

**Drigard & Castro**

Abogados

SUPERINDUSTRIA Y COMERCIO

Radicación : 00058613 00000004

Folios: 2

Fecha (AMD): 2002-10-08 16:17:29

Trámite : 002 PATENTES D 1 REGISTRO/ 538 PETICION

Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

AS: 82.764

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Señores

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

E. S. D.

REF.: Expediente No. 00 058.813 solicitud de Patente a nombre de  
**KIMBERLY - CLARK WORLDWIDE, INC.**

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

De acuerdo con lo anterior, me permito anexar el recibo oficial de caja No. 02-67,144 por valor de \$318.000.

Señor Superintendente,



**RAMIRO CASTRO DUQUE**

C.C. No. 170.322 de Bogotá

Código 340

T.P. No.1003 del C.S.J.

Cra 7 No. 16-56 Piso 9

Octubre 07, 2002

CPB/hsr

431 A  
414**Industria y Comercio****SUPERINTENDENCIA**

NIT : 800176089-2

RECIBO OFICIAL DE CAJA : 02 - 67,144  
FECHA : OCTUBRE 7 DE 2002

SUPERINDUSTRIA Y COMERCIO  
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Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

## \*\*\*\*\* CONSIGNACION \*\*\*\*\*

| DEPOSITANTE          | TIPO PAGO    | BANCO         | CUENTA      | No. PAGO | FECHA PAGO | Vr. PAGO      |
|----------------------|--------------|---------------|-------------|----------|------------|---------------|
| FIGARD & CASTRO LTDA | CONSIGNACION | BANCO POPULAR | 050-00110-6 | 1325047  | 07/10/2002 | 1,695,000.00  |
| FIGARD & CASTRO LTDA | CONSIGNACION | BANCO POPULAR | 050-00110-6 | 1325048  | 07/10/2002 | 10,540,000.00 |

## \*\*\*\*\* CONCEPTO \*\*\*\*\*

| NT. RENTISTICO            | CONCEPTO                             | TOTAL CONCEPTO |
|---------------------------|--------------------------------------|----------------|
| 1 50005-01-01 SOLICITUDES | 85 EXAMEN DE PATENTABILIDAD DE INVEN | 318,000.00     |
|                           | TOTAL :                              | \$ 318,000.00  |

1: TRESCIENTOS DIEZ Y OCHO MIL PESOS

RESPONSABLE : \_\_\_\_\_

Monto de CAJA APLICADO AL EXPEDIENTE No. \_\_\_\_\_

Carrera 13 No. 27-00 Pisos 5, 7 y 10  
Conmutador 382 0840  
Fax 350 5220  
E-mail: info@sic.gov.co  
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Bogotá, D.C., Colombia

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

2020

Bogotá D.C., Mayo 16 de 2005

Doctor

**RAMIRO CASTRO DUQUE**

Apoderado **KIMBERLY – CLARK WORLDWIDE, INC.**

**ASUNTO**      Radicación    00-58813  
                 Trámite            002  
                 Evento           001  
                 Actuación        430  
                 Oficio  
                 Folios                025

~~00-10917~~

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

**1. Documentos estudiados:**

- A. Para el presente estudio se tuvo en cuenta el capítulo descriptivo, comprendido en los folios 359 a 407 del expediente correspondiente a la solicitud en estudio, el cual reemplazó al capítulo radicado al inicio del trámite.
- B. Se tomaron en cuenta los dibujos de los folios 139 a 164.
- C. El capítulo reivindicatorio tomado en cuenta para el presente estudio comprende 138 reivindicaciones y se encuentra en los folios 408 a 427, el cual reemplazó al capítulo reivindicatorio radicado al inicio del trámite.
- D. Conforme lo establecen los artículos 9, 10 y 11 de la Decisión 486 de la Comisión de la Comunidad Andina, la presente solicitud en estudio fue presentada el 04 de agosto de 2000, en el momento de la radicación se reclamó prioridad. La copia certificada de la solicitud cuya prioridad fue reivindicada (US 09/307,439 del 9 de agosto de 1999) aparece junto con su traducción en los folios 188 a 352. La prioridad no fue reconocida por extemporaneidad en la presentación de la copia certificada. Ver folios 429 y 430.

**2. Objeto de la invención:**

- A. Las reivindicaciones de la solicitud en estudio se refieren a: una almohadilla absorbente con ejes longitudinales y transversales; la almohadilla absorbente comprende: una capa de hoja inferior, una capa de hoja superior permeable al líquido sobrepuesta sobre la capa de hoja inferior; un conjunto absorbente colocado en forma de emparedado entre la capa de hoja inferior y la capa de hoja superior y las aletas laterales colocadas transversalmente hacia fuera del conjunto absorbente, cada aleta lateral comprende un miembro elástico que está por lo menos parcialmente afuera del plano del conjunto absorbente cuando la almohadilla absorbente está en una posición generalmente plana; la almohadilla absorbente tiene una rigidez Gurley de más de 2000 miligramos.
- B. El objeto de la solicitud se puede clasificar según la clasificación internacional como

A 61 F 13/15.

**3. Claridad de la Solicitud:**

- A. El artículo 28 de la Decisión 486 de la Comisión de la Comunidad Andina establece "la descripción deberá divulgar la invención de una manera suficientemente clara y completa para su comprensión y para que una persona capacitada en la materia técnica correspondiente pueda ejecutarla"

La descripción en los folios 156 a 179 no es clara toda vez que presenta incoherencias, ambigüedades, unidades, etc.

De acuerdo con lo anterior, la descripción no cumple con el requisito de claridad según lo establecido en el artículo 28 de la Decisión 486.

- B. En el artículo 30 de la decisión 486 de la Comisión de la Comunidad Andina se establece: "Las reivindicaciones definirán la materia que se desea proteger mediante la patente. Deben ser claras y concisas y estar enteramente sustentadas por la descripción. Las reivindicaciones podrán ser independientes o dependientes. Una reivindicación será independiente cuando defina la materia que se desea proteger sin referencia a otra reivindicación anterior. Una reivindicación será dependiente cuando defina la materia que se desea proteger refiriéndose a una reivindicación anterior. Una reivindicación que se refiera a dos o más reivindicaciones anteriores se considerará una reivindicación dependiente múltiple." En el artículo 51 se establece además: "El alcance de la protección conferida por la patente estará determinado por el tenor de las reivindicaciones."

El capítulo reivindicatorio no es claro toda vez que

- i. No se encuentra correctamente redactado. Por su estructura todas las reivindicaciones deben constar de dos partes. Una primera parte, el preámbulo, sirve para situar el objeto de la invención dentro de un contexto técnico; es lo que se conoce y sobre lo cual no se reclama ningún privilegio. La segunda parte o parte característica, define lo que se considera novedoso y se desea proteger. Estas dos partes debe estar separadas por expresiones como "caracterizado por" o similares. Debe corregirse todo el capítulo.
- ii. El capítulo reivindicatorio carece de concisión. El señor solicitante ha hecho caso omiso del primer requerimiento de forma, que obra en el folio 169, en el cual se le hacía notar que la solicitud tiene 138 reivindicaciones, de ellas por lo menos 16 independientes, lo cual le resta toda la concisión al capítulo reivindicatorio, aún en el caso de que existiera unidad de invención. El solicitante debe presentar un capítulo reivindicatorio conciso, con una reivindicación independiente dirigida al artículo en la forma más amplia y general de la solicitud de invención. Partiendo de allí, establecer reivindicaciones dependientes que amplíen esa forma general hasta su forma más concreta.
- iii. En las reivindicaciones se puede leer "una almohadilla absorbente que define ejes..." En idioma castellano definir tiene los siguientes significados: "Definir: Fijar con claridad, exactitud y precisión la significación de una palabra o la naturaleza de una persona o cosa. 2. Decidir, determinar, resolver algo dudoso. 3. Concluir una obra, trabajando con perfección todas sus partes, aunque sean de las menos principales. 4. Adoptar con decisión una actitud." Por lo tanto, la expresión citada no tiene mayor sentido en nuestro idioma ya que no es lógico

que una almohadilla "defina, decida o adopte" unos ejes.

