the
35 inner (top sheet 5a) surface of end portion 2a.

In either condition, the end of the second flap member 7a is then fixedly secured at location 36a to the second end portion 2a of the chassis member. Preferably such
5 securement is performed by using adhesive on the cooperating surfaces of the flap member 7a and the second end portion 2a of the chassis member, although other methods of fixed attachment may also be employed.

10 In a still further embodiment, the attachment of the first flap member 9a, 13a to the second flap member 7a at the attachment area 21a (i.e. as in part of step (c)) can be performed without the chassis member being present. The chassis member can then be fixedly attached at
15 attachment location 23a and attachment location 36a.

In a still further embodiment, before performing step (d), the flap 7a can first be folded before the chassis itself is folded, and only then attached at area 36a. In
20 this way, the attachment 36a is positioned on the inside of the product and not visible.

Fig. 7 shows a further embodiment of the invention in a view from above, similar to that in Fig. 3, wherein
25 however only one side is shown (the other side being substantially a mirror image) and wherein the rear part 1 of the diaper is lowermost. In this Figure, the first side flap portion 8 and the front side flap 6 is elastic between the attachment location 27 and the end edge 47
30 and the attachment location 35 and the end edge 48 respectively, side flap 6 and first portion 8 preferably consisting entirely of an elastic laminate. The second portion 12 is entirely inelastic. The front side flap 6 has, on its outer surface and fixedly attached thereto,
35 one member 46 of a releasable attachment means in the

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form of a strip, the strip being elongate in the longitudinal direction Y-Y (i.e. in a plane perpendicular to the plane of the paper in the same way as members 10 and 11 as shown in e.g. Fig. 2 are elongate). The cooperating member 10 of the releasable fastening means is fixedly attached to the inelastic portion 12 of the rear side flap.

The weld 21 thus passes through the elastic portions proximate the distal (laterally outward) ends thereof. In this way, only two components need be attached together. Similarly, since the weld 21 is at the ends of each elastic portion in the small overlapped area between end edges 47 and 48, the elastic flap material between weld 21 and attachment location 27 remains active for elastic extension. In the first side flap 6, the portion thereof remaining active for elastic extension is, in this case, that portion which extends between attachment location 35 and the location 49 at which the laterally inner end of strip member 46 is attached to the side flap 6.

To further improve the amount of elastic material available for elastic stretching, the non-elastic portion of the side closure, i.e. between line 49 and weld 21 must be kept to a minimum. The distance between line 49 and weld 21 should be such that this distance occupies a maximum of one third of the elastic part of the side closure (i.e. the distance between attachment location 35 and line 49 added to the distance between line 21 and attachment location 27, in the unstretched condition). Preferably this distance should be between 0.5 and 3.5 cm. Similarly, in the unstretched condition, the length of the elastic portion (that portion between attachment locations 35 and 49 and between 27 and weld 21) of the whole side closure, should be greater than 75% of the

length of the side closure (i.e. the distance between attachment locations 27 and 35 in the prefastened condition). The elastic extensibility of the side closure between locations 27 and 35 including the elastic and inelastic parts joined together, starting from a non-stretched starting length of the side closure, should be greater than 80% and preferably greater than 100%.

If the member 46 is not present, the member 10 should thus attach directly to the outer surface 18 of side flap 6, then the non-elastic portion would be between weld 21 and the location where member 10 attaches to the outer surface 18.

The member 10 can for example be of loop material and the cooperating member 46 of hook material, or vice versa. Inwardly facing hooks are however preferable, since this allows easier disposal in a closed condition. It is also possible to construct the inelastic second portion 12 entirely of loop material and then member 46 to be of hook material to engage therewith.

Fig. 8 and Fig. 9 show a further embodiment of the invention, similar to that described in relation to Fig. 7, whereby the inelastic portion of the rear side flap (second portion 12) is formed not by a separate piece of material being attached to the outside of the first portion as in the embodiments of e.g. Figs 1 to 4, but instead by the elastic lamina 31 of the elastic laminate material (see also Fig. 5) being terminated at an end 50 which lies laterally inside end 44. Thus, distance "a" is inelastic and corresponds to the inelastic portion 12.

In the embodiment shown in Fig. 10, this differs from that shown and described with respect to earlier

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embodiments in that the inelastic second portion 12 is located and fixedly attached to the inner surface 19 of first portion 8.

5 In the embodiment shown in Fig. 11, the second member 12 is formed as a U-looped strip, whereby the open ends of the "U" are fixedly attached e.g. by welding or adhesive for example, to the laterally outer end 47 of the first portion 8 at attachment locations passing through line
10 51. In this way the second portion 12 will be more safely attached to the first portion 8 and the risk of separation of the portions 8 and 12 is reduced at the same time as providing a softer outer edge.

15 In the embodiment of Fig. 12, a further possible form of the inelastic second portion 12 is depicted, in the form of a gripping pocket which allows the fingers of a hand to be inserted into the U-shaped loop for opening or refastening the product (the U-shaped loop being attached
20 at e.g. its upper and lower longitudinal edges for example as shown in Fig. 13 at fixed attachment locations 52 and 53 (e.g. welds)). In this way, the user can insert one or more fingers between the attachment areas and use this as a gripping means to open the reclosable fastening
25 means 10, 46 and/or as a means for peeling or tearing the first portion 8 away from the inner flap 6 at the weld 21. A user can similarly insert a finger between the round end 54 of the loop and the attachment locations 53 or 52 if the loop is made sufficiently long. As will also
30 be apparent, either one of the two fixed attachments 52 or 53 could be omitted, which still allows a finger to be inserted into one corner area of the pocket. Many further modifications of such a gripping pocket by alternative means and locations of attachment will be apparent to a
35 skilled person.

In the embodiment of Fig. 14, which is a partial side view of the side closure showing overlapping panels 6 and 8, 12, the inelastic portion 12 is made to be gradually reduced in length moving laterally outwardly along the rear side flap 8, 12 to the end edge 44, so as to provide a laterally outwardly tapering lower edge. The member 10 may however maintain an elongate rectangular form. In this way a smoother transition between the lower edge of portions 8 and 12 is provided (when compared to e.g. the Fig. 1 embodiment) which provides a comfort improvement on the wearer's legs and reduces the amount of waste material at the same time.

The embodiment of Fig. 15 is similar to that of Fig. 14, differing however in that the member 10 is also made to taper towards the laterally outer edge 44. In this way, the second portion 12 can maintain the advantages described above and the member 10 can be spaced from the edges of the second portion 12 yet still use the maximum area for providing an attachment surface, which is important so as to allow a more secure fastening when the weld 21 is broken.

In the Figure 16 embodiment, the fixed attachment in the form of weld 21 is formed by a series of weld points, e.g. spot welds 55, whereby the strength of the weld is made to increase from an upper edge of the side closure to a lower edge of the side closure. In this way, the weld 21 which forms the fixed attachment can be easily opened at the top edge, but still provides the overall required strength and the security to hold the prefastened product on the wearer. Additionally, this type of weld avoids the need for use of an intermittent tugging force being applied to open the weld when a

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helper removes the product from a child for example, which is typically the case with welds which are of the generally the same strength along the majority of their length. The strength is made to increase in Fig. 16 by using for example larger weld areas and/or increasing the proximity of adjacent weld points as seen in a direction moving from the upper edge to the lower edge.

Various alternative forms of welds 21, 22 may be used to form the fixed attachment between the side flaps, in which a pattern of weld bonding points is used (e.g. such as bonding points in the form of spot welds 55 as in Fig. 16). A "welded area" be defined as being the smallest rectangle which encloses all the individual surface areas of the weld bonding points. In order to provide superior opening properties of the weld when desired, the combined individual surface areas of all the bonding points in a welded area should be made to be less than 50% of the welded area as defined by the rectangle. This may also be used in the case shown in Fig. 16 and other embodiments of course. In preferred embodiments the combined individual surface areas may be less than 40%, less than 30%, less than 20% or even less than 10% of the welded area defined by the rectangle.

In Figure 17, the overlapping side panels 8, 12 and 6 are again depicted and a distance "b" has been indicated. The distance "b" is the total overlapping width of the two laterally outer end edges 44 and 48 of the rear and front side panels respectively. This distance "b" should lie between 0.5 cm and 4 cm and preferably between 0.5 cm and 3 cm and even more preferably between 0.5 cm and 2 cm. Similarly, the width "c" of the second portion 12 should be greater than 50% of the overlapping width "b".

In such a way, the amount of elastic material which is not active elastically is minimised.

Fig. 17 also indicates a further distance "d" between edge 44 and the laterally outer edge of element 10 attached to second portion 12. This distance may be defined as a gripping distance "d". The gripping distance is the distance which can be used to grip the end of the second portion in order to open the reclosable fastening (formed by members 10 and 18 or 10 and 46 for example) between front and rear side panels. Distance "d" should be less than 7 mm in order to prevent younger users from trying to open the reclosable fastening. To provide additional protection against opening a gripping distance of less than 5 mm or even less than 3 mm can be used. However, different levels of opening force should be observed in order to provide child safety features yet still allow opening in a reliable manner by most adult helpers, and in a comfortable manner for the wearer.

Experiments on this matter have shown that a child-safe closure can be produced when a gripping distance of up to 7 mm is used, wherein the reclosable fastening should have an opening force against peeling of above 4 N, preferably above 6 N, more preferably above 8 N and even more preferably above 10 N. With a gripping distance below 3 mm, an opening force above 10 N should be avoided. However, at the same time, the opening peeling force on both the reclosable attachment and also the weld 21 should not exceed 20 N, otherwise the wearer is subjected to an intermittent tugging force being applied in order to open the reclosable fastening and/or weld 21, which is clearly unpleasant. Below 20 N, it has now been shown that such intermittent tugging forces are minimised if not entirely avoided, yet at the same time still

provide the required level of force for a safe closure. Even more preferred are arrangements where the maximum opening force is below 15 N.

5 In order to measure the forces required to open a joint in peel (i.e. using peel forces), the test method as illustrated in Fig. 18 steps (a) and (b) is used. The two parts of the closure (e.g. side flap 6 and second portion 12) are attached together e.g. by the reclosable fastening, and a weight is attached to one of the parts e.g. by being clamped to the part over its width. The gripping distance portion "d" is then gripped and lifted slowly and smoothly, in such a way that no jerky movements cause the reclosable joint to separate. If the weight can be lifted and the joint maintained in the situation shown in Fig. 18(b) for more than 30 seconds, it is judged that the joint can support the weight and thus meets a particular level of force determined by the weight. Whilst test machines could be employed to carry out this test, it is important to realise that the test should correspond as far as possible to a real-life situation and thus the test explained above is not only reliable and repeatable but is preferred over any machine test method.

25 Fig. 19 shows a further embodiment of the invention in which increased child safety is provided by arranging one or more additional welds 56 at the outer edge 44 of the rear side flap (i.e. at the outer edge of the second portion 12 thereof, in this embodiment). These welds 56 in particular give the appearance of being permanently closed and so provide a psychological as well as a physical obstruction for a child user.

In the foregoing, a number of embodiments have been described in order to illustrate different aspects of the invention. It is however to be understood that the individual features of one embodiment may however be used
5 with, or in place of, features of another embodiment. In particular, features shown primarily in embodiments of the product per se are clearly to be understood as being included as additional features or alternative features in the method of the invention.

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Further embodiments of the product and variations of the method will be readily understood by the skilled person upon reading the foregoing and are intended to be encompassed within the scope of the invention as defined
15 by the appended claims.

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CLAIMS

1. Prefastened absorbent product, said absorbent product comprising a rear portion (1), a front portion (2) and a crotch portion (3) therebetween, a longitudinal axis (Y-Y) passing generally through the middle of the front and rear portions (1, 2) and a lateral axis (X-X) perpendicular to the longitudinal axis (Y-Y), said rear portion (1) including at least two rear side flaps (8, 12, 9, 13) attached therein, each presenting an inner surface (19, 19') and an outer surface (20, 20'), said front portion (2) including at least two front side flaps (6, 7) attached therein, each presenting an inner surface (17, 17') and an outer surface (18, 18'), wherein one member of a releasable fastening means (10, 11; 15, 16, 46) is present on each of said rear side flaps (8, 12, 9, 13) and each of said front side flaps (6, 7) respectively, the members of said releasable fastening means on said front and said rear side flaps (6, 7; 8, 12, 9, 13) respectively being in contact to thereby form a reclosable connection therebetween, and further wherein each one of said front side flaps (6, 7) is fixedly attached by means of a weld (21, 22) to a respective one of said rear side flaps (8, 12, 9, 13) in an overlapping relationship such that the outer surface (18, 18') of each one of said front side flaps (6, 7) lies against the inner surface (19, 19') of each respective rear side flap (8, 12, 9, 13), and wherein the weld (21, 22) in each of said rear side flaps (8, 12, 9, 13)

lies laterally inwardly with respect to the releasable fastening means (10, 11) positioned on said respective rear side flap, and wherein each of said front and said rear side flaps (6, 7; 8, 12, 9, 13) includes an elastic portion, and wherein said weld (21, 22) is positioned proximate the laterally outer edge (47, 48) of the elastic portion of at least one of said front and said rear side flaps (6, 7; 8, 12, 9, 13).

2. Prefastened absorbent product according to claim 1, characterized in that said weld (21, 22) is positioned proximate the laterally outer edge of the elastic portion of both of said front and rear side flaps (6, 7; 8, 12, 9, 13).

3. Prefastened absorbent product according to claim 1 or claim 2, characterized in that said front side flaps (6, 7) and said rear side flaps (8, 12, 9, 13) are fixedly attached to each other by said weld (21, 22) along an area of attachment extending as an elongate welded area between an upper edge (29) and a lower edge (28) of said front side flaps (6, 7) and said rear side flaps (8, 12, 9, 13).

4. Prefastened absorbent product according to claim 2 or 3, characterized in that said area of attachment extends over substantially the whole distance between said upper edge (29) and said lower edge (28) of said front side flaps (6, 7) or said rear side flaps (8, 12, 9, 13).

5. Prefastened absorbent product according to either of claim 3 or claim 4, characterized in that said

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elongate section extends generally parallel to the longitudinal axis (Y-Y).

- 5 6. Prefastened absorbent product according to any one of the preceding claims, characterized in that said elastic portion of said front side flaps (6, 7) and/or said rear side flaps (8, 12, 9, 13) are each formed from an elastic laminate construction, said elastic laminate construction being formed with a non-woven material (30, 31) on the inner and outer surfaces thereof.
- 10 7. Prefastened absorbent product according to any one of the preceding claims, characterized in that said rear side flaps (8, 12, 9, 13) each comprise a first portion (8, 9) fixedly attached to an absorbent product chassis member at a first attachment location (23, 27), and a second portion (12, 13) fixedly attached to said first portion (8, 9) at a second attachment location (24, 26), said second attachment location (24, 26) being positioned laterally outward, with respect to said rear portion (1), of said first attachment location (23, 27), and in that said first member of said releasable fastening means (10, 11; 15, 16) is fixedly attached to said second portion (12, 13) and in that said first portion (8, 9) includes the elastic portion of said rear side flap.
- 20 8. Prefastened absorbent product according to claim 7, characterized in that said second portion (12, 13) is inelastic and is stiffer in bending than said first portion (8, 9).
- 30 9. Prefastened absorbent product according to claim 7 or 8, characterized in that said second attachment
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location (24, 26) lies laterally outward, with respect to said rear portion (1), of said weld (21, 22).

- 5 10. Prefastened absorbent product according to any one of the preceding claims, characterized in that said releasable fastening means comprises a first member (10, 11) on said rear side flaps (8, 12, 9, 13) and a
10 second member (15, 16) on said front side flaps cooperating with said first member (10, 11) to allow releasable attachment, and in that said second member (15, 16) comprises an external surface of one of said front side flaps (6, 7).
- 15 11. Prefastened absorbent product according to claim 10, characterized in that the entire said second portion (12, 13) of the rear side flap is located laterally outward of said weld (21, 22), with respect to said rear portion (1).
- 20 12. Prefastened absorbent product according to any one of claims 2 to 11, characterized in that said weld (21, 22) constitutes a peelable weld, whereby a front side flap (6,7) may be peeled apart from a rear side flap
25 (8, 12, 9, 13) at said weld.
- 30 13. Prefastened absorbent product according to any one of claims 2 to 12, characterized in that a line of weakening (33, 34) is arranged in each of said front side flaps (6, 7) at a location laterally inward, with respect to said front portion (2), of said weld (21, 22).
- 35 14. Prefastened absorbent product according to any ne of the preceding claims, characterized in that the

absorbent product is formed as a disposable pants diaper.

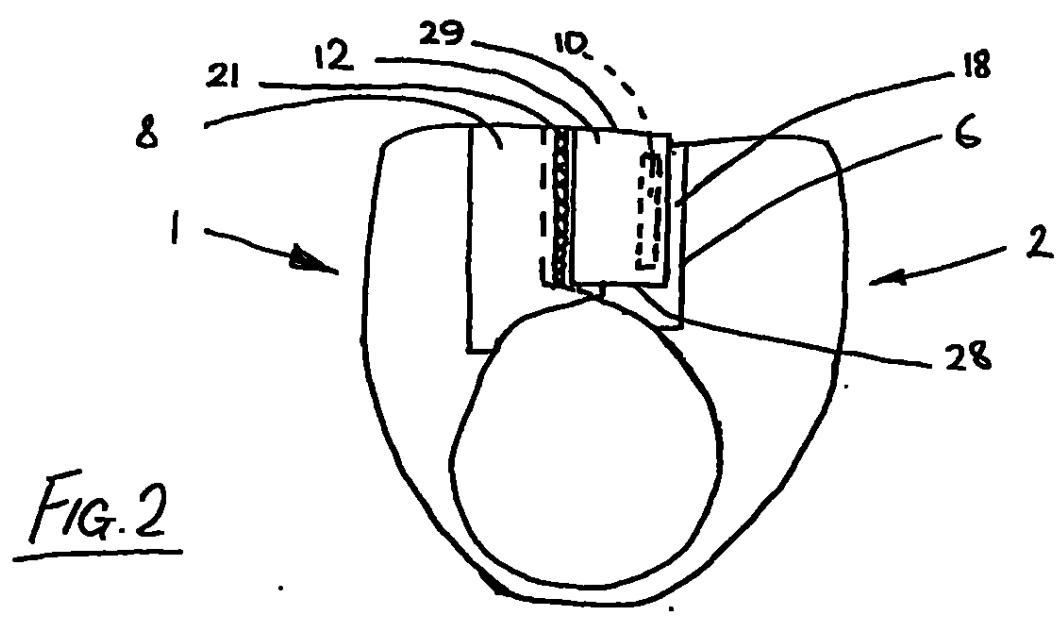
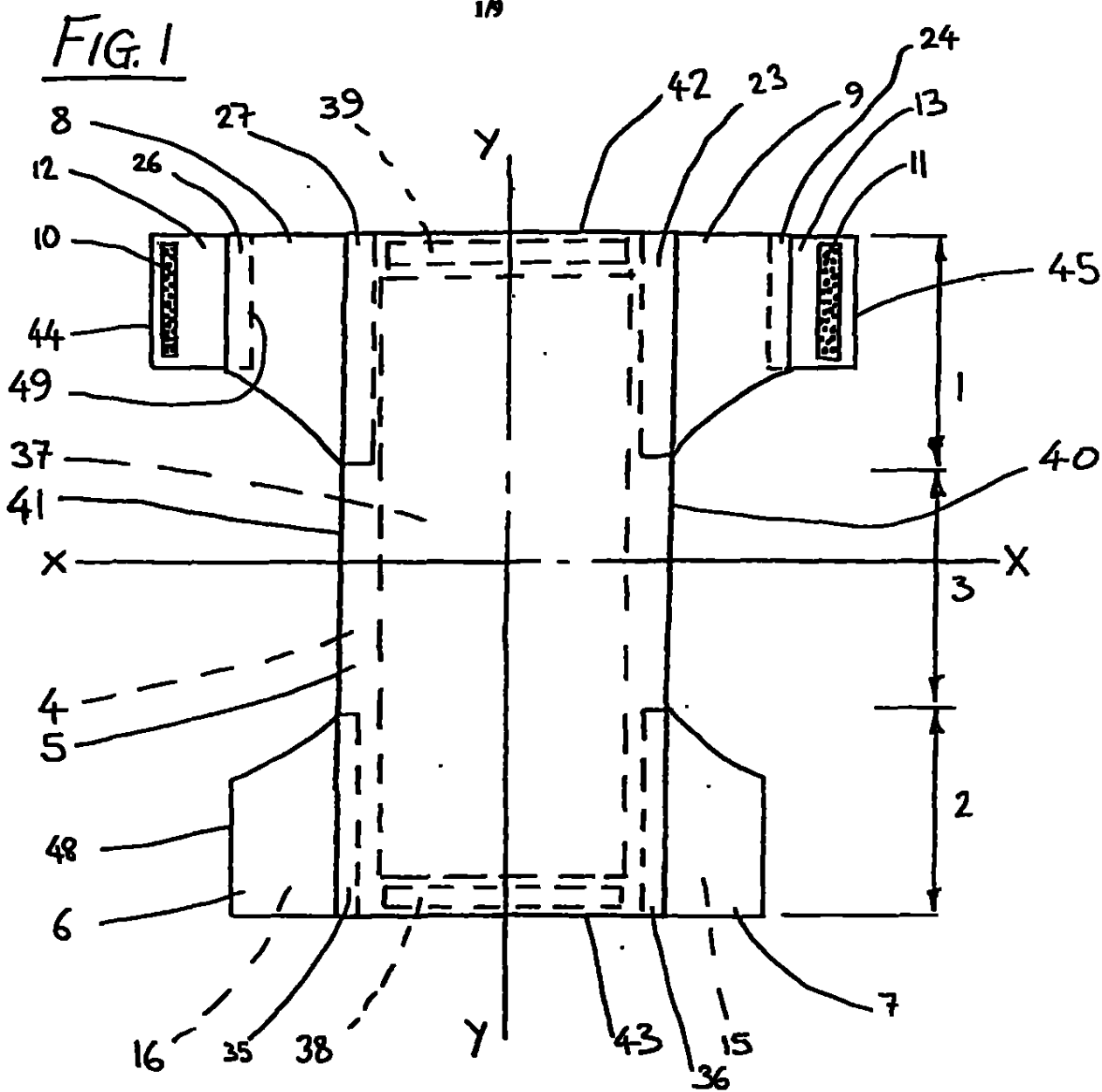
15. Method of producing a prefastened, reclosable
5 absorbent product, wherein a first side flap member
(9a, 13a) is fixedly attached at a first attachment
location (23a) to an outer surface (4a) of a first
end portion (1a) of an absorbent product chassis
member, so as to extend laterally outwardly from a
10 side edge (40a) of said chassis member, said first
side flap member (9a, 13a) being provided with one
part (11a) of a releasable fastening means (11a,
15a), and wherein a second side flap member (7a) is
attached by welding at an area of attachment (21a) to
15 said first side flap member (9a, 13a) such that an
inner surface (19a) of said first side flap member
(9a, 13a) is attached in an unfolded overlapping
relationship to an outer surface of said second side
flap member (7a), and wherein said second side flap
20 member (7a) is folded over said first side flap
member (9a, 13a) such that an inner surface of the
second side flap member (7a) faces said inner surface
(19a) of said first side flap member (9a, 13a), and
wherein said second side flap member (7a) is then
25 fixedly attached to said second end portion (2a) of
said chassis member.

