

10.



Industria y Comercio
SUPERINTENDENCIA

PCT

SOLICITUD

PATENTE DE INVENCION

03-27229

21. EXPEDIENTE N°

54. TÍTULO

ARTICULO ABSORBENTE CON MEDIOS DE ESPACIAMIENTO EN ELASTICO
DE BARRERA PARA CREAR CANALES QUE CONDUCE FLUIDO

51. CLASIFICACIÓN INTERNACIONAL

A61F 13/475 3 A61F 13/494

71. SOLICITANTE

SCA HYGIENE PRODUCTS AB.

DOMICILIO

Goteborg, Suecia.

74. APODERADO

EMILIO FERRERO

Código No. 1092

22. BOGOTÁ, D. C.



Industria y Comercio 03 027229 00

SUPERINTENDENCIA

PETITORIO

SUPERINDUSTRIA Y COMERCIO

Radicación : 03027229 00000000

Folios: 35

Fecha (MD): 2003-04-01 16:42:00

Trámite : 011 PCT-PATENT 379 FASE NNCI 411 PRESENTAC

Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

FORMULARIO UNICO DE SOLICITUD DE PATENTE
PCT
ENTRADA EN FASE NACIONAL

1 SOLICITUD DE:			
☒ Patente de Invención.		☐ Patente de Modelo de Utilidad.	
☐ Capítulo I.		☒ Capítulo II.	
2 SOLICITANTE (71)	Nombre: SCA HYGIENE PRODUCTS AB sociedad constituida y existente bajo las leyes de Suecia. Dirección: 405 03 Göteborg, Suecia. Domicilio: Göteborg, Suecia.	IDENTIFICACION C.C. ☐ NIT ☐ C.E. ☐ Otro ☐ Cual _____ Número: _____	
3 REPRESENTANTE O APODERADO	Nombre: EMILIO FERRERO Dirección: Carrera 4ª. No. 72-35 Teléfono: 347 36 11 Fax: 217 92 11 E-mail: clientes@camyp.com. Domicilio: Bogotá, Colombia.	IDENTIFICACION C.C. ☒ NIT ☐ C.E. ☐ Otro ☐ Cual _____ Número: 438.019 T.P. 31.929	
4 INVENTOR (ES) (72)	Solgun DREVIK Hulebäcksvägen 16, SE 435 35 Mölnlycke, Suecia.		
5 PCT (86) Solicitud Internacional No. <u>PCT/SE01/02090</u> Fecha: <u>28 de septiembre de 2001</u> Publicación Internacional No. <u>WO 02/28334 A1</u> Fecha: <u>11 de abril de 2002</u>			
6 Título (54) <u>ARTICULO ABSORBENTE CON MEDIOS DE ESPACIAMIENTO EN ELÁSTICO</u> <u>DE BARRERA PARA CREAR CANALES QUE CONDUCE FLUIDO</u>			
7 Clasificación Internacional (51) <u>A61F 018/475 , 43/494</u>			
8 Prioridad SI ☒ NO ☐	(33) País de Origen <u>SE.</u>	(32) Fecha <u>2 de octubre de 2000</u>	(31) Número de Solicitud <u>0003522-0</u>

0002/28334

9

Comprobante de pago No.: 03-21.919 Fecha: 25 de marzo de 2003

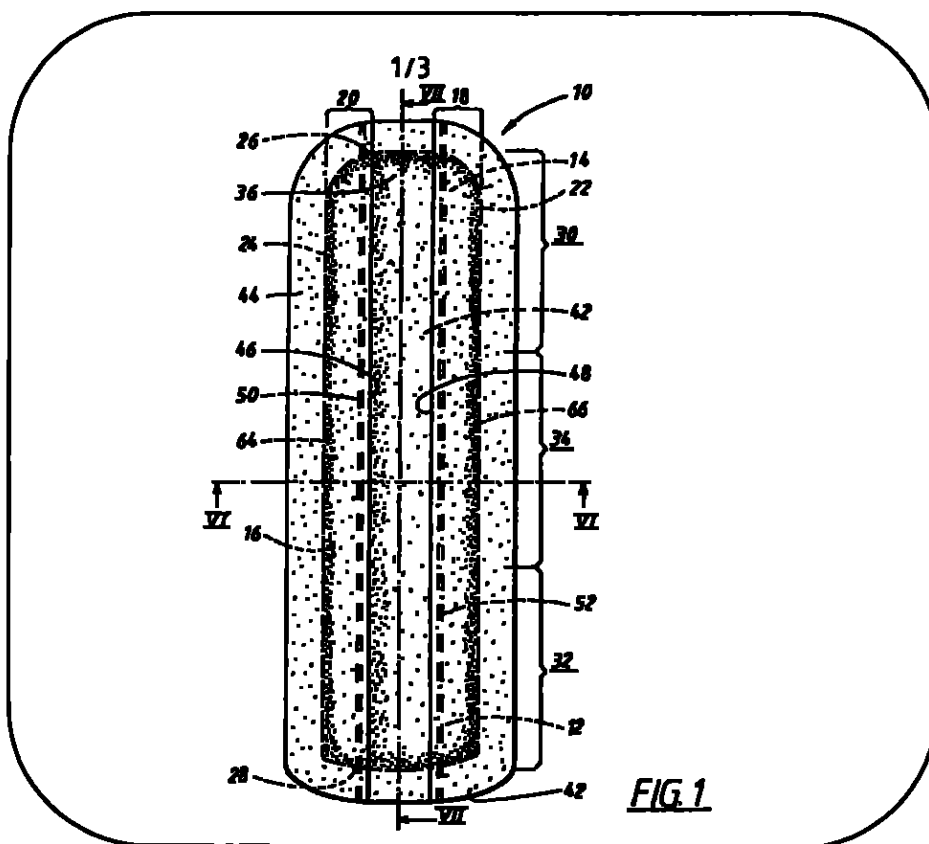
10

Anexos:

- ☒ Comprobante de pago de la tasa de presentación de la solicitud por \$ 400.000.oo.
- ☐ 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

11

FIGURA CARACTERISTICA:



12

Solicito la conceaión de la patente,

NOMBRE: EMILIO FERRERO

FIRMA : 
C.C. 438.019 de Usaquén T.P. 31.929

JBP/mrm-Id-705

REPRESENTACION Y PODER

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.

REPRESENTATION AND
POWER OF ATTORNEY

11156
0131

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

of / domiciliado (s) en \$405 03 Goteborg,
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, desistir, 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, or 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 of 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, to obtain the protection of my (our) property against the unfair competition, for which purpose we authorize the said attorneys to represent me (us) before 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, renewal, assignment, change of name or domicile, voluntary cancellation; and the registration of licenses 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

Firma

Bengt Forshult
Head of Patent Department

SCA Hygiene Products AB

CAVELIER ABOGADOS
VOTPODERE-17 (MINUTA 12.1.1.2.5)

TRADUCCION No. 1707199
MARIA ELVIA MARTELO
Traductora e Interprete Oficial
Inglés - Español - Inglés
Res. No. 2879 Min. Justicia

LEGALIZACION

LEGALIZATION

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).

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: 1707/99

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

NO SE ASUME
RESPONSABILIDAD DEL TEXTO
2000 FEB 14 A 11:50
DE LEGALIZACIONES
CALLE DE BOGOTÁ 140 C

MINISTERIO DE RELACIONES
EXTERIORES

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

HYGIENE PRODUCTS AKTIEBOLAG - Org.No. 556007-2356

According to a Swedish Certificate of Registration, dated

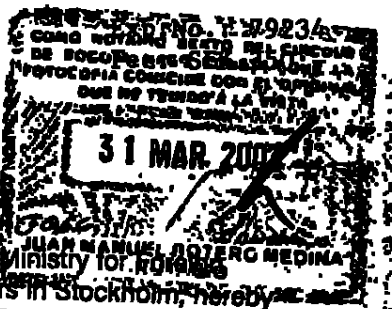
1998-07-20, Bengt Forshult is duly authorized

to sign such a document on behalf of the company.

Gothenburg, this 25th day of February 1999

Exhibits:

RICKARD STRÖM



No. 1207
The Ministry for Foreign Affairs in Stockholm, hereby certifies that
Mr. Rickard Ström
Notary Public of
Gothenburg
has issued and signed the foregoing attestation in his official capacity

Fee Stockholm this 2nd day of March

Kr 120/- PAID 1977

Inger Högberg

MARIA SMITH RUEDA
Encargada de las Funciones Consulares

MA Smith R

Fecha 1999-03-05

No. 022

que el señor Bengt Forshult
C E R T I F I C A :
quien firma el documento se antecede
elegida por la
Representante
de la Sociedad SCA Hygiene Products
Aktiebolag
que existe en la ciudad de las leyes de
según se ha probado en los documentos que
tuve a la vista

PAGADO
Impugnación de timbre
Dinero Consular
Dien
dólares US\$ 7
dólares US\$ 100

EL CONSUL DE COLOMBIA

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

202837
Mglio Smith Rueda
Cuya firma aparece en el
DOCUMENTO DESEMPEÑA
LAS FUNCIONES INDICADAS

MINISTERIO DE RELACIONES
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ANULADO
JUL 20 1996
Cuya firma aparece en el
DOCUMENTO DESEMPEÑA
LAS FUNCIONES INDICADAS

TRADUCCION No. 1707199
MARIA ELVIRA MARTELO
Traductora e Interprete Oficial
Inglés - Español - Inglés
Res. No. 2879 Min. Justicia

COPIO NOTARIO DENTRO DEL CIRCULO
DE BORDA, HAGO CONSTAR QUE LA
FOTOCOPIA CONCORDA CON EL ORIGINAL
QUE HE TENIDO A LA VISTA
31 MAR 2003
JUAN MANUEL POTENCIO MEDINA
NOTARIO



EL CONSULADO DE COLOMBIA EN
ESTOCOLMO, SUECIA

Fecha.....1999-07-01..... No:.....001329

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

Impe. Högborg, Min. Relaciones
Exteriores, Suecia

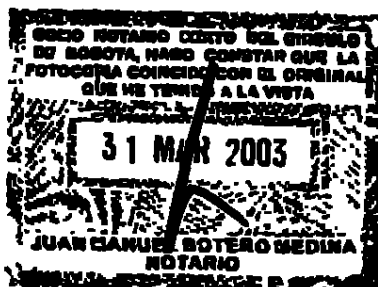
M. Smith

MARIA SMITH-RUEDA
Encargada de las Funciones Consulares

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



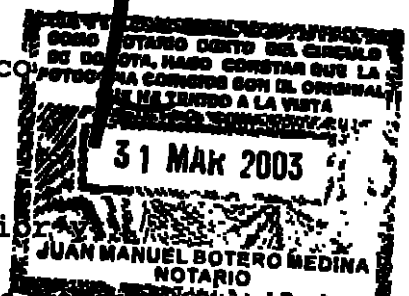
TRADUCCION No: 1729/99
MARIA ELVIRA MARTELO
Traductora e Interprete Oficial
Inglés - Español - Inglés
Res. No. 2879 Min. Justicia



6

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 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 officio: (Firma ilegible), RICKARD STRÖM (Sello notarial).

Exp. No.: 79234

Derechos: SEK 350:-.

No. 3066

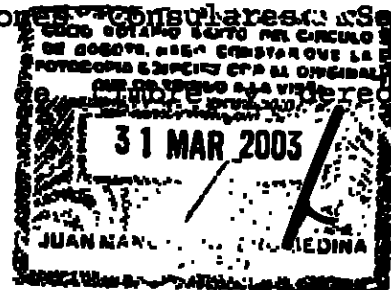
El Ministerio de Relaciones Exteriores en Estocolmo por el presente certifica que el Sr. Rickard Ström, Notario Público de Goteborg, ha expedido y firmado la declaración anterior en su capacidad oficial.

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

el MINISTERIO DE RELACIONES EXTERIORES bajo el No. 119916 del 14 de febrero del 2000, firmado por el Jefe de Legalizaciones.

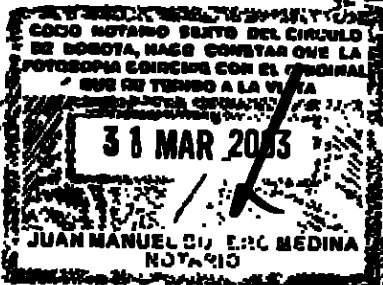
Es traducción fiel y completa de la cual se deja copia en esta oficina para su confrontación.

COLO 11256-801-014-7

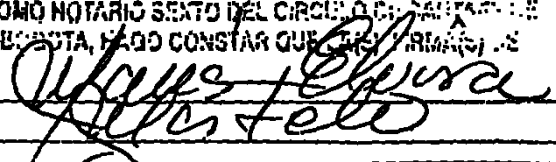
Id. 108

Feb. 15/00

Maria Elvira Martelo
TRADUCCION No. 110719
MARIA ELVIRA MARTELO
Traductora e Interprete Oficial
Inglés - Español - Inglés
Res. No. 2879 Min. Justicia



MINISTERIO GENERAL DE
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220552
C/ VIRA MARTELO
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RESPONSABILIDAD DEL TEXTO
2000 FEB 15/00 12/02
Jefe de Legalizaciones
SANTIAGO DE BOGOTÁ

COMO NOTARIO SEXTO DEL CIRCULO DE SANTAFE DE
 BUENOS AIRES, HAGO CONSTAR QUE LAS FIRMAS DE

 CONCIERDEN CON LA FIRMA REGISTRADA POR
 EL (ELLOS) EN ESTA NOTARIA
 SANTAFE DE BUENOS AIRES
 16 FEB 2003



COMO NOTARIO SEXTO DEL CIRCULO
 DE SANTAFE DE BUENOS AIRES, HAGO CONSTAR QUE LA
 FOTOCOPIA CONCORDA CON EL ORIGINAL
 QUE SE LEGIMO A LA VISTA
 31 MAR 2003
 JUAN MANU. NOT. P.D. MEDINA

SECRETARIA
 DE NOTARIA

20125

20125

(19) World Intellectual Property Organization
International Bureau



INTERNATIONAL PATENT COOPERATION TREATY (PCT)

(43) International Publication Date
11 April 2002 (11.04.2002)

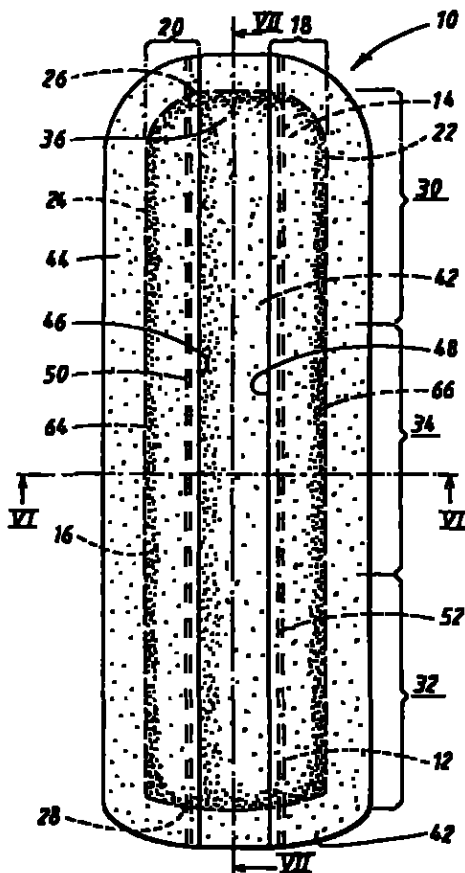
PCT

(10) International Publication Number
WO 02/28334 A1

- (51) International Patent Classification⁷: A61F 13/475, 13/494
- (72) Inventor: DREVIK, Solgun; Hulebäcksvägen 16, S-435 35 Mölnlycke (SE).
- (21) International Application Number: PCT/SE01/02090
- (74) Agents: ALBIHNS GÖTEBORG AB et al.; P.O. Box 142, S-401 22 Göteborg (SE).
- (22) International Filing Date:
28 September 2001 (28.09.2001)
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, ~~CO~~, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, 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, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.
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0003522-0 2 October 2000 (02.10.2000) SE
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
- (71) Applicant: SCA HYGIENE PRODUCTS AB [SE/SE];
S-405 03 Göteborg (SE).

[Continued on next page]

(54) Title: ABSORBENT ARTICLE WITH SPACING MEANS IN BARRIER ELASTIC TO CREATE FLUID CONDUCTING CHANNELS



(57) Abstract: The invention refers to an absorbent article (10) such as a sanitary napkin, where said article comprises an elongate absorbent core (12) delimited by an upper surface (14) and a lower surface (16). A pair of opposed longitudinal edge portions (18, 20) terminates in longitudinal edges (22, 24), and a pair of opposed transverse edges (26, 28). Said core has a first end portion (30), a second end portion (32) and a central portion (34) located between said end portions. A liquid permeable topsheet (36) extends over said upper surface (14), and a liquid barrier backsheet (42) covers said lower surface (16) of said absorbent core (12). Barrier strips (46, 48), each strip covering a respective longitudinal edge portion (18, 20) forms liquid-retaining pockets (64, 66) along each longitudinal edge portion. A pair of longitudinal elastic members (50, 52) is arranged along said barrier strips (46, 48) that are placed along each longitudinal edge portion (18, 20) of said absorbent core in at least said central portion (34) of said absorbent core. The invention is characterized in that the elastic members (50, 52) include spacing means (60) arranged at a distance from each other along the length of the elastic members (50, 52) to create fluid conducting channels (62).

WO 02/28334 A1

— **with amended claims and statement**

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

— **with international search report**

**Absorbent article with spacing means in barrier elastic to create fluid
conducting channels**

TECHNICAL FIELD:

The present invention relates to an absorbent article such as a sanitary
5 napkin. The article comprises an elongate absorbent core delimited by an
upper surface and a lower surface, a pair of opposed longitudinal edge
portions terminating in longitudinal edges, and a pair of opposed transverse
edges. Said core has a first end portion, a second end portion and a central
portion located between said end portions. A liquid permeable topsheet
10 extends over said upper surface, and a liquid barrier backsheet covers said
lower surface of said absorbent core. Barrier strips are provided, each strip
covering a respective longitudinal edge portion and forming a liquid-retaining
pocket along each longitudinal edge portion. A pair of longitudinal elastic
members is arranged along said barrier strips that are placed along each
15 longitudinal edge portion of said absorbent core in at least said central
portion of said absorbent core.