De acuerdo con lo anterior, el capítulo reivindicatorio no cumple con el requisito de claridad según lo establecido en el artículo 30 de la Decisión 486. El solicitante deberá anexar un nuevo capítulo reivindicatorio con todas las correcciones aquí requeridas.

#### **4. Evaluación de la unidad de invención**

El artículo 25 de la decisión 486 de la Comisión de la Comunidad Andina establece: "La solicitud de patente sólo podrá comprender una invención o un grupo de invenciones relacionadas entre sí, de manera que conformen un único concepto inventivo."

La presente solicitud carece de unidad de invención toda vez que configura diferentes objetos, tal como se le explicó al solicitante en el primer examen de forma, folio 169. En su respuesta a aquel requerimiento, el señor solicitante falló en explicar cuál es el objeto común inventivo pues se limita a aseverar que "se trata de almohadillas absorbentes (que) contienen diferentes características las cuales, obviamente constituyen una misma almohadilla absorbente con características diferentes". No se entiende por qué "obviamente" constituyen una misma almohadilla, si se ha hecho un requerimiento en el cual se analizan las diferencias que permiten concluir todo lo contrario.

Se requiere que el solicitante de una respuesta clara, precisa y concisa sobre cuál es el objeto común inventivo de las 138 reivindicaciones, tomando en cuenta los requerimientos expresados en el folio 169.

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

#### **5. Determinación del estado de la técnica:**

El artículo 16 de la Decisión 486 de la Comisión establece que: "El estado de la técnica comprenderá todo lo que haya sido accesible al público por una descripción escrita u oral, utilización, comercialización o cualquier otro medio antes de la fecha de presentación de la solicitud de patente o, en su caso, de la prioridad reconocida."

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

La fecha para determinar el estado de la técnica es el 4 de agosto de 2000, tomando sin tomar en cuenta la prioridad reivindicada.

Consultadas las bases de datos y los archivos con que cuenta la entidad, especialmente bajo las clasificaciones A 61 F 13/15, se encontró que antes del 4 de agosto de 2000 habían sido publicados los documentos enumerados en la siguiente

tabla:

| No. | Documento    | Título                                                  | Fecha de publicación |
|-----|--------------|---------------------------------------------------------|----------------------|
| D1  | WO 98/31320  | Elasticized absorbent pad                               | 1998-07-23           |
| D2  | WO 96/20679  | Thin, curved absorbent article having elasticized edges | 1996-07-11           |
| D3  | US 5,032,121 | Absorbent article having a cup-shaped configuration     | 1991-07-16           |
| D4  | GB 2296445   | Absorbent article                                       | 1996-07-03           |
| D5  | EP 0 442 223 | Disposable absorbent product                            | 1991-08-21           |

**6. Evaluación de los requisitos de patentabilidad:**

El artículo 14 de la Decisión 486 de la Comunidad Andina establece que: *"Los Países Miembros otorgarán patentes para las invenciones, sean de producto o de procedimiento en todos los campos de la tecnología, siempre que sean nuevas, tengan nivel inventivo y sean susceptibles de aplicación industrial"*.

En cumplimiento del artículo 14 de la Decisión 486, se procedió a evaluar los requisitos de novedad, nivel inventivo y aplicación industrial con el fin de establecer la patentabilidad del objeto de la solicitud reivindicado en la solicitud en estudio.

**A. Evaluación de la Novedad:**

El artículo 16 de la decisión 486 de la Comisión de la Comunidad Andina establece:

"Una invención se considerará nueva cuando no esté comprendida en el estado de la técnica." "El estado de la técnica comprenderá todo lo que haya sido accesible al público por una descripción escrita u oral, utilización, comercialización o cualquier otro medio antes de la fecha de presentación de la solicitud de patente o, en su caso, de la prioridad reconocida."

- i. El documento D1 trata de una almohadilla absorbente con alas laterales elásticas con miembros elásticos que están fuera del plano del conjunto absorbente cuando la almohadilla está en posición plana y tiene una rigidez Gurley mayor de 2000 miligramos. Esto coincide plenamente con lo reivindicado en la solicitud estudiada.
- ii. El documento D2 también habla de un artículo absorbente que tiene un lado longitudinal y un perímetro externo. El artículo absorbente tiene un miembro elástico posicionado entre el perímetro externo y la periferia del material absorbente. Dicho miembro elástico tiene una rigidez de Gurley entre 1000 y 11000, luego también esta divulgación afecta la novedad de la solicitud.
- iii. En el documento D3 se divulga un artículo absorbente que es plano cuando los miembros elásticos están estirados pero que cuando están relajados hacen que la parte central se doble formando una copa. La longitud exacta de los miembros elásticos depende del grado de elasticidad de cada miembro, de la rigidez del artículo absorbente. Así, tomando en cuenta estos argumentos junto

con los dibujos de D3, se puede enunciar que la novedad del objeto reivindicado también se ve afectada por la divulgación hecha en D3.

- iv. En D4 se divulga un artículo absorbente con miembros elásticos que hacen el papel de alas formando paredes laterales cuando están distendidas. A partir de la comparación de los dibujos de la solicitud y del documento D4, se puede observar que la novedad del objeto reivindicado se ve afectada.
- v. La rigidez de los miembros elásticos que conforman los bordes laterales en el documento D5 está en el mismo rango que la rigidez de los miembros elásticos del objeto reivindicado.

Así las cosas, el objeto reivindicado en la solicitud estudiada no cumple con lo establecido en el artículo 16 de la decisión 486.

**B. Evaluación del nivel inventivo:**

El artículo 18 de la Decisión 486 de la Comisión de la Comunidad Andina dispone que: "Se considerará que una invención tiene nivel inventivo, si para una persona del oficio normalmente versada en la materia técnica correspondiente, esa invención no hubiese resultado obvia ni se hubiese derivado de manera evidente del estado de la técnica".

A partir de los documentos citados, D1 a D5, un técnico de nivel medio en la materia habría derivado de manera evidente las realizaciones particulares de la almohadilla absorbente ya que a partir de las enseñanzas divulgadas en dichos documentos no se puede identificar ningún efecto sorpresivo o inesperado. El arte previo revela almohadillas absorbentes con alas que consisten en miembros elásticos (que están parcialmente fuera del plano del conjunto absorbente) que tienen como fin evitar chorreaduras. La rigidez o elasticidad de los dichos miembros ya era conocida previamente. A partir de allí, de cada uno de los documentos individuales o en combinación, las dimensiones de los espesores de los elementos del conjunto absorbente, los valores elásticos efectivos y otras características eran obviamente deducibles.

Por lo tanto, la solicitud en estudio no cumple con el requisito de nivel inventivo establecido por el artículo 18 de la Decisión 486.

**C. Resumen**

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

| No. | Documento    | Reivindicaciones afectadas | Requisito afectado        |
|-----|--------------|----------------------------|---------------------------|
| D1  | WO 98/31320  | 1 a 138                    | Novedad y nivel inventivo |
| D2  | WO 96/20679  | 1 a 138                    | Novedad y nivel inventivo |
| D3  | US 5,032,121 | 1 a 138                    | Novedad y nivel inventivo |
| D4  | GB 2296445   | 1 a 138                    | Novedad y nivel inventivo |
| D5  | EP 0 442 223 | 1 a 138                    | Novedad y nivel inventivo |

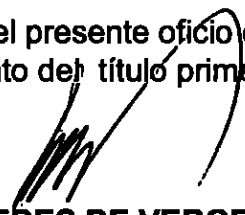
436  
420

Se anexa copia de las anterioridades mencionadas.

## 7. Notificación

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

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e) del capítulo quinto del título primero de la circular única No. 10 de 2001.

