



Industria y Comercio
SUPERINTENDENCIA

PCT



SOLICITUD
PATENTE DE INVENCION

03-27231

21 **EXPEDIENTE N°**

54 **TÍTULO**

ARTICULO ABSORBENTE CON BARRAS CONTRA CHORREADURA QUE CONTIENEN

ELEMENTOS DE DISTANCIA PARA CREAR CANALES TRANSVERSALES ESTABLES

51 **CLASIFICACIÓN INTERNACIONAL**

A61F 13/475

71 **SOLICITANTE**

SCA HYGIENE PRODUCTS AB

DOMICILIO

Goteborg, Suecia.

74 **APODERADO**

EMILIO FERRERO

Código No. 1092

22 **BOGOTÁ, D. C.**

**Industria y Comercio**

SUPERINTENDENCIA 03 027231 00

**PETITORIO**

SUPERINDUSTRIA Y COMERCIO

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Fecha (MM/AA): 2002-04-01 16:44:00

Trámite: 011 PCT-PATENT 279 FASE NACI 411 PRESENTACI

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@camyo.com

Domicilio: Bogotá, Colombia.

IDENTIFICACION

C.C.



NIT



C.E.



Otro

Cual

Número: 438.019 T.P. 31.929**4****INVENTOR (ES)
(72)****Segun DREVIK**

Hulebäcksvägen 16,

SE 435 35 Mölnlycke,

Suecia.

5**PCT (86)**Solicitud Internacional No. PCT/SE01/02091Publicación Internacional No. WO 02/28335 A1Fecha: 28 de septiembre de 2001Fecha: 11 de abril de 2002**6****Título (54) ARTICULO ABSORBENTE CON BARRAS CONTRA CHORREADURA QUE CONTIENEN
ELEMENTOS DE DISTANCIA PARA CREAR CANALES TRANSVERSALES ESTABLES****7****Clasificación Internacional (51) A61F 013/475****8****Prioridad**SI ☒NO ☐**(33) País de Origen**SE.**(32) Fecha**2 de octubre de 2000**(31) Número de Solicitud**0003521-2

000 00/28335

9

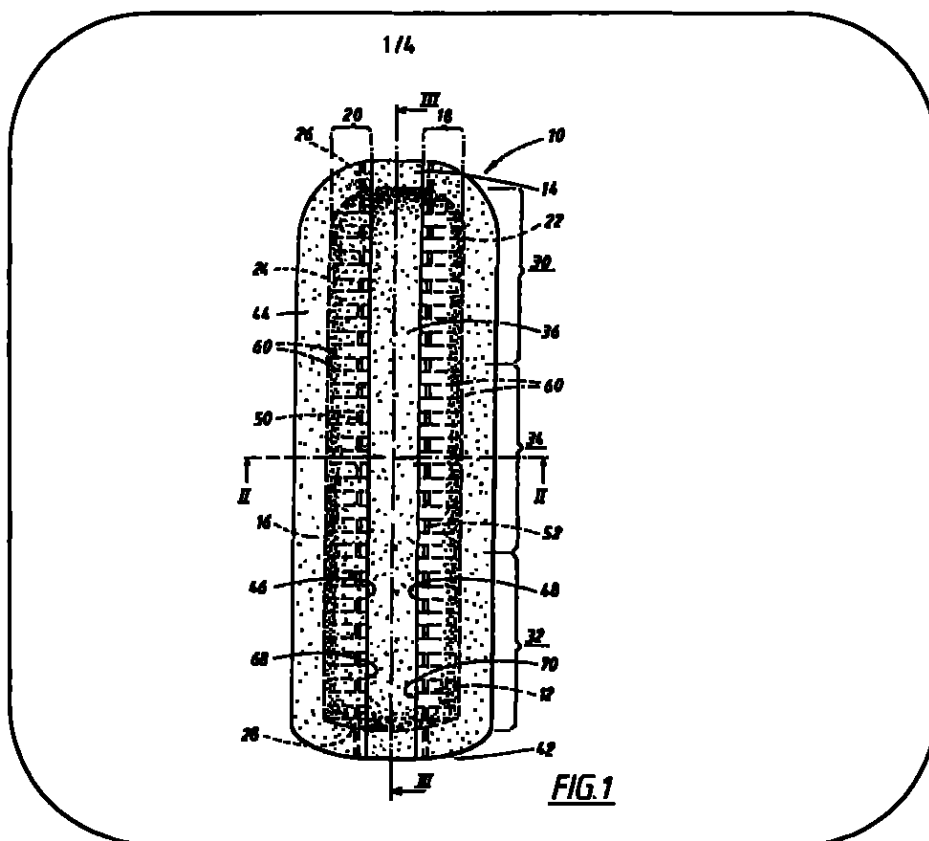
Comprobante de pago No.: 03-21.918 Fecha: 25 de marzo de 2003

10

Anexos:

- ☒ Comprobante de pago de la tasa de presentación de la solicitud por \$ 400.000.00.
- ☐ Comprobante de pago por reivindicación de prioridad.
- ☒ Documento que acredita la existencia y representación legal cuando el solicitante sea persona jurídica.
- ☒ Poderes, si fuere el caso.
- ☐ Documento de cesión del inventor al solicitante o a su causante.
- ☐ Declaraciones.
- ☒ Copia de la solicitud internacional. (Resumen, descripción, reivindicaciones, dibujos)
- ☒ Traducción de la solicitud internacional al castellano. (Resumen, descripción, reivindicaciones, dibujos)
- ☒ Copia del examen preliminar efectuado por la IPEA.
- ☐ Traducción del examen preliminar efectuado por la IPEA.
- ☐ De ser el caso, copia del contrato de acceso.
- ☐ De ser el caso, documento que acredite la licencia o autorización de uso de conocimientos tradicionales de las comunidades indígenas.
- ☐ De ser el caso, certificado de depósito del material biológico.
- ☒ Arte final 12x12
- ☐ De ser el caso, información sobre otras solicitudes de patente o títulos obtenidos en el extranjero por el mismo titular o su causante, relacionadas parcial o totalmente con la invención de esta solicitud.
- ☐ Otros

11

FIGURA CARACTERISTICA:

12

Solicito la concesión de la patente,

NOMBRE: EMILIO FERRERO

FIRMA :



C.C. 438.019 de Usaquén T.P. 31.929

JBP/mrm-ld-704

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

11106
0031

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 Público Funcionario Público, o Consulado 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 suplente, 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, desistír, cancelar, recibir, renunciar, y ratificar los actos de agentes oficiales.

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 or its exercise will suffice. The exercise of the representation by the first, second or third alternates in their turn shall end at such time.

In addition, we grant a Power of Attorney in favor of the above-named attorneys-at-law so that they may obtain the protection of my (our) industrial property and against the unfair competition, for which purpose I (we) authorize the said attorneys to represent me (us) before any authorities or persons, with or without jurisdiction, specially those administrative, administrative contentious and judicial, as well as before Arbitration Court, in all matters concerning the following: a) Obtainment of patents of invention, industrial designs; the registration of trademarks, collective, defensive and service marks, slogans, commercial names, trade emblems, vegetal varieties and denominations of origin; its renewal, assignment, change of name or domicile, voluntary cancellation, and the registration of licenses of use of the above rights; b) Actions of unfair competition, protection to the consumer, oppositions or observations, administrative and judicial cancellation, nullity, infringement, granting of licenses, and in general the civil, penal, and administrative actions relating to these 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

TRADUCCION No. 1707199

MARIA ELVIA MARTELO

Traductora e Interprete Oficial

Inglés - Español - Inglés

Res. No. 2879 Min. Justicia

Signature

Firma

Bengt Forshult

SCA Hygiene Products AB

Head of Patent Department

CAVELIER ABOGADOS

WTFODERE-17 (MINUTA 12.1.1.2.5)

15/02/99

16

17/02/99

LEGALIZACION

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

LEGALIZATION

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

TRADUCCION No. 1707/99
MARIA ELVIRA MARTELO
Traductora e Interprete Oficial
Inglés - Español - Inglés
Res. No. 2879 Min. Justicia

HO SE ASUME
RESPONSABILIDAD DEL TEXTO
2000 FEB 14 A 11:50
QUE LEGALIZACIONES
DEBE DE HACERLA O C

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

that Bengt Forshult

has personally signed this document overleaf, and

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

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

according to a Swedish Certificate of Registration, dated

1998-07-20, Bengt Forshult is duly authorized

to sign such a document on behalf of the company.

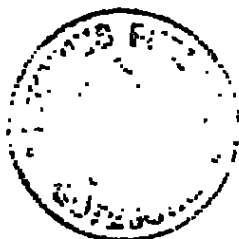
Gothenburg, this 25th day of February 1999

Exp. No.: 79234

Fee: SEK 350:-

MINISTERIO DE RELACIONES
EXTERIORES

RICKARD STRÖM



PAGADO	Impuesto de Timbre
7	dólares US\$
7	dólares US\$
7	dólares US\$

NO. 3066

The Ministry for Foreign

Affairs in Stockholm

certifies that

Mr Rickard Ström

Notary Public

Gothenburg

has issued and

foregoing attestation

official capacity

Fee Stockholm this

Kr 120/- PAID 1977

Inger Högborg



MARIA SMITH RUEDA
Encargada de las Funciones Consulares

Maria Smith Rueda

Fecha

1999-03-05

No. 022

que el señor Bengt Forshult
quien firma el documento que antecede
ejercía parte de su cargo
representante
de la Sociedad SCA Hygiene Products
Aktiebolag
que existe en la ciudad de Gothenburg
según se ha verificado en los libros de la ciudad que
tuve a la vista

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



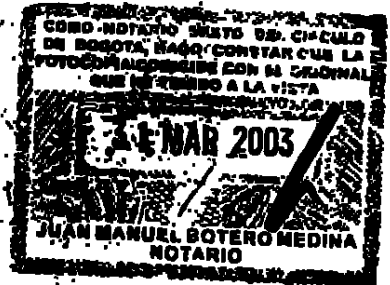
MINISTERIO DE RELACIONES
EXTERIORES

Maria Smith Rueda
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Cuya firma aparece en el
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LAS FUNCIONES INDICADAS

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MINISTERIO DE RELACIONES
EXTERIORES
NO SE ASUME
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JUL 28 1966
JEFE DE LEGALIZACIONES
SANTAFE DE BOGOTA D.C.
Cuya firma aparece en el
DOCUMENTO DESEMPENA
LAS FUNCIONES INDICADAS

TRADUCCION No. 1707/99
MARIA ELVIRA MARTELO
Traductora e Interprete Oficial
Inglés - Español - Inglés
Res. No. 2879 Min. Justicia





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:

Imper Höglberg, Mm Relaciones
Exteriores, Suecia

M. Smith Rueda

MARIA SMITH-RUEDA
Encargada de las Funciones Consulares



PAGADO

Impuesto de Timbre

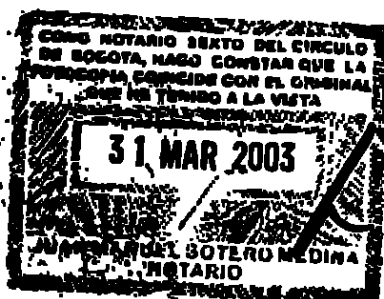
Siete dólares US\$ *7*

Derechos Consulares

Quince dólares US\$ *15*

TRADUCCIÓN No: 1709199

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 y

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

GUNNAR ANDERSSON y SVEN-ERIK WINLÖF, quienes ~~debidamente~~ autorizados para firmar conjuntamente por y

HYGIENE PRODUCTS AKTIEBOLAG - Org. No.

Certificado de Registro Sueco de fecha 1998-07-20, Bengt Forshult está

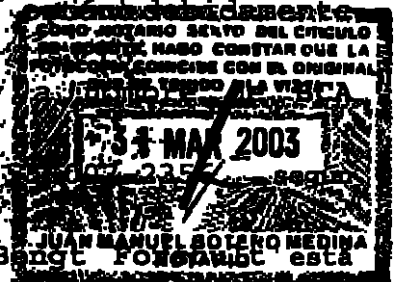
debidamente autorizado para firmar dicho documento a nombre de la compañía.

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.

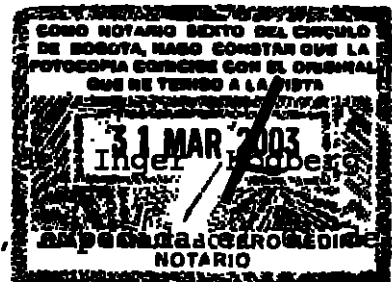
Derechos Estocolmo, 25 de marzo

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
Ministerio de Relaciones Exteriores, Suecia,
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

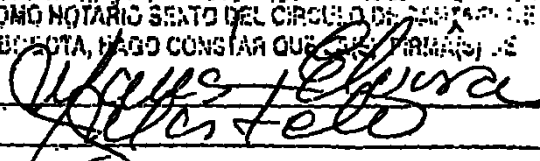
Feb. 15/00

Maria Elvira Martelo
TRADUCCION No. 110799
MARIA ELVIRA MARTELO
Traductora e Interprete Oficial
Inglés - Español - Inglés
Res. No. 2879 Min. Justicia

MINISTERIO DE RELACIONES
EXTERIORES
220552.
C/ JICA MAARTCO
CUYA FIRMA ATUECE EN EL
DOCUMENTO DESEMPENA
LAS FUNCIONES INDICADAS

COMO NOTARIO SINTO DEL CIRCULO
DE BOGOTA, HAGO CONSTAR QUE LA
FOTOCOPIA CONFORME CON EL ORIGINAL
QUE HE TENIDO A LA VISTA
31 MAR 2003
JUAN MANUEL BOTERO MEDINA
NOTARIO

SE ASUME
RESPONSABILIDAD DEL TEXTO
2000 FEB 16/00 12/02
Jefe de LEGALIZACIONES
SANTAFE DE BOGOTA, D.C.

COMO NOTARIO SEATO DEL CIRCULO DE SANTAS DE
 BUENA, HAGO CONSTAR QUE LA FIRMA DE

 CONCIDE(N) CON LA FIRMA REGISTRADA POR
 EL (S)LO(3) EN ESTA NOTARIA
 SANTAS DE BOGOTA, 16 FEB 2000



12:00:25
 21 MAR 2003

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COMO NOTARIO SEATO DEL CIRCULO
 DE BOGOTA, HAGO CONSTAR QUE LA
 FOTOCOPIA CONCORDA CON EL ORIGINAL
 QUE NO TIENE A LA VISTA
 31 MAR 2003
 JUAN MANUEL NOTERO MEDINA
 NOTARIO

(19) World Intellectual Property Organization
International Bureau



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

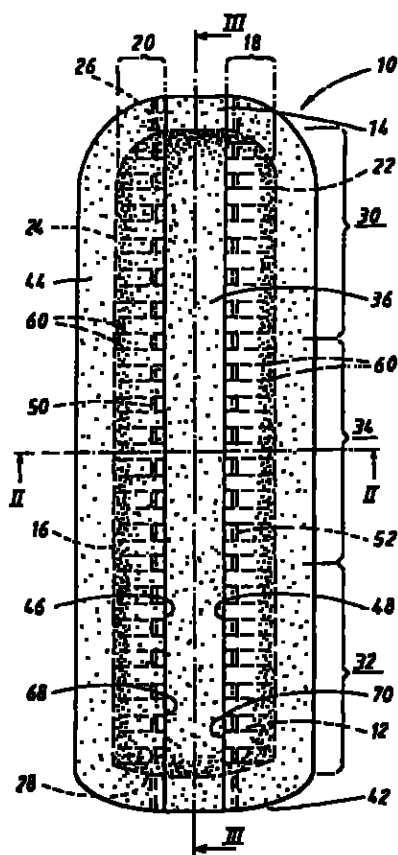
PCT

(10) International Publication Number
WO 02/28335 A1 ✓

- (51) International Patent Classification: A61F 13/475. / (72) Inventor: DREVIK, Solgun; Hulebäcksvägen 16, S-435 13/494 35 Mölnycke (SE). ✓
- (21) International Application Number: PCT/SE01/02091 / (74) Agents: ANDERSSON, Per et al.; Albihns Göteborg AB, P.O. Box 142, S-401 22 Göteborg (SE).
- (22) International Filing Date: 28 September 2001 (28.09.2001) ✓ (71) Designated States (national): AR, 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.
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: ✓ 0003521-2 ✓ 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 Gothenburg (SE). ✓

[Continued on next page]

(54) Title: ABSORBENT ARTICLE WITH LEAKAGE BARRIERS CONTAINING DISTANCE ELEMENTS TO CREATE STABLE TRANSVERSAL 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 barrier backsheet (42) covers said lower surface (16) of said absorbent core (12). Leakage barriers (68, 70), each barrier covering a longitudinal edge portion (18, 20) in a respective longitudinal edge portion (18, 20), forms liquid-retaining pockets along each longitudinal edge portion. The invention is characterized in that first spacing means (60) are arranged between the absorbent core (12) and each of said leakage barriers (68, 70), and that said first spacing means (60) are being arranged at a distance from each other along the length of said leakage barriers (68, 70) and defines fluid conducting first channels (62), that extends generally perpendicularly to the longitudinal edge portions (18, 20), between said leakage barriers (68, 70) and said absorbent core (12).

WO 02/28335 A1

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

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 leakage barriers containing distance elements to create stable transversal 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. The 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. The absorbent article comprises
leakage barriers, each barrier covering a longitudinal edge portion in a
respective longitudinal edge portion and forms liquid-retaining pockets along
each longitudinal edge portion.