BACKGROUND OF THE INVENTION:

A common problem associated with an absorbent article such as a diaper or
20 an incontinence pad, which is intended to absorb body fluid, is that fluid leaks
out past the side edges of the article. Such leakage is particularly common
when gushes of urine are delivered in a short time period and with a high
fluid pressure. During urination, the absorbent core cannot instantly absorb
all the fluid, which leads to an excessive amount of fluid that flows over the
25 surface of the absorbent article towards the edges not only in the central
portion. To help prevent side leakage, it is customary to arrange different
types of leakage barriers along the side edges of the article. For example,
diapers and incontinence pads are often provided with elastic members
which, while the article is being used, are tightened around the user's body
30 and hold the side edges of the article in sealing contact against the body.
Elastic members can also be used to form raised edge barriers. It is also
possible to create raised barriers in other ways, for example by providing

ridges or the like, which prevent liquid from flowing freely over the side edges of the article.

However, it has been found that despite all the efforts, which have hitherto
5 been made to avoid leakage at the side edges, the problem still remains, especially in certain applications. This problem is, for instance, troublesome for bedridden individuals since the risk of leakage increases considerably when the user is lying in a side position. Body fluid which is excreted in this position runs out and gathers, by the effect of gravity, at the longitudinal side
10 edge of the article, where the available absorption material quickly becomes oversaturated with liquid. The remaining liquid that is not absorbed can run freely along the side edge. The risk is of course great that this liquid will be forced out over the side edge of the article and escape if the user moves in such a way that a gap is formed between the article and the user's body.

15

Conventional hygienic absorbent articles such as sanitary napkins, incontinence pads and the like are provided with an absorbent core which, in theory, is capable of absorbing all the fluid normally discharged by the wearer over an intended exposure time of the article. However, leakage can arise if
20 the absorbent article is not maintained in proper relation with the wearer. One attempt to overcome this problem is to provide a sanitary napkin with so called wings. However, winged sanitary napkins also suffer from certain drawbacks. For example, if a particularly heavy discharge occurs, fluid may spread over the topsheet of the napkin and escape over the wings to thereby
25 stain adjacent clothing. In addition, many wearers regard winged sanitary napkins as being too indiscreet.

Due to their relative narrowness, when sanitary napkins do leak this generally occurs at the side edges. Many attempts have been made to overcome the
30 problem of edge leakage, for example by using strips of resilient material in at least the central portion of the absorbent article which increases the shape stability of the article in the strike zone, i.e. that region of the absorbent article



which is first contacted by discharged bodily fluid. In this manner, the risk of bunching of the absorbent article is significantly reduced. In addition, the resilient strips press the longitudinal edges of the absorbent article towards the wearer, thereby causing the article to more readily mould to the body of the wearer. Since the strips need not extend along the entire length of the article, the article may be worn discretely. Advantageously, the remote ends of the strips may serve to impart a bowl-shape to the article to further conform the article to the shape of the wearer.

However, standing gathers is a collective name for these different types of elasticated leakage barriers along the side edges of the article, and they suffer from certain drawbacks. For example, if the standing gathers are subject to an excessive amount of external pressure due to, for example, tight trousers, a soft mattress, when the user is in a vertical position or sitting on a bicycle saddle, the standing gathers will be compressed and thereby somewhat closed, whereby the fluid is prohibited from flowing into the pockets formed by the standing gathers.

Whilst absorbent articles having elasticated side barriers may exhibit improved side edge leakage protection when compared to an absorbent article without elasticated side barriers, a need still exists for an absorbent article which further reduces the risk of side edge leakage whilst still being sufficiently discrete to satisfy the majority of wearers. It is therefore an object of the present invention to provide an absorbent article that meets these requirements.

SUMMARY OF THE INVENTION:

The present invention relates to an absorbent article such as a sanitary napkin. The article comprises an elongate absorbent core delimited by an upper surface and a lower surface, a pair of opposed longitudinal edge portions terminating in longitudinal edges, and a pair of opposed transverse edges. Said core has a first end portion, a second end portion and a central

portion located between said end portions. A liquid permeable topsheet extends over said upper surface, and a liquid barrier backsheet covers said lower surface of said absorbent core. Barrier strips are provided, each strip covering a respective longitudinal edge portion and forming a liquid-retaining pocket along each longitudinal edge portion. A pair of longitudinal elastic members is arranged along said barrier strips that are placed along each longitudinal edge portion of said absorbent core in at least said central portion of said absorbent core.

10 The above-stated objects are achieved in accordance with the present invention, according to claim 1, by said absorbent article being characterised in that the elastic members include spacing means arranged at a distance from each other along the length of the elastic members. The spacing means creates fluid conducting channels that allows fluid to pass under the barrier strips into said pockets, even if the barrier strips are pressed against the top sheet due to an external force, e.g. if the user is sitting or wears tight trousers.

The elastic members may be in different shapes according to different embodiments of the invention. For instance, the elastic members may be in the shape of a string of beads, or in the shape of a string of short cylinders, or in the shape of a string of long cylinders, or there may be a distance material in the form of long cylinders placed within the barrier strips, in a direction from the centre of the sanitary napkin to the longitudinal sides of the sanitary napkin.

The elastic members not only serve as means for creating channels, but may also bend the sanitary napkin into a cup-shape preferably at least partially coinciding with the wetting area.

30 Preferred embodiments will become evident by the subsequent dependent claims.

BRIEF DESCRIPTION OF THE DRAWINGS:

The invention will be described in the following by way of example only and with reference to the attached drawings, in which:

- 5 Fig. 1 is a schematic plan view of an absorbent article;
- Fig. 2 is a schematic view of an elastic member according to the invention;
- 10 Fig. 3 is a schematic view of an elastic member according to a second embodiment of the invention;
- Fig. 4 is a schematic plan view of an absorbent article according to a third embodiment;
- 15 Fig. 5 is a schematic view of an elastic member according to the third embodiment of the invention;
- Fig. 6 is a schematic view of a sectional view on a larger scale along line VI-VI of Fig. 1, and
- 20 Fig. 7 is a schematic view of a sectional view on a larger scale along line VII-VII of Fig. 1.

25 DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS:

In the figures, the reference numbers that recur in the different figures refer to the same feature, and additional features in different embodiments are designated new reference numbers.

- 30 As is apparent from Fig. 1, reference numeral 10 generally denotes an absorbent article according to the invention. The absorbent article 10 may be a sanitary napkin having an elongate absorbent core 12 delimited by an

upper surface 14 and a lower surface 16, and the core 12 may be any conventional absorbent core. The absorbent core further includes opposed longitudinal edge portions 18, 20 terminating in longitudinal edges 22, 24, and a pair of opposed transverse edges 26, 28. The core is made up of a first
5 end portion 30, a second end portion 32 and central portion 34 located between the end portions. In use, the sanitary napkin is intended to be placed relative the wearer so that the strike zone lies within the central portion 34.

10 As is typical in the art, the absorbent article 10 is further provided with a liquid permeable topsheet 36 extending over the upper surface 14 of the absorbent core 12. The topsheet 36 may be any conventional topsheet. For example, it may be made from a multi-apertured plastics film, or a non-woven material. The absorbent article may also comprise a liquid barrier backsheet 42
15 extending over the lower surface 16 of the absorbent core 12. The backsheet 42 may be joined to the topsheet 36 to form a peripheral margin 44 around preferably the entire absorbent core 12. On the backsheet 42, there may be fastening means 68 attached for an increased possibility to fasten the absorbent article to the clothing closest to the wearers body. The fastening
20 means may be an adhesive, mechanical fastening means such as Velcro or another fastening means suitable for the purpose.

The sanitary napkin 10 further comprises a pair of two longitudinal barrier strips 46, 48, with each sheet covering a longitudinal edge portion 18, 20 of
25 the permeable topsheet 36, that forms pockets 64, 66 between the top sheet 36 and the barrier strips 46, 48 along the side edges. The barrier strips 46, 48 may be of either a liquid barrier material or a material that at least resists fluid penetration, e.g. a non-woven hydrophobic fibrous web or another material suitable for the purpose. It is an advantage if the barrier material is
30 breathable, i.e. will permit the passage of air and water vapour. Since the barrier strips 46, 48 may be joined with the peripheral margin 44, the pockets 64, 66 along the edge portions 18, 20 may be seen as enclosed by the

barrier strips 46, 48 and the topsheet 36. A pair of pretensioned, longitudinal elastic members 50, 52 are arranged along the barrier strips 46, 48 of the sanitary napkin 10. The elastic members 50, 52 are designed to curve the sanitary napkin 10 to the shape of the user's body and at the same time they
5 constitute means for raising the barrier strips 46, 48 from the upper surface 14 of the sanitary napkin 10. Thus, the elastic members 50, 52 serve to hold the barrier strips 46, 48 of the sanitary napkin 10 in contact against the user's body, in order to ensure that, during use, no gap arises between the sanitary napkin 10 and the user's body, through which gap body fluid could leak from
10 the sanitary napkin 10. Since the material of the barrier strips 46, 48 is primarily hydrophobic, migrating body fluids tend to flow through the absorbent core rather than through the resilient barrier strips 46, 48. Since the barrier strips 46, 48 serve to conceal the longitudinal edge portions 18, 20, any collection of fluid at the edge portions is concealed, thereby imparting
15 an impression of increased safety and cleanliness to the wearer.

Advantageously, the elastic members 50, 52 are made of a three dimensional elastic material such as an elastic polymer, elastic non-woven fibrous plastic, elastic foam, silicone, rubber or another material suitable for
20 the purpose.

In accordance with the present invention, and as best illustrated in Figures. 2, 6 and 7, the elastic members 50, 52 are in the form of a string of beads 54 as illustrated in Fig. 3. The beads 54 serve as a spacing means 60 (as
25 illustrated in Fig. 6 and 7) between the barrier strips 46, 48 and the top sheet 36 and will create fluid conducting channels 62 (as illustrated in Fig 7) between the barrier strips 46, 48 and the top sheet 36 in a direction from the centre of the sanitary napkin 10 to the longitudinal sides of the sanitary napkin 10. The channels 62 are especially advantageous when the barrier
30 strips 46, 48 are pressed against the top sheet 36 and the upper surface 14 of the absorbent core 12, by an external force, e.g. tight trousers, or if the user is sitting down. The channels 62 then allows migrating body fluids to

flow under the barrier strips 46, 48 even when the barrier strips 46, 48 are pressed against the top sheet 36, thereby increasing the flow through the absorbent core 12 rather than through the barrier strips 46, 48 or over the barrier strips 46, 48. Since the barrier strips 46, 48 serve to cover the longitudinal edge portions 18, 20, and to seal the sanitary napkin 10 against the user's body, any transport of fluid towards the sides of the sanitary napkin is guided via the channels 62 into the pockets 64, 66 which are formed beneath the barrier strips 46, 48 and down through the absorbent core 12, even when the barrier strips 46, 48 are pressed against the top sheet 36, thereby diminishing the risk of side leakage.

The beads 54 may alternatively have other cross-sectional shapes, such as an oval shape. The beads may also have different diameters and/or different cross sections in the same string of beads.

15

The string of beads 54 according to the present invention, may be created by, for example, point sealing of a three dimensional elastic thread such as an elastic polymer, elastic non-woven fibrous plastic, elastic foam, silicone, rubber or another material suitable for the purpose or two elastic webs with non-elastic spacers between.

20

In a second embodiment of the invention, and as illustrated in Fig. 3, 6 and 7, the elastic members 50, 52 are broader than in the first embodiment and they are in the form of a string of short cylinders 56. The short cylinders 56 serve as a spacing means 60 (as illustrated in Fig. 6 and 7) between the barrier strips 46, 48 and the top sheet 36, and will create channels 62 between the barrier strips 46, 48 and the top sheet 36 in a direction from the centre of the sanitary napkin 10 to the longitudinal sides of the sanitary napkin 10, and serves the same purpose as in the first embodiment. Here, short cylinder means a cylinder having a length less than the cylinder diameter. The cylinders may alternatively have other cross-sectional shapes, such as an

25

30

oval shape. The cylinders may also have different diameters and/or different cross sections in the same string of cylinders.

5 The string of short cylinders 56 according to the second embodiment of the invention, may be created by, for example, point sealing of a three dimensional elastic thread such as an elastic polymer, elastic non-woven fibrous plastic, elastic foam, silicone, rubber or another material suitable for the purpose or two elastic webs with non-elastic spacers between.

10 In a third embodiment of the invention, and as illustrated in Fig. 4, 5 and 7, the elastic members 50, 52 are even broader than in the second embodiment and they are in the form of a string of long cylinders 58. The long cylinders 58 serve as a spacing means 60 (as illustrated in Fig. 7) between the barrier strips 46, 48 and the top sheet 36, and will create channels 62 between the
15 barrier strips 46, 48 and the top sheet 36 in a direction from the centre of the sanitary napkin 10 to the longitudinal sides of the sanitary napkin 10, and serves the same purpose as in the second embodiment. Here, long cylinder means a cylinder length longer than the cylinder diameter. The cylinders may alternatively have other cross-sectional shapes, such as an oval shape. The
20 cylinders may also have different diameters and/or different cross sections in the same string of cylinders.

The string of long cylinders 58 according to the third embodiment of the invention, may be created by, for example, point sealing of a three
25 dimensional elastic thread such as an elastic polymer, elastic non-woven fibrous plastic, elastic foam, silicone, rubber or another material suitable for the purpose or two elastic webs with non-elastic spacers between.

In a fourth embodiment of the invention, not shown in the figures even though
30 Fig. 4, 5 and 7 illustrate the fourth embodiment schematically, the string of long cylinders 58 according to the third embodiment of the invention may be substituted by a distance material in the form of long cylinders (not shown)

and elastic members, e.g. the elastic members 50, 52 previously mentioned. The cylindrical distance material is placed within the barrier strips 46, 48 or in a manner suitable for the purpose of using the distance material to create channels 62 between the barrier strips 46, 48 and the top sheet 36 in a direction from the centre of the sanitary napkin 10 to the longitudinal sides of the sanitary napkin 10. The elastic members 50, 52 may be a pair of pretensioned, longitudinal elastic members 50, 52 that are arranged along the barrier strips 46, 48 of the sanitary napkin 10. The elastic members 50, 52 are designed to curve the sanitary napkin 10 to the shape of the user's body and at the same time they constitute means for keeping open the side pockets 64, 66 created beneath the barrier strips 46, 48 and the sanitary napkin 10.

The distance material in the form of long cylinders according to the fourth embodiment of the invention may alternatively have other cross-sectional shapes, such as an oval shape. The distance material may also have different diameters and/or different cross sections in the barrier strips 46, 48.

The long cylinders according to the fourth embodiment of the invention, may be a three dimensional elastic thread such as an elastic polymer, elastic non-woven fibrous plastic, elastic foam, silicone, rubber or another material suitable for the purpose or two elastic webs with non-elastic spacers between.

The short and the long cylinders may be up to 50 mm long.

For ease of manufacturing and to ensure that the risk of edge leakage anywhere along the length of the absorbent article is minimal, the barrier strips 46, 48 and thus, the liquid-retaining pockets 64, 66 preferably extend along the entire length of the absorbent core. However, since the shape stability of the absorbent article is most critical only in the central portion 34 of the absorbent core, the barrier strips 46, 48 and the elastic members 50,

52 need only occupy said central portion, which often is the case in the use of sanitary napkins or panty liners. However, if desired, the barrier strips 46, 48 and the elastic members 50, 52 may extend into the first and second end portions 30, 32, which often is the case in the use of incontinent articles or
5 diapers, where it is possible to tighten the sides of the absorbent article around the body of the user, which normally is not the case in the use of sanitary napkins or panty liners. Further incontinent articles and diapers are subject to a larger amount of fluid during rather high pressure when the user urinates, compared to the smaller sanitary napkins and panty liners which
10 normally are not used for incontinent protection. During urination, the absorbent core 12 cannot instantly absorb all the fluid, which leads to an excessive amount of fluid that spreads over the surface of the absorbent article towards the edges not only in the central portion 34. This increases the need to have a sufficient edge leakage protection such as the barrier
15 strips 46, 48 and thus, the liquid-retaining pockets 64, 66, preferably extending along the entire length of the absorbent core.

The absorbent article according to any one of the preceding embodiments is characterized in that the thickness of the spacing means 60 is at least 1 mm,
20 and that the thickness of the spacing means 60 defines the maximum height of the channel. The thickness of the spacing means also means the diameter when the spacing means are cylindrical or spherical.

Advantageously, the central portion 34 of the absorbent core 12 comprises
25 between 20% and 60%, preferably between 30 and 45%, and most preferably about one third, of the length of the absorbent core.

Obviously, the substantially hydrophobic barrier strips 46, 48 and the elastic members 50, 52 may not extend over the entire width of the absorbent core
30 since this would prevent passage of body fluids into the absorbent core 12. Accordingly, each side edge 46, 48 and elastic member 50, 52 has an extension transversely across the absorbent core, with the extension being

between 5% and 25% of the total width of the sanitary napkin at the wetting area.

5 The distance between the spacing means 60, i.e. the width of the channel, is 1-20 mm.

The invention is not restricted to the embodiments described above and shown in the drawings, but may be modified within the scope of the appended claims. For example, the absorbent article may be a sanitary
10 napkin, a diaper, an incontinent protection article, a panty liner or any absorbent article suitable for the purpose. The absorbent article is not restricted to any shape or configuration, but may be of any shape suitable for the purpose, e.g. triangular, hour-glass shaped or rectangular. Also, the elastic members and the distance material may be of a stiff material, i.e. the
15 side barriers with the distance material will still create the channels for transporting the fluids. The sanitary napkin may also be equipped with wings.

At least the longitudinal edge portion 18, 20 of the absorbent article may be made profiled and may include spacing means arranged at a distance from
20 each other along the length of the longitudinal edge portion 18, 20 to create fluid conducting channels. The longitudinal edge portion 18, 20 may be made profiled by a groove compression of the topsheet 36 or by a groove compression of a suitable part of the absorbent core 12. The groove compression compresses the material in certain parts with a certain distance
25 between the compressed parts, and the spacing means consists of the uncompressed parts. The longitudinal edge portion 18, 20 may also be made profiled by inserting a distance material in the topsheet 36 or in the absorbent core. The profiling of the absorbing article is not limited to the longitudinal edge portion 18, 20, but the whole upper surface may be profiled by any of
30 the above described techniques.