  
**ALIX CÉSPEDES DE VERGEL**  
Jefe de la División de Nuevas Creaciones

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

10 2 JUN. 2005

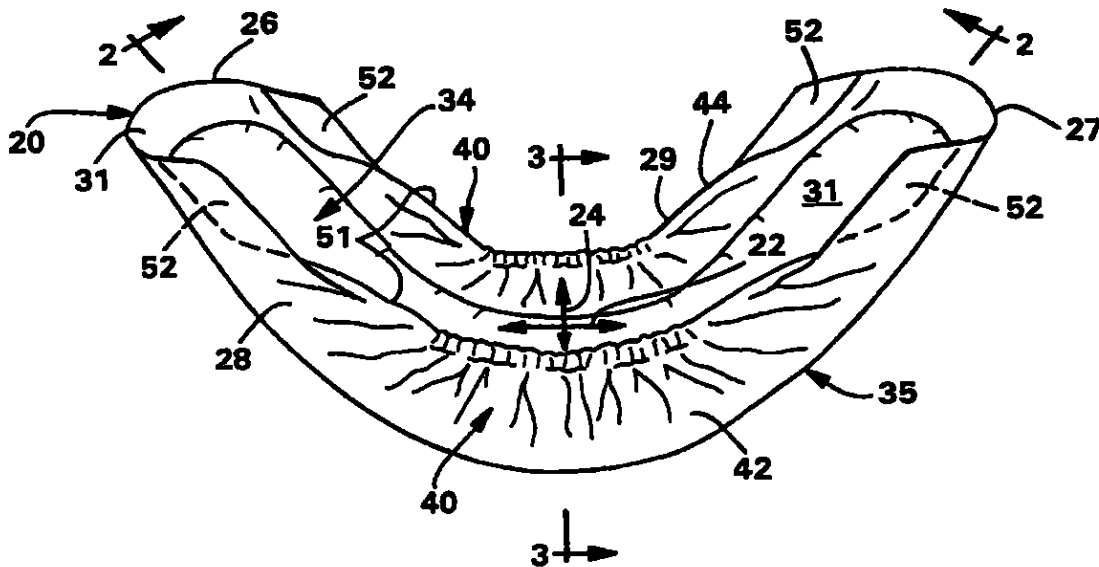
|                                        |                                             |
|----------------------------------------|---------------------------------------------|
| <b>CONCEPTO TÉCNICO</b><br>Número: 692 | <b>EXAMINADOR TÉCNICO</b><br>Código: 202043 |
|----------------------------------------|---------------------------------------------|



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

|                                                                                                                                                                                                                                               |  |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International Patent Classification 6 :<br>A61F 13/15                                                                                                                                                                                    |  | A1 | (11) International Publication Number:<br>WO 98/31320                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                               |  |    | (43) International Publication Date:<br>23 July 1998 (23.07.98)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (21) International Application Number:<br>PCT/US98/00625                                                                                                                                                                                      |  |    | (81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). |
| (22) International Filing Date:<br>13 January 1998 (13.01.98)                                                                                                                                                                                 |  |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (30) Priority Data:<br>08/785,737 17 January 1997 (17.01.97) US<br>08/844,291 18 April 1997 (18.04.97) US                                                                                                                                     |  |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (71) Applicant: KIMBERLY-CLARK WORLDWIDE, INC.<br>[US/US]; 401 North Lake Street, Neenah, WI 54956 (US).                                                                                                                                      |  |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (72) Inventors: DATTA, Paul, Joseph; N2005 Mayflower Road, Appleton, WI 54915 (US). RICHARDSON, Kathy, Gera-lynn; W3050 Pinewood Court, Appleton, WI 54915 (US). WATERHOUSE, Sirlei, Auler; 8307 Turtlecreek Lane, Cincinnati, OH 45242 (US). |  |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (74) Agents: CHARLIER, Patricia, A. et al.; Kimberly-Clark Worldwide, Inc., 401 North Lake Street, Neenah, WI 54956 (US).                                                                                                                     |  |    | Published<br>With international search report.<br>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.                                                                                                                                                                                                                                                                                                                                                                                           |

(54) Title: ELASTICIZED ABSORBENT PAD



## (57) Abstract

An absorbent pad having elasticized side flaps is adapted to provide improved leakage performance and comfort. In one embodiment, the elastic member of each side flap is at least partly out of the plane of the absorbent assembly when the absorbent pad is in a generally flat position, and the absorbent pad has a Gurley stiffness of greater than 2000 milligrams. In another embodiment, the absorbent pad has an anti-roll back feature and an Effective Elastic Value of at least 30 millimeters.

CLAIMS

I claim:

1. An absorbent pad defining longitudinal and transverse axes, the absorbent pad comprising:

a backsheet layer;

a liquid permeable topsheet layer superposed on the backsheet layer;

an absorbent assembly sandwiched between the backsheet layer and the topsheet layer; and

side flaps disposed transversely outward of the absorbent assembly, each side flap comprising an elastic member that is at least partly out of the plane of the absorbent assembly when the absorbent pad is in a generally flat position;

the absorbent pad having a Gurley stiffness of greater than about 2000 milligrams.

2. An absorbent pad defining a longitudinal axis, a transverse axis, opposite longitudinal end edges, and opposite longitudinal side edges extending between the longitudinal end edges, the absorbent pad comprising:

a backsheet layer;

a liquid permeable topsheet layer superposed on the backsheet layer;

an absorbent assembly sandwiched between the backsheet layer and the topsheet layer;

side flaps disposed transversely outward of the absorbent assembly, each side flap comprising an elastic member having opposite active ends that are longitudinally spaced from the respective longitudinal end edges of the absorbent pad; and

garment attachment means disposed on the backsheet layer remote from the absorbent assembly, the garment attachment means positioned longitudinally outward of the active ends of the elastic members;

the absorbent pad having an Effective Elastic Value of at least 30 millimeters.

3. The absorbent pad of claim 1, wherein:

the elastic members have opposite active ends that are longitudinally spaced from respective longitudinal end edges of the absorbent pad; and

garment attachment adhesive is disposed on the backsheet layer remote from the absorbent assembly, the garment attachment adhesive being positioned longitudinally outward of the active ends of the elastic members.

4. The absorbent pad of claim 1 or 3, wherein the absorbent pad has an Effective Elastic Value of at least 30 millimeters.
5. The absorbent pad of claim 1 or 2, wherein the absorbent pad has an Effective Elastic Value of at least about 40 millimeters.
6. The absorbent pad of claim 1 or 2, wherein the elastic members are completely out of the plane of the absorbent assembly when the absorbent pad is in a generally flat position.
7. The absorbent pad of claim 6, wherein the elastic members have an Elastic Out Of The Plane Value of at least about 5 millimeters.
8. The absorbent pad of claim 6, wherein the elastic members have an Elastic Out Of The Plane Value of from about 10 to about 30 millimeters.
9. The absorbent pad of claim 1 or 2, wherein the absorbent assembly has a thickness dimension of less than about 20 millimeters.
10. The absorbent pad of claim 9, wherein the absorbent assembly has a thickness dimension of less than about 10 millimeters.
11. The absorbent pad of claim 1 or 2, wherein the side flaps comprise a pair of nonwoven side panel members bonded to the backsheet and extending transversely outward of the absorbent assembly, the elastic members operatively joined to the side panel members.
12. The absorbent pad of claim 1 or 2, wherein the garment attachment means comprises an adhesive.
13. The absorbent pad of claim 1, 2 or 3, wherein the absorbent pad has a length dimension of from about 10 to about 40 centimeters and a width dimension of from about 3 to about 12 centimeters.

14. An absorbent pad defining longitudinal and transverse axes, the absorbent pad comprising:

a backsheet layer;

a fluid permeable topsheet layer superposed on the backsheet layer;

a single layer absorbent core sandwiched between the backsheet layer and the topsheet layer; and

side flaps disposed transversely outward of the absorbent assembly, each side flap comprising an elastic member that is at least partly out of the plane of the absorbent core when the absorbent pad is in a generally flat position;

the absorbent pad having a Gurley stiffness of greater than about 800 milligrams.