16. Method according to claim 15, characterized in that
30 said second side flap member (7a) is folded over said
first side flap member (9a, 13a) after said second
end portion (2a) has been folded onto said first end
portion (1a), and in that said second side flap
member (7a) is then folded onto, and fixed to, an
outer surface of said chassis member.

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17. Method according to claim 15, characterized in that said second side flap member (7a) is folded over said first side flap member (9a, 13a) before said second end portion (2a) has been folded onto said first end portion (1a), and in that said second side flap member (7a) is fixed to an inner surface of said chassis member.
18. Method according to any one of claims 15 or 16, characterized in that said first side flap member (9a, 13a) is attached to said outer surface (4a) of said first end portion (1a) after said area of attachment (21a) is formed between said first side flap member (9a, 13a) and said second side flap member (7a).
19. Method according to any one of claims 15 to 18, characterized in that said first side flap member (9a, 13a) is a rear side flap (9, 13) and is provided with a first member (11a) of a releasable fastening means, and in that said second side flap member (7a) is a front side flap (7) provided with a second member (15a) of said releasable fastening means, said second member (15a) cooperating with said first member (10, 11) and allowing releasable fastening.

1/9



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FIG. 3

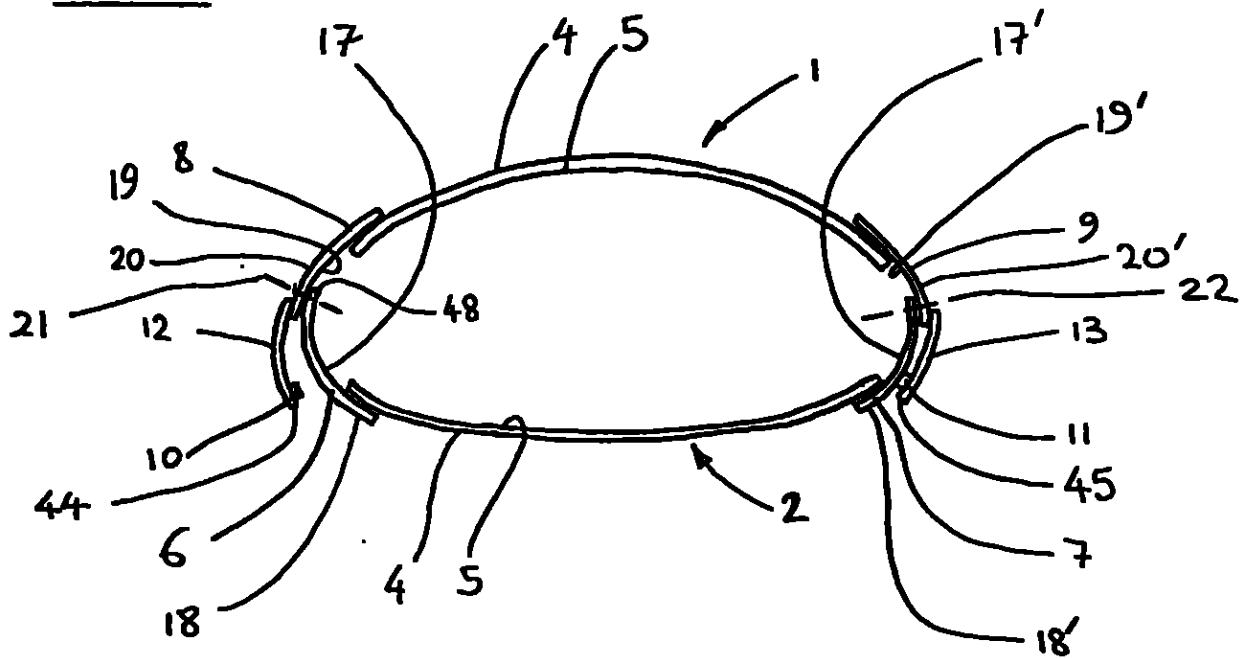


FIG. 4

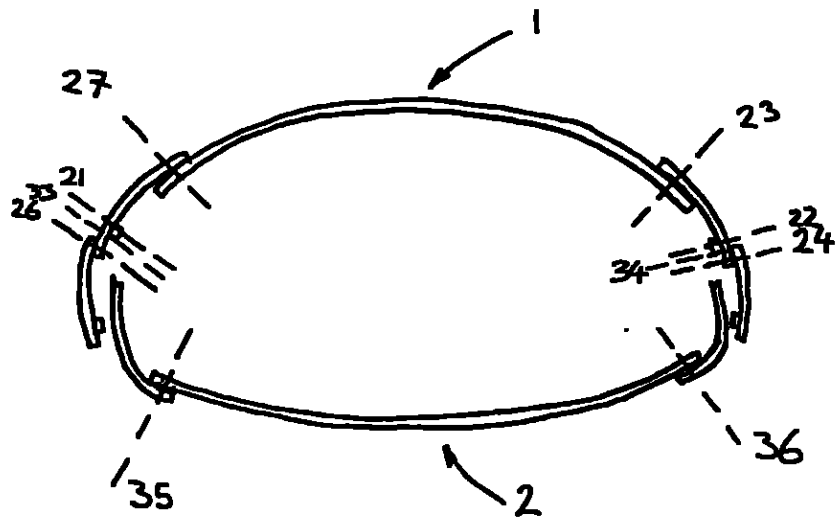


FIG. 5

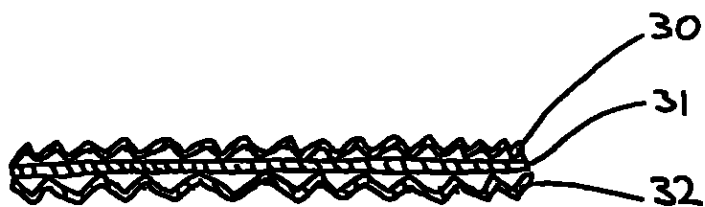


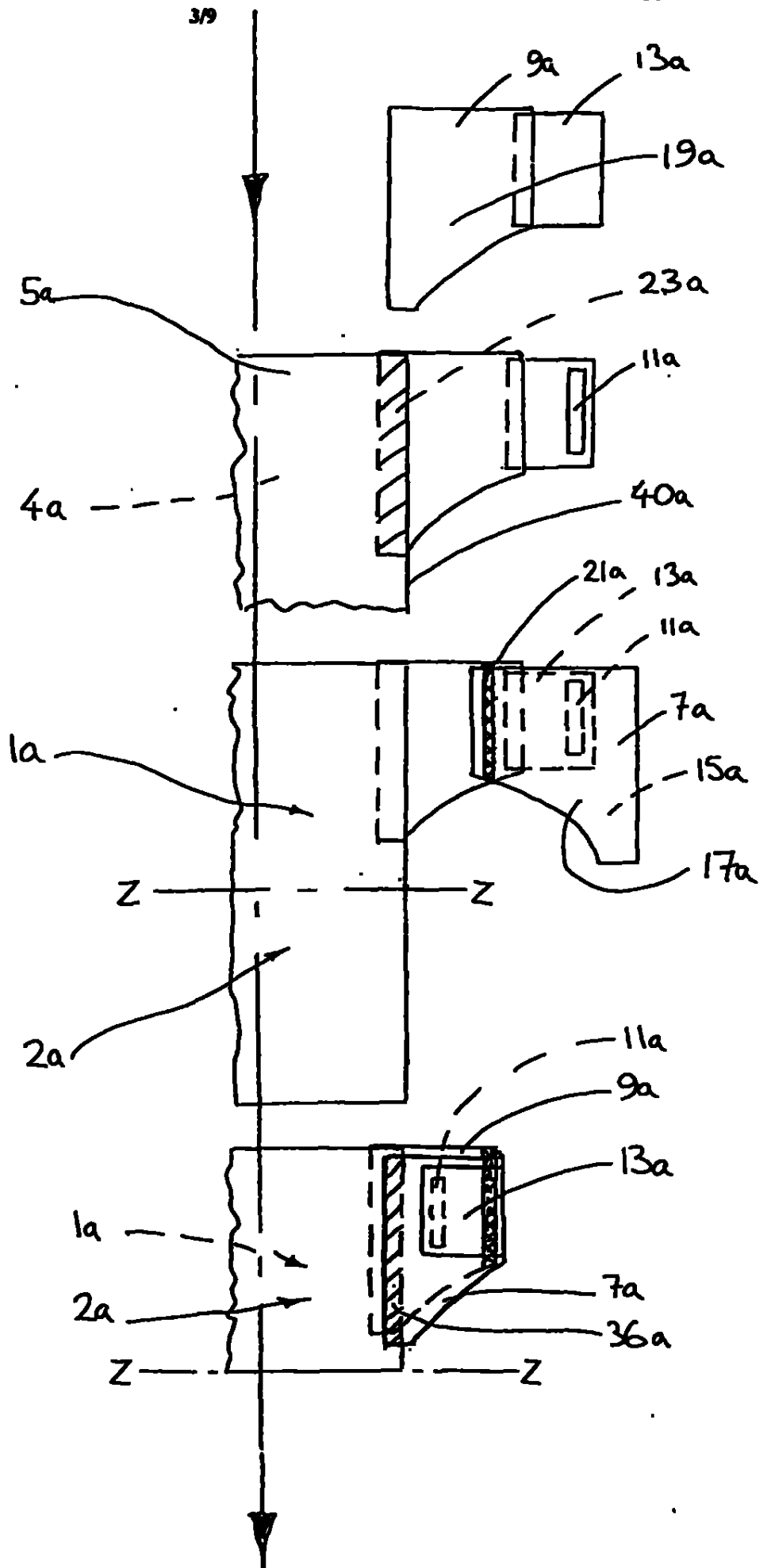
FIG. 6

(a)

(b)

(c)

(d)



34

FIG. 7

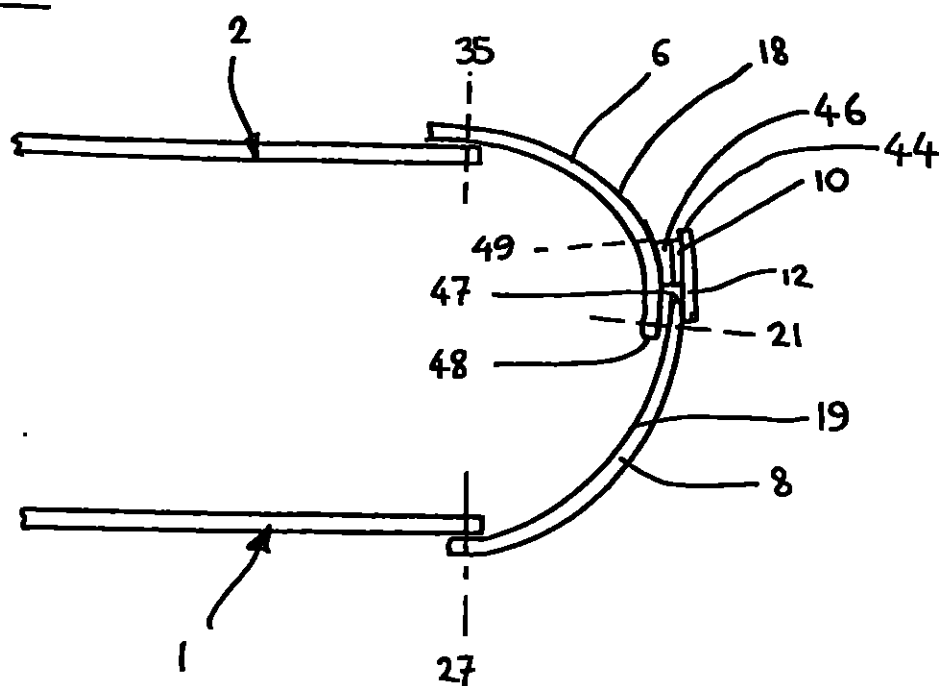


FIG 8

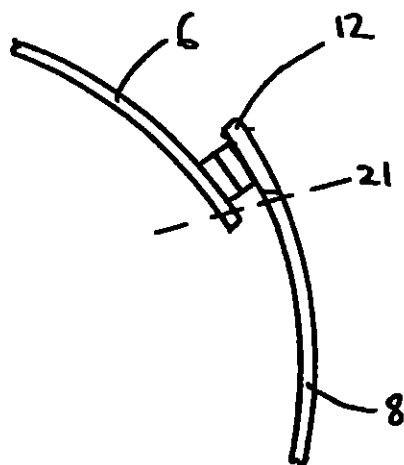
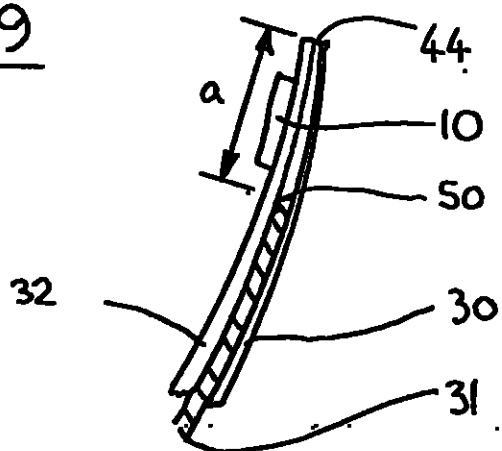