15

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
20 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
25 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
30 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. Side leakage barriers may also be in the form of a pair of liquid

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barrier sheets and a pair of strips of resilient material, that forms pockets and increase the stiffness of the sanitary napkin in the region of the mid portion of the absorbent article.

5 However, it has been found that despite all the efforts, which have hitherto 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
10 position runs out and gathers, by the effect of gravity, at the longitudinal side 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
15 such a way that a gap is formed between the article and the user's body.

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
20 over an intended exposure time of the article. However, leakage can arise if 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
25 spread over the topsheet of the napkin and escape over the wings to thereby 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
30 occurs at the side edges. Many attempts have been made to overcome the 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.

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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 according to the preamble of claim 1, where the absorbent 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. Said absorbent article comprises leakage barriers, each barrier covering a longitudinal edge portion in a respective longitudinal edge portion and forms liquid-retaining pockets along each longitudinal edge portion

10 The above-stated objects are achieved in accordance with the present invention by an absorbent article being characterised in that a part of the absorbent article is made profiled and include first spacing means arranged at a distance from each other along the length of the upper surface to create fluid conducting first channels.

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The profiled parts of the absorbent article may be the longitudinal edge portions, or the entire upper surface. The profiled parts are made profiled by groove compression of either the topsheet or the upper part of the absorbent core, or the both together, and that the first spacing means consists of the uncompressed parts of the topsheet and/or the upper part of the absorbent core.

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Preferred embodiments will become evident by the subsequent dependent claims.

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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:

30 Fig. 1 is a schematic plan view of an absorbent article according to the present invention;

- Fig. 2 is a sectional view on a larger scale along line II-II of Fig. 1;
- Fig. 3 is a schematic view of a sectional view on a larger scale along line III-III of Fig. 1;
- 5 Fig. 4 is a schematic plan view of an absorbent article according to a second embodiment of the present invention with a partially cut away topsheet; and
- 10 Fig. 5 is a sectional view on a larger scale along line V-V of Fig. 4;
- Fig. 6 is a schematic view of a sectional view on a larger scale along line VI-VI of Fig. 4.
- 15 Fig. 7 is a schematic view of a sectional view on a larger scale along line VI-VI of Fig. 4, according to a further embodiment of the invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS:

20 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.

The invention will be presented in a number of different embodiments and will also refer to previously known sanitary napkins, which constitute examples of
25 different known techniques and shall not be seen as limiting for the present invention. The previously known sanitary napkins constitute examples, on which all the embodiments of the invention may be applicable.

As is apparent from Fig. 1 and 3, reference numeral 10 generally denotes an
30 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 end portion 30, a second end portion 32 and central portion 34 located
5 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.

As is typical in the art, the absorbent article 10 is further provided with a liquid
10 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 extending over the lower surface 16 of the absorbent core 12. The backsheet
15 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 76 attached for an increased possibility to fasten the absorbent article to the clothing closest to the wearers body. The fastening means may be an adhesive, mechanical fastening means such as Velcro or
20 another fastening means suitable for the purpose.

The sanitary napkin 10 further comprises a pair of two longitudinal leakage barriers 68, 70, each leakage barrier covering a longitudinal edge portion 18, 20 of the permeable topsheet 36, that forms liquid-retaining pockets along
25 each longitudinal edge portion 18, 20.

Fig. 1, 2 and 3 show the invention according to a first embodiment of the invention where a part of the absorbent article 10, such as at least the longitudinal edge portion 18, 20, are made profiled and include first spacing
30 means 60 arranged at a distance from each other along the length of the longitudinal edge portion 18, 20 and will create fluid conducting first channels 62 between the leakage barriers 68, 70 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 first channels 62 are especially advantageous when the leakage barriers 68, 70 are pressed against the top sheet 36 and the upper surface 14 of the absorbent core 12, by an external force, e.g. tight
5 trousers or if the user is sitting down. The first channels 62 then allows migrating body fluids to flow under the leakage barriers 68, 70 even when the leakage barriers 68, 70 are pressed against the top sheet 36, thereby increasing the flow through the absorbent core 12 rather than through the leakage barriers 68, 70 or over the leakage barriers 68, 70. Since the
10 leakage barriers 68, 70 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 side of the sanitary napkin is guided via the first channels 62 into the pockets which are formed beneath the leakage barriers 68, 70 and down through the absorbent core 12, even when the leakage barriers 68, 70
15 are pressed against the top sheet 36, thereby diminishing the risk of side leakage

The absorbent article according to a second embodiment of the invention is characterized in that each the longitudinal edge portion 18, 20 are made
20 profiled by a groove compression of the topsheet 36. The groove compression compresses the material in certain parts with a distance of 1-15 mm between the uncompressed parts, which also defines the width of the first channels, and that the first spacing means 60 consists of the uncompressed parts.

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The absorbent article according to a third embodiment of the invention is characterized in that the longitudinal edge portion 18, 20 also may be made profiled by a groove compression of the upper part of the absorbent core 12, and the first spacing means 60 consists of the uncompressed parts.

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According to a fourth embodiment of the invention, the entire upper surface 14 are made profiled by a groove compression of the topsheet 36, and the first spacing means 60 consists of the uncompressed parts.

5 According to a fifth embodiment of the invention, the entire upper surface 14 are made profiled by a groove compression of an upper part of the absorbent core 12, and that the first spacing means 60 consists of the uncompressed parts.

10 According to a sixth embodiment of the invention, the profiled parts are made profiled by groove compression of both the topsheet 36 and the upper part of the absorbent core 12, and that the first spacing means 60 consists of the uncompressed parts of the topsheet 36 and the upper part of the absorbent core 12.

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According to a seventh embodiment of the invention, a distance material in the form of cylinders are placed in at least the first area, in a direction from the centre of the sanitary napkin 10 to the longitudinal sides of the sanitary napkin 10, and that the first spacing means 60 consists of the distance material.

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All the above mentioned embodiments, one to seven, together with the embodiments that will be described below, will form a number of further embodiments. It is to be understood that all combinations conceivable form new embodiments of the invention.

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Figures 1, 2 and 3 may be further used as a support in the description of yet further embodiments of the invention, where the longitudinal leakage barriers 68, 70 are in the form of barrier strips 46, 48, with each sheet covering a longitudinal edge portion 18, 20 of the permeable topsheet 36, that forms pockets 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

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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 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 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.

The elastic members 50, 52 may be in the form of a string of beads (not shown). The beads serve as second spacing means between the barrier strips 46, 48 and the top sheet 36, and will create fluid conducting second channels (not shown) 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

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sides of the sanitary napkin 10. The second 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 second channels
5 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
10 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 side of the sanitary napkin is guided via the second channels into the pockets 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.

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The second spacing means together with the first spacing means will advantageously create channels defined by the combined space of the second channels and the first channels, which means that all of the above mentioned advantages with distance material creating channels will be
20 enhanced.

The beads 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.

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The string of beads 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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The elastic members 50, 52 may be broader than in the first embodiment and they are in the form of a string of short cylinders (not shown). The short

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cylinders serve as second spacing means between the barrier strips 46, 48 and the top sheet 36, and will create second channels 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 serve the same purpose as in the first embodiment. Here, short cylinder means a cylinder having a length less than the cylinder diameter. The cylinder may alternatively have other cross-sectional shapes, such as an oval shape. The cylinders may also have different diameters and/or different cross sections in the same string of cylinders.

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The string of short cylinders 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.

The elastic members 50, 52 may be even broader than in the second embodiment and they are in the form of a string of long cylinders (not shown). The long cylinders serve as second spacing means 60 between the barrier strips 46, 48 and the top sheet 36, and will create second channels 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 second embodiment. Here, long cylinder means a cylinder length longer than the cylinder diameter. The cylinder may alternatively have other cross-sectional shapes, such as an oval shape. The cylinders may also have different diameters and/or different cross sections in the same string of cylinders.

The string of long cylinders 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.

The string of long cylinders may be substituted by a distance material (not shown) in the form of long cylinders 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 second channels 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 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 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.

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

Figures 4, 5 and 6 show yet further embodiments of the present invention, where the above mentioned first embodiment to sixth embodiment of the invention are to be combined with a previously known sanitary napkin and as is typical in the art, the absorbent article 10 comprises leakage barriers 68 in the form of a pair of liquid barrier sheets 38 and a pair of strips of resilient material 40, with each liquid barrier sheet 38 covering a longitudinal edge portion 18, 20 of the permeable topsheet 36. The strips of resilient material 40 may be placed either over or under the top sheet, but in the figures the strips of resilient material 40 is placed under the top sheet 36, which also will be described in the following embodiments. The liquid barrier sheets 38 may be placed either over or under the top sheet, but in the figures the strips of liquid barrier sheets 38 is placed over the top sheet 36, which also will be described in the following embodiments. The liquid barrier sheets are preferably coated with adhesive on their concave surface, i.e. the surface facing towards the absorbent body. Although a pair of separate barrier sheets has been shown in the drawings, it is to be realized, however, that the two sheets 38 may be replaced by a single sheet extending over the entire lower surface 16 of the absorbent core, being folded over the longitudinal edges 22, 24 and covering the longitudinal edge portions 18, 20 of the permeable top sheet 36.

In this previously known sanitary napkin it is also known, and as best illustrated in Fig. 4, 5 and 6, that the strip of resilient material 40 is placed between each liquid impermeable sheet 38 and the absorbent core 12 along each longitudinal edge portion 18, 20 of the absorbent core in at least the mid portion 34 of the absorbent core. The strips of resilient material serve to significantly increase the stiffness of the sanitary napkin in the region of the mid portion. In other words, the resistance to flexure in the longitudinal direction is increased by at least 10% in the longitudinal edge portions in the mid portion when compared to a sanitary napkin without strips of resilient material.

Advantageously, the strips of resilient material 40 are primarily hydrophobic and may be a three dimensional non-woven fibrous plastic wadding or a foamed plastic. Since the material of the strips is primarily hydrophobic, migrating body fluids tend to flow through the absorbent core rather than through the strips of resilient material. Since, in the embodiment shown in Fig. 2, the strips of resilient material serve to conceal the longitudinal edge portions 18, 20 in the mid portion 34, any collection of fluid at the edge portions is concealed, thereby imparting an impression of increased safety to the wearer.

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According to another embodiment of the invention the strips of resilient material 40 may also be profiled by groove compression, on that surface that faces the upper side of the absorbent core 12. Thus, the strips of resilient material 40 include third spacing means 78 in the form of uncompressed resilient material arranged at a distance from each other along the length of the resilient material 40 to create third fluid conducting third channels 80 between the strips of resilient material 40 and the absorbent core 12, and the third spacing means 78 consists of the uncompressed parts of the resilient material 40.

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In a further embodiment of the previously known sanitary napkin, strips of resilient material 40 are placed between the liquid impermeable sheets 38 and the lower surface 16 of the absorbent core 12. Preferably, however, the strips of resilient material are placed between the liquid impermeable sheets 38 and the upper surface 14 of the absorbent core. In this manner, the strips of resilient material 40 serve to "lift" the liquid impermeable sheets 38 from the upper surface 14 of the absorbent core to thereby create an opening to a liquid-retaining pocket formed by the liquid impermeable sheet along each longitudinal edge portion 18, 20. Accordingly, any discharged bodily fluids which migrate across the upper surface of the absorbent core will flow through the opening and into the liquid-retaining pocket. Due to the fact that the concave surfaces of the sheets of resilient material are coated with

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adhesive and thereby adhere to the absorbent core and strips of resilient material, the risk of fluids leaking from the liquid-retaining pockets is minimal.

Particularly in the case when the absorbent article comprises a pair of liquid impermeable sheets 38 covering the longitudinal edge portions 18, 20 of the absorbent core 12, the absorbent article may also comprise a liquid impermeable backsheet 42 extending over the lower surface 16 of the absorbent core. Advantageously, the backsheet 42 is made of the same material as the liquid impermeable sheet 38 and is joined to the topsheet 36 to form a peripheral margin 44 around preferably the entire absorbent core 12. In this manner, the liquid-retaining pockets along the edge portions 18, 20 are enclosed by the topsheet 36 and the backsheet 42.

For ease of manufacturing and to ensure that the risk of edge leakage anywhere along the length of the absorbent article is minimal, the liquid retaining pockets preferably extend along the entire length of the absorbent core 12. Since, however, the form stability of the absorbent article is most critical only in the mid portion 34 of the absorbent core, the strips of resilient material 40 need only occupy said mid portion. However, if desired, the strips may extend into the first and second end portions 30, 32.

The pockets may extend along the entire length of said absorbent core 12, or extend along the central portion 34 of said absorbent core 12.

The absorbent article according to any one of the preceding embodiments is characterized in that the thickness of the first, second and third spacing means is at least 1 mm, and that the sum of the thickness of the first and second spacing means or the first and third spacing means or the second and the third spacing means defines the respective combination's maximum height of the sum of the first channel and/or second channel and/or third channel. The thickness of the spacing means also means the diameter when the spacing means are cylindrical or spherical.

The distance between the third spacing means 78, i.e. the width of the third channels, is 1-15 mm.

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

Obviously, the hydrophobic strips of resilient material 40 or the barrier strips
46, 48, i.e. the leakage barriers 68, 70 may not extend over the entire width
10 of the absorbent core since this would prevent passage of body fluids into the absorbent core 12. Accordingly, the leakage barriers 68, 70 have 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. The liquid impermeable sheets 38 advantageously display the same or
15 similar transverse extension as the strips of resilient material. The thickness of the strips of resilient material 40, i.e. the extension of the strips in a direction substantially perpendicular to the upper surface of the absorbent core, should be sufficient to allow the strips to mould to the wearer's body. Typically, the thickness of the strips in an uncompressed condition can thus
20 lie between about 1 and 5 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, strips of resilient material may be placed on both surfaces of the absorbent core in the longitudinal edge portions.

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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
30 shaped or rectangular. Also, the elastic members and the distance material may be of a stiff material, and 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.

In making a sanitary napkin in another shape than the one shown in the figures, advantageously the topsheet 36 will not extend outside the absorbent core, and the backsheet 42 or the liquid impermeable sheet 38 will not together with the topsheet 36 form a peripheral margin 44, but the backsheet 42 or the liquid impermeable sheet 38 will be folded over the side edges over the topsheet. The barrier strips 46, 48, in the embodiments referring to fig 4, 5, 6 or 7 may be excluded, and shall only be seen as a possibility to reinforce and/or modify the sanitary napkin according to certain needs.

The elastic members not only serve as means for creating channels, but may also bend the sanitary napkin into a cup-shape with the wetting area as one of the low points.

There may also be a combination of the above-described embodiments of the invention. For instance, the resilient material 40 may be profiled at the same time as the absorbent core, together creating fluid conducting channels.

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),
- leakage barriers (68, 70), each barrier covering a longitudinal
- 15 edge portion (18, 20) in a respective longitudinal edge portion (18, 20) and forming liquid-retaining pockets along each longitudinal edge portion,
- characterized in, that first spacing means (60) are arranged between the absorbent core (12) and each of said leakage barriers (68, 70), said first spacing means being arranged at a distance from each other along the
- 20 length of said leakage barriers (68, 70) and defining fluid conducting first channels (62), extending generally perpendicularly to the longitudinal edge portions (18, 20), between said leakage barriers (68, 70) and said absorbent core (12).
- 25 2. The absorbent article according to claim 1,
- characterized in, that each longitudinal edge portion (18, 20) is made profiled.
3. The absorbent article according to claim 1,
- 30 characterized in, that the upper surface (14) is made profiled.

4. The absorbent article according to claim 2 or 3, characterized in, that the profiled parts are created by groove compression of the top sheet (36), and that the first spacing means (60) consists of the uncompressed parts of the top sheet (36).

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5. The absorbent article according to claim 2 or 3, characterized in, that the profiled parts are made profiled by groove compression of the upper part of the absorbent core (12), and that the first spacing means (60) consists of the uncompressed parts of the absorbent core (12).

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6. The absorbent article according to claim 2 or 3, characterized in, that the profiled parts are made profiled by groove compression of both the topsheet (36) and the upper part of the absorbent core (12), and that the first spacing means (60) consists of the uncompressed parts of the topsheet (36) and the upper part of the absorbent core (12).

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7. The absorbent article according to claim 2 or 3, characterized in, that the profiled parts are made profiled by a distance material in the form of cylinders, that are placed in the topsheet (36) of each profiled portion, in a direction from the centre of the sanitary napkin (10) to the longitudinal sides of the sanitary napkin 10, and that the first spacing means (60) consists of the distance material.

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8. The absorbent article according to claim 2 or 3, characterized in, that the profiled parts are made profiled by a distance material in the form of cylinders, that are placed in the upper part of the absorbent core (12) of each profiled portion, in a direction from the centre of the sanitary napkin (10) to the longitudinal sides of the sanitary napkin 10, and that the first spacing means (60) consists of the distance material.

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9. The absorbent article according to any one of the preceding claims,
characterized in, that the leakage barriers (68, 70) consists of barrier
strips (46, 48), each strip covering a respective longitudinal edge portion (18,
5 20) and forming liquid-retaining pockets along each longitudinal edge portion,
a pair of longitudinal elastic members (50, 52) are 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
- 10 10. The absorbent article according to claim 9,
characterized in, that the elastic members (50, 52) is in the shape of
a string of beads, and that the beads defines second spacing means.
- 15 11. The absorbent article according to claim 9,
characterized in, that the elastic members (50, 52) is in the shape of
a string of short cylinders having a length less than the cylinder diameter, and
that the short cylinders defines second spacing means.
- 20 12. The absorbent article according to claim 9,
characterized in, that the elastic members (50, 52) is in the shape of
a string of long cylinders having a length longer than the cylinder diameter,
and that the long cylinders defines second spacing means.
- 25 13. The absorbent article according to claim 9,
characterized in, that a distance material in the form of long
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.