15. An absorbent pad defining a longitudinal axis, a transverse axis, opposite longitudinal end edges, and opposite longitudinal side edges extending between the longitudinal end edges, the absorbent pad comprising:

a backsheet layer;

a fluid permeable topsheet layer superposed on the backsheet layer;

a single layer absorbent core sandwiched between the backsheet layer and the topsheet layer;

side flaps disposed transversely outward of the absorbent core, each side flap comprising an elastic member having opposite active ends that are longitudinally spaced from the respective longitudinal end edges of the absorbent pad; and

garment attachment means disposed on the backsheet layer remote from the absorbent core, the garment attachment means positioned longitudinally outward of the active ends of the elastic members;

the absorbent pad having an Effective Elastic Value of at least 30 millimeters.

16. The absorbent pad of claim 14, wherein:

the elastic members have opposite active ends that are longitudinally spaced from respective longitudinal end edges of the absorbent pad; and

garment attachment adhesive is disposed on the backsheet layer remote from the absorbent core, the garment attachment adhesive being positioned longitudinally outward of the active ends of the elastic members.

17. The absorbent pad of claim 14 or 16, wherein the absorbent pad has an Effective Elastic Value of at least 30 millimeters.

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18. The absorbent pad of claim 14 or 15, wherein the absorbent pad has an Effective Elastic Value of at least about 40 millimeters.

19. The absorbent pad of claim 14 or 15, wherein the elastic members are completely out of the plane of the absorbent core when the absorbent pad is in a generally flat position.

20. The absorbent pad of claim 19, wherein the elastic members have an Elastic Out Of The Plane Value of at least about 5 millimeters.

21. The absorbent pad of claim 19, wherein the elastic members have an Elastic Out Of The Plane Value of from about 10 to about 30 millimeters.

22. The absorbent pad of claim 14 or 15, wherein the absorbent core has a thickness dimension of less than about 20 millimeters.

23. The absorbent pad of claim 22, wherein the absorbent core has a thickness dimension of less than about 10 millimeters.

24. The absorbent pad of claim 14 or 15, wherein the side flaps comprise a pair of nonwoven side panel members bonded to the backsheet and extending transversely outward of the absorbent core, the elastic members operatively joined to the side panel members.

25. The absorbent pad of claim 14 or 15, wherein the garment attachment means comprises an adhesive.

26. The absorbent pad of claim 14, 15 or 16, wherein the absorbent pad has a length dimension of from about 10 to about 40 centimeters and a width dimension of from about 3 to about 12 centimeters.

27. An absorbent pad defining longitudinal and transverse axes, the absorbent pad comprising:

a backsheet layer;

a fluid permeable topsheet layer superposed on the backsheet layer;

an absorbent assembly sandwiched between the backsheet layer and the topsheet layer; and,

side flaps disposed transversely outward of the absorbent assembly, each side flap comprising an elastic member that is at least partly out of the plane of the absorbent assembly when the absorbent pad is in a generally flat position and wherein each side flap maintains a gasketing contact relationship with a wearer's body during use.

28. The absorbent pad of claim 27, wherein the absorbent pad has a Gurley stiffness of greater than about 2000 milligrams.

29. The absorbent pad of claim 27, wherein the side flaps are folded during use prior to an insult of fluid on the absorbent pad.

30. The absorbent pad of claim 27, wherein the side flaps are at least partially unfolded during use after at least one insult of fluid on the absorbent pad.

31. The absorbent pad of claim 27, wherein the side flaps are unfolded during use after at least one insult of fluid on the absorbent pad.

32. An absorbent pad defining a longitudinal axis, a transverse axis, opposite longitudinal end edges, and opposite longitudinal side edges extending between the longitudinal end edges, the absorbent pad comprising:

a backsheet layer;

a fluid permeable topsheet layer superposed on the backsheet layer;

an absorbent assembly sandwiched between the backsheet layer and the topsheet layer;

side flaps disposed transversely outward of the absorbent assembly comprising an proximal edge, a distal edge, a body-facing surface which is configured to be in a contacting relationship with a wearer's body during use, at least one elastic member having opposite active ends that are longitudinally spaced from the respective longitudinal end edges of the absorbent pad, wherein the proximal edge is attached to the longitudinal side edges of the absorbent pad and the distal edge remains unattached from the longitudinal side edges of the absorbent pad; and

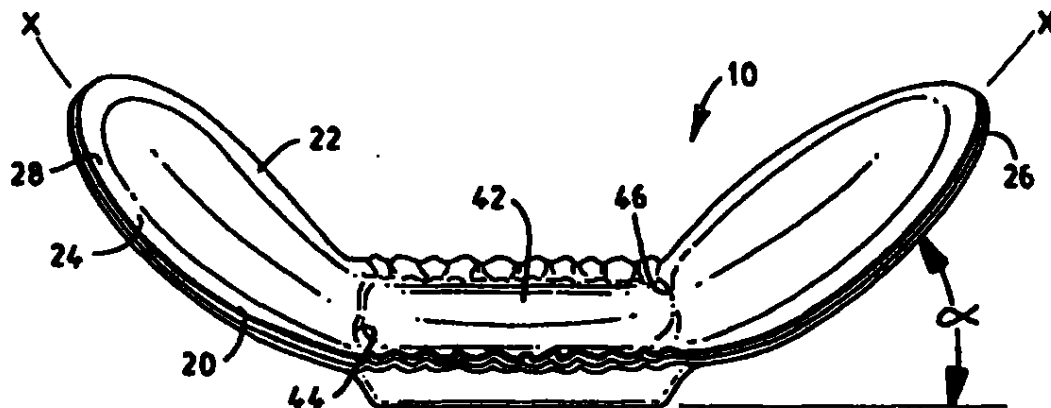
garment attachment means disposed on the backsheet layer remote from the absorbent assembly, the garment attachment means positioned longitudinally outward of the active ends of the elastic members;



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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International Patent Classification <sup>6</sup> :<br><b>A61F 13/15</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>A2</b> | (11) International Publication Number: <b>WO 96/20679</b><br>(43) International Publication Date: 11 July 1996 (11.07.96)                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| (21) International Application Number: PCT/US95/16691<br>(22) International Filing Date: 21 December 1995 (21.12.95)<br>(30) Priority Data:<br>08/366,845 30 December 1994 (30.12.94) US<br>(71) Applicant: KIMBERLY-CLARK CORPORATION [US/US];<br>401 North Lake Street, Neenah, WI 54956 (US).<br>(72) Inventors: DIPALMA, Joseph; 451 East Peckham Street,<br>Neenah, WI 54956 (US). ANJUR, Sowmya, Sriram; 624<br>E. Capitol Drive, Appleton, WI 54911 (US).<br>(74) Agents: DAVIS, Mark, L. et al.; Kimberly-Clark Corporation,<br>401 North Lake Street, Neenah, WI 54956 (US). |           | (81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH,<br>CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG,<br>KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW,<br>MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ,<br>TM, TT, UA, UG, UZ, VN, ARIPO patent (KE, LS, MW,<br>SD, SZ, UG), European patent (AT, BE, CH, DE, DK, ES,<br>FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent<br>(BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD,<br>TG).<br><br><b>Published</b><br><i>Without international search report and to be republished<br/>upon receipt of that report.</i> |

(54) Title: THIN, CURVED ABSORBENT ARTICLE HAVING ELASTICIZED EDGES



## (57) Abstract

Described is an absorbent article having a liquid-permeable cover (12), a liquid-impermeable baffle (14), an absorbent (16) therebetween, and a resilient member (18) positioned along at least one longitudinal side of the absorbent article. The absorbent article further includes a tensioning means (40) which imparts an arcuate shape to the absorbent article. The tensioning device can be positioned along a portion of the upper most surface of the resilient member (18).