FIG. 9



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FIG. 10

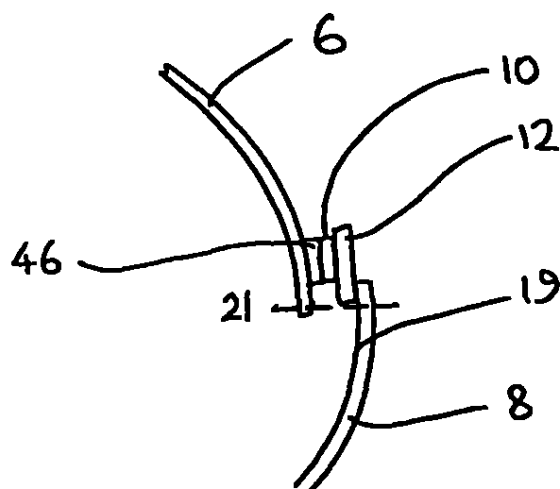


FIG. 11

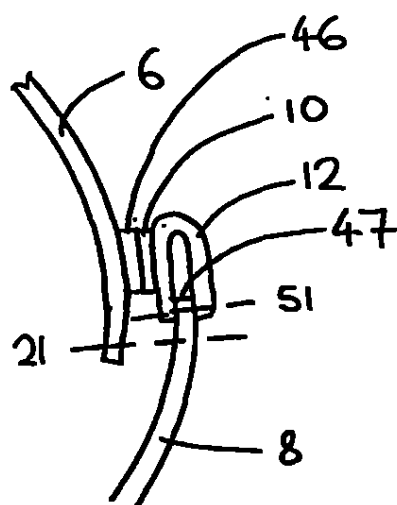


FIG. 12

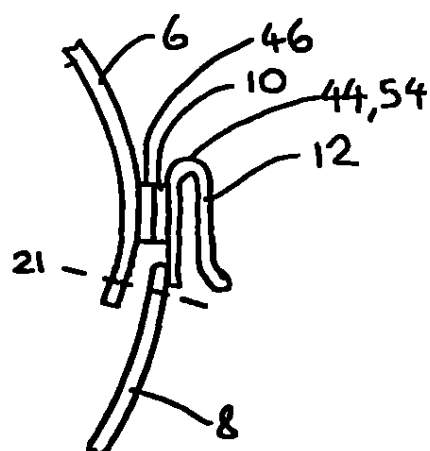


FIG. 13

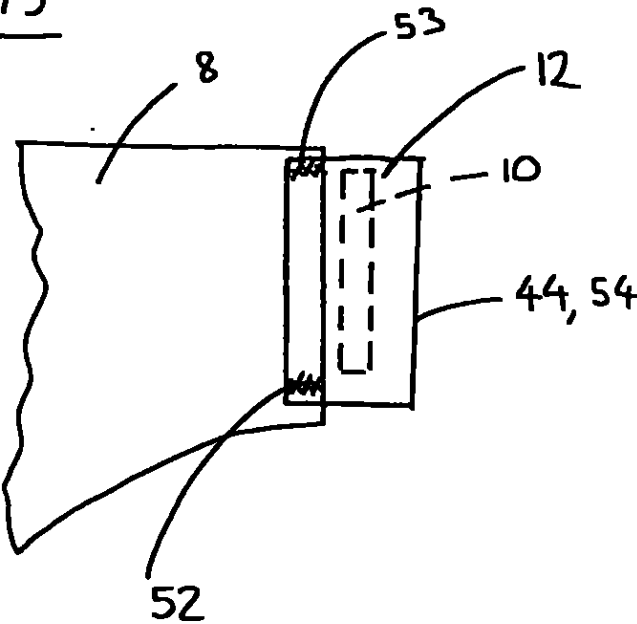


FIG. 14

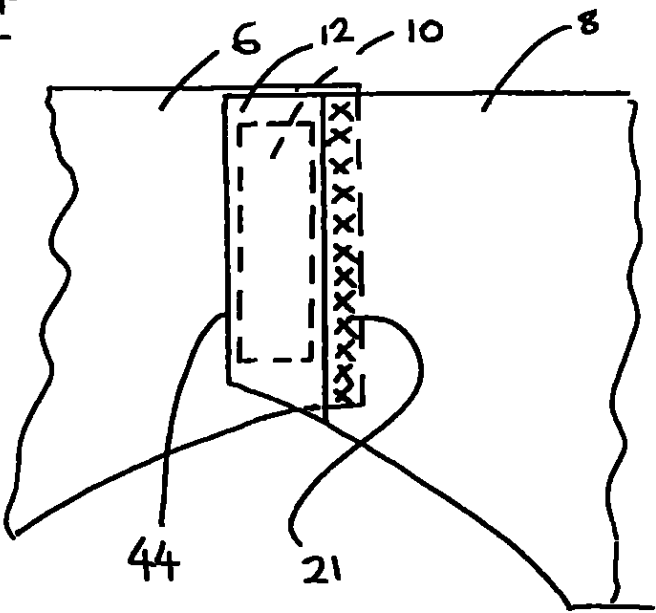


FIG. 15

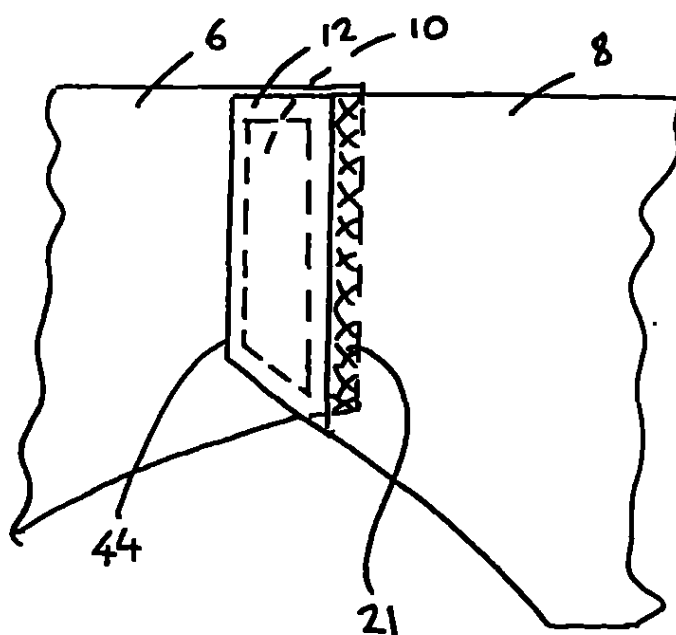


FIG. 16

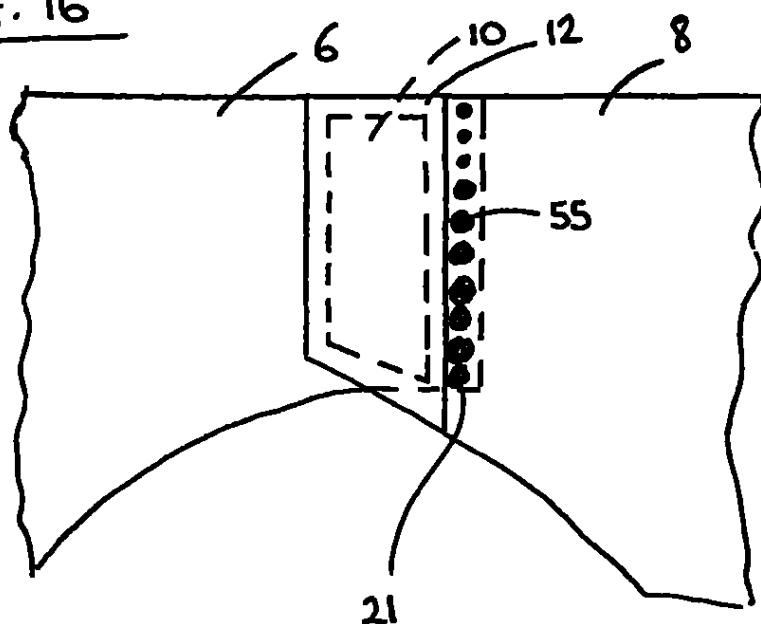


FIG 17

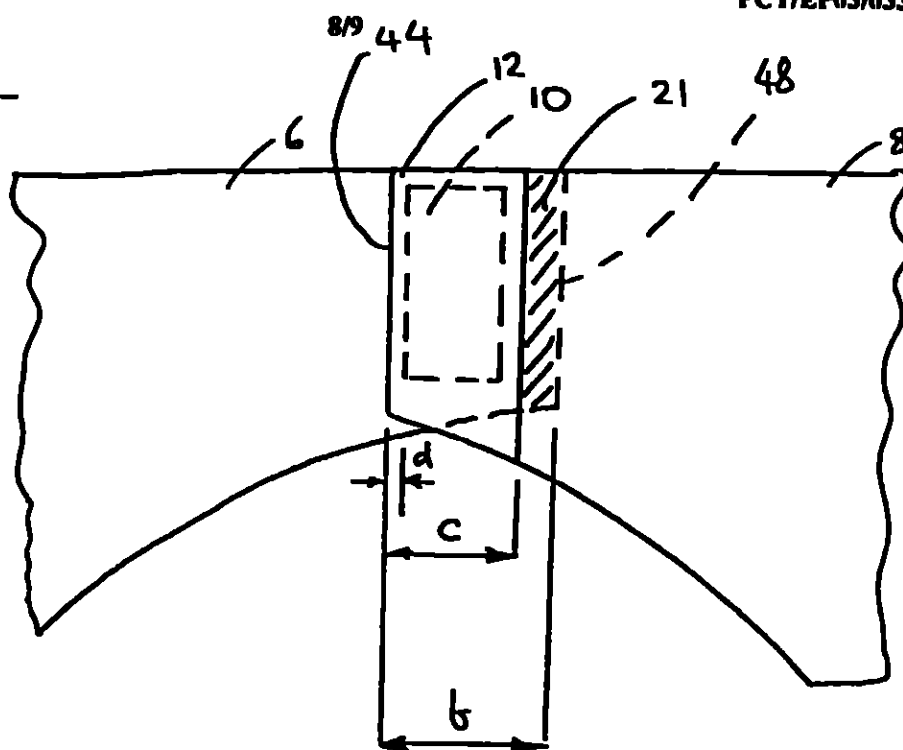


FIG 18

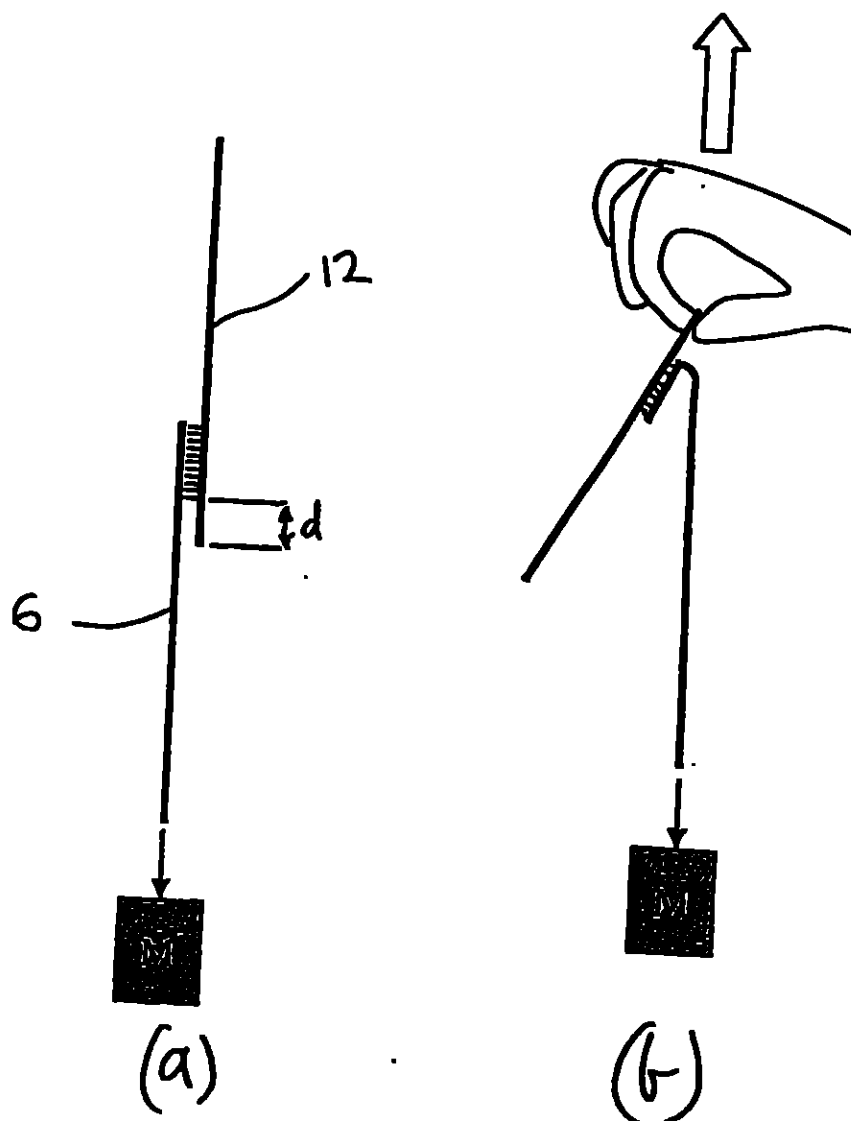
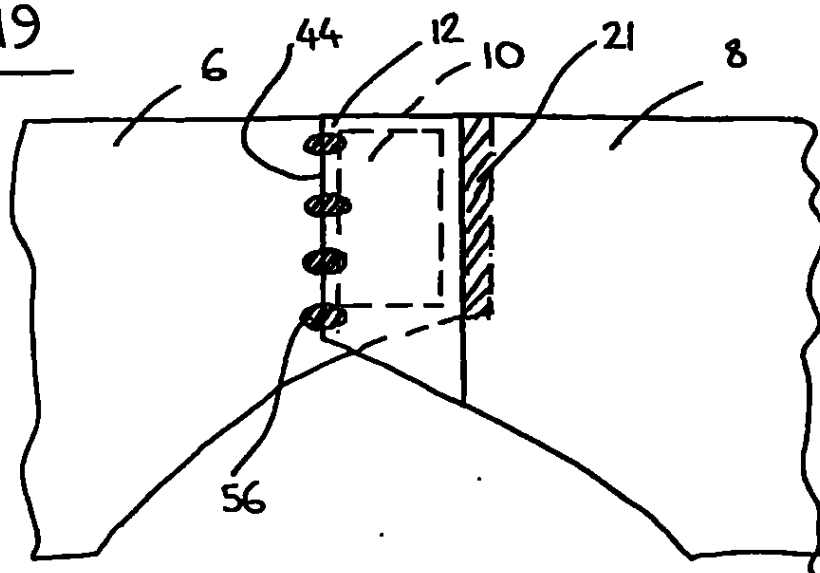


FIG. 19



PATENT COOPERATION TREATY

57-7

55/2-19-7-04

05. Juli 2004

VO

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

To:

Harrison, Michael C.
HARRISON, Michael, C.
Albihs GmbH
Bayerstrasse 83
80335 München
ALLEMAGNE

Date of mailing
(day/month/year)

05.07.2004

Applicant's or agent's file reference
P 001 623 PC

IMPORTANT NOTIFICATION

International application No.
PCT/EP 03/03384

International filing date (day/month/year)
01.04.2003

Priority date (day/month/year)
02.04.2002

Applicant
SCA HYGIENE PRODUCTS AB

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed invention is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international
preliminary examining authority:



European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tlx 31 851 epo nl
Fax +31 70 340 - 3016

Authorized Officer

Dekker, M

Tel. +31 70 340-4046



PATENT COOPERATION TREATY

PCT

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P 001 623 PC		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEAA/16)	
International application No. PCT/EP 03/03384	International filing date (day/month/year) 01.04.2003	Priority date (day/month/year) 02.04.2002	
International Patent Classification (IPC) or both national classification and IPC A61F13/15			
Applicant SCA HYGIENE PRODUCTS AB			
1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 38. 2. This REPORT consists of a total of 6 sheets, including this cover sheet. ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of sheets.			
3. This report contains indications relating to the following items: I ☒ Basis of the opinion II ☐ Priority III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV ☒ Lack of unity of invention V ☒ Reasoned statement under Rule 66.2(a)(II) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI ☐ Certain documents cited VII ☐ Certain defects in the International application VIII ☐ Certain observations on the International application			
Date of submission of the demand 27.10.2003		Date of completion of this report 05.07.2004	
Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tlx 31 851 epo nl Fax: +31 70 340 - 3018		Authorized Officer Douskas, K Telephone No. +31 70 340-3525 	

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**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/EP 03/03384**

I. Basis of the report

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-36 as originally filed

Claims, Numbers

1-19 as originally filed

Drawings, Sheets

1/9-9/9 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/EP 03/03384**

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).
- (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees, the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☒ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
- ☐ not complied with for the following reasons:

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
- ☐ the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	6-11, 13, 15-19
	No: Claims	1-5,12,14
Inventive step (IS)	Yes: Claims	15-19
	No: Claims	6-11,13
Industrial applicability (IA)	Yes: Claims	1-19
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

The following documents (D) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1: US-A-5370634
D2: US-A-4940464
D3: US-A-5496298
D4: WO-A-0037005
D5: EP-A-570980
D6: US-A-6113717

I. Product Claims 1-14

1. Novelty

The present application does not meet the requirements of Article 33(2) PCT, because the subject-matter of claims 1-5, 12, 14 is not new.

- 2.1 Document D1 discloses a prefastened absorbent product comprising, in addition to the standard components of an absorbent product (Col. 4 lines 9 - 28), at least two rear and at least two front side flaps (5,5) attached to the rear and front portion (7,7) of the absorbent product respectively, and each side flap (5) comprising one member of a releasable fastening means (6, 8) to form a reclosable connection there between (Col. 4 lines 29 - 47), and further each one of said front side flaps (5,5) is fixedly attached by means of a weld (5d) (Col. 4, lines 19 - 22; Col. 4 line 48 - Col. 5 line 9; Col. 8, lines 11 - 17) to a respective one of said rear side flaps (5,5) in an overlapping relationship such that the outer surface of each one of said front side flap lies against the inner surface of each respective rear side flap, and wherein (Figs. 4, 5) the weld (5d) in each of said rear side flaps lies laterally inwardly with respect to the releasable fastening means (6) positioned on said respective rear side flap (5), and wherein each of said front and said rear side flaps (5,5) includes an elastic portion (14) (Col. 5 lines 10 - 15), and wherein said weld is positioned (figs 4, 5) proximate the laterally outer edge of the elastic portion (14) of at least one of said front and said rear side flaps (5,5).**

Note : The inner surface of the rear side flap lies against the outer and/or inner side of the front side flap (D1: Fig.9; col. 10 lines 43 - 51)

Hence claim 1 is not novel.

2.2 The features of claims 2-5, 12, 14 are also disclosed by D1

Claim 2	D1: (Fig. 7)
Claims 3, 5	D1: (Figs 4, 5)
Claim 4	D1: Implicitly disclosed (Claims 1-5)
Claim 12	D1: (Claims 1-5)
Claim 14	D1: (Claims 1)

3. Inventive Step

Dependent claims 6-11, 13 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to inventive step, the reasons being as follows:

3.1 Claims 6-11

In claims 6-11 slight constructional changes in the side flaps of the article are suggested which come within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can be readily contemplated in advance. This is also illustrated in several documents

- (i) Claim 6 D2 (Col. 3 lines 10 - 33; Col. 4 line 54 - col. 5 line 8)
- (ii) Claim 7 D3 (Col. 5 lines 9 - 27; Claim 1)
- (iii) Claim 8 D4 (page 28 lines 1 - 7)
- (iv) Claim 9 D1 (Figs. 4, 5)
- (v) Claim 10 D3 (Col. 9, lines 35 - 45)
- (vi) Claim 11 D1 (Figs 4, 5)

3.2 Claim 13

The feature of dependent claim 13 have already been employed for the same purpose in a similar absorbent article, see document D5,(claims; Figs; Ref num. 9a). It would therefore be obvious to the person skilled in the art, to apply this feature with corresponding effect to an absorbent article according to document D1,

thus arriving at an absorbent article according to claims 13.

Consequently, the subject-matter of claim 13 also appears to lack an inventive step.

I. Method Claims 15-19

Document D6 is Regarded as being the closest Prior art with regard to the Independent Method Claim 15.

The subject matter of the Independent method claim 15 differs from D6 in that the first flap member is first attached to the chassis then the second flap member is attached by welding to the first flap member and then folded over the first flap member and then fixedly attached to the second end portion of the chassis.

The subject matter of claim 15 is therefore new

Inventive step

The problem to be solved by the present invention defined in the method claims 15-19 is correct attachment of the front and rear side flaps.

This problem is solved by the features of claim 15 by attaching the second side flap to the first side flap in a flat condition prior to the attachment of the second flap to the chassis.

Hence the subject matter of claim 15 is inventive.

Since claims 16-19 are dependent on claim 15 they are also new and inventive.

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

ss: 29/11/03
Maf h

PCT

To:

Harrison, Michael C.
ALBIHNS GMBH
Grasserstrasse 10
D-80339 Munich
ALLEMAGNE

NOTIFICATION OF RECEIPT
OF DEMAND BY COMPETENT INTERNATIONAL
PRELIMINARY EXAMINING AUTHORITY

(PCT Rules 59.3(e) and 61.1(b), first sentence
and Administrative Instructions, Section 601(a))

Date of mailing
(day/month/year)

12-11-2003

Applicant's or agent's file reference

P 001 623 PC

IMPORTANT NOTIFICATION

International application No.

PCT/EP 03/03384

International filing date (day/month/year)

01/04/2003

Priority date (day/month/year)

02/04/2002

Applicant

SCA HYGIENE PRODUCTS AB

1. The applicant is hereby notified that this International Preliminary Examining Authority considers the following date as the date of receipt of the demand for international preliminary examination of the international application:

27/10/2003

2. This date of receipt is:

- ☒ the actual date of receipt of the demand by this Authority (Rule 61.1(b)).
☐ the actual date of receipt of the demand on behalf of this Authority (Rule 59.3(e)).
☐ the date on which this Authority has, in response to the invitation to correct defects in the demand (Form PCT/IPEA/404), received the required corrections.

3. ☐ **ATTENTION:** That date of receipt is **AFTER** the expiration of 19 months from the priority date. Consequently, the election(s) made in the demand does (do) not have the effect of postponing the entry into the national phase until 30 months from the priority date (or later in some Offices) (Article 39(1)). Therefore, the acts for entry into the national phase must be performed within 20 months from the priority date (or later in some Offices) (Article 22). For details, see the *PCT Applicant's Guide*, Volume II.

- ☐ (If applicable) This notification confirms the information given by telephone, facsimile transmission or in person on:

4. Only where paragraph 3 applies, a copy of this notification has been sent to the International Bureau.

Name and mailing address of the IPEA/



European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Netherlands
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Fax: (+31-70) 340-3016

Authorized officer

DEKKER M F H

Tel. (+31-70) 340-4046



(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
9 October 2003 (09.10.2003)

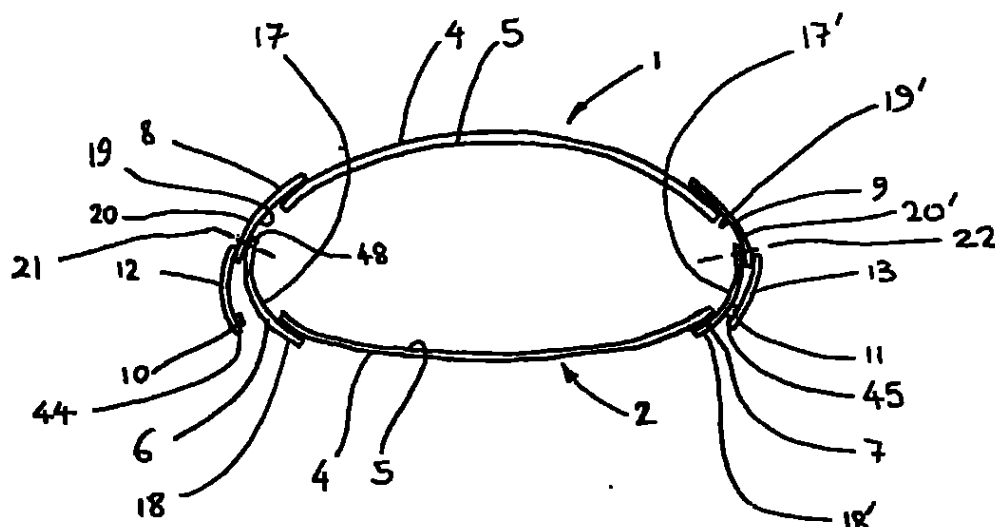
PCT

(10) International Publication Number
WO 2003/082167 A3

- (51) International Patent Classification⁷: A61F 13/15.
- (21) International Application Number: PCT/EP2003/003384
- (22) International Filing Date: 1 April 2003 (01.04.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
02007499.3 2 April 2002 (02.04.2002) EP
- (71) Applicant: SCA HYGIENE PRODUCTS AB [SE/SE];
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- (72) Inventors: OLSSON, Ken: Rundradiogatan 2, S-421 35
Västra Frölunda (SE); JOHANSSON, Mark: Skogshäcks-
vägen 17, S-435 37 Mölndals (SE); CORNELIUSSON,
Helena: Uppgärdsvägen 28, S-445 34 Bohus (SE).
- (74) Agents: HARRISON, Michael, C. et al.: Albihs GmbH,
Grasserstrasse 10, 80339 München (DE).
- (81) Designated States (*national*): AE, AG, AL, AM, AT (util-
ity model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,
CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (util-
ity model), DE, DK (utility model), DK, DM, DZ, EC, EE
(utility model), EE, ES, FI (utility model), FI, GB, GD, GE,
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,
LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,
MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU,
SC, SD, SE, SG, SK (utility model), SK, SL, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IL, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
- (88) Date of publication of the international search report:
5 February 2004

[Continued on next page]

(54) Title: PREFASTENED ABSORBENT PRODUCT WITH ELASTIC RECLOSABLE SIDES AND METHOD FOR PRODUC-
ING SAME



(57) Abstract: An absorbent prefastened product in the form of a disposable pants diaper is provided with a side closure arrangement on each side. The side closure includes front and rear side flaps having elastic portions where an inner surface (19, 19') of a rear side flap (8, 12, 9, 13) is overlapped and welded to an outer surface (18, 18') of a front side flap (6, 7). Each side flap (8, 12, 9, 13) is also provided with one part of a releasable fastening system (10, 11, 15, 16) located such that the weld is located on at least one of the elastic portions and such that it lies inward of the releasable fastening system in the prefastened state. A method of forming the absorbent product is also provided, in which an overlapped attachment is formed by joining front and rear side flap members (7a, 9a, 13a) together and attaching the side flap members (7a, 9a, 13a) to an absorbent chassis member.