CLAIMS:

1. An absorbent article (10) such as a sanitary napkin, said article comprising:
 - 5 an elongate absorbent core (12) delimited by an upper surface (14) and a lower surface (16), a pair of opposed longitudinal edge portions (18, 20) terminating in longitudinal edges (22, 24), and a pair of opposed transverse edges (26, 28), said core having a first end portion (30), a second end portion (32) and a central portion (34) located between said end portions;
 - 10 a liquid permeable topsheet (36) extending over said upper surface (14), and
 - a liquid barrier backsheet (42) covering said lower surface (16) of said absorbent core (12),
 - barrier strips (46, 48), each strip covering a respective
 - 15 longitudinal edge portion (18, 20) and forming liquid-retaining pockets (64, 66) along each longitudinal edge portion,
 - a pair of longitudinal elastic members (50, 52) is arranged along said barrier strips (46, 48) that are placed along each longitudinal edge portion (18, 20) of said absorbent core in at least said central portion (34) of
 - 20 said absorbent core, characterized in, that the elastic members (50, 52) include spacing means (60) arranged at a distance from each other along the length of the elastic members (50, 52) to create fluid conducting channels (62).
- 25 2. The absorbent article according to claim 1, characterized in, that the elastic members (50, 52) is in the shape of a string of beads (54) and that the spacing means (60) consists of the beads (54).

3. The absorbent article according to claim 1,
characterized in, that the elastic members (50, 52) is in the shape of
a string of short cylinders (56) having a length less than the cylinder diameter
and that the spacing means (60) consists of the short cylinders (56).

5

4. The absorbent article according to claim 1,
characterized in, that the elastic members (50, 52) is in the shape of
a string of long cylinders (58) having a length longer than the cylinder
diameter, and that the spacing means (60) consists of the long cylinders (58).

10

5. The absorbent article according to claim 1,
characterized in, that a distance material in the form of cylinders are
placed within the barrier strips (46, 48) in a direction from the centre of the
sanitary napkin (10) to the longitudinal sides of the sanitary napkin (10), and
15 that the spacing means (60) consists of the distance material.

6. The absorbent article according to any one of the preceding
claims, characterized in, that said barrier strips (46, 48) are primarily
hydrophobic.

20

7. The absorbent article according to any of the preceding claims
claim, characterized in, that said side elastic members (50, 52) is a
three dimensional non-woven fibrous plastic wadding or a foamed plastic.

25 8. The absorbent article according to any of the preceding claims,
characterized in, that said pockets (64, 66) extend along the entire
length of said absorbent core (12).

9. The absorbent article according to any of claims 1-7,
30 characterized in, that said pockets (64, 66) extend along the central
portion (34) of said absorbent core (12).

A2

10. The absorbent article according to any one of the preceding claims, characterized in, that said central portion (34) of said absorbent core comprises between 20% and 60%, preferably between 30 and 45%, and most preferably about one third, of the length of the absorbent
5 core (12).

11. The absorbent article according to any one of the preceding claims, characterized in, that said barrier strips (46, 48) has an extension transversely across said absorbent core (12), said extension being
10 between 5% and 25% of the total width of the sanitary napkin at the wetting area.

12. The absorbent article according to any one of the preceding claims, characterized in, that the thickness of the spacing means
15 (60) is at least 1 mm.

AMENDED CLAIMS

[received by the International Bureau on 05 March 2002 (05.03.02);
original claim 1 amended; remaining claims unchanged (1 page)]

1. An absorbent article (10) such as a sanitary napkin, said article comprising:

5 an elongate absorbent core (12) delimited by an upper surface (14) and a lower surface (16), a pair of opposed longitudinal edge portions (18, 20) terminating in longitudinal edges (22, 24), and a pair of opposed transverse edges (26, 28), said core having a first end portion (30), a second end portion (32) and a central portion (34) located between said end portions;

10 a liquid permeable topsheet (36) extending over said upper surface (14), and

a liquid barrier backsheet (42) covering said lower surface (16) of said absorbent core (12),

15 barrier strips (46, 48), each strip covering a respective longitudinal edge portion (18, 20) and forming liquid-retaining pockets (64, 66) along each longitudinal edge portion,

20 a pair of longitudinal elastic members (50, 52) is arranged along said barrier strips (46, 48) that are placed along each longitudinal edge portion (18, 20) of said absorbent core in at least said central portion (34) of said absorbent core, characterized in, that the elastic members (50, 52) include spacing means (60) arranged at a distance from each other along the length of the elastic members (50, 52) to create fluid conducting channels (62) in a direction from the centre of the absorbent article (10) to the longitudinal sides of the absorbent article (10).

25

2. The absorbent article according to claim 1, characterized in, that the elastic members (50, 52) is in the shape of a string of beads (54) and that the spacing means (60) consists of the beads (54).

AMENDED SHEET (ARTICLE 19)

AMENDED CLAIMS

[received by the International Bureau on 05 March 2002 (05.03.02);
original claim 1 amended; remaining claims unchanged (1 page)]

1. An absorbent article (10) such as a sanitary napkin, said article comprising:

5 an elongate absorbent core (12) delimited by an upper surface (14) and a lower surface (16), a pair of opposed longitudinal edge portions (18, 20) terminating in longitudinal edges (22, 24), and a pair of opposed transverse edges (26, 28), said core having a first end portion (30), a second end portion (32) and a central portion (34) located between said end portions;

10 a liquid permeable topsheet (36) extending over said upper surface (14), and

a liquid barrier backsheet (42) covering said lower surface (16) of said absorbent core (12),

15 barrier strips (46, 48), each strip covering a respective longitudinal edge portion (18, 20) and forming liquid-retaining pockets (64, 66) along each longitudinal edge portion,

20 a pair of longitudinal elastic members (50, 52) is arranged along said barrier strips (46, 48) that are placed along each longitudinal edge portion (18, 20) of said absorbent core in at least said central portion (34) of said absorbent core, characterized in, that the elastic members (50, 52) include spacing means (60) arranged at a distance from each other along the length of the elastic members (50, 52) to create fluid conducting channels (62) in a direction from the centre of the absorbent article (10) to the longitudinal sides of the absorbent article (10).

25

2. The absorbent article according to claim 1, characterized in, that the elastic members (50, 52) is in the shape of a string of beads (54) and that the spacing means (60) consists of the beads (54).

AMENDED SHEET (ARTICLE 19)

10. The absorbent article according to any one of the preceding claims, characterized in, that said central portion (34) of said absorbent core comprises between 20% and 60%, preferably between 30 and 45%, and most preferably about one third, of the length of the absorbent
5 core (12).

11. The absorbent article according to any one of the preceding claims, characterized in, that said barrier strips (46, 48) has an extension transversely across said absorbent core (12), said extension being
10 between 5% and 25% of the total width of the sanitary napkin at the wetting area.

12. The absorbent article according to any one of the preceding claims, characterized in, that the thickness of the spacing means
15 (60) is at least 1 mm.

STATEMENT UNDER ARTICLE 19 (1)

Claim 1 has been amended in order to clarify that the fluid conducting channels are created in a direction from the centre of the absorbent article to the longitudinal sides of the absorbent article. Support for this can be found on page 7, lines 28-28.

Replacement sheets 13-15 are hereby submitted in order to replace the previous sheets 13-15, since the amendment of claim 1 has displaced the text.

Replacement sheets 13-15 are enclosed.

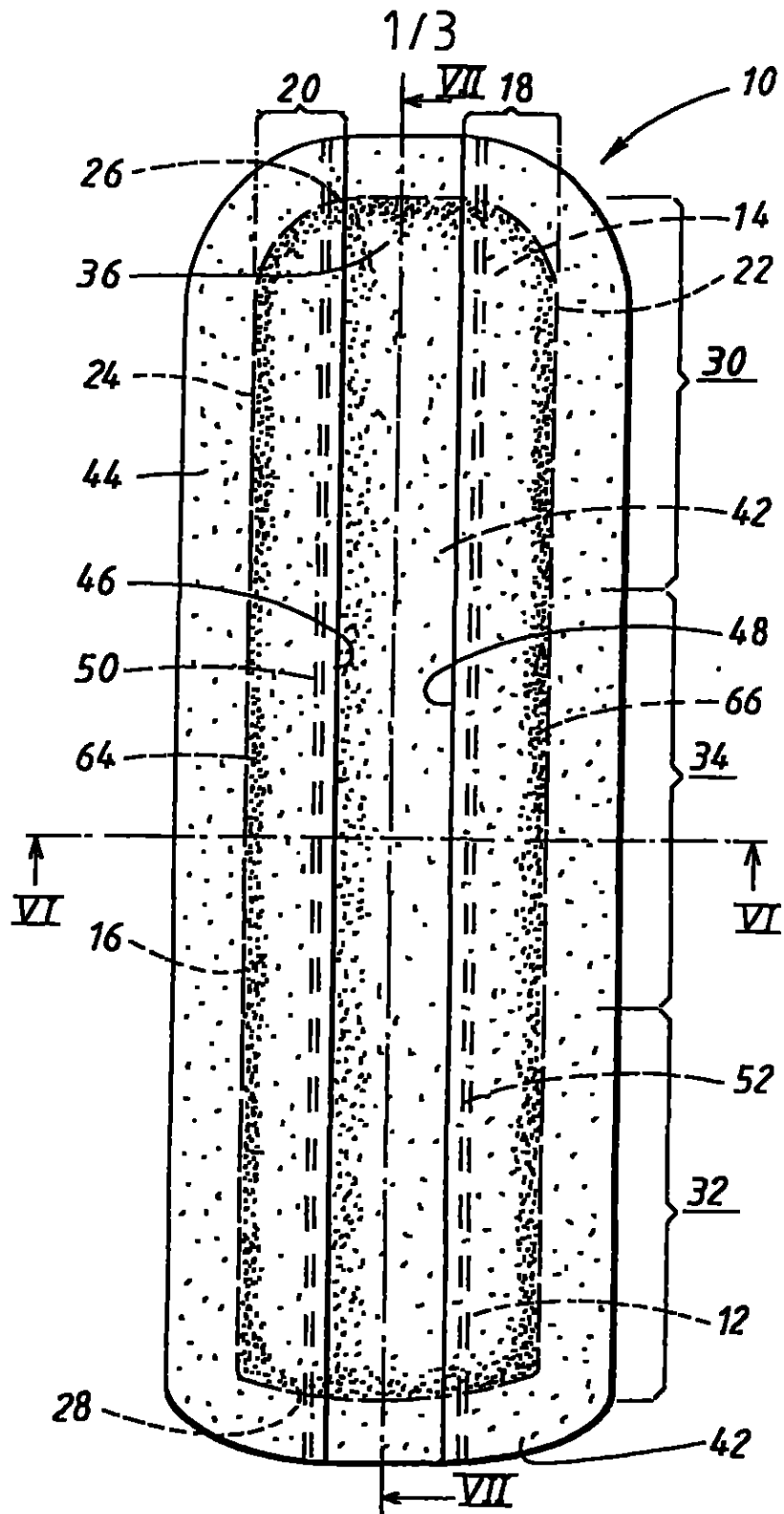


FIG. 1

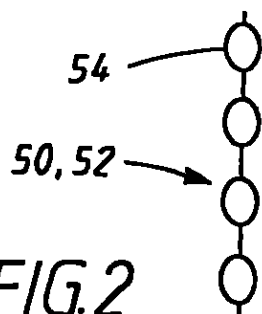


FIG. 2

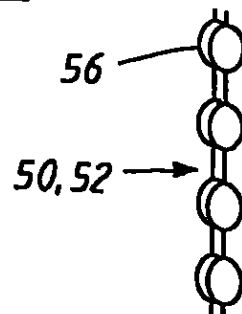


FIG.3

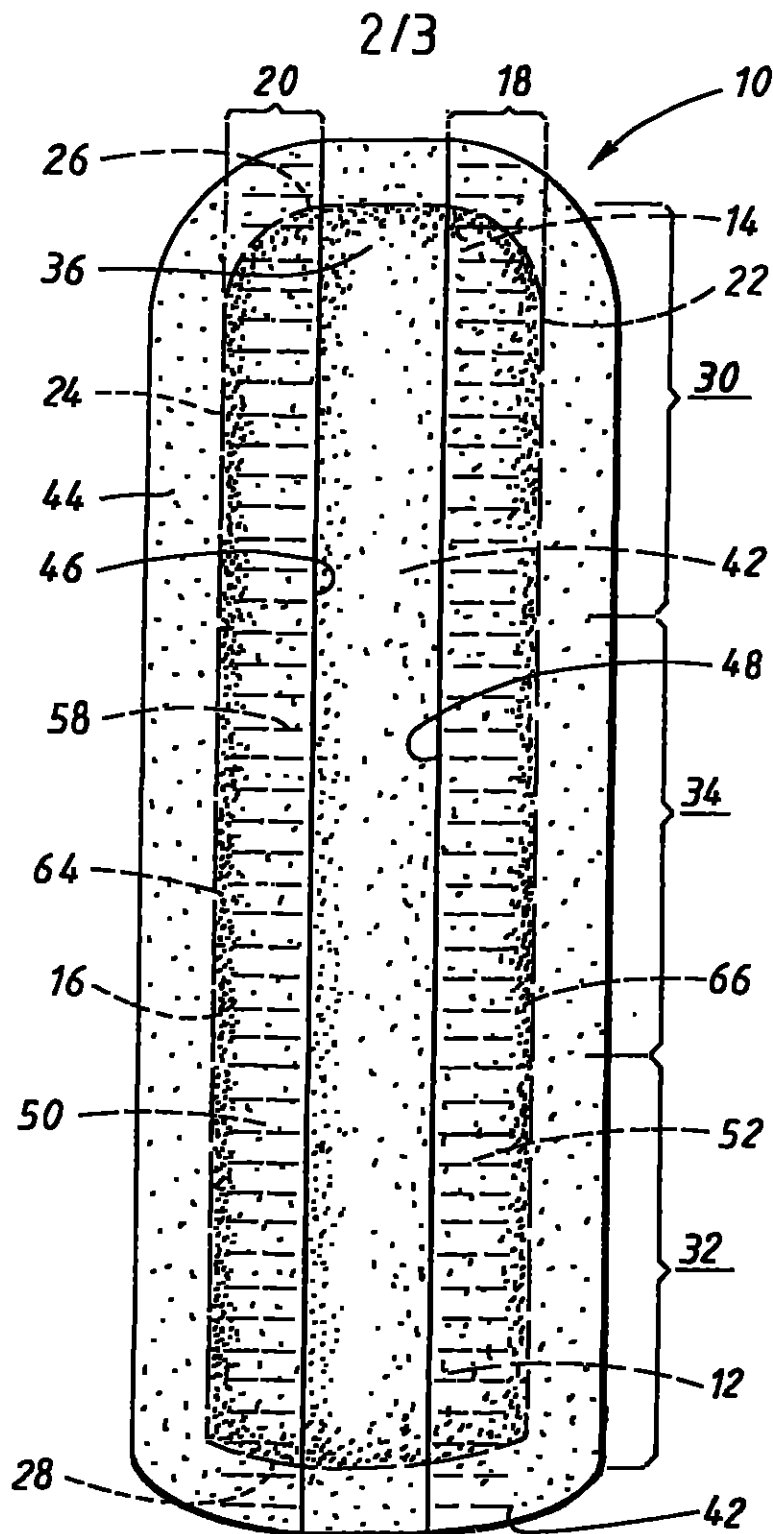


FIG. 4

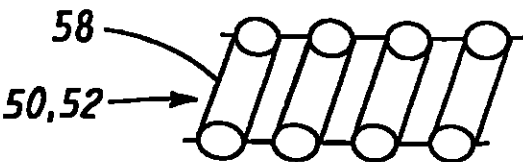


FIG. 5

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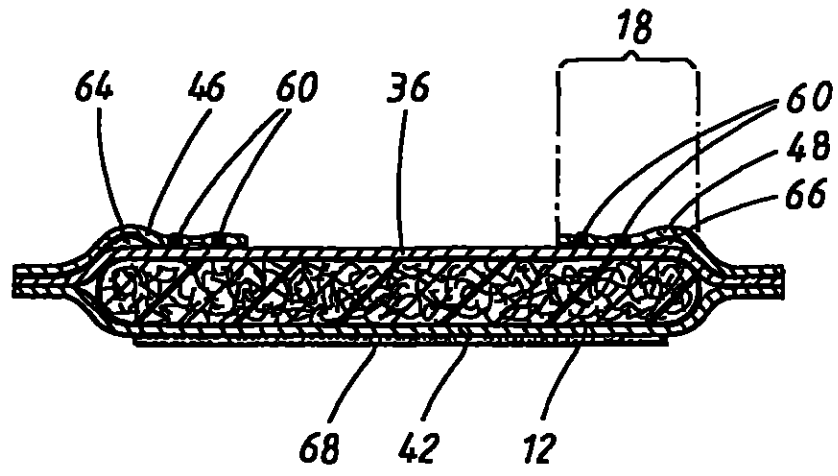


FIG. 6

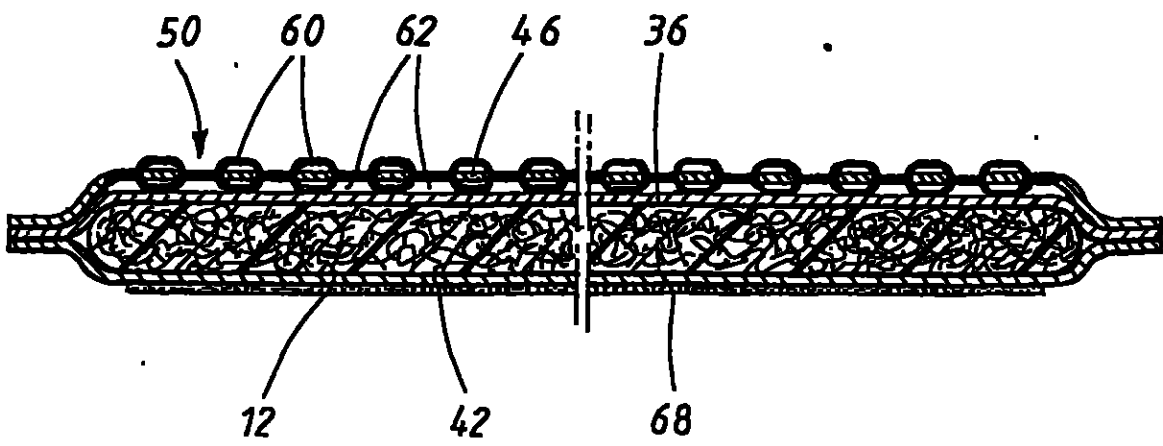


FIG. 7

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 01/02090

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A61F 13/475, A61F 13/494

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)