CLAIMS

1. An absorbent article having a longitudinal side (20, 22) and an outer perimeter (28), said absorbent article comprising:
  - a) a liquid-permeable bodyfacing cover (12);
  - b) a liquid-impermeable garment-facing baffle (14);
  - c) an absorbent (16) positioned intermediate said cover (12) and said baffle (14), said absorbent (16) having an outer periphery (30) disposed inward from said outer perimeter (28);
  - d) resilient member (18) positioned between said outer perimeter (28) and said outer periphery (30); and
  - e) tensioning means (40) for imparting an arcuate configuration to said absorbent article, said tensioning means (40) being secured to a portion of said resilient member (18).
2. The absorbent article of claim 1 wherein said resilient member (18) extends along at least a portion of said longitudinal side (20, 22) of said absorbent article.
3. The absorbent article of claim 1 or 2 wherein said resilient member (18) encircles said absorbent (16).
4. The absorbent article of one of the preceding claims wherein said resilient member (40) is a polyolefin foam or a compressed cellulosic sponge.
5. The absorbent article of one of the preceding claims wherein said resilient member (18) has a Gurley stiffness ranging from about 1000 to about 11,000, preferably from about 1500 to about 9,000.
6. The absorbent article of one of the preceding claims wherein said resilient member (18) has a width ranging from

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about 3 millimeters to about 12 millimeters and/or a height of about 0.5 millimeters to about 8 millimeters.

5 7. The absorbent article of one of claims 1 to 5 wherein said resilient member (18) has a width ranging from about 1 millimeter to about 6 millimeters, and/or a height from about 6 mm to about 10 mm.

10 8. The absorbent article of one of the preceding claims having a flexure-resistance of less than about 700 grams, preferably of less than about 400 grams.

15 9. The absorbent article of one of the preceding claims having a caliper of less than about 5 millimeters.

20 10. The absorbent article of one of the preceding claims wherein said resilient member (18) is a polyolefin foam having a resiliency of from about 15 percent to about 60 percent.

25 11. The absorbent article of claim 10 wherein said polyolefin foam has a width ranging from about 3 millimeters to about 8 millimeters.

30 12. The absorbent article of one of the preceding claims wherein said tensioning means (40) is an elastomeric material.

35 13. The absorbent article of claim 12 wherein said elastomeric material is an elastic strip having a width ranging from about 1.5 millimeters to about 8 millimeters.

14. The absorbent article of claim 13 wherein said elastic strip is superposed over a portion of said resilient member.

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- [54] **ABSORBENT ARTICLE HAVING A CUP-SHAPED CONFIGURATION**  
[75] Inventor: Patti J. Mokry, Auburn, Wash.  
[73] Assignee: Kimberly-Clark Corporation, Neenah, Wis.  
[\*] Notice: The portion of the term of this patent subsequent to Jul. 31, 2007 has been disclaimed.

- [21] Appl. No.: 521,857  
[22] Filed: May 8, 1990

**Related U.S. Application Data**

- [63] Continuation-in-part of Ser. No. 843,332, Mar. 24, 1986, Pat. No. 4,944,735, which is a continuation of Ser. No. 581,945, Feb. 21, 1984, abandoned.

- [51] Int. Cl.<sup>3</sup> ..... A61F 13/16  
[52] U.S. Cl. .... 604/385.2; 604/366  
[58] Field of Search ..... 604/385.2, 366, 385.1, 604/370

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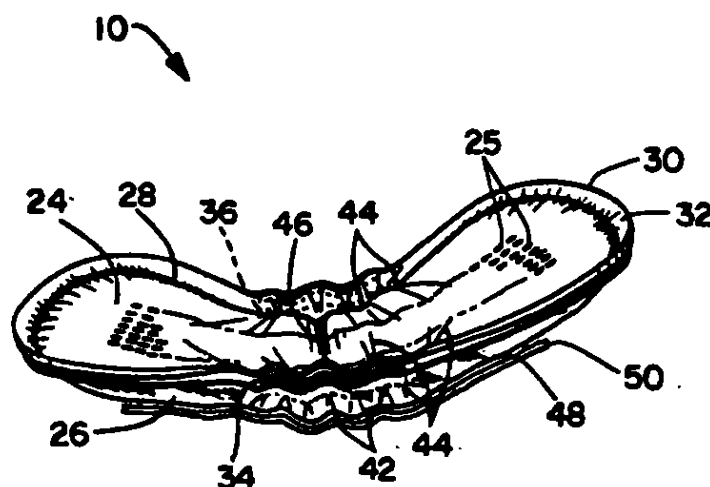
0091412 10/1983 European Pat. Off. .

Primary Examiner—C. Fred Rosenbaum  
Assistant Examiner—Sharon Finkel  
Attorney, Agent, or Firm—Thomas J. Connelly

[57] **ABSTRACT**

An absorbent article is disclosed which has a cup-shaped configuration which prevents side leakage of body fluid and better conforms to the curve shape of a human torso. The absorbent article includes an absorbent having a first surface which faces the body of a user and a second surface aligned opposite to the first surface. The absorbent has a pair of longitudinally extending arcuate sides which are arranged to be close to each other at a point approximate a central portion of the absorbent. A fluid permeable cover is positioned adjacent to at least the first surface of the absorbent and a fluid-impermeable baffle is positioned adjacent to at least the second surface of the absorbent. The cover and baffle are sealed together to enclose the absorbent. The seal is formed inward of the outer peripheral edge of the article. The article further includes a pair of elastic members affixed between the cover and the baffle, outward of the seal and aligned adjacent to the central portion of the absorbent. The elastic members cause the absorbent article to acquire a cup-shaped configuration which corresponds to the perineal area of a user.

17 Claims, 2 Drawing Sheets



eral edge 30 of the absorbent article 10 as is clearly shown in FIG. 1.

Referring to FIG. 3 and 4, the elastic members 34 and 36 cause the adjacent portions of the fringe 32 to acquire an upward and outward profile in the form of upstanding walls 38 and 40. The walls 38 and 40 assist in preventing side leakage of body fluids that may pool on the upper surface of the cover 24. The walls 38 and 40 will retain the body fluid on the top surface of the cover 24 until it can be absorbed down into the absorbent 12. The elastic members 34 and 36 also cause the absorbent article 10 to acquire a cup-shaped configuration which is best shown in FIG. 4. When the absorbent article 10 is positioned with one end resting on a horizontal plane, an angle  $\alpha$  is formed by the outer profile of the edge of the article 10 with the horizontal plane. This angle is between about 30-90°. The benefits associated with this cup-shaped configuration essentially disappear when the angle  $\alpha$  is less than about 30°. It is also difficult to maintain the proper configuration of the absorbent article 10 should the angle  $\alpha$  be greater than about 90°.

The elastic members 34 and 36 can be constructed out of any natural rubber or synthetic elastic including heat sealable and heat shrinkable materials. An example of a natural rubber elastic is L-1900 sold by Easthampton Rubber Company. Examples of heat sealable elastics include KRATON™ 1107 sold by Shell Chemical Company and TUFTANE™ TF-410 sold by B. F. Goodrich Company. Examples of heat shrinkable elastics include crystalline neoprene rubbers sold under the designation NEOPRENE™ HC by E. I. du Pont de Nemours and Co, Inc. and polyurethane rubbers sold under the designation ESTANE™ 5710 by B. F. Goodrich Company. Heat-shrinkable elastics may be easier to incorporate into certain manufacturing processes because the elastic can be applied in a non-elastic state, for example as a film, which becomes elastic upon the application of heat. The following U.S. Pat. Nos.: 3,639,917 issued to Althouse, 3,819,401 issued to Mas-sengale et al. and 3,912,565 issued to Koch et al. teach various types of elastic materials applicable to absorbent articles as well as processes for attaching such elastic. These patents are incorporated by reference and made a part hereof. Another method of incorporating the elastic into the absorbent article 10 is by utilizing an elastic which can be extruded as a liquid and which upon cooling becomes an elastic adhesive. This method eliminates the need for a separate step of adhesively bonding strips of elastic to the cover 24 and/or to the baffle 26. An example of such an adhesive is taught in U.S. Pat. No. 4,259,220 issued to Bunnelle et al. which is incorporated by reference and made a part hereof.