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

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

10 16. The absorbent article according to any one of the claims 1 to 8, characterized in, that a liquid impermeable sheet (38) covering said longitudinal edge portions (18, 20) of said absorbent core (12) and that the leakage barriers (68, 70) consists of a strip of resilient material (40) that is placed between said liquid impermeable sheet (38) and said absorbent core (12) along each longitudinal edge portion (18, 20) of said absorbent core in at
15 least said mid portion (34) of said absorbent core to thereby increase the flexure resistance of the article.

17. The absorbent article according to claim 16, characterized in, that said strip of resilient material (40) is a three
20 dimensional nonwoven fibrous plastic wadding or a foamed plastic.

18. The absorbent article according to claims 16 or 17, characterized in, that said strip of resilient material (40) is placed between said liquid impermeable sheet (38) and said lower surface (16) of
25 said absorbent core (12).

19. The absorbent article according to any one of the claims 16 to 18, characterized in, that it comprises a pair of liquid impermeable sheets (38), each sheet covering a respective longitudinal edge portion (18, 20) and forming liquid-retaining pockets along each longitudinal edge portion
30 (18, 20).

20. The absorbent article according to any one of the preceding claims, characterized in, that the side of said strip of resilient material (40) that faces the upper side of the absorbent core 12 is made profiled by groove compression.

5

21. The absorbent article according to claim 20, characterized in, that the uncompressed profiled parts of the strip of resilient material (40) defines third spacing means (78)

10 22. The absorbent article according to claim 19, characterized in, that it comprises a liquid impermeable backsheet (42) extending over said lower surface (16) of said absorbent core, said backsheet (42) and said topsheet (36) being joined to form a peripheral margin (44) around said absorbent core to thereby enclose said liquid-
15 retaining pockets along said edge portions.

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

20

24. The absorbent article according to any one of the preceding claims, characterized in, that said pockets extend along the central portion (34) of said absorbent core (12).

25 25. 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 core (12).

30

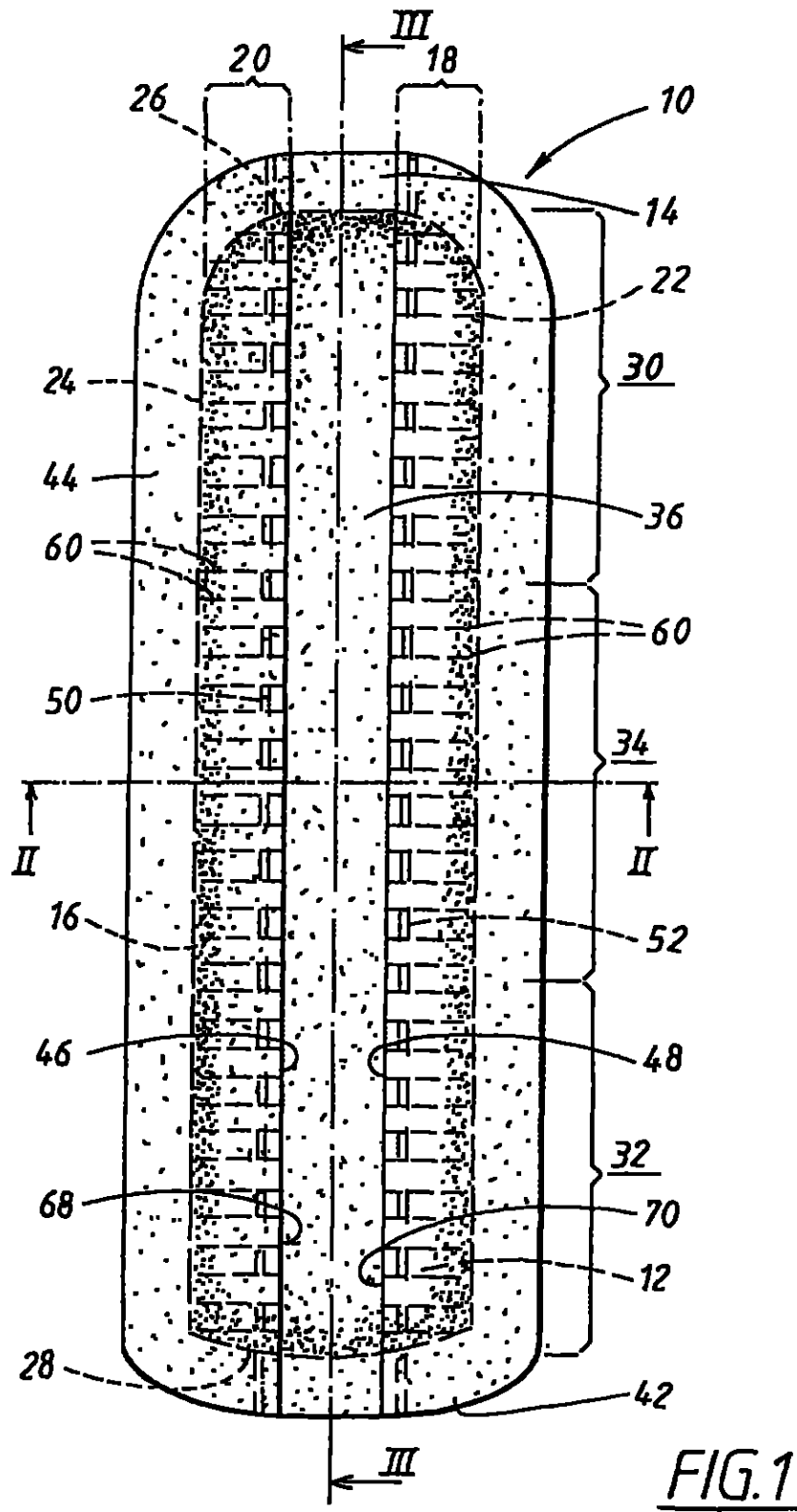
26. The absorbent article according to any one of the preceding claims, characterized in, that said leakage barriers (68, 70) each

have an extension transversely across said absorbent core (12), said extension being between 5% and 25% of the total width of the sanitary napkin at the wetting area.

- 5 27. The absorbent article according to any one of the preceding claims, characterized in, that the thickness of the first, second and third spacing means is at least 1 mm.

34

1/4



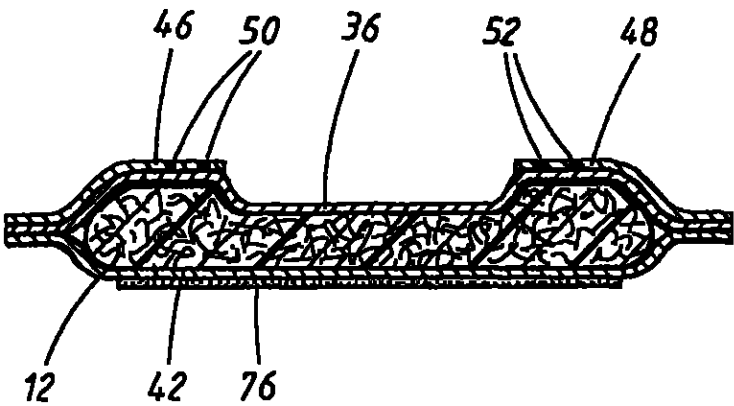


FIG. 2

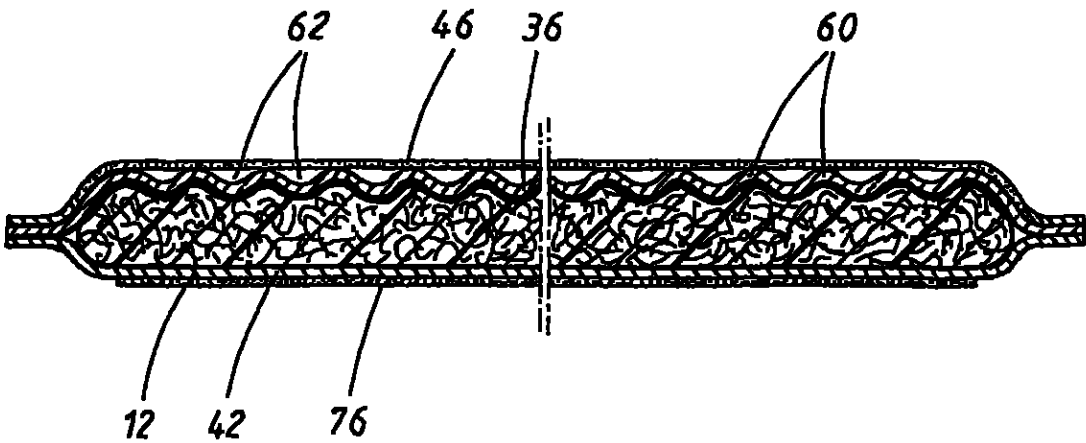
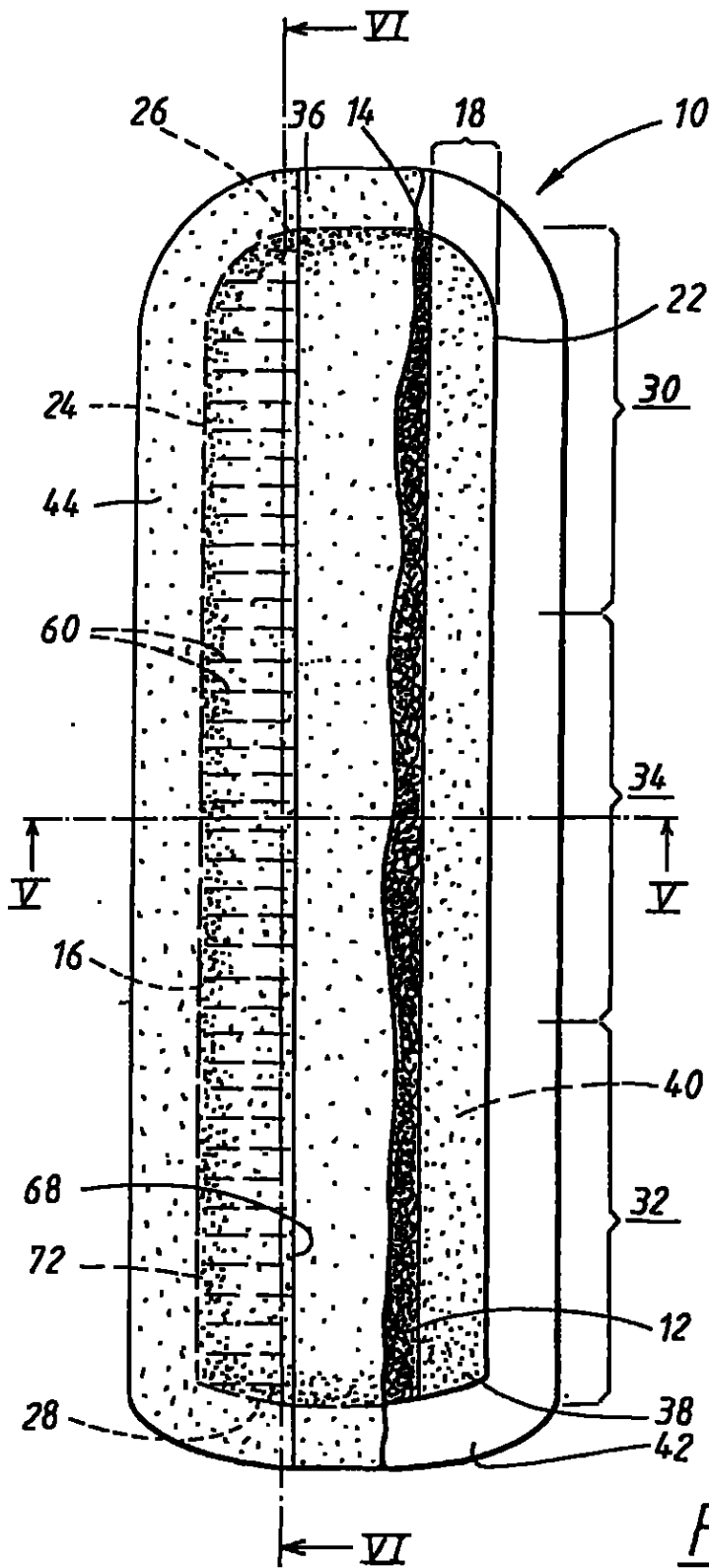


FIG. 3

3/4



4/4

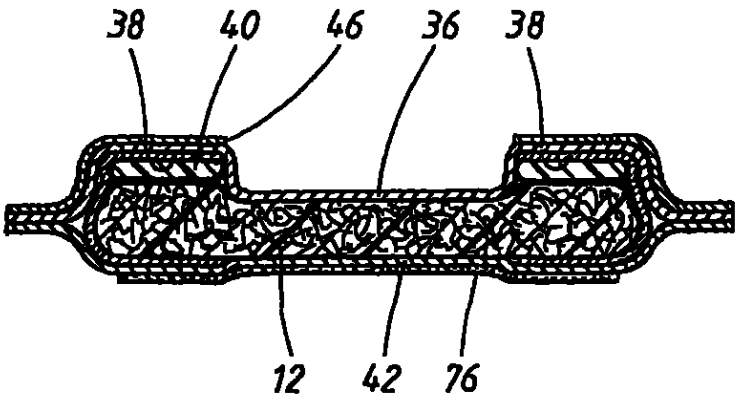


FIG. 5

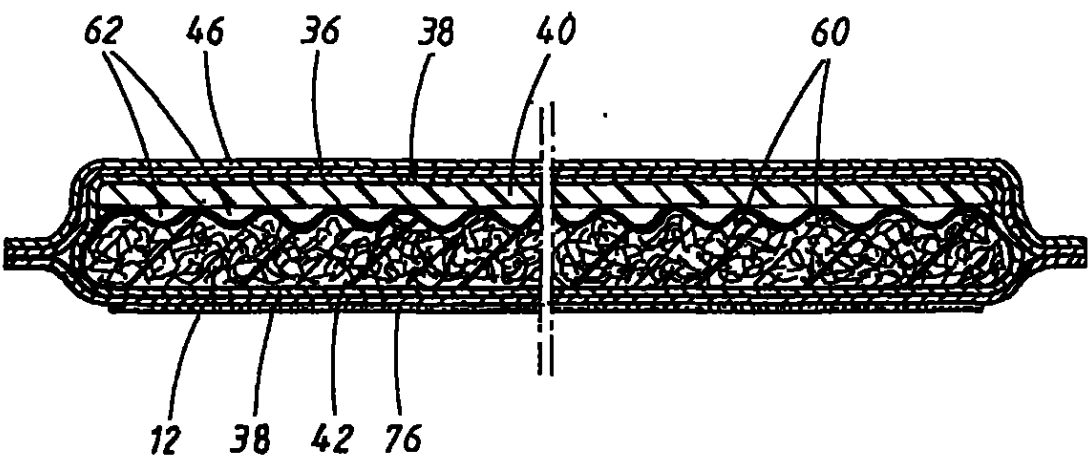


FIG. 6

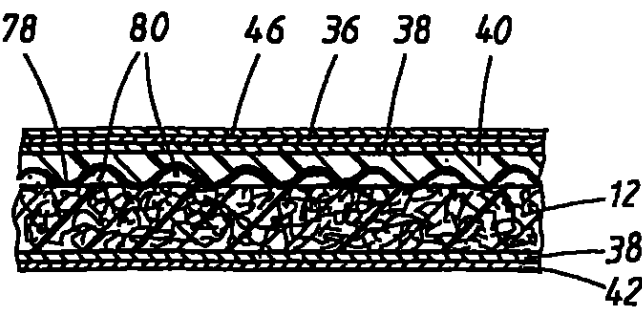


FIG. 7

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 01/02091

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 (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, lines 17-21, figure 2 --	1-27
A	DE 4422956 A1 (VP-SCHICKEDANZ AG), 4 January 1996 (04.01.96), column 2, line 8 - line 38; figure 1 --	1-27
A	EP 0649644 A1 (MC NEIL-PPC, INC), 26 April 1995 (26.04.95), column 5, line 18 - line 36, figure 5a --	1-27

☒ 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

"E" 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

"&" document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report

7 February 2002

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/EK
Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 01/02091

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2284831 A (KIMBERLY-CLARK CORPORATION), 21 June 1995 (21.06.95), page 3, line 10 - line 36, figure 2 -----	1-27

INTERNATIONAL SEARCH REPORT
Information on patent family members

27/12/02

International application No.
PCT/SE 01/02091

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

21

INTERNATIONAL SEARCH REPORT
Information on patent family members

27/12/02

International application No.
PCT/SE 01/02091

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
GB 2284831 A	21/06/95	AU 694160 B	16/07/98
		AU 1401595 A	03/07/95
		BR 9408330 A	19/08/97
		CA 2123329 A	18/06/95
		CN 1142758 A	12/02/97
		DE 69428368 D	00/00/00
		EP 0734238 A,B	02/10/96
		FR 2713981 A,B	23/06/95
		GB 9425480 D	00/00/00
		PL 177595 B	31/12/99
		PL 315170 A	14/10/96
		US 6221460 B	24/04/01
		WO 9516422 A	22/06/95
		ZA 9410022 A	24/08/95

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 112878 PEL	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/418)	
International application No. PCT/SE01/02091	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 A61F13/494		
Applicant SCA HYGIENE PRODUCTS		
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 1 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 23/04/2002	Date of completion of this report 08.10.2002	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Martinez, C Telephone No. +49 89 2399 7510 	

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/SE01/02091

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:

1-17 as originally filed

Claims, No.:

2-27 as originally filed

1 as received on 24/09/2002 with letter of 24/09/2002

Drawings, sheets:

1/4-4/4 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:

2X

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/SE01/02091

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ 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	1-27
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-27
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-27
	No:	Claims	

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

25

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 11-26 and page 7, first paragraph).