IPC7: A61F

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

SE,DK,FI;NO classes as above

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

WPI, EPODOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5667609 A (VINCENT B. LIU), 16 Sept 1997 (16.09.97), column 2, line 17 - line 20; column 2, line 56 - line 61; column 4, line 46 - line 54, column 5, line 17 - line 21; figure 2 --	1-12
A	DE 4422956 A1 (VP-SCHICKEDANZ AG), 4 January 1996 (04.01.96), column 2, line 8 - line 38, figure 1 --	1-12
A	EP 0649644 A1 (MCNEIL-PPC, INC.), 26 April 1995 (26.04.95), column 5, line 18 - line 36, figure 5a --	1-12

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "B" earlier application or patent 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

8 February 2002

Date of mailing of the international search report

08-02-2002

Name and mailing address of the ISA/

Swedish Patent Office

Box 5055, S-102 42 STOCKHOLM

Facsimile No. +46 8 666 02 86

Authorized officer

Marie Karlsson/Els

Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 01/02090

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 5827259 A (DANIEL RICHARD LAUX ET AL), 27 October 1998 (27.10.98), column 10, line 26 - line 36, figure 3 -----	1-12

24

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/SE 01/02090

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
US	5667609	A	16/09/97	AU	2126397 A	02/09/97
				BR	9707445 A	20/07/99
				CN	1213287 A	07/04/99
				EP	0959838 A	01/12/99
				JP	11503958 T	06/04/99
				WO	9729722 A	21/08/97
DE	4422956	A1	04/01/96	AT	183073 T	15/08/99
				AU	709063 B	19/08/99
				AU	2977795 A	25/01/96
				AU	2979695 A	25/01/96
				BR	9508129 A	12/08/97
				BR	9508158 A	12/08/97
				CA	2192556 A	11/01/96
				CA	2194011 A	11/01/96
				CN	1150751 A	28/05/97
				CZ	286196 B	16/02/00
				CZ	9603844 A	11/06/97
				CZ	9603845 A	16/07/97
				DE	69511415 D,T	02/03/00
				DK	767649 T	06/12/99
				EP	0767649 A,B	16/04/97
				SE	0767649 T3	
				EP	0767732 A	16/04/97
				EP	1151734 A	07/11/01
				ES	2134485 T	01/10/99
				FI	965211 A	31/01/97
				GR	3031067 T	31/12/99
				HU	77541 A	28/05/98
				HU	217247 B	28/12/99
				JP	10502000 T	24/02/98
				JP	10506333 T	23/06/98
				KR	258275 B	01/06/00
				NO	307544 B	25/04/00
				NO	965597 A	19/02/97
				NZ	289820 A	28/01/99
				TR	970352 A	00/00/00
				US	6171682 B	09/01/01
				WO	9600545 A	11/01/96
				WO	9600625 A	11/01/96
				ZA	9505324 A	13/02/96

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/SE 01/02090

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
EP	0649644	A1	26/04/95	SE	0649644 T3	
				AP	667 A	28/08/98
				AP	9400675 D	00/00/00
				AT	193435 T	15/06/00
				AU	679097 B	19/06/97
				AU	7413394 A	06/04/95
				BR	9403837 A	30/05/95
				CA	2132788 A	25/03/95
				DE	69424739 D,T	25/01/01
				ES	2148261 T	16/10/00
				GR	3034199 T	30/11/00
				HK	1012542 A	00/00/00
				HU	77981 A	01/02/99
				HU	9402741 D	00/00/00
				IL	111050 A	30/09/97
				JP	7163619 A	27/06/95
				NZ	264514 A	26/05/97
				PL	176792 B	30/07/99
				PL	305153 A	03/04/95
				PT	649644 T	29/09/00
				SI	649644 T	00/00/00
				TR	28044 A	28/11/95
				US	5423786 A	13/06/95
				ZA	9407459 A	25/03/96
US	5827259	A	27/10/98	AU	705582 B	27/05/99
				AU	712790 B	18/11/99
				AU	2124699 A	20/05/99
				AU	7107296 A	15/05/97
				BR	9611703 A	23/02/99
				CA	2166009 A	26/04/97
				CN	1200662 A	02/12/98
				CZ	9801232 A	17/02/99
				EP	0858306 A	19/08/98
				HU	9903867 A	28/03/00
				IL	123744 D	00/00/00
				JP	2000513954 T	24/10/00
				NZ	318955 A	25/11/98
				PL	326890 A	26/10/98
				SK	52898 A	11/02/99
				TR	9800711 T	00/00/00
				WO	9715260 A	01/05/97
				EG	21128 A	29/11/00
				ZA	9608864 A	27/05/97

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 112880 PEL	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/SE01/02090	International filing date (day/month/year) 28/09/2001	Priority date (day/month/year) 02/10/2000
International Patent Classification (IPC) or national classification and IPC A61F13/475		
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 36.

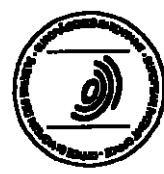
2. This REPORT consists of a total of 5 sheets, including this cover sheet.

- ☐ 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 807 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 report
- 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 Article 35(2) 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 11/04/2002	Date of completion of this report 31.07.2002
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 23699 - 0 Tlx 523656 epmu d Fax: +49 89 23699 - 4465	Authorized officer Martinez, C Telephone No. +49 89 23699 7510 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/SE01/02090

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:

1-12 as originally filed

Claims, No.:

1-12 as originally filed

Drawings, sheets:

1/3-3/3 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.:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/SE01/02090

☐ the drawings, sheets:

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:

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	1-12
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-12
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-12
	No:	Claims	

**2. Citations and explanations
see separate sheet**

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/SE01/02090

Reference is made to the following documents:

D1: US-A-5667609

D2: DE-A-4422956

Re Item V

The present application appears to meet the requirements of Articles 33(2) and (3) PCT, the reasons being as follows:

The object of the present invention is to provide an absorbent article with standing gathers, also called leakage barriers, wherein flowing of body fluids under said leakage barriers is permitted even if said leakage barriers are pressed against the topsheet due to, for example, tight trousers or a soft mattress, in order to avoid flowing of the body fluids through or over said leakage barriers (see page 3, lines 1-2).

This object is achieved by providing elastic members along the leakage barriers which include spacing means arranged at a distance from each other along the length of the elastic members in order to create fluid conducting channels in a direction from the centre of the absorbent article to the longitudinal sides of the absorbent article. Said fluid conducting channels allow body fluids to flow under said leakage barriers when said leakage barriers are pressed against the topsheet and prevent therefore side leakage.

None of the prior art documents available discloses nor suggests an absorbent article comprising leakage barriers with elastic members including spacing means as defined in claim 1:

Document D1, which is considered to represent the most relevant state of the art, discloses an absorbent article (20) comprising barrier cuffs (62) as well as spacing elastic members (77) which are secured in the barrier cuff (62) by elastic attachment means (94), said elastic attachment means being preferably glue beads made of hot melt adhesive, in order to space away the second edge of the barrier cuff from the topsheet and to form a channel (96) between the barrier cuff and the topsheet (D1: col.3, l.38-60 + col.5, l.1-9 + Fig.2). However, said spacing means are not arranged at a

distance from each other along the length of the elastic members to create fluid conducting channels in a direction from the centre of the absorbent article to the longitudinal sides of the absorbent article, as claimed claim 1. On the contrary, since said elastic spacing means (77) and said elastic attachment means (94) are enclosed in a tunnel formed by the barrier cuff (D1: col.3, l.50-55 + Fig.2), they can not create any conducting channels in a direction from the centre of the absorbent article to the longitudinal sides of the absorbent article. The channel (96) created in the absorbent article according to document D1 extends along the whole length of the barrier cuffs between the barrier cuff and the topsheet.

Document D2 discloses an absorbent article having a profiled topsheet formed of grooves and channels extending in the length direction of said absorbent article. Said channels are used to increase the flow of fluids in the length direction. Moreover, neither leakage barriers nor any elastic members are used in the absorbent article according to document D2.

Therefore, the subject-matter of claim 1, and so dependent claims 2 to 12, appears to be new (Article 33(2) PCT) and to involve an inventive step (Article 33(3) PCT).

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

Albihns Göteborg AB
P.O. Box 142
SE-401 22 GÖTEBORGNOTIFICATION 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)

11-04-2002

Applicant's or agent's file reference
112880 PEL

IMPORTANT NOTIFICATION

International application No.

PCT/SE01/02090

International filing date (day/month/year)

28-09-2001

Priority date (day/month/year)

02-10-2000

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:

11-04-2002

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/

Patent- och registreringsverket
Box 5055
S-102 42 STOCKHOLM
Facsimile No. 08-687 72 88Telex
17978
PATOREG-S

Authorized officer

Telephone No. 08-782 25 00

Erik Karlsson

PATENT COOPERATION TREATY

2002-04-02 31

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION CONCERNING
THE FILING OF AMENDMENTS OF THE CLAIMS
(PCT Administrative Instructions, Section 417)

To:

ALBIHNS GÖTEBORG AB
P.O. Box 142
S-401 22 Göteborg
SUÈDE

Date of mailing (day/month/year) 25 March 2002 (25.03.02)	
Applicant's or agent's file reference 112880 PEL	IMPORTANT NOTIFICATION
International application No. PCT/SE01/02090	International filing date (day/month/year) 28 September 2001 (28.09.01)
Applicant SCA HYGIENE PRODUCTS AB	

1. The applicant is hereby notified that amendments to the claims under Article 19 were received by the International Bureau on:

05 March 2002 (05.03.02)

2. This date is within the time limit under Rule 48.1.

Consequently, the international publication of the international application will contain the amended claims according to Rule 48.2(f), (h) and (i).

3. The applicant is reminded that the international application (description, claims and drawings) may be amended during the International preliminary examination under Chapter II, according to Article 34, and in any case, before each of the designated Offices, according to Article 28 and Rule 52, or before each of the elected Offices, according to Article 41 and Rule 78.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorised officer Homero HERNANDEZ Telephone No.: (41-22) 338.83.38
---	--

PATENT- & REGISTRERINGSVERKET
Box 5055

102 42 STOCKHOLM

TO THE INTERNATIONAL PRELIMINARY EXAMINATION AUTHORITY

P-ans nr
PCT/SE01/02090

Vår ref
112880

Vår handläggare
Peter Ekwall /PEL

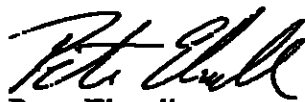
This is with reference to a telephone conversation with the Examiner Marie Karlsson on February 8, 2002.

Claim 1 has been amended in order to clarify that the fluid conducting channels are created in a direction from the centre of the absorbent article to the longitudinal sides of the absorbent article. Support for this can be found on page 7, lines 28-28.

Replacement sheets 13-15 are hereby submitted in order to replace the previous sheets 13-15, since the amendment of claim 1 has displaced the text.

Replacement sheets 13-15 are enclosed.

Göteborg den 8 februari 2002
SCA Hygiene Products AB
gm/ALBIHNS GÖTEBORG AB


Peter Ekwall

Encl. /replacement sheets 13-15.

ALBIHNS GÖTEBORG AB

European Patent Attorneys and Representatives before the OHIM

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Tel. +46(0)31-725 81 00 · Fax +46(0)31-711 95 55 · E-mail: info.goteborg@albihns.se www.albihns.se

ALBIHNS STOCKHOLM AB · ALBIHNS MALMÖ AB · ALBIHNS GmbH, MUNICH · ALBIHNS A/S COPENHAGEN



CLAIMS:

1. An absorbent article (10) such as a sanitary napkin, said article comprising:

5 an elongate absorbent core (12) delimited by an upper surface (14) and a lower surface (16), a pair of opposed longitudinal edge portions (18, 20) terminating in longitudinal edges (22, 24), and a pair of opposed transverse edges (26, 28), said core having a first end portion (30), a second end portion (32) and a central portion (34) located between said end portions;

10 a liquid permeable topsheet (36) extending over said upper surface (14), and

a liquid barrier backsheet (42) covering said lower surface (16) of said absorbent core (12),

15 barrier strips (46, 48), each strip covering a respective longitudinal edge portion (18, 20) and forming liquid-retaining pockets (64, 66) along each longitudinal edge portion,

20 a pair of longitudinal elastic members (50, 52) is arranged along said barrier strips (46, 48) that are placed along each longitudinal edge portion (18, 20) of said absorbent core in at least said central portion (34) of said absorbent core, characterized in, that the elastic members (50, 52) include spacing means (60) arranged at a distance from each other along the length of the elastic members (50, 52) to create fluid conducting channels (62) in a direction from the centre of the absorbent article (10) to the longitudinal sides of the absorbent article (10).

25

2. The absorbent article according to claim 1, characterized in, that the elastic members (50, 52) is in the shape of a string of beads (54) and that the spacing means (60) consists of the beads (54).

3X

3. The absorbent article according to claim 1, characterized in, that the elastic members (50, 52) is in the shape of a string of short cylinders (56) having a length less than the cylinder diameter and that the spacing means (60) consists of the short cylinders (56).

5

4. The absorbent article according to claim 1, characterized in, that the elastic members (50, 52) is in the shape of a string of long cylinders (58) having a length longer than the cylinder diameter, and that the spacing means (60) consists of the long cylinders (58).

10

5. The absorbent article according to claim 1, characterized in, that a distance material in the form of cylinders are placed within the barrier strips (46, 48) in a direction from the centre of the sanitary napkin (10) to the longitudinal sides of the sanitary napkin (10), and that the spacing means (60) consists of the distance material.

15

6. The absorbent article according to any one of the preceding claims, characterized in, that said barrier strips (46, 48) are primarily hydrophobic.

20

7. The absorbent article according to any of the preceding claims claim, characterized in, that said side elastic members (50, 52) is a three dimensional non-woven fibrous plastic wadding or a foamed plastic.

25

8. The absorbent article according to any of the preceding claims, characterized in, that said pockets (64, 66) extend along the entire length of said absorbent core (12).

30

9. The absorbent article according to any of claims 1-7, characterized in, that said pockets (64, 66) extend along the central portion (34) of said absorbent core (12).

35

10. The absorbent article according to any one of the preceding claims, characterized in, that said central portion (34) of said absorbent core comprises between 20% and 60%, preferably between 30 and 45%, and most preferably about one third, of the length of the absorbent
5 core (12).

11. The absorbent article according to any one of the preceding claims, characterized in, that said barrier strips (46, 48) has an extension transversely across said absorbent core (12), said extension being
10 between 5% and 25% of the total width of the sanitary napkin at the wetting area.

12. The absorbent article according to any one of the preceding claims, characterized in, that the thickness of the spacing means
15 (60) is at least 1 mm.

PATENT COOPERATION TREATY

2002-01-28

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION CONCERNING
SUBMISSION OR TRANSMITTAL
OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

To:

ALBIHNS GÖTEBORG AB
P.O. Box 142
S-401 22 Göteborg
SUÈDE

Date of mailing (day/month/year) 23 January 2002 (23.01.02)	
Applicant's or agent's file reference 112880 PEL	IMPORTANT NOTIFICATION
International application No. PCT/SE01/02090	International filing date (day/month/year) 28 September 2001 (28.09.01)
International publication date (day/month/year) Not yet published	Priority date (day/month/year) 02 October 2000 (02.10.00)
Applicant SCA HYGIENE PRODUCTS AB	

1. The applicant is hereby notified of the date of receipt (except where the letters "NR" appear in the right-hand column) by the International Bureau of the priority document(s) relating to the earlier application(s) indicated below. Unless otherwise indicated by an asterisk appearing next to a date of receipt, or by the letters "NR", in the right-hand column, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
2. This updates and replaces any previously issued notification concerning submission or transmittal of priority documents.
3. An asterisk(*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b). In such a case, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
4. The letters "NR" appearing in the right-hand column denote a priority document which was not received by the International Bureau or which the applicant did not request the receiving Office to prepare and transmit to the International Bureau, as provided by Rule 17.1(a) or (b), respectively. In such a case, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

Priority date	Priority application No.	Country or regional Office or PCT receiving Office	Date of receipt of priority document
02 Octo 2000 (02.10.00)	0003522-0	SE	18 Janu 2002 (18.01.02)

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Magda BOUACHA
Facsimile No. (41-22) 740.14.35	Telephone No. (41-22) 338.83.38

PCT REQUEST

The undersigned request that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference 112880 PEL
(if desired) (12 characters maximum)

Box No. I TITLE OF INVENTION
Absorbent article with improved liquid-handling ability

Box No. II APPLICANT

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. The country of the address indicated in this Box is the applicant's State (i.e. country) of residence if no State of residence is indicated below.)

SCA Hygiene Products AB
S-405 03 GÖTEBORG
Sweden

☐ This person is also inventor.

Telephone No.

Facsimile No.

Teleprinter No.

State (that is, country) of nationality: SE

State (that is, country) of residence: SE

This person is the applicant for the purposes of: ☒ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(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. The country of the address indicated in this Box is the applicant's State (i.e. country) of residence if no State of residence is indicated below.)

DREVIK Solgun
Hulebäcksvägen 16
S-435 35 MÖLNLYCKE
Sweden

This person is:

☐ applicant only

☐ applicant and inventor

☒ inventor only (if this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

State (that is, country) of residence:

This person is the applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as: ☒ agent ☐ common representative

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.)

ANDERSSON Per, BERGQUIST Gunnar, BRUN Jenny, BÖRJESSON Susanne, EKSTRÖM Nils, EKWALL Peter, ORAUDUMS Valdis, HARRISON Michael, MOSSMARK Anders, OLSSON Stefan, ROMARE Anette, SCHLOSSMAN Ulf, SKEPPSTEDT Anita, SÖREDAHL Peter

ALBIHNS GÖTEBORG AB,
P.O. Box 142,
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Telephone No.

+46 31 725 81 00

Facsimile No.

+46 31 711 95 55

Teleprinter No.