WO 2003/082167 A3

INTERNATIONAL SEARCH REPORT

Int'l Application No
PCT/EP 03/03384

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61F13/15 A61F13/56

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 370 634 A (ANDO KENJI ET AL) 6 December 1994 (1994-12-06) column 4, line 9 - column 5, line 9 column 8, line 11 - line 17; claims; figures 4,5	1-12,14
Y	—	13
Y	EP 0 570 980 A (UNI CHARM CORP) 24 November 1993 (1993-11-24) claims; figures	13
A	US 4 940 464 A (SCHLEINZ ROBERT J ET AL) 10 July 1990 (1990-07-10) column 3, line 10 - line 33 column 4, line 54 - column 5, line 8	1,6
	— -/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "Z" document member of the same patent family

Date of the actual completion of the international search

30 September 2003

Date of mailing of the international search report

07/10/2003

Name and mailing address of the ISA

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Authorized officer

Douskas, K

INTERNATIONAL SEARCH REPORT

Int. of Application No
PCT/EP 03/03384

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 496 298 A (KUEPPER REBECCA J ET AL) 5 March 1996 (1996-03-05) column 5, line 9 - line 27 column 9, line 36 - line 45 column 10, line 5 - line 22	1,6,7,10
A	WO 00 37005 A (KIMBERLY CLARK CO) 29 June 2000 (2000-06-29) page 28, line 1 - line 7	1,8
A	WO 00 35396 A (KIMBERLY CLARK CO) 22 June 2000 (2000-06-22) claims; figures	1
A	US 6 113 717 A (BLENKE TIMOTHY JAMES ET AL) 5 September 2000 (2000-09-05) column 18, line 10 - line 23	15

INTERNATIONAL SEARCH REPORT

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International application No.
PCT/EP 03/03384

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 8.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-14

Prefastened absorbent product having a pair of rear side flaps and a pair of front side flaps attached to each other by a weld.

2. Claims: 15-19

Method for producing a prefastened absorbent product having a pair of rear side flaps and a pair of front side flaps attached to each other by a weld.

INTERNATIONAL SEARCH REPORT

Int'l Application No
PCT/EP 03/03384

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 5370634	A	06-12-1994	JP	3015067 B2	28-02-2000
			JP	4035663 A	06-02-1992
			GB	2244422 A ,B	04-12-1991
			HK	105994 A	14-10-1994
EP 0570980	A	24-11-1993	JP	3096152 B2	10-10-2000
			JP	5317356 A	03-12-1993
			AU	3859093 A	25-11-1993
			CA	2096672 A1	23-11-1993
			CN	2164272 U	11-05-1994
			DE	59306993 D1	04-09-1997
			EP	0570980 A1	24-11-1993
			ES	2106227 T3	01-11-1997
			GB	2267024 A ,B	24-11-1993
US 4940464	A	10-07-1990	KR	137121 Y1	20-03-1999
			AT	105150 T	15-05-1994
			AT	160280 T	15-12-1997
			AU	612742 B2	18-07-1991
			AU	2698688 A	22-06-1989
			BR	8806698 A	29-08-1989
			CA	1326328 C	25-01-1994
			CA	1329864 C	31-05-1994
			CA	1338920 C	25-02-1997
			DE	3856073 D1	02-01-1998
			DE	3856073 T2	10-06-1998
			DE	3889435 D1	09-06-1994
			DE	3889435 T2	01-09-1994
			DE	8817215 U1	14-07-1994
			DE	8817217 U1	11-08-1994
			EP	0320991 A2	21-06-1989
			EP	0597331 A1	18-05-1994
			ES	2051825 T3	01-07-1994
			ES	2108798 T3	01-01-1998
			HK	1005058 A1	18-12-1998
			JP	2004364 A	09-01-1990
			JP	2579679 B2	05-02-1997
			KR	9308207 Y1	13-12-1993
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			ZA	8809174 A	27-12-1989
US 5496298	A	05-03-1996	AU	688846 B2	19-03-1998
			AU	1520395 A	17-07-1995
			BR	9408445 A	05-08-1997
			CA	2126495 A1	29-06-1995
			CN	1142759 A ,B	12-02-1997
			CZ	9601872 A3	12-02-1997
			DE	69423652 D1	27-04-2000
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			EP	0737057 A1	16-10-1996
			ES	2143042 T3	01-05-2000
			FR	2714288 A1	30-06-1995
			GB	2285208 A ,B	05-07-1995
			HU	76775 A2	28-11-1997
			JP	9507409 T	29-07-1997
			PL	315205 A1	14-10-1996
			RU	2127572 C1	20-03-1999

INTERNATIONAL SEARCH REPORT

Inte of Application No
PCT/EP 03/03384

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5496298	A		SK 85396 A3 TR 28717 A WO 9517871 A1 ZA 9410323 A	05-03-1997 27-01-1997 06-07-1995 13-09-1995
WO 0037005	A	29-06-2000	AU 1827800 A CN 1334713 T EP 1139952 A2 JP 2003508095 T WO 0037005 A2 ZA 200104934 A	12-07-2000 06-02-2002 10-10-2001 04-03-2003 29-06-2000 18-06-2002
WO 0035396	A	22-06-2000	US 6447497 B1 AU 760442 B2 AU 1940500 A AU 2057000 A BR 9915846 A CN 1348347 T EP 1139955 A1 JP 2002532147 T WO 0035396 A1 WO 0035398 A1 ZA 200103932 A US 2003060794 A1	10-09-2002 15-05-2003 03-07-2000 03-07-2000 30-07-2002 08-05-2002 10-10-2001 02-10-2002 22-06-2000 22-06-2000 15-05-2002 27-03-2003
US 6113717	A	05-09-2000	AU 755450 B2 AU 2052100 A BR 9916113 A EP 1139956 A1 JP 2002532194 T WO 0037007 A1	12-12-2002 12-07-2000 04-06-2002 10-10-2001 02-10-2002 29-06-2000

PATENT COOPERATION TREATY

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From the INTERNATIONAL SEARCHING AUTHORITY

PCT

- 6. Okt. 2003

To:
ALBIHNS GMBH
Attn. Harrison, Michael C.
Grasserstrasse 10
D-80339 Munich
GERMANY

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

SSC: 20/10-03
(PCT Rule 44.1) ASF: 2/11-03
BSF: 7/12-03 } 52

Date of mailing (day/month/year)	07/10/2003
Applicant's or agent's file reference P 001 623 PC	FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/EP 03/03384	International filing date (day/month/year)
Applicant SCA HYGIENE PRODUCTS AB	

1. ☒ The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:
The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Further action(s): The applicant is reminded of the following:

Shortly after 18 months from the priority date, the International application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the International application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for International publication.

Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Alicja Van der Heijden
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These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 18 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by canceling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 48.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PATENT COOPERATION TREATY

SSP - 22-3-04

AA.NW 13/MSF - 9-5-04
SSP - 9-6-04

18. März 2004

PCT

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From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

Harrison, Michael C.
ALBIHNS GMBH
Grasserstrasse 10
D-80339 Munich
ALLEMAGNE

WRITTEN OPINION (PCT Rule 66)

Date of mailing (day/month/year)		09.03.2004
Applicant's or agent's file reference P 001 623 PC		REPLY DUE within 3 month(s) from the above date of mailing
International application No. PCT/EP 03/03384	International filing date (day/month/year) 01.04.2003	Priority date (day/month/year) 02.04.2002
International Patent Classification (IPC) or both national classification and IPC A61F13/15, A61F13/15		
Applicant SCA HYGIENE PRODUCTS AB		

- This written opinion is the first drawn up by this International Preliminary Examining Authority.
- This opinion contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☒ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(II) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application
- The applicant is hereby invited to reply to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.
- The final date by which the international preliminary examination report must be established according to Rule 66.2 is: 02.08.2004

Name and mailing address of the international preliminary examining authority:



European Patent Office - P.B. 5818 Patatlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tlx 31 651 epo nl
Fax: +31 70 340 - 3016

Authorized Officer

Douskas, K

Formalities officer (incl. extension of time limits)

Dekker, M

Telephone No. +31 70 340-4046



WRITTEN OPINIONInternational application No. **PCT/EP 03/03384****I. Basis of the opinion**

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"*):

Description, Pages

1-36 as originally filed

Claims, Numbers

1-19 as originally filed

Drawings, Sheets

1/9-9/9 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

6. Additional observations, if necessary:

IV. Lack of unity of invention

1. In response to the invitation (Form PCT/PEA405) to restrict or pay additional fees, the applicant has:
- ☐ restricted the claims.
 - ☐ paid additional fees.
 - ☒ paid additional fees under protest.
 - ☐ neither restricted nor paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with for the following reasons and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees:
3. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this opinion:
- ☒ all parts.
 - ☐ the parts relating to claims Nos. .

V. Reasoned statement under Rule 66.2(a)(II) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-5,12,14
Inventive step (IS)	Claims	6-11,13
Industrial applicability (IA)	Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION
SEPARATE SHEET**

International application No. PCT/EP03/03384

Re Item V**Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

The following documents (D) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

- D1: US-A-5370634
- D2: US-A-4940464
- D3: US-A-5496298
- D4: WO-A-0037005
- D5: EP-A-570980
- D6: US-A-6113717

I. Product Claims 1-14**1. Novelty**

The present application does not meet the requirements of Article 33(2) PCT, because the subject-matter of claims 1-5, 12, 14 is not new.

- 2.1 Document D1 discloses a prefastened absorbent product comprising, in addition to the standard components of an absorbent product (Col. 4 lines 9 - 28), at least two rear and at least two front side flaps (5,5) attached to the rear and front portion (7,7) of the absorbent product respectively, and each side flap (5) comprising one member of a releasable fastening means (6, 8) to form a reclosable connection there between (Col. 4 lines 29 - 47), and further each one of said front side flaps (5,5) is fixedly attached by means of a weld (5d) (Col. 4, lines 19 - 22; Col. 4 line 48 - Col. 5 line 9; Col. 8, lines 11 - 17) to a respective one of said rear side flaps (5,5) in an overlapping relationship such that the outer surface of each one of said front side flap lies against the inner surface of each respective rear side flap, and wherein (Figs. 4, 5) the weld (5d) in each of said rear side flaps lies laterally inwardly with respect to the releasable fastening means (6) positioned on said respective rear side flap (5), and wherein each of said front and said rear side flaps (5,5) includes an elastic portion (14) (Col. 5 lines 10 - 15), and wherein said weld is positioned (figs 4, 5) proximate the laterally outer edge of the elastic portion (14) of at least one of said front and said rear side flaps (5,5).

Hence claim 1 is not novel.

2.2 The features of claims 2-5, 12, 14 are also disclosed by D1

- Claim 2** D1: (Fig. 7)
Claims 3, 5 D1: (Figs 4, 5)
Claim 4 D1: Implicitly disclosed (Claims 1-5)
Claim 12 D1: (Claims 1-5)
Claim 14 D1: (Claims 1)

3. Inventive Step

Dependent claims 6-11, 13 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to inventive step, the reasons being as follows:

3.1 Claims 6-11

In claims 6-11 slight constructional changes in the side flaps of the article are suggested which come within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can be readily contemplated in advance. This is also illustrated in several documents

- (i) Claim 6 D2 (Col. 3 lines 10 - 33; Col. 4 line 54 - col. 5 line 8)
- (ii) Claim 7 D3 (Col. 5 lines 9 - 27; Claim 1)
- (iii) Claim 8 D4 (page 28 lines 1 - 7)
- (iv) Claim 9 D1 (Figs. 4, 5)
- (v) Claim 10 D3 (Col. 9, lines 35 - 45)
- (vi) Claim 11 D1 (Figs 4, 5)

3.2 Claim 13

The feature of dependent claim 13 have already been employed for the same purpose in a similar absorbent article, see document D5, (claims; Figs; Ref num. 9a). It would therefore be obvious to the person skilled in the art, to apply this feature with corresponding effect to an absorbent article according to document D1, thus arriving at an absorbent article according to claims 13.

Consequently, the subject-matter of claim 13 also appears to lack an inventive step.

**WRITTEN OPINION
SEPARATE SHEET**

International application No. PCT/EP03/03384

4. It is not at present apparent which part of the application could serve as a basis for a new, allowable **Product claim**. Should the applicant nevertheless regard some particular matter as patentable, an independent claim should be filed taking account the following:
- (i) The description must be brought into conformity with the new claims to be filed; care should be taken during revision, especially of the introductory portion including any statements of problem or advantage, not to add subject matter which extends beyond the content of the application as filed (Article 19(2), 34(2)b PCT).
 - (ii) Any information the applicant may wish to submit concerning the subject-matter of the invention, for example further details of its advantages or of the problem it solves, and for which there is no basis in the application as filed, should be confined to the letter of reply and not be incorporated into the application (Article 19(2), 34(2)b PCT and the Guidelines, C-VI, 5.7 et seq.).
In particular, the applicant is requested to indicate exhaustively in the letter of reply in what way the features of the new claim 1 serve to solve the problem or to obtain an advantageous effect within the meaning of Rule 5.1 a)(iii) PCT.
 - (iii) The applicant is requested to effect the amendments by filing replacement pages for only those pages which have been amended. Unnecessary recasting of the description should be avoided. An amended abstract is not required. The applicant should also take account of the requirements of Rule 66.8 a) PCT. If handwritten amendments are submitted, they should be clearly legible for the printer. In particular, fair copies of the amended pages should be filed in triplicate. Replacement pages containing handwritten amendments should also be filed in triplicate.
 - (iv) In order to facilitate the examination of the conformity of the amended application with the requirements of Article 19(2), 34(2)b PCT, the applicant is requested to clearly identify the amendments carried out, irrespective of whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based.

I. Method Claims 15-19

Document D6 is Regarded as being the closest Prior art with regard to the Independent Method Claim 15.

The subject matter of the Independent method claim 15 differs from D6 in that the first flap member is first attached to the chassis then the second flap member is attached by welding to the first flap member and then folded over the first flap member and then fixedly attached to the second end portion of the chassis.

The subject matter of claim 15 is therefore new

Inventive step

The problem to be solved by the present invention defined in the method claims 15-19 is correct attachment of the front and rear side flaps.

This problem is solved by the features of claim 15 by attaching the second side flap to the first side flap in a flat condition prior to the attachment of the second flap to the chassis.

Hence the subject matter of claim 15 is inventive.

Since claims 16-19 are dependent on claim 15 they are also new and inventive.

- 2 -

Figs. 4 and 5 of D1 and the related description of same do not disclose a seal as defined in claim 1. In fact the seals do not appear to be clearly shown at all in either Fig. 4 or Fig. 5. When viewing Fig. 4 for example, it can be seen that there is no overlap indicated when looking at the top waist edge around the product; it is substantially a continuous, so no manner of overlap or sealing can be deduced therefrom.

Likewise, comparing the attached portions of the front and rear side flaps in Fig. 2 and that in Fig. 4, these show no difference. Fig. 5 shows two opposed seal areas 5D, but the Figure gives no unambiguous indication of how the seal is made. While it is clear that tabs 6 must affix to tabs 8 in Fig. 5 this again is precisely what is shown in Fig. 1, so the orientation of the seal areas seems to be consistent throughout.

Figures 1 to 5 merely depict areas of joining or welding which are labelled as 5D, which areas are formed below (or above) a split line portion 13 (see e.g. Fig. 1). The garment blanks in Fig. 2 and Fig. 4 are simply folded-up and joined together whereby the opposing areas 5D will be placed against each other and joined. Nothing is indicated about one of areas 5D being folded inwardly and held in some way in that position before being placed against, and joined to, the opposing area 5D which would be necessary so as to form a special connected arrangement as in our claim 1. The description at column 6, lines 46 to 49 *et seq* even discloses that the Fig. 5 embodiment is formed "in the same way" as the previous embodiment.

Thus we submit that nothing in Figures 4 or 5, even when taken in combination, can be seen to alter this conclusion. The hatched and non-hatched areas 5D of seals 5D are not explained further and without hindsight of our invention there is nothing to indicate that a different overlapping relationship than in the remainder of the document should be used.

Fig. 8 shows that the welded areas more clearly whereby in the frontal view shown, the welds can clearly be seen as extending outwardly. Nothing in the description of Figures 6 to 10 indicates or suggests that the welds therein have been formed in any way other than that shown in Figs. 1 to 5. Thus we submit that the skilled person cannot conclude anything

different from Figs. 1 to 5 which would lead to a conclusion that the overlap of areas 5D is formed as defined in present claim 1.

Thus we submit that claim 1 is novel.

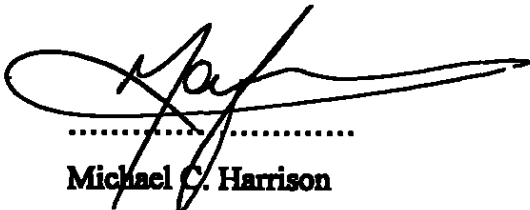
Inventive step.

Although no objection has been raised against claim 1 concerning inventive step (in view of the lack of novelty objection made), it seems important to emphasise that the overlapping construction given by the features of our claim 1 resists the absorbent article being opened by peeling forces acting on the weld by the wearer during wearing (see also our application page 4, lines 9 to 19 and page 5, lines 15 to 22). The outer edges of the sealed areas are also not unsightly and do not present hard edge portions. At the same time the seals do allow low attachment forces (sealing forces) to be used while still providing a reliable closure which, when desired, can be opened at the side edges.

We also submit that this feature provides an inventive step as it is not suggested by the cited prior art.

On the basis of the above we submit that claim 1 (and its dependent claims) are also allowable for both novelty and inventive step reasons.

Issue of a positive written report is therefore respectfully solicited.



.....
Michael C. Harrison

European Patent Attorney

The demand must be filed directly with the competent International Preliminary Examining Authority or, if two or more Authorities are competent, with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line below:

IPEA/ EP

PCT

CHAPTER II

DEMAND

under Article 31 of the Patent Cooperation Treaty:
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty and hereby elects all eligible States (except where otherwise indicated).

For International Preliminary Examining Authority use only	
Identification of IPEA	Date of receipt of DEMAND
Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION Applicant's or agent's file reference P 001 623 PC	
International application No. PCT/EP03/03384	International filing date (day/month/year) 01 April 2003 (01.04.03) (Earliest) Priority date (day/month/year) 02 April 2002 (02.04.02)
Title of invention PREFASTENED ABSORBENT PRODUCT WITH ELASTIC RECLOSABLE SIDES AND METHOD FOR PRODUCING SAME	
Box No. II APPLICANT(S) Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) SCA HYGIENE PRODUCTS AB S-405 03 Göteborg Sweden	
Telephone No. Facsimile No. Teleprinter No. Applicant's registration No. with the Office	
State (that is, country) of nationality: SE	State (that is, country) of residence: SE
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
State (that is, country) of nationality: State (that is, country) of residence:	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
State (that is, country) of nationality: State (that is, country) of residence:	
☐ Further applicants are indicated on a continuation sheet.	

Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCEThe following person is ☒ agent ☐ common representativeand ☒ has been appointed earlier and represents the applicant(s) also for international preliminary examination.☐ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.Name and address: (Family name followed by given name; for a legal entity, full official designation.
The address must include postal code and name of country.)HARRISON, Michael Charles
ALBIHNS GmbH
Grasserstrasse 10,
80339 München
Germany

Telephone No.

+49 (0)89 5440 3581

Facsimile No.

+49 (0)89 5440 3583

Teleprinter No.