Due to the profiled part of the absorbent article including first spacing means which are arranged between the absorbent core and each of said leakage barriers and at a distance from each other along the length of said leakage barriers, fluid conducting first channels are defined perpendicularly to the longitudinal edge portions between said absorbent core and said leakage barriers which enable 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 as well as a part made profiled and including first spacing means as defined in claim 1:

Document D1 discloses an absorbent article (20) comprising barrier cuffs (62) as well as spacing elastic members (77) which is secured in the barrier cuff (62) by elastic attachment means (94) 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.45-60 + Fig.2). However, said spacing means are not included in a part of the absorbent article made profiled, are not arranged between the absorbent core and the

leakage barriers, are not at a distance from each other along the length of the leakage barriers and do not define conducting channels extending generally perpendicularly to the longitudinal edge portions between said leakage barriers and said absorbent core, as claimed in the present application.

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 also used to increase the flow of fluids but **in the length direction**. Moreover, said channels are not used in combination with leakage barriers.

Therefore, the subject-matter of claim 1, and so of dependent claims 2 to 27, appears to be novel (Article 32(2) PCT) and to involve an inventive step (Article 33(3) PCT).

112878 PEL
2002-09-24

18

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),
- leakage barriers (68, 70), each barrier covering a longitudinal
- 15 edge portion (18, 20) in a respective longitudinal edge portion (18, 20) and forming liquid-retaining pockets along each longitudinal edge portion, characterized in, that a part of the absorbent article is made profiled and include first spacing means (60), where the first spacing means (60) are arranged between the absorbent core (12) and each of said leakage barriers
- 20 (68, 70), said first spacing means being arranged at a distance from each other along the length of said leakage barriers (68, 70) and defining fluid conducting first channels (62), extending generally perpendicularly to the longitudinal edge portions (18, 20), between said leakage barriers (68, 70) and said absorbent core (12).

25

2. The absorbent article according to claim 1, characterized in, that each longitudinal edge portion (18, 20) is made profiled.

30

3. The absorbent article according to claim 1, characterized in, that the upper surface (14) is made profiled.

AMENDED SHEET

European Patent Office
D-80298 MÜNCHEN
Tyskland

INTERNATIONAL PRELIMINARY EXAMINATION AUTHORITY**International**

Patent Appl.No.
PCT/SE01/02091

Our ref
112878

Our agent
Peter Ekwall /PEL

This is with reference to the Written Opinion pursuant to Rule 66 PCT, dated 25.07.2002.

A new claim 1 is hereby enclosed to replace previous claim 1. Consequently, replacement sheet 18 is hereby filed to replace previous sheet 18.

Claim 1 has been amended by insertion of the wording: "...part of the absorbent article is made profiled and include first spacing means (60), where the...". Support for this may be found on page 4, lines 10-14.

The new claim 1:

1. An absorbent article (10) such as a sanitary napkin, said article comprising:
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;
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),
leakage barriers (68, 70), each barrier covering a longitudinal edge portion (18, 20) in a respective longitudinal edge portion (18, 20) and forming liquid-retaining pockets along each longitudinal edge portion,
characterized in, that a part of the absorbent article is made profiled and include first spacing means (60), where the first spacing means (60) are arranged between the absorbent core (12) and each of said leakage barriers (68, 70), said first spacing means being arranged at a distance from each other along the length of said leakage barriers (68, 70) and defining fluid conducting first channels (62), extending generally perpendicularly to the longitudinal edge portions (18, 20), between said leakage barriers (68, 70) and said absorbent core (12).

ALBIHNS GÖTEBORG AB

European Patent Attorneys and Representatives before the EPO

Box 142 · Torvgatan 8 · SE-401 22 GÖTEBORG · SWEDEN · Org.No 556123-0375

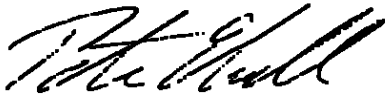
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ALBIHNS STOCKHOLM AB · ALBIHNS MALMÖ AB · ALBIHNS GmbH, MUNICH · ALBIHNS A/S COPENHAGEN



Since no other objections have been raised by the Examiner, it is hereby submitted that the present invention (according to the new claim 1) involves novelty and inventive step.

Göteborg 24 September 2002
SCA Hygiene Products AB
gm/ALBIHNS GÖTEBORG AB



Peter Ekwall

/Encl. new claim 1 and amended page 18, in triplicate.



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),
leakage barriers (68, 70), each barrier covering a longitudinal
15 edge portion (18, 20) in a respective longitudinal edge portion (18, 20) and forming liquid-retaining pockets along each longitudinal edge portion,
c h a r a c t e r i z e d i n, that a part of the absorbent article is made profiled and include first spacing means (60), where the first spacing means (60) are arranged between the absorbent core (12) and each of said leakage barriers
20 (68, 70), said first spacing means being arranged at a distance from each other along the length of said leakage barriers (68, 70) and defining fluid conducting first channels (62), extending generally perpendicularly to the longitudinal edge portions (18, 20), between said leakage barriers (68, 70) and said absorbent core (12).
 - 25
2. The absorbent article according to claim 1,
c h a r a c t e r i z e d i n, that each longitudinal edge portion (18, 20) is made profiled.
- 30 3. The absorbent article according to claim 1,
c h a r a c t e r i z e d i n, that the upper surface (14) is made profiled.

PATENT COOPERATION TREATY

57

From the:
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:	
EKWALL, Peter et al. Albihns Göteborg AB P.O. Box 142 S-401 22 Göteborg SUEDE	ANKOM 2002-07-30

FRIST	DEADLINE
SSR	02.08.13
SSS	02.10.25

PCT

WRITTEN OPINION

(PCT Rule 66)

Applicant's or agent's file reference 112878 PEL	REPLY DUE within 3 month(s) from the above date of mailing
International application No. PCT/SE01/02091	International filing date (day/month/year) 28/09/2001
	Priority date (day/month/year) 02/10/2000
International Patent Classification (IPC) or both national classification and IPC A61F13/494	
Applicant SCA HYGIENE PRODUCTS	

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

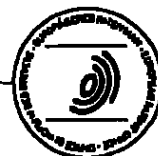
When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

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

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

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.
- The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 02/02/2003.

Name and mailing address of the international preliminary examining authority:	Authorized officer / Examiner
 European Patent Office D-80288 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Martinez, C Formalities officer (incl. extension of time limits) Lázaro Ortiz, A Telephone No. +49 89 2399 6011



WRITTEN OPINION

International application No. PCT/SE01/02091

I. Basis of the opinion

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

Description, pages:

1-17 as originally filed

Claims, No.:

1-27 as originally filed

Drawings, sheets:

1/4-4/4 as originally filed

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

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

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

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

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

4. The amendments have resulted in the cancellation of:

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

- ☐ the drawings, sheets:
5. ☐ This 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 Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement
- | | |
|-------------------------------|--------|
| Novelty (N) | Claims |
| Inventive step (IS) | Claims |
| Industrial applicability (IA) | Claims |
2. Citations and explanations
see separate sheet

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Reference is made to the following documents:

D1: US-A-5667609

D2: DE-A-4422956

Re Item V

1. Article 6 PCT

An independent claim should specify clearly all of the essential features needed to define the invention except in so far as such features are implied by the generic terms used (see (see PCT International Preliminary Examination Guidelines, Ch. III-4.4, PCT Gazette Special Issue dated 29 October 1998). This requirement is not met in the present case, 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 11-26 and page 7, first paragraph).

As clearly mentioned in the description (see page 4, lines 10-14), in order to achieve the above-stated object it is essential that a part of the absorbent article is made profiled and include first spacing means arranged at a distance from each other along the length of the upper surface to create fluid conducting first channels. The feature "a part of the absorbent article is made profiled and include first spacing means" is not specified in claim 1, the application does therefore not meet the requirements of Article 6 PCT.

The applicant is kindly requested to file a new independent claim 1 which takes account of the above comments.

2. Novelty - Inventive step

A new independent claim 1 including the feature that "a part of the absorbent article is made profiled and include first spacing means" as well as the features already specified in claim 1 would meet the requirements of Articles 33(2) and (3) PCT, the reasons being as follows:

Due to the profiled part of the absorbent article including first spacing means which are arranged between the absorbent core and each of said leakage barriers and at a distance from each other along the length of said leakage barriers, fluid conducting first channels are defined perpendicularly to the longitudinal edge portions between said absorbent core and said leakage barriers which enable 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 as well as a part made profiled and including first spacing means as defined in claim 1:

Document D1 discloses an absorbent article (20) comprising barrier cuffs (62) as well as spacing elastic members (77) which is secured in the barrier cuff (62) by elastic attachment means (94) 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.45-60 + Fig.2). However, said spacing means are not included in a part of the absorbent article made profiled, are not arranged between the absorbent core and the leakage barriers, are not at a distance from each other along the length of the leakage barriers and do not define conducting channels extending generally perpendicularly to the longitudinal edge portions between said leakage barriers and said absorbent core, as claimed in the present application.

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 also used to increase the flow of fluids but in the length direction. Moreover, said channels are not used in combination with leakage barriers.

PATENT COOPERATION TREATY

2002-04-15

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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)

12-04-2002

Applicant's or agent's file reference
112878 PEL

IMPORTANT NOTIFICATION

International application No.

PCT/SE01/02091

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. 08-667 72 65Telex
17878
PATOREG-S

Authorized officer

Telephone No. 08-762 25 00

Jan-Erik Karlsson

Form PCT/IPEA/402 (July 1998)

PATENT COOPERATION TREATY

2001-11-01 09:00:00

57

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION CONCERNING SUBMISSION OR TRANSMITTAL OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

To:

ANDERSSON, Per
Albihns Göteborg AB
P.O. Box 142
S-401 22 Göteborg
SUÈDE

Date of mailing (day/month/year) 02 November 2001 (02.11.01)	
Applicant's or agent's file reference 112878 PEL	IMPORTANT NOTIFICATION
International application No. PCT/SE01/02091	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.

<u>Priority date</u>	<u>Priority application No.</u>	<u>Country or regional Office or PCT receiving Office</u>	<u>Date of receipt of priority document</u>
02 Octo 2000 (02.10.00)	0003521-2	SE	24 Octo 2001 (24.10.01)

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer

S. Mandallaz

Telephone No. (41-22) 336.63.38

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 112878 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.)		☐ This person is also inventor.	
SCA Hygiene Products AB S-405 03 GÖTEBORG Sweden		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.)		This person is:	
DREVIK Solgun Hulebäcksvägen 16 S-435 35 MÖLNLYCKE Sweden		☐ 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.)		Telephone No.	
ANDERSSON Per, BEROQUIST Gunnar, BRUN Jenny, BÖRJESSON Suzanne, EKSTRÖM Nils, EKWALL Peter, GRAUDUMS Valdis, HARRISON Michael, MOSSMARK Anders, OLSSON Stefan, ROMARE Anette, SCHLOSSMAN Ulf, SKEPPSTEDT Anita, SÖREDAHL Peter		+46 31 725 81 00	
ALBINNS GÖTEBORG AB, P.O. Box 142, S-401 22 GÖTEBORG, Sweden		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

- ☒ AP ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, MZ Mozambique, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting state of the Harare Protocol and of the PCT
- ☒ EA Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ EP European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, TR Turkey, and any other State which is Contracting State of the European Patent Convention and of the PCT
- ☒ OA OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GQ Equatorial Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line).....

National Patent (if other kind of protection or treatment desired, specify on dotted line):

- | | | |
|--|---|---|
| ☒ AE United Arab Emirates..... | ☒ GE Georgia..... | ☒ MW Malawi..... |
| ☒ AG Antigua and Barbuda..... | ☒ GH Ghana..... | ☒ MX Mexico..... |
| ☒ AL Albania..... | ☒ GM Gambia..... | ☒ MZ Mozambique..... |
| ☒ AM Armenia..... | ☒ HR Croatia..... | ☒ NO Norway..... |
| ☒ AT Austria..... | ☒ HU Hungary..... | ☒ NZ New Zealand..... |
| ☒ AU Australia..... | ☒ ID Indonesia..... | ☒ PH Philippines..... |
| | | ☒ PL Poland..... |
| ☒ AZ Azerbaijan..... | ☒ IL Israel..... | ☒ PT Portugal..... |
| ☒ BA Bosnia and Herzegovina..... | ☒ IN India..... | ☒ RO Romania..... |
| ☒ BB Barbados..... | ☒ IS Iceland..... | ☒ RU Russian Federation..... |
| ☒ BG Bulgaria..... | ☒ JP Japan..... | ☒ SD Sudan..... |
| ☒ BR Brazil..... | ☒ KE Kenya..... | ☒ SE Sweden..... |
| ☒ BY Belarus..... | ☒ KG Kyrgyzstan..... | ☒ SG Singapore..... |
| ☒ BZ Belize..... | ☒ KP Democratic People's Republic of Korea..... | ☒ SI Slovenia..... |
| ☒ CA Canada..... | ☒ KR Republic of Korea..... | ☒ SK Slovakia..... |
| ☒ CH and LI Switzerland and Liechtenstein..... | ☒ KZ Kazakhstan..... | ☒ SL Sierra Leone..... |
| ☒ CN China..... | ☒ LC Saint Lucia..... | ☒ TJ Tajikistan..... |
| ☒ CO Colombia..... | ☒ LK Sri Lanka..... | ☒ TM Turkmenistan..... |
| ☒ CR Costa Rica..... | ☒ LR Liberia..... | ☒ TR Turkey..... |
| ☒ CU Cuba..... | ☒ LS Lesotho..... | ☒ TT Trinidad and Tobago..... |
| ☒ CZ Czech Republic..... | ☒ LT Lithuania..... | ☒ TZ United Republic of Tanzania..... |
| ☒ DE Germany..... | ☒ LU Luxembourg..... | ☒ UA Ukraine..... |
| ☒ DK Denmark..... | ☒ LV Latvia..... | ☒ UG Uganda..... |
| ☒ DM Dominica..... | ☒ MA Morocco..... | ☐ US United States of America..... |
| ☒ DZ Algeria..... | ☒ MD Republic of Moldova..... | ☒ UZ Uzbekistan..... |
| ☒ EC Ecuador..... | ☒ MG Madagascar..... | ☒ VN Viet Nam..... |
| ☒ EE Estonia..... | ☒ MK The former Yugoslav Republic of Macedonia..... | ☒ YU Yugoslavia..... |
| ☒ ES Spain..... | ☒ MN Mongolia..... | ☒ ZA South Africa..... |
| ☒ FI Finland..... | | ☒ ZW Zimbabwe..... |
| ☒ GB United Kingdom..... | | |
| ☒ GD Grenada..... | | |

Check boxes reserved for designating States which have become party to the PCT after issuance of this sheet:

- | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|
| ☒ | ☒ | ☒ |
| ☒ | ☒ | ☒ |
| ☐ | | |

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation of a designation consists of the filing of a notice specifying that designation and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.)

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	0003521-2	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): <u>(1)</u>				
* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See supplemental Box.				
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	00/01145	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): 17 claims: 6 abstract: 1 drawings: ~~1~~ 4 sequence listing part of description: _____ Total number of sheets: ~~35~~ 27		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 0003521-2		
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			

Date of receipt of the record copy by the International Bureau:	For International Bureau use only
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PCT
FEE CALCULATION SHEET
Annex to the Request

For receiving Office use only

Applicant's or agent's file reference 112878 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 <u>SE</u> (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 35 sheets.		
first 30 sheets.....	3540:- b1	
<u>5</u> x <u>80</u>	=	
remaining sheets additional amount	400:- b2	
Add amounts entered at b1 and b2 and enter total at B..... 3940:- B		
Designation Fees The international application contains <u>more than 6</u> designations.		
<u>6</u> x <u>760:-</u>	= 4560:- D	
number of designation fees payable (maximum 10)	amount of designation fee	
Add amounts entered at B and D and enter total at I 8500:- 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 18 390:- 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	
	☐ is hereby authorized to charge the fee for preparation and transmittal of the priority document to the International Bureau of WIPO to my deposit account.	
ALBIHNS GÖTEBORG AB		
Deposit account number	Date (day/month/year)	Signature

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. The 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. The absorbent article comprises leakage barriers, each barrier covering a longitudinal edge portion in a respective longitudinal edge portion and forms liquid-retaining pockets along each longitudinal edge portion.

15

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. Side leakage barriers may also be in the form of a pair of liquid

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barrier sheets and a pair of strips of resilient material, that forms pockets and increase the stiffness of the sanitary napkin in the region of the mid portion of the absorbent article.

- 5 However, it has been found that despite all the efforts, which have hitherto 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
10 position runs out and gathers, by the effect of gravity, at the longitudinal side 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
15 such a way that a gap is formed between the article and the user's body.

- 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
20 over an intended exposure time of the article. However, leakage can arise if 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
25 spread over the topsheet of the napkin and escape over the wings to thereby 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
30 occurs at the side edges. Many attempts have been made to overcome the 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.

10

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.

20 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.