☐ 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. V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes; at least one must be marked):

Regional Patent

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Box No. VI PRIORITY CLAIM		☐ Further priority claims are indicated in the Supplemental Box		
Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country:	regional application:* regional Office	international application: receiving Office
item (1) 02/10/2000	0003522-0	SE		
item (2)				
item (3)				

☒ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s): (1)

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Box No. VII INTERNATIONAL SEARCHING AUTHORITY		
Choice of International Searching Authority (ISA) (If two or more international Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):	Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):	
ISA / SE	Date (day/month/year):	Number Country (or regional Office)
	02/10/2000	00/01146 SE

Box No. VIII CHECK LIST; LANGUAGE OF FILING	
This international application contains the following number of sheets: request: 3 description (excluding sequence listing part): 12 claims: 3 abstract: 1 drawings: 3 sequence listing part of description: _____ Total number of sheets: 22	This international application is accompanied by the item(s) marked below: 1. ☒ fee calculation sheet 2. ☒ separate signed power of attorney 3. ☐ copy of general power of attorney, reference number, if any: 4. ☐ statement explaining lack of signature 5. ☐ priority document(s) identified in Box No. VI as item(s): 6. ☐ translation of international application into (language): 7. ☐ separate indications concerning deposited microorganism or other biological material 8. ☐ nucleotide and/or amino acid sequence listing in computer readable form 9. ☒ other (specify): Copy of ITS-report in SE 0003522-0
Figure of the drawings which should accompany the abstract: Fig. 1	Language of filing of the international application: English

Box No. IX SIGNATURE OR APPLICANT OR AGENT
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 request). Göteborg, Sweden 27 September 2001 Peter Ekwall

1. Date of actual receipt of the purported international application:	For receiving Office use only	2. Drawings:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:		☐ received:
4. Date of timely receipt of the required corrections under PCT-Article 11(2):		☐ not received:
5. International Searching Authority (if two or more are competent): ISA/		6. ☐ Transmittal of search copy delayed until search fee is paid

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FEE CALCULATION SHEET

Annex to the Request

For receiving Office use only

Applicant's or agent's
file reference 112880 PEL

International Application No.

Date stamp of the receiving Office

Applicant

SCA Hygiene Products AB

CALCULATION OF PRESCRIBED FEES

1. TRANSMITTAL FEE 1200:- T

2. SEARCH FEE 8690:- S

International search to be carried out by SE
(If two or more International Searching Authorities are competent in relation to the international application, indicate the name of the Authority which is chosen to carry out the international search.)

3. INTERNATIONAL FEE

Basic fee

The international application contains 22 sheets.

first 30 sheets 3540:- b1

remaining sheets x additional amount = b2

Add amounts entered at b1 and b2 and enter total at B 3540:- B

Designation Fees

The international application contains more than 6 designations.

6 x 760:- = 4560:- D

number of designation fees amount of designation fee payable (maximum 10)

Add amounts entered at B and D and enter total at I 8100:- I

(Applicants from certain States are entitled to a reduction of 75% of the international fee. Where the applicant is (or all applicants are) so entitled, the total to be entered at I is 25% of the sum of the amounts entered at B and D.)

4. FEE FOR PRIORITY DOCUMENT (if applicable) P

5. TOTAL FEES PAYABLE

Add amounts entered at T, S, I and P, and enter total in the TOTAL box

SEK 17 990:-

TOTAL

☐ The designation fees are not paid at this time

MODE OF PAYMENT

- ☐ authorisation to charge deposit account (see below) ☐ bank draft ☐ coupons
☒ cheque ☐ cash ☐ other (specify):
☐ postal money order ☐ revenue stamps

DEPOSIT ACCOUNT AUTHORISATION (this mode of payment may not be available at all receiving Offices)

- The RO/ ☐ is hereby authorized to charge the total fees indicated above to my deposit account
☐ (this check-box may be marked only if the conditions for deposit accounts of the receiving Office so permit) is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to my deposit account
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ABSORBENT ARTICLE WITH IMPROVED LIQUID-HANDLING ABILITY**TECHNICAL FIELD:**

The present invention relates to an absorbent article such as a sanitary napkin. The article comprises an elongate absorbent core delimited by an upper surface and a lower surface, a pair of opposed longitudinal edge portions terminating in longitudinal edges, and a pair of opposed transverse edges. Said core has a first end portion, a second end portion and a central portion located between said end portions. A liquid permeable topsheet extends over said upper surface, and a liquid barrier backsheet covers said lower surface of said absorbent core. Barrier strips are provided, each strip covering a respective longitudinal edge portion and forming a liquid-retaining pocket along each longitudinal edge portion. A pair of longitudinal elastic members is arranged along said barrier strips that are placed along each longitudinal edge portion of said absorbent core in at least said central portion of said absorbent core.

BACKGROUND OF THE INVENTION:

A common problem associated with an absorbent article such as a diaper or an incontinence pad, which is intended to absorb body fluid, is that fluid leaks out past the side edges of the article. Such leakage is particularly common when gushes of urine are delivered in a short time period and with a high fluid pressure. During urination, the absorbent core cannot instantly absorb all the fluid, which leads to an excessive amount of fluid that flows over the surface of the absorbent article towards the edges not only in the central portion. To help prevent side leakage, it is customary to arrange different types of leakage barriers along the side edges of the article. For example, diapers and incontinence pads are often provided with elastic members which, while the article is being used, are tightened around the user's body and hold the side edges of the article in sealing contact against the body. Elastic members can also be used to form raised edge barriers. It is also possible to create raised barriers in other ways, for example by providing

ridges or the like, which prevent liquid from flowing freely over the side edges of the article.

However, it has been found that despite all the efforts, which have hitherto
5 been made to avoid leakage at the side edges, the problem still remains, especially in certain applications. This problem is, for instance, troublesome for bedridden individuals since the risk of leakage increases considerably when the user is lying in a side position. Body fluid which is excreted in this position runs out and gathers, by the effect of gravity, at the longitudinal side
10 edge of the article, where the available absorption material quickly becomes oversaturated with liquid. The remaining liquid that is not absorbed can run freely along the side edge. The risk is of course great that this liquid will be forced out over the side edge of the article and escape if the user moves in such a way that a gap is formed between the article and the user's body.

15 Conventional hygienic absorbent articles such as sanitary napkins, incontinence pads and the like are provided with an absorbent core which, in theory, is capable of absorbing all the fluid normally discharged by the wearer over an intended exposure time of the article. However, leakage can arise if
20 the absorbent article is not maintained in proper relation with the wearer. One attempt to overcome this problem is to provide a sanitary napkin with so called wings. However, winged sanitary napkins also suffer from certain drawbacks. For example, if a particularly heavy discharge occurs, fluid may spread over the topsheet of the napkin and escape over the wings to thereby stain adjacent clothing. In addition, many wearers regard winged sanitary
25 napkins as being too indiscreet.

Due to their relative narrowness, when sanitary napkins do leak this generally occurs at the side edges. Many attempts have been made to overcome the
30 problem of edge leakage, for example by using strips of resilient material in at least the central portion of the absorbent article which increases the shape stability of the article in the strike zone, i.e. that region of the absorbent article

which is first contacted by discharged bodily fluid. In this manner, the risk of bunching of the absorbent article is significantly reduced. In addition, the resilient strips press the longitudinal edges of the absorbent article towards the wearer, thereby causing the article to more readily mould to the body of the wearer. Since the strips need not extend along the entire length of the article, the article may be worn discretely. Advantageously, the remote ends of the strips may serve to impart a bowl-shape to the article to further conform the article to the shape of the wearer.

However, standing gathers is a collective name for these different types of elasticated leakage barriers along the side edges of the article, and they suffer from certain drawbacks. For example, if the standing gathers are subject to an excessive amount of external pressure due to, for example, tight trousers, a soft mattress, when the user is in a vertical position or sitting on a bicycle saddle, the standing gathers will be compressed and thereby somewhat closed, whereby the fluid is prohibited from flowing into the pockets formed by the standing gathers.

Whilst absorbent articles having elasticated side barriers may exhibit improved side edge leakage protection when compared to an absorbent article without elasticated side barriers, a need still exists for an absorbent article which further reduces the risk of side edge leakage whilst still being sufficiently discrete to satisfy the majority of wearers. It is therefore an object of the present invention to provide an absorbent article that meets these requirements.

SUMMARY OF THE INVENTION:

The present invention relates to an absorbent article such as a sanitary napkin. The article comprises an elongate absorbent core delimited by an upper surface and a lower surface, a pair of opposed longitudinal edge portions terminating in longitudinal edges, and a pair of opposed transverse edges. Said core has a first end portion, a second end portion and a central

portion located between said end portions. A liquid permeable topsheet extends over said upper surface, and a liquid barrier backsheet covers said lower surface of said absorbent core. Barrier strips are provided, each strip covering a respective longitudinal edge portion and forming a liquid-retaining pocket along each longitudinal edge portion. A pair of longitudinal elastic members is arranged along said barrier strips that are placed along each longitudinal edge portion of said absorbent core in at least said central portion of said absorbent core.

10 The above-stated objects are achieved in accordance with the present invention, according to claim 1, by said absorbent article being characterised in that the elastic members include spacing means arranged at a distance from each other along the length of the elastic members. The spacing means creates fluid conducting channels that allows fluid to pass under the barrier strips into said pockets, even if the barrier strips are pressed against the top sheet due to an external force, e.g. if the user is sitting or wears tight trousers.

20 The elastic members may be in different shapes according to different embodiments of the invention. For instance, the elastic members may be in the shape of a string of beads, or in the shape of a string of short cylinders, or in the shape of a string of long cylinders, or there may be a distance material in the form of long cylinders placed within the barrier strips, in a direction from the centre of the sanitary napkin to the longitudinal sides of the sanitary napkin.

The elastic members not only serve as means for creating channels, but may also bend the sanitary napkin into a cup-shape preferably at least partially coinciding with the wetting area.

30 Preferred embodiments will become evident by the subsequent dependent claims.

BRIEF DESCRIPTION OF THE DRAWINGS:

The invention will be described in the following by way of example only and with reference to the attached drawings, in which:

- 5 Fig. 1 is a schematic plan view of an absorbent article;
- Fig. 2 is a schematic view of an elastic member according to the invention;
- 10 Fig. 3 is a schematic view of an elastic member according to a second embodiment of the invention;
- Fig. 4 is a schematic plan view of an absorbent article according to a third embodiment;
- 15 Fig. 5 is a schematic view of an elastic member according to the third embodiment of the invention;
- Fig. 6 is a schematic view of a sectional view on a larger scale along line VI-VI of Fig. 1, and
- 20 Fig. 7 is a schematic view of a sectional view on a larger scale along line VII-VII of Fig. 1.

25 DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS:

In the figures, the reference numbers that recur in the different figures refer to the same feature, and additional features in different embodiments are designated new reference numbers.

- 30 As is apparent from Fig. 1, reference numeral 10 generally denotes an absorbent article according to the invention. The absorbent article 10 may be a sanitary napkin having an elongate absorbent core 12 delimited by an

upper surface 14 and a lower surface 16, and the core 12 may be any conventional absorbent core. The absorbent core further includes opposed longitudinal edge portions 18, 20 terminating in longitudinal edges 22, 24, and a pair of opposed transverse edges 26, 28. The core is made up of a first
5 end portion 30, a second end portion 32 and central portion 34 located between the end portions. In use, the sanitary napkin is intended to be placed relative the wearer so that the strike zone lies within the central portion 34.

10 As is typical in the art, the absorbent article 10 is further provided with a liquid permeable topsheet 36 extending over the upper surface 14 of the absorbent core 12. The topsheet 36 may be any conventional topsheet. For example, it may be made from a multi-apertured plastics film, or a non-woven material. The absorbent article may also comprise a liquid barrier backsheet 42
15 extending over the lower surface 16 of the absorbent core 12. The backsheet 42 may be joined to the topsheet 36 to form a peripheral margin 44 around preferably the entire absorbent core 12. On the backsheet 42, there may be fastening means 68 attached for an increased possibility to fasten the absorbent article to the clothing closest to the wearers body. The fastening
20 means may be an adhesive, mechanical fastening means such as Velcro or another fastening means suitable for the purpose.

The sanitary napkin 10 further comprises a pair of two longitudinal barrier strips 46, 48, with each sheet covering a longitudinal edge portion 18, 20 of
25 the permeable topsheet 36, that forms pockets 64, 66 between the top sheet 36 and the barrier strips 46, 48 along the side edges. The barrier strips 46, 48 may be of either a liquid barrier material or a material that at least resists fluid penetration, e.g. a non-woven hydrophobic fibrous web or another material suitable for the purpose. It is an advantage if the barrier material is
30 breathable, i.e. will permit the passage of air and water vapour. Since the barrier strips 46, 48 may be joined with the peripheral margin 44, the pockets 64, 66 along the edge portions 18, 20 may be seen as enclosed by the

barrier strips 46, 48 and the topsheet 36. A pair of pretensioned, longitudinal elastic members 50, 52 are arranged along the barrier strips 46, 48 of the sanitary napkin 10. The elastic members 50, 52 are designed to curve the sanitary napkin 10 to the shape of the user's body and at the same time they constitute means for raising the barrier strips 46, 48 from the upper surface 14 of the sanitary napkin 10. Thus, the elastic members 50, 52 serve to hold the barrier strips 46, 48 of the sanitary napkin 10 in contact against the user's body, in order to ensure that, during use, no gap arises between the sanitary napkin 10 and the user's body, through which gap body fluid could leak from the sanitary napkin 10. Since the material of the barrier strips 46, 48 is primarily hydrophobic, migrating body fluids tend to flow through the absorbent core rather than through the resilient barrier strips 46, 48. Since the barrier strips 46, 48 serve to conceal the longitudinal edge portions 18, 20, any collection of fluid at the edge portions is concealed, thereby imparting an impression of increased safety and cleanliness to the wearer.

Advantageously, the elastic members 50, 52 are made of a three dimensional elastic material such as an elastic polymer, elastic non-woven fibrous plastic, elastic foam, silicone, rubber or another material suitable for the purpose.

In accordance with the present invention, and as best illustrated in Figures. 2, 6 and 7, the elastic members 50, 52 are in the form of a string of beads 54 as illustrated in Fig. 3. The beads 54 serve as a spacing means 60 (as illustrated in Fig. 6 and 7) between the barrier strips 46, 48 and the top sheet 36 and will create fluid conducting channels 62 (as illustrated in Fig 7) between the barrier strips 46, 48 and the top sheet 36 in a direction from the centre of the sanitary napkin 10 to the longitudinal sides of the sanitary napkin 10. The channels 62 are especially advantageous when the barrier strips 46, 48 are pressed against the top sheet 36 and the upper surface 14 of the absorbent core 12, by an external force, e.g. tight trousers, or if the user is sitting down. The channels 62 then allows migrating body fluids to

flow under the barrier strips 46, 48 even when the barrier strips 46, 48 are pressed against the top sheet 36, thereby increasing the flow through the absorbent core 12 rather than through the barrier strips 46, 48 or over the barrier strips 46, 48. Since the barrier strips 46, 48 serve to cover the longitudinal edge portions 18, 20, and to seal the sanitary napkin 10 against the user's body, any transport of fluid towards the sides of the sanitary napkin is guided via the channels 62 into the pockets 64, 66 which are formed beneath the barrier strips 46, 48 and down through the absorbent core 12, even when the barrier strips 46, 48 are pressed against the top sheet 36, thereby diminishing the risk of side leakage.

The beads 54 may alternatively have other cross-sectional shapes, such as an oval shape. The beads may also have different diameters and/or different cross sections in the same string of beads.

15

The string of beads 54 according to the present invention, may be created by, for example, point sealing of a three dimensional elastic thread such as an elastic polymer, elastic non-woven fibrous plastic, elastic foam, silicone, rubber or another material suitable for the purpose or two elastic webs with non-elastic spacers between.

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In a second embodiment of the invention, and as illustrated in Fig. 3, 6 and 7, the elastic members 50, 52 are broader than in the first embodiment and they are in the form of a string of short cylinders 56. The short cylinders 56 serve as a spacing means 60 (as illustrated in Fig. 6 and 7) between the barrier strips 46, 48 and the top sheet 36, and will create channels 62 between the barrier strips 46, 48 and the top sheet 36 in a direction from the centre of the sanitary napkin 10 to the longitudinal sides of the sanitary napkin 10, and serves the same purpose as in the first embodiment. Here, short cylinder means a cylinder having a length less than the cylinder diameter. The cylinders may alternatively have other cross-sectional shapes, such as an

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oval shape. The cylinders may also have different diameters and/or different cross sections in the same string of cylinders.

5 The string of short cylinders 56 according to the second embodiment of the invention, may be created by, for example, point sealing of a three dimensional elastic thread such as an elastic polymer, elastic non-woven fibrous plastic, elastic foam, silicone, rubber or another material suitable for the purpose or two elastic webs with non-elastic spacers between.

10 In a third embodiment of the invention, and as illustrated in Fig. 4, 5 and 7, the elastic members 50, 52 are even broader than in the second embodiment and they are in the form of a string of long cylinders 58. The long cylinders 58 serve as a spacing means 60 (as illustrated in Fig. 7) between the barrier strips 46, 48 and the top sheet 36, and will create channels 62 between the
15 barrier strips 46, 48 and the top sheet 36 in a direction from the centre of the sanitary napkin 10 to the longitudinal sides of the sanitary napkin 10, and serves the same purpose as in the second embodiment. Here, long cylinder means a cylinder length longer than the cylinder diameter. The cylinders may alternatively have other cross-sectional shapes, such as an oval shape. The
20 cylinders may also have different diameters and/or different cross sections in the same string of cylinders.

The string of long cylinders 58 according to the third embodiment of the invention, may be created by, for example, point sealing of a three
25 dimensional elastic thread such as an elastic polymer, elastic non-woven fibrous plastic, elastic foam, silicone, rubber or another material suitable for the purpose or two elastic webs with non-elastic spacers between.

In a fourth embodiment of the invention, not shown in the figures even though
30 Fig. 4, 5 and 7 illustrate the fourth embodiment schematically, the string of long cylinders 58 according to the third embodiment of the invention may be substituted by a distance material in the form of long cylinders (not shown)

and elastic members, e.g. the elastic members 50, 52 previously mentioned. The cylindrical distance material is placed within the barrier strips 46, 48 or in a manner suitable for the purpose of using the distance material to create channels 62 between the barrier strips 46, 48 and the top sheet 36 in a direction from the centre of the sanitary napkin 10 to the longitudinal sides of the sanitary napkin 10. The elastic members 50, 52 may be a pair of pretensioned, longitudinal elastic members 50, 52 that are arranged along the barrier strips 46, 48 of the sanitary napkin 10. The elastic members 50, 52 are designed to curve the sanitary napkin 10 to the shape of the user's body and at the same time they constitute means for keeping open the side pockets 64, 66 created beneath the barrier strips 46, 48 and the sanitary napkin 10.