Agent's registration No. with the Office

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.**Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION**

Statement concerning amendments:*

1. The applicant wishes the international preliminary examination to start on the basis of:

☒ the international application as originally filedthe description ☒ as originally filed☐ as amended under Article 34the claims ☒ as originally filed☐ as amended under Article 19 (together with any accompanying statement)☐ as amended under Article 34the drawings ☒ as originally filed☐ as amended under Article 342. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.3. ☐ The applicant wishes the start of the international preliminary examination to be postponed until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). (This check-box may be marked only where the time limit under Article 19 has not yet expired.)

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: ENGLISH☒ which is the language in which the international application was filed.☐ which is the language of a translation furnished for the purposes of international search.☐ which is the language of publication of the international application.☐ which is the language of the translation (to be) furnished for the purposes of international preliminary examination.**Box No. V ELECTION OF STATES**

The applicant hereby elects all eligible States (that is, all States which have been designated and which are bound by Chapter II of the PCT)

excluding the following States which the applicant wishes not to elect:

Sheet No. .3.

International application No.
PCT/EP03/03384

Box No. VI CHECK LIST

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:

- | | | |
|--|---|--------|
| 1. translation of international application | : | sheets |
| 2. amendments under Article 34 | : | sheets |
| 3. copy (or, where required, translation) of amendments under Article 19 | : | sheets |
| 4. copy (or, where required, translation) of statement under Article 19 | : | sheets |
| 5. letter | : | sheets |
| 6. other (specify) | : | sheets |

For International Preliminary
Examining Authority use only

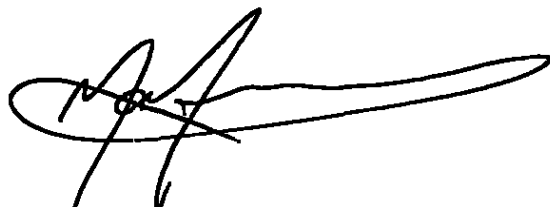
- | received | not received |
|--------------------------|--------------------------|
| ☐ | ☐ |
| ☐ | ☐ |
| ☐ | ☐ |
| ☐ | ☐ |
| ☐ | ☐ |
| ☐ | ☐ |

The demand is also accompanied by the item(s) marked below:

- | | |
|--|---|
| 1. ☒ fee calculation sheet | 5. ☐ statement explaining lack of signature |
| 2. ☐ original separate power of attorney | 6. ☐ sequence listings in computer readable form |
| 3. ☐ original general power of attorney | 7. ☐ tables in computer readable form related to sequence listings |
| 4. ☐ copy of general power of attorney; reference number, if any. | 8. ☐ other (specify): |

Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).



HARRISON, Michael, Charles.

For International Preliminary Examining Authority use only

1. Date of actual receipt of DEMAND:

2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):

- | | |
|---|---|
| 3. ☐ The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply. | ☐ The applicant has been informed accordingly. |
|---|---|

4. ☐ The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.

5. ☐ Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.

For International Bureau use only

Demand received from IPBA on:

PCT

FEE CALCULATION SHEET

Annex to the Demand

International application No. PCT/EP03/03384	For International Preliminary Examining Authority use only
Applicant's or agent's file reference P 001 623 PC	Date stamp of the IPEA
Applicant SCA HYGIENE PRODUCTS AB	
CALCULATION OF PRESCRIBED FEES	
1. Preliminary examination fee	1.530 P
2. Handling fee (<i>Applicants from certain States are entitled to a reduction of 75% of the handling fee. Where the applicant is (or all applicants are) so entitled, the amount to be entered at H is 25% of the handling fee.</i>)	159 H
3. Total of prescribed fees Add the amounts entered at P and H and enter total in the TOTAL box	1.689
TOTAL	
MODE OF PAYMENT	
☒ authorization to charge deposit account with the IPEA (see below)	☐ cash
☐ cheque	☐ revenue stamps
☐ postal money order	☐ coupons
☐ bank draft	☐ other (specify):
AUTHORIZATION TO CHARGE (OR CREDIT) DEPOSIT ACCOUNT <i>(This mode of payment may not be available at all IPEAs)</i>	
☒ Authorization to charge the total fees indicated above.	IPEA/ <u>EP</u>
☒ <i>(This check-box may be marked only if the conditions for deposit accounts of the IPEA so permit) Authorization to charge any deficiency or credit any overpayment in the total fees indicated above.</i>	Deposit Account No.: <u>2800.0801</u>
	Date: <u>27 October 2003</u>
	Name: <u>HARRISON, Michael Charles</u>
	Signature: 

PRODUCTO ABSORBENTE PREFIJADO CON LADOS RECERRABLES

ELÁSTICOS Y MÉTODO PARA PRODUCIRLO

Campo de la Invención:

La presente invención se relaciona con un producto absorbente para absorber el exudado humano, tal como un pañal o pantalones pañal. En particular, la invención se relaciona con pantalones absorbente (por ejemplo pantalones pañal) del tipo desechable, es decir del tipo en el que se desecha cuando ya está sucio y no tienen el propósito de ser lavados y reutilizados. Todavía más particularmente, la invención se relaciona con un pañal pantalón absorbente que es fabricado en un estado cerrado, es decir un estado prefijado, listo para ser colocado para su uso, aunque él comprende cierres laterales que pueden ser abiertos por ejemplo para la remoción o inspección del producto, y que adicionalmente comprende medios que permiten que los lados del producto sean recerrados por el uso de un medio de sujeción liberable tal como un medio de sujeción mecánico o adhesivo o liberable.

Antecedentes de la Invención:

Los pantalones pañal desechable son bien conocidos y hay disponibles varios diseños diferentes. Por ejemplo, los pantalones pañal desechables que tienen porciones delantera y trasera sujetadas de manera fija juntas son conocidas de la WO-A-95/29657 y WO-96/31178. estos diseños suministran ajustabilidad del tamaño de la banda de cintura a un rango de usuarios debido a las diferentes disposiciones elásticas, pero ellos deben ser removidos como un par normal de pantalones ya que las regiones de cintura están formadas con bandas de cintura sustancialmente continuas.

La WO-A-00/35396 describe también pantalones pañal con paneles laterales que pueden ser elásticos. Los paneles laterales están formados sobrepuestos y sujetados juntos en un estado prefijado por medio de medios de fijación liberables. Los cierres laterales incluyen adicionalmente un adhesivo entre ellos, para poder limitar la accesabilidad a los medios de fijación recerrables. El adhesivo es colocado de modo que se conecta la aleta exterior de las aletas sobrepuestas a la aleta interior en una localización de extremo distal de la aleta

exterior más allá de la localización de los medios de fijación liberables en ella. Esto suministra una función de seguridad contra niños. El pegado de adhesivo es entonces abierto para ganar acceso al elemento de recierre. Ya que el adhesivo debe permitir el acceso a los medios de recierre sin la destrucción de los paneles laterales durante la abertura del pegado de adhesivo (de otra manera el producto quedaría arrullado) una fuerza de pegado baja debe ser usada para el adhesivo. En las modalidades preferidas la goma debería permanecer pegajosa para permitir aberturas y cierres repetidos.

La GB-A-2 267 024 describe un producto absorbente prefijado que suministra la posibilidad de ruptura de las costuras laterales para la remoción o inspección del producto, y luego la posibilidad adicional de un recerrado. La prenda absorbente tiene una porción trasera, una porción delantera y porción de entrepierna entre ellas, en la cual la porción trasera y la porción delantera están unidas juntas por una costura. La costura está constituida por una línea de sujeción que pasa por lo bordes exteriores de las porciones delantero y trasera en cada lado de la prenda. Para permitir la abertura del artículo por medio de rasgar, la porción delantera está

provista con una línea de debilidad en cada lado, en una localización espaciada hacia adentro desde la costura. También, una posibilidad de volver a cerrar es decir, medios de fijación liberables (está provista por dos paneles laterales adicionales en la porción delantera. Un primer borde de cada uno de los paneles laterales está sujetado de manera fija a la parte exterior de la porción delantera en la misma costura como se usó para las porciones trasera y delantera, y un segundo borde de cada panel lateral está provisto con medios de sujeción liberables que pueden sujetarse de manera liberable a la porción delantera.

La GB-A-2 267 024 presenta varias desventajas. Primeramente, para poder impedir que las porciones delantera y trasera del pañal se separen involuntariamente debido a las fuerzas que surgen debido al movimiento del usuario que actúan directamente sobre las costuras desde el interior del producto, la costura debe ser hecha particularmente fuerte. El pegado usando una fuerza de 1.000 g/pulgada (393,7 g/cm) o más se requiere por lo tanto. Al mismo tiempo, la línea de debilidad en cada una de las porciones delanteras tiene que poseer una fuerza de ruptura por debajo del nivel de

fuerza de pegado en las costuras laterales, para evitar que la costura sea rota cuando se abre el pañal, y todavía lo suficientemente alta para impedir que la línea de debilidad sea rota involuntariamente.

El balance entre estas fuerzas es difícil de lograr de manera confiable, especialmente en producción de alta velocidad, particularmente ya que la costura tiene que extenderse por tres capas de material. Producir una costura confiable que se extiende por todas las tres capas separadas del producto agrega dificultad adicional que debe ser tomada en cuenta cuando se produce el esfuerzo de pegado requerido.

Adicionalmente todavía, los medios de sujeción liberables sobre las aletas laterales de la porción delantera están sujetadas de manera liberable a la porción delantera del producto con una resistencia que debería impedir que el producto se rompa involuntariamente cuando solamente las aletas laterales de la porción delantera son usadas para sostener el producto unido. Debido a esta disposición, cuando la porción delante es halada retirándola de la porción trasera por las líneas de debilidad, los medios de sujeción liberables ejercerán una fuerza sobre su

línea de sujeción en la costura a menos que los medios recerrables se deshagan primero. Esta fuerza puede romper la costura entre sea las porciones entre cualquiera de las porciones delantera y trasera o la porción delantera y las aletas laterales delanteras.

Una solución conocida adicional usando una conexión a ras y soldada entre las dos porciones laterales de un pañal se describe en la US-A-5 370 634. El sello a ras está sometido a fuerzas de desgarramiento o de pelado que surgen de los movimientos normales del usuario. similarmente el área sellada presenta porciones de borde que se extienden hacia fuera que son selladas en sus bordes más extremos, produciendo así porciones de borde combinadas relativamente duras. Esto no solamente es desagradable a la vista, sino que el borde libre duro puede fácilmente entrar el contacto con la piel del usuario y los bordes superior y/o inferior del mismo, causan incomodidad.

La costura producida en la GB-A-267 024 tiene otras desventaja en que no solamente 2, sino 3 paneles son combinados con sus bordes cortantes externos descansando por fuera de la costura. Como en la US-A-5 370 634, esto

produce una disposición con borde duro, ya que la costura descansa justo al interior de los bordes de los tres paneles. Esto nuevamente puede afectar la comodidad cuando las prendas del usuario presionan el borde de costura duro por ejemplo, lo mismo que resulta en incomodidad en los bordes superior e inferior del mismo. Las costuras a ras tanto en la US-A-5 370 634, como en la GB-A-2 267 024 sin embargo permite una producción en una condición aplanada.

La WO-A-99/65438 describe una disposición de prenda adicional en la cual los bordes externos de una sección de cintura delantera se sobreponen por dos paneles laterales traseros de una porción de cintura trasera. Los extremos posteriores de la porción de cintura delantera están sujetos de manera fija por medio de enlaces pasivos a la superficie interior de la porción de cintura trasera y a los elásticos de pierna en la parte trasera de la prenda. Los paneles laterales traseros comprenden adicionalmente dos tipos diferentes de medios de recierre en la forma de sujetadores de gancho y anillo que son asegurados de manera liberable a la porción de cintura delantera. De esta manera, los enlaces pasivos suministran una resistencia al desgarré adicional para

ayudar a los medios de re-cierre. Tal disposición puede suministrar un sistema de cierre lateral estable como resultado de las localizaciones de los enlaces pasivos. Sin embargo, tales productos sufren de una falta de adaptabilidad y una comodidad pobre y deben confiar en la banda de cintura para suministrar alguna elasticidad limitada.

La invención tiene el objetivo de suministrar producto absorbente con una construcción de cierre lateral mejorado que permita fuerzas de sujeción bajas usadas en las áreas de sujeción liberables y no liberables (es decir, fijas), mientras se mantiene una disposición de cierre que es confiable aunque también permita un alto grado de elasticidad en el cierre lateral y al mismo tiempo suministre un buen ajuste sobre el usuario.

La presente invención también busca suministrar un método para producir un artículo absorbente del tipo descrito anteriormente que solucione los problemas con una costura a ras y todavía que pueda ser formada fácilmente en una condición plana durante la producción.

RESUMEN DE LA INVENCION

Los principales objetivos son logrados por un producto absorbente y un método que tiene las características definidas en las reivindicaciones del producto y método independientes respectivamente. Las características preferidas de la invención se definen en las reivindicaciones dependientes.

Características adicionales de la invención serán evidentes al lector de esta especificación.

De acuerdo con la invención, el producto absorbente comprende por lo menos dos conjuntos de medios de cierre, un primer conjunto de cierre que forma una sujeción fija entre las aletas laterales elásticas de las porciones delantera y trasera por medio de una soldadura, y un segundo medio de cierre que está en la forma de un medio de sujeción liberable.

La sujeción fija por medio de una soldadura se refiere a un tipo resujeción permanente entre dos partes que no tiene el propósito de ser abierta sin intención y una vez abierta no puede ser reformada. La soldadura es formada

preferiblemente por soldadura de ultrasonido o por soldadura por calor, pero otras formas de soldadura pueden ser usadas. La soldadura puede ser tal que pueda ser abierta aplicando fuerzas de pelado o de desgarre que resulte en pelar o desgarrar (típicamente algún desgarre) la soldadura, o puede ser hecha con una resistencia tal que la soldadura permanezca sustancialmente intacta aunque una parte específica de la aleta lateral adyacente a la soldadura esté hecha para romperse.

Los medios de sujeción liberables son, de otro lado, un tipo de sujeción que es capaz de ser abierta y recerrada. Tal medio de sujeción liberable comprende dos miembros que cooperan para dar una sujeción liberable cuando una presión relativamente suave es aplicada forzando los dos miembros juntos. Tal medio de sujeción liberable puede ser del tipo mecánico. Una forma de tal sujetador mecánico es el tipo gancho y anillo, aunque en donde un miembro comprende material que tiene ganchos y el otro proyecciones sobre él (por ejemplo, proyecciones tipo cabeza de hongo), y el otro miembro comprende anillos complementarios, aberturas de recepción o espacios de recepción. El material no tejido puede por ejemplo en sí mismo formar un miembro de anillo, mientras

que los ganchos de la parte complementaria de ganchos puede sujetarse de manera liberable al material no tejido. Muchos otros tipos de sujetadores mecánicos liberables son conocidos. Un tipo adicional de sujetador liberable puede ser un tipo de sujetador de adhesivo, en donde un adhesivo sensible a la presión se recubre sobre un componente y un componente suplementario se suministra en el cual el adhesivo sensible a la presión se puede adherir. Tal medio de sujeción liberable es bien conocido en el campo de productos absorbentes.

En las reivindicaciones, la referencia ha sido hecha a las porciones delantera y trasera. La porción trasera de un artículo es aquella porción que tiene el propósito de ser colocada en la parte trasera de un usuario durante el uso, mientras que la porción delantera es la porción que tiene el propósito de ser colocada en la parte delantera del usuario durante el uso. Sin embargo, será evidente para aquellos versados en la técnica que las porciones delantera y trasera pueden invertirse y que las aletas delantera y trasera descritas más adelante pueden ser así ajustadas sea en las porciones delantera o la trasera sin alterar la naturaleza subyacente de la invención.

BREVE DESCRIPCIÓN DE LOS DIBUJOS

La invención será ahora explicada en más detalle con referencia a ciertas modalidades no limitativas de la misma y con la ayuda de los dibujos adjuntos en los cuales:

La Fig. 1 muestra una vista en planta de un producto absorbente de acuerdo con la invención en una condición abierta, antes de que las aletas laterales del pañal hayan sido sujetadas de manera fija juntas,

La Fig. 2 muestra una vista lateral de un producto absorbente de acuerdo con la invención similar a aquella de la Fig. 1 en la cual las aletas laterales han sido sujetadas fijamente juntas por medio de una soldadura,

La Fig. 3 muestra una vista por encima de un producto absorbente de acuerdo con la Fig. 2, mostrando las conexiones de las diversas capas antes de la ruptura de las sujeciones laterales,

La Fig. 4 muestra una vista similar a la de la Fig. 3, de un producto en el cual las aletas laterales delanteras

están provistas adicionalmente con líneas de debilidad que han sido rotas,

La Fig. 5 muestra una vista en corte de sección transversal por un material laminado que puede ser usado en las aletas laterales delanteras y/o traseras,

La Fig. 6 muestra una serie de etapas, desde la parte superior a la parte inferior en el dibujo, ejemplificando el método de la presente invención,

La Fig. 7 muestra una vista por encima, de una mitad de una modalidad adicional de una disposición de cierre lateral,

La Fig. 8 muestra una modalidad adicional en una vista por encima similar a aquella de la Fig. 7, ilustrando las porciones sobrepuestas de las aletas laterales,

La Fig. 9 muestra una modalidad de la segunda porción (lateralmente hacia fuera) de la aleta lateral exterior en la Fig. 8, en una vista por encima y magnificada,

La Fig. 10 muestra una modalidad adicional de la invención en una vista por encima similar a la de la Fig. 8,

La Fig. 11 muestra una modalidad adicional de la invención en una vista por encima similar a la de la Fig. 10,

La Fig. 12 muestra una modalidad adicional de la invención en una vista por encima similar a la de la Fig. 11,

La Fig. 13 muestra una vista lateral de la modalidad en la Fig. 12,

La Fig. 14 muestra una vista lateral en una modalidad adicional de las aletas laterales sobrepuestas,

La Fig. 15 muestra una modalidad adicional en una vista similar a la de la Fig. 14,

La Fig. 16 muestra una modalidad adicional de la invención en una vista similar a la de la Fig. 15,

La Fig. 17 muestra una modalidad de la invención similar a aquella mostrada en la Fig. 15, ilustrando dimensiones particulares,

La Fig. 18 muestra dos etapas (a) y (b) de un método de ensayo para medir la resistencia al pelado, y

La Fig. 19 muestra una modalidad adicional de la invención en una vista similar a aquella mostrada en la Fig. 17, provista con un cierre adicional de seguridad contra niños.

DESCRIPCIÓN DETALLADA DE LAS MODALIDADES PREFERIDAS

En la Fig. 1, el producto absorbente es mostrado en un estado aplanado con el lado interior del producto absorbente hacia arriba. El producto absorbente comprende tres porciones, una porción trasera 1, una porción delantera 2 y una porción de entrepierna 3 que se extiende entre estas porciones. La longitud de la porciones no es precisa, pero generalmente cada una de estas porciones ocupa alrededor de un tercio de la longitud del producto en una condición aplanada. La porción trasera 1 tiene un borde 42 en su extremo

exterior y la porción delantera 2 tiene un borde 43 en su extremo exterior. En la condición ilustrada, un eje longitudinal Y-Y y un eje lateral X-X son mostrados, estos ejes se extienden generalmente perpendicular uno al otro, el eje longitudinal se extiende generalmente entre la mitad de la porción trasera 1 del producto y la mitad de la porción delantera 2 del producto.

Debe observarse que la Fig. 1 ilustra el producto absorbente en una condición antes de que el producto haya sido fijado junto en su estado final (prefijado), es decir antes de que las aletas laterales delanteras 6, 7 y las aletas laterales traseras 8, 12 y 9, 13 hayan sido sobrepuestas y fijadas lo mismo que sujetadas de manera re-fijable juntas (las disposiciones sobrepuestas y sujetadas serán explicadas más adelante).

El producto absorbente incluye un miembro de chasis de producto absorbente que comprende por lo menos una lámina de respaldo 4 y una lámina superior 5. La lámina de respaldo 4 es preferiblemente impermeable a los líquidos. La lámina superior 5 es una capa permeable a los líquidos. Los materiales adecuados para estas capas son bien conocidos y típicamente la capa de lámina de respaldo 4

puede ser formada completamente de o incluir una película de polietileno (PE). Tal una lámina de respaldo puede por ejemplo ser una lámina de respaldo similar a textil formada de un laminado de PE y un polipropileno hilado y pegado (PP) de material no tejido, en donde el PE tiene por ejemplo una superficie que pesa entre 12 g/m^2 y 20 g/m^2 y la PP tiene un peso superficial entre 10 g/m^2 y 20 g/m^2 . La capa de lámina superior 5 puede ser formada a partir de una tela fibrosa de polipropileno no tejido (PP) (por ejemplo, una tela PP hilada y pegada) por ejemplo. Emparedado entre la capa de lámina de respaldo 4 y la capa de lámina superior 5 se encuentra un núcleo absorbente 37, el núcleo absorbente comprende una guata de por ejemplo fibras celulósicas, preferiblemente mezcladas con un material superabsorbente en una distribución homogénea, o en capas o en una distribución que varía en la dirección de la profundidad y/o en el plano mayor del núcleo. El núcleo absorbente puede tener muchas formas y puede consistir de capas diversas con diferentes propiedades para mejorar las características de absorción. Las capas de lámina de respaldo y lámina superior 4, 5 son preferiblemente de igual tamaño y preferiblemente selladas una contra la otra alrededor de sus periferias de una manera conocida en la técnica.

Medios de banda de cintura elastificados 38, 39 están provistos preferiblemente en cada extremo del miembro de chasis del producto absorbente y sirven para suministrar un medio de comodidad mejorada, ajuste y contención en el producto. Tales medios de banda de cintura elastificada son bien conocidos en la técnica. Los medios de banda de cintura elástica 38, 39 son mostrados descansando en el exterior del núcleo absorbente 37, aunque puede entenderse que ellos pueden estar parcialmente cubiertos en el área pegada por el núcleo absorbente 37. Similarmente, los medios de banda de cintura pueden extenderse hasta los bordes laterales longitudinales 40, 41 y/o hasta los bordes de extremo 42 y 43.

Elementos adicionales pueden ser, por supuesto, también incluidos en el producto absorbente aún cuando estos no se muestren en las figuras. Tales elementos incluyen por ejemplo elásticos de piernas para suministrar un mejor ajuste alrededor de las piernas superiores del usuario, bolsas de recolección, empaques de borde lo mismo que otras barreras y sellos para impedir derrames.

Dos aletas laterales delanteras 6 y 7 están provistas. Cada aleta lateral está formada como una pieza única en la modalidad mostrada, aunque una pluralidad de piezas lateral o longitudinalmente en serie, o una pluralidad de capas o paneles por ejemplo en series o parcial y completamente sobrepuestas, pueden ser usadas para formar cada aleta lateral. En el caso preferido una pieza única puede ser usada la cual comprende una pluralidad de capas, una de las cuales es elástica. Las aletas laterales están cada una formada con una porción elástica, tal como puede ser provisto por un laminado elástico. La porción elástica puede extenderse de modo que cubra el área completa de las aletas 6 y 7, pero preferiblemente debería por lo menos cubrir el área de la misma que descansa por fuera de los bordes 40, 41 del chasis hasta el borde más exterior lateralmente de las aletas 6 y 7. Cada aleta lateral delantera 6, 7 está sujeta de manera fija (por soldadura, adhesivo, pegante u otros métodos conocidos de sujeción fija) a un lado respectivo del miembro de chasis en las localizaciones de sujeción 35 y 36, preferiblemente sobre la superficie externa de la lámina de respaldo 4 como se muestra. Sin embargo debería entenderse que las aletas laterales 6, 7 pueden estar sujetadas a la superficie interna o externa

de la lámina superior 5 o de la lámina de respaldo 4 si se desea, o de ambas la lámina de respaldo 4 o la lámina superior 5. Una posibilidad adicional es que cualquiera de las dos la lámina de respaldo 4 o la lámina superior 5, o partes de ellas, pueden en sí mismas estar incluidas como parte de las aletas laterales y por lo tanto formar una de las capas de material que constituye las aletas laterales 6, 7, 8, 12, 9, 13 (esta variación también será explicada más adelante con relación a una modalidad adicional similar mostrada a la Fig. 5).

En la porción trasera del chasis absorbente, hay dos aletas laterales traseras 8, 12, 9, 13. En la modalidad preferida mostrada, las aletas laterales traseras son aletas separadas que comprenden una primera porción 8, 9 y una segunda porción 12, 13. La segunda porción 12, 13 está sujeta de manera fija (por soldadura, adhesivo, pegante u otros métodos conocidos de sujeción fija) a la primera porción 8, 9 respectiva en las localizaciones de sujeción 26 y 24 respectivamente sobre las superficies externas 20, 20' de las primeras porciones. Cada segunda porción 12, 13 está sujeta de manera fija a una localización que queda lateralmente hacia fuera de las localizaciones de sujeción 23 y 27, tal que las segundas

porciones 12, 13 descansan lateralmente hacia fuera con respecto a las primeras porciones 8, 9 de las aletas laterales traseras.

Cada una de las segundas porciones 12, 13 en tal estructura no tienen el propósito de descansar directamente contra la piel del usuario (ver Fig. 3 explicación más adelante) y por lo tanto las segundas porciones 12, 13 pueden ser formadas más duras que la primera porción, por ejemplo usando un material endurecedor para las segundas porciones 12, 13. Las segundas porciones están cada una preferiblemente formadas para ser inelásticas. Siendo inelásticas permite que las segundas porciones 12, 13 suministren una estructura de panel más estable evitando cualquier doblez o efectos de arrugado por ejemplo.

Una disposición con dos porciones 8, 9 y 12, 13 no es sin embargo limitativa de la invención, siempre que una porción de las aletas permanezca elástica. Así las aletas laterales traseras pueden estar cada una compuestas de solamente una porción única, o en una modalidad adicional de tres o más porciones. Cada una de las aletas laterales traseras está sujeta fijamente (por soldadura,

adhesivo, pegante, u otros métodos conocidos de sujeción fija) a un lado respectivo del miembro de chasis en las localizaciones de sujeción 23 y 27, preferiblemente sobre la superficie externa de la lámina de respaldo 4 como se muestra. Sin embargo debe entenderse que las aletas laterales 8, 12 y 9, 13 pueden estar sujetadas a la superficie interna o externa de la lámina superior 5 o de la lámina de respaldo según se desee, o a ambas tanto la lámina de respaldo 4 como la lámina superior 5.

En la modalidad preferida mostrada que usa dos porciones, por lo menos una parte sustancial del área de la primera porción 8, 9 está formada de material elástico, y preferiblemente el área total de la primera porción 8, 9 está formada de material elástico, tal como un material laminado elástico. En una modalidad más preferida que evita desperdicio de material elástico sin reducir la elasticidad, el material elástico es colocado en el área de la primera porción 8, 9 descansando por fuera de la zona de sujeción 23, 27 hasta la zona de sujeción 24, 26 (es decir, en la porción de las aletas que está libre de extensión elástica).

Cada una de las aletas laterales traseras porta un miembro de un medio de sujeción liberable 10, 11 en su extremo exterior. Cada miembro 10, 11 del medio de sujeción liberable en la modalidad mostrada está preferiblemente constituido por un miembro tipo gancho preferiblemente en la forma de una tira de material tipo gancho que se extiende entre los bordes superior e inferior de las segundas porciones 12 y 13 de las aletas laterales traseras. Aunque una tira única se muestra, varias tiras pueden ser también usadas, las cuales pueden entonces estar espaciadas intermitentemente una de la otra en una dirección vertical. Similarmente, la extensión vertical de los miembros 10, 11 es mostrada como extendiéndose en casi la totalidad de la longitud longitudinal de las porciones de aletas laterales 12, 13 dejando una distancia adecuada desde los bordes superior e inferior de las porciones de aleta para tolerancias de fabricación. Preferiblemente la longitud longitudinal de los miembros 10, 11 sobre las aletas laterales traseras está entre 25% y 75%, preferiblemente entre 25% y 60% de la longitud longitudinal de las aletas laterales delanteras 6, 7 en la localización de sujeción propuesta en ellas. Esto evita sustancialmente cualquier contacto del miembro 10, 11 con el cuerpo. Los miembros 10, 11

pueden sin embargo extenderse en la totalidad de la longitud de las porciones de aleta 12, 13.

Sin embargo es preferido que en donde miembros de gancho y anillos son usados, el miembro de anillos de los medios de sujeción liberables deberían tener un área de superficie más grande que el miembro de gancho.

Similarmemente, las porciones exteriores 12, 13 de las aletas laterales traseras pueden consistir completamente de material de anillo no tejido, requiriéndose así que el miembro de gancho esté posicionado sobre la superficie exterior de la aleta lateral interior (delantera) en la condición sobrepuesta.

Estos miembros 10, 11 están adaptados para engancharse de manera liberable con los miembros correspondientes 15, 16 de los medios de sujeción liberables en las aletas laterales delanteras 6 y 7. Si las segundas porciones 12, 13 están hechas de un material relativamente más duro comparado con las primeras porciones como se explicó anteriormente, esto les permitirá suministrar una base más estable para los miembros de tira 10 y 11 y por lo

tanto pueden ayudar en la formación de una disposición de sujeción más confiable y más fácilmente manejable.

En la modalidad mostrada, las aletas laterales delanteras mismas incluyen un material de cubierta externo al cual los miembros 10, 11 pueden ser sujetados de manera liberable, aunque, si se desea, tiras adicionales separadas de material, por ejemplo piezas de material de anillos (no mostradas) puede agregarse. Un ejemplo de un laminado elástico para este propósito será explicado más adelante con respecto a la Fig. 5.

Aunque se ha mostrado en los dibujos que las aletas laterales delantera y trasera son piezas separadas una de la otra, sin embargo debe entenderse por aquellos versados en la técnica que las aletas laterales delantera y trasera sobre cada uno de los respectivos lados del miembro de chasis pueden estar formadas como un único miembro continuo, sujetadas a lo largo de los bordes laterales completos respectivos 40, 41 del miembro de chasis. Alternativamente, las aletas laterales traseras y las aletas laterales delanteras pueden permanecer como miembros separados en la manera mostrada en las figuras, pero pueden ser extendidas en la dirección longitudinal

para simplemente sobreponerse una a la otra en el área de la región de entrepierna 3.

Similarmente, aunque las aletas laterales traseras 8,12 y 9,13 y las aletas laterales delanteras 6, 7 se han mostrado como miembros separados sujetos de manera fija en los bordes laterales longitudinales respectivos 40, 41 de la porción trasera 1 y la porción delantera 2 del miembro de chasis, las aletas laterales traseras podrían alternativamente estar combinadas como una pieza única separada (no mostrada) que se extiende lateralmente por la porción trasera 1 y se extiende como aletas laterales más allá de los bordes laterales longitudinales 40, 41 del miembro de chasis. Similarmente las aletas laterales delanteras 6, 7 podrían estar formadas por una pieza separada única (no mostrada) sujeta lateralmente por la porción delantera 2 del miembro de chasis.

Para poder formar el producto absorbente de la invención, una sujeción fija, soldada tiene que ser provista entre las aletas laterales delanteras 6, 7 y las aletas laterales traseras respectivas 8, 12 y 9, 13 en la condición prefijada. Con el fin de que esto ocurra, el miembro de chasis debe estar doblado en alguna etapa,

sustancialmente a lo largo o paralelo al eje lateral X-X, de modo que las aletas laterales delantera y trasera puedan sobreponerse. En una modalidad alternativa, las aletas laterales delanteras y las aletas laterales traseras pueden sin embargo hacerse que primero se sobrepongan y luego ser soldadas, antes del doblado del miembro de chasis, y luego las aletas trasera y/o delantera son sujetadas al chasis. Esto es también explicado con respecto a las diversas etapas en los diversos órdenes de etapas de fabricación descritos más adelante.

Para formar la sobreposición es importante suministrar una buena seguridad de costura, buena comodidad y permitir un alto grado de elasticidad. La sobreposición requerida es mostrada externamente en la Fig. 2 y desde encima en más detalle en las Figs. 3 y 4 por ejemplo. Como estas figuras lo muestran, cada una de las aletas laterales delanteras 6, 7 se ha soldado de manera fija a una de dichas aletas laterales traseras respectivas 8, 12 y 9, 13 de modo que la superficie exterior 18, 18' de cada una de las aletas laterales delanteras 6, 7 descansa contra la superficie interior 19, 19' de una aleta lateral trasera respectiva 8, 12, y 9, 13.

En las Figs. 2 y 3, puede verse que el área de soldadura 21, 22 está formada en la porción de extremo de las primeras porciones 8, 9 y en las porciones de extremo de las aletas laterales delanteras correspondientes 6 y 7, de modo que se unen de manera fija (es decir, no liberables) estas porciones juntas. A este respecto el término "porciones de extremo" se refiere a aquella porción de cada uno de los paneles laterales delanteros que se sobrepone a cada una de las primeras porciones 8, 9 de los paneles laterales traseros. Tal sobreposición puede ser del orden de 0,5 a 3,5 cm y preferiblemente entre 0,5 y 2 cm.

En la condición cerrada como se muestra en las Figs. 2 y 3, puede verse que los medios de sujeción liberables 10, 11 sobre las segundas porciones 12 y 13 ya están en contacto con los miembros de sujeción correspondientes 15, 16 de la superficie exterior 18, 18' de las aletas laterales delanteras 6, 7. Así una fuerza fuerte se suministra de modo que se impida la separación de las aletas delantera y trasera laterales, consistente de la fuerza provista por ambos medios de sujeción liberables 10, 11, 15, 16 y las soldaduras 21, 22.

Ya que las aletas 6, 7 descansan contra la piel del usuario, es preferible si los bordes exteriores de estas están formados de un material suave. En donde por ejemplo las aletas laterales delanteras 6 y 7 están formadas de un laminado elástico que tienen un material de superficie exterior no tejido tal como un hilado pegado PP, este borde puede ser claramente suave sin la adición de disposiciones de borde externo adicionales.

Más aún, debido a la relación de superposición de las aletas laterales delantera y trasera, con la superficie interior de una descansando contra, y soldada a, la superficie exterior de la otra, las fuerzas que actúan del usuario durante los movimientos (por ejemplo, cuando se sienta, se pone de pie, etc.) para separar los paneles laterales delantero y trasero en las soldaduras 21, 22 no son fuerzas de pelado en como se da en el estado de la técnica, sino en su lugar son fuerzas de desgarramiento. Ya que es fácil romper un área de sujeción fija tal como una costura por pelado más que aplicando fuerzas de desgarramiento, por lo tanto será evidente que es extremadamente difícil romper el área de sujeción por los

movimientos del cuerpo. Por lo tanto un sello confiable se ha suministrado.

La provisión de un sello confiable por esta estructura de sobreposición permite entonces que las fuerzas de sujeción sean usadas las cuales tienen un valor de fuerza contra el pelado de menos de 1000 g/pulgada (394 g/cm) según se midió por el método descrito en la GB-A-2 267 024. Así en las fuerzas de sujeción tienen una fuerza de resistencia al pelado de menos de 350 g/cm y preferiblemente menos de 300 g/cm, más preferiblemente menos de 200 g/cm pueden ser usados.

Al mismo tiempo, se podrá observar que en las modalidades preferidas mostradas solamente dos paneles son incluidos en el área de las soldaduras 21, 22, particularmente las aletas laterales delanteras 6, 7 y las primeras porciones de las aletas laterales traseras 8, 9. Esto permite que se fabrique una costura confiable y fácilmente controlable. Adicionalmente el producto es más confortable o cómodo para manejar y usar que los productos en donde las partes delanteras y traseras de los pantalones absorbentes están sujetadas en sus lados en una disposición a ras, ya que no hay partes

relativamente rígidas apuntando hacia fuera. Paneles adicionales pueden por supuesto ser incluidos.

En una modalidad, las segundas porciones 12, 13 de los paneles laterales traseros están sujetadas de manera fija (por soldadura, adhesivo, pegado u otros métodos conocidos de sujeción fija) a las localizaciones de sujeción 26, 24 a las primeras porciones 8, 9, dichas localizaciones 26, 24 están hacia fuera lateralmente de la áreas de soldadura 21, 22 como se ve con respecto al eje lateral y con respecto a la porción trasera 1 del chasis. Sin embargo, debe entenderse que las localizaciones de sujeción 24, 26 pueden estar hacia dentro lateralmente de las áreas de soldaduras 21, 22 si se desea, aunque todavía se permite solamente dos paneles usados en las soldaduras 21, 22. Esto puede estar dispuesto por ejemplo por medio de sujetar de manera fija los paneles 12 y 13 después de formar primero las soldaduras 21, 22. El área de sujeción de las porciones 12 y 13 a las porciones 8 y 9 podría sin embargo también estar hecha para coincidir con la soldaduras 21 y 22 y las soldaduras 21, 22 pueden también estar hechas de tal que se extienden por todos los tres paneles (es decir, las aletas laterales delanteras 6, 7, las primeras

porciones de las aletas laterales traseras 8, 9 y las segundas porciones 12, 13). Esto es fácilmente posible, aún si es menos deseable, ya que la resistencia de la soldadura para resistir las fuerzas de pelado no requiere ser tan grande debido a la provisión de las superficies interior y exterior sobrepuestas de las aletas laterales. No más de cuatro capas de material deberían sin embargo ser incluidas en las regiones soldadas, preferiblemente no más de tres, y más preferiblemente solamente dos. De cualquier manera la soldadura 21, 22 está formada, es importante que la soldadura esté colocada lateralmente hacia dentro con respecto a los medios de sujeción liberables 10, 11 en los extremos exteriores de las aletas laterales traseras próximas a los bordes de extremo exterior 44, 45 de las mismas, de modo que la soldadura 21, 22 en cada una de las aletas laterales traseras 8, 12, 9, 13 descansa lateralmente hacia adentro con respecto a los medios de sujeción liberables 10, 11 posicionados en su aleta lateral trasera respectiva.

En otras palabras, en la modalidad mostrada en donde las aletas laterales traseras 8, 12, 9, 13 se sobreponen a las aletas laterales delanteras 6, 7, las aletas traseras forman una aleta lateral exterior y la aleta lateral

delantera forma una aleta lateral interior de la estructura de cierre lateral completa. El medio de sujeción liberable 10, 11, es por lo tanto de esta manera posicionado más cerca al borde exterior 44, 45 de la aleta exterior que la soldadura 21, 22.

También, la posición de la soldadura con respecto a las posiciones elásticas es importante para poder dar un grado máximo de elasticidad a la estructura de cierre lateral. En este respecto la soldadura 21, 22 debería estar posicionada próxima al borde exterior lateralmente de la porción elástica de por lo menos una de las aletas laterales delantera y trasera 6, 7, 8, 12, 9, 13. De esta manera, hay poco o ningún material elástico que permanezca inactivo por fuera de las soldaduras 21, 22 y por lo tanto la cantidad máxima de material elástico está disponible para suministrar la elasticidad requerida en los cierres laterales.

En la modalidad mostrada, las soldaduras 21, 22 están posicionadas próximas al borde exterior lateralmente 48 de cada una de las aletas laterales delanteras 6, 7, cada una de las aletas laterales delanteras siendo elástica. Las soldaduras 21, 22 están también colocadas próximas al

borde exterior lateralmente 47 de la porción elástica (primera porción 8, 9) de cada una de las aletas laterales traseras. De esta manera, el área de material elástico que es elásticamente inactiva está mantenida a un mínimo permitiendo así la extensión lateral máxima del material elástico que sea completamente usado tanto en las aletas delanteras como en las traseras. En términos del significado "próximo" a este respecto, significa menos de 1,5 cm desde el borde de extremo de la porción elástica. Sin embargo es preferido si la distancia es menos de 1 cm y todavía más preferible si la distancia es menos de 0,5 cm.

Como se muestra en la Fig. 2, la soldadura 21 se extiende entre el borde superior de la aleta lateral delantera 6 y el borde inferior de la misma. Preferiblemente el área de soldadura se extiende por la distancia completa entre estos bordes superior e inferior y la línea de aplicación de la herramienta de soldadura puede aún extenderse más allá de los bordes superior e inferior. El área de sujeción puede sin embargo ser más corta, aunque la ventaja con una extensión en todo el trayecto entre los bordes superior e inferior es que el producto no tendrá las esquinas de la aleta lateral sueltas lo que puede

posiblemente doblarse y convertirse en no bien visto durante el almacenamiento. Similarmente, un ajuste más seguro/estable durante el uso es obtenido disponiendo la soldadura en toda la extensión entre el borde superior e inferior. Esto puede ser importante cuando las porciones elásticas están colocadas entre las soldaduras 21, 22 y cada uno de los bordes laterales 40, 41.

Cuando el producto absorbente, en la forma de unos pantalones desechables como se muestra en la Fig. 2, va a ser inspeccionado para verificar si ya hay suficiente suciedad, o cuando ellos van a ser removidos completamente, es conveniente si el pantalón completo no tiene que ser removido por las piernas y pies del usuario. Así las áreas de sujeción provistas en las soldaduras 21, 22 simplemente tienen que ser rotas al ser peladas y abiertas. Esto destruye el sello de soldadura y no permite su re-cierre. Esto puede hacerse de cualquier manera adecuada, preferiblemente sin embargo por medio de agarrar y halar hacia atrás el borde libre de la segunda porción de la aleta lateral 12, 13 que descansa en frente del miembro de sujeción liberable 10, 11 mientras que al mismo tiempo se mantiene la aleta delantera 6, 7 con los dedos de la otra mano. Las soldaduras de sujeción 21, 22

por lo tanto serán peladas y abiertas verticalmente por la aplicación de las fuerzas de pelado a estas.

En una modalidad alternativa mostrada en la Fig. 4, una línea de debilidad 33, 34 puede adicionalmente estar provista en cada aleta lateral delantera 6, 7, extendiéndose por lo menos parte del trayecto entre los bordes superior e inferior de las aletas laterales delanteras respectivas 6, 7 y en una localización hacia fuera lateralmente del área de sujeción respectiva 21, 22. En una manera similar a la descrita anteriormente, los paneles laterales delanteros y los paneles laterales traseros están separados, este tiempo sin embargo por la ruptura de las aletas laterales delanteras 6, 7 a lo largo de las líneas de debilidad 33, 34. Las líneas de debilidad a este respecto pueden también estar formadas por un margen exterior de las áreas de soldadura 21, 22 por ejemplo como resultado del proceso de soldadura en cual el borde exterior de la soldadura puede estar hecho para suministrar un área debilitada sobre la aleta lateral delantera interior 6, 7.

Cualquiera de las estructuras en las diversas modalidades es usada, los pantalones absorbentes serán separados en

las porciones laterales por ruptura (sea por pelado y/o desgarrado de los sellos y/o por desgarrado de las aletas laterales delanteras).

Una vez inspeccionado, si el producto absorbente no está sucio este puede ser re-sujetado al usuario por medio de re-cerrarlo. Para este re-cierre, los medios de sujeción liberables 10, 11, 15, 16 son usados, en donde el primer miembro respectivo 10, 11 de los miembros de sujeción liberables se presionan simplemente y entran en contacto con la superficie exterior 18,18' provista con el segundo miembro 15, 16 de los medios de sujeción liberables. Si se desea, estos miembros de sujeción liberables 10, 11 y 15, 16 pueden ser sujetos y liberados uno del otro varias veces.

Aunque las aletas laterales pueden ser formadas de cualquier estructura adecuada incluyendo una porción elástica, una estructura preferida es una que tiene un material no tejido 30, 32 tanto sobre la superficie interior como exterior de la misma. De esta manera, las aletas laterales se sienten relativamente cómodas contra la piel del usuario y al mismo tiempo suministran una superficie externa a la cual un miembro 10, 11 de los

medios de sujeción liberables pueden sujetarse. En una modalidad adicional (no mostrada) una o más de las capas de material no tejido podrían estar constituidas por una capa no tejida que es integralmente incluida como parte de la lámina superior 5 y/o la lámina de respaldo 4 en su estructura.

En una modalidad particularmente preferida, las aletas laterales delanteras 6, 7 y/o las aletas laterales traseras (es decir, las porciones 8, 9 solamente) pueden comprender un laminado elástico como se ha mostrado por ejemplo en la sección transversal de corte en la Fig. 5. En tal laminado, un material de lámina elástica central 31 es usado. Tal laminado elástico puede tener una extensibilidad elástica de por menos en la dirección lateral de cerca o más de 100%, preferiblemente más de 150%, y aún más preferiblemente entre 200% y 350%. Los materiales elásticos capaces de producir esta elasticidad en el laminado final son bien conocidos en la técnica de los productos absorbentes. Esto puede incluir por ejemplo, elastómeros hechos de copolímeros de bloque tales como poliuretanos, copoliésteres, copolímeros de bloque de poliamida polieter, EVA (etil-vinil-acetatos), copolímeros elastoméricos de estireno-

butadieno, copolímeros de tetrabloque, que incluye copolímeros de bloque elastomérico de estireno-poli (etileno-propileno), poliamidas, o materiales de caucho sintéticos o naturales, etc. Un elastómero adecuado es por ejemplo Extraflex™ CEX 802WR que tiene un peso superficial de 54 g/m², disponible de productos de película Tredegar.

Debido a la naturaleza de la sobreposición de las aletas laterales delantera y trasera, que puede ocupar entre 0,5 cm y 3,5 cm de longitud lateral en cada cierre lateral, el área de sobreposición puede ser relativamente inelástica. Sin un material de alta elasticidad que constituya las aletas laterales y que tiene por lo menos 100% de elasticidad (es decir, puede ser estirado elásticamente en más del 100% comparado con su longitud original sin esfuerzo sustancial permanente), el material elástico de las aletas laterales respectivas descansa entre los paneles sobrepuestos y los bordes del chasis que no son capaces de cumplir completamente con los requerimientos para un buen ajuste y comodidad para todos los usuarios propuestos.

Los miembros inelásticos usados en esta invención tal como los materiales no tejidos, pueden comprender una lámina continua o discontinua, rollo, capa o tela por ejemplo, dicho miembro puede ser estirado elásticamente solamente pequeñas cantidades, normalmente del orden de 1 a 15%, pero típicamente menos del 10%. Tales materiales pueden ser hilados pegados, no tejidos cargados o materiales soplados por fusión. Las fibras pueden ser por ejemplo poliolefinas tales como polipropileno o polietileno. Las fibras también pueden consistir de mezclas de polímeros diferentes. Los materiales no tejidos adecuados pueden también consistir de varias capas de no tejidos diferentes tales como laminados de hilado por pegado-soplado por fusión-hilado por pegado (SMS). Un ejemplo concreto es un material hilado pegado de fibras de polipropileno en donde el material tiene un peso de superficie que puede estar dispuesto entre 12 y 30 g/m² y tiene un espesor de fibra entre 0,5 y 5 dtex.

Sujetados sobre cada lado de la lámina elástica en una condición estirada están los rollos de material no tejido relativamente inelástico. Después de la sujeción, cuando al laminado elástico se le ha permitido regresar a su estado relajado, las telas no tejidas sujetadas se

contraen y forman una superficie ligeramente corrugada, con bolsillos de aire entre las corrugaciones, suministrando así una sensación cómoda.

En una variación (no mostrada) de la modalidad ilustrada en la Fig. 5, la capa de material no tejido 30 o 32 de la aleta lateral puede estar constituida por extensión del material en la lámina superior 5 y/o la lámina de respaldo 4. Por ejemplo, la lámina de respaldo 4 puede estar formada de una estructura de laminado (no mostrado) de una capa de material no tejido y una capa de material de película polimérica, en donde una extensión de la capa de material no tejido de la lámina de respaldo podría entonces ser usada para formar la capa 30 o la capa 32 de la aleta lateral. Similarmente, en donde una capa exterior 30 o 32 esta formada por un material no tejido de por ejemplo la lámina superior, la otra capa exterior 32 o 32 puede estar formada por material no tejido de la lámina de respaldo o de una lámina separada de material. Adicionalmente, mientras el uso de los materiales no tejidos es el preferido, otros materiales inelásticos pueden por supuesto ser usados tanto en las láminas superior y/o láminas de respaldo y luego ser

extendidos de modo que se forma por lo menos uno de los materiales no elásticos en las aletas laterales.

El producto de la invención puede estar formado de una variedad de maneras. Sin embargo, de acuerdo con el método de la invención un método ha sido visualizado el cual permite que las áreas de sujeción 21, 22 entre las aletas laterales delantera y trasera se formen fácilmente con el producto descansando en una condición plana. De esta manera, formar las áreas de sujeción 21, 22 se facilita, especialmente en donde el área de sujeción 21 es formada por soldadura.

La Fig. 6 muestra una serie de operaciones que requieren llevarse a cabo para producir un producto absorbente. Solamente un lado del producto es mostrado aunque las operaciones sobre el lado opuesto son las mismas. El orden de las operaciones aunque mostrado como (a) a (d) en la Fig. 6 puede sin embargo ser variada hasta algún grado como será entendido por lo siguiente.

Con el fin de ayudar al entendimiento, los numerales de referencia similares han sido usados para denotar las partes correspondientes descritas con respecto al

producto de la invención, sin embargo con la adición de la letra "a" después de los numerales.

El flujo de producción tiene el propósito de ir de la etapa (a) a la etapa (d) en la figura. En la etapa (a) una primera porción 9a de un primer miembro de aleta lateral (por ejemplo, la aleta lateral trasera) es mostrada con superficie interior 19a superior y sujeta de manera fija a una segunda porción 13a. La sujeción de estas dos porciones puede ocurrir en el momento que sean colocadas una sobre la otra (por ejemplo, por adhesivo) o puede ocurrir subsecuentemente a ello tal como por soldadura por ejemplo.

En la etapa (b), un miembro de chasis de producto absorbente que tiene una lámina superior 5a mostrada hacia arriba y una lámina de respaldo 4a debajo, se hace descansar sobre la primera porción 9a y se sujeta fijamente a la misma en un área 23a a una porción de extremo del miembro de chasis, de modo que este se extiende lateralmente hacia fuera desde un borde lateral 40a del miembro de chasis. También es posible, en una modalidad alternativa (no mostrada), disponer la primera porción 9a a ser localizada entre la lámina superior 5a y

la lámina de respaldo 4a y así esconder la unión 23a entre la lámina superior 5a y la lámina de respaldo 4a. Esto puede ser hecho por ejemplo colocando primero la lámina de respaldo 4a y luego sujetando la porción de aleta 9a, luego aplicando el núcleo absorbente y luego agregando la lámina superior 5a.

Como será también claro, el miembro de chasis puede sin embargo ser colocado primero en la línea de producción, seguido entonces por el miembro de aleta 9a, 13a si se desea, es decir una inversión de las etapas (a) y (b). Una primera porción de un medio de sujeción liberable 11a es agregado a la tira o similar, según se describió previamente, al extremo de la primera aleta lateral (trasera). Esto puede ser en cualquiera de las etapas (a) o (b) por ejemplo.

En la etapa (c) el segundo miembro de aleta lateral 7a es agregado (por ejemplo la aleta lateral delantera 7), con su superficie interior 17a hacia arriba y su superficie exterior cara hacia abajo, en donde el segundo miembro 15a del medio de sujeción liberable está sobre aquel lado que está cara hacia abajo. En esta condición, la superficie interior 19a del primer miembro de aleta

lateral 9a, 13a descansa en una relación de sobreposición contra la superficie exterior del segundo miembro de aleta lateral (7a) en un estado plano (es decir no desdoblado). El área de sujeción fija 21a es entonces formada, por ejemplo por medio de soldar en el área rectangular indicada por 21a mientras se nota que la soldadura se extiende entre los bordes superior e inferior de la primera y segunda aletas laterales.

En este estado, la primera porción de extremo 1a (por ejemplo la porción de extremo trasera 1) y la segunda porción de extremo 2a (por ejemplo la porción de extremo delantera 2) del miembro de chasis todavía están en una condición plana. Así para poder formar el producto cerrado, la porción 2a requiere ser doblada sobre la porción 1a y el segundo miembro de aleta 7a requiere ser fijado de manera segura a la segunda porción de extremo 2a.

Esta operación de doblado puede ser hecha sea iniciando en la etapa (c) y luego en la etapa (d) doblar la porción 2a sobre la porción 1a, y luego doblar el segundo miembro de aleta 7a sobre el primer miembro de aleta 9a, 13a y así en contacto con la superficie exterior (lámina de

respaldo 4a) del extremo 2a. Alternativamente, el segundo miembro de aleta 7a puede ser doblado sobre el primer miembro de aleta 9a, 13a y luego la porción de extremo 2a doblada sobre la parte superior de la superficie exterior del segundo miembro de aleta 7a y así en contacto con la superficie interior (lámina superior 5a) de la porción de extremo 2a.

En cualquier condición, el extremo del segundo miembro de aleta 7a es entonces de manera fija en la localización 36a a la segunda porción de extremo 2a del miembro de chasis. Preferiblemente tal aseguramiento es llevado a cabo usando adhesivo sobre las superficies cooperantes del miembro de aleta 7a y la segunda porción de extremo 2a del miembro de chasis, aunque otros métodos de sujeción fija pueden ser también empleados.

En otra modalidad adicional, la sujeción del primer miembro de aleta 9a, 13a al segundo miembro de aleta 7a en el área de sujeción 21a (es decir como parte de la etapa (c)) puede llevarse a cabo sin que el miembro de chasis esté presente. El miembro de chasis puede entonces ser sujetado de manera fija en la localización de sujeción 23a y la localización de sujeción 36a.

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En una modalidad adicional, antes de llevar a cabo la etapa (d), la aleta 7a puede primero ser doblada antes de que el chasis mismo sea doblado, y solamente entonces ser sujetado en el área 36a. De esta manera, la sujeción 36a es posicionada al interior del producto y no queda visible.

La Fig. 7 muestra una modalidad adicional de la invención en una vista desde arriba similar a la de la Fig. 3, en donde sin embargo solamente un lado es mostrado (el otro lado es sustancialmente una imagen espejo) y en donde la parte trasera 1 del pañal es la que está más abajo. En esta figura, la primera porción de aleta lateral 8 y la aleta lateral delantera 6 es elástica entre la localización de sujeción 27 y el borde de extremo 47 y la localización de sujeción 35 y el borde de extremo 48 respectivamente, la aleta lateral 6 y la primera porción 8 preferiblemente consisten completamente de un laminado elástico. La segunda porción 12 es completamente inelástica. La aleta lateral delantera 6 tiene, sobre su superficie exterior y sujeta fijamente a ella, un miembro 46 de un medio de sujeción liberable en la forma de una tira, la tira es alargada en la dirección

longitudinal Y-Y (es decir en un plano perpendicular al plano del papel en la misma manera que los miembros 10 y 11 como se muestra en el ejemplo de la Fig. 2 son alargados). El miembro cooperante 10 del medio de sujeción liberable está sujetado de manera fija a la porción inelástica 12 de la aleta lateral trasera.

La soldadura 21 pasa entonces por las porciones elásticas próximas a los extremos distales (hacia fuera lateralmente) del mismo. De esta manera, solamente dos componentes requieren ser sujetados juntos. Similarmente, ya que la soldadura 21 está en los extremos de cada porción elástica en el área pequeña sobrepuesta entre los bordes de extremo 47 y 48, el material de aleta elástico entre la soldadura 21 y la localización de sujeción 27 permanece activa para extensión elástica. En la primera aleta lateral 6, la porción de la misma que permanece activa para la extensión elástica es, en este caso, aquella porción que se extiende entre la localización de sujeción 35 y la localización 49 en la cual el miembro de tira del extremo interior lateralmente 46 está sujetado a la aleta lateral 6.

Para mejorar adicionalmente la cantidad de material elástico disponible para el estiramiento elástico, la porción no elástica del cierre lateral, es decir entre la línea 49 y la soldadura 21 debe mantenerse a un mínimo. La distancia entre la línea 49 y la soldadura 21 debería ser tal que esta distancia ocupe un máximo de un tercio de la parte elástica del cierre lateral (es decir la distancia entre la localización de sujeción 35 y la línea 49 agregada a la distancia entre la línea 21 y la localización de sujeción 27, en la condición no estirada). Preferiblemente esta distancia debería ser entre 0,5 y 3,5 cm. Similarmente, en la condición no estirada, la longitud de la porción elástica (aquella porción entre las localizaciones de sujeción 35 y 49 y entre 27 y la soldadura 21) del cierre lateral completo, debería ser mayor al 75% de la longitud del cierre lateral (es decir la distancia entre las localizaciones de sujeción 27 y 35 en la condición prefijada). La extensibilidad elástica del cierre lateral entre las localizaciones 27 y 35 incluye las partes elásticas e inelásticas unidas juntas, iniciándose desde una longitud de partida no estirada del cierre lateral, debería ser mayor del 80% y preferiblemente mayor del 100%.

Si el miembro 46 no está presente, el miembro 10 debería entonces sujetar directamente la superficie exterior 18 de la aleta lateral 6, entonces la porción no elástica debería estar entre la soldadura 21 y la localización en donde el miembro 10 se sujeta a la superficie exterior 18.

El miembro 10 puede por ejemplo ser de material de anillo y el miembro cooperante 46 de material de gancho, o viceversa. Los ganchos de cara hacia dentro son sin embargo preferibles, ya que esto permite una disposición más fácil en una condición cerrada. También es posible construir la segunda porción inelástica 12 completamente de material de anillo y entonces el miembro 46 debe ser de material de gancho para engancharse allí.

La Fig. 8 y la Fig. 9 muestran una modalidad adicional de la invención, similar a aquella descrita en relación con la Fig. 7, en donde la porción inelástica de la aleta lateral trasera (segunda porción 12) está formada no por una pieza separada de material que está sujeta a la parte exterior de la primera porción como en las modalidades de los ejemplos de las Figs. 1 a 4, sino en su lugar por una lámina elástica 31 del material laminado

elástico (ver también Fig. 5) que es terminado en un extremo 50 que descansa lateralmente al extremo interior 44. Así, la distancia "a" es inelástica y corresponde a la porción inelástica 12.

En la modalidad mostrada en la Fig. 10, esto difiere de lo que se ha mostrado y descrito con respecto a las modalidades anteriores en que la segunda porción inelástica 12 está localizada y sujeta de manera fija a la superficie interior 19 de la primera porción 8.

En la modalidad mostrada en la Fig. 11, el segundo miembro 12 está formado como una tira en anillo en forma de U, en donde los extremos abiertos de la "U" están sujetos de manera fija como por ejemplo por soldadura o adhesivo, al extremo exterior lateralmente 47 de la primera porción 8 en las localizaciones de sujeción que pasan por la línea 51. De esta manera la segunda porción 12 estará sujeta de manera más segura a la primera porción 8 y el riesgo de separación de las porciones 8 y 12 se ha reducido y al mismo tiempo se suministra un borde exterior más suave.

En la modalidad de la Fig. 12, una forma posible adicional de la segunda porción inelástica 12 se ha ilustrado, en la forma de un bolsillo de agarre que permite que los dedos de una mano sean insertados dentro del anillo en forma de U para abrir o re-sujetar el producto (el anillo en forma de U está sujetado en por ejemplo sus bordes longitudinales superiores e inferiores como se muestra en la Fig. 13 en localizaciones de sujeción fijas 52 y 53 (por ejemplo, soldaduras)). De esta manera, el usuario puede insertar uno o más de sus dedos entre las áreas de sujeción y usar esto como medio de agarre para abrir el medio de sujeción re-cerrable 10, 46 y/o como un medio para pelar o desgarrar la primera porción 8 de la aleta interior 6 en la soldadura 21. Un usuario puede similarmente insertar un dedo entre el extremo redondo 54 del anillo y las localizaciones de sujeción 53 o 52 si el anillo está hecho lo suficientemente largo. Como será también evidente, cualquiera de las dos sujeciones fijas 52 o 53 pueden ser omitidas, lo que todavía permite que un dedo sea insertado dentro de un área de esquina del bolsillo. Muchas modificaciones adicionales de tal bolsillo de agarre por medios y localizaciones alternativas de

sujeción serán evidentes para aquellos versados en la técnica.

En la modalidad de la Fig. 14, que es una vista lateral parcial del cierre lateral que muestra los paneles sobrepuestos 6 y 8, 12, la porción inelástica 12 está hecha para que se reduzca gradualmente en longitud moviéndose lateralmente hacia fuera a lo largo de la aleta lateral trasera 8, 12 hasta el borde de extremo 44, de modo que se suministra un borde inferior ahusado lateralmente hacia fuera. El miembro 10 puede sin embargo mantener una forma rectangular alargada. De esta manera una transición más suave entre el borde inferior de las porciones 8 y 12 se suministra (cuando se compara con el ejemplo de la modalidad de la Fig. 1) el cual suministra una mejora a la comodidad en las piernas del usuario y reduce la cantidad de material desperdiciado al mismo tiempo.

La modalidad de la Fig. 15 es similar a la de la Fig. 14, diferenciándose sin embargo en que el miembro 10 está también hecho ahusado hacia el borde exterior lateralmente 44. De esta manera, la segunda porción 12 puede mantener las ventajas descritas anteriormente y el

miembro 10 puede estar espaciado o separado de los bordes de la segunda porción 12 y todavía usar el área máxima para suministrar una superficie de sujeción, que es importante de modo que se permita una sujeción más segura cuando la soldadura 21 se rompe.

En la modalidad de la Fig. 16, la sujeción fija en la forma de soldadura 21 está formada por una serie de puntos de soldadura, por ejemplo pequeños puntos 55, en donde la resistencia de la soldadura se incrementa desde un borde superior del cierre lateral hasta un borde inferior del cierre lateral. De esta manera, la soldadura 21 que forma la sujeción fija puede ser fácilmente abierta en el borde superior, pero todavía suministrar la resistencia general requerida y la seguridad para mantener el producto prefijado sobre el usuario. Adicionalmente, este tipo de soldadura evita la necesidad de usar una fuerza de tirón intermitente aplicada para abrir la soldadura cuando un ayudador o auxiliar remueve el producto de un niño por ejemplo, que es típicamente el caso con las soldaduras que son de la misma resistencia generalmente a lo largo de la mayoría de su longitud. El esfuerzo se hace incrementar en la Fig. 16 usando por ejemplo áreas de soldadura más grandes y/o incrementando

la proximidad de los puntos de soldadura adyacentes como se ve en una dirección moviéndose desde el borde superior hacia el borde inferior.

Varias formas alternativas de soldadura 21, 22 pueden ser usadas para formar la sujeción fija entre las aletas laterales, en las cuales un patrón de puntos de pegado por soldadura es usado (por ejemplo, tal como puntos de soldadura en la forma de puntitos 55 como en la Fig. 16). Un "área soldada" se define como el rectángulo más pequeño que encierra todas las áreas de superficie individuales de los puntos de pegado por soldadura. Para poder suministrar propiedades de apertura superiores de la soldadura cuando se desee, las áreas de superficie individuales combinadas de todos los puntos de pegado en un área soldada deberían ser menos de 50% del área soldada como se definió por el rectángulo. Esto también puede ser usado en el caso mostrado en la Fig. 16 y en otras modalidades en curso. En las modalidades preferidas las áreas de superficie individuales combinadas pueden ser menos de 40%, menos de 30%, menos de 20% o aún menos de 10% del área soldada definida por el rectángulo.

En la Fig. 17, los paneles laterales sobrepuestos 8, 12 y 6 se ilustran nuevamente y una distancia "b" ha sido indicada. La distancia "b" es el ancho de superposición total de los dos bordes de extremo exteriores lateralmente 44 y 48 de los paneles laterales trasero y delantero respectivamente. Esta distancia "b" debe estar entre 0,5 cm y 4 cm y preferiblemente entre 0,5 cm y 3 cm y aún más preferiblemente entre 0,5 cm y 2 cm. Similarmente, el ancho "c" de la segunda porción 12 debe ser mayor a 50% del ancho "b" de superposición. De tal manera la cantidad de material elástico que no está activa elásticamente se ha minimizado.

La figura 17 también indica una distancia adicional "d" entre el borde 44 y el borde lateralmente exterior del elemento 10 sujetado a la segunda porción 12. Esta distancia puede ser definida como una distancia de agarre "d". La distancia de agarre es la distancia que puede ser usada para agarrar el extremo de la segunda porción para poder abrir el sujetador recerrable (formado por los miembros 10 y 18 o 10 y 46 por ejemplo) entre los paneles delantero y trasero. La distancia "d" debería ser menor a 7 mm para poder impedir que los jóvenes y niños usuarios traten de abrir el sujetador recerrable. Para suministrar

una protección adicional contra la apertura una distancia de agarre de menos de 5 mm o aún menos de 3 mm puede ser usada.

Sin embargo, diferentes niveles de fuerza de apertura debería ser observados para poder suministrar las características de seguridad contra niños y todavía permitir la apertura de una manera confiable por la mayoría de los auxiliares adultos, y en una manera cómoda para el usuario.

Los experimentos en esta materia han mostrado que un cierre seguro contra niños puede ser producido cuando la distancia de agarre es de hasta 7 mm, en donde el sujetador recerrable debería tener una fuerza de apertura contra el pelado por encima de 4 N, preferiblemente por encima de 6 N, más preferiblemente por encima de 8 N y aún más preferiblemente por encima de 10 N. Por una distancia de agarre por debajo de 3 mm, una fuerza de apertura por encima de 10 N debería evitarse. Sin embargo, al mismo tiempo, la fuerza de pelado de apertura tanto sobre la sujeción recerrable y también sobre la soldadura 21 no debería exceder 20 N, de otra manera el usuario estará sometido a una fuerza de arrastre

intermitente aplicada para poder abrir y recerrar el sujetador y/o la soldadura 21, lo que es claramente no muy agradable. Por debajo de 20 N, se ha mostrado ahora que tal fuerza de arrastre intermitente son minimizada sino completamente evitadas, siempre que al mismo tiempo se suministre el nivel requerido de fuerza para un cierre seguro. Aún más preferido son las disposiciones en donde la fuerza de apretura máxima está por debajo 15 N.

Para poder medir las fuerzas requeridas para abrir una unión en pelado (es decir usando fuerzas de pelado), el método de ensayo como se ilustra en las etapas de la figura 10 (a) y (b) debe ser usado. Las dos partes del cierre (por ejemplo la alta lateral 6 y la segunda porción 12) están sujetadas juntas por ejemplo por el sujetador recerrable, y un peso es sujetado a una de las partes, por ejemplo agarrado a la parte sobre su ancho. La porción de distancia de agarre "d" es entonces agarrada y levantada lentamente y suavemente, de tal manera que no hayan movimientos bruscos que causen que la unión recerrable se separe. Si el peso puede ser levantado y la unión mantenida en la situación mostrada en la figura 18 (b) por más de 30 segundos, se juzga que la unión puede soportar el peso y por lo tanto cumple un

nivel particular de fuerza de terminado por el peso. Aunque máquinas de ensayo podrían ser empleadas para llevar a cabo este ensayo, es importante darse cuenta que el ensayo debería corresponder lo más posible a la situación de vida real y por lo tanto el ensayo explicado anteriormente no solamente es confiable y repetible sino que es preferido a usar el método de ensayo con máquina.

La figura 19 muestra una modalidad adicional de la invención en la cual una seguridad contra niños incrementada se ha suministrado por medio de disponer una o más soldaduras adicionales 56 en el borde exterior 44 de la aleta lateral trasera (es decir en el borde exterior de la segunda porción 12 de la misma, en esta modalidad). Estas soldaduras 56 en particular dan la apariencia de estar cerradas permanentemente y suministrar una obstrucción psicológica lo mismo que física para un usuario niño.

De acuerdo con lo anterior, un número de modalidades han sido descritas para poder ilustrar diferentes aspectos de la invención. Sin embargo debe entenderse que rasgos individuales de una modalidad pueden sin embargo ser usadas, con, o en lugar de, rasgos de otra modalidad. En

particular, los rasgos o características mostrados principalmente en las modalidades del producto per se deben claramente entender como que están incluidas como rasgos adicionales o características alternativas en el método de la invención.

Modalidades adicionales del producto y variaciones del método pueden fácilmente ser captadas por los versados en la materia luego de leer la anterior descripción y tienen el propósito de estar abarcadas dentro del alcance de la invención como se define en las reivindicación adjuntas.

REIVINDICACIONES

1. Un producto absorbente prefijado, dicho producto absorbente comprende una porción trasera (1), una porción delantera (2) y una porción de entrepierna (3) entre ellas, un eje longitudinal (Y-Y) que pasa generalmente por el medio de las porciones delantera y trasera (1, 2) y un eje lateral (X-X) perpendicular al eje longitudinal (Y-Y), dicha porción trasera (1) incluye por lo menos dos aletas laterales traseras (8, 12, 9, 13) sujetadas allí, cada una presenta una superficie interior (19, 19') y una superficie exterior (20, 20'), dicha porción delantera (2) incluye por lo menos dos aletas laterales delantera (6, 7) sujetadas allí, cada una presenta una superficie interior (17, 17') y una superficie exterior (18, 18'), en donde un miembro de los medios de sujeción liberables (10, 11; 15, 16, 46) está presente en cada una de dichas aletas laterales traseras (8, 12, 9, 13) y cada una de dichas aletas laterales delanteras (6, 7) respectivamente, los miembros de dichos

medios de sujeción liberables sobre dichas aletas laterales delantera y trasera (6, 7; 8, 12, 9, 13) respectivamente están en contacto para así formar una conexión recerrable entre ellas, y adicionalmente en donde cada una de dichas aletas laterales delanteras (6, 7) está sujeta de manera fija por medio de una soldadura (21, 22) a una respectiva de dichas aletas laterales traseras (8, 12, 9, 13) en una relación de sobreposición tal que la superficie exterior (18, 18') de cada una de dichas aletas laterales delanteras (6, 7) descansa contra la superficie interior (19, 19') de cada una de las aletas laterales traseras respectivas (8, 12, 9, 13), y en donde la soldadura (21, 22) en cada una de dichas aletas laterales traseras (8, 12, 9, 13) descansa lateralmente hacia adentro con respecto de los medios de sujeción liberables (10, 11) posicionado sobre dicha aleta lateral trasera respectiva, y en donde cada una de dichas aletas laterales delantera y dicha trasera (6, 7; 8, 12, 9, 13) incluye una porción elástica, y en donde dicha soldadura (21, 22) está posicionada próxima al borde exterior lateralmente (47, 48) de la

porción elástica de por lo menos una de dichas aletas laterales delantera y trasera (6, 7; 8, 12, 9, 13).

2. El producto absorbente prefijado de acuerdo con la reivindicación 1, caracterizado en que dicha soldadura (21, 22) está posicionada próxima al borde exterior lateralmente de la porción elástica de tanto dichas aletas laterales delanteras como dicha aleta trasera (6, 7; 8, 12, 9, 13).

3. El producto absorbente prefijado de acuerdo con la reivindicación 1 o la reivindicación 2, caracterizado en que dichas aletas laterales delanteras (6 y 7) y dichas aletas laterales traseras (8, 12, 9, 13) están sujetadas de manera fija una a la otra por dicha soldadura (21, 22) a lo largo de un área de sujeción que se extiende como un área de soldadura alargada entre un borde superior (29) y un borde inferior (28) de dichas aletas laterales delanteras (6, 7) y dichas aletas laterales traseras (8, 12, 9, 13).

4. El producto absorbente prefijado de acuerdo con la reivindicación 2 o 3, caracterizado en que dicha área de sujeción se extiende sobre sustancialmente la totalidad de la distancia entre dicho borde superior (29) y dicho borde inferior (28) de dichas aletas laterales delanteras (6, 7) o dichas aletas laterales traseras (8, 12, 9, 13).
5. El producto absorbente prefijado de acuerdo con cualquiera de las reivindicaciones 3 o 4, caracterizado en que dicha sección alargada se extiende generalmente paralela al eje longitudinal (Y-Y).
6. El producto absorbente prefijado de acuerdo con una cualquiera de las reivindicaciones precedentes, caracterizado en que dicha porción elástica de dichas aletas laterales delanteras (6, 7) y/o dichas aletas laterales traseras (8, 12, 9, 13) están cada una formadas a partir de una construcción de laminado elástico, dicha construcción de laminado elástico está formado

con material no tejido (30, 31) sobre las superficies interior y exterior de la misma.

7. El producto absorbente prefijado de acuerdo con una cualquiera de las reivindicaciones precedentes, caracterizado en que dichas aletas laterales traseras (8, 12, 9, 13) cada una comprende una primera porción (8, 9) sujeta de manera fija a un miembro de chasis de producto absorbente en una primera localización de sujeción (23, 27), y una segunda porción (12, 13) sujeta de manera fija a dicha primera porción (8, 9) en una segunda localización de sujeción (24, 26), dicha segunda localización de sujeción (24, 26) está posicionada lateralmente hacia fuera, con respecto a dicha porción trasera (1), de dicha primera localización de sujeción (23, 27), y en que dicho primer miembro de dichos medios de sujeción liberables (10, 11; 15, 16) está sujeta fijamente a dicha segunda porción (12, 13) y en que dicha primera porción (8, 9) incluye la porción elástica de dicha aleta lateral trasera.

8. El producto absorbente prefijado de acuerdo con la reivindicación 7, caracterizado en que dicha segunda porción (12, 13) es inelástica y es más dura al doblado que dicha primera porción (8, 9).
9. El producto absorbente prefijado de acuerdo con las reivindicaciones 7 u 8, caracterizado en que dicha segunda localización de sujeción (24, 26) descansa lateralmente hacia fuera, con respecto a dicha porción trasera (1), de dicha soldadura (21, 22).
10. El producto absorbente prefijado de acuerdo con una cualquiera de las reivindicaciones precedentes, caracterizado en que dichos medios de sujeción liberables comprenden un primer miembro (10, 11) sobre dichas aletas laterales traseras (8, 12, 9, 13) y un segundo miembro (15, 16) sobre dichas aletas laterales delanteras cooperantes con dicho primer miembro (10, 11) para permitir la sujeción liberable, y en que dicho segundo miembro (15, 16) comprende una superficie externa de una dichas aletas laterales delanteras (6, 7).

11. El producto absorbente prefijado de acuerdo con la reivindicación 10, caracterizado en que la dicha segunda porción completa (12, 13) de la aleta lateral trasera está localizada lateralmente hacia fuera de dicha soldadura (21, 22), con respecto a dicha porción trasera (1).
12. El producto absorbente prefijado de acuerdo con una cualquiera de las reivindicaciones 2 a 11, caracterizado en que dicha soldadura (21, 22) constituye una soldadura pelable, en donde una aleta lateral delantera (6, 7) puede ser pelada separada de una aleta lateral trasera (8, 12, 9, 13) en dicha soldadura.
13. El producto absorbente prefijado de acuerdo con una cualquiera de las reivindicaciones 2 a 12, caracterizado en que una línea de debilidad (33, 34) se dispone en cada una de dichas aletas laterales delanteras (6, 7) en una localización lateralmente hacia adentro, con respecto a dicha porción delantera (2), de dicha soldadura (21, 22).

14. El producto absorbente prefijado de acuerdo con una cualquiera de las reivindicaciones precedentes, caracterizado en que el producto absorbente está formado como un pañal pantaloncito desechable.

15. Un método para producir un producto absorbente recerrable prefijado, en donde un primer miembro de aleta lateral (9a, 13a) está sujeto fijamente a una primera localización de sujeción (23a) a una superficie exterior (4a) de una primera porción de extremo (1a) de un miembro de chasis de producto absorbente, de modo que se extiende lateralmente hacia fuera desde un borde lateral (40a) de dicho miembro de chasis, dicho primer miembro de aleta lateral (9a, 13a) está provisto con una parte (11a) de unos medios de sujeción liberables (11a, 15a), y en donde un segundo miembro de aleta lateral (7a) está sujeto por soldadura en un área de sujeción (21a) a dicho primer miembro de aleta lateral (9a, 13a) de modo que una superficie interior (19a) de dicho primer miembro de aleta lateral

(9a, 13a) está sujetado en una relación de superposición no doblada a una superficie exterior de dicho segundo miembro de aleta lateral (7a), y en donde dicho segundo miembro de aleta lateral (7a) está doblado sobre dicho primer miembro de aleta lateral (9a, 13a) tal que una superficie interior del segundo miembro de aleta lateral (7a) que da enfrente de dicha superficie interior (19a) de dicho primer miembro de aleta lateral (9a, 13a), y en donde dicho segundo miembro de aleta lateral (7a) es entonces sujetado de manera fija a dicha segunda porción de extremo (2a) de dicho miembro.

16. El método de acuerdo con la reivindicación 15, caracterizado en que dicho segundo miembro de aleta lateral (7a) está doblado sobre dicho primer miembro de aleta lateral (9a, 13a) después de que dicha segunda porción de extremo (2a) ha sido doblada sobre dicha primera porción de extremo (1a), y en que dicho segundo miembro de aleta lateral (7a) es entonces doblado sobre, y fijado a, una superficie exterior de dicho miembro de chasis.

17. El método de acuerdo con la reivindicación 15, caracterizado en que dicho segundo miembro de aleta lateral (7a) está doblado sobre dicho primer miembro de aleta lateral (9a, 13a) antes de que dicha segunda porción de extremo (2a) haya sido doblada sobre dicha primera porción de extremo (1a), y en que dicho segundo miembro de aleta lateral (7a) se ha fijado a una superficie interior de dicho miembro de chasis.
18. El método de acuerdo con una cualquiera de las reivindicaciones 15 o 16, caracterizado en que dicho primer miembro de aleta lateral (9a, 13a) está sujetado a dicha superficie exterior (4a) de dicha primer porción de extremo (1a) después de que dicha área de sujeción (21a) está formada entre dicho primer miembro de aleta lateral (9a, 13a) y dicho segundo miembro de aleta lateral (7a).
19. El método de acuerdo con una cualquiera de las reivindicaciones 15 a 18, caracterizado en que dicho primer miembro de aleta lateral (9a, 13a)

es una aleta lateral trasera (9, 13) y está provista con un primer miembro (11a) de un medio de sujeción liberable, y en que dicho segundo miembro de aleta lateral (7a) es una aleta lateral delantera (7) provista con un segundo miembro (15a) de dicho medio de sujeción liberable, dicho segundo miembro (15a) coopera con dicho primer miembro (10, 11) y permite una sujeción liberable.

F RMATO DE DIGITALIZACION
RELACION DE ANEXOS



Royal
Technologies S.A.
Proyecto Cultural Resguardo a 1992

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Expediente No		04097205	No de Follo
Item		No de unidades	
1	CD		
2	DVD		
3	REVISTA		
4	LIBRO		
5	PERIODICO		
6	DISQUETES		
7	SOBRE DE MANILA		
8	SOBRE BLANCO TAMAÑO CARTA	1	
9	SOBRE BLANCO TAMAÑO OFICIO		
10	OTROS:		

Observaciones:

Arte Pinal

141
2

SUPERINDUSTRIA Y COMERCIO
Radicación : 04037205 00000000 Folios: 141
Fecha (AMB): 2004-09-29 17:23:40
Trámite : 011 PCT-PATENT 379 FASE NACI 411 PRESENTAC
Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

NIT : 800176089-2

RECIBO OFICIAL DE CAJA : 04 - 75,085
FECHA : SEPTIEMBRE 27 DE 2004

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PAGO	Vr. PAGO
CAVELIER ABOGADOS	CONSIGNACION	BANCO POPULAR	050-00110-6	32758684	27/09/2004	39,426,000.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01 SOLICITUDES	1 TRAMITES DE SOL. DE PATENTE DE IN	422,000.00
		TOTAL :	\$ 422,000.00

SOM: CUATROCIENTOS VEINTIDOS MIL PESOS



RESPONSABLE : _____

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

Cdo 11256-841-052-9

142

REQUISITOS NECESARIOS PARA PRESENTACION Y AGILIZACION DEL TRAMITE

PATENTE DE INVENCION

MODELO DE UTILIDAD

- Indicacion de que se solicita la concesion de una patente
- Datos de identificacion del solicitante o de la persona que presenta la solicitud
- Descripcion de la invencion
- Dibujos de las partes pertinentes
- Comprobante de pago de las tasas establecidas

COMPLETA

INCOMPLETA

DISENO INDUSTRIAL

- Indicacion de que se solicita el registro de Diseo Industrial
- Datos de identificacion del solicitante o de la persona que presenta la solicitud
- Representacion grafica o fotografica del Diseo Industrial o muestra del material que incorpora el diseo
- Comprobante de pago de las tasas establecidas

COMPLETA

INCOMPLETA

ESQUEMA DE TRAZADO

- Indicacion de que solicita el registro de un Esquema de trazado
- Datos de identificacion del solicitante o de la persona que presenta la solicitud
- Representacion grafica del esquema de trazado
- Comprobante de pago de las tasas establecidas

COMPLETA

INCOMPLETA

Firma Responsable:

Fecha:

SUPERINDUSTRIA Y COMERCIO
Radicaion : 84937295 00000000 Folios: 141
Fecha (AMR): 2004-03-23 17:23:40
Tramite : 011 PCT-PATENT 379 FASE HACI 411 PRESENTM
Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

2020

Bogotá D C

Doctor(a)
EMILIO FERRERO
Apoderado
RAVGEN

Oficio N° **0049**

ASUNTO:

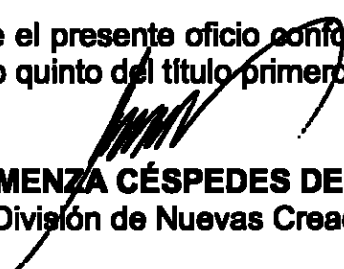
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Solicitud internacional	PCT/US03/06198
Fecha inicio fase nacional	2004-11-02
Trámite	011
Evento	379
Actuación	430
Folios	001

Como resultado del examen de forma, realizado con fundamento en el artículo 38 de la Decisión 486 de la Comisión de la Comunidad Andina, artículo 27 del Tratado de Cooperación en Materia de Patentes (PCT), regla 51 bis del Reglamento y Circular Única de la Superintendencia de Industria y Comercio, se le comunica que:

- La solicitud no contiene copia del documento en que consta la cesión del derecho de patente del inventor al solicitante o a su causante (Art. 26-k Decisión 486).

En cumplimiento de lo dispuesto por el artículo 39 de la Decisión 486, se le requiere para que dentro del término de dos meses siguientes a la fecha de notificación del presente oficio, complete los requisitos anteriormente enunciados. En caso de no dar cumplimiento al presente requerimiento, la solicitud se considerará abandonada y perderá su prelación.

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 la División de Nuevas Creaciones.

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

202063 **29 OCT. 2004.**