The absorbent article 10 is essentially planar when the elastic members 34 and 36 are applied in a stretched condition and attached to either the cover 24, the baffle 26 or to both. The elastic members 34 and 36 distort the planar configuration of the absorbent article 10 when they return to their relaxed condition. This distortion pulls the ends of the absorbent article 10 upward toward each other and forces the central portion 22 to bow inward and produce a cup-shaped configuration. It has been found that at least one, and preferably both, of the elastic members 34 and 36 can have a length of about 10-70% of the overall length of the absorbent article 10. A more preferred length is between about 10-50% and a most preferred length is between about 10-30% of the overall length of the absorbent article 10. The use of

shorter strips or bands of elastic will reduce the cost of the finished product. It should also be noted that the elastic members 34 and 36 can be individual strands or threads having a round, square or rectangular configuration or they can consist of two or more strands or threads united or grouped together to form a ribbon or band. The exact length of the elastic members 34 and 36 can vary depending upon: the degree of elasticity of each member, the stiffness and flexibility of the absorbent article 10, as well as other factors known to those skilled in the elastic art.

Experimental testing has shown that the best location for the elastic members 34 and 36 is to the outside of the seal 28. However, for certain products, it may be advantageous to position the elastic members 34 and 36 flush with or slightly to the inside of the seal 28.

When a self-adhering elastic is not employed, it may be necessary to provide another seal closer to the edge of the absorbent article 10 although this seal need not be continuous. The reason for the second seal would be to minimize the exposure to the edges of the cover 24 and the baffle 26 which also could cause chafing.

Referring again to FIGS. 3 and 4, one will notice that the absorbent article 10 is shown having a number of fold lines or constrictions 42 present along the central portion of the baffle 26 and corresponding fold lines or constrictions 44 present along the central portion of the cover 24 approximate the seal 28. A transverse fold line 46 is also present in the midsection of the absorbent article 10. The extent of the fold lines 42, 44 and 46 are dependent upon the width and length of the elastic members 34 and 36, the stiffness of the absorbent 12 and the stiffness of the absorbent article 10 as a whole. The degree of elasticity of the elastic members 34 and 36 is also relevant. These factors are balanced in order to produce an absorbent article 10 having an angle  $\alpha$  between about 30°-90°. The presence of fold lines are not as detrimental in the cup-shape product as they would be in a relatively flat product because the walls 38 and 40 will retain any body fluids that may flow along these lines. It should be noted that the deepest part of the cup occurs at the central portion 22 of the absorbent article 10 and this deepest part is designed to be aligned with the perineal area of the woman when she wears the product. This unique arrangement assures that the body fluids will impinge upon the absorbent article 10 in the central portion 22. This is important because if pooling of the fluid should occur, the walls 38 and 40 will be adjacent to the pool of fluid and prevent side leakage.

The absorbent article 10 further contains a garment attachment adhesive 48 secured to the exterior surface of the baffle 26 and a removable peel strip 50. The peel strip 50, which can be a strip of paper, is designed to prevent foreign contaminants from contacting the adhesive 48. The peel strip 50 is designed to be removed just prior to use of the absorbent article 10 by the ultimate consumer. In use, the consumer removes the peel strip 50 and attaches the product, for example a sanitary napkin, to the inside surface of an undergarment so that the article 10 will remain in position relative to the perineum of the body.

While the invention has been described in conjunction with a specific embodiment, it is to be understood that many alternatives, modifications and variations will be apparent to those skilled in the art in light of the foregoing description. Accordingly, this invention is intended to embrace all such alternatives, modifications

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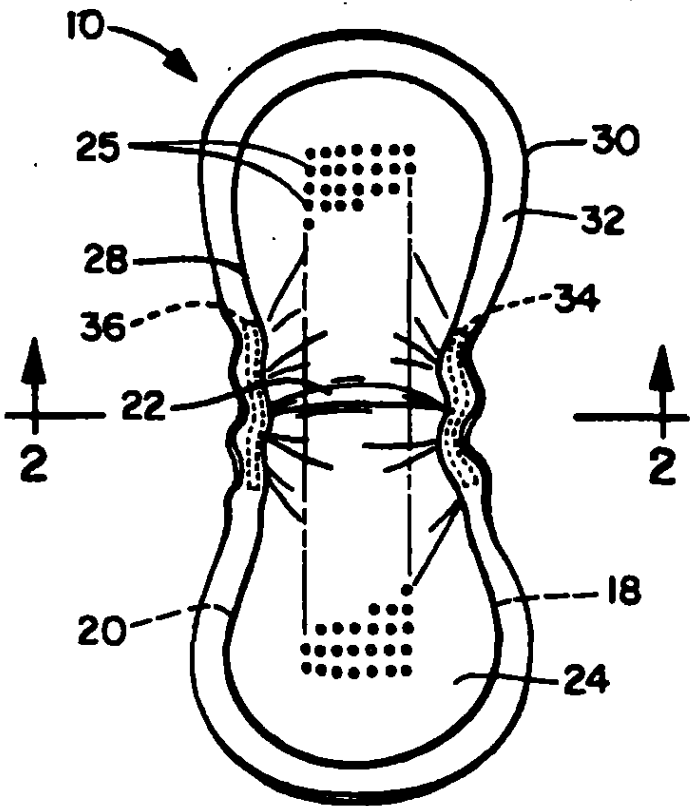


FIG. 1

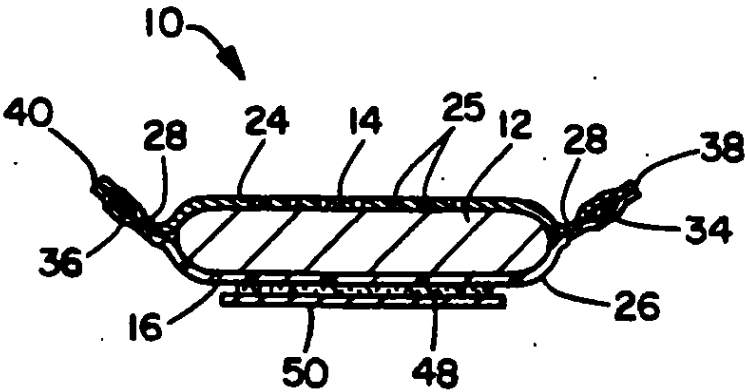


FIG. 2

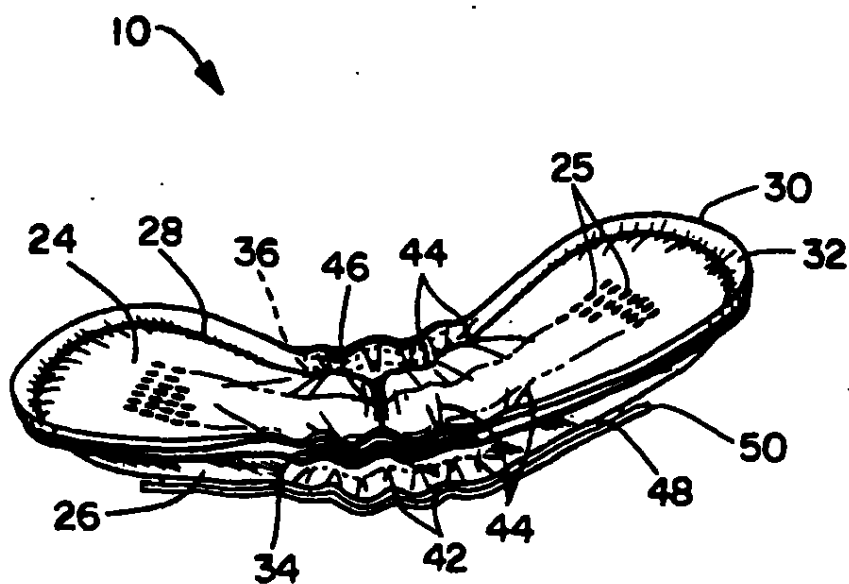


FIG. 3

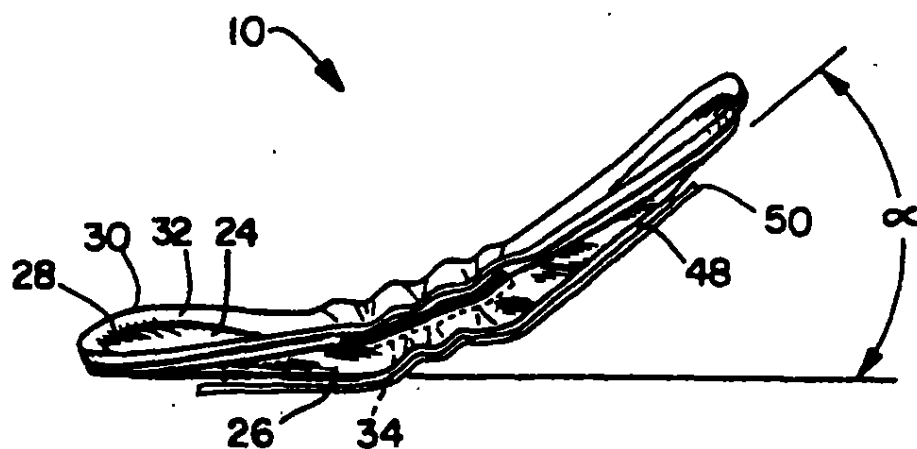


FIG. 4

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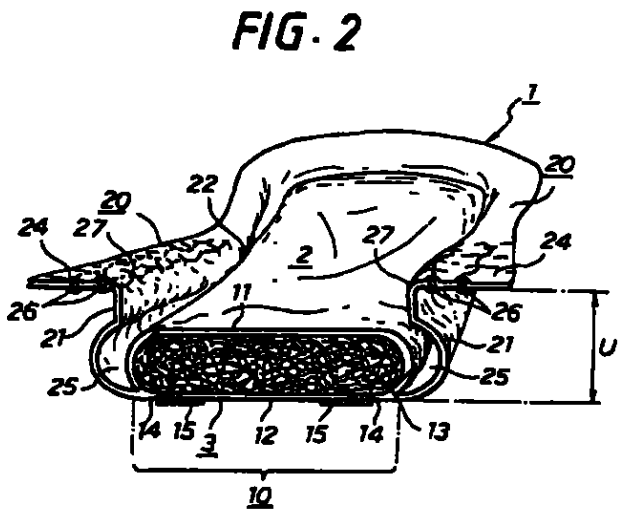
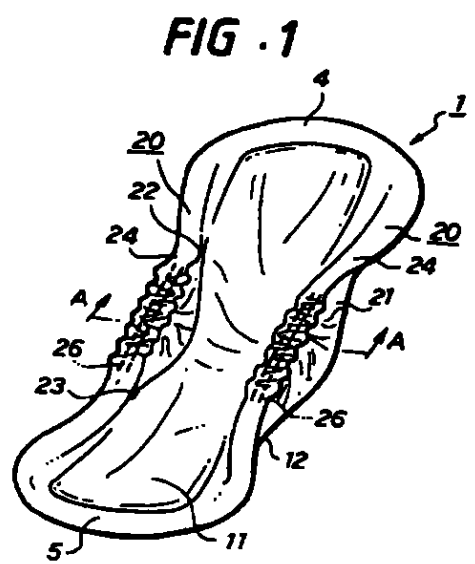
(12) **UK Patent Application** (19) **GB** (11) **2 296 445** (13) **A**

(43) Date of A Publication 03.07.1996

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| (22) Date of Filing 22.12.1995                                                            |                 |         | (52) UK CL (Edition O )<br>A5R RPG                                                                                            |
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| (31) 06328387                                                                             | (32) 27.12.1994 | (33) JP | GB 2271501 A GB 2182841 A WO 95/08972 A1                                                                                      |
| 07035156                                                                                  | 23.02.1995      |         |                                                                                                                               |
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| 07035156                                                                                  | 23.02.1995      |         |                                                                                                                               |
| (71) Applicant(s)<br>Kao Corporation                                                      |                 |         | (58) Field of Search<br>UK CL (Edition O ) A3V , A5R RPF RPG<br>INT CL <sup>8</sup> A61F 13/15                                |
| (72) Inventor(s)<br>Yoshiaki Suzuki<br>Reiko Konno<br>Yasuo Toyoshima<br>Minoru Nakanishi |                 |         | (74) Agent and/or Address for Service<br>Withers & Rogers<br>4 Dyer's Buildings, Holborn, LONDON, EC1N 2JT,<br>United Kingdom |
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(54) **Absorbent article**

(57) The article, which may be a sanitary napkin or disposable diaper, comprises an absorbent member 13 disposed between a liquid permeable topsheet 11 and an impermeable backsheet 12 and lateral flaps 20 extending from opposite sides, the flaps being folded to form anti-leakage walls 21 and, outwardly of such walls, anti-leakage surfaces 24. The flaps may be formed by fixing together extended portions of the topsheet and backsheet, by the backsheet or the topsheet alone or by an additional, liquid impermeable sheet and are secured to the absorbent body towards the front and rear thereof. Wing portions for fixing the article in use may be provided.



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CLAIMS:

1. An absorbent article having a central absorbent body comprising an absorbent member between a liquid permeable topsheet which in use contacts the body of the wearer and a liquid impermeable backsheet, and lateral flaps extending from the surface of the absorbent article which in use faces away from the body of the wearer, said flaps being folded to form antileakage walls, and, outwardly of the antileakage walls, antileakage surfaces substantially parallel to the liquid permeable topsheet.

2. An absorbent article having a central absorbent body having opposed surfaces which in use respectively contact and do not contact the skin of the wearer, the central absorbent body comprising a liquid permeable topsheet, a liquid impermeable backsheet and an absorbent member interposed between the topsheet and the backsheet, and a pair of flaps at opposite sides of the central absorbent body, the absorbent article being characterised in that:

each of the flaps is connected to a surface of the absorbent article which, in use, does not contact the skin of the wearer,

the flaps form antileakage walls along sides of the central absorbent body,

each of the flaps is folded outwardly from the central absorbent body to form an antileakage surface

which antileakage surface has a portion which in use contacts the point of liquid discharge from the wearer and is substantially parallel to the skin-contacting surface of the absorbent article.

3. The absorbent article according to claim 1, wherein antileakage walls are formed by folding the flaps toward the topsheet of the central absorbent body and by securing the flaps to the central absorbent body of portions to the front and to the rear of said portion which in use is in contact with the point of liquid discharge.

4. The absorbent article according to claim 1 or 3 wherein the or each antileakage surface is provided with an elastic member.

5. The absorbent article according to any preceding claim wherein each flap is formed by fixing together an extended portion of the topsheet and an extended portion of the backsheet.

6. The absorbent article according to any of claims 1 to 4, wherein each flap is formed by the topsheet or the backsheet.

7. The absorbent article according to any of claims 1 to 4 wherein each flap is formed by a sheet additional to

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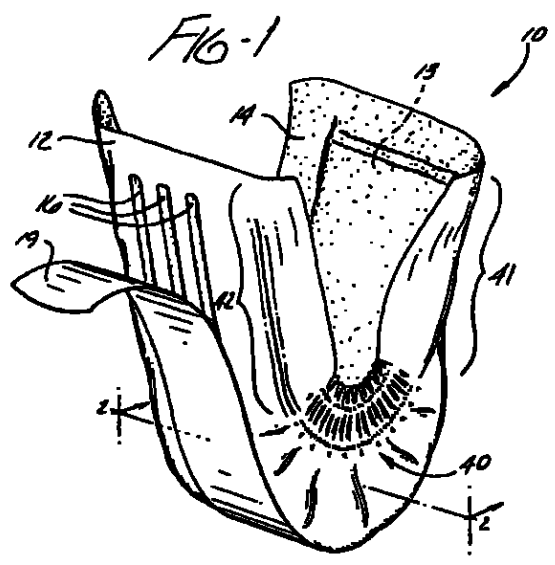
**EUROPEAN PATENT APPLICATION**

Application number: 90314377.4      Int. Cl.<sup>5</sup>: A61F 13/50, A61F 13/15  
Date of filing: 28.12.90

|                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Priority: 12.01.90 US 464490</p> <p>Date of publication of application:<br/>21.08.91 Bulletin 91/34</p> <p>Designated Contracting States:<br/>AT DE ES FR GB</p> | <p>Applicant: CHICOPEE<br/>317 George Street<br/>New Brunswick New Jersey 08903(US)</p> <p>Inventor: Yang, Ching-Yun Morris<br/>9 Bridgewater Dr.<br/>Princeton Junction, New Jersey 08550(US)</p> <p>Representative: Fisher, Adrian John et al<br/>CARPMAELS &amp; RANSFORD 43 Bloomsbury<br/>Square<br/>London WC1A 2RA(GB)</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Disposable absorbent product.**

A disposable absorbent urinary device (10) has a liquid-impermeable backing sheet (12), an absorbent unit (13) and a liquid permeable facing sheet (14) adhered to the backing sheet so as to enclose the absorbent unit therebetween. The absorbent unit comprises first and second portions exhibiting different degrees of stiffness. The stiffer portion is being positioned at the bottom of the crotch portion of the device, and the less rigid portion extends at least partially up the side walls of the crotch portion.



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The material from which the receiving layer is made generally contains wood pulp fibers. Wood pulp is highly wettable, but collapses when wet. Non-cellulosic synthetic fibers such as but not limited to polyolefin fibers (polyethylene, polypropylene, and bicomponent fibers) resist wet collapse due to their hydrophobicity. Thus, by blending these two materials together, a receiving layer with an optimum absorbency can be obtained. Blending about 5 to 50 weight %, preferably about 15 - 30 weight %, of non-cellulosic synthetic fibers with the wood pulp fibers leads to a material with markedly improved wet collapse properties compared to 100% wood pulp, but which substantially retains the wettability properties of the wood pulp. As mentioned earlier, in the preferred embodiment of this invention, the receiving layer comprises approximately 80% by weight wood pulp and approximately 20% bicomponent fiber (polyester core/polyethylene sheath fiber of 3d and 1½" length) and weighs 8 oz/yd².

A receiving layer of wood pulp/non-cellulosic synthetic fiber can be prepared by methods known in the art utilizing a transverse webber. A sheet of a combined pulp/synthetic fiber material may be fed to the webber, processed so as to individualize the fibers and then fed into an air stream. The processed pulp/synthetic fiber is collected, and thermally bonded to produce a stable web. Such method is disclosed in U.S. Patent Application Serial No. 99,875, filed September 22, 1987, the teachings of which are incorporated herein by reference.

Both the receiving layer 23 and the absorbent member 29 may be substantially rectangular in shape, reducing wasteful cut-outs. Typical dimensions in an adult urinary device for these elements would be a 5" x 14" receiving layer 23 covering a 2.5" x 12" absorbent member 29.

The liquid-permeable facing 14 provided on the urinary device 10 of the present invention may be an apertured film, a nonwoven fabric, or a similar material having a high degree of moisture permeability. For example, the nonwoven fabric may comprise polyester, polyethylene, polypropylene, bicomponent, nylon, rayon, or the like fibers. Preferably, the nonwoven fabric used for the cover has a basis weight in the range of 0.3 to 5.0 oz. per square yard and has a density less than 0.2 gms/cc. The most suitable nonwoven fabrics have high loft, softness and drape characteristics.

It will be understood that numerous variations and modifications may be effected without departing from the spirit and scope of the present invention.

The standard test used to measure stiffness is

as follows:

#### Stiffness Test

A Gurley Stiffness Tester (W. and L.E. Gurley, Troy, New Jersey), an instrument using a cantilever principle to measure the force required to move a specimen a certain distance, is utilized. The sample is mounted in a clamp, and a small synchronous motor rotates the clamp and the sample in a horizontal direction. The sample presses against the bottom of a pointer, the top of which extends to a calibrated dial. The maximum displacement of the dial by the sample is read and converted to stiffness.

Samples of the material to be tested are cut, the samples being 2" x 1½" in dimension and, in the case of measuring MD stiffness, having the 1½" dimension in the machine direction. The testing instrument is checked to see that it is level. There are various weights to be inserted into the vane of the tester (5 gms, 25 gms, 50 gms, 200 gms) at 4", 2" and 1" locations. The appropriate weight and location are selected to give a reading between 2 and 8 on the scale. This can only be achieved by following the remainder of this procedure and testing some trial samples.

The 2" side of the sample is clamped centrally in the sample holder, being sure that the sample is seated all the way up so that the bottom of the sample is parallel to the vane. The instrument is then operated so as to drive the arm carrying the clamped sample into contact with the pointer. This action causes the pointer to move indicating a reading on the scale. The maximum reading, obtained as the sample clears the pointer, is noted. The instrument is then operated to move the sample in the opposite direction and again the highest scale reading is noted. These two readings are averaged, and the result recorded. Readings are taken for three samples and averaged. After average values have been calculated, reference is made to the conversion table on the instrument to determine the factor to be used for converting scale readings to milligrams stiffness. The factor is determined by the sample size, the weight value in grams that was inserted into the vane, and the distance of the weight from the center of the vane in inches. A final reading is obtained by multiplying the average reading by this factor.

#### Claims

1. A generally U-shaped absorbent product having a central crotch portion and adjoining end portions, said central crotch portion having up-

\*\*see EP-A-0307967

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standing side walls defining the height of said absorbent product in said crotch portion and a bottom wall defining the width of said product in said crotch portion, said absorbent product comprising

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a liquid-impermeable backing sheet;

an absorbent unit comprising first and second portions exhibiting different degrees of stiffness, said first portion being the stiffer portion and being positioned along the bottom wall of said crotch portion, and said second portion being the less rigid portion and extending at least partially up the side walls of said crotch portion;

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a liquid permeable facing adhered to said backing sheet so as to entrap said absorbent core therebetween; and elastic means along the side edges of said pad in said crotch portion.

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2. The absorbent product of claim 1 which comprises a disposable urinary pad.

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3. The absorbent product of claim 1 or claim 2 wherein said elastic means have an overall contraction force of about 40 to 140 grams.

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4. The absorbent product of any preceding claim wherein the MD stiffness of said first portion of said absorbent core is in the range of about 2000 to 8000 mg.

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5. The absorbent product of any preceding claim wherein the MD stiffness of said second portion of said absorbent core is in the range of about 200 to 3000 mg.

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6. The absorbent product of any preceding claim wherein the height of said product in said crotch portion is at least about 2.54 cm (about one inch).

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7. The absorbent product of any preceding claim wherein the angle at which said side walls join said bottom wall of said crotch portion is within the range of about 60 to 120°.

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8. The absorbent product of any preceding claim wherein said absorbent unit comprises two or more discrete layers of absorbent material.

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9. The absorbent product of claim 8 wherein said first portion of said absorbent unit comprises a first discrete layer of absorbent material and wherein said second portion of said absorbent

unit comprises a second discrete layer of a material having less absorptive capacity than said first layer but being capable of absorbing body fluid more rapidly than that of said first layer.

10. The absorbent product of claim 9 wherein said second portion has an absorptive capacity of at least about 12 grams water per gram of said second portion.

11. The absorbent product of claim 9 or claim 10 wherein said second portion is a web formed from materials selected from the group consisting of synthetic or cellulosic fibres, pulp and blends thereof.

12. The absorbent product of claim 11 wherein said second portion is a web comprising about 50 to 95 weight percent wood pulp and about 5 to 50 weight percent synthetic fibers.

13. The absorbent product of claim 12 wherein said second portion is a web comprising about 70-85 weight percent wood pulp and about 14 to 30 weight percent synthetic fibers.

14. The absorbent product of any of claims 11 to 13 wherein said synthetic fibers are bicomponent fibers.

15. The absorbent product of claim 14 wherein said bicomponent fibers comprise a core of polyester and a sheath of polyethylene.

16. The absorbent product of any of claims 9 to 15 wherein said first portion is a material selected from the group consisting of peat moss sheet and densified sheets of pulp.

17. The absorbent product of claim 16 wherein said first portion comprises at least one layer of peat moss sheet.

18. The absorbent product of any of claims 9 to 17 wherein said second portion is disposed upwardly so as to face the wearer of the absorbent product, and is larger in dimension than said first portion so as to substantially cover said first portion.

19. The absorbent product of any preceding claim wherein said elastic means comprise rubber threads adhered intermittently to said pad.

20. The absorbent product of any preceding claim wherein said backing sheet is a polyolefin film.

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