The distance material in the form of long cylinders according to the fourth embodiment of the invention may alternatively have other cross-sectional shapes, such as an oval shape. The distance material may also have different diameters and/or different cross sections in the barrier strips 46, 48.

The long cylinders according to the fourth embodiment of the invention, may be a three dimensional elastic thread such as an elastic polymer, elastic non-woven fibrous plastic, elastic foam, silicone, rubber or another material suitable for the purpose or two elastic webs with non-elastic spacers between.

The short and the long cylinders may be up to 50 mm long.

For ease of manufacturing and to ensure that the risk of edge leakage anywhere along the length of the absorbent article is minimal, the barrier strips 46, 48 and thus, the liquid-retaining pockets 64, 66 preferably extend along the entire length of the absorbent core. However, since the shape stability of the absorbent article is most critical only in the central portion 34 of the absorbent core, the barrier strips 46, 48 and the elastic members 50,

52 need only occupy said central portion, which often is the case in the use of sanitary napkins or panty liners. However, if desired, the barrier strips 46, 48 and the elastic members 50, 52 may extend into the first and second end portions 30, 32, which often is the case in the use of incontinent articles or
5 diapers, where it is possible to tighten the sides of the absorbent article around the body of the user, which normally is not the case in the use of sanitary napkins or panty liners. Further incontinent articles and diapers are subject to a larger amount of fluid during rather high pressure when the user urinates, compared to the smaller sanitary napkins and panty liners which
10 normally are not used for incontinent protection. During urination, the absorbent core 12 cannot instantly absorb all the fluid, which leads to an excessive amount of fluid that spreads over the surface of the absorbent article towards the edges not only in the central portion 34. This increases the need to have a sufficient edge leakage protection such as the barrier
15 strips 46, 48 and thus, the liquid-retaining pockets 64, 66, preferably extending along the entire length of the absorbent core.

The absorbent article according to any one of the preceding embodiments is characterized in that the thickness of the spacing means 60 is at least 1 mm,
20 and that the thickness of the spacing means 60 defines the maximum height of the channel. The thickness of the spacing means also means the diameter when the spacing means are cylindrical or spherical.

Advantageously, the central portion 34 of the absorbent core 12 comprises
25 between 20% and 60%, preferably between 30 and 45%, and most preferably about one third, of the length of the absorbent core.

Obviously, the substantially hydrophobic barrier strips 46, 48 and the elastic members 50, 52 may not extend over the entire width of the absorbent core
30 since this would prevent passage of body fluids into the absorbent core 12. Accordingly, each side edge 46, 48 and elastic member 50, 52 has an extension transversely across the absorbent core, with the extension being

between 5% and 25% of the total width of the sanitary napkin at the wetting area.

5 The distance between the spacing means 60, i.e. the width of the channel, is 1-20 mm.

10 The invention is not restricted to the embodiments described above and shown in the drawings, but may be modified within the scope of the appended claims. For example, the absorbent article may be a sanitary napkin, a diaper, an incontinent protection article, a panty liner or any absorbent article suitable for the purpose. The absorbent article is not restricted to any shape or configuration, but may be of any shape suitable for the purpose, e.g. triangular, hour-glass shaped or rectangular. Also, the elastic members and the distance material may be of a stiff material, i.e. the side barriers with the distance material will still create the channels for transporting the fluids. The sanitary napkin may also be equipped with wings.

20 At least the longitudinal edge portion 18, 20 of the absorbent article may be made profiled and may include spacing means arranged at a distance from each other along the length of the longitudinal edge portion 18, 20 to create fluid conducting channels. The longitudinal edge portion 18, 20 may be made profiled by a groove compression of the topsheet 36 or by a groove compression of a suitable part of the absorbent core 12. The groove compression compresses the material in certain parts with a certain distance between the compressed parts, and the spacing means consists of the uncompressed parts. The longitudinal edge portion 18, 20 may also be made profiled by inserting a distance material in the topsheet 36 or in the absorbent core. The profiling of the absorbing article is not limited to the longitudinal edge portion 18, 20, but the whole upper surface may be profiled by any of the above described techniques.

CLAIMS:

1. An absorbent article (10) such as a sanitary napkin, said article comprising:

5 an elongate absorbent core (12) delimited by an upper surface (14) and a lower surface (16), a pair of opposed longitudinal edge portions (18, 20) terminating in longitudinal edges (22, 24), and a pair of opposed transverse edges (26, 28), said core having a first end portion (30), a second end portion (32) and a central portion (34) located between said end portions;

10 a liquid permeable topsheet (36) extending over said upper surface (14), and

a liquid barrier backsheet (42) covering said lower surface (16) of said absorbent core (12),

15 barrier strips (46, 48), each strip covering a respective longitudinal edge portion (18, 20) and forming liquid-retaining pockets (64, 66) along each longitudinal edge portion,

20 a pair of longitudinal elastic members (50, 52) is arranged along said barrier strips (46, 48) that are placed along each longitudinal edge portion (18, 20) of said absorbent core in at least said central portion (34) of said absorbent core, characterized in, that the elastic members (50, 52) include spacing means (60) arranged at a distance from each other along the length of the elastic members (50, 52) to create fluid conducting channels (62).

25 2. The absorbent article according to claim 1, characterized in, that the elastic members (50, 52) is in the shape of a string of beads (54) and that the spacing means (60) consists of the beads (54).

3. The absorbent article according to claim 1, characterized in, that the elastic members (50, 52) is in the shape of a string of short cylinders (56) having a length less than the cylinder diameter and that the spacing means (60) consists of the short cylinders (56).

5

4. The absorbent article according to claim 1, characterized in, that the elastic members (50, 52) is in the shape of a string of long cylinders (58) having a length longer than the cylinder diameter, and that the spacing means (60) consists of the long cylinders (58).

10

5. The absorbent article according to claim 1, characterized in, that a distance material in the form of cylinders are placed within the barrier strips (46, 48) in a direction from the centre of the sanitary napkin (10) to the longitudinal sides of the sanitary napkin (10), and that the spacing means (60) consists of the distance material.

15

6. The absorbent article according to any one of the preceding claims, characterized in, that said barrier strips (46, 48) are primarily hydrophobic.

20

7. The absorbent article according to any of the preceding claims claim, characterized in, that said side elastic members (50, 52) is a three dimensional non-woven fibrous plastic wadding or a foamed plastic.

25

8. The absorbent article according to any of the preceding claims, characterized in, that said pockets (64, 66) extend along the entire length of said absorbent core (12).

9. The absorbent article according to any of claims 1-7,

30

characterized in, that said pockets (64, 66) extend along the central portion (34) of said absorbent core (12).

10. The absorbent article according to any one of the preceding claims, characterized in, that said central portion (34) of said absorbent core comprises between 20% and 60%, preferably between 30 and 45%, and most preferably about one third, of the length of the absorbent
5 core (12).

11. The absorbent article according to any one of the preceding claims, characterized in, that said barrier strips (46, 48) has an extension transversely across said absorbent core (12), said extension being
10 between 5% and 25% of the total width of the sanitary napkin at the wetting area.

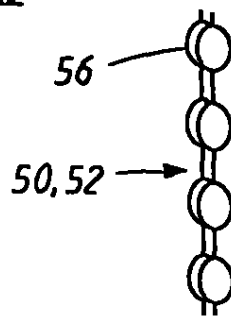
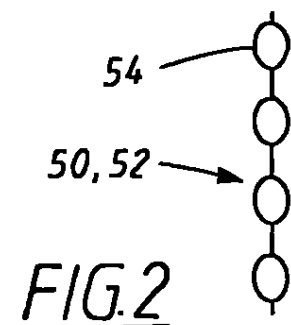
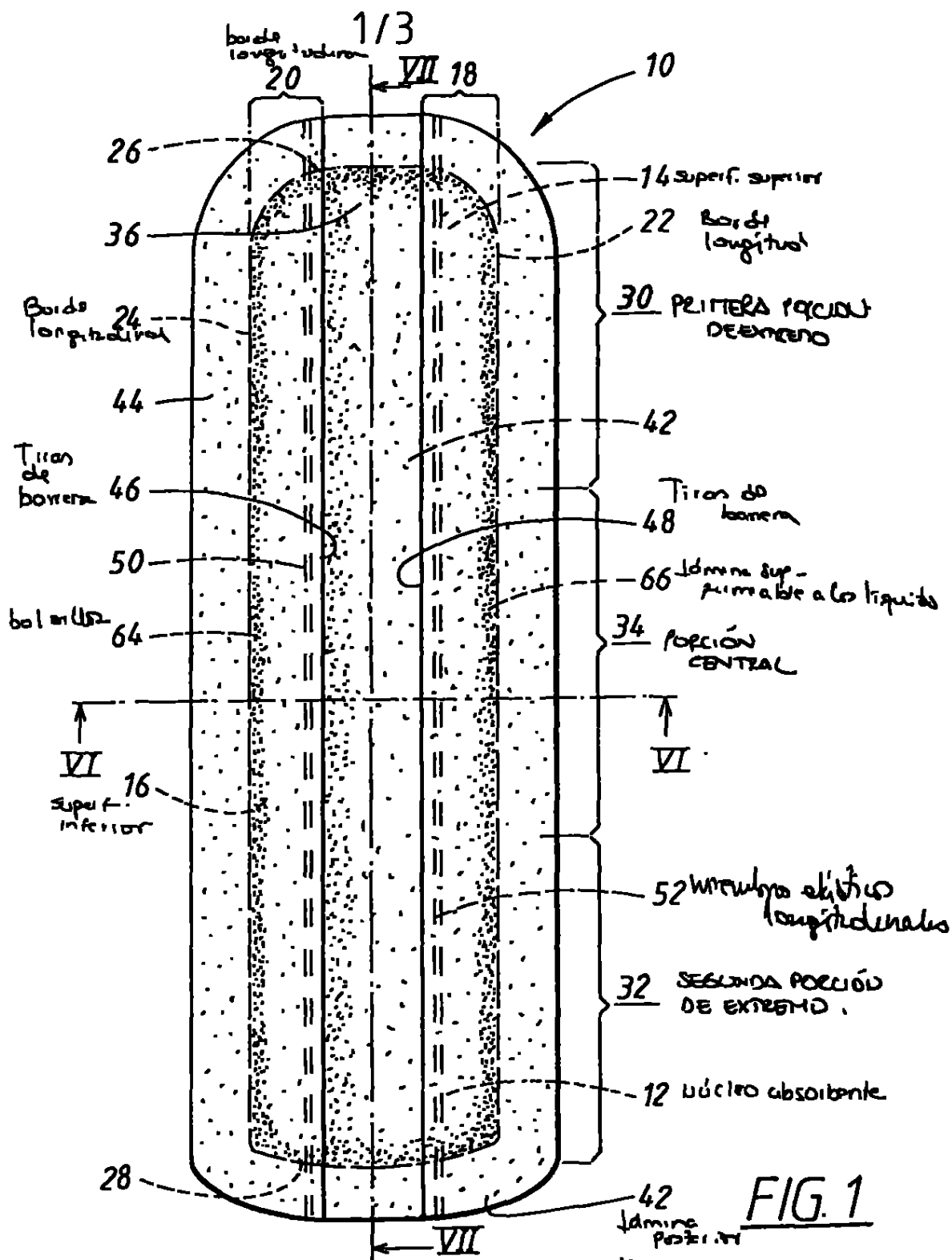
12. The absorbent article according to any one of the preceding claims, characterized in, that the thickness of the spacing means
15 (60) is at least 1 mm.

ABSTRACT

The invention refers to an absorbent article (10) such as a sanitary napkin, where said article comprises an elongate absorbent core (12) delimited by an upper surface (14) and a lower surface (16). A pair of opposed longitudinal edge portions (18, 20) terminates in longitudinal edges (22, 24), and a pair of opposed transverse edges (26, 28). Said core has a first end portion (30), a second end portion (32) and a central portion (34) located between said end portions. A liquid permeable topsheet (36) extends over said upper surface (14), and a liquid barrier backsheet (42) covers said lower surface (16) of said absorbent core (12). Barrier strips (46, 48), each strip covering a respective longitudinal edge portion (18, 20) forms liquid-retaining pockets (64, 66) along each longitudinal edge portion. A pair of longitudinal elastic members (50, 52) is arranged along said barrier strips (46, 48) that are placed along each longitudinal edge portion (18, 20) of said absorbent core in at least said central portion (34) of said absorbent core. The invention is characterized in that the elastic members (50, 52) include spacing means (60) arranged at a distance from each other along the length of the elastic members (50, 52) to create fluid conducting channels (62).

20

(Fig. 1)



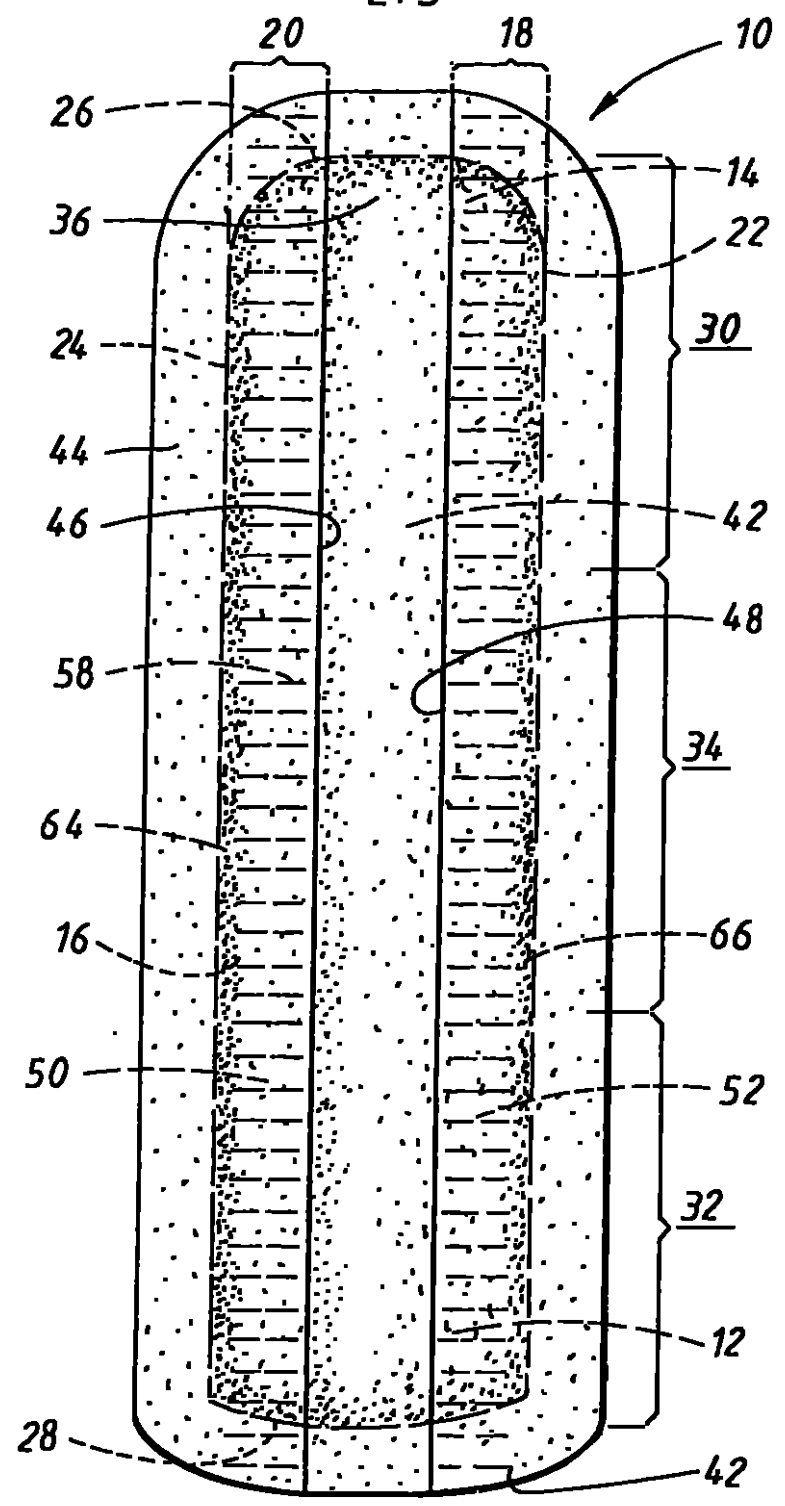


FIG. 4

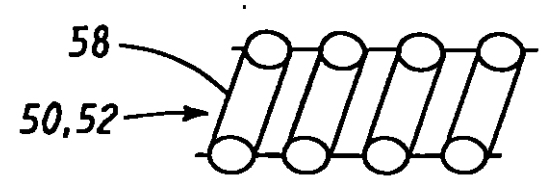


FIG. 5

3/3

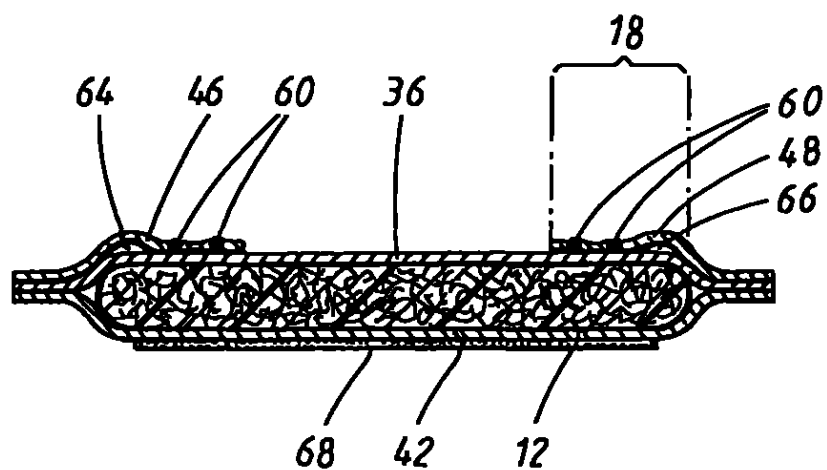


FIG. 6

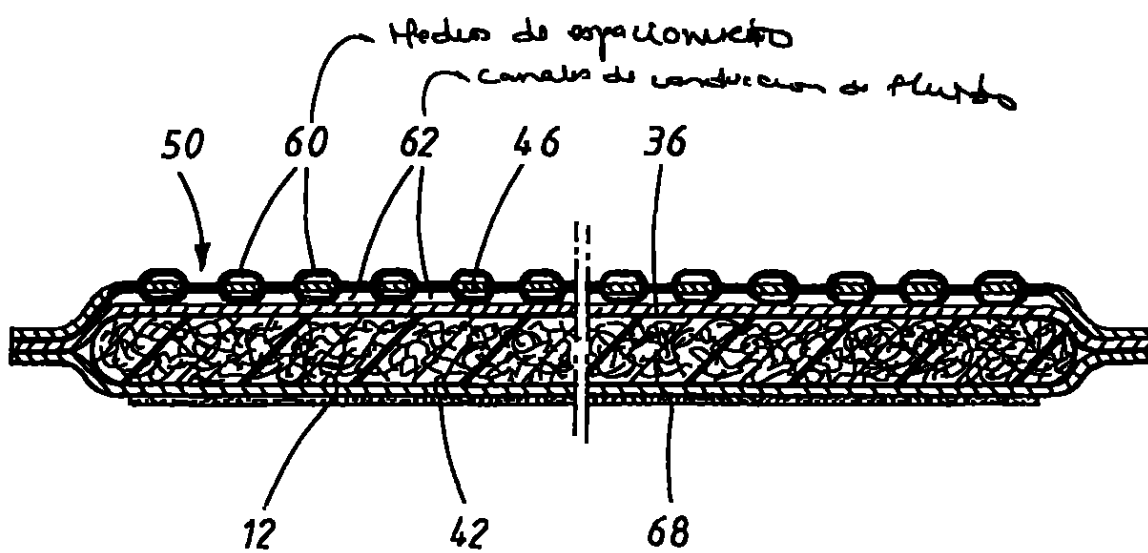


FIG. 7

Artículo absorbente con medios de espaciamento en elástico de barrera para crear canales que conducen fluido.