25

SUMMARY OF THE INVENTION:

The present invention relates to an absorbent article such as a sanitary napkin according to the preamble of claim 1, where the absorbent article comprises an elongate absorbent core delimited by an upper surface and a lower surface, a pair of opposed longitudinal edge portions terminating in

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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
5 absorbent core. Said absorbent article comprises leakage barriers, each barrier covering a longitudinal edge portion in a respective longitudinal edge portion and forms liquid-retaining pockets along each longitudinal edge portion

10 The above-stated objects are achieved in accordance with the present invention by an absorbent article being characterised in that a part of the absorbent article is made profiled and include first spacing means arranged at a distance from each other along the length of the upper surface to create fluid conducting first channels.

15 The profiled parts of the absorbent article may be the longitudinal edge portions, or the entire upper surface. The profiled parts are made profiled by groove compression of either the topsheet or the upper part of the absorbent core, or the both together, and that the first spacing means consists of the
20 uncompressed parts of the topsheet and/or the upper part of the absorbent core.

Preferred embodiments will become evident by the subsequent dependent claims.

25

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:

30 Fig. 1 is a schematic plan view of an absorbent article according to the present invention;

- Fig. 2 is a sectional view on a larger scale along line II-II of Fig. 1;
- Fig. 3 is a schematic view of a sectional view on a larger scale along line III-III of Fig. 1;
- 5 Fig. 4 is a schematic plan view of an absorbent article according to a second embodiment of the present invention with a partially cut away topsheet; and
- 10 Fig. 5 is a sectional view on a larger scale along line V-V of Fig. 4;
- Fig. 6 is a schematic view of a sectional view on a larger scale along line VI-VI of Fig. 4.
- 15 Fig. 7 is a schematic view of a sectional view on a larger scale along line VI-VI of Fig. 4, according to a further embodiment of the invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS:

- 20 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.

The invention will be presented in a number of different embodiments and will also refer to previously known sanitary napkins, which constitute examples of
25 different known techniques and shall not be seen as limiting for the present invention. The previously known sanitary napkins constitute examples, on which all the embodiments of the invention may be applicable.

As is apparent from Fig. 1 and 3, reference numeral 10 generally denotes an
30 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 end portion 30, a second end portion 32 and central portion 34 located
5 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.

As is typical in the art, the absorbent article 10 is further provided with a liquid
10 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 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 76 attached for an increased possibility to fasten the absorbent article to the clothing closest to the wearers body. The fastening means may be an adhesive, mechanical fastening means such as Velcro or
20 another fastening means suitable for the purpose.

The sanitary napkin 10 further comprises a pair of two longitudinal leakage barriers 68, 70, each leakage barrier covering a longitudinal edge portion 18, 20 of the permeable topsheet 36, that forms liquid-retaining pockets along
25 each longitudinal edge portion 18, 20.

Fig. 1, 2 and 3 show the invention according to a first embodiment of the invention where a part of the absorbent article 10, such as at least the longitudinal edge portion 18, 20, are made profiled and include first spacing
30 means 60 arranged at a distance from each other along the length of the longitudinal edge portion 18, 20 and will create fluid conducting first channels 62 between the leakage barriers 68, 70 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 first channels 62 are especially advantageous when the leakage barriers 68, 70 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 first channels 62 then allows migrating body fluids to flow under the leakage barriers 68, 70 even when the leakage barriers 68, 70 are pressed against the top sheet 36, thereby increasing the flow through the absorbent core 12 rather than through the leakage barriers 68, 70 or over the leakage barriers 68, 70. Since the leakage barriers 68, 70 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 side of the sanitary napkin is guided via the first channels 62 into the pockets which are formed beneath the leakage barriers 68, 70 and down through the absorbent core 12, even when the leakage barriers 68, 70 are pressed against the top sheet 36, thereby diminishing the risk of side leakage

The absorbent article according to a second embodiment of the invention is characterized in that each the longitudinal edge portion 18, 20 are made profiled by a groove compression of the topsheet 36. The groove compression compresses the material in certain parts with a distance of 1-15 mm between the uncompressed parts, which also defines the width of the first channels, and that the first spacing means 60 consists of the uncompressed parts.

The absorbent article according to a third embodiment of the invention is characterized in that the longitudinal edge portion 18, 20 also may be made profiled by a groove compression of the upper part of the absorbent core 12, and the first spacing means 60 consists of the uncompressed parts.

30

According to a fourth embodiment of the invention, the entire upper surface 14 are made profiled by a groove compression of the topsheet 36, and the first spacing means 60 consists of the uncompressed parts.

5 According to a fifth embodiment of the invention, the entire upper surface 14 are made profiled by a groove compression of an upper part of the absorbent core 12, and that the first spacing means 60 consists of the uncompressed parts.

10 According to a sixth embodiment of the invention, the profiled parts are made profiled by groove compression of both the topsheet 36 and the upper part of the absorbent core 12, and that the first spacing means 60 consists of the uncompressed parts of the topsheet 36 and the upper part of the absorbent core 12.

15 According to a seventh embodiment of the invention, a distance material in the form of cylinders are placed in at least the first area, in a direction from the centre of the sanitary napkin 10 to the longitudinal sides of the sanitary napkin 10, and that the first spacing means 60 consists of the distance material.
20

All the above mentioned embodiments, one to seven, together with the embodiments that will be described below, will form a number of further embodiments. It is to be understood that all combinations conceivable form
25 new embodiments of the invention.

Figures 1, 2 and 3 may be further used as a support in the description of yet further embodiments of the invention, where the longitudinal leakage barriers 68, 70 are in the form of barrier strips 46, 48, with each sheet covering a
30 longitudinal edge portion 18, 20 of the permeable topsheet 36, that forms pockets 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 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 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.

The elastic members 50, 52 may be in the form of a string of beads (not shown). The beads serve as second spacing means between the barrier strips 46, 48 and the top sheet 36, and will create fluid conducting second channels (not shown) 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 second 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 second channels
5 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
10 sanitary napkin 10 against the user's body, any transport of fluid towards the side of the sanitary napkin is guided via the second channels into the pockets 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.

15 The second spacing means together with the first spacing means will advantageously create channels defined by the combined space of the second channels and the first channels, which means that all of the above mentioned advantages with distance material creating channels will be
20 enhanced.

The beads 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.

25 The string of beads 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.

30 The elastic members 50, 52 may be broader than in the first embodiment and they are in the form of a string of short cylinders (not shown). The short

cylinders serve as second spacing means between the barrier strips 46, 48 and the top sheet 36, and will create second channels 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 serve the same purpose as in the first embodiment. Here, short cylinder means a cylinder having a length less than the cylinder diameter. The cylinder may alternatively have other cross-sectional shapes, such as an oval shape. The cylinders may also have different diameters and/or different cross sections in the same string of cylinders.

10

The string of short cylinders 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.

15

The elastic members 50, 52 may be even broader than in the second embodiment and they are in the form of a string of long cylinders (not shown). The long cylinders serve as second spacing means 60 between the barrier strips 46, 48 and the top sheet 36, and will create second channels 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 second embodiment. Here, long cylinder means a cylinder length longer than the cylinder diameter. The cylinder may alternatively have other cross-sectional shapes, such as an oval shape. The cylinders may also have different diameters and/or different cross sections in the same string of cylinders.

20

The string of long cylinders 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

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suitable for the purpose or two elastic webs with non-elastic spacers between.

5 The string of long cylinders may be substituted by a distance material (not shown) in the form of long cylinders 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 second channels between the barrier strips 46, 48 and the top sheet 36 in a direction from the centre of the
10 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
15 constitute means for keeping open the side pockets 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
20 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 may be a three dimensional elastic thread such as an elastic polymer, elastic non-woven fibrous plastic, elastic foam, silicone,
25 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.

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

Figures 4, 5 and 6 show yet further embodiments of the present invention, where the above mentioned first embodiment to sixth embodiment of the invention are to be combined with a previously known sanitary napkin and as is typical in the art, the absorbent article 10 comprises leakage barriers 68 in the form of a pair of liquid barrier sheets 38 and a pair of strips of resilient material 40, with each liquid barrier sheet 38 covering a longitudinal edge portion 18, 20 of the permeable topsheet 36. The strips of resilient material 40 may be placed either over or under the top sheet, but in the figures the strips of resilient material 40 is placed under the top sheet 36, which also will be described in the following embodiments. The liquid barrier sheets 38 may be placed either over or under the top sheet, but in the figures the strips of liquid barrier sheets 38 is placed over the top sheet 36, which also will be described in the following embodiments. The liquid barrier sheets are preferably coated with adhesive on their concave surface, i.e. the surface facing towards the absorbent body. Although a pair of separate barrier sheets has been shown in the drawings, it is to be realized, however, that the two sheets 38 may be replaced by a single sheet extending over the entire lower surface 16 of the absorbent core, being folded over the longitudinal edges 22, 24 and covering the longitudinal edge portions 18, 20 of the permeable top sheet 36.

In this previously known sanitary napkin it is also known, and as best illustrated in Fig. 4, 5 and 6, that the strip of resilient material 40 is placed between each liquid impermeable sheet 38 and the absorbent core 12 along each longitudinal edge portion 18, 20 of the absorbent core in at least the mid portion 34 of the absorbent core. The strips of resilient material serve to significantly increase the stiffness of the sanitary napkin in the region of the mid portion. In other words, the resistance to flexure in the longitudinal direction is increased by at least 10% in the longitudinal edge portions in the mid portion when compared to a sanitary napkin without strips of resilient material.

Advantageously, the strips of resilient material 40 are primarily hydrophobic and may be a three dimensional non-woven fibrous plastic wadding or a foamed plastic. Since the material of the strips is primarily hydrophobic, migrating body fluids tend to flow through the absorbent core rather than through the strips of resilient material. Since, in the embodiment shown in Fig. 2, the strips of resilient material serve to conceal the longitudinal edge portions 18, 20 in the mid portion 34, any collection of fluid at the edge portions is concealed, thereby imparting an impression of increased safety to the wearer.

10

According to another embodiment of the invention the strips of resilient material 40 may also be profiled by groove compression, on that surface that faces the upper side of the absorbent core 12. Thus, the strips of resilient material 40 include third spacing means 78 in the form of uncompressed resilient material arranged at a distance from each other along the length of the resilient material 40 to create third fluid conducting third channels 80 between the strips of resilient material 40 and the absorbent core 12, and the third spacing means 78 consists of the uncompressed parts of the resilient material 40.

20

In a further embodiment of the previously known sanitary napkin, strips of resilient material 40 are placed between the liquid impermeable sheets 38 and the lower surface 16 of the absorbent core 12. Preferably, however, the strips of resilient material are placed between the liquid impermeable sheets 38 and the upper surface 14 of the absorbent core. In this manner, the strips of resilient material 40 serve to "lift" the liquid impermeable sheets 38 from the upper surface 14 of the absorbent core to thereby create an opening to a liquid-retaining pocket formed by the liquid impermeable sheet along each longitudinal edge portion 18, 20. Accordingly, any discharged bodily fluids which migrate across the upper surface of the absorbent core will flow through the opening and into the liquid-retaining pocket. Due to the fact that the concave surfaces of the sheets of resilient material are coated with

30

adhesive and thereby adhere to the absorbent core and strips of resilient material, the risk of fluids leaking from the liquid-retaining pockets is minimal.

Particularly in the case when the absorbent article comprises a pair of liquid impermeable sheets 38 covering the longitudinal edge portions 18, 20 of the absorbent core 12, the absorbent article may also comprise a liquid impermeable backsheet 42 extending over the lower surface 16 of the absorbent core. Advantageously, the backsheet 42 is made of the same material as the liquid impermeable sheet 38 and is joined to the topsheet 36 to form a peripheral margin 44 around preferably the entire absorbent core 12. In this manner, the liquid-retaining pockets along the edge portions 18, 20 are enclosed by the topsheet 36 and the backsheet 42.

For ease of manufacturing and to ensure that the risk of edge leakage anywhere along the length of the absorbent article is minimal, the liquid retaining pockets preferably extend along the entire length of the absorbent core 12. Since, however, the form stability of the absorbent article is most critical only in the mid portion 34 of the absorbent core, the strips of resilient material 40 need only occupy said mid portion. However, if desired, the strips may extend into the first and second end portions 30, 32.

The pockets may extend along the entire length of said absorbent core 12, or extend along the central portion 34 of said absorbent core 12.

The absorbent article according to any one of the preceding embodiments is characterized in that the thickness of the first, second and third spacing means is at least 1 mm, and that the sum of the thickness of the first and second spacing means or the first and third spacing means or the second and the third spacing means defines the respective combination's maximum height of the sum of the first channel and/or second channel and/or third channel. The thickness of the spacing means also means the diameter when the spacing means are cylindrical or spherical.

77
The distance between the third spacing means 78, i.e. the width of the third channels, is 1-15 mm.

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

Obviously, the hydrophobic strips of resilient material 40 or the barrier strips
46, 48, i.e. the leakage barriers 68, 70 may not extend over the entire width
10 of the absorbent core since this would prevent passage of body fluids into the absorbent core 12. Accordingly, the leakage barriers 68, 70 have 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. The liquid impermeable sheets 38 advantageously display the same or
15 similar transverse extension as the strips of resilient material. The thickness of the strips of resilient material 40, i.e. the extension of the strips in a direction substantially perpendicular to the upper surface of the absorbent core, should be sufficient to allow the strips to mould to the wearer's body. Typically, the thickness of the strips in an uncompressed condition can thus
20 lie between about 1 and 5 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, strips of resilient material may be placed on
both surfaces of the absorbent core in the longitudinal edge portions.

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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
30 shaped or rectangular. Also, the elastic members and the distance material may be of a stiff material, and 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.

In making a sanitary napkin in another shape than the one shown in the figures, advantageously the topsheet 36 will not extend outside the absorbent core, and the backsheet 42 or the liquid impermeable sheet 38 will not together with the topsheet 36 form a peripheral margin 44, but the backsheet 42 or the liquid impermeable sheet 38 will be folded over the side edges over the topsheet. The barrier strips 46, 48, in the embodiments referring to fig 4, 5, 6 or 7 may be excluded, and shall only be seen as a possibility to reinforce and/or modify the sanitary napkin according to certain needs.

The elastic members not only serve as means for creating channels, but may also bend the sanitary napkin into a cup-shape with the wetting area as one of the low points.

There may also be a combination of the above-described embodiments of the invention. For instance, the resilient material 40 may be profiled at the same time as the absorbent core, together creating fluid conducting channels.

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),
 - leakage barriers (68, 70), each barrier covering a longitudinal
 - 15 edge portion (18, 20) in a respective longitudinal edge portion (18, 20) and forming liquid-retaining pockets along each longitudinal edge portion, characterized in, that first spacing means (60) are arranged between the absorbent core (12) and each of said leakage barriers (68, 70), said first spacing means being arranged at a distance from each other along the
 - 20 length of said leakage barriers (68, 70) and defining fluid conducting first channels (62), extending generally perpendicularly to the longitudinal edge portions (18, 20), between said leakage barriers (68, 70) and said absorbent core (12).
- 25 2. The absorbent article according to claim 1, characterized in, that each longitudinal edge portion (18, 20) is made profiled.
3. The absorbent article according to claim 1,
- 30 characterized in, that the upper surface (14) is made profiled.

4. The absorbent article according to claim 2 or 3, characterized in, that the profiled parts are created by groove compression of the top sheet (36), and that the first spacing means (60) consists of the uncompressed parts of the top sheet (36).

5

5. The absorbent article according to claim 2 or 3, characterized in, that the profiled parts are made profiled by groove compression of the upper part of the absorbent core (12), and that the first spacing means (60) consists of the uncompressed parts of the absorbent core (12).

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6. The absorbent article according to claim 2 or 3, characterized in, that the profiled parts are made profiled by groove compression of both the topsheet (36) and the upper part of the absorbent core (12), and that the first spacing means (60) consists of the uncompressed parts of the topsheet (36) and the upper part of the absorbent core (12).

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7. The absorbent article according to claim 2 or 3, characterized in, that the profiled parts are made profiled by a distance material in the form of cylinders, that are placed in the topsheet (36) of each profiled portion, in a direction from the centre of the sanitary napkin (10) to the longitudinal sides of the sanitary napkin 10, and that the first spacing means (60) consists of the distance material.

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8. The absorbent article according to claim 2 or 3, characterized in, that the profiled parts are made profiled by a distance material in the form of cylinders, that are placed in the upper part of the absorbent core (12) of each profiled portion, in a direction from the centre of the sanitary napkin (10) to the longitudinal sides of the sanitary napkin 10, and that the first spacing means (60) consists of the distance material.

30

9. The absorbent article according to any one of the preceding claims,

characterized in, that the leakage barriers (68, 70) consists of barrier strips (46, 48), each strip covering a respective longitudinal edge portion (18, 20) and forming liquid-retaining pockets along each longitudinal edge portion, a pair of longitudinal elastic members (50, 52) are 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

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10. The absorbent article according to claim 9, characterized in, that the elastic members (50, 52) is in the shape of a string of beads, and that the beads defines second spacing means.

15 11. The absorbent article according to claim 9, characterized in, that the elastic members (50, 52) is in the shape of a string of short cylinders having a length less than the cylinder diameter, and that the short cylinders defines second spacing means.

20 12. The absorbent article according to claim 9, characterized in, that the elastic members (50, 52) is in the shape of a string of long cylinders having a length longer than the cylinder diameter, and that the long cylinders defines second spacing means.

25 13. The absorbent article according to claim 9, characterized in, that a distance material in the form of long 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.