CAMPO TECNICO.

La presente invención se relaciona con un artículo absorbente tal como una toalla sanitaria. El artículo comprende un núcleo absorbente alargado delimitado por una superficie superior y una superficie inferior, un par de porciones de bordes longitudinales opuestas que terminan en bordes longitudinales, y un par de bordes transversales opuestos. Dicho núcleo tiene una primer porción de extremo, una segunda porción de extremo y una porción central localizada entre dichas porciones de extremo. Una lámina superior permeable a los líquidos se extiende sobre dicha superficie superior, y una lámina inferior de barrera hacia los líquidos cubre dicha superficie de dicho núcleo absorbente. Se suministran tiras de barrera, cada tira cubre una porción de borde longitudinal respectiva y forma un bolsillo de retención de líquido a lo largo de cada porción de borde longitudinal. Un par de miembros elásticos longitudinales está dispuesto a lo largo de dichas tiras de barrera que

están ubicadas a lo largo de cada porción de borde longitudinal de dicho núcleo absorbente en al menos dicha porción central de dicho núcleo absorbente.

ANTECEDENTES DE LA INVENCION:

Un problema con un asociado con un artículo absorbente tal como un pañal o una almohadilla de incontinencia, que pretende absorber fluidos del cuerpo, es que el fluido chorrea más allá de los bordes laterales del artículo. Tal chorreadura es particularmente común los derrames de orina son suministrados en un corto periodo de tiempo y con una alta presión de fluido. Durante la micción, el núcleo absorbente no puede absorber instantáneamente todo el fluido, lo que conduce a unas cantidades excesivas de fluido que fluye sobre la superficie del artículo absorbente hacia los bordes no solo en la porción central. Para ayudar a prevenir la chorreadura lateral es costumbre disponer diferentes tipos de barreras contra chorreaduras a lo largo de los bordes laterales del artículo. Por ejemplo, los pañales y las almohadillas de incontinencia ofrecen están a menudo provistas con miembros elásticos los cuales, mientras que el artículo esta siendo utilizado, están ajustadas

alrededor del cuerpo del usuario y mantienen los bordes laterales del artículo en contacto sellante contra el cuerpo.

Los miembros elásticos también se pueden utilizar para formar barreras de borde elevadas. Esto también es posible para crear barreras elevadas de otras formas, por ejemplo al suministrar lomos o similares, lo que evita que el líquido fluya libremente sobre los bordes laterales del artículo.

Sin embargo, se ha encontrado que a pesar de todos los esfuerzos, que hasta el presente se han hecho para evitar las chorreaduras en los bordes laterales, el problema subsiste, especialmente en ciertas aplicaciones. Este problema es, por ejemplo, problemático para individuos que están postrados en cama en razón de que el riesgo de las chorreaduras se incrementa considerablemente cuando el usuario está reposando en posición lateral. Los fluidos del cuerpo que son excretados en esta posición corren hacia fuera y se agrupan, por el efecto de la gravedad, en el borde lateral longitudinal del artículo, donde el material de absorción disponible rápidamente se sobresatura con el líquido. El líquido restante que no es

absorbido puede correr libremente a lo largo del borde lateral. El riesgo es, por supuesto, grande de que el líquido se vea forzado a salir sobre el borde lateral del artículo y escape si el usuario se mueve de tal forma que se forma un boquete entre el artículo y el cuerpo del usuario.

Los artículos absorbentes higiénicos convencionales tales como toallas sanitarias, almohadillas de incontinencia y similares se suministran con un núcleo absorbente el cual, en teoría, es capaz de absorber todos los fluidos normalmente descargados por el portador sobre este durante un tiempo de exposición pretendido el artículo. Sin embargo, la chorreadura puede surgir si el artículo absorbente no es mantenido en relación adecuada con el portador. Un intento de solucionar este problema es suministrar una toalla sanitaria con las así llamadas alas. Sin embargo, las toallas sanitarias aladas también sufren de ciertos inconvenientes. Por ejemplo, si ocurre una descarga particularmente fuerte, el fluido puede esparcirse sobre la lámina superior de la toalla y escapar sobre las alas para manchar de esta forma la ropa adyacente. Adicionalmente, muchas portadoras consideran

que las toallas sanitarias aladas son demasiado indiscretas.

Debido a su relativa estrechez, cuando las toallas sanitarias chorrean esto generalmente ocurre en los bordes laterales. Se han hecho muchos intentos de solucionar el problema de las chorreaduras de borde, por ejemplo al utilizar tiras de material elástico en al menos la porción central del artículo absorbente lo que incrementa la estabilidad de forma del artículo en la zona de nivelación, es decir, la región del artículo absorbente que es contactada primero por el fluido descargado del cuerpo. De esta manera, el riesgo de agrupamiento del artículo absorbente se reduce significativamente, además, las tiras elásticas presionan los bordes longitudinales del artículo absorbente hacia el usuario, originando de esta forma que el artículo molde más fácilmente el cuerpo del portador. En razón a que las tiras no necesitan extenderse a lo largo de la longitud total del artículo, el artículo se puede portar discretamente. Ventajosamente, los extremos remotos de las tiras pueden servir para impartir una forma de tazón al artículo para conformarse adicionalmente que el artículo a la forma del usuario.

Sin embargo, agrupamientos levantados es el nombre colectivo para estos diferentes tipos de barreras contra chorreadura elasticados a lo largo de los bordes laterales del articulo, y ellos sufren de ciertos inconvenientes. Por ejemplo, si los agrupamientos parados son sometidos a una cantidad excesiva de presión externa debido a, por ejemplo, trusas apretadas, un colchón suave, cuando el usuario esta en posición vertical o sentado sobre un sillín de bicicleta, los agrupamientos parados se comprimirán y de esta forma se cierran de alguna manera, por medio de los cuales al fluido se le prohíbe fluir dentro de los bolsillos formados por los agrupamientos parados.

Mientras que los artículos absorbentes que tienen barreras laterales elasticadas pueden exhibir protección de chorreadura de los bordes laterales mejorada cuando se compara con un articulo absorbente si barreras laterales elasticadas, subsiste necesidad de un articulo absorbente que reduzca adicionalmente el riesgo de chorreadura de borde lateral mientras que a un es suficientemente discreto para satisfacer a la mayoría de usuarios. Es por lo tanto un objeto de la presente

invenció suministrar un artículo absorbente que cumpla con estos requisitos.

RESUMEN DE LA INVENCION:

La presente invención se relaciona con un artículo absorbente tal como una toalla sanitaria. El artículo comprende un núcleo absorbente alargado delimitado por una superficie superior y una superficie inferior, un par de porciones de borde longitudinal opuestas que terminan en bordes longitudinales, y un par de bordes transversales opuestos. Dicho núcleo tiene una primera porción de extremo, una segunda porción de extremo y una porción central localizada entre dichas porciones de extremo. Una lámina superior permeable a los líquidos se extiende sobre dicha superficie superior, y una lámina posterior de barrera a los líquidos cubre dicha superficie inferior de dicho núcleo absorbente. Se suministran tiras de barreras, cada tira cubre una porción de borde longitudinal respectiva y forma un bolsillo de retención de líquido a lo largo de cada porción de borde longitudinal. Un par de miembros elásticos longitudinales está dispuesto a lo largo de dichas tiras de barrera que están ubicadas a lo largo de

cada una de las porciones de bordes longitudinales de dicho núcleo absorbente en al menos dicha porción central de dicho núcleo absorbente.

Los objetos anteriormente establecidos se logran de acuerdo con la presente invención, de acuerdo con la reivindicación 1, por dicho artículo absorbente que está caracterizado por que los miembros elásticos incluye medios de espaciamento dispuestos a una distancia uno del otro a lo largo de la longitud de los miembros elásticos. Los medios de espaciamento crean canales de conducción de fluido que le permiten al fluido pasar bajo las tiras de barrera dentro de dichos bolsillos, aún si las tiras de barrera son presionadas contra la lámina superior debido a una fuerza externa, por ejemplo si el usuario está entado o porta trusas apretadas.

Los miembros elásticos pueden estar o tener diferentes formas de acuerdo con diferentes modalidades de la invención. Por ejemplo, los miembros elásticos pueden tener la forma de una cuerda de cuentas, o en la forma de una cuerda de cilindros cortos, o en la forma de una cuerda de cilindros largos, o podría existir un material de distancia en la forma de unos cilindros

largos ubicados dentro de las tiras de barrera, en dirección desde el centro de la toalla sanitaria a los lados longitudinales de la toalla sanitaria.

Los miembros elásticos no solo sirven como medios para crear canales, sino también doblar la toalla sanitaria en una forma de copa preferiblemente al menos parcialmente coincidiendo con el área de humedecimiento.

Las modalidades preferidas serán evidentes por las reivindicaciones dependientes subsecuentes.

BREVE DESCRIPCION DE LOS DIBUJOS.

La invención se describirá en lo siguiente por vía de ejemplos solamente y con referencia a los dibujos anexos, en los cuales:

La figura 1 es una vista de planta esquemática de un artículo absorbente;

La figura 2 es una vista esquemática de un miembro elástico de acuerdo con la invención;

La figura 3 es una vista esquemática de un miembro elástico de acuerdo a una segunda modalidad de la invención;

La figura 4 es una vista de planta esquemática de un artículo absorbente de acuerdo a una tercera modalidad;

La figura 5 es una vista esquemática de un miembro elástico de acuerdo a una tercera modalidad de la invención;

La figura 6 es una vista esquemática de una vista seccional a escala grande a lo largo de la línea (VI-VI) de la figura 1, y la figura, y

La figura 7 es una vista esquemática de una vista en sección a gran escala de a largo de la línea (VII-VII de la figura 1).

DESCRIPCION DETALLADA DE LAS MODALIDADES PREFERIDAS:

En las figuras, los números de referencia a que se recurre en las diferentes figuras se refieren a la misma característica, y las características adicionales en diferentes modalidades se designan con números de referencia nuevos.

Como es evidente de la figura 1, el numeral de referencia 10 denota de manera general un artículo absorbente de acuerdo con la invención. El artículo absorbente 10 puede ser una toalla sanitaria que tiene un

núcleo absorbente elongado 12 que se delimita por medio de una superficie superior 14 y una superficie inferior 16, y el núcleo 12 puede ser cualquier núcleo absorbente convencional. El núcleo absorbente incluye además porciones de borde longitudinales opuestos 18, 20 que terminan en bordes longitudinales 22, 24 y un par de bordes transversales opuestos 26, 28. El núcleo se hace de una primer porción de extremo 30, una segunda porción de extremo 32 y una porción central 34 localizadas entre las porciones de extremo. En uso, la toalla sanitaria pretende ser ubicada en relación con el portador de tal forma que la zona de nivelación descansa dentro de la porción central 34.

Como es típico en la técnica, el artículo absorbente 10 se suministra adicionalmente con una lámina superior permeable a los líquidos 36 que se extiende sobre la superficie superior 14 del núcleo absorbente 12. La lámina superior 36 puede ser cualquier lámina superior convencional. Por ejemplo, puede ser hecha de una película plástica multi aberturada, o un material no tejido. El artículo absorbente puede también comprender una lámina posterior de barrera a los líquidos 42 que se extiende sobre la superficie inferior 16 del núcleo absorbente 12.

La lámina posterior 22 puede estar unida a la lámina superior 36 para formar una margen periférica 44 alrededor preferiblemente del núcleo absorbente completo 12. Sobre la lámina posterior 42, podrían existir medios de aseguramiento 68 unidos para la posibilidad creciente de asegurar el artículo absorbente a la prenda más cercana al cuerpo del portador. Los medios de aseguramiento pueden ser unos medios de aseguramiento adhesivo, mecánico tales como el Velcro u otros medios de aseguramiento adecuados para el propósito.

La toalla sanitaria 10 comprende además un par de dos tiras de barrera longitudinales 46,48, con cada una de las láminas cubriendo la porción de borde longitudinal 18, 20 en la lámina superior permeable 36, que forma bolsillos 64, 66 entre la lámina superior 36 y las tiras de barrera 46, 48 a lo largo de los bordes laterales. Las tiras de barrera 46, 48 pueden ser de un material de barrera a los líquidos o un material que al menos resista la penetración de fluido, por ejemplo, una red fibrosa hidrófoba no tejida u otro material adecuado para el propósito. Es una ventaja si el material de barrera es respirable, es decir permite el paso de aire y vapor de agua. En razón a que las tiras de barrera 46, 48 pueden

unirse con la margen periférica 44, los bolsillos 64, 66 a lo largo de las porciones de borde 18, 20 se pueden ver como la margen periférica 44, los bolsillos 64, 66 a lo largo de las porciones de borde 18, 20 se pueden ver como incluidos por las tiras de barrera 46, 48 y otra lámina superior 36, un par de miembros elásticos longitudinales pretensionados 50, 52 están diseñados para curvar la toalla sanitaria 10 a la forma del cuerpo del usuario y al mismo tiempo ellos constituyen medios para levantar las tiras de barrera 46, 48 desde la superficie superior 14 de la toalla sanitaria 10. Así, los miembros elásticos 50, 52 sirven para mantener las tiras de barrera 46, 48 de la toalla sanitaria 10 en contacto contra el cuerpo del usuario, con el fin de asegurar que, durante uso, no surja ningún espacio entre la toalla sanitaria 10 y el cuerpo del usuario, a través de cuyo espacio el fluido del cuerpo pueda chorrear desde la toalla sanitaria 10. En razón a que el material de las tiras de barrera 46, 48 es primariamente hidrófobo, los fluidos del cuerpo que migran tienden a fluir a través del núcleo absorbente en lugar de a través de las tiras de barrera elásticas 46, 48. En razón a que las tiras de barrera 46, 48 sirven para ocultar las porciones de borde longitudinales 18, 20, cualquier reconexión de fluido en las porciones de borde

se oculta, impartiendo de esta manera una impresión de seguridad creciente y limpieza del usuario.

Ventajosamente, los miembros elásticos 50, 52 se hacen de material elástico tridimensional tal como un polímero elástico, plásticos fibrosos no tejidos elásticos, espuma elástica, silicona, caucho u otro material adecuado para el propósito.

De acuerdo con la presente invención, y como mejor se ilustra en las figuras 2, 6 y 7, los miembros elásticos 50, 52 están en la forma de una tira de cuentas 54 como se ilustra en la figura 3. Los glóbulos 54 sirven como unos medios de espaciamento 60 (como se ilustran en la figura 6 y 7) entre las tiras de barrera 46, 48 y la lámina superior 36 y crearán fluido que conduce a los canales 62 (como se ilustra en la figura 7) entre las fibras de barrera 46, 48 y la lámina superior 36 en una dirección desde el centro de la toalla sanitaria 10 a los bordes laterales de la toalla sanitaria 10. Los canales 62 son especialmente ventajosos cuando las tiras de barrera 46, 48 son presionadas contra la lámina superior 36 y la superficie superior 14 del núcleo absorbente 12, mediante una fuerza externa, por ejemplo, trusas

apretadas, o si el usuario está sentado. Los canales 62 les permiten entonces migrar a los fluidos del cuerpo para fluir bajo las tiras de barrera 46, 48 aún cuando las tiras de barrera 46, 48 son presionadas contra la lámina superior 36, incrementando de esta forma el fluido a través del núcleo absorbente 12 en lugar de a través de las tiras de barrera 46, 48 o sobre las tiras de barrera 46, 48. En razón a que las tiras de barrera 46, 48 sirven para cubrir las porciones de borde longitudinal 18, 20, y para sellar la toalla sanitaria 10 contra el cuerpo del usuario, cualquier transporte de fluido hacia los lados de la toalla sanitaria es guiado por vía de los canales 62 dentro de los bolsillos 64, 66 que están formados inmediatamente por debajo de las tiras de barrera 46, 48 y hacia a bajo a través del núcleo absorbente 12, aún cuando las tiras de barrera 46, 48 están presionadas contra la lámina superior 36, disminuyendo de esta forma el riesgo de chorreadura lateral.

Las cuentas 54 pueden tener alternativamente otras formas en sección transversal, tales como la forma oval. Las cuentas también pueden tener diferentes diámetros y/o diferentes secciones transversales en la misma cuerda de cuentas.

La cuerda de cuentas 54 de acuerdo con la presente invención, puede ser creada por, por ejemplo, punto sellante de un hilo elástico tridimensional tal como un polímero elástico, un plástico fibroso no tejido elástico, espuma elástica, silicona, caucho u otro material adecuado para e propósito o dos redes elásticas con espaciadores no elásticos en medio.

En una segunda modalidad de la invención, como se ilustra en las figuras 3, 6 y 7, los miembros elásticos 50, 52 son más amplios que en la primera modalidad y ellos están en la forma de una cuerda de cilindros cortos 56. Los cilindros cortos 56 sirven como medios de espaciamiento 60 (como se ilustran en las figuras 6 y 7) entre las tiras de barrera 46, 48, y la lámina superior 36, y crearán canales 62 entre las tiras de barrera 46, 48 y la lámina superior 36 en una dirección desde el centro de la toalla sanitaria 10 a los lados longitudinales de la toalla sanitaria 10, y sirven al mismo propósito que en la primer modalidad. Aquí, los cilindros cortos significan un cilindro que tiene una longitud menor que el diámetro del cilindro. Los cilindros pueden alternativamente tener otras formas de

sección transversal tal como la forma oval. Los cilindros pueden también tener diferentes diámetros y/o diferentes secciones transversales en la misma cuerda de cilindros.

La cuerda de cilindros cortos 56 de acuerdo con la segunda modalidad de la invención se pueden crear mediante, por ejemplo, puntos sellantes de un hilo elástico tridimensional tal como un polímero elástico, plástico fibroso no tejido elástico, espuma elástica, silicona, caucho u otro material adecuado para el propósito o dos redes elásticas con espaciadores no elásticos en medio.

En una tercer modalidad de la invención, como se ilustra en las figuras 4, 5 y 7, los miembros elásticos 50, 52 son aún más amplios que en la segunda modalidad y ellos están en la forma de una cuerda de cilindro largo 58. Los cilindros largos 58 sirven como medios de espaciamiento 60 (como se ilustra en la figura 7) entre las tiras de barrera 46, 48 y la lámina superior 36 y crearan canales 62 entre las tiras de barrera 46, 48 y la lámina superior 36 en una dirección desde el centro de la toalla sanitaria 10 a los lados longitudinales de la toalla sanitaria 10, y sirven al mismo propósito que en

la segunda modalidad. Aquí, los cilindros largos significan una longitud de cilindro mayor que el diámetro del cilindro. Los cilindros pueden alternativamente tener otras formas de sección transversal, tales como la forma oval. Los cilindros también podrían tener diferentes diámetros y/o diferentes secciones transversales en la misma cuerda de cilindros.

La cuerda de cilindros largos 58 de acuerdo con la tercer modalidad de la invención, se puede crear mediante, punto sellante de hilos elásticos tridimensionales tales como un polímero elástico, plástico fibroso no tejido elástico, espuma elástica, silicona, caucho u otro material adecuado para el propósito o dos redes elásticas con espaciadores no elásticos en medio.

En una cuarta modalidad de la invención, no mostrada en las figuras aunque las figuras 4,5, y 7 ilustran la cuarta modalidad esquemáticamente, la cuerda de cilindros largos 58 de acuerdo con la tercer modalidad de la invención se puede sustituir por un material de distancia en la forma de cilindros largos (no mostrados) y miembros

elásticos, por ejemplo miembros elásticos 50, 52 previamente mencionados.

El material de distancia cilíndrico es ubicado dentro de las tiras de barrera 46, 48 o en una manera adecuada para el propósito de utilizar el material de distancia para crear canales 62 entre las tiras de barrera 46, 48 y la lámina superior 36 en una dirección desde el centro de la toalla sanitaria 10 a los lados longitudinales de la toalla sanitaria 10. Los miembros elásticos 50, 52 pueden ser n par de miembros elásticos pretensionados longitudinales 50, 52 que están dispuestos a lo largo de las tiras de barrera 46, 48 de la toalla sanitaria 10. Los miembros elásticos 50, 52 están diseñados para curvar la toalla sanitaria 10 a la forma del cuerpo del usuario y al mismo tiempo ellos constituyen medios para mantener abiertos los bolsillos laterales 64, 66 creados inmediatamente por debajo de las tiras de barrera 46, 48 y la toalla sanitaria 10.

El material de distancia de la forma de cilindros largos de acuerdo con la cuarta modalidad de la invención puede alternativamente tener otras formas de sección transversal, tales como la forma oval. El material de

distancia puede tener diferentes diámetros y/o diferentes secciones transversales en las tiras de barrera 46, 48.

Los cilindros largos de acuerdo con la cuarta modalidad de la invención pueden ser un hilo elástico tridimensional tal como un polímero elástico, plástico fibroso no tejido elástico, espuma elástica, silicona, caucho u otro material adecuado para el propósito o dos redes elásticas con espaciadores no elásticos en medio.

Los cilindros largos y cortos pueden tener hasta 50 mm de longitud.

Para fácil elaboración y para asegurar que el riesgo de chorreadura de borde en cualquier parte a lo largo de la longitud del artículo absorbente sea mínima, las tiras de barrera 46, 48 y así, los bolsillos de retención de líquido 64, 66 se extienden preferiblemente a lo largo de la longitud total del núcleo absorbente. Sin embargo, en razón a que la estabilidad de forma del artículo absorbente es más crítica solo en la porción central 34 del núcleo absorbente, las tiras de barrera 46, 48 y los miembros elásticos 50, 52 necesitan solo ocupar dicha porción central, lo cual a menudo es el caso del uso de toallas sanitarias o forros interiores de pantaloncitos.

Sin embargo, si se desea, las tiras de barrera 46, 48 y los miembros elásticos 50, 52 pueden extenderse dentro de las primeras y segundas porciones de extremo 30, 32, lo cual a menudo es el caso en el uso de artículos de incontinencia o pañales, donde es posible estrechar los lados del artículo absorbente a través del cuerpo del usuario, que normalmente no es el caso en el uso de toallas sanitarias o forros interiores de pantaloncitos. Los artículos de incontinencia adicionales y los pañales están sometidos a una mayor cantidad de fluido a alta presión cuando el usuario orina, comparada con toallas sanitarias más pequeñas y forros interiores de pantaloncitos que normalmente no son utilizados para protección de incontinencia. Durante la micción, el núcleo absorbente 12 no puede absorber instantáneamente todo el fluido, lo cual conduce a una cantidad excesiva de fluido que se esparce sobre la superficie del artículo absorbente hacia los bordes no solo en la porción central 34. Esto incrementa la necesidad de tener una protección de chorreadura de borde suficiente tal como las tiras de barrera 46, 48 y así, los bolsillos de retención de líquido 64, 66, se extienden preferiblemente a lo largo de la longitud total del núcleo absorbente.

El artículo absorbente de acuerdo con cualquiera de las modalidades precedentes se caracteriza por que el grosor de los medios de espaciamiento 60 es de al menos un mm, y por que el grosor de los medios de espaciamiento 60 define la altura máxima del canal. El grosor de los medios de espaciamiento también significa en diámetro cuando los medios de espaciamiento son cilíndricos o esféricos.

Ventajosamente, la porción central 34 del núcleo absorbente 12 comprende entre 20% y 60%, preferiblemente entre 30 y 45%, y más preferiblemente aproximadamente un tercio, de la longitud del núcleo absorbente.

Obviamente, las tiras de barrera sustancialmente hidrófobas 46, 48 y los miembros elásticos 50 52 pueden no extenderse sobre la amplitud completa del núcleo absorbente en razón a que esto evitaría el paso de fluidos del cuerpo dentro del núcleo absorbente 12.

De acuerdo con esto, cada borde lateral 46, 48 y miembro elástico 50, 52 tiene una extensión transversalmente a través del núcleo absorbente, con la

extensión estando entre 5% y 25% del total de la amplitud de la toalla sanitaria en área de humectación.

La distancia entre los medios de espaciamento 60, es decir, la anchura del canal, es de 1-20 mm.

la invención no esta restringida a las modalidades descritas anteriormente y mostradas en los dibujos, si no también se modifica con el alcance de las reivindicaciones finales. Por ejemplo, un artículo absorbente puede ser una toalla sanitaria, un pañal, un artículo de protección de incontinencia, un forro interior de pantaloncito o un artículo absorbente adecuado para el propósito. El artículo absorbente no está restringido a ninguna forma o configuración, sino que puede ser de cualquier forma adecuada para el propósito, por ejemplo triangular en forma de reloj de arena o rectangular. También, los miembros elásticos y el material de distancia puede ser un material rígido, es decir, las barreras laterales con el material de distancia crearán los canales para transportar los fluidos. La toalla sanitaria también puede estar equipada con alas.

Al menos la porción de borde longitudinal 18, 20 del artículo absorbente pueden ser perfiladas y pueden incluir medios de espaciamiento dispuestos a una distancia de una de las otra a lo largo de la longitud de la porción de borde longitudinal 18, 20 para crear canales de conducción de fluido. La porción de borde longitudinal 18, 20 puede ser perfilada por una ranura de compresión de la lámina superior 36 o mediante una compresión de ranura de una parte adecuada del núcleo absorbente 12. La compresión de ranura comprime el material en ciertas partes con una cierta distancia entre las partes comprimidas, y los medios de espaciamiento consisten de unas partes no comprimidas. La porción de borde longitudinal 18, 20 también puede ser perfilada al insertar un material de distancia en la lámina superior 36 o en el núcleo absorbente. El perfilamiento del artículo absorbente no está limitado a la porción de borde longitudinal 18, 20 sino que la superficie superior completa se puede perfilar mediante cualquiera de las técnicas anteriormente descritas.

REIVINDICACIONES.

1. Un artículo absorbente (10) tal como una toalla sanitaria, dicho artículo comprende:

Un núcleo absorbente alongado (12) delimitado mediante una superficie superior (14) una superficie inferior (16), un par de porciones de borde longitudinal opuestas (18, 20) que terminan en bordes longitudinales (22, 24), y un par de bordes transversales opuestos (26, 28), dicho núcleo tiene una primer porción de extremo (30) una segunda porción de extremo (32) y una porción central (34) localizada entre dichas porciones de extremo; una lámina superior permeable a los líquidos (36) que se extiende sobre dicha superficie superior (14), y una lámina posterior de barrera a los líquidos (42) que cubre dicha superficie inferior (16) de dicho núcleo absorbente (12), tiras de barrera (46, 48), cada tira cubre una porción de borde longitudinal respectivo (18, 20) forran bolsillos de retención de líquido (64, 66) a lo largo de cada una de las porciones de borde

longitudinal, un par de miembros elásticos longitudinales (50, 52) está dispuesto a lo largo de dichas tiras de barrera (46, 48) que están ubicadas a lo largo de cada una de las porciones de borde longitudinal (18, 20) de dicho núcleo absorbente en al menos dicha porción central (34) de dicho núcleo absorbente, caracterizado por que, los miembros elásticos (50, 52) incluyen medios de espaciamiento (60) dispuestos a una distancia uno del otro a lo largo de la longitud de los miembros elásticos (50, 52) para crear canales de conducción de fluido (62).

2. El artículo absorbente de acuerdo a la reivindicación 1, caracterizado por que, los miembros elásticos (50, 52) traen la forma de una cuerda de cuentas (54) y por que los medios de espaciamiento (60) consisten de cuentas (54).

3. El artículo absorbente de acuerdo a la reivindicación 1, caracterizado por que los miembros elásticos (50, 52) están en la forma de una cuerda de cilindros cortos (56) que tienen una longitud menor que el diámetro del cilindros y por que los medios de espaciamiento (60) consisten de ,los cilindros cortos (56).

4. El artículo absorbente de acuerdo a la reivindicación 1, caracterizado por que los miembros elásticos (50, 52) están en la forma de una cuerda de cilindros largos (58) y tienen una longitud mayor que el diámetro del cilindro, y por que los medios de espaciamiento (60) consisten de cilindros largos (58).

5. El artículo absorbente de acuerdo a la reivindicación 1, caracterizado por que el material de distancia en la forma de cilindros esta ubicado dentro de las tiras de barrera (46, 48) en una dirección desde el centro de la toalla sanitaria (10) a los lados longitudinales de la toalla sanitaria (10), y por que los medios de espaciamiento (60) consisten del material de distancia.

6. El artículo absorbente de acuerdo con cualquiera de las reivindicaciones precedentes, caracterizado por que las dichas tiras de barrera (46, 48) son primariamente hidrófobas.

7. El artículo absorbente de acuerdo a cualquiera de las reivindicaciones precedentes, caracterizado por que

en dichos miembros elásticos laterales (50, 52) es una almohadilla plástica fibrosa no tejida o un plástico espumoso tridimensional.

8. El artículo absorbente de acuerdo a cualquiera de las reivindicaciones precedentes, caracterizado por que dichos bolsillos (64, 66) se extienden a lo largo de la longitud total de dicho núcleo absorbente (12).

9. El artículo absorbente de acuerdo a cualquiera de las reivindicaciones 1-7, caracterizado por que dichos bolsillos (64, 66) se extienden a lo largo de la porción central (34) de dicho núcleo absorbente (12).

10. El artículo absorbente de acuerdo a cualquiera de reivindicaciones precedentes, caracterizado por que dicha porción central (34) de dicho núcleo absorbente comprende entre 20% y 60%, preferiblemente entre 30 y 45%, y más preferiblemente aproximadamente un tercio, de la longitud del núcleo absorbente (12).

11. El artículo absorbente de acuerdo a cualquiera de las reivindicaciones precedentes, caracterizado por que dichas tiras de barrera (46, 48) tienen una extensión

transversalmente a través de dicho núcleo absorbente (12), dicha extensión está entre 5% 25% de la anchura total de la toalla sanitaria en el área de humectación.

12. El artículo absorbente de acuerdo a cualquiera de las reivindicaciones precedentes, caracterizado por que el grosor de los medios de desplazamiento (60) es de al menos 1 mm.

REIVINDICACIONES CORREGIDAS.

(Recibidas por la oficina internacional 5 de marzo del 2002 (0.50.30.2); reivindicación original 1 corregida; permanecen las reivindicaciones sin cambiar (página 1).

1. Un artículo absorbente (10) tal como una toalla sanitaria, dicho artículo comprende: un núcleo absorbente alargado (12) delimitado por una superficie superior (14) y una superficie inferior (16), un par de porciones de borde longitudinales opuestas (18, 20) que terminan en bordes longitudinales (22, 24), un par de bordes transversales opuestos (26, 28), dicho núcleo tiene una primer porción de extremo (30), una segunda porción de extremo (32) y una porción central (34) localizada entre dichas porciones de extremo; una lámina superior permeable a los líquidos (66) que se extiende sobre dicha superficie superior (14), y una lámina posterior de barrera a los líquidos (42) que cubre dicha superficie inferior (16) de dicho núcleo absorbente (12), tiras de

barrera (46, 48), cada una de las tiras cubre una porción de borde longitudinal respectivo (18, 20) y forma bolsillos de retención de líquido (64, 66) a lo largo de cada una de las porciones de borde longitudinal, untar de miembros elásticos longitudinales (50, 52) que están dispuestos a lo largo de dichas tiras de barrera (46, 48) que están ubicadas a lo largo de cada una de las porciones de borde longitudinal (18, 20) de dicho núcleo absorbente en al menos dicha porción central (34) de dicho núcleo absorbente, caracterizado por que en los miembros elásticos (50, 52) se incluyen medios de espaciamento (60) dispuestos a una distancia uno del otro a lo largo de la longitud de los miembros elásticos (50, 542) para crear canales de conducción de fluido (62) en una dirección desde el centro del artículo absorbente (10) a los lados longitudinales del artículo absorbente (10).

2. El artículo absorbente de acuerdo a la reivindicación 1, caracterizado por que los miembros elásticos (50, 52) estén en la forma de una cuerda de cuentas (54) y por que los medios de espaciamento (60) consisten de cuentas (54).

Declaración bajo el artículo 19 (1) la reivindicación 1 se ha corregido con el fin e clarificar que los canales que conducen el fluido se quedan en una dirección desde el centro del artículo absorbente a los lados longitudinales del artículo absorbente. El soporte para esto se puede encontrar en la página 7, 10 (28-28).

Las hojas de reemplazo (13-15) son sometidas aquí con el, fin de reemplazar las hojas previas 13-15, en razón a que la corrección de la reivindicación 1 a desplazado el texto.

Las hojas de reemplazo 13-15 están incluidas.

RESUMEN

La invención se refiere a un artículo absorbente (10) tal como una toalla sanitaria, donde dicho artículo comprende un núcleo absorbente alargado (12) delimitado por la superficie superior (14) y una superficie inferior (16). Un par de porciones de borde longitudinal opuesto (18, 20) terminan en bordes longitudinales (22, 24), y un par de bordes transversales opuestos (26, 28). Dicho núcleo tiene una primer porción de extremo (30), una segunda porción de extremo (32) y una porción central (34) localizada entre dichas porciones de extremo. Una lámina superior permeable a los líquidos (36) se extiende sobre dicha superficie superior (14), y una lámina posterior de barrera a los líquidos (42) cubre dicha superficie inferior (16) de dicho núcleo absorbente (12). Las tiras de barrera (46, 48), cada tira cubriendo una porción de borde longitudinal respectivo (18, 20) forman bolsillos de retención de líquido (64, 66) a lo largo de cada una de las porciones de borde longitudinal. Un par de miembros elásticos longitudinales (50, 52) está

dispuesto a lo largo de dichas tiras de barrera (46, 48) que están ubicadas a lo largo de cada una de las porciones de borde longitudinal (18, 20) de dicho núcleo absorbente en a menos dicha porción central (34) de dicho núcleo absorbente. La invención esta caracterizada por que los miembros elásticos (50, 52) incluyen medios de espaciamiento (60) dispuestos a una distancia o del otro a lo largo de a longitud de los miembros elásticos (50, 52) para crear canales de conducción de fluido (62).

Expediente No		08027229	No de Folia
Item		No de unidades	✓
1	CD		
2	DVD		
3	REVISTA		
4	LIBRO		
5	PERIODICO		
6	DISQUETES		
7	SOBRE DE MANILA	X 1	←
8	SOBRE BLANCO TAMAÑO CARTA		
9	SOBRE BLANCO TAMAÑO OFICIO		
10	OTROS:		

Observaciones:

Sobre sin arte final

95-

SUPERINDUSTRIA Y COMERCIO

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RECIBO OFICIAL DE CAJA : 03 - 21,919
FECHA : MARZO 25 DE 2003

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PAGO	Gr. PAGO
CAVELIER ABOGADOS	CONSIGNACION	BANCO POPULAR	050-00110-6	9005690	25/03/2003	27,448,920.00

***** CONCEPTO *****

CANT. REMISIVO	CONCEPTO	TOTAL CONCEPTO
1 50005-01-01 SOLICITUDES	1 TRAMITES DE SOL. DE PATENTE DE IN	400,000.00
	TOTAL :	\$ 400,000.00

SOM: CUATROCIENTOS MIL PESOS

RESPONSABLE : _____

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

Qlo 11256-841-011-5