30

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

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

16. The absorbent article according to any one of the claims 1 to 8,
10 characterized in, that a liquid impermeable sheet (38) covering said longitudinal edge portions (18, 20) of said absorbent core (12) and that the leakage barriers (68, 70) consists of a strip of resilient material (40) that is placed between said liquid impermeable sheet (38) and said absorbent core (12) along each longitudinal edge portion (18, 20) of said absorbent core in at
15 least said mid portion (34) of said absorbent core to thereby increase the flexure resistance of the article.

17. The absorbent article according to claim 16,
characterized in, that said strip of resilient material (40) is a three
20 dimensional nonwoven fibrous plastic wadding or a foamed plastic.

18. The absorbent article according to claims 16 or 17,
characterized in, that said strip of resilient material (40) is placed
between said liquid impermeable sheet (38) and said lower surface (16) of
25 said absorbent core (12).

19. The absorbent article according to any one of the claims 16 to
18, characterized in, that it comprises a pair of liquid impermeable
sheets (38), each sheet covering a respective longitudinal edge portion (18,
30 20) and forming liquid-retaining pockets along each longitudinal edge portion (18, 20).

20. The absorbent article according to any one of the preceding claims, characterized in, that the side of said strip of resilient material (40) that faces the upper side of the absorbent core 12 is made profiled by groove compression.

5

21. The absorbent article according to claim 20, characterized in, that the uncompressed profiled parts of the strip of resilient material (40) defines third spacing means (78)

10 22. The absorbent article according to claim 19, characterized in, that it comprises a liquid impermeable backsheet (42) extending over said lower surface (16) of said absorbent core, said backsheet (42) and said topsheet (36) being joined to form a peripheral margin (44) around said absorbent core to thereby enclose said liquid-
15 retaining pockets along said edge portions.

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

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24. The absorbent article according to any one of the preceding claims, characterized in, that said pockets extend along the central portion (34) of said absorbent core (12).

25 25. 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 core (12).

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26. The absorbent article according to any one of the preceding claims, characterized in, that said leakage barriers (68, 70) each

have an extension transversely across said absorbent core (12), said extension being between 5% and 25% of the total width of the sanitary napkin at the wetting area.

- 5 27. The absorbent article according to any one of the preceding claims, characterized in, that the thickness of the first, second and third spacing means 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). Leakage barriers (68, 70), each barrier covering a longitudinal edge portion (18, 20) in a respective longitudinal edge portion (18, 20), forms liquid-retaining pockets along each longitudinal edge portion. The invention is characterized in that first spacing means (60) are arranged between the absorbent core (12) and each of said leakage barriers (68, 70), and that said first spacing means (60) are being arranged at a distance from each other along the length of said leakage barriers (68, 70) and defines fluid conducting first channels (62), that extends generally perpendicularly to the longitudinal edge portions (18, 20), between said leakage barriers (68, 70) and said absorbent core (12).

(Fig. 1)

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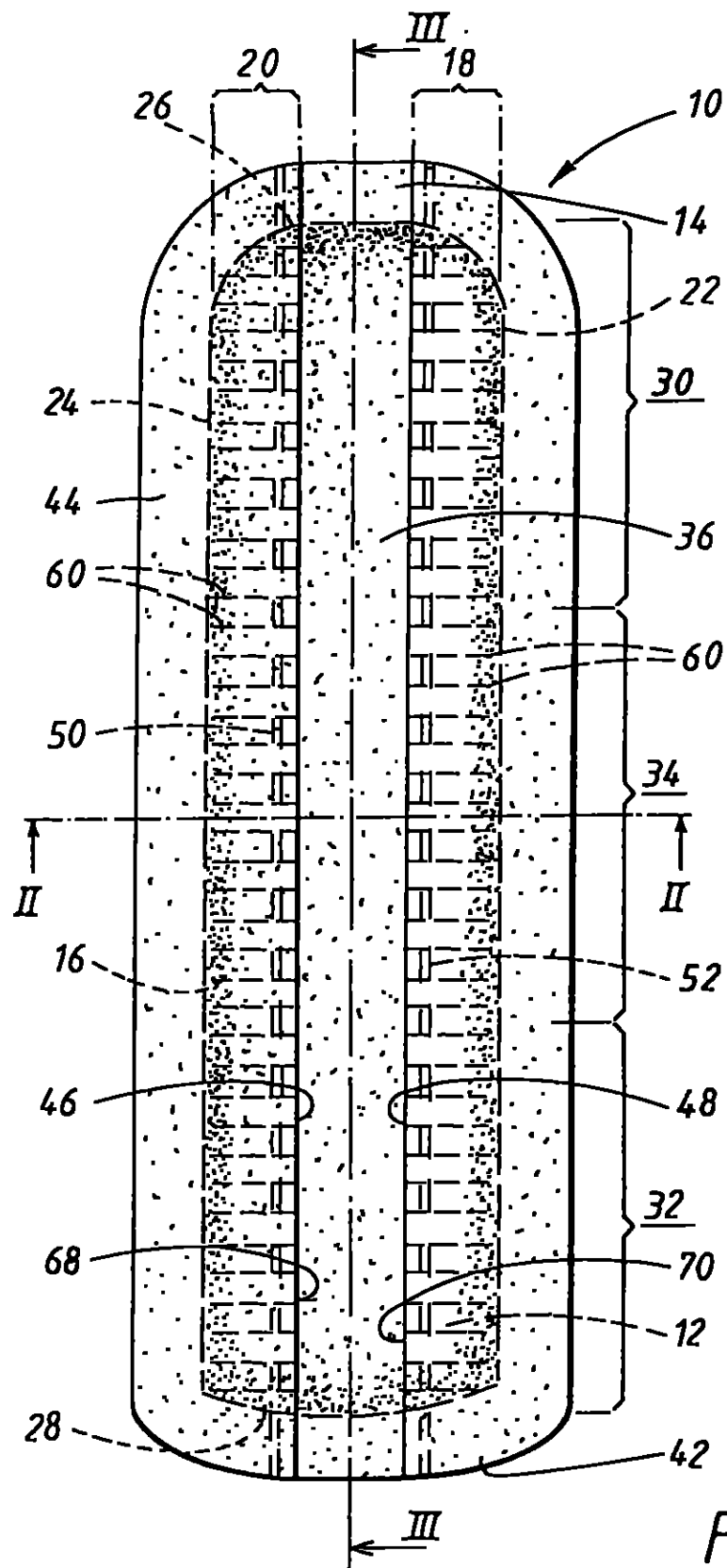
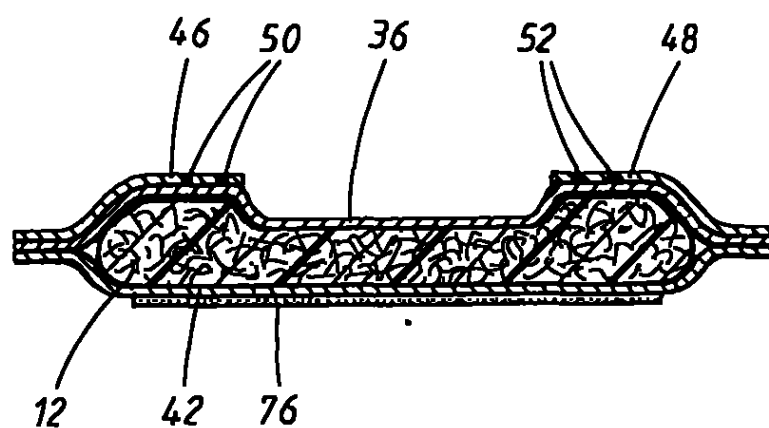
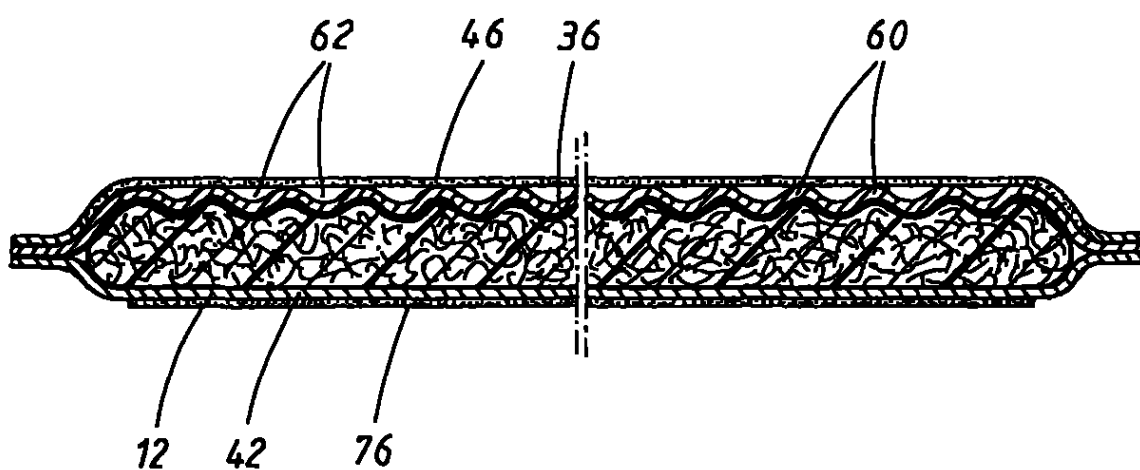


FIG. 1

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FIG. 2FIG. 3

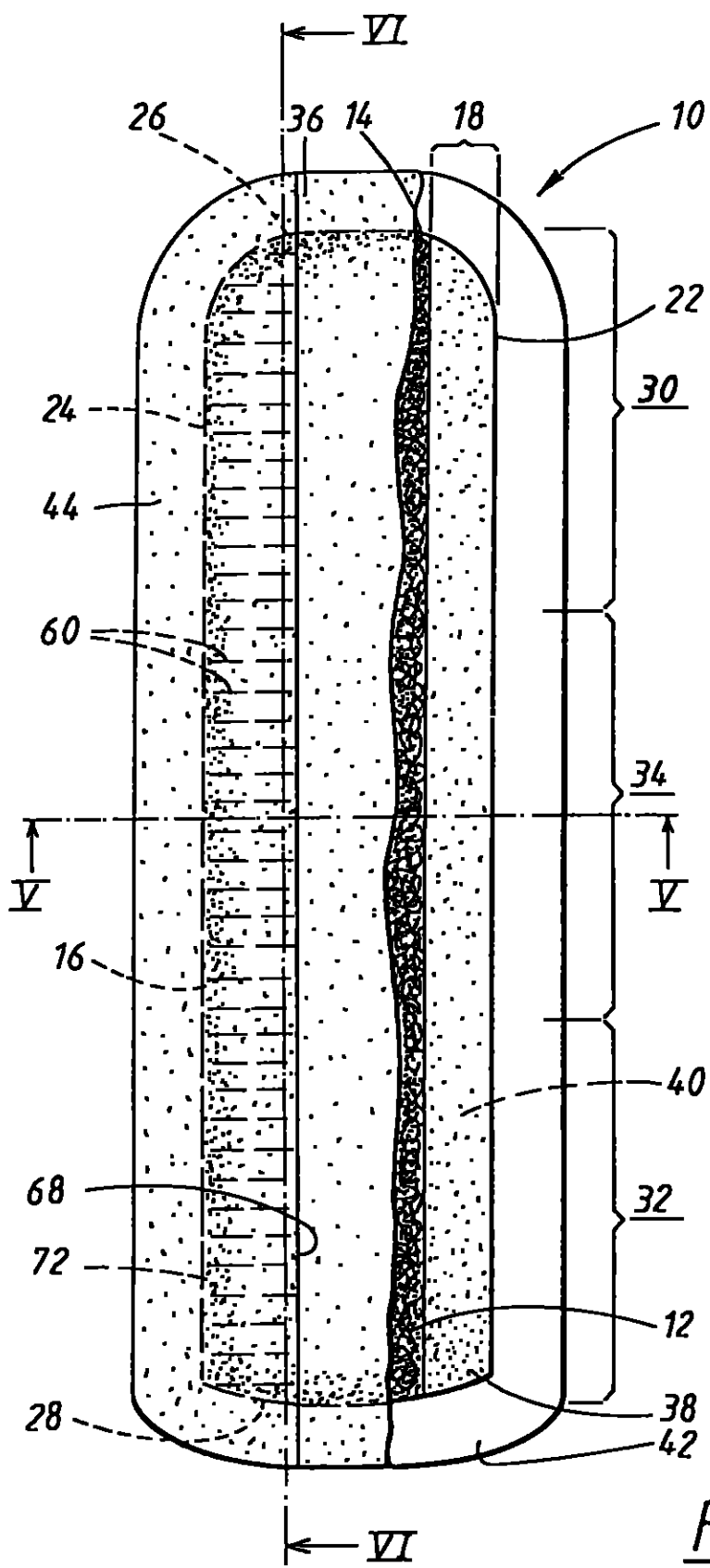


FIG. 4

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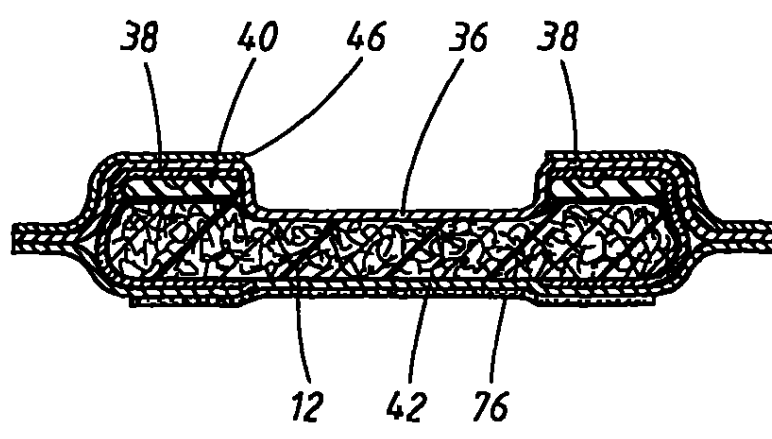


FIG. 5

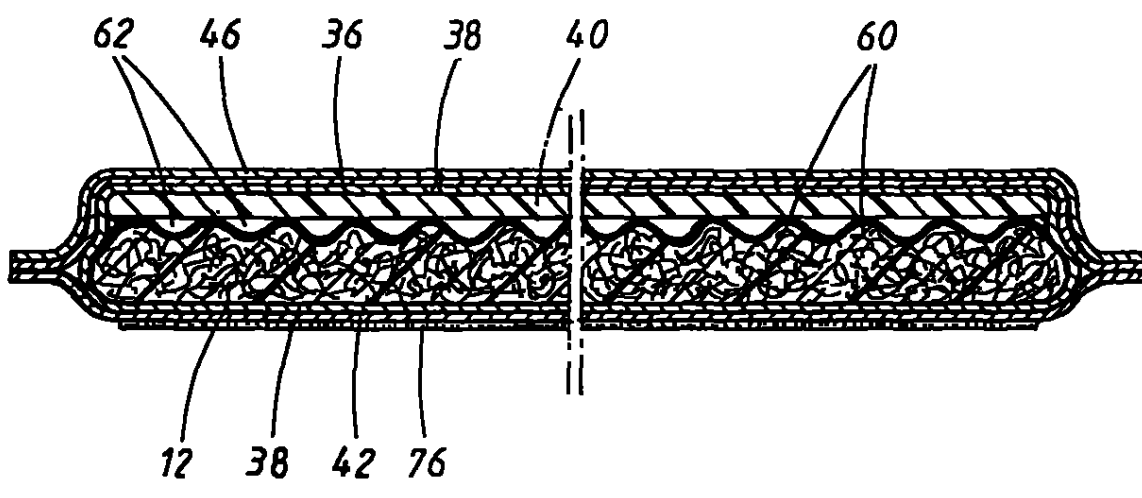


FIG. 6

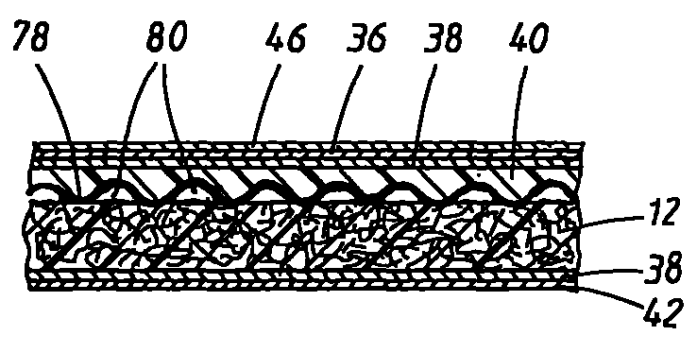


FIG. 7

Artículo absorbente con barreras contra chorreadura que contienen elementos de distancia para crear canales transversales estables.

CAMPO TECNICO

La presente invención se relaciona con un artículo absorbente tal como una toalla sanitaria. El artículo comprende un núcleo absorbente elongado 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. El 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. El artículo absorbente comprende barreras contra chorreaduras, cada barrera cubre una porción de borde longitudinal en una porción de borde longitudinal respectiva y forma bolsillos de retención de líquido a lo largo de cada una de las porciones de borde longitudinal.

ANTECEDENTES DE LA INVENCION

Un problema común 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 por fuera de los bordes laterales del artículo. Tal chorreadura es particularmente común cuando 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 articulo 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 imposición 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 sobrecarga 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 moldee 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 elastificados a lo largo de los bordes laterales del artículo, 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 elastificadas pueden exhibir protección contra chorreadura de borde lateral mejorado cuando se comparan con un artículo absorbente sin barreras laterales elastificadas, subsiste la necesidad de un artículo absorbente que reduzca además el riesgo de chorreadura d borde lateral mientras que aun es suficientemente discreto para satisfacer la mayoría de los portadores. Es por lo tanto objeto de la presente invención suministrar un artículo absorbente que cumpla estos requisitos.

RESUMEN DE LA INVENCION.

La presente invención se relaciona con un artículo absorbente tal como una toalla sanitaria de acuerdo con el preámbulo de la reivindicación 1, donde el artículo absorbente 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 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 la lámina posterior de barrera a los líquidos cubre dicha superficie inferior de dicho núcleo absorbente. Dicho artículo absorbente comprende barreras contra chorreadura, cada barrera cubre una porción de borde longitudinal en una porción de borde longitudinal respectivo y forma bolsillos de retención de líquido a lo largo de cada una de las porciones de borde longitudinal. Los objetos anteriormente establecidos se logran de acuerdo con la presente invención mediante un artículo absorbente que se caracteriza por que una parte

del artículo absorbente es hecha perfilado e incluye primeros medios de espaciamento dispuestos a una distancia uno del otro a lo largo de la longitud de la superficie superior para crear primeros canales de conducción de fluido.

Las partes perfiladas del artículo absorbente pueden ser las porciones de borde longitudinal, o la superficie superior completa. Las partes perfiladas se perfilan mediante compresión de ranuras de la lámina superior o la parte superior del núcleo absorbente, o ambas juntas, y que los primeros medios de espaciamento consisten de unas partes no comprimidas de la lámina superior y/o la parte superior del núcleo absorbente.

Las modalidades preferidas serán evidentes de las reivindicaciones dependientes subsecuentes.

BREVE DESCRIPCION DE LOS DIBUJOS

La invención se describe en lo siguiente mediante ejemplos solo y con referencia a los dibujos anexos, en los cuales:

La figura 1 es una vista de planta esquemática de un artículo absorbente de acuerdo con la presente invención;

La figura 2 es una vista en sección a gran escala a lo largo de las líneas LL-LL de la figura 1;

La figura 3 es una vista esquemática de una vista en sección a gran escala a lo largo de las líneas 111-11 de la figura 1;

La figura 4 es una vista en planta esquemática de un artículo absorbente de acuerdo con una segunda modalidad de la presente invención con un corte parcial de la lámina superior; Y

La figura 5 es una vista en sección a gran escala a lo largo de las líneas V-V de la figura 4;

La figura 6 es una vista esquemática de una vista en sección a gran escala a lo largo de las líneas VI-VI de la figura 4.

La figura 7 es una vista esquemática de una vista en sección a gran escala a lo largo de las líneas VI-VI de la figura 4, de acuerdo con una modalidad adicional de la invención.

DESCRIPCION DETALLADA DE LAS MODALIDADES PREFERIDAS

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

La invención se presentará en un número de diferentes modalidades y también se referirá a toallas sanitarias previamente conocidas, que constituyen ejemplos de diferentes técnicas conocidas y no se verán como limitantes para la presente invención. Las toallas sanitarias previamente conocidas constituyen ejemplos sobre los cuales todas las modalidades de a presente invención podrán ser aplicables.

Como es evidente de la figura 1 y 3, el numeral de referencia 10 generalmente denota un artículo absorbente de acuerdo con la invención. El artículo absorbente 10 puede ser una toalla sanitaria que tiene un núcleo absorbente alargado 12 delimitado por 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 longitudinal opuesto 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 localizada entre las porciones de extremo, en uso, la toalla sanitaria está destinada a ser ubicada con relación al usuario 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 además con una lámina superior permeable a los líquidos 36 que se extiende sobre la parte superior 14 del núcleo absorbente 12. La lámina superior 36 puede que puede ser cualquier lámina superior convencional. Por ejemplo, esta puede ser hecha de una película plástica multiabertura, o un material no tejido.

El artículo absorbente también puede 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 se puede unir a la lámina superior 36 para formar una margen periférica 44 alrededor preferiblemente del núcleo absorbente completo 12. Sobre la lámina posterior 42, pueden existir medios de aseguramiento 76 unidos para una posibilidad creciente

de asegurar el artículo absorbente a la ropa más cercana al cuerpo del usuario. Los medios de aseguramiento pueden ser un adhesivo, medios de aseguramiento mecánicos tales como Velcro u otros medios de aseguramiento adecuados para el propósito.

La toalla sanitaria 10 comprende además un par de dos barreras longitudinales contra chorreadura 68, 70 cada barrera contra chorreadura cubre una porción de borde longitudinal 18, 20 de la lámina superior permeable 36, que forma los bolsillos de retención de líquido a lo largo de cada una de las porciones de borde longitudinal 18, 20.

La figura 1, 2 y 3 muestra la invención de acuerdo a una primer modalidad de la invención cuando una parte del artículo absorbente 10, tal como al menos la porción de borde longitudinal 18, 20, se perfilan e incluyen primeros medios de espaciamiento 60 dispuestos a una distancia uno del otro a lo largo de la longitud de la porción de borde longitudinal 18, 20 y crearán primeros canales de conducción de fluido 62 entre las barreras de chorreadura 68, 70 y la lámina superior 36 en una dirección desde e centro de la toalla sanitaria 10 a los

lados longitudinales de la toalla sanitaria 10. Los primeros canales 62 son especialmente ventajosos cuando las barreras contra chorreaduras 68, 70 son presionadas contra la lámina superior 36 y la superficie superior 14 del núcleo absorbente 12, por medio de una fuerza externa, por ejemplo, trusas apretadas o si el usuario está sentado. Los primeros canales 62 permiten entonces migrar los fluidos del cuerpo para fluir bajo las barreras contra chorreaduras 68, 70 aún cuando las barreras contra chorreaduras 68, 70 son presionadas contra la lámina superior 36, incrementando de esta forma el flujo a través del núcleo absorbente 12 en lugar de a través de las barreras contra chorreadura 68, 70 o sobre las barreras contra chorreaduras 68, 70. En razón a que las barreras contra chorreaduras 68, 70 sirven para cubrir las porciones de borde longitudinal 18, 20 y sellar la toalla sanitaria 10 contra el cuerpo del usuario, cualquier transporte de fluido hacia el lado de la toalla sanitaria es guiado por vía de los primeros canales 62 dentro de los bolsillos que se forman inmediatamente por debajo de las barreras contra chorreaduras 68, 70 y hacia abajo a través del núcleo absorbente 12, aún cuando las barreras contra chorreaduras 68, 70 son presionadas contra la lámina

superior 36, disminuyendo de esta forma el riesgo de chorreadura lateral. El artículo absorbente de acuerdo a una segunda modalidad de la invención se caracteriza por que cada una de las porciones de borde longitudinal 18, 20 se hacen perfiladas mediante una compresión de ranura de la lámina superior 36. La compresión de ranura comprime el material en ciertas partes con una distancia de 1-15 mm entre las partes no comprimidas, lo cual también define la anchura de los primeros canales, y que los primeros medios de espaciamiento 60 consisten de partes no comprimidas.

El artículo absorbente de acuerdo a una tercer modalidad de la invenciones caracteriza por que la porción de borde longitudinal 18, 20 también puede ser perfilada mediante compresión de ranura de la parte superior del núcleo absorbente 12, y los primeros medios de espaciamiento 60 consisten de partes no comprimidas.

De acuerdo a una cuarta modalidad de la invención, la superficie superior completa 14 se hace perfilada mediante una compresión de ranura de la lámina superior 36, y los primeros medios de espaciamiento 60 consisten de partes no comprimidas.

De acuerdo a una quinta modalidad de la invención, la superficie superior completa 14 se hace perfilada mediante una compresión de ranura de una parte superior del núcleo absorbente 12, y que los primeros medios de espaciamento 60 consisten De las partes no comprimidas.

De acuerdo a una sexta modalidad de la invención las partes perfiladas se hacen perfiladas mediante compresión de ranura de tanto la lámina superior 36 como la parte de arriba del núcleo absorbente 12, y que los primeros medios de espaciamento 60 consisten de partes no comprimidas de la lamina superior 36 y la parte de arriba de los núcleos absorbente 12. De acuerdo a una séptima modalidad de la invención, un material de distancia e la forma de cilindros se ubica en al menos la primer área, en una dirección desde el centro de la toalla sanitaria 10 a los lados longitudinales de la toalla sanitaria 10, y que los primeros medios de espaciamento 60 consisten del material de distancia.

Todas las modalidades anteriormente mencionadas, uno a siete, junto con las modalidades que se describirán adelante, formaran un número de modalidades adicionales.

Se debe entender que todas las combinaciones concebibles forman nuevas modalidades de la invención.

Las figuras 1, 2 3 pueden ser adicionalmente utilizadas como un soporte en la descripción y aún modalidades adicionales de la invención, donde las barreras longitudinales contra chorreadura 68, 70 están en la forma de tiras de barrera 46, 48, con cada lámina cubriendo una porción de borde longitudinal 18, 20 de la lámina superior permeable 36, que forma bolsillos 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 penetración de fluidos, por ejemplo, una red fibrosa e hidrófoba no tejida u otro material adecuado para el propósito. Es una ventaja si el material de barrera es respirable, es decir permitirá el paso del aire y el vapor de agua. En razón a que las tiras de barrera 46, 48 se pueden unir con el margen periférico 44, los bolsillos a lo largo de las porciones de barrera 18, 20 se pueden ver como incluidos mediante tiras de barrera 46, 48 y la lámina superior 36. Un par de miembros elásticos longitudinales pretensionados 50, 52 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 elevar 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 el uso, no surjan espacios entre la toalla sanitaria 10 y el cuerpo del usuario, a través de cuyo espacio el fluido del cuerpo pudiera 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 tendrán a fluir a través del núcleo absorbente en lugar de a través de las tiras de barrera elásticas 46, 48. En la zona que las tiras de barrera 46, 48 sirven para ocultar las porciones de borde longitudinal 18, 20 cualquier reconexión de fluido en las porciones de borde es ocultada, y partiendo de esta forma una impresión de seguridad creciente y limpieza al usuario.

Ventajosamente, los miembros elásticos 50, 52 son hechos de un material tridimensional elástico tal como un

polímero elástico, plástico fibroso no tejido elástico, espuma elástica, silicona, caucho u otro material adecuado para el propósito.

Los miembros elásticos 50, 52 pueden estar en la forma de una cuerda de cuentas (no mostrada). Las cuentas sirven como segundos medios de espaciado entre las tiras de barrera 46, 48 y la lámina superior 36, y crearán segundos canales de conducción de fluido (no mostrados) 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 segundos 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 como por ejemplo, trusas apretadas o si el usuario está sentado. Los segundos canales permiten entonces migrar 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 flujo 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 el lado de la toalla sanitaria es guiado por vía de los segundos canales dentro de los bolsillos que se forman inmediatamente debajo de las tiras de barrera 46, 48 y hacia abajo 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.

Los segundos medios de espaciamiento junto con los primeros medios de espaciamiento crearán ventajosamente canales definidos mediante el espacio combinado de los segundos canales y los primeros canales, lo que significa que todas las anteriores ventajas mencionadas con el material de distancia creando canales será mejorado.

Las cuentas pueden alternativamente tener otras formas de 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 puede ser creada mediante, por ejemplo, punto sellante 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.

Los miembros elásticos 50, 52 pueden ser más amplios que en la primer modalidad y ellos están en la forma de una cuerda de cilindros cortos (no mostrados). Los cilindros cortos sirven como segundos medios de espaciamiento entre las cuerdas de barrera 46, 48 y la lámina superior 36, y creará segundos canales entre las cuerdas 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. El cilindro puede alternativamente tener otras formas en sección transversal, tales como la forma oval. Los cilindros también pueden tener diferentes diámetros y/o diferentes secciones transversales en la misma cuerda de cilindros.

La cuerca de cilindros cortos puede ser creada mediante, por ejemplo, punto sellante de un hilo elástico tridimensional tal como un polímero elástico, plástico fibroso no tejido elástico, espuma, elástico, silicona, caucho u otro material adecuado para el propósito o dos redes elásticas con espaciadores no elásticos en medio.

Los miembros elásticos 50, 52 pueden ser aún más amplios que en la segunda modalidad y ellos están en la forma de una cuerda de cilindros largos (no mostrada). Los cilindros largos sirven como segundos medios de espaciamiento 60 entre las tiras de barrera 46, 48 y la lámina superior 36, y crearán segundos canales 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, cilindros largos significan una longitud de cilindro mayor que el diámetro del cilindro. El cilindro puede alternativamente tener otras formas de sección transversal tales como una forma oval. Los cilindros

también pueden tener diferentes diámetros y/o diferentes secciones transversales en la misma cuerda de cilindros.

La cuerda de cilindros largos se puede crear mediante, por ejemplo, punto sellante 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.

La cuerda de cilindros largos puede ser sustituida mediante un material de distancia (no mostrado) en la forma de cilindros largos y miembros elásticos, por ejemplo, los miembros elásticos 50, 52 previamente mencionados. El material de distancia cilíndrico se ubica dentro de las tiras de barrera 46, 48 de una manera adecuada para el propósito de usar el material de distancia para crear segundos canales 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 un 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 se designan para curvar la toalla sanitaria 10 a la forma del cuerpo del usuario y al mismo tiempo ellos constituyen medios para mantener abierto los bolsillos laterales creados inmediatamente debajo de las tiras de barrera 46, 48 y la toalla sanitaria 10.

El material de distancia en 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 podría también tener diferentes diámetros y/o diferentes secciones transversales en las tiras de barrera 46, 48.

Los cilindros largos pueden ser 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.

Los cilindros cortos y largos pueden ser de hasta 50 mm de largo.

La distancia entre los segundos medios de espaciamento, es decir el ancho del segundo canal, es 1-20 mm.

La figuras 4, 5 y 6 muestran aún modalidades adicionales de la presente invención donde la primer modalidad mencionada anteriormente a la sexta modalidad de la invención debe ser combinada con una toalla sanitaria previamente conocida y como es típico en la técnica, el artículo absorbente 10 comprende barreras contra chorreadura 68 en la forma de un par de láminas de barrera contra líquidos 38 y un par de tiras de material elástico 40, con cada lámina de barrera contra líquido 38 cubriendo la porción de borde longitudinal 18, 20 de la lámina superior permeable 36. Las tiras de material elástico 40 se pueden ubicar sobre o bajo la lámina superior, pero en las figuras las tiras de material elástico 40 se ubican bajo la lámina superior 36, lo cual también se describirá en las siguientes modalidades. Las láminas de barrera contra líquidos 38 se pueden ubicar sobre o bajo la lámina superior, pero en las tiras de lámina de barrera contra líquidos 38 se ubican sobre la lámina superior 36, lo cual también se describirá en las

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siguientes modalidades. Las láminas de barrera contra líquido son preferiblemente recubiertas con adhesivo sobre su superficie cóncava, es decir la superficie que se enfrenta hacia el cuerpo absorbente. Aunque un par de láminas de barreras separadas se han mostrado en los dibujos, se debe entender, sin embargo, que las dos láminas 38 pueden ser reemplazadas mediante una lámina sencilla que se extiende sobre la superficie inferior completa 16 del núcleo absorbente, siendo dobladas sobre los bordes longitudinales 22, 24 y cubriendo las porciones de borde longitudinal 18, 20 de la lámina superior permeable 36.

En esta toalla sanitaria previamente conocida también es conocido, y como se ilustra mejor en las figuras 4, 5 y 6 que la tira de material elástico 40 se ubica entre cada una de las láminas impermeables a los líquidos 38 y el núcleo absorbente 12 a lo largo de cada una de las porciones de borde longitudinal 18, 20 del núcleo absorbente en al menos la porción media 34 del núcleo absorbente. Las tiras de material elástico sirven para incrementar significativamente la rigidez de la toalla sanitaria en la región de la porción media. En otras palabras, la resistencia a la flexión en la

dirección longitudinal se incrementa en al menos 10% en las porciones de borde longitudinal en la porción media cuando se comparan con las toallas sanitarias sin tiras de material elástico. Ventajosamente, las tiras de material elástico 40 son primariamente hidrófobas y pueden ser una almohadilla plástica fibrosa no tejida tridimensional o un plástico espumado. En razón a que el material de las tiras es principalmente hidrófobo, los fluidos del cuerpo que emigran tienden a fluir a través del núcleo absorbente en lugar de a través de tiras de material elástico. En razón a que en la modalidad mostrada en la figura 2, las tiras de material elástico sirven para ocultar las porciones de borde longitudinales 18, 20 en la porción media 34, cualquier recolección de fluido en las porciones de borde es ocultado, impartiendo de esta forma una impresión de seguridad creciente al portador.

De acuerdo a otra modalidad de la invención las tiras de material elástico 40 también podrían perfilarse mediante compresión de ranuras sobre aquella superficie de las caras del lado superior del núcleo absorbente 12. De esta forma, las tiras de material elástico 40 incluyen terceros medios de espaciamiento 78 en la forma de

material elástico no comprimido dispuesto a una distancia uno del otro a lo largo de la longitud del material elástico 40 para crear terceros canales de conducción de fluido 80 entre las tiras de material elástico 40 y núcleo absorbente 12, y los terceros medios de espaciamiento 78 consisten de las partes no comprimidas del material elástico 40.

En una modalidad adicional de la toalla sanitaria previamente conocida, las tiras de material elástico 40 se ubican entre las láminas impermeables a los líquidos 38 y la superficie inferior 16 del núcleo absorbente 12. Preferiblemente, sin embargo, las tiras de material elástico se ubican entre las láminas impermeables a los líquidos 38 y la superficie de arriba 14 del núcleo absorbente. De esta manera, las tiras de material elástico 40 sirven para "levantar" las láminas impermeables a los líquidos 38 desde la superficie de arriba 14 del núcleo absorbente para crear de esta forma una abertura a un bolsillo de retención de líquido formado por la lámina impermeable a los líquidos a lo largo de cada una de las porciones de borde longitudinal 18, 20. De acuerdo con esto, cualquier fluido del cuerpo descargado que migra a través de la superficie superior

del núcleo absorbente fluirá a través de la abertura y dentro del bolsillo de retención de líquidos. Debido al hecho de que las superficies cóncavas de las láminas de material elástico están recubiertas con adhesivo y se adhieren de esta forma al núcleo absorbente y las tiras de material elástico, el riesgo de fluidos que chorreen desde los bolsillos de retención de líquido es mínimo.

Particularmente en el caso cuando el artículo absorbente comprime un par de láminas impermeables a los líquidos 38 que cubren las porciones de borde longitudinales 18, 20 del núcleo absorbente 12, el artículo absorbente también puede comprender una lámina posterior impermeable a los líquidos 42 que se extiende sobre la superficie inferior 16 del núcleo absorbente. Ventajosamente, la lámina posterior 42 se hace del mismo material que la lámina impermeable a los líquidos 38 se une a la lámina superior 36 para formar una margen periférica 44 alrededor preferiblemente del núcleo absorbente completo 12. De esta manera, los bolsillos de retención de líquido a lo largo de las porciones de borde 18, 20 están incluidos en la lámina superior 36 y la lámina posterior 42.

Para facilidad de manufactura y asegurar que el riesgo de chcrreadura de borde en cualquier parte a lo largo de la longitud del artículo absorbente sea mínimo, los bolsillos de retención de líquido preferiblemente se extiende a lo largo de la longitud completa del núcleo absorbente 12. Desde que, sin embargo, la estabilidad de la forma del artículo absorbente es más crítica solo en la porción media 34 del núcleo absorbente, las tiras del material elástico 40 necesitan solo ocupar dicha porción media. Sin embargo, si se desea, las tiras pueden extenderse dentro De las primeras y segundas porciones de extremo 30, 32.

Los bolsillos pueden extenderse a lo largo de la longitud completa de dicho núcleo absorbente 12, o extenderse a lo largo de la porción central 34 de dicho núcleo absorbente 12.

El artículo absorbente de acuerdo con cualquiera de las modalidades precedentes se caracteriza por que el grosor de los primeros, segundos y terceros medios de espaciamento es al menos 1 mm, y por que la suma del grosor de los primeros y segundos medios de espaciamento o los

primeros y terceros medios de espaciamento o los segundos y terceros medios de espaciamento definen las alturas máximas de combinación respectivas de la suma del primer canal y/o segundo canal y/o tercer canal. El grosor de los medios de espaciamento también significa el diámetro cuando los medios de espaciamento son cilíndricos o esféricos.

La distancia entre los terceros medios de espaciamento 78, es decir, el ancho de los terceros canales, es 1-15 mm.

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

Obviamente, las tiras hidrofobas de material elástico 40 o las tiras de barrera 46, 48 es decir las barreras contra chorreadura 68, 70 puede no extenderse sobre el ancho total del núcleo absorbente en razón a que esto evitaría el paso de fluidos del cuerpo dentro del núcleo absorbente 12. De acuerdo con esto, las barreras contra chorreaduras 68, 70 tienen una extensión transversalmente a través del núcleo absorbente, con la extensión estando

entre 5% y 25% de la anchura total de la toalla sanitaria en el área de humectación. Las láminas impermeables a los líquidos 38 ventajosamente muestran las mismas o similares extensiones transversales que las tiras de material elástico. El grosor de las tiras de material elástico 40, es decir la extensión de las tiras en una dirección sustancialmente perpendicular a la superficie superior del núcleo absorbente, serán suficientes para permitirle a las tiras moldearse al cuerpo del usuario.

Típicamente, el grosor de las tiras en una condición no comprimida puede descansar así entre aproximadamente 1 y 5 mm.

La invención no está restringida a las modalidades descritas anteriormente y mostrada en los dibujos, pero se puede modificar dentro del alcance de las reivindicaciones finales. Por ejemplo, las tiras de material elástico se pueden ubicar en ambas superficies del núcleo absorbente en las porciones de borde longitudinal.

El artículo absorbente puede ser una toalla sanitaria, un pañal, un artículo de protección de

incontinencia, un forro interior de pantaloncito o cualquier 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, es por ejemplo triangular, en forma de reloj de arena o rectangular. También, los miembros elásticos y el material de distancia pueden ser de un material rígido, y las barreras laterales con el material de distancia crearán los canales para transportar los fluidos. La toalla sanitaria también estará equipada con alas.

Para hacer una toalla sanitaria de otra forma que una de las mostradas en las figuras, ventajosamente la lámina superior 36 no se extenderá por fuera del núcleo absorbente, y la lámina posterior 42 o la lámina impermeable a los líquidos 48 no formará junto con la lámina superior 36 una margen periférica 44, sino que la lámina posterior 42 o la lámina impermeable a los líquidos 48 se doblará sobre los bordes laterales sobre la lámina superior. Las tiras de barrera 46, 48 en las modalidades que se refieren a las figuras 4,5, 6 o 7 se pueden excluir, y solo se verán como una posibilidad para

reforzar y/o modificar una toalla sanitaria de acuerdo con ciertas necesidades.

Los miembros elásticos no solo servirán como medios para crear canales, sino que también doblarán la toalla sanitaria en una forma de copa con el área de humectación como uno de los puntos bajos.

También puede haber una combinación de las modalidades anteriormente descritas de la invención. Por ejemplo, que el material elástico 40 se puede perfilar al mismo tiempo que el núcleo absorbente, quedando juntos canales de conducción de fluido.

REIVINDICACIONES.

1. Un artículo absorbente (10), tal como una toalla sanitaria, dicho artículo comprende un núcleo absorbente alongado (12) delimitado por una superficie de arriba (14) y 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 primera 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), barreras contra chorreadura (68, 70), cada barrera cubre una porción de borde longitudinal (18, 20) en una porción de borde longitudinal respectivo (18, 20) y formando bolsillos de retención de líquido a lo largo de cada una de las porciones de borde caracterizado por que, los primeros medios de espaciamento (60) están dispuestos entre el núcleo absorbente (12) y cada una de las barreras contra chorreadura (68, 70), dichos primeros

medios de espaciamento están dispuestos a una distancia uno de otro a lo largo de la longitud de dichas barreras contra chorreaduras (68, 70) y definiendo primeros canales de conducción de fluido (62), que se extienden generalmente de manera perpendicular a las porciones de orden longitudinal (18, 20), entre dichas barreras contra chorreadura (68, 70) y dicho núcleo absorbente (12).

2. El artículo absorbente de acuerdo a la reivindicación 1 caracterizado por que cada porción de borde longitudinal (18, 20) se hace perfilada.

3. El artículo absorbente de acuerdo a la reivindicación 1, caracterizado por que la superficie de arriba (14) se hace perfilada.

4. El artículo absorbente de acuerdo a la reivindicación 2 o 3 caracterizado por que las partes perfiladas se crean mediante comprensión de ranura de la lámina superior (36), y que los primeros medios de espaciamento (60) consisten en coartes no comprimidas de lámina superior (36).

5. El artículo absorbente de acuerdo a la reivindicación 2 o 3 caracterizado por que las partes perfiladas se hacen perfiladas mediante compresión de ranura de la parte superior del núcleo absorbente (12), y que los primeros medios de espaciamento (60) consisten de partes no comprimidas de núcleo absorbente (12).

6. El artículo absorbente de acuerdo a la reivindicación 2 o 3, caracterizado por que las partes perfiladas se hacen perfiladas mediante compresión de ranura o tanto la lámina superior (36) como la parte de arriba del núcleo absorbente (12) y que los primeros medios de espaciamento (60) consisten de partes no comprimidas de la lámina superior (36) y la parte de arriba del núcleo absorbente (12).

7. El artículo absorbente de acuerdo a la reivindicación 2 o 3 caracterizado por que las partes perfiladas se hacen perfiladas mediante un material de distancia en la forma de cilindros, que son ubicados en la lámina superior (36) de cada porción perfilada, en una dirección desde el centro de la toalla sanitaria (10) a los lados longitudinales de la toalla sanitaria (10), y

por que los primeros medios de espaciamento (60) consisten del material de distancia.

8. El artículo absorbente de acuerdo a la reivindicación 2 o 3, caracterizado por que las partes perfiladas se hacen perfiladas por un material de distancia en la forma de cilindros, que están ubicados en la parte de arriba del núcleo absorbente (12) de cada porción perfilada, en una dirección desde el centro de la toalla sanitaria (10) a los lados longitudinales de la toalla sanitaria 10, y que los primeros medios de espaciamento (60) consisten del material de distancia.

9. El artículo absorbente de acuerdo a cualquiera de las reivindicaciones precedentes, caracterizado por que las barreras contra chorreadura (68, 70) consisten de tiras de barrera (46, 48), cada tira cubre una porción de borde longitudinal respectivo (18, 20) y forman bolsillos de retención de líquidos a lo largo de cada una de las porciones de borde longitudinal, un par de miembros elásticos longitudinales (50, 52) están dispuestos a lo largo de dichas tiras de barrera (46, 48) 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 10. El artículo absorbente de acuerdo a la reivindicación 9, caracterizado por que los miembros elásticos (50, 52) esta en la forma de una cuerda de cuentas, y que las cuentas definen segundos medios de espaciamento.

11. El artículo absorbente de acuerdo a la reivindicación 9, caracterizado por que los miembros elásticos (50, 52) están en la forma de una cuerda de cilindros cortos que tienen una longitud menor que el diámetro del cilindro, y que los cilindros cortos definen segundos medios de espaciamento.

12. El artículo absorbente de acuerdo a la reivindicación 9, caracterizado por que los miembros elásticos (50, 52) en la forma de una cuerda de cilindros largos tienen una longitud mayor que el diámetro del cilindro, y que los cilindros largos definen segundos medios de espaciamento.

13. El artículo absorbente de acuerdo a la reivindicación 9, caracterizado por que un material de distancia en la forma de cilindros largos está ubicados 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.

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

15. El artículo absorbente de acuerdo a cualquiera de las reivindicaciones precedentes, caracterizado por que dichos miembros elásticos laterales (50, 52) son una almohadilla plástica fibrosa no tejida tridimensional o un plástico espumado.

16. El artículo absorbente de acuerdo a cualquiera de las reivindicaciones 1 a 8, caracterizado por que una lámina impermeable a los líquidos (38) que cubre dichas porciones de borde longitudinal (18, 20) de dicho núcleo absorbente (12) y que las barreras contra chorreadura (68, 70) consisten de una tira de material elástico (40) que está ubicado entre dicha lámina impermeable a los líquidos (38) y dicho núcleo absorbente (12) a lo largo de cada una de las porciones de borde longitudinal (18, 20) de dicho núcleo absorbente en al menos dicha porción

media (34) de dicho núcleo absorbente para incrementar de esta forma la resistencia a la flexibilidad del artículo.

17. El artículo absorbente de acuerdo a la reivindicación 16, caracterizado por que dicha tira de material elástico (40) es una almohadilla plástica fibrosa no tejida tridimensional o un plástico espumado.

18. El artículo absorbente de acuerdo a la reivindicación 16 o 17, caracterizado por que dicha tira de material elástico (40) se ubica entre dicha lámina impermeable a los líquidos (38) y dicha superficie inferior (16) de dicho núcleo absorbente (12).

19. El artículo absorbente de acuerdo a cualquiera de las reivindicaciones 16 a 18, caracterizado por que este comprende un par de laminas impermeables a los líquidos (38), cada lámina cubre una porción de orden longitudinal respectivo (18, 20) y forma unos bolsillos de retención de líquido a lo largo de cada una de las porciones de borde longitudinal (18, 20).

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

el lado de dicha tira de materia elástico (40) que enfrenta el lado de más arriba del núcleo absorbente 12 se hace perfilado mediante compresión de ranura.

21. El artículo absorbente de acuerdo a la reivindicación 20, caracterizado por que las partes perfiladas no comprimidas de la tira de material elástico (40) define terceros medios de espaciamiento (78).

22. El artículo absorbente de acuerdo a la reivindicación 19, caracterizado por que este comprende una lámina posterior impermeable a los líquidos (42) que se extiende sobre dicha superficie inferior (16) de dicho núcleo absorbente, dicha lámina posterior (42) y dicha lámina superior (36) está unida a para formar una margen periférica (44) alrededor de dicho núcleo absorbente para incluir de esta forma dichos bolsillos de retención de líquido a lo largo de dichas porciones de borde.

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

24. El artículo absorbente de acuerdo a cualquiera de las reivindicaciones precedentes, caracterizado por que dichos bolsillos se extienden a lo largo de la porción central (34) de dicho núcleo absorbente (12).

25. El artículo absorbente de acuerdo a cualquiera de las 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 alrededor de un tercio, de la longitud del núcleo absorbente (12).

26. El artículo absorbente de acuerdo a cualquiera de las reivindicaciones precedentes, caracterizado por que dichas barreras contra chorreadura (68, 70) tienen cada una, una extensión transversalmente a través de dicho núcleo absorbente (12), dicha extensión esta entre 5% y 25% del total de la anchura de la toalla sanitaria en el área de humectación.

27. El artículo absorbente de acuerdo a cualquiera de las reivindicaciones precedentes, caracterizado por que el grosor de los primeros, segundos terceros medios de espaciamiento son de al menos 1 mm.

RESUMEN

La invención se refiere aun artículo absorbente (10) tal como una toalla sanitaria, donde dicho artículo comprende un núcleo absorbente alargado (12) delimitado por una superficie de arriba (14) y una superficie de abajo (16). Un par de porciones de borde longitudinales opuestos (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 posterior de barrera contra los líquidos (42) cubre dicha superficie de abajo (16) de dicho núcleo absorbente (12). Las barreras contra chorreadura (68, 70), cada barrera cubriendo una porción de borde longitudinal (18, 20) en una porción de borde longitudinal respectivo (18, 20), forma bolsillos de retención de líquido a lo largo de cada una de las porciones de borde longitudinal. La invención se caracteriza por que los primeros medios de espaciamento (60) están dispuestos entre el núcleo absorbente (12) y cada una de dichas barreras contra chorreadura (68, 70), y que dichos primeros medios de espaciamento (60) están

dispuestos a una distancia uno del otro a lo largo de la longitud de dichas barreras contra chorreadura (68, 70) definen primeros canales de conducción de fluido (62), que se extienden generalmente de manera perpendicular a las porciones de borde longitudinal (18, 20), entre dichas barreras contra chorreaduras (68, 70) y dicho núcleo absorbente (12).

SCA 1481ENE

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Expediente No		03027 231	No de Follo
Item		No de unidades	✓
1	CD		
2	DVD		
3	REVISTA		
4	LIBRO		
5	PERIODICO		
6	DISQUETES		
7	SOBRE DE MANILA	1	—
8	SOBRE BLANCO TAMAÑO CARTA		
9	SOBRE BLANCO TAMAÑO OFICIO		
10	OTROS:		

Observaciones:

sobre vacío

135

SUPERINDUSTRIA Y COMERCIO
Radicacion : 03027231 00000000 Folia: 135
Fecha (AMB): 2003-04-01 16:44:00
Tramite : 011 PCT-PATENT 379 FASE NDCI 411 PRESENTAC
Dependencia: 2000 DIVISION DE NUEVAS CREACIONES

NIT : 800176089-2

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

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
CAVELIER ABOGADOS	CONSIGNACION	BANCO POPULAR	050-00110-6	9905690	25/03/2003	27,448,920.00

***** CONCEPTO *****

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

SON: CUATROCIENTOS MIL PESOS

RESPONSABLE : 

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

06 11256-841-010-7

436

REQUISITOS NECESARIOS PARA PRESENTACION Y AGILIZACION DEL
TRAMITE

	USUARIO	RADICADOR
PATENTE DE INVENCION	()	(x)
MODELO DE UTILIDAD	()	(x)
- Indicación de que se solicita la concesión de una patente.	()	(x)
- Datos de identificación del solicitante o de la persona que se presenta la solicitud.	()	(x)
- Descripción de la invención.	()	(x)
- Dibujos de ser estos pertinentes.	()	(x)
- Comprobante de Pago de las tasas establecidas.	()	(x)
COMPLETA (x)	INCOMPLETA ()	()
DISEÑO INDUSTRIAL ()		
- Indicación de que se solicita el registro de Diseño Industrial	()	()
- Datos de identificación del solicitante o de la persona que presenta la solicitud.	()	()
- Representación gráfica y fotográfica del Diseño Industrial o muestra del Material que incorpora el diseño.	()	()
Comprobante de pago de las tasas establecidas	()	()
COMPLETA ()	INCOMPLETA ()	()
ESQUEMA DE TRAZADO ()		
- Indicación de que solicita el registro de un Esquema de trazado.	()	()
- Datos de identificación del solicitante o de la persona que presenta La solicitud.	()	()
Representación gráfica del esquema de trazado	()	()
Comprobante de pago de las tasas establecidas.	()	()
COMPLETA ()	INCOMPLETA ()	()

Firma Responsable:

Eduar Novillo
01-04-2003

Fecha: