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54. **TITULO** ALMOHADILLA LABIAL QUE TIENE UN APENDICE

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71. **SOLICITANTE** KIMBERLY - CLARK WORLDWIDE, INC.

DOMICILIO NEENAH, WISCONSIN, ESTADOS UNIDOS DE AMERICA

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FORMULARIO ÚNICO DE SOLICITUD DE PATENTE

PCT

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1 SOLICITUD DE:

- [x] Patente de Invención.
- [ ] Patente de Modelo de Utilidad.
- [ ] Capítulo I.
- [x] Capítulo II.

2 SOLICITANTE (71)	Nombre: KIMBERLY – CLARK WORLDWIDE, INC. Dirección: 401 North Lake Street, Neenah, Wisconsin 54956, USA Nacionalidad o Domicilio: Estados Unidos Lugar de Constitución: Estados Unidos Teléfono: Fax: E-mail	**IDENTIFICACION** C.C. ☐ NIT ☐ C.E. ☐ Otro ☐ Cual____ Número ____
3 REPRESENTANTE O APODERADO	Nombre: RAMIRO CASTRO DUQUE Dirección: Cra. 7 No. 16-56 Piso 9 Teléfono: 380-2200 Fax: 380-2700 E-mail:	**IDENTIFICACION** C.C. ☒ NIT ☐ C.E. ☐ Otro ☐ Cual____ Número 170.322 TP 1003
4 INVENTOR (ES) (72)	Nombre: Ronald L. Edens, James J. Hlaban, Laura J. Keely, Thomas P. Keenan, Sylvia B. Little, Mary L. McDaniel, Stephen L. Nunn, William G. Reeves, Heather A. Sorebo, Susan M. Weyenberg Dirección: 4110 High Gables East, Cumming, GA 30041, US; 1429 Silverwood Lane, Neenah, WI 54956, US; 9407 Memory Lane, Neenah, WI 54956, US; 933 E. Northwood Drive, Appleton, WI 54911, US; 3051 Intrepid Close, Marietta, GA 30062, US; 1208 N. Harriman Street, Appleton, WI 54911, US; 1220 W. Lawrence Street, Appleton, WI 54914, US; 616 E. Greenfield Street, Appleton, WI 54911, US; 431 E. Sheffield Lane, Appleton WI 54915, US; 318 W. Winnebago Street, Appleton, WI 54911, Estados Unidos de América (Respectivamente) Nacionalidad o Domicilio: Estados Unidos de América (Respectivamente)	

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Instrucciones para el diligenciamiento del presente formulario, ver reverso de esta página.

24

10 ANEXOS

- [x] Comprobante de pago de la tasa de presentación de la solicitud. $400.000
- [ ] Documento que acredita la existencia y representación legal cuando el solicitante sea persona jurídica.
- [x] Poderes, si fuere el caso. Protocolo No. 17397
- [ ] Documento de cesión del Inventor al solicitante o a su causante.
- [ ] Declaraciones
- [x] Copia de la solicitud internacional. (Resumen, descripción, reivindicaciones, dibujos)
- [x] Traducción de la solicitud internacional al castellano. (Resumen, descripción, reivindicaciones, dibujos)
- [x] 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 acredita 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.
- [x] Otros Tarjeta de Propietarios

11 FIGURA CARACTERÍSTICA:

12 Solicito la concesión de la patente.

NOMBRE: RAMIRO CASTRO DUQUE

FIRMA:

C.C. 170.322 de Bogotá T.P. 1003 del C.S.J.

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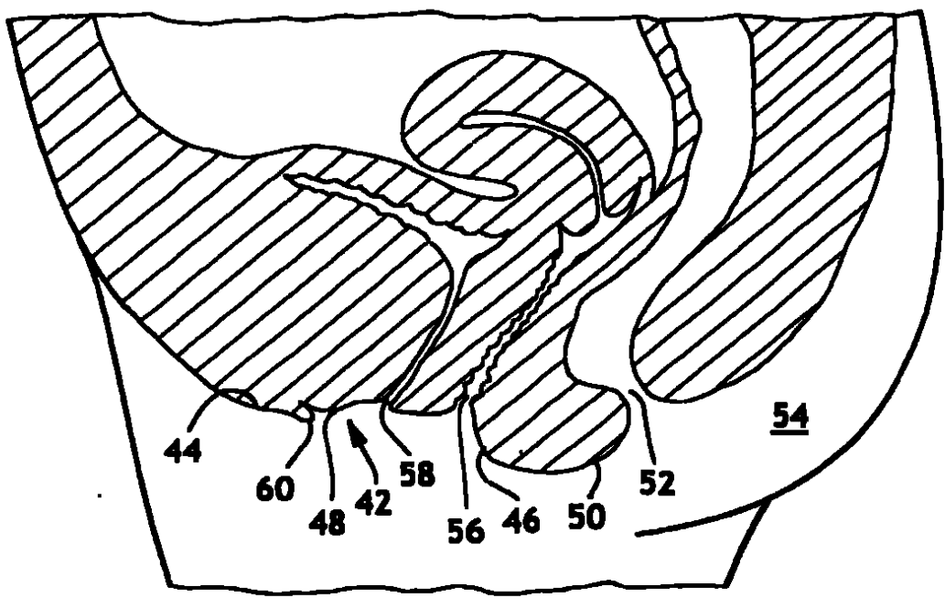
(54) Title: LABIAL PAD HAVING A TAB



(57) Abstract: An absorbent article (40) such as a labial pad configured for disposition within the vestibule (42) of a female wearer. The labial pad may be worn by females for catamenial purposes, incontinence protection, or both, and has at least one tab (94) extending from the periphery thereof.

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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.

LABIAL PAD HAVING A TAB

This application claims priority from U.S. Application No. 60/297001, filed June 8, 2001, U.S. Application No. 10/036981, filed December 31, 2001, and U.S. Application No. 10/038970, filed December 31, 2001.

BACKGROUND

The present invention relates generally to absorbent articles such as labial pads configured for disposition within the vestibule of a female wearer. More particularly, the present invention relates to labial pads having at least one tab extending outward from the periphery thereof.

A broad manner and wide variety of absorbent articles configured for the absorption of bodily exudates such as menstrual fluid are, of course, well known. With respect to feminine hygiene, the art has offered two basic types of feminine hygiene protection: sanitary napkins, developed for external wear about the pudendal region, and tampons, developed for residence within the vaginal cavity and interruption of menstrual flow therefrom. Hybrid feminine hygiene protection devices, attempting to merge the structural features of both within a single type of device, have also been proposed, but have not seen a meaningful measure of acceptance insofar as the effort to appropriate advantages has been overshadowed by the more demonstrable perpetuation of structural and anatomically functional disadvantages. Other less intrusive devices, known as labial or interlabial devices and characterized as having a portion which at least partially resides external of the wearer's vestibule, have also been proposed.

Many of these prior devices have not fully satisfied the demand of consumers for even smaller devices that may be worn interlabially by female wearers. In response thereto, several manufacturers have produced labial pads that are quite small in size in comparison to the prior devices described above. However, the construction of many of these devices appears to fail to recognize the wide range of variation that exists among women with regard to the location of their vaginal and urethral orifices. For example, some current devices often locate a significant portion of the absorbent core in the center of the device with a much less significant portion of the absorbent core located in the ends. Such devices afford less protection for the broad spectrum of women whose vaginal and urethral orifices are not located in the center of their vestibules. Other devices appear to provide a uniform distribution of absorbent core substantially throughout the longitudinal length of the device. However, the designs of many of these other devices typically fail to significantly enhance individualized fit and/or absorbent capacity.

Another factor affecting consumer acceptance is the ease of use, including disposition of the labial pad into proper placement and/or removal of the labial pad. Typically, the wearer

grasps the labial pad with her fingers and disposes it into proper placement within her vestibule. The wearer may also need to grasp the labial pad for removal, particularly if it is not expelled during urination. The disposition and/or removal of conventional labial pads is often accompanied with a great deal of difficulty. Thus, a need exists for an improved means which will facilitate sanitary disposition of a labial pad into an appropriate position within the vestibule as well as sanitary removal of a labial pad from the vestibule.

SUMMARY

The present inventors have recognized the deficiencies and problems inherent in the prior art and in response thereto conducted intensive research in developing innovative labial pads. While conducting their research, the inventors also discovered that at least one tab extending outward from the periphery of a labial pad enhanced the ability of a wearer to sanitarily and easily dispose a labial pad within the vestibule and/or sanitarily and easily remove a labial pad from the vestibule.

In one embodiment of the present invention, an absorbent article is disclosed as having a fluid permeable cover, a liquid impermeable baffle and an absorbent. The absorbent is desirably situated between the cover and the baffle. The absorbent article is configured for disposition within the vestibule of a female wearer. The absorbent article includes a principal longitudinal axis, a principal transverse axis, a body-facing surface and a surface opposed to the body-facing surface. The absorbent article has a length, a width, a thickness, first and second spaced apart longitudinal sides and first and second spaced apart transverse end areas. The longitudinal sides extending between the transverse end areas and collectively defining the periphery of the absorbent article. Extending laterally outward from at least one longitudinal side of the absorbent article is at least one tab.

In another embodiment of the present invention, an absorbent article is disclosed as including a liquid impermeable baffle and an absorbent. The absorbent article is configured for disposition within the vestibule of a female wearer. The absorbent article has a principal longitudinal axis, a principal transverse axis, a body-facing surface and a surface opposed to the body-facing surface. The absorbent article has a length, a width, a thickness, and first and second spaced apart longitudinal sides and first and second spaced apart transverse end areas. The longitudinal sides extending between the transverse end areas and collectively defining the periphery of the absorbent article. Extending laterally outward from at least one longitudinal side of the absorbent article is at least one tab.

In still another embodiment, an absorbent article is disclosed as having an absorbent. The absorbent article is configured for disposition within the vestibule of a female wearer. The absorbent article includes a principal longitudinal axis, a principal transverse axis, a body-facing surface and a surface opposed to the body-facing surface. The absorbent article has a length, a width, a thickness, and first and second spaced apart longitudinal sides and first and second spaced apart transverse end areas. The longitudinal sides extending between the transverse end areas and collectively defining the periphery of the absorbent article. Extending laterally outward from at least one longitudinal side of the absorbent article is at least one tab.

In an alternate embodiment of the present invention, an absorbent article is disclosed as having a fluid permeable cover, a liquid impermeable baffle and an absorbent. The absorbent is desirably situated between the cover and the baffle. The absorbent article is configured for disposition within the vestibule of a female wearer. The absorbent article includes a principal longitudinal axis, a principal transverse axis, a body-facing surface and a surface opposed to the body-facing surface. The absorbent article has a length, a width, a thickness, first and second spaced apart longitudinal sides and first and second spaced apart transverse end areas. The longitudinal sides extending between the transverse end areas and collectively defining the periphery of the absorbent article. Extending outward from the periphery of at least one transverse end area of the absorbent article is at least one tab.

In another alternate embodiment of the present invention, an absorbent article is disclosed as including a liquid impermeable baffle and an absorbent. The absorbent article is configured for disposition within the vestibule of a female wearer. The absorbent article has a principal longitudinal axis, a principal transverse axis, a body-facing surface and a surface opposed to the body-facing surface. The absorbent article has a length, a width, a thickness, first and second spaced apart longitudinal sides and first and second spaced apart transverse end areas. The longitudinal sides extending between the transverse end areas and collectively defining the periphery of the absorbent article. Extending outward from the periphery of at least one transverse end area is at least one tab.

In still another alternate embodiment, an absorbent article is disclosed as having an absorbent. The absorbent article is configured for disposition within the vestibule of a female wearer. The absorbent article includes a principal longitudinal axis, a principal transverse axis, a body-facing surface and a surface opposed to the body-facing surface. The absorbent article has a length, a width, a thickness, first and second spaced apart longitudinal sides and first and second spaced apart transverse end areas. The longitudinal sides extending between the transverse end areas and collectively defining the periphery of the absorbent article. Extending

outward from the periphery of at least one transverse end area of the absorbent article is at least one tab.

DRAWINGS

The foregoing and other features, aspects and advantages of the present invention will become better understood with regard to the following description, appended claims and accompanying drawings where:

FIG. 1 is a simplified anatomical cross-sectional view of a human female illustrating the environment for an absorbent article.

FIG. 2 is a simplified anatomical cross-sectional view of a human female illustrating an absorbent article disposed within the vestibule of a wearer.

FIG. 3 is a top view illustrating a version of an absorbent article.

FIG. 4 is cross-sectional view of the absorbent article illustrated in FIG. 3 taken along line 4 – 4 thereof.

FIG. 5 is a cross-sectional view illustrating another version of an absorbent article.

FIG. 6 is a top view illustrating a version of an absorbent article similar to that illustrated in FIG. 3.

FIG. 7 is a top view illustrating an alternate version of an absorbent article.

FIG. 8 is a top view illustrating yet another version of an absorbent article.

FIG. 9 is a top view illustrating still another version of an absorbent article.

FIG. 10 is a top view illustrating another alternate version of an absorbent article.

FIG. 11 is a cross-sectional view illustrating yet another alternate version of an absorbent article.

FIG. 12 is a cross-sectional view illustrating the version of FIG. 11 in a substantially folded position.

FIG. 13 illustrates an enlarged view of a version of an absorbent article folded substantially about a principal axis.

FIG. 14 illustrates an exaggerated enlarged view of a version of an absorbent article folded substantially about a principal axis and being grasped for disposition in the vestibule by the wearer's fingers.

FIG. 15 illustrates a version of an absorbent article having a pair of tabs extending outward from each longitudinal side.

FIG. 16 illustrates another version of an absorbent article having a pair of tabs extending outward from each longitudinal side.

FIG. 17 illustrates an alternate version of an absorbent article having a pair of tabs extending outward from each longitudinal side.

FIG. 18 illustrates yet another version of an absorbent article having a pair of tabs extending outward from each longitudinal side.

FIG. 19 illustrates still another version of an absorbent article having a pair of tabs extending outward from each longitudinal side.

FIG. 20 illustrates yet another alternate version of an absorbent article having a pair of tabs extending outward from each longitudinal side.

FIG. 21 illustrates another version of an absorbent article having a pair of tabs extending outward from each longitudinal side.

FIG. 22 illustrates a cross-sectional view of the absorbent article of FIG. 21 taken along line 22 – 22.

FIG. 23 illustrates yet another version of an absorbent article having a pair of tabs extending outward from each longitudinal side.

FIG. 24 illustrates a cross-sectional view of the absorbent article of FIG. 23 taken along line 24 – 24.

FIG. 25 illustrates a version of an absorbent article having a pair of tabs extending outward from each longitudinal side.

FIG. 26 illustrates a cross-sectional view of the absorbent article of FIG. 25 taken along line 26 – 26.

FIG. 27 illustrates an enlarged view of a version of an absorbent article folded substantially about a principal axis.

FIG. 28 illustrates an exaggerated enlarged view of a version of an absorbent article folded substantially about a principal axis and being grasped for disposition in the vestibule by the wearer's fingers.

FIG. 29 illustrates an alternate version of an absorbent article having a tab extending outward from each transverse end area.

FIG. 30 illustrates a further version of an absorbent article having a tab extending outward from each transverse end area.

FIG. 31 illustrates yet a further version of an absorbent article having a tab extending outward from each transverse end area.

FIG. 32 illustrates a cross-sectional view of the absorbent article of FIG. 31 taken along line 32 – 32.

FIG. 33 illustrates yet another further version of an absorbent article having a tab extending outward from each transverse end area.

FIG. 34 illustrates a cross-sectional view of the absorbent article of FIG. 33 taken along line 34 – 34.

FIG. 35 illustrates still another version of an absorbent article having a tab extending outward from each transverse end area.

FIG. 36 illustrates a cross-sectional view of the absorbent article of FIG. 35 taken along line 36 – 36.

DESCRIPTION

Turning to the figures of drawing, *i.e.*, FIGs. 1 through 36, in each of which similar parts are identified with like reference characters, FIG. 2 illustrates diagrammatically an absorbent article, such as a labial pad, designated generally as 40, disposed within the vestibule of a wearer, designated generally as 42 (see also FIG. 1). As used herein, the term "labial pad" refers to a device having at least some absorbent components, and which is specifically configured for disposition in between the labia majora, extending at least partially into the vestibule (42) of a female wearer during use. For purposes of the ensuing description, the vestibule (42) is considered to be the region defined within the labia (not specifically shown in the figures herein) beginning at about a point lying caudally from the anterior labial commissure (44), extending rearward to the posterior labial commissure (46) and bounded inwardly by the floor (48) of the vestibule. One of skill in the art fully understands that there is a wide range of variation among women with respect to the relative size and shape of labia majora and labia minora as the same interrelatedly define the contour of the vestibule (42). For purposes of the present description, however, such differences will not specifically be addressed, it being recognized that in any event the disposition of the absorbent article (40) into the vestibule (42) will necessitate placement between the labia majora regardless of any such consideration respecting the labia minora. Lying caudally of the vestibule (42) is the perineum (50) which leads to the anus (52) in the region of the buttocks (54). Within the vestibule (42) itself is located the principal urogenital members which, for purposes pertinent here, are constituted of the vaginal orifice (56), the urethral orifice (58), and the clitoris (60). Given the foregoing simplified review of this anatomical region, and to facilitate the present description, the vestibule (42) will be considered generally to be the region between the posterior labial commissure (46) and the clitoris (60), for convenience. For a more comprehensive description of this portion of the human female anatomy, however, attention is invited to *Anatomy of the Human Body* by

Henry Gray, Thirtieth American Edition (Carmine D. Clemente ed., Lea & Febiger, 1985) at 1571-1581.

As can be seen with reference to the anatomical structure illustrated in FIGs. 1 and 2, the absorbent article (40) is disposed at least partially within the vestibule (42) for at least partially occluding the same respecting fluid flow therefrom. In this regard, the predominant use of the absorbent article (40) is for the absorption of menstrual fluid emitted via the vaginal orifice (56); although the absorbent article is equally well adapted to serve as a type of incontinence device for absorption of urine as occurs upon minor, female incontinence.

The absorbent article (40), a version of which is illustrated in FIG. 3, has a principal longitudinal axis (L) which generally runs along the x direction. As used herein, the term "longitudinal" refers to a line, axis or direction in the plane of the absorbent article (40) that is generally aligned with (*e.g.*, approximately parallel to) a vertical plane that bisects a standing female wearer into left and right body halves when the absorbent article is in use. The longitudinal direction is generally illustrated in FIG. 3 by the x-axis. The absorbent article (40) also has a principal transverse axis (T). The terms "transverse," "lateral" or "y direction" as used herein generally refer to a line, axis or direction that is generally perpendicular to the longitudinal direction. The lateral direction is generally illustrated in FIG. 3 by the y-axis. The "z direction" is typically a line, axis or direction generally parallel to the vertical plane described above. The z direction is generally illustrated in FIG. 4 by the z-axis. The term "upper" refers generally to an orientation directed toward the wearer's head, while the terms "lower" or "downwardly" refer generally to an orientation directed toward the wearer's feet. For purposes of discussion herein, each layer of the absorbent article (40), *e.g.*, a fluid permeable cover (62), a liquid impermeable baffle (64) and/or an absorbent (66), has an upper or body-facing surface and a lower surface also described as the surface opposed to the upper or body-facing surface.

Turning now to FIG. 5, an absorbent article (40) is illustrated as including a fluid permeable cover (62), a liquid impermeable baffle (64) and an absorbent (66) situated between the cover and the baffle. As illustrated in FIG. 6, the absorbent (66) has a first end region (70), a second end region (72), and a central region (74) disposed between each end region. The absorbent article (40) should be of a suitable size and shape that allows at least a portion of the absorbent article to be disposed within the vestibule (42) of a female wearer. In addition, the absorbent article (40) desirably at least partially occludes and intercepts the flow of menstrual fluid, urine or other bodily exudates from the wearer's vaginal orifice (56) and/or urethral orifice (58).

The absorbent (66), and thus the absorbent article (40), generally displays a geometry extending between spaced apart first (76) and second (78) transverse end areas. The overall geometry is completed by noting that the absorbent (66), and thus the absorbent article (40), also includes spaced apart first (80) and second (82) longitudinal sides ranging between the transverse end areas (76, 78), these collectively sometimes being referred to herein as the perimetral sides (*i.e.*, those defining the periphery).

The geometry of the absorbent (66) is a significant factor affecting the overall size and effectiveness of the absorbent article (40). In general, the absorbent (66) has a maximum width (W_{max}), measured along a line laying generally parallel to the principal transverse axis (T) and running from one longitudinal side to the opposing longitudinal side (80, 82), and a minimum width (W_{min}), measured along a line also laying generally parallel to the principal transverse axis (T) and running from one longitudinal side to the opposing longitudinal side (80, 82). The maximum width (W_{max}) of the absorbent (66) typically is no greater than about 30; alternatively, no greater than about 40; alternatively, no greater than about 50; alternatively, no greater than about 60; or alternatively, no greater than about 70 mm. The minimum width (W_{min}) of the absorbent (66) typically is no less than about 30; alternatively, no less than about 20; alternatively, no less than about 10; or alternatively, no less than about 5 mm. Thus, the absorbent (66) may have a width ranging between no less than about 5 mm up to no greater than about 70 mm; although the approximate width(s) of the absorbent may vary according to, *inter alia*, the general design and intended disposition of the absorbent article (40) within the vestibule (42) of a female wearer. One of skill in the art will readily appreciate that certain versions of the absorbent (66), and thus certain versions of the absorbent article (40), may have a minimum width (W_{min}) equal to its maximum width (W_{max}). In such instances, reference is generally made only to the maximum width (W_{max}).

The absorbent (66) also has a maximum length (L_{max}), measured along a line laying generally parallel to the principal longitudinal axis (L) and running from one transverse end area to the other transverse end area (76, 78). The maximum length (L_{max}) of the absorbent (66) typically is no greater than about 40; alternatively, no greater than about 50; alternatively, no greater than about 60; alternatively, no greater than about 70; alternatively, no greater than about 80; alternatively, no greater than about 90; or alternatively, no greater than about 100 mm. The absorbent (66) may also have a minimum length (L_{min}), measured along a line also laying generally parallel to the principal longitudinal axis (L) and running from one transverse end area to the other transverse end area (76, 78). The minimum length (L_{min}) of the absorbent (66) typically is no less than about 100; alternatively, no less than about 90; alternatively, no less than

about 80; alternatively, no less than about 70; alternatively, no less than about 60; alternatively, no less than about 50; or alternatively, no less than about 40 mm. Thus, the absorbent (66) may have a length ranging between no less than about 40 mm up to no greater than about 100 mm; although the approximate length(s) of the absorbent may vary according to, *inter alia*, the general design and intended disposition of the absorbent article (40) within the vestibule (42) of a female wearer. One of skill in the art will readily appreciate that certain versions of the absorbent (66), and thus certain versions of the absorbent article (40), may have a minimum length (L_{min}) equal to its maximum length (L_{max}). In such instances, as illustrated at least in FIGs. 6, 8 and 9, reference is generally made only to the maximum length (L_{max}). Versions of an absorbent (66), and thus versions of an absorbent article (40), having a maximum length (L_{max}) not equal to its minimum length (L_{min}) are illustrated at least in FIGs. 7 and 10.

The first end region (70) and the second end region (72) each minimally extend outwardly from the central region (74) toward the transverse end areas (76 and 78, respectively) of the absorbent (66) a distance of no less than about 30; alternatively, no less than about 20; or alternatively, no less than about 10 % of the maximum length (L_{max}) of the absorbent. The first end region (70) and the second end region (72) each maximally extend outwardly from the central region (74) toward the transverse end areas (76 and 78, respectively) of the absorbent (66) a distance of no greater than about 20; alternatively, no greater than about 30; or alternatively, no greater than about 40 % of the maximum length (L_{max}) of the absorbent. Thus, the end regions (70, 72) may occupy from a minimum of about 20 % up to a maximum of about 80 % of the maximum length (L_{max}) of the absorbent (66); although the approximate size of the first and second end regions may vary according to, *inter alia*, the general design and intended disposition of the absorbent article (40) within the vestibule (42) of a female wearer.

The absorbent article (40) is desirably provided with sufficient capacity to absorb and retain the intended amount and type of bodily exudate(s). The absorbent capacity is provided by a fluid retentive core or absorbent generally identified as 66. For at least menstrual fluid, the absorbent (66) desirably has a minimum capacity of no less than about 19; alternatively, no less than about 18; alternatively, no less than about 17; alternatively, no less than about 16; alternatively, no less than about 15; alternatively, no less than about 14; alternatively, no less than about 13; alternatively, no less than about 12; alternatively, no less than about 11; alternatively, no less than about 10; alternatively, no less than about 9; alternatively, no less than about 8; alternatively, no less than about 7; alternatively, no less than about 6; alternatively, no less than about 5; alternatively, no less than about 4; alternatively, no less than about 3; alternatively, no less than about 2; or alternatively, no less than about 1 g/g. The absorbent (66)

also may have a maximum capacity of no greater than about 5; alternatively, no greater than about 6; alternatively, no greater than about 7; alternatively, no greater than about 8; alternatively, no greater than about 9; alternatively, no greater than about 10; alternatively, no greater than about 11; alternatively, no greater than about 12; alternatively, no greater than about 13; alternatively, no greater than about 14; alternatively, no greater than about 15; alternatively, no greater than about 16; alternatively, no greater than about 17; alternatively, no greater than about 18; alternatively, no greater than about 19; alternatively, no greater than about 20; alternatively, no greater than about 25; or alternatively, no greater than about 30 g/g. Thus, the absorbent (66) may have an absorbent capacity ranging between no less than about 1 g/g up to no greater than about 30 g/g; although the approximate capacity of the absorbent may vary according to, *inter alia*, the general design and intended disposition of the absorbent article (40) within the vestibule (42) of a female wearer. One of skill in the art will readily realize that the addition of superabsorbent polymer(s) or coated superabsorbent polymer(s) to the absorbent (66) typically has the effect of substantially increasing the absorbent capacity.

Describing the individual elements in greater detail, the absorbent (66) has an upper or body-facing surface and a lower surface (or surface opposed to the upper or body-facing surface) and may include any material capable of absorbing and/or adsorbing and thereafter retaining the intended bodily exudate(s). Suitable materials are also generally hydrophilic, compressible and conformable. The absorbent (66) may be formed from any of the materials well known to those of ordinary skill in the art. Examples of such materials include, but are not limited to, various natural or synthetic fibers, multiple plies of creped cellulose wadding, fluffed cellulose fibers, rayon or other regenerated cellulose materials, wood pulp fibers or comminuted wood pulp fibers, airlaid material, textile fibers, a blend of polyester and polypropylene fibers, absorbent foams, absorbent sponges, superabsorbent polymers, coated superabsorbent polymers, fibrous bundles or nits, or any equivalent material or combination of materials. Also suitable for use would be hydrophobic material that has been rendered hydrophilic according to any of a number of known methods for so doing. The total absorbent capacity of the absorbent (66) should, however, be compatible with the design exudate loading and the intended use of the absorbent article (40). Further, the size and absorbent capacity of the absorbent (66) may be varied. Therefore, the dimension, shape, and configuration of the absorbent (66) may be varied (*e.g.*, the absorbent may have a varying thickness as illustrated at least in FIGs. 11 and 12, or a hydrophilic gradient, or may contain superabsorbent polymer(s) and the like).

The absorbent (66) generally has a thickness, caliper or height (H), as illustrated at least in FIG. 4, measured along a line lying generally parallel to the z-axis. The minimum thickness of

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the absorbent (66) typically is no less than about 9; alternatively, no less than about 8; alternatively, no less than about 7; alternatively, no less than about 6; alternatively, no less than about 5; alternatively, no less than about 4; alternatively, no less than about 3; alternatively, no less than about 2; alternatively, no less than about 1; or alternatively, no less than about 0.5 mm. The maximum thickness of the absorbent (66) typically is no greater than about 2; alternatively, no greater than about 3; alternatively, no greater than about 4; alternatively, no greater than about 5; alternatively, no greater than about 6; alternatively, no greater than about 7; alternatively, no greater than about 8; alternatively, no greater than about 9; or alternatively, no greater than about 10 mm. Thus, the absorbent (66) may have a thickness of about 10 mm or less; although the approximate thickness of the absorbent may vary according to, *inter alia*, the general design and intended disposition of the absorbent article (40) within the vestibule (42) of a female wearer.

The absorbent (66) desirably also has a relatively low density which is deemed desirable for comfort. Generally, the absorbent has a density of less than about 0.5 g/cc. Stated differently, the absorbent (66) typically has a maximum density of no greater than about 0.5; alternatively, no greater than about 0.4; alternatively, no greater than about 0.3; alternatively, no greater than about 0.2; alternatively, no greater than about 0.1; alternatively, no greater than about 0.09; alternatively, no greater than about 0.08; alternatively, no greater than about 0.07; alternatively, no greater than about 0.06; alternatively, no greater than about 0.05; alternatively, no greater than about 0.04; alternatively, no greater than about 0.03; or alternatively, no greater than about 0.02 g/cc. The absorbent (66) generally also has a minimum density of typically no less than about 0.01; alternatively no less than about 0.02; alternatively, no less than about 0.03; alternatively, no less than about 0.04; alternatively, no less than about 0.05; alternatively, no less than about 0.06; alternatively, no less than about 0.07; alternatively, no less than about 0.08; alternatively, no less than about 0.09; alternatively, no less than about 0.1; alternatively, no less than about 0.2; alternatively, no less than about 0.3; or alternatively, no less than about 0.4 g/cc. Thus, the density of the absorbent (66) may range up to about 0.5 g/cc; although the approximate density of the absorbent may vary according to, *inter alia*, the general design and intended disposition of the absorbent article (40) within the vestibule (42) of a female wearer.

The absorbent (66) also desirably has a basis weight of less than about 600 grams per square meter (gsm). Stated differently, the absorbent (66) typically has a maximum basis weight of no greater than about 600; alternatively, no greater than about 500; alternatively, no greater than about 400; alternatively, no greater than about 300; alternatively, no greater than about 200; or alternatively, no greater than about 100 gsm. Generally, the absorbent (66) also has a

minimum basis weight of typically no less than about 0.1; alternatively, no less than about 50; alternatively, no less than about 100; alternatively, no less than about 150; alternatively, no less than about 200; alternatively, no less than about 250; alternatively, no less than about 300; alternatively, no less than about 350; alternatively, no less than about 400; alternatively, no less than about 450; alternatively, no less than about 500; or alternatively, no less than about 550 gsm. Thus, the absorbent (66) may have a basis weight of about 600 gsm or less; although the approximate basis weight of the absorbent may vary according to, *inter alia*, the general design and intended disposition of the absorbent article (40) within the vestibule (42) of a female wearer. A specific example of a suitable absorbent would be similar to a coform material made of a blend of polypropylene and cellulose fibers and used in KOTEX® maxi pantiliners and obtainable from Kimberly-Clark Corporation, Neenah, WI, USA.

The optional baffle (64) typically resides on the lower surface of the absorbent (66) and may be constructed from any desired material that is liquid-impermeable. Desirably, the baffle (64) will permit the passage of air and moisture vapor out of the absorbent (66), while blocking the passage of bodily fluid(s). An example of a suitable baffle material is a micro-embossed, polymeric film, such as polyethylene, polypropylene or polyester, having a minimum thickness of no less than about 0.025 mm and a maximum thickness of no greater than about 0.13 mm. Bicomponent films can also be used, as well as woven and nonwoven fabrics which have been treated to render them liquid-impermeable. An example of another suitable material is a closed cell polyolefin foam. A closed cell polyethylene foam may also work well.

The baffle (64) may be maintained in secured relation with the absorbent (66) by bonding all or a portion of the adjacent surfaces to one another. A variety of bonding methods known to one of skill in the art may be utilized to achieve any such secured relation. Examples of such methods include, but are not limited to, ultrasonics, thermal bonding, or the application of adhesives in a variety of patterns between the two adjoining surfaces. A specific example of a baffle material would be similar to a polyethylene film used on KOTEX® pantiliners and obtainable from Pliant Corporation, Schaumburg, IL, USA.

The optional fluid permeable cover (62) has an upper surface and a lower surface, with the upper surface typically contacting the body of the wearer and receiving bodily exudate(s). The cover (62) desirably is made of a material that is flexible and non-irritating to the tissues within the vestibule (42) of a female wearer. As used herein, the term "flexible" is intended to refer to materials which are compliant and readily conform to the bodily surface(s) or respond by easily deforming in the presence of external forces.

The cover (62) is provided for comfort and conformability and functions to direct bodily exudate(s) away from the body and toward the absorbent (66). The cover (62) should retain little or no liquid in its structure so that it provides a relatively comfortable and non-irritating surface next to the tissues within the vestibule (42) of a female wearer. The cover (62) can be constructed of any woven or nonwoven material which is also easily penetrated by bodily fluids contacting its surface. Examples of suitable materials include rayon, bonded carded webs of polyester, polypropylene, polyethylene, nylon, or other heat-bondable fibers, polyolefins, such as copolymers of polypropylene and polyethylene, linear low-density polyethylene, aliphatic esters such as polylactic acid, finely perforated film webs and net material also work well. A specific example of a suitable cover material would be similar to a bonded carded web made of polypropylene and polyethylene used as a cover stock for KOTEX® pantiliners and obtainable from Sandler Corporation, Germany. Other examples of suitable materials are composite materials of a polymer and a nonwoven fabric material. The composite materials are typically in the form of integral sheets generally formed by the extrusion of a polymer onto a web of spunbond material. The fluid permeable cover (62) can also contain a plurality of apertures (not shown) formed therein which are intended to increase the rate at which bodily fluid(s) can penetrate into the absorbent (66).

A physiologically hydrous cover material is also suitable for use. As used herein, the term "physiologically hydrous" is intended to connote a cover material which maintains a suitably moist interface between the tissues of the vestibule (42) and the absorbent article (40) when disposed in that vestibular environment; one that is benign respecting the requirements of comfort associated with the interposition of fabric or fabric-like structures within the moist tissue environment of the vestibule, keeping in mind as well the self-evident factor that the absorbent article is receiving bodily fluid(s) migrating through the vestibule and must conduct the same to the absorbent (66). Thus, while not "hydrous" in the classic sense prior to use (inasmuch as the cover will be dry at that time) the cover (62) maintains (or at least does not interfere with the maintenance of) the proper moisture level or balance required within the vestibule (42).

The cover (62) can also have at least a portion of the surface treated with a surfactant to render the cover more hydrophilic. This results in permitting the insulting bodily fluid(s) to more readily penetrate the cover (62). The surfactant may also diminish the likelihood that the insulting bodily fluid(s), such as menstrual fluid, will flow off the cover (62) rather than being absorbed by the absorbent (66). One suitable approach provides for the surfactant to be substantially evenly distributed across at least a portion of the upper surface of the cover (62) that overlays the upper surface of the absorbent (66).

The cover (62) may be maintained in secured relation with the absorbent (66) by bonding all or a portion of the adjacent surfaces to one another. A variety of bonding methods known to one of skill in the art may be utilized to achieve any such secured relation. Examples of such methods include, but are not limited to, the application of adhesives in a variety of patterns between the two adjoining surfaces, entangling at least portions of the adjacent surface of the absorbent with portions of the adjacent surface of the cover, or fusing at least portions of the adjacent surface of the cover to portions of the adjacent surface of the absorbent.

The cover (62) typically resides on the upper surface of the absorbent (66), but alternatively can surround and partially or entirely enclose the absorbent. Alternatively, the cover (62) and the baffle (64) can have peripheries which extend outward beyond the periphery of the absorbent (66) and can be peripherally joined together to form an edge (84), as illustrated at least in FIG. 5. Utilizing known techniques, such as, for example, gluing, crimping, hot-sealing or the like, the edge (84) may be formed either entirely, so that the entire periphery of the absorbent (66) is circumscribed by their joinder, or the cover (62) and the baffle (64) can be partially peripherally joined. To minimize the possibility of irritation and/or discomfort to the wearer of the absorbent article (40), it is desired that the edge (84) and at least the area of the absorbent article immediately adjacent the edge be soft, compressible and conformable. Desirably, any edge (84) so formed shall have a width no greater than about 10; alternatively, no greater than about 9; alternatively, no greater than about 8; alternatively, no greater than about 7; alternatively, no greater than about 6; alternatively, no greater than about 5; alternatively, no greater than about 4; alternatively, no greater than about 3; alternatively, no greater than about 2; or alternatively, no greater than about 1 mm. In addition, any edge (84) so formed shall desirably have a width of no less than about 0.5; alternatively, no less than about 1; alternatively, no less than about 2; alternatively, no less than about 3; alternatively, no less than about 4; alternatively, no less than about 5; alternatively, no less than about 6; alternatively, no less than about 7; alternatively, no less than about 8; or alternatively, no less than about 9 mm. Thus, any edge (84) so formed may have a width ranging from no less than about 0.5 mm up to no greater than about 10 mm; although the approximate width of any edge may vary according to, *inter alia*, the general design and intended disposition of the absorbent article (40) within the vestibule (42) of a female wearer. In other versions, the cover (62) and/or the baffle (64) can have a periphery that is coterminous with the periphery of the absorbent (66).

Positioned either on or substantially parallel to the principal longitudinal axis (L) of the absorbent (66), is, optionally, a desired axis of flexure (F). A desired axis of flexure (F) generally runs in the longitudinal direction, *i.e.*, along the x direction, and may be off center

from the principal longitudinal axis (L) a distance of no greater than about 10; alternatively, no greater than about 9; alternatively, no greater than about 8; alternatively, no greater than about 7; alternatively, no greater than about 6; alternatively, no greater than about 5; alternatively, no greater than about 4; alternatively, no greater than about 3; alternatively, no greater than about 2 mm; or alternatively, no greater than about 1 mm. Desirably, a desired axis of flexure (F) is aligned along the principal longitudinal axis (L). A desired axis of flexure (F) typically minimally extends longitudinally no less than about 90; alternatively, no less than about 80; alternatively, no less than about 70; alternatively, no less than about 60; alternatively, no less than about 50; or alternatively, no less than about 40 % of the maximum length (L_{max}) of the absorbent (66). A desired axis of flexure (F) typically extends longitudinally no greater than about 50; alternatively, no greater than about 60; alternatively, no greater than about 70; alternatively, no greater than about 80; alternatively, no greater than about 90; or alternatively, no greater than about 100 % of the maximum length (L_{max}) of the absorbent (66). A desired axis of flexure (F) may result naturally from the dimensions, shape, and/or configuration of the absorbent (66), or the absorbent may be imparted with a weakened axis or region to create a desired axis of flexure. A desired axis of flexure (F) may also be formed by any of the techniques known to one of skill in the art, including, for example, scoring, pre-folding, slitting, embossing, or the like. Although a desired axis of flexure (F) is described herein as residing in the absorbent (66), one of skill in the art will readily appreciate that a desired axis of flexure may be formed in either the cover (62), the baffle (64) and/or the absorbent; the cover and the baffle; the cover and the absorbent; or the baffle and the absorbent. When present, a desired axis of flexure (F) typically allows an absorbent article (40) to be folded more easily prior to disposition within the vestibule (42) of a female wearer.

The absorbent article (40) also has a thickness, caliper or height (H), as illustrated at least in FIGs. 4 and 5, measured along a line laying generally parallel to the z-axis. The minimum thickness of the absorbent article (40) typically is no less than about 9; alternatively, no less than about 8; alternatively, no less than about 7; alternatively, no less than about 6; alternatively, no less than about 5; alternatively, no less than about 4; alternatively, no less than about 3; alternatively, no less than about 2; alternatively, no less than about 1; or alternatively, no less than about 0.5 mm. The maximum thickness of the absorbent article (40) typically is no greater than about 1; alternatively, no greater than about 2; alternatively, no greater than about 3; alternatively, no greater than about 4; alternatively, no greater than about 5; alternatively, no greater than about 6; alternatively, no greater than about 7; alternatively, no greater than about 8; alternatively, no greater than about 9; or alternatively, no greater than about 10 mm. Thus, the

absorbent article (40) may have a thickness of about 10 mm or less; although the approximate thickness of the absorbent article may vary according to, *inter alia*, the general design and intended disposition of the absorbent article within the vestibule (42) of a female wearer.

LONGITUDINAL SIDE(S)

The absorbent article (40) typically is folded along an axis lying on or positioned parallel to the principal longitudinal axis (L), as illustrated at least in FIGs. 12, 13 and 14, prior to disposition within the vestibule (42) of the female wearer. When folded along such an axis, the absorbent article (40) will form a recess (92) which protects the wearer's finger(s) from soiling when the absorbent article is disposed within the vestibule (42). Once inserted, the absorbent article (40) may have a tendency to unfold in an attempt to fill the vestibule and thus maintain the upper surface of the absorbent article in contact with the tissues of the vestibule (42). The absorbent article (40) may be resiliently biased along the axis about which it is folded to increase the tendency of the absorbent article to unfold. Alternatively, the absorbent (66) of the absorbent article (40) may be thicker along its longitudinal edges, as illustrated at least in FIGs. 11 and 12, thus also demonstrating a biasing effect, if desired, which is typically intended to allow the upper surface of the absorbent article (40) to contact the tissues of the vestibule (42). An absorbent article (40) as described herein, however, does not necessarily require any additional features to maintain contact with the tissues of the vestibule (42) of the female wearer. The naturally moist surfaces of the tissues of the vestibule (42) typically demonstrate a tendency to maintain contact with the upper surface of the absorbent article (40).

As noted above, the wearer may fold the absorbent article (40) along an axis lying on or positioned parallel to the principal longitudinal axis (L) prior to disposition within the vestibule (42). The wearer may, therefore, hold the folded absorbent article (40) near the longitudinal sides as illustrated at least in FIG. 14. The absorbent article (40) may then be disposed within the vestibule (42) by the wearer exerting a force with a finger or fingers positioned in the recess (92) formed by the folded absorbent article.

Suitable for use with the absorbent articles described herein would be at least one placement and removal tab (94) extending outward from at least one longitudinal side of an absorbent article (40). While one such tab (94) is theorized as working effectively in the placement and removal of an absorbent article (40) such as a labial pad, it is believed that at least two tabs (94 and 94') , *i.e.*, one tab extending from each longitudinal side (80, 82) of the absorbent article, are also effective in the placement and removal of an absorbent article. Consequently, in the discussion that follows, unless otherwise noted, the absorbent article (40)

will have at least two tabs (94, 94') . While it is not necessary that the tabs (94, 94') be identical, or, more properly, mirror images one of the other, they desirably are. Thus the description of the first will be a description of any other tab. Discussion of any other tab will, therefore, be omitted for clarity of exposition. Corresponding elements are indicated in the drawings by reference numerals and primed reference numerals. In addition, although illustrated with the various versions of the absorbent article (40) disclosed herein, it will be understood that the tabs (94, 94') herein may be incorporated into a number of other suitably shaped and dimensioned labial pads. Such suitable shapes and dimensions include, but are not limited to, rectangular, ovoid-like, elliptical, trapezoidal, circular-like, triangular, square-shaped, teardrop-like, diamond-shaped, butterfly, pear-shaped, heart-shaped or a variety of combinations thereof.

Extending outward from a longitudinal side (80, 82) of an absorbent article (40), the tab (94) can be of any suitable configuration. Non-limiting examples of shapes for the tab (94) include, ovoid, elliptical, trapezpoidal, rectangular, triangular, diamond-shaped, circular, semi-circular, or any combination of the above. The tab (94) may be integrally formed with the absorbent article (40) or it may be a separate element joined to the absorbent article. One of skill in the art will readily appreciate that when the tab (94) is a separate element joined to the absorbent article (40), the tab may be so joined by a number of known methods including melt fusion, adhesion, or other joining means. The phrase "integrally formed" is intended to indicate that the tab (94) is not joined to the absorbent article (40), but rather is an extension of: the cover (62), the baffle (64), and/or the absorbent (66); the cover and the baffle; the cover and the absorbent; or the baffle and the absorbent.

The tab (94) has a length ( ), measured along a line laying generally parallel to the principal longitudinal axis (L) of an absorbent article (40), and a width (w), measured along a line laying generally parallel to the principal transverse axis (T) of an absorbent article. The tab (94) has sufficient dimensions to aid the female user in disposition of the absorbent article (40) within the vestibule (42) and, optionally, removal of the absorbent article from the vestibule. The phrase "sufficient dimensions" is intended to indicate that the tab (94) can be grasped between the index finger and the thumb or, if there are, for example, two tabs, between the index finger and the thumb and the middle finger and the index finger. Typically, the length ( ) of the tab (94) is no greater than the maximum length (L_{max}) of the absorbent (66). More specifically, the length ( ) of the tab (94) typically is no greater than about 100; alternatively, no greater than about 90; alternatively, no greater than about 80; alternatively, no greater than about 70; alternatively, no greater than about 60; alternatively, no greater than about 50; alternatively, no greater than about 40; alternatively, no greater than about 30; alternatively, no greater than about

20; alternatively, no greater than about 10; or alternatively, no greater than about 5 mm. Stated differently, the length ( ) of the tab (94) is typically no greater than about 100; alternatively, no greater than about 90; alternatively, no greater than about 80; alternatively, no greater than about 70; alternatively, no greater than about 60; alternatively, no greater than about 50; alternatively, no greater than about 40; alternatively, no greater than about 30; alternatively, no greater than about 20; or alternatively, no greater than about 10 % of the maximum length (L_{max}) of the absorbent (66). The length ( ) of the tab (94) typically is no less than about 1; alternatively, no less than about 5; alternatively, no less than about 10; alternatively, no less than about 20; alternatively, no less than about 30; alternatively, no less than about 40; alternatively, no less than about 50; alternatively, no less than about 60; alternatively, no less than about 70; alternatively, no less than about 80; or alternatively, no less than about 90 mm. One of skill in the art will readily appreciate that the length ( ) of the tab (94) may vary according to, *inter alia*, the general design and intended disposition of the absorbent article within the vestibule (42) of a female user.

In addition to having a length ( ), the tab (94) also has a width (w). The width (w) of the tab (94) typically is no greater than about 50; alternatively, no greater than about 40; alternatively, no greater than about 30; alternatively, no greater than about 20; alternatively, no greater than about 10; alternatively, no greater than about 7.5; alternatively, no greater than about 5; alternatively, no greater than about 2.5; or alternatively, no greater than about 1 mm. The width (w) of the tab (94) typically is no less than about 1; alternatively, no less than about 2.5; alternatively, no less than about 5; alternatively, no less than about 7.5; alternatively, no less than about 10; alternatively, no less than about 20; alternatively, no less than about 30; or alternatively, no less than about 40 mm. One of skill in the art will readily appreciate that the width (w) of the tab (94) may vary according to, *inter alia*, the general design and intended disposition of the absorbent article within the vestibule (42) of a female user.

The dimensions of the tab (94) are limited only by the stress-strain properties of the tab material(s). Desirably any material used in the tabs (94, 94') is soft, compressible and conformable and thus similar to the material used in the fluid permeable cover (62), the liquid impermeable baffle (64) and/or the absorbent (66). Any such material desirably minimizes the possibility of irritation and/or discomfort to the wearer of the absorbent article (40).

The tab (94) of the present invention may be positioned in a variety of locations along the longitudinal side (80, 82) of an absorbent article (40). With regard to the absorbent articles (40) described herein, the tab (94) may be located in either the first end region (70), the second end region (72) or the central region (74). A second tab (94') could at the same time be located

along the opposing longitudinal side (80, 82) in either the first end region (70), the second end region (72) or the central region (74). Generally, when a tab (94) extends outward from a longitudinal side (80, 82) of a particular region (70, 72, 74), any second tab (94') typically extends outward from the corresponding region (70, 72, 74) of the opposing longitudinal side (80, 82). It should also be noted that, depending on the length ( ) of the tab (94), the tab may cover more than one of the regions (70, 72, 74) described herein. The tabs (94, 94') as described herein offer a female wearer the opportunity to grasp the tabs to aid in the disposition of a labial pad into the vestibule. In addition, the tabs (94, 94') also offer a female wearer the opportunity to grasp the tabs to aid in the removal of a labial pad and thus minimize the likelihood that the female wearer's finger(s) will come into contact with the body-facing surface of the possibly soiled labial pad.

Referring to FIGs. 15 through 20, various versions of an absorbent article (40) are illustrated having at least one tab (94, 94') positioned along each longitudinal side (80, 82).

FIG. 21 illustrates an absorbent article (40) having one tab (94, 94') positioned along each longitudinal side. Each tab (94, 94') has an integrally formed cover (62) and baffle (64). While the cover (62) and baffle (64) in FIG. 21 are integrally formed, each tab (94, 94') has a tab absorbent (96, 96') that is not integrally formed with the absorbent (66). Generally, the material of the tab absorbent (96, 96') is similar to the material of the absorbent (66). The presence of absorbent material in a tab typically increases the absorbent capacity of the absorbent article. FIG. 22 is a cross-sectional view of the absorbent (40) article of FIG. 21 taken along line 22 – 22.

FIG. 23 illustrates an absorbent article (40) having one tab (94, 94') positioned along each longitudinal side. Each tab (94, 94') has an integrally formed cover (62), baffle (64) and absorbent (66); however, for purposes of description, the absorbent extending outward of the longitudinal side is referred to as the tab absorbent (96, 96') . FIG. 24 is a cross-sectional view of the absorbent article (40) of FIG. 23 taken along line 24 – 24.

FIG. 25 illustrates an absorbent article (40) having one tab (94, 94') positioned along each longitudinal side. Each tab (94, 94') has an integrally formed cover (63) and baffle (64). FIG. 26 is a cross-sectional view of the absorbent article (40) of FIG. 25 taken along line 26 – 26.

TRANSVERSE END AREA(S)

Although previously described herein as typically being folded along an axis lying on or positioned parallel to the principal longitudinal axis, an absorbent article (40) may also be folded along an axis lying on or positioned parallel to the principal transverse axis (T) prior to

disposition within the vestibule (42) of the female wearer. When folded along such an axis, the absorbent article (40) typically still forms a recess (92) which protects the wearer's finger(s) from soiling when the absorbent article is disposed within the vestibule (42) (see FIGs. 27 and 28). Once inserted, the absorbent article (40) may have a tendency to unfold in an attempt to fill the vestibule and thus maintain the upper surface of the absorbent article in contact with the tissues of the vestibule (42). The absorbent article (40) may be resiliently biased along the axis about which it is folded to increase the tendency of the absorbent article to unfold. Alternatively, the absorbent (66) of the absorbent article (40) may be thicker along its transverse end areas (76, 78) thus also demonstrating a biasing effect, if desired, which is typically intended to allow the upper surface of the absorbent article (40) to contact the tissues of the vestibule (42). An absorbent article (40) as described herein, however, does not necessarily require any additional features to maintain contact with the tissues of the vestibule (42) of the female wearer. The naturally moist surfaces of the tissues of the vestibule (42) typically demonstrate a tendency to maintain contact with the upper surface of the absorbent article (40).

Suitable for use with certain versions of the absorbent articles described herein would be at least one placement and removal tab (94) extending outward from the periphery of at least one transverse end area (76, 78) of an absorbent article (40). While one such tab (94) is theorized as working effectively in the placement and removal of an absorbent article (40) such as a labial pad, it is believed that at least two tabs (94 and 94') , *i.e.*, one tab extending from the periphery of each transverse end area (76, 78) of the absorbent article, are also effective in the placement and removal of an absorbent article. Consequently, in the discussion that follows, unless otherwise noted, the absorbent article (40) will have at least two tabs (94, 94') . While it is not necessary that the tabs (94, 94') be identical, or, more properly, mirror images one of the other, they desirably are. Thus the description of the first will be a description of any other tab. Discussion of any other tab will, therefore, be omitted for clarity of exposition. Corresponding elements are indicated in the drawings by reference numerals and primed reference numerals. In addition, although illustrated with certain versions of the absorbent article (40) disclosed herein, it will be understood that the tabs (94, 94') herein may be incorporated into a number of other suitably shaped and dimensioned labial pads. Such suitable shapes and dimensions include, but are not limited to, rectangular, ovoid-like, elliptical, trapezoidal, circular-like, triangular, square-shaped, teardrop-like, diamond-shaped, butterfly, pear-shaped, heart-shaped or a variety of combinations thereof.

Extending outward from the periphery of a transverse end area (76, 78) of an absorbent article (40), the tab (94) can be of any suitable configuration. Non-limiting examples of shapes

for the tab (94) include, ovoid, elliptical, trapezoidal, rectangular, triangular, diamond-shaped, circular, semi-circular, or any combination of the above. The tab (94) may be integrally formed with the absorbent article (40) or it may be a separate element joined to the absorbent article. One of skill in the art will readily appreciate that when the tab (94) is a separate element joined to the absorbent article (40), the tab may be so joined by a number of known methods including melt fusion, adhesion, or other joining means. The phrase "integrally formed" is intended to indicate that the tab (94) is not joined to the absorbent article (40), but rather is an extension of: the cover (62), the baffle (64), and/or the absorbent (66); the cover and the baffle; the cover and the absorbent; or the baffle and the absorbent.

The tab (94) has a length ( ), measured along a line laying generally parallel to the principal transverse axis (T) of an absorbent article (40), and a width (w), measured along a line laying generally parallel to the principal longitudinal axis (L) of an absorbent article (see FIGs. 29 and 30). The tab (94) has sufficient dimensions to aid the female user in disposition of the absorbent article (40) within the vestibule (42) and, optionally, removal of the absorbent article from the vestibule. The phrase "sufficient dimensions" is intended to indicate that the tab (94) can be grasped between the index finger and the thumb or, if there are, for example, two tabs, between the index finger and the thumb and the middle finger and the index finger. Typically, the length ( ) of the tab (94) is no greater than the maximum width (W_{max}) of the absorbent (66). More specifically, the length ( ) of the tab (94) typically is no greater than about 70; alternatively, no greater than about 60; alternatively, no greater than about 50; alternatively, no greater than about 40; alternatively, no greater than about 30; alternatively, no greater than about 20; alternatively, no greater than about 10; or alternatively, no greater than about 5 mm. Stated differently, the length ( ) of the tab (94) is typically no greater than about 100; alternatively, no greater than about 90; alternatively, no greater than about 80; alternatively, no greater than about 70; alternatively, no greater than about 60; alternatively, no greater than about 50; alternatively, no greater than about 40; alternatively, no greater than about 30; alternatively, no greater than about 20; or alternatively, no greater than about 10 % of the maximum width (W_{max}) of the absorbent (66). The length ( ) of the tab (94) typically is no less than about 1; alternatively, no less than about 5; alternatively, no less than about 10; alternatively, no less than about 20; alternatively, no less than about 30; alternatively, no less than about 40; alternatively, no less than about 50; or alternatively, no less than about 60 mm. One of skill in the art will readily appreciate that the length ( ) of the tab (94) may vary according to, *inter alia*, the general design and intended disposition of the absorbent article within the vestibule (42) of a female user.

In addition to having a length ( ), the tab (94) also has a width (w) (see FIGs. 29 and 30). The width (w) of the tab (94) typically is no greater than about 50; alternatively, no greater than about 40; alternatively, no greater than about 30; alternatively, no greater than about 20; alternatively, no greater than about 10; alternatively, no greater than about 7.5; alternatively, no greater than about 5; alternatively, no greater than about 2.5; or alternatively, no greater than about 1 mm. The width (w) of the tab (94) typically is no less than about 1; alternatively, no less than about 2.5; alternatively, no less than about 5; alternatively, no less than about 7.5; alternatively, no less than about 10; alternatively, no less than about 20; alternatively, no less than about 30; or alternatively, no less than about 40 mm. One of skill in the art will readily appreciate that the width (w) of the tab (94) may vary according to, *inter alia*, the general design and intended disposition of the absorbent article within the vestibule (42) of a female user.

The dimensions of the tab (94) are limited only by the stress-strain properties of the tab material(s). Desirably any material used in the tabs (94, 94') is soft, compressible and conformable and thus similar to the material used in the fluid permeable cover (62), the liquid impermeable baffle (64) and/or the absorbent (66). Any such material desirably minimizes the possibility of irritation and/or discomfort to the wearer of the absorbent article (40).

The tab (94) of the present invention may be positioned in a variety of locations along the periphery of a transverse end area (76, 78) of an absorbent article (40). Generally, when a tab (94) extends outward from the periphery of a transverse end area (76, 78) of an absorbent article (40), any second tab (94') typically extends outward from the periphery of the opposing transverse end area (76, 78). The tabs (94, 94') as described herein offer a female wearer the opportunity to grasp the tabs to aid in the disposition of a labial pad into the vestibule. In addition, the tabs (94, 94') also offer a female wearer the opportunity to grasp the tabs to aid in the removal of a labial pad and thus minimize the likelihood that the female wearer's finger(s) will come into contact with the body-facing surface of the possibly soiled labial pad.

FIG. 31 illustrates an absorbent article (40) having at least one tab (94, 94') positioned along the periphery of each transverse end area (76, 78). Each tab (94, 94') has an integrally formed cover (62) and baffle (64). While the cover (62) and baffle (64) in FIG. 31 are integrally formed, each tab (94, 94') has a tab absorbent (96, 96') that is not integrally formed with the absorbent (66). Generally, the material of the tab absorbent (96, 96') is similar to the material of the absorbent (66). The presence of absorbent material in a tab typically increases the absorbent capacity of the absorbent article. FIG. 32 is a cross-sectional view of the absorbent (40) article of FIG. 31 taken along line 32 – 32.

FIG. 33 illustrates an absorbent article (40) having at least one tab (94, 94') positioned along the periphery of each transverse end area (76, 78). Each tab (94, 94') has an integrally formed cover (62), baffle (64) and absorbent (66); however, for purposes of description, the absorbent extending outward of the periphery of a transverse end area (76, 78) is referred to as the tab absorbent (96, 96') . FIG. 34 is a cross-sectional view of the absorbent article (40) of FIG. 33 taken along line 34 – 34.

FIG. 35 illustrates an absorbent article (40) having one tab (94, 94') positioned along the periphery of each transverse end area (76, 78). Each tab (94, 94') has an integrally formed cover (63) and baffle (64). FIG. 36 is a cross-sectional view of the absorbent article (40) of FIG. 35 taken along line 36 – 36.

Although various versions or embodiments of the present invention have been disclosed and described in considerable detail, other embodiments are possible. Consequently, the spirit and scope of the appended claims should not be limited to the illustration and description of the various embodiments contained herein.

What is claimed is:

1. An absorbent article (40) comprising an absorbent (66), the absorbent article being configured for disposition within the vestibule of a female wearer, the absorbent article further having a principal longitudinal axis, a principal transverse axis, a body-facing surface, a surface opposed to the body-facing surface, a length, a width, a thickness, first (80) and second (82) spaced apart longitudinal sides and at least one tab (94) extending outward from at least one longitudinal side.

2. The absorbent article of claim 1, wherein the tab has sufficient dimensions to allow a user to grasp the tab and maintain control of the absorbent article during disposition within the vestibule.

3. The absorbent article of claim 1, wherein the tab comprises a fluid permeable material.

4. The absorbent article of claim 1, wherein the absorbent further comprises a fluid permeable cover (62).

5. The absorbent article of claim 4, wherein the fluid permeable cover extends outward from at least one of the longitudinal sides to form the tab.

6. The absorbent article of claim 1, wherein the tab comprises an absorbent material.

7. The absorbent article of claim 6, wherein the absorbent material of the tab further comprises a superabsorbent polymer.

8. The absorbent article of claim 1, wherein the absorbent extends outward from at least one of the longitudinal sides to form the tab.

9. The absorbent article of claim 8, wherein the absorbent further comprises a superabsorbent polymer.

10. The absorbent article of claim 1, wherein the tab comprises a liquid impermeable material.

11. The absorbent article of claim 1, wherein the absorbent article further comprises a liquid impermeable baffle (64).

12. The absorbent article of claim 11, wherein the liquid impermeable baffle extends outward from at least one of the longitudinal sides to form the tab.

13. The absorbent article of claim 1, wherein the absorbent further comprises a superabsorbent polymer.

14. An absorbent article (40) comprising an absorbent (66), the absorbent article being configured for disposition within the vestibule of a female wearer, the absorbent article further having a principal longitudinal axis, a principal transverse axis, a body-facing surface, a surface opposed to the body-facing surface, a length, a width, a thickness, first (76) and second (78) spaced apart transverse end areas, first (80) and second (82) spaced apart longitudinal sides, the longitudinal sides ranging between the transverse end areas and collectively defining a periphery of the absorbent article, and at least one tab (94) extending outward from the periphery of at least one transverse end area.

15. The absorbent article of claim 14, wherein the tab has sufficient dimensions to allow a user to grasp the tab and maintain control of the absorbent article during disposition within the vestibule.

16. The absorbent article of claim 14, wherein the tab comprises a fluid permeable material.

17. The absorbent article of claim 14, wherein the absorbent further comprises a fluid permeable cover (62).

18. The absorbent article of claim 17, wherein the fluid permeable cover extends outward from the periphery of at least one transverse end area to form the tab.

19. The absorbent article of claim 14, wherein the tab comprises an absorbent material.

20. The absorbent article of claim 19, wherein the absorbent material of the tab further comprises a superabsorbent polymer.

21. The absorbent article of claim 14, wherein the absorbent extends outward from the periphery of at least one transverse end area to form the tab.

22. The absorbent article of claim 21, wherein the absorbent further comprises a superabsorbent polymer.

23. The absorbent article of claim 14, wherein the tab comprises a liquid impermeable material.

24. The absorbent article of claim 14, wherein the absorbent article further comprises a liquid impermeable baffle (64).

25. The absorbent article of claim 24, wherein the liquid impermeable baffle extends outward from the periphery of at least one transverse end area to form the tab.

26. The absorbent article of claim 14, wherein the absorbent further comprises a superabsorbent polymer.

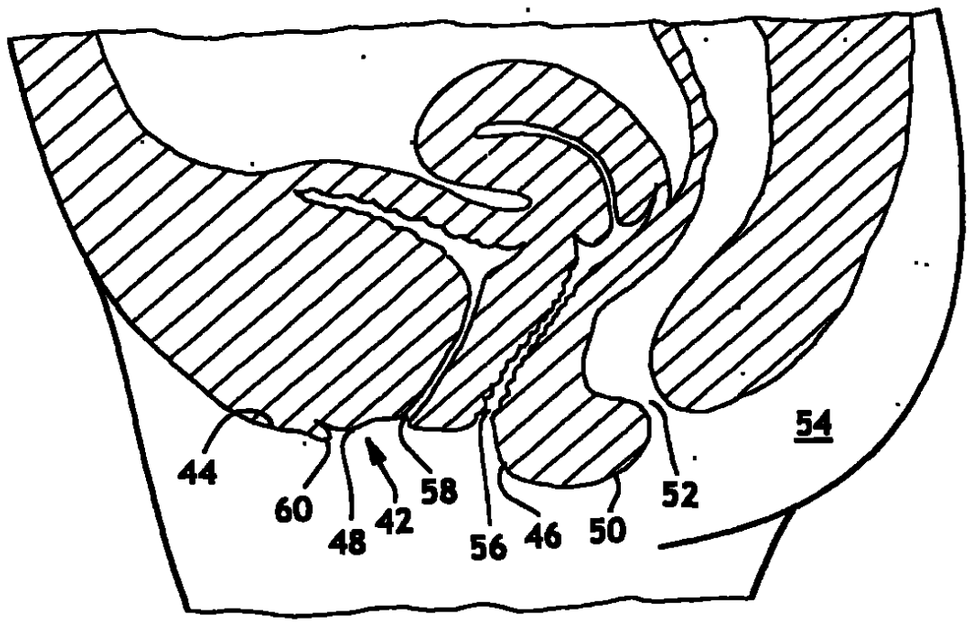

FIG. 1

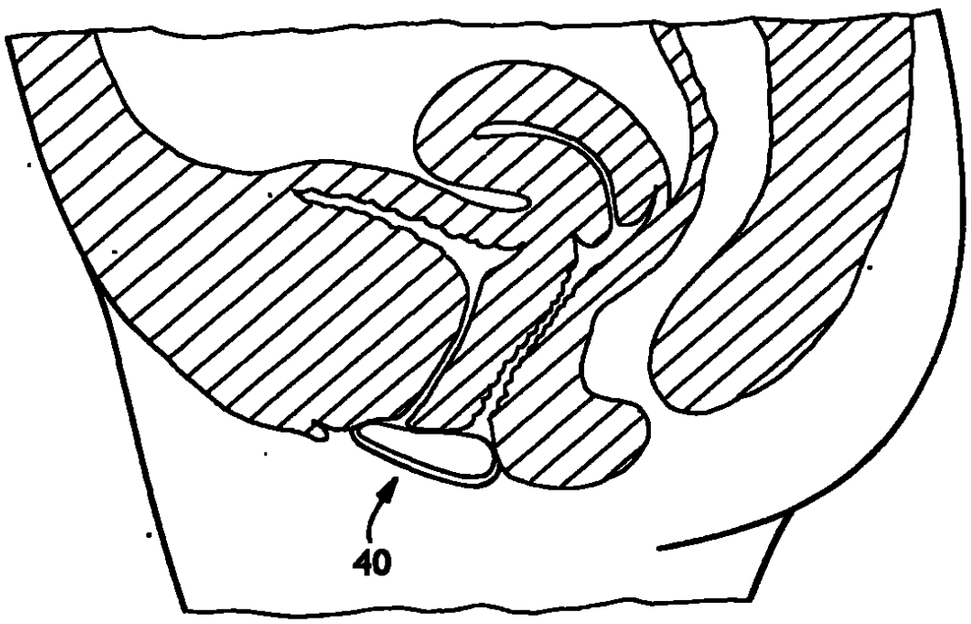

FIG. 2

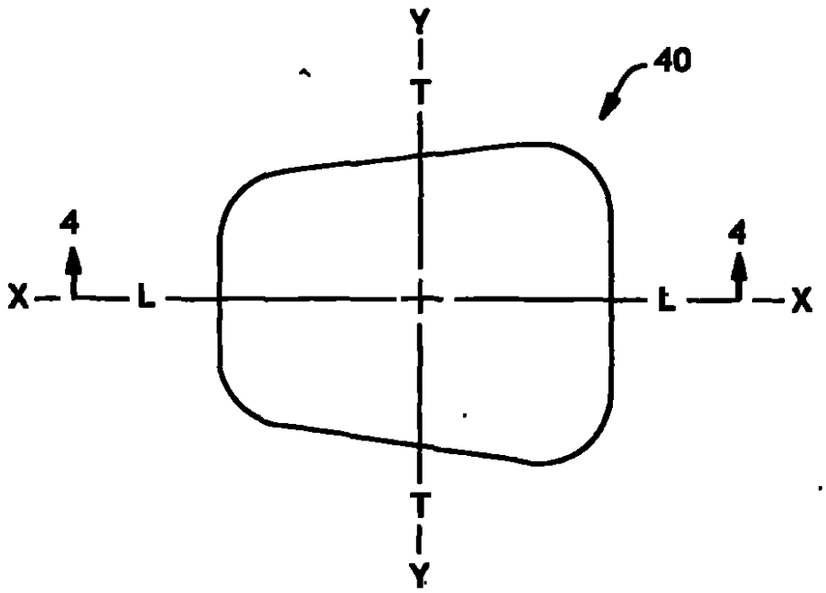

FIG. 3

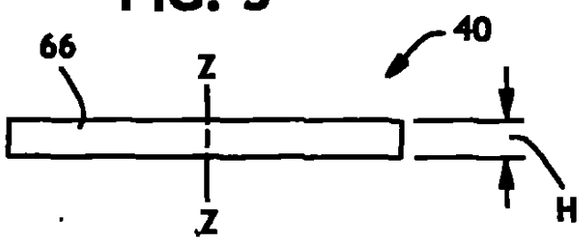

FIG. 4

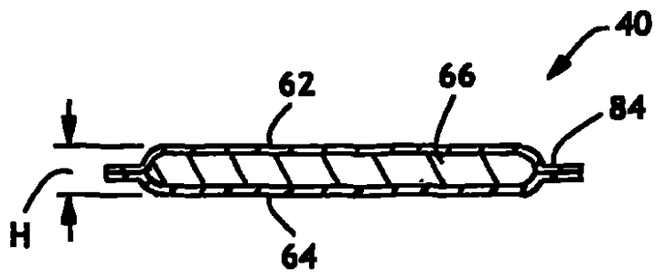

FIG. 5

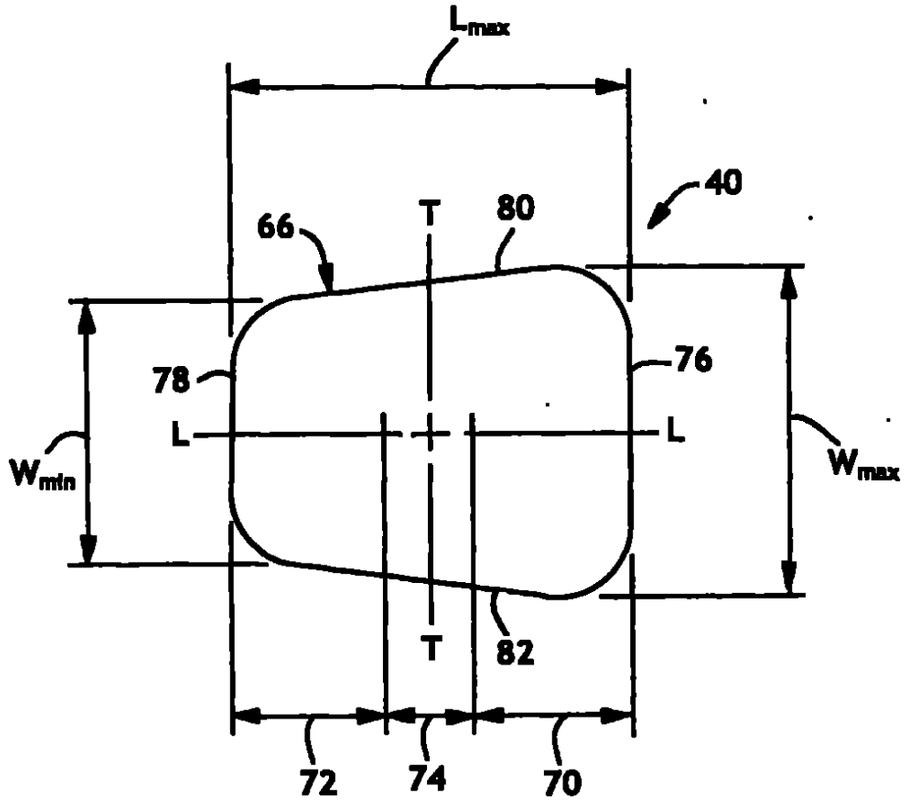

FIG. 6

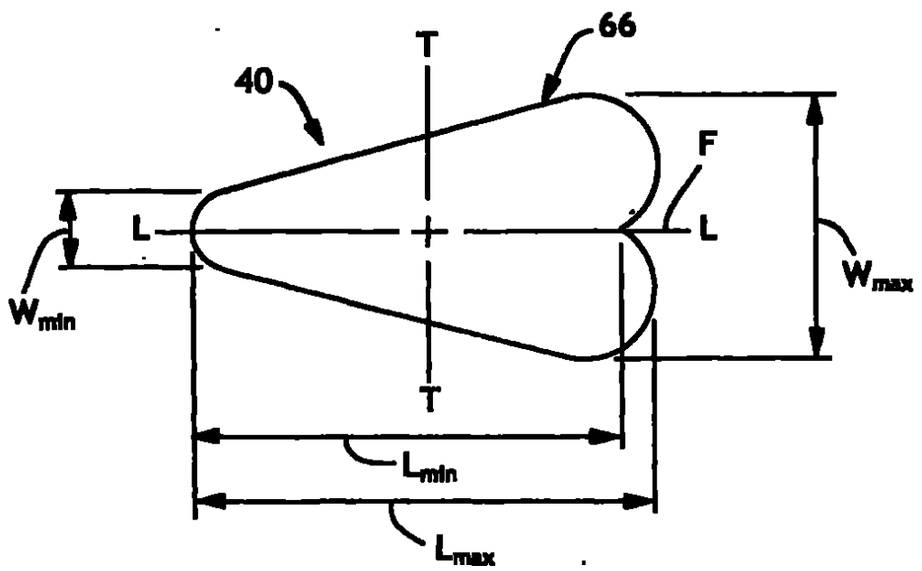

FIG. 7

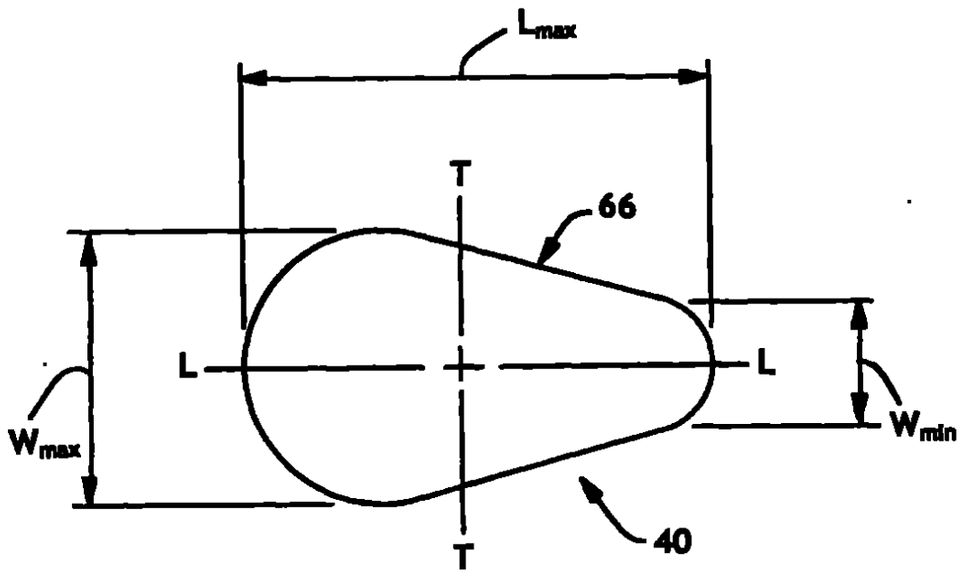

FIG. 8

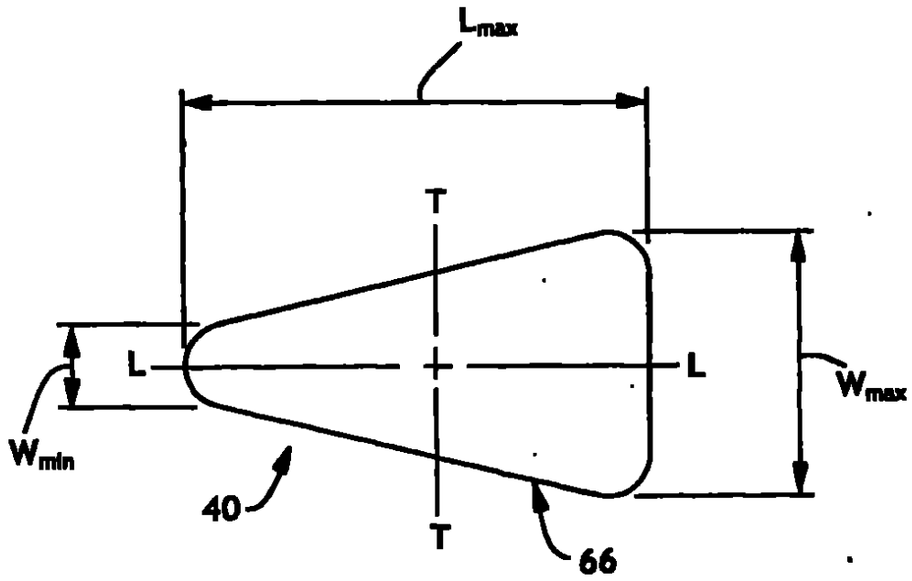

FIG. 9

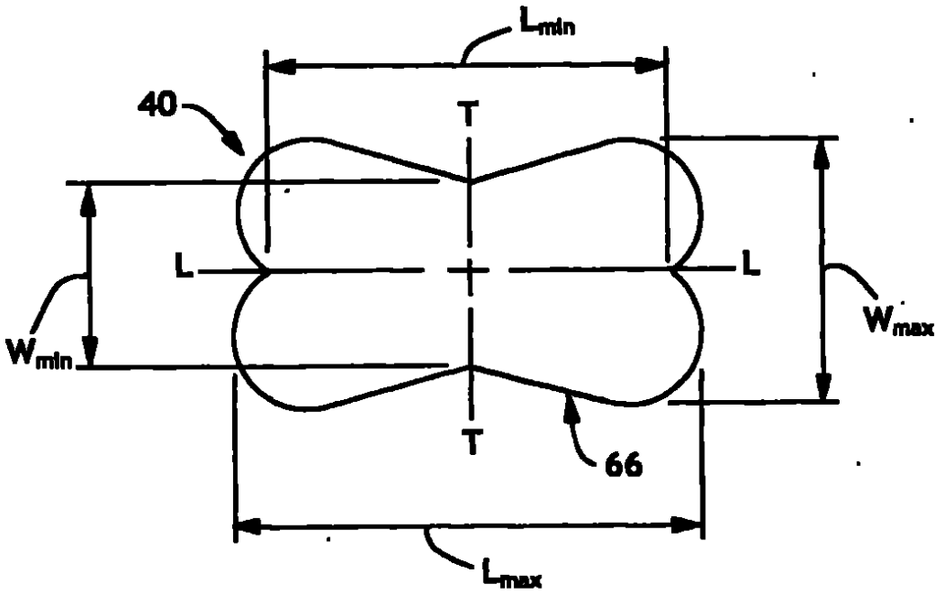

FIG. 10

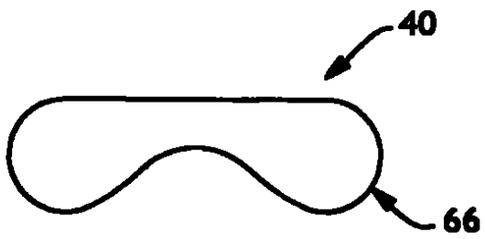

FIG. 11

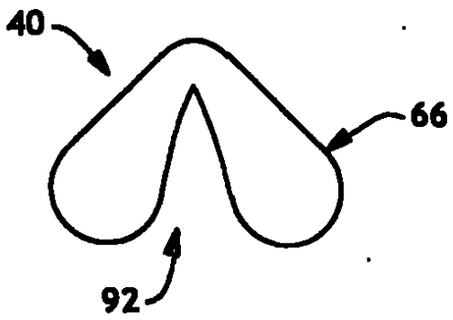

FIG. 12

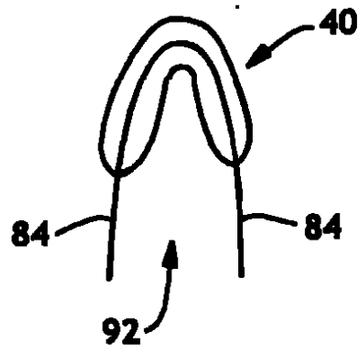

FIG. 13

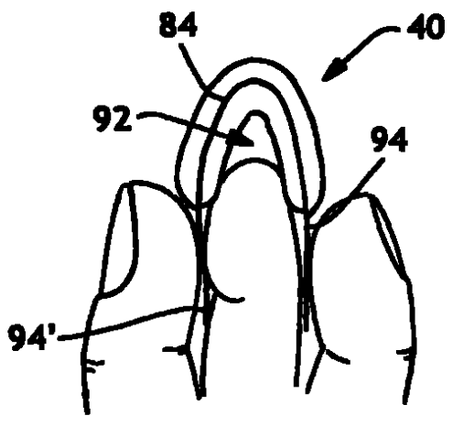

FIG. 14

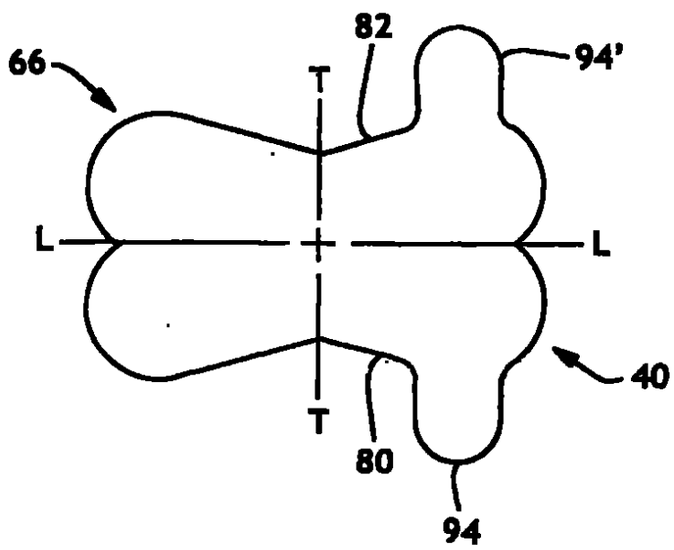

FIG. 15

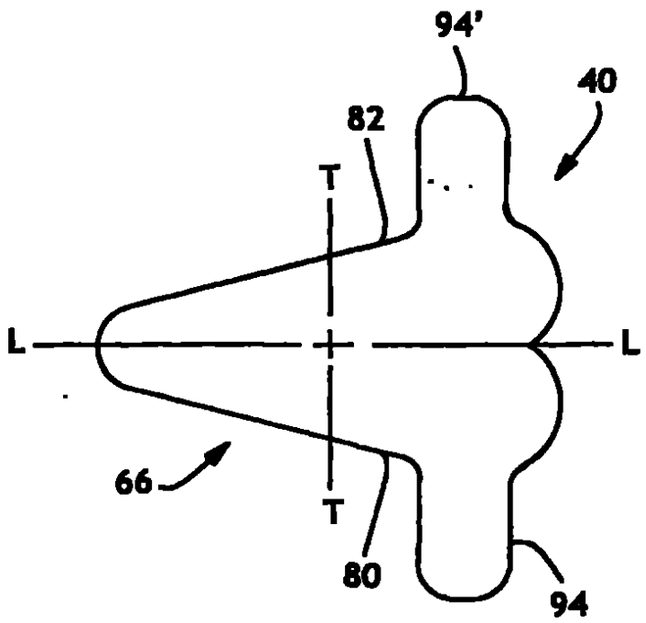

FIG. 16

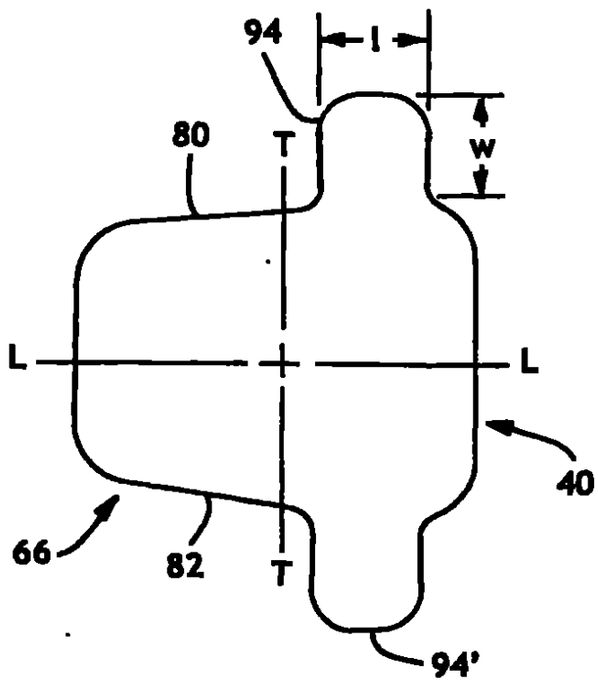

FIG. 17

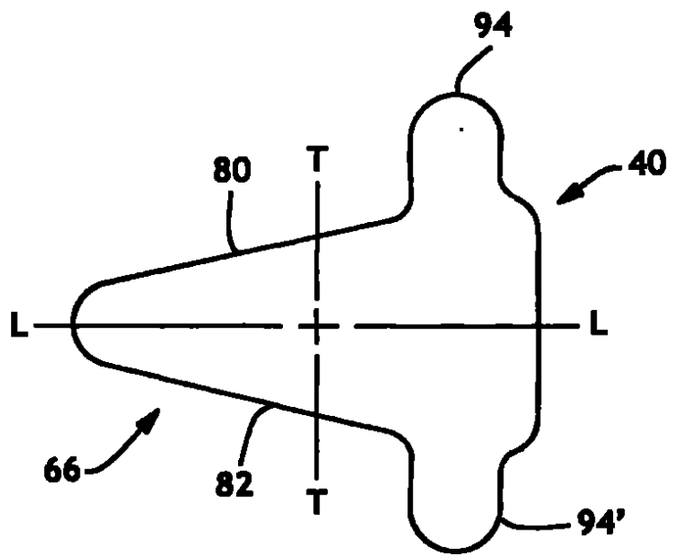

FIG. 18

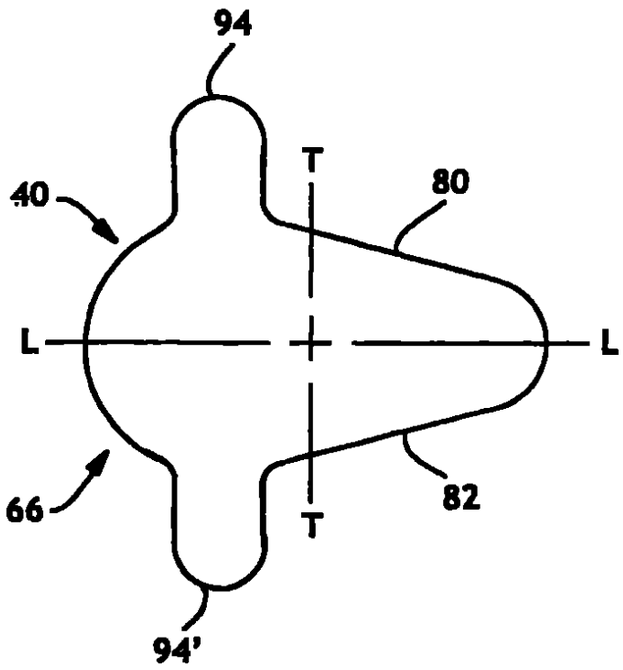

FIG. 19

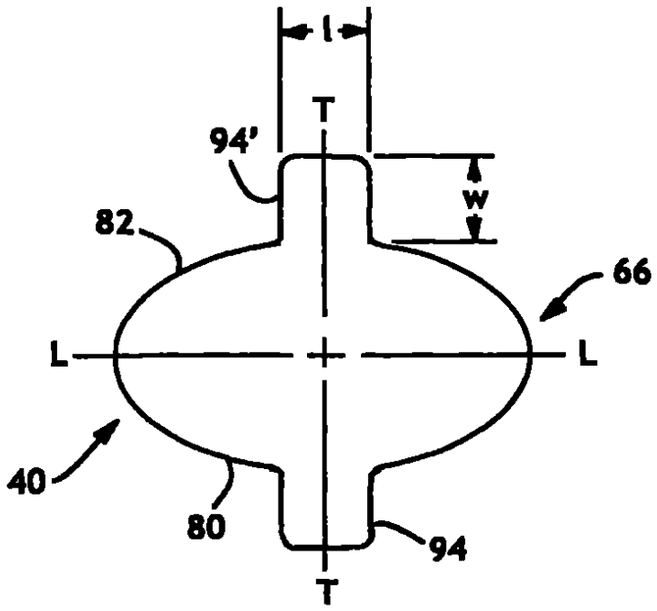

FIG. 20

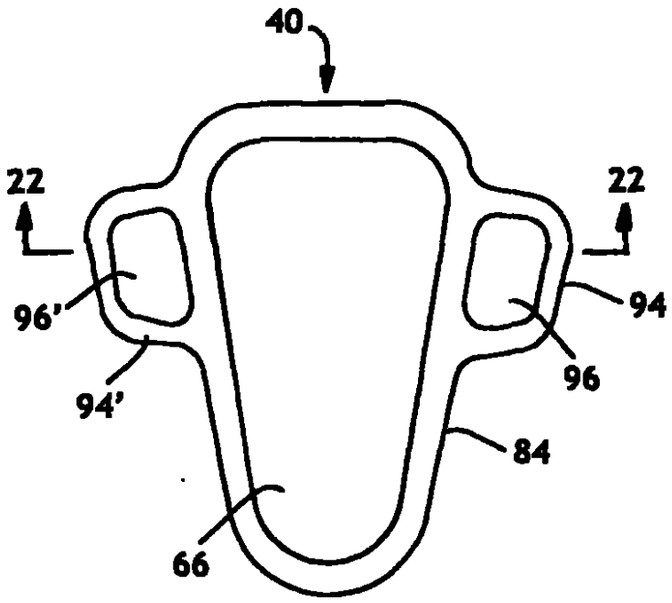

FIG. 21

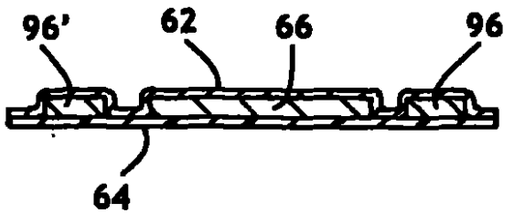

FIG. 22

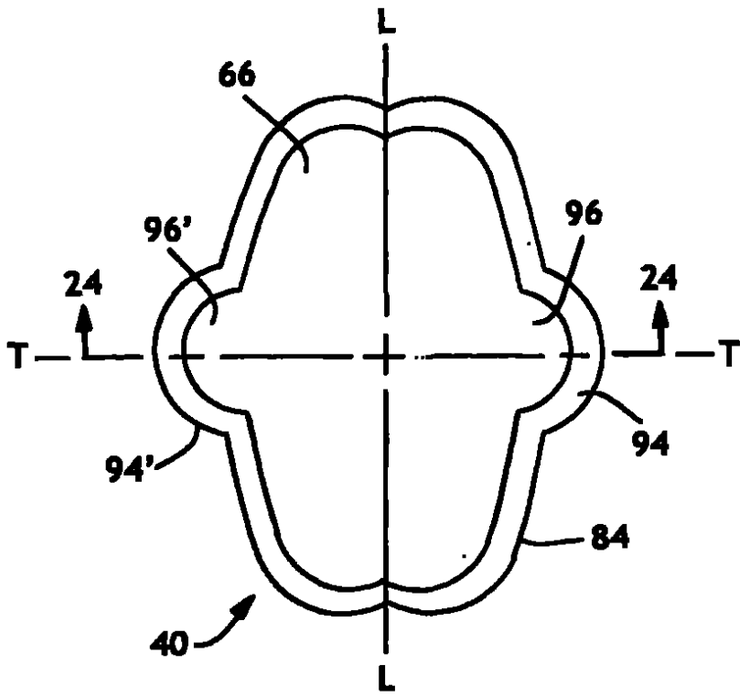

FIG. 23

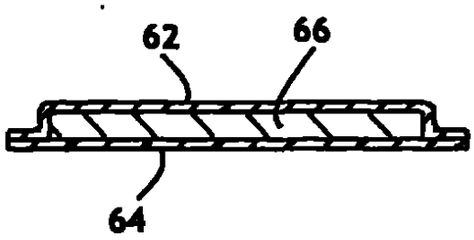

FIG. 24

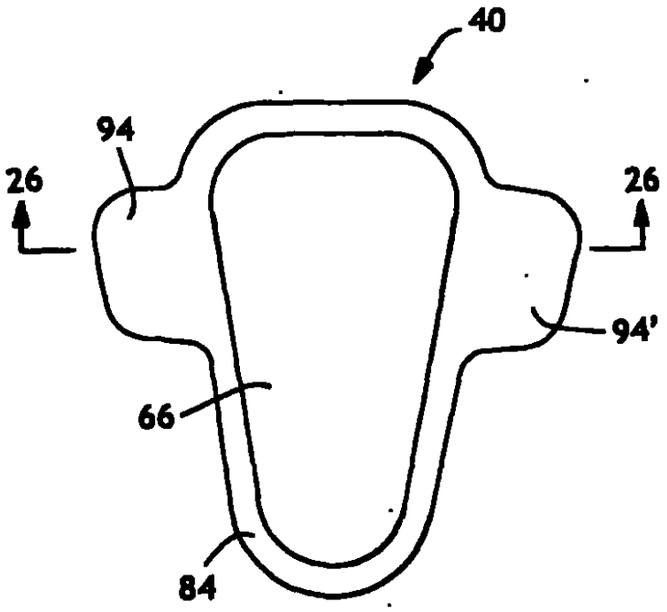

FIG. 25

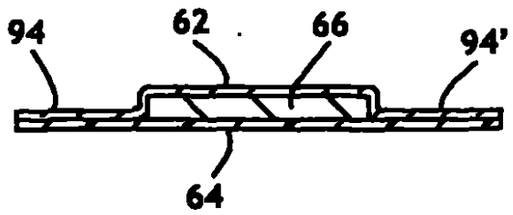

FIG. 26

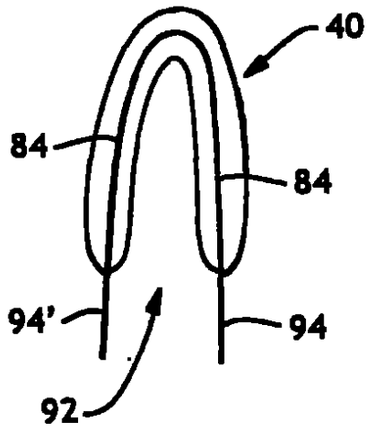

FIG. 27

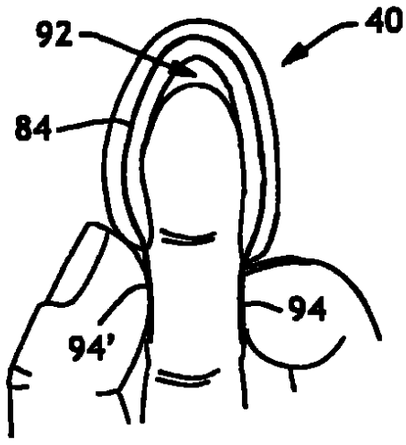

FIG. 28

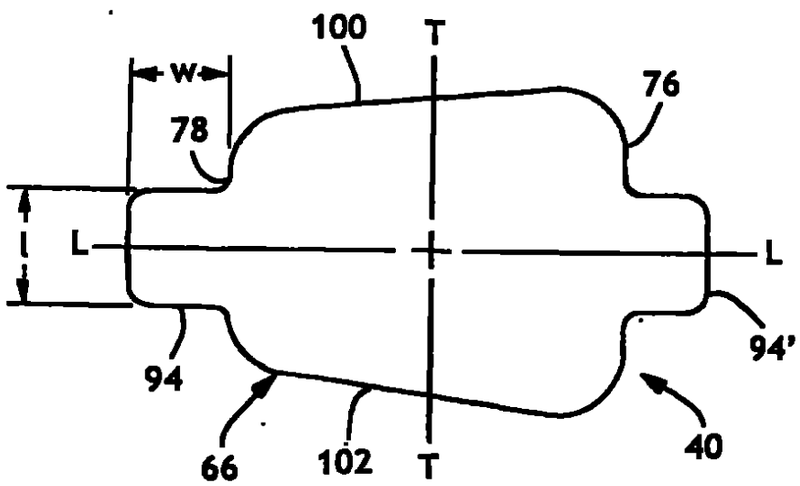

FIG. 29

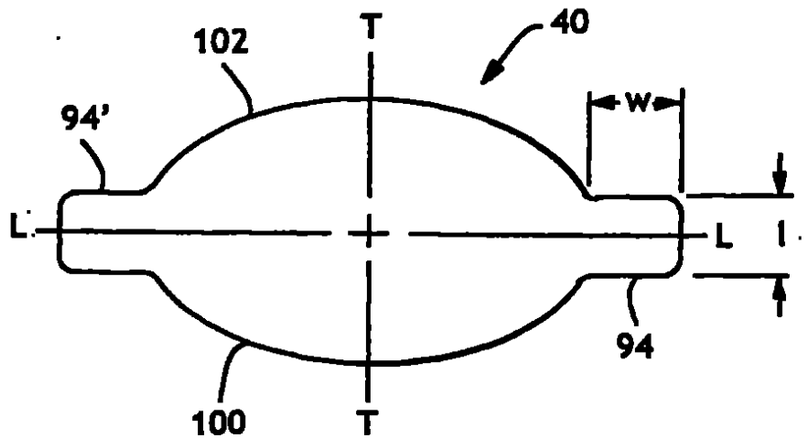

FIG. 30

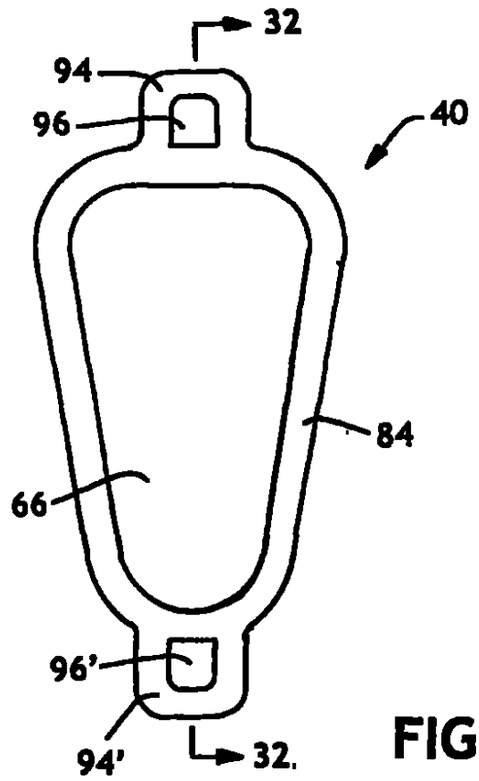

FIG. 31

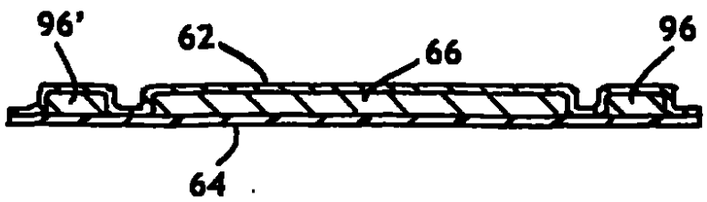

FIG. 32

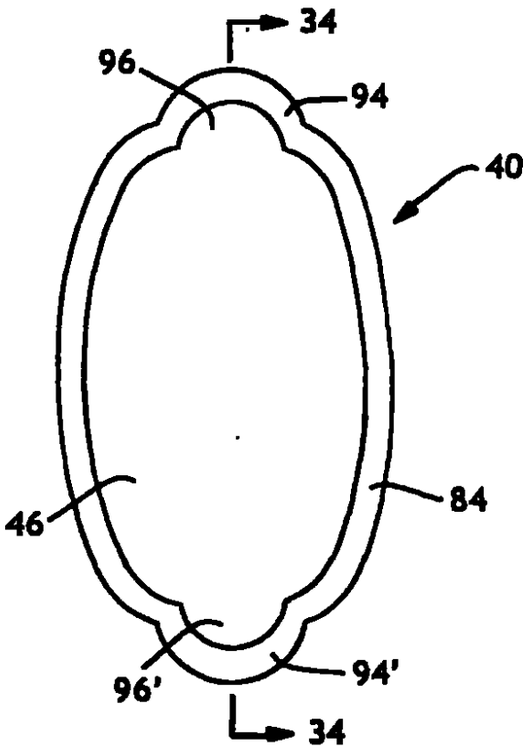

FIG. 33

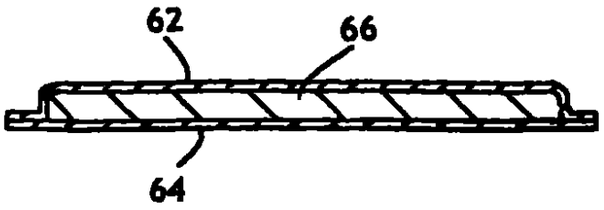

FIG. 34

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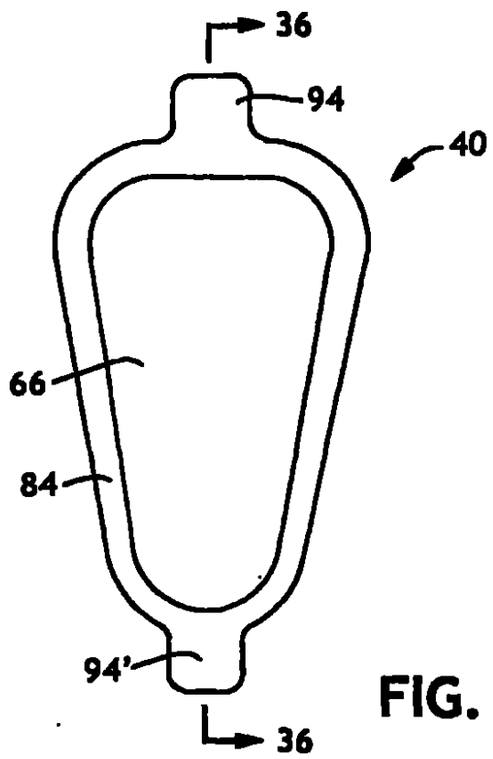

FIG. 35

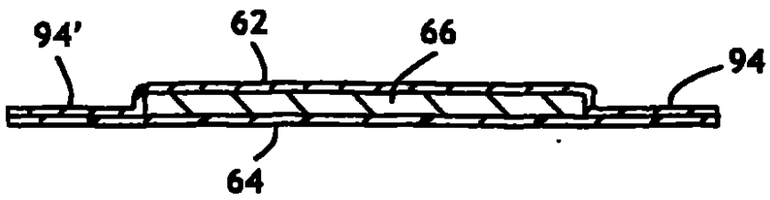

FIG. 36

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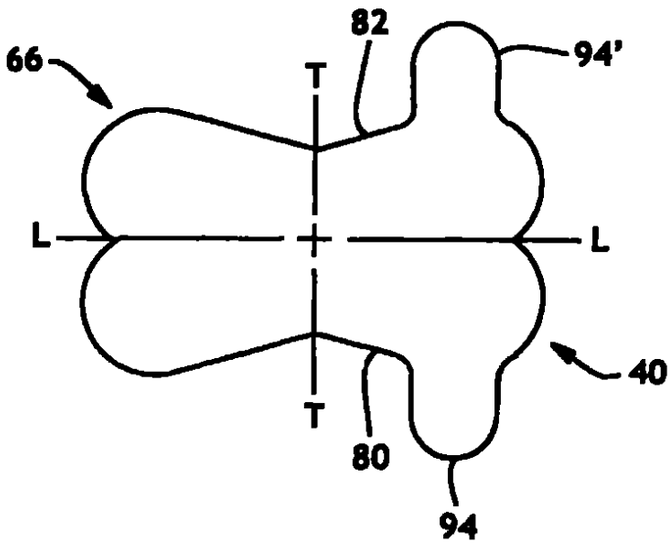
[Continued on next page]

(54) Title: INTERLABIAL PAD HAVING A TAB

(57) Abstract: An absorbent article (40) such as a labial pad configured for disposition within the vestibule (42) of a female wearer. The labial pad may be worn by females for catamenial purposes, incontinence protection, or both, and has at least one tab (94) extending from the periphery thereof.



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Published:
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International Application No
PCT/US 02/18264

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61F13/472 A61F13/84

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

B. FIELDS SEARCHED

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

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

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 595 392 A (JOHNSON RUSSELL L ET AL) 17 June 1986 (1986-06-17) column 1, line 33 - line 34; claim 1; figures 2,3	1-6,8, 10-12
Y	column 2, line 36 - line 41 column 2, line 32 - line 59; claim 2	7,9,13
X	US 2 682 875 A (BROWN ETHEL C) 6 July 1954 (1954-07-06) column 2, line 52 -column 3, line 4; figures 1,2,5	14-18
Y	column 2, line 20 -column 3, line 1	19-26
X	US 2 328 795 A (FINKS FRANCES W) 7 September 1943 (1943-09-07) column 1, line 1 - line 7; figures 2,3 column 2, line 15 - line 19 column 3, line 59 - line 74	14-17

-/—

[X] Further documents are listed in the continuation of box C. [X] Patent family members are listed in annex.

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"O" document referring to an oral disclosure, use, exhibition or other means
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
21 October 2002	04/11/2002

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Mirza, A

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INTERNATI NAL SEARCH REPORT

International Application No
PCT/US 02/18264

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	WO 95 00097 A (FABO THOMAS ;KUUSE STAFFAN (SE); MOELNLYCKE AB (SE); JOHANNISON UL) 5 January 1995 (1995-01-05) page 5, line 9 - line 14; figures 3,5 page 5, line 32 -page 6, line 2	1
Y	GB 2 306 888 A (MOELNLYCKE AB) 14 May 1997 (1997-05-14) page 12, line 17 - line 23; claim 19; figures 1,3 page 13, line 10 - line 17	7,9,13, 19-26

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 02/18264

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
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US 2682875	A	06-07-1954	NONE		
US 2328795	A	07-09-1943	NONE		
WO 9500097	A	05-01-1995	SE	501470 C2	20-02-1995
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ALMOHADILLA LABIAL QUE TIENE UN APÉNDICE

Esta solicitud reclama la prioridad de la solicitud de patente de los Estados Unidos de América Provisional serie número 60/297.001, presentada el 8 de Junio de 2001, de la solicitud de patente de los Estados Unidos de América serie número 10/036.981, presentada el 31 de Diciembre de 2001 y de la solicitud de patente de los Estados Unidos de América No. 10/038.970, presentada el 31 de Diciembre de 2001.

ANTECEDENTES

La presente invención se refiere generalmente a artículos absorbentes tales como las almohadillas labiales configuradas para colocarse dentro del vestíbulo de una usuaria hembra. Más particularmente, la presente invención se refiere a almohadillas labiales que tienen por lo menos un apéndice que se extiende hacia fuera desde la periferia de las mismas.

Se conocen desde luego una amplia variedad de artículos absorbentes y una amplia manera de dichos artículos configurados para la absorción de los exudados del cuerpo tal como el fluido menstrual. Con respecto a la higiene de la mujer, el arte ha ofrecido dos tipos básicos de protección para la higiene de la mujer: las toallas sanitarias, desarrolladas para el uso externo alrededor de la región pudenda, y los tapones, desarrollados para la residencia dentro de la cavidad vaginal y

para la interrupción del fluido menstrual desde la misma. Los dispositivos para la protección de la higiene femenina híbridos, que intentan el fundir las características estructurales de ambos dentro de un tipo único de dispositivo, también se han propuesto, pero no han tenido una medida significativa de aceptación en cuanto a que el esfuerzo para las ventajas apropiadas se ha visto oscurecido por la perpetuación más demostrable de las desventajas estructurales y anatómicamente funcionales. Otros dispositivos menos intrusivos, conocidos como dispositivos labiales o para entre los labios y que están caracterizados porque tienen una parte la cual por lo menos reside parcialmente afuera del vestíbulo de la usuaria, también se han propuesto.

Muchos de estos dispositivos anteriores no han satisfecho completamente la demanda de las consumidoras para dispositivos aún más pequeños que puedan ser usados entre los labios por las usuarias hembras. En respuesta a esto, varios fabricantes han producido almohadillas labiales que son bastante pequeñas en tamaño en comparación a los dispositivos anteriores descritos arriba. Sin embargo, la construcción de muchos de estos dispositivos parece que falla en reconocer el rango amplio de la variación que existe entre las mujeres con respecto a la ubicación de los orificios vaginales y uretrales. Por ejemplo, algunos dispositivos actuales frecuentemente localizan una parte significante del núcleo absorbente en el centro del dispositivo con una parte significativamente mucho menor del núcleo

absorbente localizada en los extremos. Tales dispositivos permiten menos protección para el amplio espectro de la mujer cuyos orificios vaginales y uretrales no están localizados en el centro de sus vestíbulos. Otros dispositivos parece que proporcionan una distribución uniforme del núcleo absorbente esencialmente a través de la extensión longitudinal del dispositivo. Sin embargo, los diseños de muchos de otros dispositivos típicamente fallan en mejorar significativamente el entalle individualizado y/o la capacidad absorbente.

Otro factor que afecta la aceptación del consumidor es la facilidad de uso, incluyendo la disposición de la almohadilla labial en una colocación adecuada y/o la remoción de la almohadilla labial. Típicamente, la usuaria agarra la almohadilla labial con sus dedos y la coloca en una ubicación adecuada dentro de su vestíbulo. La usuaria también puede necesitar agarrar la almohadilla labial para la remoción, particularmente si ésta no es expulsada durante la urinación. La disposición y/o la remoción de las almohadillas labiales convencionales está frecuentemente acompañada con una gran dificultad. Por tanto, existe una necesidad de medios mejorados los cuales facilitarán la disposición sanitaria de la almohadilla labial en una posición apropiada dentro del vestíbulo así como la remoción sanitaria de una almohadilla labial del vestíbulo.

SÍNTESIS

Los presentes inventores han reconocido las deficiencias y problemas inherentes en el arte previo y en respuesta a esto han llevado a cabo una investigación intensiva para desarrollar las almohadillas labiales novedosas. Mientras que se lleva a cabo ésta invención, los inventores también descubrieron que por lo menos un apéndice que se extiende hacia fuera desde la periferia de una almohadilla labial mejora la capacidad de una usuaria para colocar sanitaria y fácilmente una almohadilla labial dentro del vestíbulo y/o una remoción sanitaria y fácil de una almohadilla labial desde el vestíbulo.

En una incorporación de la presente invención, un artículo absorbente está descrito como que tiene una cubierta permeable al fluido, un separador impermeable al líquido y un absorbente. El absorbente está deseablemente situado entre la cubierta y el separador. El artículo absorbente esta configurado para colocarse dentro del vestíbulo de una usuaria hembra. El artículo absorbente incluye un eje longitudinal principal, un eje transversal principal, una superficie de cara al cuerpo y una superficie opuesta a la superficie de cara al cuerpo. El artículo absorbente tiene una longitud, un ancho, un grosor, y los lados longitudinales espaciados y separados primero y segundo y las áreas de extremo transversales espaciadas y separadas primera y segunda. Los lados longitudinales se extienden entre las áreas de extremo

transversales y definen colectivamente la periferia del artículo absorbente. Extendiéndose lateralmente hacia fuera de por lo menos un lado longitudinal del artículo absorbente está por lo menos un apéndice.

En otra incorporación de la presente invención, está descrito un artículo absorbente como que incluye un separador impermeable al líquido y un absorbente. El artículo absorbente está configurado para colocarse dentro del vestíbulo de una usuaria hembra. El artículo absorbente tiene un eje longitudinal principal, un eje transversal principal, una superficie de cara al cuerpo y una superficie opuesta a la superficie de cara al cuerpo. El artículo absorbente tiene una longitud, un grosor, un espesor y los lados longitudinales espaciados y separados primero y segundo y las áreas de extremo transversales separadas y espaciadas primera y segunda. Los lados longitudinales se extienden entre las áreas de extremo transversales y definen colectivamente la periferia del artículo absorbente. Extendiéndose lateralmente hacia fuera desde por lo menos un lado longitudinal del artículo absorbente está por lo menos un apéndice.

En aún otra incorporación, está descrito un artículo absorbente que tiene un absorbente. El artículo absorbente está configurado para colocarse dentro del vestíbulo de una usuaria hembra. El artículo absorbente incluye un eje longitudinal principal, un eje transversal principal, una

superficie de cara al cuerpo y una superficie opuesta a la superficie de cara al cuerpo. El artículo absorbente tiene una longitud, un ancho, un grosor, y los lados longitudinales espaciados y separados primero y segundo y las áreas de extremo transversales espaciadas y separadas primera y segunda. Los lados longitudinales se extienden entre las áreas de extremo transversales y definen colectivamente la periferia del artículo absorbente. Extendiéndose lateralmente hacia fuera desde por lo menos un lado longitudinal del artículo absorbente está por lo menos un apéndice.

En una incorporación alterna de la presente invención, está descrito un artículo absorbente como que tiene una cubierta permeable al fluido, un separador impermeable al líquido y un absorbente. El absorbente está situado deseablemente entre la cubierta y el separador. El artículo absorbente está configurado para colocarse dentro del vestíbulo de una usuaria hembra. El artículo absorbente incluye un eje longitudinal principal, un eje transversal principal, una superficie de cara al cuerpo y una superficie opuesta a la superficie de cara al cuerpo. El artículo absorbente tiene una longitud, un ancho, un grosor, los lados longitudinales espaciados y separados primero y segundo y las áreas de extremo transversales espaciadas y separadas primera y segunda. Los lados longitudinales se extienden entre las áreas de extremo transversales y definen colectivamente la periferia del artículo absorbente. Extendiéndose hacia fuera desde la periferia de por

lo menos un área de extremo transversal del artículo absorbente está por lo menos un apéndice.

En otra incorporación alterna de la presente invención, está descrito un artículo absorbente incluyendo un separador impermeable al líquido y un absorbente. El artículo absorbente está configurado para colocarse dentro del vestíbulo de una usuaria hembra. El artículo absorbente tiene un eje longitudinal principal, un eje transversal principal, una superficie de cara al cuerpo y una superficie opuesta a la superficie de cara al cuerpo. El artículo absorbente tiene una longitud, un ancho, un grosor, los lados longitudinales espaciados y separados primero y segundo y las áreas de extremo transversales espaciadas y separadas primera y segunda. Los lados longitudinales se extienden entre las áreas de extremo transversales y definen colectivamente la periferia del artículo absorbente. Extendiéndose hacia fuera desde la periferia de por lo menos una del extremo transversal está por lo menos un apéndice.

En aún otra incorporación alterna, está descrito un artículo absorbente como que tiene un absorbente. El artículo absorbente está configurado para colocarse dentro del vestíbulo de una usuaria hembra. El artículo absorbente incluye un eje longitudinal principal, un eje transversal principal, una superficie de cara al cuerpo y una superficie opuesta a la superficie de cara al cuerpo. El artículo absorbente tiene una

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longitud, un ancho, un grosor, los lados longitudinales espaciados y separados primero y segundo y las áreas de extremo transversales espaciadas y separadas primera y segunda. Los lados longitudinales se extienden entre las áreas de extremo transversales y definen colectivamente la periferia del artículo absorbente. Extendiéndose hacia afuera desde la periferia de por lo menos un área de extremo transversal del artículo absorbente está por lo menos un apéndice.

DIBUJOS

Las anteriores y otras características, aspectos y ventajas de la presente invención se entenderán mejor con relación a la siguiente descripción, a las reivindicaciones anexas y a los dibujos acompañantes en donde:

La Figura 1 es una vista en sección transversal anatómica simplificada de una hembra humana que ilustra el ambiente para un artículo absorbente.

La Figura 2 es una vista en sección transversal anatómica simplificada de una hembra humana que ilustra un artículo absorbente colocado dentro del vestíbulo de una usuaria.

La Figura 3 es una vista superior que ilustra una versión de un artículo absorbente.

La Figura 4 es una vista en sección transversal del artículo absorbente ilustrado en la figura 3 tomada a lo largo de la línea 4-4 de la misma.

La Figura 5 es una vista en sección transversal que ilustra otra versión de un artículo absorbente.

La Figura 6 es una vista superior que ilustra una versión de un artículo absorbente similar a aquél ilustrado en la figura 3.

La Figura 7 es una vista superior que ilustra una versión alterna de un artículo absorbente.

La Figura 8 es una vista superior que ilustra aún otra versión de un artículo absorbente.

La Figura 9 es una vista superior que ilustra aún otra versión de un artículo absorbente.

La Figura 10 es una vista superior que ilustra otra versión alterna de un artículo absorbente.

La Figura 11 es una vista en sección transversal que ilustra aún otra versión alterna de un artículo absorbente.

La Figura 12 es una vista en sección transversal

que ilustra la versión de la figura 11 en una posición esencialmente doblada.

La Figura 13 ilustra una vista amplificada de una versión del artículo absorbente doblada esencialmente alrededor de un eje principal.

La Figura 14 ilustra una vista amplificada y exagerada de una versión de un artículo absorbente doblado esencialmente alrededor de un eje principal y que está siendo agarrado para colocarse en el vestíbulo por los dedos de la usuaria.

La Figura 15 ilustra una versión de un artículo absorbente que tiene un par de apéndices que se extienden hacia fuera desde cada lado longitudinal.

La Figura 16 ilustra otra versión de un artículo absorbente que tiene un par de apéndices que se extienden hacia fuera desde cada lado longitudinal.

La Figura 17 ilustra una versión alterna de un artículo absorbente que tiene un par de apéndices que se extienden hacia fuera desde cada lado longitudinal.

La Figura 18 ilustra aún otra versión de un artículo absorbente que tiene un par de apéndices que se

extienden hacia fuera desde cada lado longitudinal.

La Figura 19 ilustra aún otra versión de un artículo absorbente que tiene un par de apéndices que se extienden hacia fuera desde cada lado longitudinal.

La Figura 20 ilustra aún otra versión alterna de un artículo absorbente que tiene un par de apéndices que se extienden hacia fuera desde cada lado longitudinal.

La Figura 21 ilustra otra versión de un artículo absorbente que tiene un par de apéndices que se extienden hacia fuera desde cada lado longitudinal.

La Figura 22 ilustra una vista en sección transversal del artículo absorbente de la figura 21 tomada a lo largo de la línea 22-22.

La Figura 23 ilustra aún otra versión de un artículo absorbente que tiene un par de apéndices que se extienden hacia fuera desde cada lado longitudinal.

La Figura 24 ilustra una vista en sección transversal del artículo absorbente de la figura 23 tomada a lo largo de la línea 24-24.

La Figura 25 ilustra una versión de un artículo

absorbente que tiene un par de apéndices que se extienden hacia fuera desde cada lado longitudinal.

La Figura 26 ilustra una vista en sección transversal del artículo absorbente de la figura 25 tomada a lo largo de la línea 26-26.

La Figura 27 ilustra una vista amplificada de una versión de un artículo absorbente doblado esencialmente alrededor de un eje principal.

La Figura 28 ilustra una vista amplificada y exagerada de una versión de un artículo absorbente doblado esencialmente alrededor de un eje principal y que está siendo agarrado para colocarse en el vestíbulo por los dedos de la usuaria.

La Figura 29 ilustra una versión alterna de un artículo absorbente que tiene un apéndice que se extiende hacia fuera desde cada área de extremo transversal.

La Figura 30 ilustra una versión adicional de un artículo absorbente que tiene un apéndice que se extiende hacia fuera desde cada área de extremo transversal.

La Figura 31 ilustra aún otra versión adicional de un artículo absorbente que tiene un apéndice que se extiende

hacia fuera desde cada área de extremo transversal.

La Figura 32 ilustra una vista en sección transversal del artículo absorbente de la figura 31 tomada a lo largo de la línea 32-32.

La Figura 33 ilustra aún otra versión adicional de un artículo absorbente que tiene un apéndice que se extiende hacia fuera desde cada área de extremo transversal.

La Figura 34 ilustra una vista en sección transversal del artículo absorbente de la figura 33 tomada a lo largo de la línea 34-34.

La Figura 35 ilustra aún otra versión de un artículo absorbente que tiene un apéndice que se extiende hacia fuera desde cada área de extremo transversal.

La Figura 36 ilustra una vista en sección transversal del artículo absorbente de la figura 35 tomada a lo largo de la línea 36-36.

DESCRIPCIÓN

Volviendo a las figuras de los dibujos, por ejemplo las figuras 1 a 36, en cada una de las cuales las partes similares son identificadas con los caracteres de referencia

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iguales, la figura 2 ilustra esquemáticamente un artículo absorbente, tal como una almohadilla labial, designada generalmente con el número 40, colocada dentro del vestíbulo de una usuaria, designado generalmente con el número 42 (véase también la figura 1). Como se usó aquí, el término "almohadilla labial" se refiere a un dispositivo que tiene por lo menos algunos componentes absorbentes, y el cual está configurado específicamente para colocarse entre los labios mayores, extendiéndose por lo menos parcialmente adentro del vestíbulo 42 de una usuaria hembra durante el uso. Para los propósitos de la descripción que sigue, el vestíbulo 42 está considerado como que es la región definida dentro de los labios (no específicamente mostrada en las figuras aquí) comenzando a alrededor de un punto que yace caudalmente desde la comisura labial anterior 44, extendiéndose hacia atrás hasta la comisura labial posterior 46 y unido hacia adentro por el piso 48 del vestíbulo. Un experto en el arte entiende completamente que hay un rango amplio de variaciones entre las mujeres con respecto al tamaño y la forma relativa de los labios mayores y de los labios menores al definir interrelacionadamente los mismos el contorno del vestíbulo 42. Para los propósitos de la presente descripción, sin embargo, tales diferencias no serán específicamente examinadas, reconociéndose que en cualquier caso la disposición del artículo absorbente 40 en el vestíbulo 42 requerirá la colocación entre los labios mayores sin importar ninguna consideración respecto de los labios menores. El perineo 50 yace caudalmente del vestíbulo 42 que lleva al ano 52 en la región de

las nalgas 54. Dentro del vestíbulo 42 mismo están localizados los miembros urogenitales principales los cuales, para los propósitos pertinentes aquí, están constituidos por el orificio vaginal 56, el orificio uretral 58, y el clítoris 60. Dada la revisión simplificada anterior de la región anatómica, y para facilitar la presente descripción, el vestíbulo 42 se considerará generalmente como que es la región entre la comisura de los labios posteriores 46 y el clítoris 60 por conveniencia. Para una descripción más comprensiva de ésta parte de la anatomía de la hembra humana, sin embargo, se invita a la atención a la obra *Anatomía del Cuerpo Humano* de Henry Gray, décima tercera edición americana (Carmine D. Clemente ed., Lea & Febiger, 1985) páginas 1571-1581.

Como puede verse con referencia a la estructura anatómica ilustrada en las figuras 1 y 2, el artículo absorbente 40 está colocado por lo menos parcialmente dentro del vestíbulo 42 para por lo menos ocluir parcialmente el mismo respecto del fluido que fluye desde el mismo. En éste aspecto, el uso predominante del artículo absorbente 40 es para la absorción del fluido menstrual emitido a través del orificio vaginal 56; aún cuando el artículo absorbente está igualmente bien adaptado para servir como un tipo de dispositivo para incontinencia para la absorción de la orina que ocurre con la incontinencia menor de la mujer.

El artículo absorbente 40, una versión del cual

está ilustrada en la figura 3, tiene un eje longitudinal principal (L) el cual corre generalmente a lo largo de la dirección x. Como se usó aquí, el término "longitudinal" se refiere a una línea, eje o dirección en el plano del artículo absorbente 40 que está generalmente alineada con (por ejemplo aproximadamente paralela a) un plano vertical que divide a una usuaria hembra que está de pie en las mitades de cuerpo izquierda y derecha cuando el artículo absorbente está en uso. La dirección longitudinal está ilustrada generalmente en la figura 3 por el eje-x. El artículo absorbente 40 también tiene un eje transversal principal (T). Los términos "transversal", "lateral" o "dirección x" como se usó aquí generalmente se refieren a una línea, eje o dirección que es generalmente perpendicular a la dirección longitudinal. La dirección lateral está generalmente ilustrada en la figura 3 por el eje-y. La dirección "z" es típicamente una línea, eje o dirección generalmente paralelo al plano vertical descrito arriba. La dirección z está generalmente ilustrada en la figura 4 por ele eje z. El término "superior" se refiere generalmente a una orientación dirigida hacia la cabeza de la usuaria, mientras que los términos "inferior" o "hacia abajo" se refieren generalmente a una orientación dirigida hacia los pies de la usuaria. Para los propósitos de la discusión dada aquí, cada capa del artículo absorbente 40, por ejemplo, una cubierta permeable al fluido 62, un separador impermeable al líquido 64 y/o un absorbente 66, tiene una superficie de cara al cuerpo o superior y una superficie inferior también descrita como la superficie opuesta

a la superficie de cara al cuerpo o superior.

Volviendo ahora a la figura 5, está ilustrado un artículo absorbente 40 que incluye una cubierta permeable al fluido 62, un separador impermeable al líquido 64 y un absorbente 66 colocado entre la cubierta y el separador. Como se ilustró en la figura 6, el absorbente 66 tiene una primera región de extremo 70, una segunda región de extremo 72 y una región central 74 colocada entre cada región de extremo. El artículo absorbente 40 debe ser de un tamaño y forma adecuados que permitan que por lo menos una parte del artículo absorbente esté colocada dentro del vestíbulo 42 de una usuaria hembra. Además, el artículo absorbente 40 deseablemente por lo menos ocluye parcialmente e intercepta el flujo del fluido menstrual, de la orina o de otros exudados del cuerpo desde el orificio vaginal 56 y/o del orificio uretral 58 de la usuaria.

El absorbente 66, y por tanto el artículo absorbente 40 generalmente exhibe una geometría que se extiende entre las áreas de extremo transversales primera 76 y segunda 78 espaciadas y separadas. La geometría global está completada mediante el anotar que el absorbente 66, y por tanto el artículo absorbente 40 también incluyen los lados longitudinales primero 80 y segundo 82 espaciados y separados que varían entre las áreas de extremo transversales 76 y 78, éstas algunas veces son colectivamente mencionadas aquí como los lados perimetrales (por ejemplo aquellos que definen la periferia).

La geometría del absorbente 66 es un factor significante que afecta el tamaño global y la efectividad del artículo absorbente 40. En general, el absorbente 66 tiene un ancho máximo (W_{max}), medido a lo largo de una línea que yace generalmente paralela al eje transversal principal (T) y que corre desde un lado longitudinal hasta el lado longitudinal opuesto 80 y 82, y un ancho mínimo (W_{min}), medido a lo largo de una línea también yaciendo generalmente paralela al eje transversal principal (T) y que corre desde un lado longitudinal del lado longitudinal opuesto 80 y 82. El ancho máximo (W_{max}) del absorbente 66 típicamente no es mayor de alrededor de 30; alternativamente, no es mayor de alrededor de 40; alternativamente no es mayor de alrededor de 50; alternativamente no es mayor de alrededor de 60; o alternativamente no es mayor de alrededor de 70 milímetros. El ancho mínimo (W_{min}) del absorbente 66 típicamente no es de menos de alrededor de 30; alternativamente, no es de menos de alrededor de 20; alternativamente no es de menos de alrededor de 10; o alternativamente no es de menos de alrededor de 5 milímetros. Por tanto, el absorbente 66 puede tener un ancho variando de entre no menos de alrededor de 5 milímetros hasta no más de alrededor de 70 milímetros; aún cuando el ancho o los anchos aproximados del absorbente pueden variar de acuerdo a, entre otros, al diseño general y a la disposición intentada del artículo absorbente 40 dentro del vestíbulo 42 de una usuaria hembra. Un experto en el arte apreciará fácilmente el que ciertas incorporaciones del absorbente 66, y por tanto ciertas

incorporaciones del artículo absorbente 40, pueden tener un ancho mínimo (W_{min}) igual a al ancho máximo (W_{max}). En tales casos, se hace una referencia general sólo al ancho máximo (W_{max}).

El absorbente 66 también tiene una longitud máxima (L_{max}), medida a lo largo de una línea que yace generalmente paralela al eje longitudinal principal (L) y que corre desde un área de extremo transversal a la otra área de extremo transversal 76 y 78. La longitud máxima (L_{max}) del absorbente 66 típicamente no es mayor de alrededor de 40; alternativamente no es mayor de alrededor de 50; alternativamente no es mayor de alrededor de 60; alternativamente no es mayor de alrededor de 70; alternativamente no es mayor de alrededor de 80; alternativamente no es mayor de alrededor de 90; o alternativamente no es mayor de alrededor de 100 milímetros. El absorbente 66 también puede tener una longitud mínima (L_{min}), medida a lo largo de una línea que también yace generalmente paralela al eje longitudinal principal (L) y que corre desde un área de extremo transversal a la otra área de extremo transversal 76 y 78. La longitud mínima (L_{min}) del absorbente 66 típicamente no es de menos de alrededor de 100; alternativamente, no es de menos de alrededor de 90; alternativamente, no es de menos de alrededor de 80; alternativamente no es de menos de alrededor de 70; alternativamente, no es de menos de alrededor de 60; alternativamente, no es de menos de alrededor de 50; o

alternativamente no es de menos de alrededor de 40 milímetros. Por tanto, el absorbente 66 puede tener una longitud que varía de desde entre no menos de alrededor de 40 milímetros hasta no más de alrededor de 100 milímetros; aún cuando la longitud o longitudes aproximadas del absorbente pueden variar de acuerdo a, entre otros, el diseño general y a la disposición intentada del artículo absorbente 40 dentro del vestíbulo 42 de la usuaria hembra. Un experto en el arte apreciará fácilmente el que ciertas versiones del absorbente 66, y por tanto ciertas versiones del artículo absorbente 40, pueden tener una longitud mínima (L_{min}) igual a su longitud máxima (L_{max}). En tales casos, como se ilustró en las figuras 6, 8, y 9, se hace generalmente la referencia sólo a la longitud máxima (L_{max}). Las versiones de un absorbente 66, y por tanto las versiones de un artículo absorbente 40, teniendo una longitud máxima (L_{max}) no es igual a su longitud mínima (L_{min}) están ilustradas por lo menos en las figuras 7 y 10.

La primera región de extremo 70 y la segunda región de extremo 72 cada una se extienden mínimamente hacia fuera desde la región central 74 hacia las áreas de extremo transversales 76 y 78, respectivamente del absorbente 66 por una distancia de no menos de alrededor de 30; alternativamente por no menos de alrededor de 20; o alternativamente, por no menos de alrededor de 10% de la longitud máxima (L_{max}) del absorbente. La primera región de extremo 70 y la segunda región de extremo 72 cada una se extienden máximamente hacia fuera desde la región

central 74 hacia las áreas de extremo transversal 76 y 78 respectivamente del absorbente 66 por una distancia de no más de alrededor de 20; alternativamente por no más de alrededor de 30; o alternativamente por no más de alrededor de 40% de la longitud máxima (L_{max}) del absorbente. Por tanto, las regiones de extremo 70 y 72 pueden ocupar de desde un mínimo de alrededor de 20% hasta un máximo de alrededor de 80% de la longitud máxima (L_{max}) del absorbente 66; aún cuando el tamaño aproximado de las regiones de extremo primera y segunda puede variar de acuerdo, entre otros al diseño general y a la disposición intentada del artículo absorbente 40 dentro del vestíbulo 42 de una usuaria hembra.

El artículo absorbente 40 es deseablemente proporcionado con una capacidad suficiente para absorber y para retener la cantidad intentada y el tipo de exudado o exudados del cuerpo. La capacidad absorbente se proporcionó por un núcleo de retención de fluido o absorbente generalmente identificado con el número 66. Para por lo menos el fluido menstrual, el absorbente 66 deseablemente tiene una capacidad mínima de no menos de alrededor de 19; alternativamente, de no menos de alrededor de 18; alternativamente, de no menos de alrededor de 17; alternativamente, de no menos de alrededor de 16; alternativamente, de no menos de alrededor de 15; alternativamente, de no menos de alrededor de 14; alternativamente, de no menos de alrededor de 13; alternativamente, de no menos de alrededor de 12;

alternativamente, de no menos de alrededor de 11; alternativamente, de no menos de alrededor de 10; alternativamente, de no menos de alrededor de 9; alternativamente, de no menos de alrededor de 8; alternativamente, de no menos de alrededor de 7; alternativamente, de no menos de alrededor de 6; alternativamente, de no menos de alrededor de 5; alternativamente, de no menos de alrededor de 4; alternativamente, de no menos de alrededor de 3; alternativamente, de no menos de alrededor de 2; o alternativamente, de no menos de alrededor de 1 g/g. El absorbente 66 también puede tener una capacidad máxima de no más de alrededor de 5; alternativamente, no mayor de alrededor de 6; alternativamente, no mayor de alrededor de 7; alternativamente, no mayor de alrededor de 8; alternativamente, no mayor de alrededor de 9; alternativamente, no mayor de alrededor de 10; alternativamente, no mayor de alrededor de 11; alternativamente, no mayor de alrededor de 12; alternativamente, no mayor de alrededor de 13; alternativamente, no mayor de alrededor de 14; alternativamente, no mayor de alrededor de 15; alternativamente, no mayor de alrededor de 16; alternativamente, no mayor de alrededor de 17; alternativamente, no mayor de alrededor de 18; alternativamente, no mayor de alrededor de 19; alternativamente, no mayor de alrededor de 20; alternativamente, no mayor de alrededor de 25; o alternativamente no mayor de alrededor de 30 g/g. Por tanto, el absorbente 66 puede tener una capacidad absorbente variando de entre no menos de alrededor de 1 g/g

hasta no más de alrededor de 30 g/g; aún cuando la capacidad aproximada del absorbente puede variar entre otros de acuerdo al diseño general y a la disposición intentada del artículo absorbente 40 dentro del vestíbulo 42 de una usuaria hembra. Un experto en el arte reconocerá que la adición del polímero a polímeros superabsorbentes o del polímero o polímeros superabsorbentes recubiertos al absorbente 66 típicamente tendrá el efecto de aumentar esencialmente la capacidad absorbente.

Con la descripción de los elementos individuales en mayor detalle, el absorbente 66 tiene una superficie superior de cara al cuerpo y una superficie inferior (o una superficie opuesta a la superficie superior o de cara al cuerpo) y puede incluir cualquier material capaz de absorber y/o de adsorber y después retener el exudado o los exudados del cuerpo intentados. Los materiales adecuados también son generalmente hidrofílicos, comprimibles y conformables. El absorbente 66 puede estar formado de cualquiera de los materiales muy conocidos por aquellos con una habilidad ordinaria en el arte. Los ejemplos de tales materiales incluyen, pero no se limitan a varias fibras naturales o sintéticas, estratos múltiples de huata de celulosa crepada, fibras de celulosa esponjada, rayón u otros materiales de celulosa regenerada, fibras de pulpa de madera o fibras de pulpa de madera triturada, material colocado por aire, fibras textiles, una mezcla de fibras de poliéster y de polipropileno, espumas absorbentes, esponjas absorbentes, polímeros superabsorbentes, polímeros superabsorbentes recubiertos,

manojos o motas fibrosas, o cualquier material equivalente o combinación de materiales. También sería adecuado para usarse el material hidrofóbico que se ha hecho hidrofílico de acuerdo a cualquiera de un número de métodos conocidos para hacer esto. La capacidad absorbente total del absorbente 66 debe sin embargo ser compatible con la carga de exudado del diseño y el uso intentado del artículo absorbente 40. Además, el tamaño y la capacidad absorbente del absorbente 66 puede ser variado. Por tanto, la dimensión, la forma y la configuración del absorbente 66 pueden ser variadas (por ejemplo el absorbente puede tener un grosor variable como se ilustró por lo menos en las figuras 11 y 12 o un gradiente hidrofílico o puede contener un polímero o polímeros superabsorbentes y similares).

El absorbente 66 generalmente tiene un grosor, calibre o altura (H), como se ilustró por lo menos en la figura 4, medidos a lo largo de una línea que yace generalmente paralela al eje-z. El grosor mínimo del absorbente 66 típicamente no es de menos de alrededor de 9; alternativamente, no es de menos de alrededor de 8; alternativamente, no es de menos de alrededor de 7; alternativamente, no es de menos de alrededor de 6; alternativamente, no es de menos de alrededor de 5; alternativamente, no es de menos de alrededor de 4; alternativamente, no es de menos de alrededor de 3; alternativamente, no es de menos de alrededor de 2; alternativamente, no es de menos de alrededor de 1; o alternativamente, no es de menos de alrededor de 0,5 milímetros.

El grosor máximo del absorbente 66 típicamente no es mayor de alrededor de 2; alternativamente, no es mayor de alrededor de 3; alternativamente, no es mayor de alrededor de 4; alternativamente, no es mayor de alrededor de 5; alternativamente, no es mayor de alrededor de 6; alternativamente, no es mayor de alrededor de 7; alternativamente, no es mayor de alrededor de 8; alternativamente, no es mayor de alrededor de 9; o alternativamente, no es mayor de alrededor de 10. Por tanto el absorbente 66 puede tener un grosor de alrededor de 10 milímetros o menos; aún cuando el grosor aproximado del absorbente puede variar de acuerdo, entre otros al diseño general y a la disposición intentada del artículo absorbente 40 dentro del vestíbulo 42 de una usuaria hembra.

El absorbente 66 deseablemente también tiene una densidad relativamente baja la cual se considera deseable a la comodidad. Generalmente, el absorbente tiene una densidad de menos de alrededor de 0,5 gramos por centímetro cúbico. Dicho en forma diferente, el absorbente 66 típicamente tiene una densidad máxima de no más de alrededor de 0,5; alternativamente, no mayor de alrededor de 0,4; alternativamente, no mayor de alrededor de 0,3; alternativamente, no mayor de alrededor de 0,2; alternativamente, no mayor de alrededor de 0,1; alternativamente, no mayor de alrededor de 0,09; alternativamente, no mayor de alrededor de 0,08; alternativamente, no mayor de alrededor de 0,07;

alternativamente, no mayor de alrededor de 0,06; alternativamente, no mayor de alrededor de 0,05; alternativamente, no mayor de alrededor de 0,04; alternativamente, no mayor de alrededor de 0,03; o alternativamente, no mayor de alrededor de 0,02 g/centímetro cúbico. El absorbente 66 generalmente también tiene una densidad mínima de típicamente de no menos de alrededor de 0,01; alternativamente, de no menos de alrededor de 0,02; alternativamente, de no menos de alrededor de 0,03; alternativamente, de no menos de alrededor de 0,04; alternativamente, de no menos de alrededor de 0,05; alternativamente, de no menos de alrededor de 0,06; alternativamente, de no menos de alrededor de 0,07; alternativamente, de no menos de alrededor de 0,08; alternativamente, de no menos de alrededor de 0,09; alternativamente, de no menos de alrededor de 0,1; alternativamente, de no menos de alrededor de 0,2; alternativamente, de no menos de alrededor de 0,3; o alternativamente, de no menos de alrededor de 0,4 g/cc. Por tanto la densidad del absorbente 66 puede variar de desde alrededor de 0,5 gramos por centímetro cúbico; aún cuando la densidad aproximada del absorbente puede variar de acuerdo a, entre otros, el diseño general y la disposición intentada del artículo absorbente 40 dentro del vestíbulo 42 de la usuaria hembra.

El absorbente 66 también deseablemente tiene un

peso base de menos de alrededor de 600 gramos por metro cuadrado (gsm). Dicho en forma diferente el absorbente 66 típicamente tiene un peso base máximo no mayor de alrededor de 600; alternativamente, no mayor de alrededor de 500; alternativamente, no mayor de alrededor de 400; alternativamente, no mayor de alrededor de 300; alternativamente, no mayor de alrededor de 200; o alternativamente, no mayor de alrededor de 100 gramos por metro cuadrado. Generalmente, el absorbente 66 también tiene un peso base mínimo de típicamente no menos de alrededor de 0,1; alternativamente, de no menos de alrededor de 50; alternativamente, de no menos de alrededor de 100; alternativamente, de no menos de alrededor de 150; alternativamente, de no menos de alrededor de 200; alternativamente, de no menos de alrededor de 250; alternativamente, de no menos de alrededor de 300; alternativamente, de no menos de alrededor de 350; alternativamente, de no menos de alrededor de 400; alternativamente, de no menos de alrededor de 450; alternativamente, de no menos de alrededor de 500; o alternativamente, de no menos de alrededor de 550 gramos por metro cuadrado. Por tanto, el absorbente 66 puede tener un peso base de alrededor de 600 gramos por metro cuadrado o menos; aún cuando el peso base aproximado del absorbente puede variar de acuerdo, entre otros, al diseño general y la disposición intentada del artículo absorbente 40 dentro del vestíbulo 42 de una usuaria hembra. Un ejemplo específico de un absorbente

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adecuado puede ser similar a un material de coform hecho de una mezcla de polipropileno y de fibras de celulosa y que se ha usado en los forros para bragas KOTEX® maxi y que pueden obtenerse de Kimberly-Clark Corporation, de Neenah, Wisconsin, Estados Unidos de América.

El separador opcional 64 típicamente yace en la superficie inferior del absorbente 66 y puede ser construido de cualquier material deseado que sea impermeable al líquido. Deseablemente, el separador 64 permitirá el paso del aire del vapor de humedad hacia fuera del absorbente 66, mientras que bloqueará el paso de un fluido o fluidos del cuerpo. Un ejemplo de un material de separador adecuado es una película polimérica micrograbada, tal como de polietileno, polipropileno o poliéster, que tiene un grosor mínimo de no menos de alrededor de 0,025 milímetros y un grosor máximo de no más de alrededor de 0,13 milímetros. Las películas de bicomponente también pueden ser usadas, así como las telas tejidas y no tejidas las cuales se han tratado para hacerlas impermeables al líquido. Un ejemplo de otro material adecuado es una espuma de poliolefina de celda cerrada. También puede trabajar bien una espuma de polietileno de celda cerrada.

El separador 64 puede ser mantenido en una relación asegurada con el absorbente 66 mediante el unir todas o una parte de las superficies adyacentes unas a otras. Una variedad de métodos de unión conocidos por un experto en el arte

puede utilizarse para lograr cualquier relación asegurada. Los ejemplos de tales métodos incluyen, pero no se limitan a la unión térmica, ultrasónicos o la aplicación de adhesivos en una variedad de patrones entre las dos superficies adyacentes. Un ejemplo específico de un material de separador puede ser similar a una película de polietileno usada en los forros para bragas KOTEX® y que puede obtenerse de Pliant Corporation, de Schaumburg, Illinois, Estados Unidos de América.

La cubierta permeable al fluido opcional 62 tiene una superficie superior y una superficie inferior, con la superficie superior típicamente haciendo contacto con el cuerpo de la usuaria y recibiendo el exudado o exudados del cuerpo. La cubierta 62 deseablemente está hecha de un material que es flexible y no irritante a los tejidos dentro del vestíbulo 42 de la usuaria hembra. Como se usó aquí, el término "flexible" se intenta que se refiera a materiales los cuales son dóciles y se conforman fácilmente a la superficie o superficies del cuerpo o responden mediante el deformarse fácilmente en la presencia de fuerzas externas.

La cubierta 62 se proporciona para comodidad y conformación y funciona para dirigir el exudado o los exudados del cuerpo hacia fuera del cuerpo y hacia el absorbente 66. La cubierta 62 debe retener poco o ningún líquido en su estructura de manera que ésta proporciona una superficie relativamente cómoda y no irritante próxima a los tejidos dentro del vestíbulo

42 de una usuaria hembra. La cubierta 62 puede estar construida de cualquier material tejido o no tejido el cual también es fácilmente penetrado por los fluidos del cuerpo que hacen contacto con su superficie. Los ejemplos de los materiales adecuados incluyen rayón, tejidos cardados y unidos de poliéster, polipropileno, polietileno, nylon, u otras fibras unibles con calor, poliolefinas, tal como copolímeros de polipropileno y de polietileno, polietileno de baja densidad lineal, ésteres alifáticos tal como ácido poliláctico, tejidos de película perforada finamente y el material de red que también trabajan bien. Un ejemplo específico de un material de cubierta adecuado puede ser similar a un tejido cardado y unido hecho de polipropileno y de polietileno usado como un suministro de cubierta para los forros para bragas KOTEX® y que pueden obtenerse de Sandler Corporation, de Alemania. Otros ejemplos de los materiales adecuados son los materiales compuestos de un polímero y de un material de tela no tejida. Los materiales compuestos están típicamente en la forma de hojas integradas formadas generalmente por la extrusión de un polímero en un tejido de un material unido con hilado. La cubierta permeable al fluido 62 también puede contener una pluralidad de perforaciones (no mostradas) formadas ahí las cuales se intenta que aumenten la tasa a la cual el fluido o los fluidos del cuerpo puedan penetrar adentro el absorbente 66.

Un material de cubierta fisiológicamente hidratado también puede ser adecuado para usarse. Como se empleó aquí, el

término "fisiológicamente hidratado" se intenta que connote un material de cubierta el cual mantiene una superficie adecuadamente húmeda entre los tejidos del vestíbulo 42 y el artículo absorbente 40 cuando se coloca en ese ambiente de vestíbulo; uno que es benigno en relación a los requerimientos de comodidad asociados con la interposición de estructuras de tela o de tipo de tela dentro del ambiente de tejido húmedo del vestíbulo, manteniendo en mente también el factor autoevidente de que el artículo absorbente está recibiendo el fluido o los fluidos del cuerpo que emigran a través del vestíbulo y debe llevar los mismos al absorbente 66. Por tanto, aún cuando no "hidratado" en el sentido clásico antes del uso (ya que la cubierta estará seca en ese momento) dicha cubierta 62 mantiene (o por lo menos no interfiere con el mantenimiento de) un nivel de humedad adecuado o el balance requerido dentro del vestíbulo 42.

La cubierta 62 también puede tener por lo menos una parte de la superficie tratada con un surfactante para hacer a la cubierta más hidrofílica. Esto resulta en permitir al fluido o fluidos del cuerpo que se descargan el penetrar más fácilmente en la cubierta 62. El surfactante también puede disminuir la posibilidad de que el fluido o fluidos del cuerpo que se descargan, tal como el fluido menstrual, fluyan fuera de la cubierta 62 más bien que el que sean absorbidos por el absorbente 66. Un acercamiento adecuado proporciona que el surfactante sea distribuido en forma esencialmente pareja a

través de por lo menos una parte de la superficie superior de la cubierta 62 que yace sobre la superficie superior del absorbente 66.

La cubierta 62 puede ser mantenida en una relación asegurada con el absorbente 66 mediante el unir toda o una parte de las superficies adyacentes unas a otras. Puede ser utilizada una variedad de métodos de unión conocidos por los expertos en el arte para lograr cualquiera de tal relación asegurada. Los ejemplos de tales métodos incluyen, pero no se limitan a la aplicación de adhesivos en una variedad de patrones entre dos superficies adyacentes, el enredado de por lo menos partes de la superficie adyacente del absorbente con partes de la superficie adyacente de la cubierta, o fundiendo por lo menos partes de la superficie adyacente de la cubierta a partes de la superficie adyacente del absorbente.

La cubierta 62 típicamente descansa sobre la superficie superior del absorbente 66, pero alternativamente puede rodear y parcialmente o completamente encerrar el absorbente. Alternativamente, la cubierta 62 y el separador 64 pueden tener periferias las cuales se extienden hacia fuera más allá de la periferia del absorbente 66 y pueden ser unidas periféricamente juntas para formar una orilla 84 como se ilustró por lo menos en la figura 5. Utilizando las técnicas conocidas, tal como, por ejemplo el pegado, el fruncido, el sellamiento con calor o similares, la orilla 84 puede ser formada ya sea

completamente, de manera que la periferia completa del absorbente 66 esté circunscrita por el unidor, o la cubierta 62 y el separador 64 pueden ser unidos periféricamente en forma parcial. Para hacer mínima la posibilidad de la irritación y/o de la incomodidad de la usuaria del artículo absorbente 40, se desea el que la orilla 84 y por lo menos el área del artículo absorbente inmediatamente adyacente a la orilla sea suave, comprimible y conformable. Deseablemente, cualquier orilla 84 así formada tendrá un ancho no mayor de alrededor de 10; alternativamente, no mayor de alrededor de 9; alternativamente, no mayor de alrededor de 8; alternativamente, no mayor de alrededor de 7; alternativamente, no mayor de alrededor de 6; alternativamente, no mayor de alrededor de 5; alternativamente, no mayor de alrededor de 4; alternativamente, no mayor de alrededor de 3; alternativamente, no mayor de alrededor de 2; o alternativamente, no mayor de alrededor de 1 milímetro. Además, cualquier orilla 84 así formada deseablemente tendrá un ancho de no menos de alrededor de 0,5; alternativamente, de no menos de alrededor de 1; alternativamente, de no menos de alrededor de 2; alternativamente, de no menos de alrededor de 3; alternativamente, de no menos de alrededor de 4; alternativamente, de no menos de alrededor de 5; alternativamente, de no menos de alrededor de 6; alternativamente, de no menos de alrededor de 7; alternativamente, de no menos de alrededor de 8; o alternativamente, de no menos de alrededor de 9 milímetros. Por tanto cualesquier orilla 84 así formada puede tener un ancho que

varía de desde no menos de alrededor de 0,5 milímetros hasta no más de alrededor de 10 milímetros; aún cuando el ancho aproximado de cualquier orilla puede variar de acuerdo a, entre otros, el diseño general y la disposición intentada del artículo absorbente 40 dentro del vestíbulo 42 de una usuaria hembra. En otras versiones, la cubierta 62 y/o el separador 64 pueden tener una periferia que es cotérmina con la periferia del absorbente 66.

Colocado ya sea sobre o esencialmente paralelo al eje longitudinal principal (L) del absorbente 66 está, opcionalmente, un eje de flexión (F) deseado. Un eje de flexión F deseado generalmente corre en la dirección longitudinal, por ejemplo, a lo largo de la dirección x, y puede estar centrado fuera del eje longitudinal principal L por una distancia de no más de alrededor de 10; alternativamente, no mayor de alrededor de 9; alternativamente, no mayor de alrededor de 8; alternativamente, no mayor de alrededor de 7; alternativamente, no mayor de alrededor de 6; alternativamente, no mayor de alrededor de 5; alternativamente, no mayor de alrededor de 4; alternativamente, no mayor de alrededor de 3; alternativamente, no mayor de alrededor de 2; o alternativamente, no mayor de alrededor de 1 milímetro. Deseablemente, un eje de flexión F deseado está alineado a lo largo del eje longitudinal principal L. Un eje deseado de flexión F típicamente se extiende en forma mínima longitudinalmente por no menos de alrededor de 90; alternativamente, por no menos de alrededor de 80;

alternativamente, por no menos de alrededor de 70; alternativamente, por no menos de alrededor de 60; alternativamente, por no menos de alrededor de 50; o alternativamente, por no menos de alrededor de 40% de la longitud máxima (L_{max}) del absorbente 66. Un eje de flexión F deseado típicamente se extiende longitudinalmente a no más de alrededor de 50; alternativamente, no más de alrededor de 60; alternativamente, no más de alrededor de 70; alternativamente, no más de alrededor de 80; alternativamente, no más de alrededor de 90; o alternativamente, no más de alrededor de 100% de la longitud máxima (L_{max}) del absorbente 66. Un eje deseado de flexión F puede resultar naturalmente de las dimensiones, forma y/o configuración del absorbente 66, o el absorbente puede ser impartido con una región o eje debilitado para crear un eje de flexión deseado. Un eje de flexión F deseado también puede ser formado por cualquiera de las técnicas conocidas por un experto en el arte, incluyendo, por ejemplo, el marcado, el doblado previo, el corte de hendiduras, el grabado o similares. Aún cuando un eje de flexión (F) deseado está descrito aquí como que reside en el absorbente 66, un experto en el arte fácilmente apreciará que un eje deseado de flexión puede ser formado en ya sea la cubierta 62, el separador 64 y/o el absorbente; la cubierta y el separador; la cubierta y el absorbente; o el separador y el absorbente. Cuando está presente, un eje deseado de flexión F típicamente permite a un artículo absorbente 40 el ser doblado más fácilmente antes de la disposición dentro del vestíbulo 42 de una usuaria hembra.

El artículo absorbente 40 también tiene un grosor, calibre o altura H, como se ilustró por lo menos en las figuras 4 y 5, medido a lo largo de una línea que yace generalmente paralela al eje z. El grosor mínimo del artículo absorbente 40 típicamente no es de menos de alrededor de 9; alternativamente, no es de menos de alrededor de 8; alternativamente, no es de menos de alrededor de 7; alternativamente, no es de menos de alrededor de 6; alternativamente, no es de menos de alrededor de 5; alternativamente, no es de menos de alrededor de 4; alternativamente, no es de menos de alrededor de 3; alternativamente, no es de menos de alrededor de 2; alternativamente, no es de menos de alrededor de 1; o alternativamente, no es de menos de alrededor de 0,5 milímetros. El grosor máximo del artículo absorbente 40 típicamente no es mayor de alrededor de 1; alternativamente, no es mayor de alrededor de 2; alternativamente, no es mayor de alrededor de 3; alternativamente, no es mayor de alrededor de 4; alternativamente, no es mayor de alrededor de 5; alternativamente, no es mayor de alrededor de 6; alternativamente, no es mayor de alrededor de 7; alternativamente, no es mayor de alrededor de 8; alternativamente, no es mayor de alrededor de 9; o alternativamente, no es mayor de alrededor de 10 milímetros. Por tanto, el artículo absorbente 40 puede tener un grosor de alrededor de 10 milímetros o menos; aún cuando el grosor aproximado del artículo absorbente puede variar de acuerdo a, entre otros el diseño general y la disposición intentada del

artículo absorbente dentro del vestíbulo 42 de una usuaria hembra.

LADO(S) LONGITUDINAL(ES)

El artículo absorbente 40 típicamente está doblado a lo largo de un eje que yace sobre o está colocado paralelo al eje longitudinal principal L, como se ilustró por lo menos en las figuras 12, 13 y 14, antes de la colocación dentro del vestíbulo 42 de la usuaria hembra. Cuando se dobló a lo largo de tal eje, el artículo absorbente 40 formará un rebaje 92 el cual protege a los dedos de la usuaria para evitar que se ensucien cuando el artículo absorbente es colocado dentro del vestíbulo. Una vez insertado, el artículo absorbente 40 puede tener una tendencia a desdoblarse en un intento de llenar el vestíbulo y por tanto mantener a la superficie superior del artículo absorbente en contacto con los tejidos del vestíbulo 42. El artículo absorbente 40 puede ser presionado elásticamente a lo largo del eje alrededor del cual éste es doblado para aumentar la tendencia del artículo absorbente a desdoblarse. Alternativamente, el absorbente 66 del artículo absorbente 40 puede ser más grueso a lo largo de sus orillas longitudinales, como se ilustró por lo menos en las figuras 11 y 12, también demostrando un efecto presionador, si se desea, el cual es típicamente intentado para permitir a la superficie superior del artículo absorbente 40 el hacer contacto con los tejidos del vestíbulo 42. Un artículo absorbente 40 como se describió aquí,

sin embargo, no requiere necesariamente ningunas características adicionales para mantener el contacto con los tejidos del vestíbulo 42 de la usuaria hembra. Las superficies naturalmente húmedas de los tejidos del vestíbulo 42 típicamente demostrarán una tendencia para mantener el contacto con la superficie superior del artículo absorbente 40.

Como se notó arriba, la usuaria puede doblar el artículo absorbente 40 a lo largo de un eje que yace sobre o está colocado paralelo al eje longitudinal principal L antes de la colocación dentro del vestíbulo 42. La usuaria puede, por tanto, mantener el artículo absorbente doblado 40 cerca de los lados longitudinales como se ilustró por lo menos en la figura 14. El artículo absorbente 40 puede entonces ser colocado dentro del vestíbulo 42 por la usuaria ejerciendo una fuerza con un dedo o dedos colocados en el rebaje 92 formado por el artículo absorbente doblado.

Para usarse con los artículos absorbentes descritos aquí sería adecuado por lo menos un apéndice de colocación y de remoción 94 que se extiende hacia fuera desde por lo menos un lado longitudinal de un artículo absorbente 40. Mientras que se considera que tal apéndice 94 trabaja efectivamente en la colocación y remoción del artículo absorbente 40 tal como la almohadilla labial, se cree que por lo menos dos apéndices 94 y 94', por ejemplo un apéndice que se extiende desde cada lado longitudinal 80 y 82 del artículo

absorbente, también son efectivos en la colocación y remoción de un artículo absorbente. Consecuentemente, en la discusión que sigue, a menos que se indique de otra manera, el artículo absorbente 40 contendrá por lo menos dos apéndices 94 y 94'. Aún cuando no es necesario que los apéndices 94 y 94' sean idénticos o más apropiadamente imágenes de espejo uno del otro, éstos lo son deseablemente. Por tanto la descripción de la primera será una descripción de cualquier otro apéndice. La discusión de cualquier otro apéndice se omitirá por tanto por claridad de exposición. Los elementos que corresponden están indicados en los dibujos con los números de referencia y los números de referencia con prima. Además, aún cuando se han ilustrado con las varias versiones del artículo absorbente 40 discutidas aquí, se entenderá que los apéndices 94 y 94' indicados aquí pueden ser incorporados en un número de otras almohadillas labiales conformadas y dimensionadas adecuadamente. Tales formas y dimensiones adecuadas incluyen, pero no se limitan a la rectangular, a la de tipo de ovoide, a la elíptica, a la trapezoidal, a la forma circular, triangular, de forma cuadrada, de tipo de lágrima, de forma de diamante, de mariposa, de forma de pera, de forma de corazón o una variedad de combinaciones de las mismas.

Extendiéndose hacia fuera desde el lado longitudinal 80 y 82 de un artículo absorbente 40, el apéndice 94 puede ser de cualquier configuración adecuada. Los ejemplos no limitantes de las formas para el apéndice 94 incluyen la

ovoide, elíptica, trapezoidal, rectangular, triangular, de forma de diamante, circular, semicircular, o una combinación cualquiera de los anteriores. El apéndice 94 puede ser formado integralmente con el artículo absorbente 40 o éste puede ser un elemento separado unido al artículo absorbente. Un experto en el arte apreciará fácilmente que cuando el apéndice 94 es un elemento separado unido al artículo absorbente 40, el apéndice puede ser unido por un número de métodos conocidos e incluyendo la fusión con derretido, la adhesión u otros medios de unión. La frase "formado integralmente" se intenta que indique que el apéndice 94 no está unido al artículo absorbente 40, sino que es más bien es una extensión de: la cubierta 62, del separador 64, y/o del absorbente 66; de la cubierta y del separador; de la cubierta y del absorbente; o del separador y del absorbente.

El apéndice 94 tiene una longitud (), medida a lo largo de una línea que yace generalmente paralela al eje longitudinal principal L de un artículo absorbente 40, y un ancho (w), medido a lo largo de la línea que yace generalmente paralela al eje transversal principal T de un artículo absorbente. El apéndice 94 tiene dimensiones suficientes para ayudar a la usuaria hembra en la colocación del artículo absorbente 40 dentro del vestíbulo 42 y opcionalmente, remover el artículo absorbente del vestíbulo. La frase "dimensiones suficientes" se intenta que indique que el apéndice 94 puede ser agarrado entre el dedo índice y el pulgar o, si hay por ejemplo, dos apéndices, entre el dedo índice y el pulgar y el dedo medio

y el dedo índice. Típicamente, la longitud () del apéndice 94 no es mayor que la longitud máxima (L_{max}) del absorbente 66. Más específicamente, la longitud () del apéndice 94 típicamente no es mayor de alrededor de 100, alternativamente, no es mayor de alrededor de 90; alternativamente, no es mayor de alrededor de 80; alternativamente, no es mayor de alrededor de 70; alternativamente, no es mayor de alrededor de 60; alternativamente, no es mayor de alrededor de 50; alternativamente, no es mayor de alrededor de 40; alternativamente, no es mayor de alrededor de 30; alternativamente, no es mayor de alrededor de 20; alternativamente, no es mayor de alrededor de 10; o alternativamente, no es mayor de alrededor de 5 milímetros. Dicho en forma diferente, la longitud () del apéndice 94 es típicamente no mayor de alrededor de 100; alternativamente, no es mayor de alrededor de 90; alternativamente, no es mayor de alrededor de 80; alternativamente, no es mayor de alrededor de 70; alternativamente, no es mayor de alrededor de 60; alternativamente, no es mayor de alrededor de 50; alternativamente, no es mayor de alrededor de 40; alternativamente, no es mayor de alrededor de 30; alternativamente, no es mayor de alrededor de 20; o alternativamente, no es mayor de alrededor de 10% de la longitud máxima (L_{max}) del absorbente 66. La longitud () del apéndice 94 típicamente no es de menos de alrededor de 1; alternativamente, no es de menos de alrededor de 5; alternativamente, no es de menos de alrededor de 10; alternativamente, no es de menos de

alrededor de 20; alternativamente, no es de menos de alrededor de 30; alternativamente, no es de menos de alrededor de 40; alternativamente, no es de menos de alrededor de 50; alternativamente, no es de menos de alrededor de 60; alternativamente, no es de menos de alrededor de 70; alternativamente, no es de menos de alrededor de 80; o alternativamente, no es de menos de alrededor de 90 milímetros. Un experto en el arte apreciará fácilmente que la longitud () del apéndice 94 puede variar de acuerdo a, entre otros, el diseño general y la disposición intentada del artículo absorbente dentro del vestíbulo 42 de una usuaria hembra.

Además de tener una longitud (), el apéndice 94 también tiene un ancho (w). El ancho (w) del apéndice 94 típicamente no es mayor de alrededor de 50; alternativamente, no es mayor de alrededor de 40; alternativamente, no es mayor de alrededor de 30; alternativamente, no es mayor de alrededor de 20; alternativamente, no es mayor de alrededor de 10; alternativamente, no es mayor de alrededor de 7,5; alternativamente, no es mayor de alrededor de 5; alternativamente, no es mayor de alrededor de 2,5; o alternativamente, no es mayor de alrededor de 1. El ancho (w) del apéndice 94 típicamente no es de menos de alrededor de 1; alternativamente no es de menos de alrededor de 2,5; alternativamente no es de menos de alrededor de 5; alternativamente no es de menos de alrededor de 7,5; alternativamente no es de menos de alrededor de 10;

alternativamente no es de menos de alrededor de 20; alternativamente no es de menos de alrededor de 30; o alternativamente no es de menos de alrededor de 40 milímetros. Un experto en el arte apreciará fácilmente que el ancho (w) del apéndice 94 puede variar de acuerdo a entre otros el diseño general y la disposición intentada del artículo absorbente dentro del vestíbulo 42 de la usuaria hembra.

Las dimensiones del apéndice 94 están limitadas sólo por las propiedades de esfuerzo-tensión de los materiales de apéndice. Deseablemente, cualquier material usado en los apéndices 94 y 94' es suave, es comprimible y puede conformarse y por tanto es similar al material usado en la cubierta permeable al fluido 62, en el separador impermeable al líquido 64 y/o el absorbente 66. Cualquiera de tales materiales deseablemente minimiza la posibilidad de la irritación y/o de la incomodidad de la usuaria del artículo absorbente 40.

El apéndice 94 de la presente invención puede ser colocado en una variedad de ubicaciones a lo largo del lado longitudinal 80 y 82 de un artículo absorbente 40. Con respecto a los artículos absorbentes 40 descritos aquí, el apéndice 94 puede estar localizado en ya sea la primera región de extremo 70, la segunda región de extremo 72 o la región central 74. Un segundo apéndice 94' puede al mismo tiempo estar localizado a lo largo del lado longitudinal opuesto 80 y 82 en cualquiera la primera región de extremo 70, la segunda región de extremo 72 o

la región central 74. Generalmente, cuando un apéndice 94 se extiende hacia fuera desde un lado longitudinal 80 y 82 de una región particular 70, 72 y 74, cualquier segundo apéndice 94' típicamente se extiende hacia fuera desde la región correspondiente 70, 72 y 74 del lado longitudinal opuesto 80 y 82. Deberá notarse que dependiendo de la longitud () del apéndice 94, el apéndice puede cubrir más de una de las regiones 70, 72 y 74 descritas aquí. Los apéndices 94 y 94' como se describen aquí ofrecen a una usuaria hembra la oportunidad de agarrar los apéndices para ayudar en la colocación de la almohadilla labial en el vestíbulo. Además, los apéndices 94 y 94' también ofrecen a una usuaria hembra la oportunidad de agarrar los apéndices para ayudar en la remoción de un apéndice labial y por tanto minimizar la posibilidad de que los dedos de la usuaria hembra se pingan en contacto con la superficie de cara al cuerpo de la almohadilla labial posiblemente ensuciada.

Refiriéndonos a las figuras 15 a 20, varias versiones de un artículo absorbente 40 se ilustran teniendo por lo menos un apéndice 94 y 94' colocado a lo largo de cada lado longitudinal 80 y 82.

La figura 21 ilustra un artículo absorbente 40 que tiene un apéndice 94 y 94' colocado a lo largo de cada lado longitudinal. Cada apéndice 94 y 94' tiene una cubierta formada integralmente 62 y un separador 64. Aún cuando la cubierta 62 y el separador 64 en la figura 21 están formados integralmente,

cada apéndice 94 y 94' tienen un absorbente de apéndice 96 y 96' que no está formado integralmente con el absorbente 66. Generalmente, el material del absorbente de apéndice 96 y 96' es similar al material del absorbente 66. La presencia del material absorbente en un apéndice típicamente aumenta la capacidad absorbente del artículo absorbente. La figura 22 es una vista en sección transversal del artículo absorbente 40 de la figura 21 tomada a lo largo de la línea 22-22.

La figura 23 ilustra un artículo absorbente 40 que tiene un apéndice 94 y 94' colocado a lo largo de cada lado longitudinal. Cada apéndice 94 y 94' tiene una cubierta formada integralmente 62, un separador 64 y un absorbente 66; sin embargo, para los propósitos de la descripción, el absorbente se extiende hacia fuera desde el lado longitudinal y es mencionado como el absorbente de apéndice 96 y 96'. La figura 24 es una vista en sección transversal del artículo absorbente 40 de la figura 23 tomada a lo largo de la línea 24-24.

La figura 25 ilustra un artículo absorbente 40 que tiene un apéndice 94 y 94' colocado a lo largo de cada lado longitudinal. Cada apéndice 94 y 94' tiene una cubierta formada integralmente 63 y un separador 64. La figura 26 es una vista en sección transversal del artículo absorbente 40 de la figura 25 tomada a lo largo de la línea 26-26.

ÁREA(S) TRANSVERSAL(ES)

Aún cuando se describió previamente aquí como estando típicamente doblado a lo largo de un eje que yace sobre o colocado paralelo al eje longitudinal principal, un artículo absorbente 40 puede también ser doblado a lo largo de un eje que yace sobre o está colocado paralelo al eje transversal principal T antes de la colocación dentro del vestíbulo 42 de la usuaria hembra. Cuando se dobló a lo largo de tal eje, el artículo absorbente 40 típicamente aún forma un rebaje 92 el cual protege a los dedos de la usuaria para evitar que se ensucien cuando el artículo absorbente es colocado dentro del vestíbulo 42 (véanse las figuras 27 y 28). Una vez insertado, el artículo absorbente 40 puede tener una tendencia a desdoblarse en un intento de rellenar el vestíbulo y por tanto mantener a la superficie superior del artículo absorbente en contacto con los tejidos del vestíbulo 42. El artículo absorbente 40 puede ser presionado elásticamente a lo largo del eje alrededor del cual éste es doblado para aumentar la tendencia del artículo absorbente a desdoblarse. Alternativamente, el absorbente 66 del artículo absorbente 40 puede ser ya sea más grueso a lo largo de sus áreas de extremo transversales 76 y 78 demostrando por tanto un efecto presionador, si se desea, el cual es típicamente intentado para permitir a la superficie superior del artículo absorbente 40 el hacer contacto con los tejidos del vestíbulo 42. Un artículo absorbente 40 está descrito aquí. Sin embargo, no requiere necesariamente ningunas características adicionales para mantener el contacto con los tejidos del vestíbulo 42 de la

usuaria hembra. Las superficies naturalmente húmedas de los tejidos del vestíbulo 42 típicamente demuestran una tendencia a mantener el contacto con la superficie superior del artículo absorbente 40.

Será adecuado para usarse con ciertas versiones de los artículos absorbentes descritos aquí por lo menos un apéndice de colocación y de remoción 94 que se extiende hacia fuera de la periferia de por lo menos un área de extremo transversal 76 y 78 de un artículo absorbente 40. Aún cuando tal apéndice 94 se piensa que trabaja efectivamente en la colocación y remoción de un artículo absorbente 40 tal como una almohadilla labial, se cree que por lo menos dos apéndices 94 y 94' por ejemplo un apéndice que se extiende desde la periferia de cada área de extremo transversal 76 y 78 del artículo absorbente, también son efectivos en la colocación y remoción del artículo absorbente. Consecuentemente, la discusión que sigue, a menos que se note de otra manera, el artículo absorbente 40 tendrá por lo menos dos apéndices 94 y 94'. Aún cuando no es necesario el que los apéndices 94 y 94' sean idénticos o más apropiadamente imágenes de espejo uno de otro, éstos deseablemente lo son. Por tanto la descripción del primero será una descripción de cualquier otro apéndice. La discusión de cualquier otro apéndice por tanto se omitirá por claridad de exposición. Los elementos correspondientes están indicados en los dibujos con los números de referencia y los números de referencia con prima. Además, cuando se ilustró con

ciertas versiones del artículo absorbente 40 descrito aquí se entenderá que los apéndices 94 y 94' incluidos aquí pueden ser incorporados en un número de otras almohadillas labiales conformadas y dimensionadas adecuadamente. Tales formas adecuadas y dimensiones incluyen, pero no se limitan a la rectangular, a la de tipo de óvalo, elíptica, trapezoidal, de tipo circular, triangular, de forma cuadrada, de tipo de gota, de forma de diamante, de mariposa, de forma de pera, de forma de corazón o una variedad de combinaciones de los mismos.

Extendiéndose hacia fuera desde la periferia de un área de extremo transversal 76 y 78 de un artículo absorbente 40, el apéndice 94 puede ser de cualquier configuración adecuada. Los ejemplos no limitantes de las formas para el apéndice 94 incluyen la ovoide, la elíptica, la trapezoidal, la rectangular, la triangular, la forma de diamante, la circular, la semicircular, o cualquier combinación de lo anterior. El apéndice 94 puede ser formado integralmente con el artículo absorbente 40 o éste puede ser un elemento separado unido al artículo absorbente. Un experto en el arte apreciará fácilmente que cuando el apéndice 94 es un elemento separado unido al artículo absorbente 40, el apéndice 94 puede ser unido por un número de métodos conocidos incluyendo la fusión con derretido, la adhesión o los medios de unión. La frase "formado integralmente" se intenta que indique que el apéndice 94 no está unido al artículo absorbente 40, pero que es más bien una extensión de: la cubierta 62, el separador 64, y/o el

absorbente 66; la cubierta y el separador, de la cubierta y el absorbente; o del separador y del absorbente.

El apéndice 94 tiene una longitud (), mediada a lo largo de una línea que yace paralela al eje transversal principal T de un artículo absorbente 40, y un ancho (w), medido a lo largo de una línea que yace generalmente paralela al eje longitudinal principal L de un artículo absorbente (vea las figuras 29 y 30). El apéndice 94 tiene dimensiones suficientes para ayudar a la usuaria hembra en la colocación del artículo absorbente 40 dentro del vestíbulo 42 y opcionalmente, remover el artículo absorbente del vestíbulo. La frase "dimensiones suficientes" se intenta que indique que el apéndice 94 puede ser agarrado entre el dedo índice y el pulgar o si hay por ejemplo dos apéndices, entre el dedo índice y el pulgar y el dedo medio y el dedo índice. Típicamente, la longitud () del apéndice 94 no es mayor que el ancho máximo (W_{max}) del absorbente 66. Más específicamente la longitud () del apéndice 94 típicamente no es mayor de alrededor de 70; alternativamente, no es mayor de alrededor de 60; alternativamente, no es mayor de alrededor de 50; alternativamente, no es mayor de alrededor de 40; alternativamente, no es mayor de alrededor de 30; alternativamente, no es mayor de alrededor de 20; alternativamente, no es mayor de alrededor de 10; o alternativamente, no es mayor de alrededor de 5 milímetros. Dicho en forma diferente, la longitud () del apéndice 94 es típicamente de no más de alrededor de 100; alternativamente, no

es mayor de alrededor de 90; alternativamente, no es mayor de alrededor de 80; alternativamente, no es mayor de alrededor de 70; alternativamente, no es mayor de alrededor de 60; alternativamente, no es mayor de alrededor de 50; alternativamente, no es mayor de alrededor de 40; alternativamente, no es mayor de alrededor de 30; alternativamente, no es mayor de alrededor de 20; o alternativamente, no es mayor de alrededor de 10% del ancho máximo (W_{max}) del absorbente 66. La longitud () del apéndice 94 típicamente no es de menos de alrededor de 1; alternativamente, no es de menos de alrededor de 5; alternativamente, no es de menos de alrededor de 10; alternativamente, no es de menos de alrededor de 20; alternativamente, no es de menos de alrededor de 30; alternativamente, no es de menos de alrededor de 40; alternativamente, no es de menos de alrededor de 50; o alternativamente, no es de menos de alrededor de 60 milímetros. Un experto en el arte apreciará fácilmente que la longitud () del apéndice 94 puede variar de acuerdo entre otros al diseño general y a la disposición intentada del artículo absorbente dentro del vestíbulo 42 de la usuaria hembra.

Además de tener una longitud (), el apéndice 94 también tiene un ancho (w) (vea las figuras 29 y 30). El ancho (w) del apéndice 94 típicamente no es mayor de alrededor de 50; alternativamente, no es mayor de alrededor de 40; alternativamente, no es mayor de alrededor de 40; alternativamente, no es mayor de alrededor de 30;

alternativamente, no es mayor de alrededor de 20; alternativamente, no es mayor de alrededor de 10; alternativamente, no es mayor de alrededor de 7,5; alternativamente, no es mayor de alrededor de 5; alternativamente, no es mayor de alrededor de 2,5; o alternativamente, no es mayor de alrededor de 1 milímetro. El ancho (w) del apéndice 94 típicamente no es de menos de alrededor de 1; alternativamente, no es de menos de alrededor de 2,5; alternativamente, no es de menos de alrededor de 5; alternativamente, no es de menos de alrededor de 7,5; alternativamente, no es de menos de alrededor de 10; alternativamente, no es de menos de alrededor de 20; alternativamente, no es de menos de alrededor de 30; o alternativamente, no es de menos de alrededor de 40 milímetros. Un experto en el arte apreciará fácilmente que el ancho (w) del apéndice 94 puede variar de acuerdo entre otros al diseño general y a la disposición intentada del artículo absorbente dentro del vestíbulo 42 de una usuaria hembra.

Las dimensiones del apéndice 94 están limitadas sólo por las propiedades de esfuerzo-tensión del material o materiales de apéndice. En forma deseable cualquier material usado en los apéndices 94 y 94' es suave, comprimible y puede conformarse y por tanto es similar al material usado en la cubierta permeable al fluido 62, en el separador impermeable al líquido 64 y/o en el absorbente 66. Cualquiera de tales materiales deseablemente minimiza la posibilidad de la

irritación y/o de la incomodidad de la usuaria del artículo absorbente 40.

El apéndice 94 de la presente invención puede ser colocado en una variedad de lugares a lo largo de la periferia de un área de extremo transversal 76 y 78 de un artículo absorbente 40. Generalmente, cuando un apéndice 94 se extiende hacia fuera desde la periferia de un área de extremo transversal 76 y 78 de un artículo absorbente 40, cualquier segundo apéndice 94' típicamente se extiende hacia fuera desde la periferia del área de extremo transversal opuesta 76 y 78. Los apéndices 94 y 94' como se describen aquí ofrecen a una usuaria hembra la oportunidad de agarrar los apéndices para ayudar en la colocación de una almohadilla labial adentro del vestíbulo. Además, los apéndices 94 y 94' también ofrecen a una usuaria hembra la oportunidad de agarrar los apéndices para ayudar a la remoción de una almohadilla labial y por tanto minimizar la posibilidad de que los dedos de la usuaria hembra se pongan en contacto con la superficie de cara al cuerpo de la almohadilla labial posiblemente ensuciada.

La figura 31 ilustra un artículo absorbente 40 que tiene por lo menos un apéndice 94 y 94' colocado a lo largo de la periferia de cada área de extremo transversal 76 y 78. Cada apéndice 94 y 94' tiene una cubierta formada integralmente 62 y un separador 64. Aún cuando la cubierta 62 y el separador 64 en la figura 31 están formados integralmente, cada apéndice 94 y

94' tiene un absorbente de apéndice 96 y 96' que no está formado integralmente con el absorbente 66. Generalmente, el material del absorbente de apéndice 96 y 96' es similar al material del absorbente 66. La presencia del material absorbente en un apéndice típicamente aumenta la capacidad absorbente del artículo absorbente. La figura 32 es una vista en sección transversal del artículo absorbente 40 de la figura 31 tomada a lo largo de las líneas 32-32.

La figura 33 ilustra un artículo absorbente 40 que tiene por lo menos un apéndice 94 y 94' colocado a lo largo de la periferia de cada área de extremo transversal 76 y 78. Cada apéndice 94 y 94' tiene una cubierta formada integralmente 62, un separador 64 y un absorbente 66; sin embargo, para los propósitos de ésta invención, el absorbente que se extiende hacia fuera de la periferia de un área de extremo transversal 76 y 78 se menciona como el absorbente de apéndice 96 y 96'. La figura 34 es una vista en sección transversal del artículo absorbente 40 de la figura 33 tomada a lo largo de la línea 34-34.

La figura 35 ilustra un artículo absorbente 40 que tiene un apéndice 94 y 94' colocado a lo largo de la periferia de cada área de extremo transversal 76 y 78. Cada apéndice 94 y 94' tiene una cubierta formada integralmente 63 y un separador 64. La figura 36 es una vista en sección transversal del artículo absorbente 40 de la figura 35 tomada a lo largo de la

línea 36-36.

Aún cuando se han descrito varias versiones o incorporaciones de la presente invención y se han descrito en un detalle considerable, otras incorporaciones también son posibles. Consecuentemente, el espíritu y alcance de las reivindicaciones anexas no debe ser limitado a ilustración y descripción de las varias incorporaciones contenidas aquí.

REIVINDICACIONES

1. Un artículo absorbente que comprende un absorbente, el artículo absorbente está configurado para colocarse dentro del vestíbulo de una usuaria hembra, el artículo absorbente además tiene un eje longitudinal principal, un eje transversal principal, una superficie de cara al cuerpo, una superficie opuesta a la superficie de cara al cuerpo, una longitud, un ancho, un grosor, los lados longitudinales espaciados y separados primero y segundo y por lo menos un apéndice que se extiende hacia fuera desde por lo menos un lado longitudinal.

2. El artículo absorbente tal y como se reivindica en la cláusula 1, caracterizado porque el apéndice tiene dimensiones suficientes para permitir a una usuaria el agarrar el apéndice y mantener el control del artículo absorbente durante la colocación dentro del vestíbulo.

3. El artículo absorbente tal y como se reivindica en la cláusula 1, caracterizado porque el apéndice comprende un material permeable al fluido.

4. El artículo absorbente tal y como se reivindica en la cláusula 1, caracterizado porque el absorbente además comprende una cubierta permeable al fluido.

5. El artículo absorbente tal y como se reivindica en la cláusula 4, caracterizado porque la cubierta permeable al fluido se extiende hacia fuera desde por lo menos de uno de los lados longitudinales para formar el apéndice.

6. El artículo absorbente tal y como se reivindica en la cláusula 1, caracterizado porque el apéndice comprende un material absorbente.

7. El artículo absorbente tal y como se reivindica en la cláusula 6, caracterizado porque el material absorbente del apéndice además comprende un polímero superabsorbente.

8. El artículo absorbente tal y como se reivindica en la cláusula 1, caracterizado porque el absorbente se extiende hacia fuera desde por lo menos uno de los lados longitudinales para formar el apéndice.

9. El artículo absorbente tal y como se reivindica en la cláusula 8, caracterizado porque el absorbente además comprende un polímero superabsorbente.

10. El artículo absorbente tal y como se reivindica en la cláusula 1, caracterizado porque el apéndice comprende un material impermeable al líquido.

11. El artículo absorbente tal y como se reivindica en la cláusula 1, caracterizado porque el artículo absorbente además comprende un separador impermeable al líquido.

12. El artículo absorbente tal y como se reivindica en la cláusula 11, caracterizado porque el separador impermeable al líquido se extiende hacia fuera desde por lo menos uno de los lados longitudinales para formar el apéndice.

13. El artículo absorbente tal y como se reivindica en la cláusula 1, caracterizado porque el absorbente además comprende un polímero de superabsorbente.

14. Un artículo absorbente que comprende un absorbente, el artículo absorbente está configurado para colocarse dentro del vestíbulo de una usuaria hembra, el artículo absorbente además tiene un eje longitudinal principal, un eje transversal principal, una superficie de cara al cuerpo, una superficie opuesta a la superficie de cara al cuerpo, una longitud, un ancho, un grosor, las áreas de extremo transversales espaciadas y separadas primera y segunda, los lados longitudinales espaciados y separados primero y segundo, los lados longitudinales que varían entre las áreas de extremo transversales y que definen colectivamente una periferia del artículo absorbente, y por lo menos un apéndice que se extiende hacia fuera desde la periferia de por lo menos un área de extremo transversal.

15. El artículo absorbente tal y como se reivindica en la cláusula 14, caracterizado porque el apéndice tiene dimensiones suficientes para permitir a una usuaria el agarrar el apéndice y mantener el control del artículo absorbente durante la colocación dentro del vestíbulo.

16. El artículo absorbente tal y como se reivindica en la cláusula 14, caracterizado porque el apéndice comprende un material permeable al fluido.

17. El artículo absorbente tal y como se reivindica en la cláusula 14, caracterizado porque el absorbente además comprende una cubierta permeable al fluido.

18. El artículo absorbente tal y como se reivindica en la cláusula 17, caracterizado porque la cubierta permeable al fluido se extiende hacia fuera desde la periferia de por lo menos un área de extremo transversal para formar el apéndice.

19. El artículo absorbente tal y como se reivindica en la cláusula 14, caracterizado porque el apéndice comprende un material absorbente.

20. El artículo absorbente tal y como se reivindica en la cláusula 19, caracterizado porque el material absorbente del apéndice además comprende un polímero

superabsorbente.

21. El artículo absorbente tal y como se reivindica en la cláusula 14, caracterizado porque el absorbente se extiende hacia fuera desde la periferia de por lo menos un área de extremo transversal para formar el apéndice.

22. El artículo absorbente tal y como se reivindica en la cláusula 21, caracterizado porque el absorbente además comprende un polímero superabsorbente.

23. El artículo absorbente tal y como se reivindica en la cláusula 14, caracterizado porque el apéndice comprende un material impermeable al fluido.

24. El artículo absorbente tal y como se reivindica en la cláusula 14, caracterizado porque el artículo absorbente además comprende un separador impermeable al líquido.

25. El artículo absorbente tal y como se reivindica en la cláusula 24, caracterizado porque el separador impermeable al líquido se extiende hacia fuera desde la periferia de por lo menos un área de extremo transversal para formar el apéndice.

26. El artículo absorbente tal y como se reivindica en la cláusula 14, caracterizado porque el absorbente

además comprende un polímero superabsorbente.

RESUMEN

Un artículo absorbente, tal como una almohadilla labial configurada para colocarse dentro del vestíbulo de una usuaria hembra. La almohadilla labial puede ser usada por las mujeres para propósitos catameniales, para la protección para la incontinencia o para ambos y tiene por lo menos un apéndice que se extiende desde la periferia de la misma.

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:
KIMBERLY-CLARK WORLDWIDE, INC.
401 N. LAKE STREET
NEENAH, WI 54956

PCT

NOTIFICATION OF TRANSMITTAL OF INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Applicant's or agent's file reference 17692.10	Date of Mailing (day/month/year) 07 OCT 2003
	IMPORTANT NOTIFICATION

International application No.	International filing date (day/month/year)	Priority date (day/month/year)
PCT/US02/18264	05 June 2002 (05.06.2002)	08 June 2001 (08.06.2001)

Applicant

KIMBERLY-CLARK WORLDWIDE, INC.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices)(Article 39(1))(see also the reminder sent by the International Bureau with Form PCT/IB/301).

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

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

Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230	Authorized officer Velun Lo Telephone No. 703-308-0858

Form PCT/IPEA/416 (July 1992)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 17692.10	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US02/18264	International filing date *(day/month/year)* 05 June 2002 (05.06.2002)	Priority date *(day/month/year)* 08 June 2001 (08.06.2001)
International Patent Classification (IPC) or national classification and IPC IPC(7): A61F 13/15, 13/20 and US Cl.: 604/385.17, 385.04		
Applicant KIMBERLY-CLARK WORLDWIDE, INC.		

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 4 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of ___ sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of report 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	Date of completion of this report
17 December 2002 (17.12.2002)	09 September 2003 (09.09.2003)
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230	Authorized officer Weijun Lo Telephone No. 703-308-0858

Form PCT/IPEA/409 (cover sheet)(July 1998)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US02/18264

I. Basis of the report

1. With regard to the elements of the international application:*

☒ the international application as originally filed.

☒ the description:
pages 1-23 as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☒ the claims:
pages 24-26, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☒ the drawings:
pages 1-25, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

☐ the sequence listing part of the description:
pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

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 international search (under Rule23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination(under Rules 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 printed 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 NONE

☐ the claims, Nos. NONE

☐ the drawings, sheets/fig NONE

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, as indicated in the Supplemental Box (Rule 70.2(c)).**

** 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).*

*** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US02/18264

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	7,9,13,20,22 and 26	YES
	Claims	1-6,8,10-12,14-19,21 and 23-25	NO
Inventive Step (IS)	Claims	NONE	YES
	Claims	1-26	NO
Industrial Applicability (IA)	Claims	1-26	YES
	Claims	NONE	NO

2. CITATIONS AND EXPLANATIONS

Claims 1-6,8,10-12,14-19,21 and 23-25 lack novelty under PCT Article 33(2) as being anticipated by Osborn, III (US 6,007,528).

With reference to claims 1,4,11,14,17 and 24, Osborn, III (hereinafter "Osborn") discloses an absorbent article comprising a fluid permeable cover (28), a liquid impermeable baffle (30), and an absorbent (32) situated between the cover and the baffle, the absorbent article being configured for disposition within the vestibule of a female wearer (col. 3, lines 54 - 56), the absorbent article further having a principal longitudinal axis, a principal transverse axis, a body-facing surface, a surface opposed to the body-facing surface, a length, a width, a thickness, first and second spaced apart longitudinal sides and at least one tab extending outward from at least one longitudinal side (64) as set forth in figure 4.

As to claims 2 and 15,Osborn discloses an absorbent article wherein the tab has sufficient dimensions as set forth in figure 4.

With reference to claims 3,5,16 and 18,Osborn discloses an absorbent article wherein the tab comprises a fluid permeable material that extends outward from at least one of the longitudinal sides to form the tab as set forth in col. 11, lines 50 - 55.

With reference to claims 10,12,23 and 25 Osborn discloses an absorbent article wherein the tab comprises a fluid impermeable material that extends outward from at least one of the longitudinal sides to form the tab as set forth in col. 11, lines 50 - 55.

Regarding claims 6,8,19 and 21,Osborn discloses an absorbent article wherein the tab comprises an absorbent material that extends outward from at least one of the longitudinal sides to form a tab as set forth in col. 11, lines 56 - 65 through the incorporation of Van Tilburg (US 4,589,876).

Van Tilburg teaches an absorbent article wherein the tab comprises an absorbent material (30) as set forth in col. 5, lines 25 - 32 and figure 2.

Claims 7,9,13,20,22 and 26 lack an inventive step under PCT Article 33(3) as being obvious over Osborn, III (US 6,007,528).

Please See Continuation Sheet

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

The difference between Osborn and claims 7,9,13,20,22 and 26 is the provision that the absorbent material further comprises a superabsorbent.

It would have been obvious to one of ordinary skill in the art to modify the absorbent material of Osborn to comprise a superabsorbent because it is well known in the art that the benefit of using a superabsorbent versus an absorbent is that the superabsorbent material is a water-insoluble but water-swellable polymeric substance capable of absorbing water in an amount at least ten times the weight of the substance in its dry form thereby reducing the bulk of the article and further preventing leakage.

———— NEW CITATIONS ————

US 6,007,528 A (OSBORN, III) 28 DECEMBER 1999, see col. 3, line 54 to col. 11, line 65.
US 4,589,876 A (VAN TILBURG) 20 MAY 1986, see figure 2.

US006007528A

United States Patent [19]

Osborn, III

[11] Patent Number: 6,007,528

[45] Date of Patent: Dec. 28, 1999

[54] SANITARY NAPKIN HAVING STABILIZED MEMBERS IN THE END REGIONS

[75] Inventor: Thomas Ward Osborn, III, Cincinnati, Ohio

[73] Assignee: The Procter & Gamble company, Cincinnati, Ohio

[21] Appl. No.: 08/777,661

[22] Filed: Dec. 31, 1996

[51] Int. Cl.[6] A61F 13/15

[52] U.S. Cl. 604/387; 604/385.1; 604/374; 604/368

[58] Field of Search 604/368, 374, 604/378–380, 385.1, 385.2, 387

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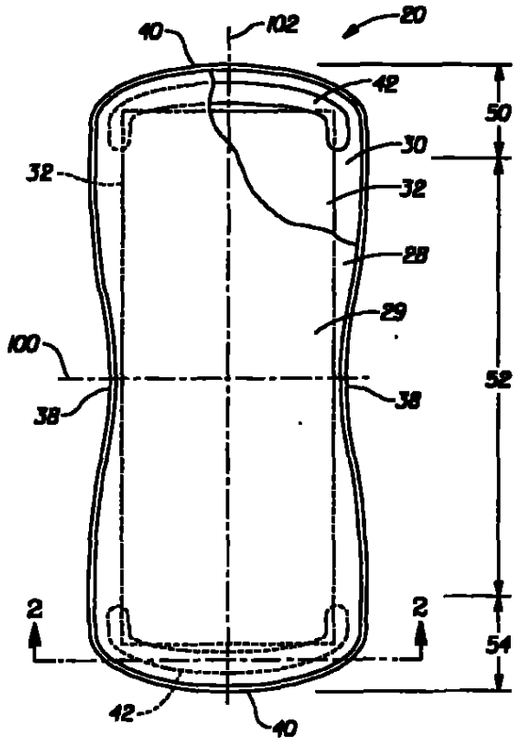
Primary Examiner—Mickey Yu
Assistant Examiner—Tram A. Nguyen
Attorney, Agent, or Firm—Theodore P. Cummings; Steven W. Miller; Jacobus C. Rasser

[57] ABSTRACT

The present invention provides an absorbent article preferably being a sanitary napkin that comprises a longitudinal centerline, a transverse centerline, a pair of longitudinal edges, two end edges, a first end region extending from one of the end edges toward the transverse centerline, and a second end region extending from the other end edge toward the transverse centerline. Also, there is a central region positioned between the first and second end regions. The sanitary napkin further comprises a first surface, a second surface that is faced opposite to the first surface wherein the flexure-resistance of the sanitary napkin as measured through the first and second end regions is greater than the flexure-resistance of the sanitary napkin as measured through the central region.

16 Claims, 4 Drawing Sheets



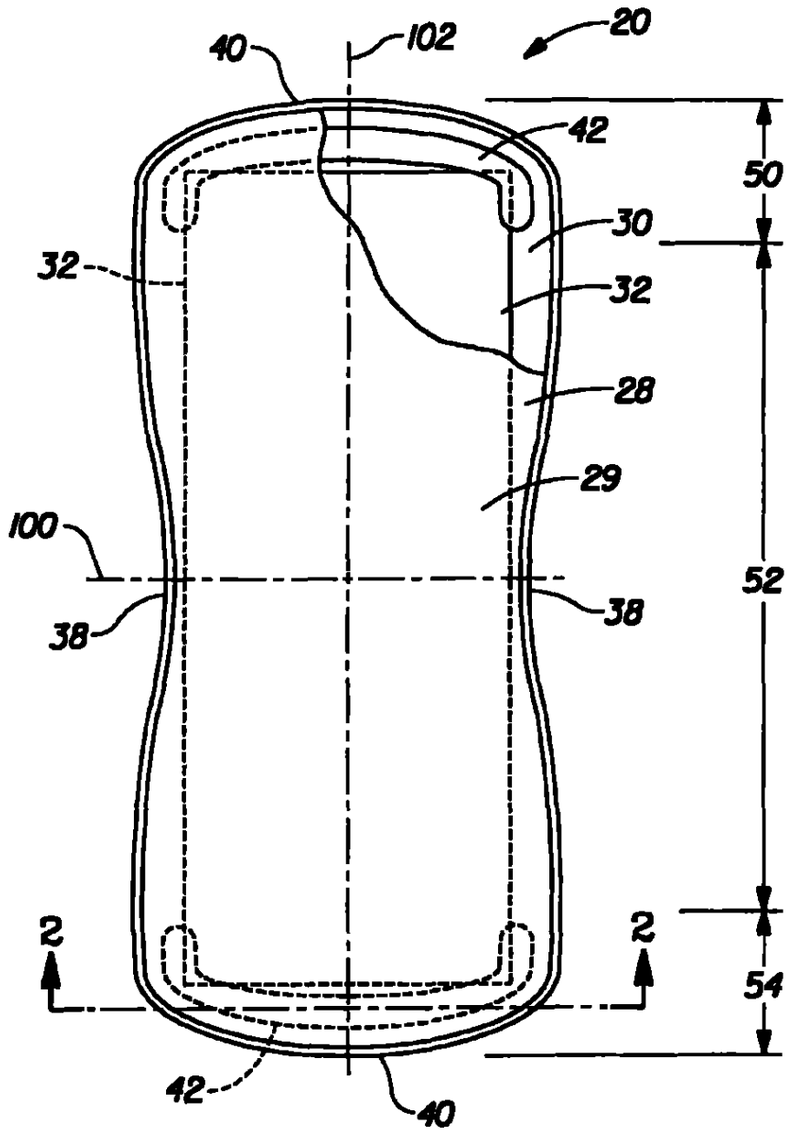


Fig. 1

101

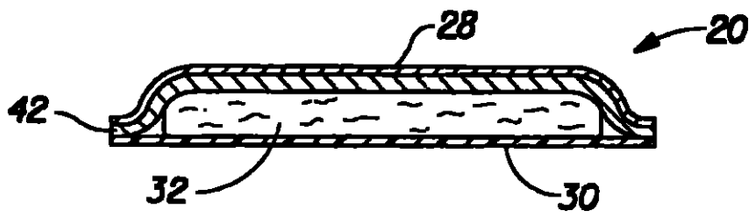


Fig. 2

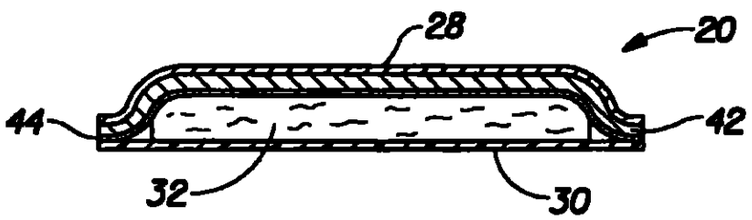


Fig. 2A

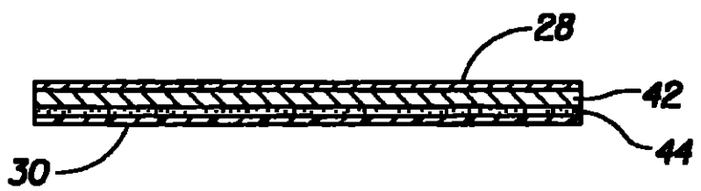


Fig. 2B

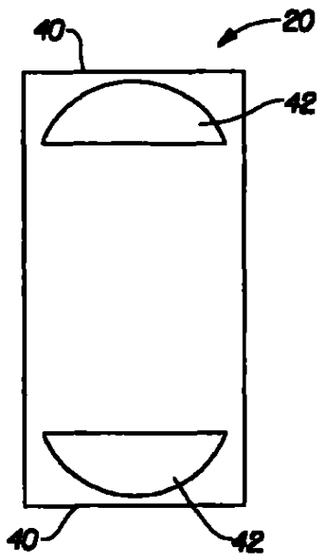


Fig. 3A

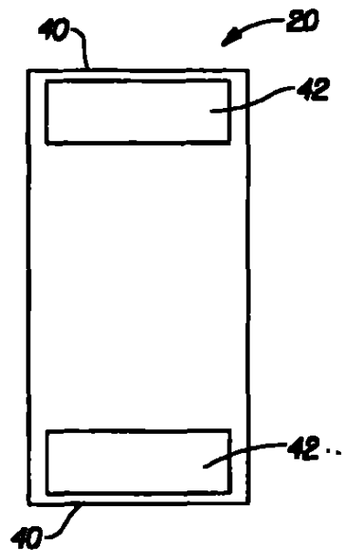


Fig. 3B

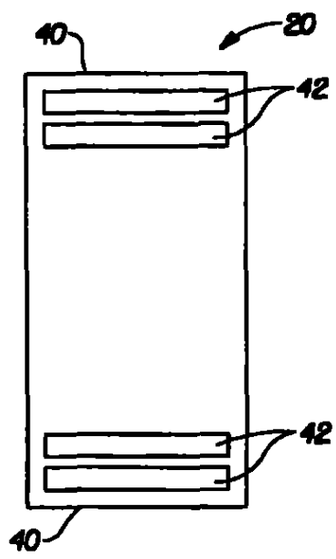


Fig. 3C

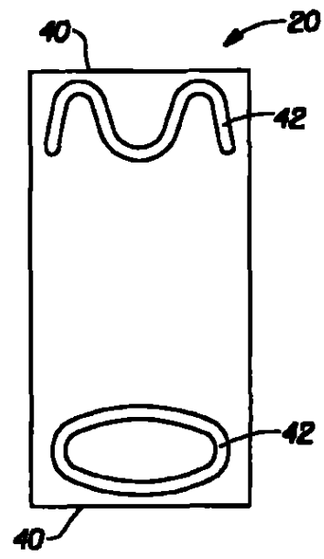


Fig. 3D

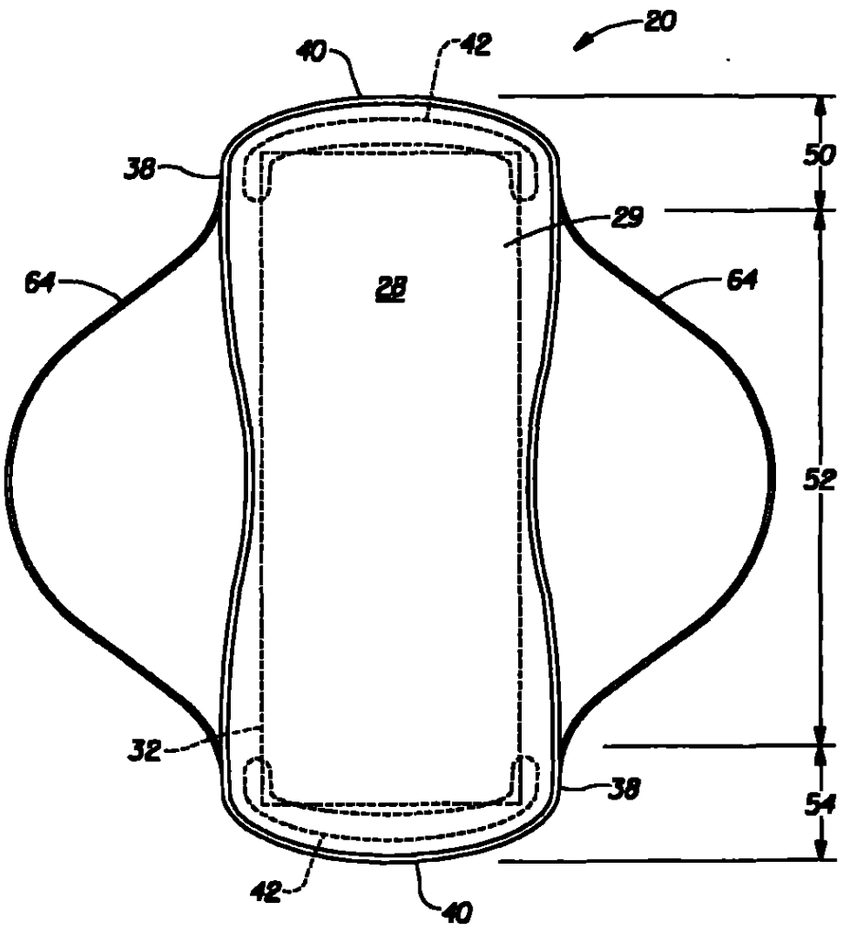


Fig. 4

SANITARY NAPKIN HAVING STABILIZED MEMBERS IN THE END REGIONS

FIELD OF THE INVENTION

This invention is a sanitary napkin that comprises end regions and preferably end edges which provide resistance to roll-over at the article ends through the use of stabilizing members therein.

BACKGROUND OF THE INVENTION

This invention is concerned with absorbent articles such as sanitary napkins, pantiliners, and incontinence pads that are designed to absorb and retain liquid and other discharges from the human body and to prevent body and clothing soiling. The present invention is particularly concerned with sanitary napkins that have reduced roll-over at their end regions, particularly their end edges.

Disposable absorbent articles are designed to contain body exudates and to keep such body exudates from soiling adjacent clothing and undergarments. Thus, numerous improvements have been directed towards providing better containment of such body exudates within the sanitary napkin and reducing the occurrence of soiling of garments worn over the sanitary napkin. Soiling of garments resulting from the roll-over of the end edges of sanitary napkins is particularly a problem with catamenials. Soiling at the end edges is caused by a lack of stability in the end regions and/or end edges of a pad. It is therefore desirable to provide a sanitary napkin having a limited range of motion at its ends to prevent soiling caused by roll-over. Additionally, this restricted range of motion will enhance the body-conforming capability of the pad overall.

Additionally, the roll-over of the end of the pad increases the level of discomfort or noticeability of the product by a wearer. Roll-over reduces the effectiveness of the catamenial pad by reducing the effective length of the pad, which may thereby increase the amount of fluid which may directly flow from a wearer to their undergarment.

There have been a number of recent efforts to provide catamenial pads with improved body-conforming characteristics in order to improve the leakage performance of these products. In particular, sanitary napkins have been developed which are relatively thin and flexible to better conform the sanitary napkin to the wearer. Commercially successful sanitary napkins of this type are described in U.S. Pat. No. 4,950,264, issued to Osborn, on Aug. 21, 1990 and U.S. Pat. No. 5,009,653 issued to Osborn, on Apr. 23, 1991. While these ultrathin and flexible absorbent articles work quite well, there remains a need to improve the end soiling performance of these products and to further improve their fit characteristics.

U.S. application Ser. No. 08/665,959 entitled "Generally Thin, Flexible Sanitary Napkin With Stiffened Center", filed on Jun. 18, 1996 by Osborn describes a sanitary napkin that has a stiffened central absorbent core region. Additionally, the napkin comprises flexural-resistance means in its longitudinal side regions. This application also states that this sanitary napkin has a flexure-resistance as measured through the first and second end regions which is less than the flexure-resistance as measured through the central region.

U.S. Pat. No. 5,578,025 issued on Nov. 26, 1996 to May describes a sanitary napkin having stabilizing members joined along it's sides to reduce soiling and improve fit. In one embodiment herein May describes a napkin having stabilizing members extending about the entire periphery of the sanitary napkin, i.e., including end edges. However, May does not disclose or otherwise suggest having stabilizing members or any sort of stiffened and/or absorbent members positioned only at the end regions and/or end edges of the sanitary napkin as in Applicant's embodiment. May's invention is concerned then with providing an entirely stiffened periphery and not just providing stiffness at the end edges.

While the sanitary napkins disclosed in the Osborn patents and application and the May application work quite well, the search for improved sanitary napkins, i.e., sanitary napkins specifically designed to reduce roll-over at their ends, has continued.

As products have become progressively more flexible it has been observed that there is a tendency for the products to roll-over at their end regions and specifically their end edges. This phenomena of end roll-over contributes to both soiling and wearing discomfort.

Thus, it is an object of the present invention to provide the sanitary napkin herein with stabilizing members at its end regions and/or end edges to reduce the tendency of roll over of the product at its ends.

It is also an object of the present invention to provide unitary disposable sanitary napkins herein with improved end region/edge soiling containment performance.

It is an additional object of the present invention to improve the fit of such sanitary napkins during use such that their surface conforms better to the corresponding shape of the human body.

These and other objects of the present invention will be more readily apparent when considered in reference to the following description and when taken in conjunction with the accompanying drawings.

SUMMARY OF THE INVENTION

Accordingly, the present invention provides an absorbent article preferably being a sanitary napkin that comprises a longitudinal centerline, a transverse centerline, a pair of longitudinal edges, two end edges, a first end region extending from one of the end edges toward the transverse centerline, and a second end region extending from the opposite end edge toward the transverse centerline. Also, there is a central region positioned between the first and second end regions. The sanitary napkin further comprises a first surface and a second surface that is faced opposite to the first surface.

The flexure-resistance of the sanitary napkin as measured through the first and second end regions is greater than the flexure-resistance of the sanitary napkin as measured through the central region due to the stabilizing members positioned in the first and second end regions. Preferably, the stabilizing members are positioned immediately adjacent to each end edge. Generally, the sanitary napkin herein comprises first and second end regions that extend from and include the end edges. Each end region comprises about 1/8 to 1/3 of the length of the sanitary napkin starting from an end edge and moving toward the transverse centerline.

In one embodiment of the sanitary napkin herein, the flexure-resistance of the first and second end regions is at least about 25 percent greater than the flexure-resistance of the central region and the longitudinal edges.

BRIEF DESCRIPTION OF THE DRAWINGS

While the specification concludes with claims particularly pointing out and distinctly claiming the subject matter which is regarded as forming the present invention, it is believed

that the invention will be better understood from the following descriptions which are taken in conjunction with the accompanying drawings in which like designations are used to designate substantially identical elements, and in which:

FIG. 1 is a plan view of a preferred embodiment of the present invention having portions cut-away to reveal underlying structure, the outer surface of the sanitary napkin facing the viewer;

FIG. 2 is a cross-sectional view of the embodiment in FIG. 1;

FIG. 2A is a cross-sectional view of an alternative embodiment of the embodiment in FIG. 2;

FIG. 2B is a cross-sectional view of an alternative embodiment of the embodiment in FIG. 2;

FIG. 3A is a plan view of an embodiment having stabilizing members of an alternative design;

FIG. 3B is a plan view of an embodiment having stabilizing members of an alternative design;

FIG. 3C is a plan view of an embodiment having stabilizing members of an alternative design;

FIG. 3D is a plan view of an embodiment having stabilizing members of an alternative design; and

FIG. 4 is a plan view of an alternative embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

As used herein, the term "absorbent article" refers to devices which absorb and contain body exudates, and, more specifically, refers to devices which are placed against or in close proximity to the body of the wearer to absorb and contain the various exudates discharged from the body. As used herein, the term "sanitary napkin" or "napkin" refers to an absorbent article that absorbs and contain body exudates, and more specifically, refers to an absorbent article which is worn by females adjacent to the pudendal region, generally external to the urogenital region, and which is intended to absorb and contain menstrual fluids and other vaginal discharges from the wearer's body (e.g., blood, menses, and urine). The term "disposable" is used herein to describe absorbent articles which are not intended to be laundered or otherwise restored or reused as an absorbent article (i.e., they are intended to be discarded after a single use, and, preferably, to be recycled, composted or otherwise disposed of in an environmentally compatible manner). A "unitary" absorbent article refers to absorbent articles which are formed of separate parts united together to form a coordinated entity so that they do not require separate manipulative parts like a separate holder and liner. A preferred embodiment of a unitary disposable absorbent article of the present invention is the catamenial pad, sanitary napkin 20, shown in FIG. 1. Interlabial devices which reside partially within and partially external of the wearer's vestibule are also within the scope of this invention. As used herein, the term "pudendal" refers to the externally visible female genitalia. It should be understood, however, that the present invention is also applicable to other feminine hygiene or catamenial pads such as pantiliners or to other absorbent articles such as incontinent pads, and the like. By the terms "flexure-resistance(s)" or "flexural-resistance(s)" it is meant herein the stiffness attributed to an element when that element is acted upon by outside forces, e.g., a stabilizing members flexural-resistance against transverse, compressive forces.

FIG. 1 shows a preferred embodiment of the sanitary napkin 20 in which the topsheet 28 and the backsheet 30 have length and width dimensions generally larger than those of the absorbent core 32. The periphery defines the outer perimeter or, in other words, the edges of the sanitary napkin. The periphery comprises the longitudinal edges 38 and the end edges 40. A particularly preferred construction for the sanitary napkin 20 is that described in U.S. Pat. Nos. 4,950,264 and 5,009,653 both entitled "Thin, Flexible Sanitary Napkin", issued to Osborn on Aug. 21, 1990 and Apr. 23, 1991, respectively. Both of these patents are incorporated herein by reference.

FIG. 1 also shows the preferred stabilizing members 42 herein which are principally located adjacent to each end edge 40. As is seen in FIG. 1 both end edges 40 preferably comprise at least one stabilizing member 42. In one embodiment the end edges 40 may actually be formed by at least a portion of the stabilizing members 42. In another embodiment, the stabilizing members 42 are positioned adjacent to the end edges 40. These stabilizing members 42 provide stiffness at the end edges 40 such that roll over of the edges 40 is reduced. Furthermore, in a preferred embodiment herein, the stabilizing members 42 may partially extend along a portion of the longitudinal edges 38, but stay within the end regions 50 and 54. In some executions it may be preferred that there only be one stabilizing member in one end region 50 or 54 of the sanitary napkin 20.

Each stabilizing member 42 is preferably a separate element joined to the sanitary napkin 20 in one or more end regions 50, 54 (including end edges 40). The term "stabilizing member" refers to a stiffening element joined to the sanitary napkin 20 in one or more end regions 50 and/or 54 to increase the flexural-resistance, i.e., stiffness, of the end regions 50, 54. Note, the stabilizing members herein may either be separate, discrete elements joined to the sanitary napkin and/or elements formed from existing elements within the sanitary napkin, e.g., elements formed from the absorbent core, topsheet, backsheet, acquisition layer, and the like.

Some general ways of providing the sanitary napkin 20 with stiffened end regions 50, 54 or end edges 40 (hereafter end regions/edges) include, but are not limited to: (1) folding any of the components comprising the end regions/edges to create double, or more, thickness of the same; (2) constructing the end regions/edges out of several layers; (3) using stiffer materials; (4) changing the basis weight of components comprising the end regions/edges; (5) placing additional components in the end regions/edges; (6) compression or thermal bonding of the absorbent core to stiffen the end regions or (7) any combinations of the foregoing.

The sanitary napkin 20 has two centerlines, a principal longitudinal centerline 102 and a principal lateral or transverse centerline 100. The term "longitudinal", as used herein, refers to a line, axis or direction in the plane of the sanitary napkin 20 that is generally aligned with a vertical plane which bisects a standing wearer into left and right body halves when the sanitary napkin 20 is worn. This includes a line, axis or direction which is bent, curved or otherwise not strictly parallel to the vertical plane. The term "lateral" refers to the line, axis or direction generally perpendicular to the longitudinal direction and which lies within the plane of the sanitary napkin 20. The sanitary napkin 20 has a longitudinal dimension that runs in the general direction of the principal longitudinal centerline 102 and a lateral dimension that runs in the general direction of the principal lateral centerline 100. The sanitary napkin 20 is typically longer in the longitudinal dimension than in the lateral dimension.

As is shown in FIG. 1, the sanitary napkin 20 is, for the sake of understanding its structure, divided into three sec-

tions: a first end region 50, a second end region 54 opposed to the first end region 50, and a central region positioned between the first end region 50 and the second end region 54. For the embodiments herein, stabilizing means 42 are relegated to the first and second end regions 50 and 54. The central region will preferably comprise most or all of the absorbent core 32. The embodiment herein is designed such that the central region 52 will be more pliable, i.e., compressible, to forces applied along the transverse axis. Conversely, the end regions 50, 54 are designed such that they will be more rigid than the central region 52 against applied transverse axial forces. These forces are most notably applied by a wearer's thighs which push against the longitudinal edges 38 of the sanitary napkin 20.

The absorbent core 32 may be any absorbent means which is capable of absorbing or retaining liquids (e.g., menses and/or urine). As shown in FIG. 1 the absorbent core 32 has a body surface, a garment surface, side edges, and end edges. The absorbent core 32 may be manufactured in a wide variety of sizes and shapes (e.g., rectangular, oval, hourglass, dog bone, asymmetric, etc.) and from a wide variety of liquid-absorbent materials commonly used in sanitary napkins and other absorbent articles such as comminuted wood pulp which is generally referred to as airfelt. Examples of other suitable absorbent materials include creped cellulose wadding; meltblown polymers including coform; chemically stiffened, modified or cross-linked cellulosic fibers; synthetic fibers such as crimped polyester fibers; peat moss; tissue including tissue wraps and tissue laminates; absorbent foams; absorbent sponges; superabsorbent polymers; absorbent gelling materials; or any equivalent material or combinations of materials, or mixtures of these. The configuration and construction of the absorbent core 32 may also be varied (e.g., the absorbent core 32 may have varying caliper zones (e.g., profiled so as to be thicker in the center), hydrophilic gradients, superabsorbent gradients, or lower density and lower average basis weight acquisition zones; or may comprise one or more layers or structures). The total absorbent capacity of the absorbent core 32 should, however, be compatible with the design loading and the intended use of the sanitary napkin 20. Further, the size and absorbent capacity of the absorbent core 32 may be varied to accommodate different uses such as incontinence pads, pantiliners, regular sanitary napkins, or overnight sanitary napkins.

Exemplary absorbent structures for use as the absorbent core 32 of the present invention are described in U.S. Pat. No. 4,950,264 entitled "Thin, Flexible Sanitary Napkin" issued to Osborn on Aug. 21, 1990; U.S. Pat. No. 4,610,678 entitled "High-Density Absorbent Structures" issued to Weisman et al. on Sep. 9, 1986; U.S. Pat. No. 4,834,735 entitled "High Density Absorbent Members Having Lower Density and Lower Basis Weight Acquisition Zones", issued to Alemany et al. on May 30, 1989; and European Patent Application No. 0 198 683, The Procter & Gamble Company, published Oct. 22, 1986 in the name of Duenk, et al. Each of these patents are incorporated herein by reference.

The backsheet 30 and the topsheet 28 are positioned adjacent the garment surface and the body surface, respectively, of the absorbent core 32 and are preferably joined thereto and to each other by attachment means (not shown) such as those well known in the art. For example, the backsheet 30 and/or the topsheet 28 may be secured to the absorbent core 32 or to each other by a uniform continuous layer of adhesive, a patterned layer of adhesive, or an array of separate lines, spirals, or spots of adhesive. Adhesives which have been found to be satisfactory are manufactured by H. B. Fuller Company of St. Paul, Minn. under the designation HL-1258 or H-2031. The attachment means will preferably comprise an open pattern network of filaments of adhesive as is disclosed in U.S. Pat. No. 4,573,986 entitled "Disposable Waste-Containment Garment", which issued to Minetola, et al. on Mar. 4, 1986, and which is incorporated herein by reference. An exemplary attachment means of an open pattern network of filaments comprises several lines of adhesive filaments swirled into a spiral pattern such as illustrated by the apparatus and method shown in U.S. Pat. No. 3,911,173 issued to Sprague, on Oct. 7, 1975; U.S. Pat. No. 4,785,996 issued to Ziecker, et al. on Nov. 22, 1978; and U.S. Pat. No. 4,842,666 issued to Werenicz on Jun. 27, 1989. Each of these patents are incorporated herein by reference. Alternatively, the attachment means may comprise heat bonds, pressure bonds, ultrasonic bonds, dynamic mechanical bonds, or any other suitable attachment means or combinations of these attachment means as are known in the art.

The backsheet 30 is impervious to liquids (e.g., menses and/or urine) and is preferably manufactured from a thin plastic film, although other flexible liquid impervious materials may also be used. As used herein, the term "flexible" refers to materials which are compliant and will readily conform to the general shape and contours of the human body. The backsheet 30 prevents the exudates absorbed and contained in the absorbent core 32 from wetting articles which contact the sanitary napkin described herein such as pants, night clothing and undergarments. The backsheet 30 may thus comprise a woven or nonwoven material, polymeric films such as thermoplastic films of polyethylene or polypropylene, or composite materials such as a film-coated nonwoven material. Preferably, the backsheet is a polyethylene film having a thickness of from about 0.012 mm (0.5 mil) to about 0.051 mm (2.0 mils). Exemplary polyethylene films are manufactured by Clopay Corporation of Cincinnati, Ohio, under the designation P18-0401 and by Ethyl Corporation, Visqueen Division, of Terre Haute, Ind., under the designation XP-39385. The backsheet is preferably embossed and/or matte finished to provide a more clothlike appearance. Further, the backsheet 30 may permit vapors to escape from the absorbent core 32 (i.e., breathable) while still preventing exudates from passing through the backsheet 30.

The topsheet 28 is compliant, soft feeling, and non-irritating to the wearer's skin. Further, the topsheet 28 is liquid pervious permitting liquids (e.g., menses and/or urine) to readily penetrate through its thickness. A suitable topsheet 28 may be manufactured from a wide range of materials such as woven and nonwoven materials; polymeric materials such as apertured formed thermoplastic films, apertured plastic films, and hydroformed thermoplastic films; porous foams; reticulated foams; reticulated thermoplastic films; and thermoplastic scrims. Suitable woven and nonwoven materials can be comprised of natural fibers (e.g., wood or cotton fibers), synthetic fibers (e.g., polymeric fibers such as polyester, polypropylene, or polyethylene fibers) or from a combination of natural and synthetic fibers.

There are a number of manufacturing techniques which may be used to manufacture the topsheet 28. For example, the topsheet 28 may be a nonwoven web of fibers. When the topsheet comprises a nonwoven web, the web may be spunbonded, carded, wet-laid, meltblown, hydroentangled, combinations of the above, or the like. A preferred topsheet is carded and thermally bonded by means well known to those skilled in the fabrics art. A preferred topsheet comprises staple length polypropylene fibers having a denier of

about 2.2. As used herein, the term "staple length fibers" refers to those fibers having a length of at least about 15.9 mm (0.625 inches). Preferably, the topsheet has a basis weight from about 18 to about 25 grams per square meter. A suitable topsheet is manufactured by Veratec, Inc., a Division of International Paper Company, of Walpole, Mass. under the designation P-8.

In a preferred embodiment of the present invention, the body surface of the formed film topsheet is hydrophilic so as to help liquid to transfer through the topsheet faster than if the body surface was not hydrophilic so as to diminish the likelihood that menstrual fluid will flow off the topsheet rather than flowing into and being absorbed by the absorbent core. In a preferred embodiment, surfactant is incorporated into the polymeric materials of the formed film topsheet such as is described in U.S. patent application Ser. No. 07/794,745, "Absorbent Article Having A Nonwoven and Apertured Film Coversheet" filed on Nov. 19, 1991, now abandoned, by Aziz, et al., which is incorporated herein by reference. Alternatively, the body surface of the topsheet can be made hydrophilic by treating it with a surfactant such as is described in the above referenced U.S. Pat. No. 4,950,254 issued to Osborn and incorporated herein by reference.

For the purposes of the present invention, a sanitary napkin herein will generally have a caliper in its central region 52 of less than or equal to about 7 mm, preferably less than or equal to about 5 mm, more preferably less than or equal to about 4 mm, and most preferably less than or equal to about 3 mm. The above calipers are to be measured with a comparator gauge having a test weight of 80.0 grams. The comparator gauge should have a comparator foot that weighs 10 grams and has a diameter of 2.44 centimeters. The comparator gauge should have a contact surface area of 4.67 square centimeters.

The sanitary napkins of the present invention can also be provided with any optional additional components that are known in the art. Optional components may include one or several absorbent or fluid transport layers, secondary topsheets, optional interliners, fastening means, and a removable cover strip or release liner. The sanitary napkin may also be provided with flaps or "wings" as shown in FIG. 4 that are folded around the crotch portion of the wearer's undergarment. Examples of such sanitary napkins are more fully described in U.S. Pat. No. 4,589,876 issued to Van Tilburg on May 20, 1986, and in U.S. Pat. No. 4,687,478 issued to Van Tilburg on Aug. 18, 1987, each of which is incorporated herein by reference.

In a preferred embodiment, the garment-facing surface of the backsheet 30 may include means for attaching the sanitary napkin 20 to the undergarment of the wearer, referred to hereinafter as pad attachment means (not shown in FIG. 1). Pad attachment means may include mechanical fasteners or, preferably, adhesive fastening means such as pressure-sensitive adhesive. A removable release liner preferably covers the adhesive fastening means in order to keep the adhesive from drying out or sticking to a surface prior to the usage of the sanitary napkin. The adhesive may be applied to the garment-facing surface of the backsheet in one, two or several parallel strips, or for example two symmetrically opposite convex outwardly oriented strips. The strips of adhesive may be between about 5 to about 35 mm, preferably between 15 mm and 26 mm, in width. Preferably the strips of adhesive are sized and disposed so that the distance between the inside edges of the strips is about 28 mm, and the distance between the outside edges of the strips is about 60 mm. Alternatively, the adhesive may be applied to the backsheet in a generally centered rectangular pattern covering about 30% to about 70% of the area of the garment-facing surface of the backsheet. Suitable adhesive may be that specified as "0.6 mil pass" available from Century Adhesive as Product No. 8305-4 or from Anchor Continental, Inc., 3 Sigma Division of Covington, Ohio.

The sanitary napkin 20 of the present invention has divergent flexure-resistance; e.g., the flexure-resistance in the end regions 50 and 54 is held to be generally greater than that in the central region 52. Thus, the sanitary napkin 20 of the present invention is more flexible at its central region 52 and less flexible in its end regions 50 and 54. Preferably, the end regions 50 and 54 of the sanitary napkin 20 of the present invention have flexure-resistances that are at least 25 percent greater and preferably 50 percent greater than at the central region 52. Furthermore, the flexure-resistance at the central region 52 will preferably be less than or equal to about 600 grams while the flexure-resistance at the end regions 50 and 54 will preferably be less than or equal to 1000 grams.

At least one stabilizing member 42 is disposed in each end region 50 and 54, respectively. Each stabilizing member 42 is preferably positioned adjacent to each end edge 40 of the sanitary napkin 20 to increase the flexural-resistance (i.e., the stiffness) of the end regions 50, 54, and end edges 40, beyond that of the central absorbent region 52 so as to allow the sanitary napkin to configure itself into a shape that provides improved fit and allows better absorbent efficiency of the absorbent core 32. Most importantly, the stiffened end regions 50, 54 (including end edges 40) decrease the tendency of a sanitary napkin 20 to flip over or at least reduce partial roll over during wear. Note, when the sanitary napkin 20 herein is in use, thigh compression along longitudinal edges 38 is resisted by the stiffened end regions 50 and 54. Also, during the course of wear by a user, (i.e., during sitting, standing, walking, running, climbing, etc.) it is believed that the napkin 20 will have less tendency to roll-over because of the stabilizing members 42 positioned at the napkin's end regions 50, 54, especially its end edges.

In general, the force required to affect uniform lateral compression throughout the napkin 20 is greater at the first and second end regions 50, 54 (and especially the end edges 40 therein) than at the central region 52. This is by virtue of the stabilizing members 42 located in the end regions 50 and 54. This effect may cause some additional body conformity of the napkin 20 to a user when a user presses her thighs against the napkin side edges 38. By the term "lateral compression" it is meant herein that force required to compress a portion of the sanitary napkin 20 along the transverse axis 100. By the term "end regions" it is meant herein those regions that extend from and that may include the end edges 40 that are between about 1/10 and 1/5 of the length of the sanitary napkin toward the transverse centerline.

Stabilizing member 42 may be disposed anywhere through the thickness of the sanitary napkin 20 including on the surface 29 of the topsheet 28, between the absorbent core 32 and the topsheet 28, between the absorbent core 32 and the backsheet 30, or on the garment surface 31 (not shown) of the backsheet 30. As shown in FIGS. 1 and 2, stabilizing members 42 are generally disposed between the topsheet 28 and the backsheet 30. Alternatively, a stabilizing member 42 may also rest on at least a portion of the absorbent core 32 so as to distribute fluid directly back to the core 32. The stabilizing member 42 may be positioned in place between the napkin layers by adhesives, thermal bonding, compression bonding, ultrasonic bonding and the like. Any of the known bonding techniques, e.g., thermal bonding, to com-

bine napkin layers, e.g., joining a core to a topsheet, may be employed herein for the joining of the stabilizing member 42 herein to any one of the sanitary napkin elements. As used herein, the term "joined" includes configurations whereby the stabilizing members are directly affixed to portions of the sanitary napkin and configurations whereby a stabilizing member is indirectly affixed to an intermediate member or members which are in turn affixed to the sanitary napkin. Stabilizing members 42 may also be part of, i.e., attached to, the absorbent core 32.

Stabilizing members 42 may be joined beneath or directly onto the topsheet 28 at a number of different locations, zones, and patterns. For example, a stabilizing member 42 may be joined beneath or onto the topsheet 28 at a point (an attachment point) inward from an end edge 40 so that the stabilizing member 42 may be spaced away from the wearer's surface of the topsheet during use to form a stand-up barrier to the longitudinal flow of body exudates.

FIGS. 3A–3D shows that the stabilizing members 42 may have any of a number of configurations which can provide the necessary stiffness as described herein. The surface area shape, i.e., the shape as viewed from directly overhead, of the stabilizing member can be rectangular, trapezoidal, elliptical or any other shape. In general, the shape of the stabilizing member will depend on performance considerations like comfort and discreteness of the sanitary napkin for the wearer as well as manufacturing capability and packaging compatibility considerations of the producer of the sanitary napkin. According to the present invention, the shape of the stabilizing member can be of any shape such as a rectangular, oval, round, or of a symmetrical or nonsymmetrical type of shape. Particularly preferred shapes are crescent, oval, circular, semi-circular, or rectangular which may be rounded on all or some edges.

The stabilizing attachment means 44 (FIGS. 2A and 2B) may be any attachment means known in the art for attaching various elements together in a sanitary napkin, such as stabilizing members 42 attached to a sanitary napkin 20 in the end regions 50 and 54. For example, stabilizing attachment means 44 may comprise adhesives, heat/pressure seals using heat/pressure sealing techniques known in the art, ultrasonic bonds using ultrasonic bonding techniques known in the art, dynamic mechanical bonds using dynamic mechanical bonding techniques known in the art, or any other materials or methods for absorbent articles herein known in the art. The stabilizing attachment means 44 is preferably an adhesive provided such as an adhesive layer 44 as is shown in FIGS. 2A–2B.

As is seen in FIG. 2B, the stabilizing member 42 is bonded to the backsheet 30 directly by an attachment means 44. In this case, the stabilizing means 42 is not and therefore need not be attached to the absorbent core 32. Also, the stabilizing member 42 may be separately attached to the topsheet 28 by an attachment means 44 or attached to both the topsheet 28 and the backsheet 30 by separate attachment means 44. In FIG. 2A, the stabilizing member 42 may be additionally or separately attached to the topsheet 28 via an attachment means 44. This additional attachment would occur where the stabilizing member 42 is also attached to the absorbent core 32 by an attachment means 44.

The stabilizing member material can be a homogeneous single material, a homogeneous mixture of different materials, or a non-homogeneous combination of different materials (e.g., a layered construction). The stabilizing member materials can be, for example, made from the same materials as the absorbent core materials, the topsheet materials, or the backsheet materials as discussed above.

The stabilizing member material may be a lofted, that is soft and thick, preferably resilient material, such as the airthrough bonded hydrophobic nonwoven with a basis weight of 60 grams as supplied by The Veratec Company of Walpole, Mass.

The stabilizing member material may also, for example, be selected to have an absorbent capacity or may be without absorbent capacity. If the stabilizing member has an absorbent capacity, the material chosen for the stabilizing member preferably maintains a rigidity when wet that reduces fold-over at the end regions 50, 54 when these regions are impacted by fluid. Suitable materials include high-loft polyesters, rayons, orlons, other polyolefin materials and blends thereof. In a preferred execution, the stabilizing member is constructed from an absorbent which maintains greater rigidity than the non-reinforced areas. The stabilizing member is preferably wrapped in a web of nonwoven or formed film material as described herein for the topsheet materials.

In one embodiment, a sanitary napkin can have a stabilizing member in the form of an additional absorbent material placed in the end region/edges. The additional absorbent material could comprise any of the materials specified herein as being suitable for use in the absorbent core. From use of these materials, the end regions/edges can be used not only to provide a stabilizing function to the end regions/edges but also provide some absorption of fluid dispensed in a longitudinal direction towards the regions/edges. The additional absorbent material could also comprise capillary channel fibers (described in greater detail below), or cross-linked cellulose fibers. Suitable cross-linked cellulose fibers are described in U.S. Pat. No. 4,888,093, issued Dec. 19, 1989 to Cook et al.; U.S. Pat. No. 4,822,543, issued Apr. 18, 1989 to Dean, et al.; U.S. Pat. No. 4,889,559, issued Dec. 26, 1989 to Schoggen, et al.; U.S. Pat. No. 4,898,642, issued Feb. 6, 1990 to Moore, et al.; and U.S. Pat. No. 4,935,022 issued Jun. 19, 1990 to Lash et al.

The additional absorbent material could be in any suitable form, including, but not limited to masses or wads of material, single unfolded sheets, folded sheets, strips of material, loose or bonded fibers, multiple layers or laminates of material, layers of foam including polyester and foams developed from high internal phase emulsions (HIPE's) or other combinations of such material. The additional absorbent material could be positioned between any of the components between the topsheet and the backsheet.

Material for a stabilizing member (i.e., hereafter known as "stabilizing material") could, for instance, comprise polymeric gelling agents added or patterned within the end regions and/or along the end edges. In other alternatives, the stabilizing material could include, but not be limited to combinations of polymeric gelling agents and synthetic fibers, natural fibers, or chemically modified natural fibers, such as cross-linked cellulose fibers. In still other alternatives, suitable absorbent fibers such as chemically modified natural fibers may be used as the stabilizing material without the addition of polymeric gelling agents.

One preferred type of stabilizing material is a bi-component fibrous material comprising bi-component fibers having a core of polyethylene which is coated with a sheath of polypropylene. The outside of the bi-component fibers have a lower melting temperature than the inside. Such a material is preferred because the fibers can be heat bonded to each other by melting the outside of the fibers while the inside of the fibers maintain their fibrous integrity instead of melting into an amorphous mass.

Suitable bi-component fibers are commercially available from a company by the name of Chisso. Another material which is suitable for use as the stabilizing material is a fibrous material known as PULPEX, formerly available from Hercules, Inc. of Wilmington, Del.

As previously mentioned herein, another preferred type of stabilizing element for the present invention are those foams developed from high internal phase emulsions (HIPE's) known in the art as functional absorbent materials or HAM foams. Functional absorbent materials are discussed extensively in U.S. Pat. No. 5,387,207, issued to Dyer, et al. and U.S. Pat. No. 5,563,179, issued to DesMarais, et al., each of which are incorporated herein by reference.

The sanitary napkin can be provided with an optional interliner. The optional interliner is used when the sanitary napkin is provided with an absorbent core that has the ability to separate or "decouple" from the backsheet for improved body contact. The concept of decoupling and the characteristics of the interliner are described in U.S. Pat. No. 5,007,906 issued to Osborn, et al. on Apr. 16, 1991 which is incorporated herein by reference.

For each of the embodiments herein stabilizing members 42 may be from any one of the following groups: non-absorbent and pervious; non-absorbent and impervious; non-absorbent and an inherently impervious material but apertured, slit, or the like to make the member itself pervious; or absorbent. Non-absorbent stabilizing members 42 herein may comprise any suitable non-absorbent material. For instance, a non-absorbent stabilizing member 42 may comprise a foam insert, e.g., a functional absorbent material as described in U.S. Pat. No. 5,387,207, issued to Dyer, et al. and is hereby incorporated by reference, or a stiff strip of stiff plastic film.

In a preferred embodiment of the present invention, FIG. 4 shows the sanitary napkin having two flaps 64 each of which are adjacent to and extend laterally from the side edges of the absorbent core. The flaps 64 are configured to drape over the edges of the wearer's panties in the crotch region so that the flaps 64 are disposed between the edges of the wearer's panties and the thighs. The flaps 64 serve at least two purposes. First, the flaps help serve to prevent soiling of the wearer's body and panties by menstrual fluid, preferably by forming a double wall barrier along the edges of the panty. Second, the flaps 64 are preferably provided with attachment means on their garment surface so that the flaps 64 can fold back under the panty and attach to the garment facing side of the panty or one flap 64 to another. In this way, the flaps 64 serve to keep the sanitary napkin 20 properly positioned in the panty. The flaps 64 can be constructed of various materials including materials similar to the topsheet 28, backsheet 30, tissue, or combination of these materials. Further, the flaps 64 may be a separate element attached to the main body of the napkin 20 or can comprise extensions of the topsheet 28 and backsheet 30 (i.e., a unitary construction). A number of sanitary napkins having flaps suitable or adaptable for use with the sanitary napkins of the present invention are disclosed in U.S. Pat. No. 4,687,478 entitled "Shaped Sanitary Napkin With Flaps", which issued to Van Tilburg on Aug. 18, 1987; U.S. Pat. No. 4,589,876 entitled "Sanitary Napkin", which issued to Van Tilburg on May 20, 1986; and U.S. Pat. No. 4,608,047, entitled "Sanitary Napkin Attachment Means", which issued to Mattingly on Aug. 26, 1986. Each of these patents are incorporated herein by reference.

While a preferred sanitary napkin embodiment of the present invention has been described, numerous other sanitary napkin embodiments are disclosed in the literature. These could also be provided with the stabilized end regions/edges of the present invention. Several such sanitary napkins are disclosed in U.S. Pat. No. 4,950,264 issued to Osborn on Aug. 21, 1990, U.S. Pat. No. 5,007,906 entitled "Decoupled Sanitary Napkin" issued to Osborn, et al. on Apr. 16, 1991, U.S. Pat. No. 5,009,653 issued to Osborn on Apr. 23, 1991, U.S. Pat. No. 4,917,697 issued to Osborn, et al. on Apr. 17, 1990, and the aforementioned European Patent Application Publication Nos. 0 335 252 and 0 335 253 published in the name of Buell on Oct. 4, 1989 and European Patent Application Publication No. 0 471 114 A2 on Feb. 19, 1992, and in U.S. patent application Ser. No. 07/605,583 entitled, "Sanitary Napkin Having Components Capable of Separation in Use" filed in the name of Visscher, et al. on Oct. 29, 1990, U.S. patent application Ser. No. 07/630,451 entitled "Sanitary Napkin Having Transversely Segmented Core" filed in the name of Osborn, et al. on Dec. 19, 1990, U.S. patent application Ser. No. 07/707,233 entitled "Sanitary Napkin Having Laterally Extensible Means for Attachment to the Undergarment of the Wearer", filed May 21, 1991 in the name of Osborn, et al.

The sanitary napkin of the present invention can, for example, be provided with a flexure resistant deformation element similar to those described in European Patent Application Publication Nos. 0 335 252 and 0 335 253. The flexure resistant deformation element could be used to assist the sanitary napkin in assuming certain configurations when it is worn. For instance, such an element could be used to make regions of the sanitary napkin predisposed to bend upward or downward when the napkin is worn.

In an alternative embodiment of the sanitary napkin 20 of the present invention the absorbent core 32 of the sanitary napkin 20 may comprise a three layer structure comprising: an acquisition layer; a tissue layer; and a storage layer. The acquisition layer is positioned adjacent the topsheet 28 to rapidly acquire and distribute menses or other body fluids. (Examples of suitable acquisition layers are described in U.S. Pat. No. 5,137,537 issued to Heran & Cooper on Aug. 11, 1992; U.S. Pat. No. 5,009,653 issued to Osborn on Apr. 23, 1991; or WO 93/11725, The Procter & Gamble Company, published on Jun. 24, 1993; each of which is hereby incorporated herein by reference. The tissue layer is positioned between the acquisition layer and the storage layer in order to better distribute menses to the storage layer from the acquisition layer. (The tissue layer is preferably a layer of cellulose tissue such as is marketed by The Procter & Gamble Company under the trademark PUFFS or any other tissue as is known in the art.) The storage layer is designed to retain menses and other body fluids. Thus, the storage layer is positioned adjacent the backsheet 30, between the backsheet 30 and the tissue layer. (The storage layer can be any of the absorbent layers as described herein with respect to an absorbent core but is preferably the superabsorbent laminate such as is described in the above-referenced U.S. Pat. Nos. 4,950,264 and 5,009,653 each issued to Osborn).

Stabilizing members 42 need not be flat, but may have a three-dimensional structure such that it causes better fit within the perineum or gluteal groove allowing discharged exudates to be better retained within the napkin 20. Liquid exudates that are deposited on the core 32 will tend to be distributed radially outward from the place where they are deposited.

The flexure-resistance of the end and central regions of the sanitary napkin herein is measured by peak bending stiffness. Peak bending stiffness is determined by a test

which is modeled after the ASTM D 4032-82 CIRCULAR BEND PROCEDURE, the procedure being considerably modified and performed as follows. The CIRCULAR BEND PROCEDURE is a simultaneous multi-directional deformation of a material in which one face of a specimen becomes concave and the other face becomes convex. The CIRCULAR BEND PROCEDURE gives a force value related to flexure-resistance, simultaneously averaging stiffness in all directions. The CIRCULAR BEND PROCEDURE for the embodiments herein have been altered appropriately to rightly measure flexure-resistance in the end regions/end edges of the sanitary napkin 20 herein. However, the complete procedure is disclosed in U.S. Pat. No. 5,009,653 which patent is hereby incorporated by reference herein.

Apparatus

The apparatus necessary for the CIRCULAR BEND PROCEDURE is a modified Circular Bend Stiffness Tester, having the following parts: A smooth-polished steel plate platform which is 102.0×102.0×6.35 millimeters having an 18.75 millimeter diameter orifice. The lap edge of the orifice should be at a 45 degree angle to a depth of 4.75 millimeters. A plunger having an overall length of 72.2 millimeters, a diameter of 6.25 millimeters, a ball nose having a radius of 2.97 millimeters and a needle-point extending 0.88 millimeter therefrom having a 0.33 millimeter base diameter and a point having a radius of less than 0.5 millimeter, the plunger being mounted concentric with the orifice and having equal clearance on all sides. Note that the needle-point is merely to prevent lateral movement of the test specimen during testing. Therefore, if the needle-point significantly adversely affects the test specimen (for example, punctures an inflatable structure), then the needle-point should not be used. The bottom of the plunger should be set well above the top of the orifice plate. From this position, the downward stroke of the ball nose is to be at the exact bottom of the plate orifice. A force-measurement gauge and more specifically an Instron inverted compression load cell should be used. The load cell has a load range of from about 0.0 to about 2000.0 grams. An actuator to activate the load cell should be used, and more specifically the Instron Model No. 1122 having an inverted compression load cell. The Instron 1122 is made by the Instron Engineering Corporation, Canton, Mass.

Number and Preparation of Specimens

In order to perform the procedure for this test, as explained below, five representative sanitary napkins are necessary. From one of the five napkins having any panty adhesive release paper removed and adhesive blocked, to be tested, some numbers "X" and "Y", each of 37.5×37.5 millimeter test specimens are cut. The "X" specimen is taken from the end regions and will specifically include at least a portion of a stabilizing member 42. The "Y" specimen is taken from the central region 52 and does not comprise any portion of a stabilizing member 42, but rather some portions of all other napkin components within the central region 52. Specimens having portions in which a topsheet is joined directly to a barrier sheet should not be tested. The reason that these specimens are not tested is due to the realization that prior art napkins exist in which a topsheet is joined to a barrier sheet beyond the edges of an absorbent core in the periphery of the napkin, such portions of which are highly flexible. Therefore, a number of different specimens should be tested from each sanitary napkin. The test specimens should not be folded or bent by the test person, and the handling of specimens must be kept to a minimum and to the edges to avoid affecting flexural-resistance properties. From the four remaining sanitary napkins, an equal number of "X" and "Y" of 37.5×37.5 millimeter specimens, identical to the specimens cut from the first napkin, are cut. Thus, the test person should have "X" and "Y" number of sets of five identical specimens.

The procedure for the CIRCULAR BEND PROCEDURE is as follows. The specimens are conditioned by leaving them in a room which is 21.+−1° C. and 50.+−2% relative humidity for a period of two hours. The test plate is leveled. The plunger speed is set at 50.0 centimeters per minute per full stroke length. A specimen is centered on the orifice below the plunger such that the body surface 26 of the specimen is facing the plunger and the garment surface 17 of the specimen is facing the platform. Of course, any panty adhesive release paper (if present) is removed, to simulate in-use conditions. Any panty adhesive (if present) should be blocked, using means well known to those skilled in the art, such as glycerin and/or powder, to prevent the specimen from adhering to the platform and an artificially high peak bending stiffness being obtained. If desired, the specimen may be centered over the orifice with the body surface 26 facing the platform and the garment surface 12 facing the plunger to obviate the need for blocking any adhesive which may be present. The indicator zero is checked and adjusted, if necessary. The plunger is actuated. Touching the specimen during the testing should be avoided. The maximum force reading to the nearest gram is recorded. The above steps are repeated until all five of the identical specimens have been tested.

Calculations

The peak bending stiffness for each specimen is the maximum force reading for that specimen. Remember that "X" and "Y" number of sets of five identical specimens were cut. Each set of five identical specimens is tested and the five values received for that set are averaged. Thus, the test person now has an average value for each of the "X" and "Y" sets tested.

The sanitary napkin 20 of the present invention has a liquid capacity great enough to absorb medium to high menstrual flows. Two capacities, which, depending on the size of the sanitary napkin may be the same, are determinable: test capacity and total capacity. Preferably, the sanitary napkin 20 of the present invention has a test capacity of at least about 8.0 grams, more preferably of at least about 15.0 grams, and most preferably of at least about 18.0 grams. Preferably, the sanitary napkin 20 of the present invention has a total capacity of at least about 20.0 grams, more preferably of at least about 30.0 grams, and most preferably of at least about 40.0 grams.

Capacity Testing

The test and total capacities of a sanitary napkin are determined as follows. Any panty adhesive release paper is removed from the napkin to be tested. To determine test capacity, a sample is obtained from a 4.75×14.0 centimeters portion, or any other configuration having 66.5 square centimeters, of the sanitary napkin. The sample is cut from the portion of the sanitary napkin which would be centered under the vaginal orifice when the sanitary napkin is worn. Total capacity is determined using a sample comprising the entire napkin minus any release paper.

The sample is weighed to the nearest 0.1 gram. The sample is then submerged in a beaker of sterile saline (obtainable from the Baxter Travenol Company of Deerfield, Ill.), such that the sample is totally submerged and is not bent or otherwise twisted or folded. The sample is submerged for 10 minutes. The sample is removed from the saline and suspended for two minutes in a vertical position to allow the saline to drain out of the sample. The sample is

than placed body facing surface down onto an absorbent blotter, such as the filter paper #631 available from the Filtration Science Corp., Eaton-Dikeman Division of Mount Holly Springs, Pa. A uniform 17.6 grams per square centimeter load is placed over the sample to squeeze excess fluid out. The absorbent blotter is replaced every 30 seconds until the amount of fluid transferred to the absorbent blotter is less than 0.5 grams in a 30 second period. Next, the sample is weighed to the nearest 0.1 gram and the dry weight of the sample is subtracted. The difference in grams is the test or total capacity of the sample, whichever the case may be.

The sanitary napkin 20 should preferably be scaled to the width of the crotch of the underwear of the wearer. A sanitary napkin 20 having a central absorbent width which registers the absorbent with the edges of the underwear crotch is particularly preferred. For relatively narrower underwear crotches, having a width of about 3.7 to about 6.4 centimeters, a sanitary napkin having a central absorbent width 63 of about 3.7 to about 6.4 centimeters works well.

The term "central absorbent width" and a method of measuring the same are described in U.S. Pat. No. 5,009,653.

The sanitary napkins 20 of the present invention are relatively thin. It is preferred to keep the sanitary napkins 20 of the present invention relatively thin so that the sanitary napkins 20 of the present invention will be unobtrusive and the user will have a low awareness of the sanitary napkin while it is being worn. The sanitary napkin 20 shown in FIG. 1 may have a caliper of about 1.9 millimeters. The caliper of a sanitary napkin 20, or various regions thereof, is determined by the following test.

A comparator gauge, and specifically the Ames, Model 130 with dial indicator Model 482, available from the B.C. Ames, Company of Waltham, Mass. is needed. The comparator gauge should have a circular comparator foot made of aluminum and having a weight of 10.0 grams and a contact surface of 5.16 square centimeters. The comparator gauge is zeroed. An 80.0 grams stainless steel weight is placed on the spindle extending above the comparator dial. The comparator foot is raised and the napkin, with any panty adhesive release paper being removed and the adhesive is sprinkled with corn starch, and napkin is placed garment surface down on the base plate. The napkin is positioned on the base plate so that when the foot is lowered it is in the region of the napkin for which the measurement is desired. Try to smooth out or avoid any wrinkles in the napkin. Gently lower the foot onto the napkin. Determine the napkin caliper by reading the comparator dial 30 seconds after the foot comes in contact with the napkin.

While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

What is claimed is:

1. A sanitary napkin comprising a longitudinal centerline, a transverse centerline, a pair of longitudinal edges, two end edges, a first end region extending from one of said end edges toward said transverse centerline, and a second end region extending from said other end edge toward said transverse centerline, each said first end region and said second end region comprising at least one stabilizing member, and a central region having absorbable material therein, said stabilizing members beings positioned substantially only within said end regions and said central region being positioned between said first and said second end regions, said sanitary napkin comprising:

a first surface; and

a second surface opposed to said first surface

wherein said central region has a transverse width greater than or equal to about 5 centimeters, and the flexural-resistance of said sanitary napkin as measured through at least one end region is greater than the flexural-resistance of said sanitary napkin as measured through said central region, and said sanitary napkin has a caliper less than about 5 millimeters as measured through said first and said second end regions.

2. The sanitary napkin of claim 1 wherein said first and said second end regions each comprise at least one said stabilizing member positioned adjacent said first and said second end edges.

3. The sanitary napkin of claim 1 having a caliper as measured through said first and said second end regions no greater than about 3 millimeters.

4. The sanitary napkin of claim 3 wherein said first and said second end regions extend from said end edges of said sanitary napkin between about 1/10 and 1/5 of the length of said sanitary napkin toward said transverse centerline.

5. The sanitary napkin of claim 1 wherein the flexural-resistance of said first and said second end regions is at least about 25 percent greater than the flexural-resistance of said central region.

6. The sanitary napkin of claim 1 wherein said flexural-resistance of said first and said second end regions is at least about 50 percent greater than said flexural-resistance of said central region.

7. The sanitary napkin of claim 1 wherein the flexural-resistance of said central region is no greater than about 600 grams.

8. The sanitary napkin of claim 1 wherein the flexural-resistance of said first and said second end regions is no greater than about 1000 grams.

9. A sanitary napkin having a longitudinal centerline, a transverse centerline, two longitudinal edges, two end edges, a first end region extending from one of said end edges toward said transverse centerline, a second end region extending from said other end edge toward said transverse centerline, each said first end region and said second end region comprising at least one stabilizing member, said stabilizing member being positioned substantially only within said end regions and a central region positioned between said first and said second end regions, said sanitary napkin comprising:

a liquid pervious topsheet;

a liquid impervious backsheet joined to said topsheet; and

an absorbent core positioned between said topsheet and said backsheet, said absorbent core having two longitudinal edges and a width defined by said longitudinal edges

wherein said central region has a transverse width greater than or equal to about 5 centimeters, and the flexural-resistance of said sanitary napkin as measured through said first and said second end regions is greater than

said flexural-resistance of said sanitary napkin as measured through said central region, said sanitary napkin having a caliper as measured through said first and said second end regions of less than about 5 millimeters.

10. The sanitary napkin of claim 9 wherein said first and said second end edges each comprise at least one said stabilizing member.

11. The sanitary napkin of claim 9 having a caliper as measured through said first and said second end regions no greater than about 3 millimeters.

12. The sanitary napkin of claim 11 wherein said first and said second end regions extend from said end edges of said sanitary napkin between about ¼ and ½ of the length of said sanitary napkin toward said transverse centerline.

13. The sanitary napkin of claim 9 wherein said flexural-resistance of said first and said second end regions is at least about 25 percent greater than said flexural-resistance of said central region.

14. The sanitary napkin of claim 9 wherein said flexural-resistance of said first and said second end regions is at least about 50 percent greater than said flexural-resistance of said central region.

15. The sanitary napkin of claim 9 wherein said flexural-resistance of said central region is no greater than about 600 grams.

16. The sanitary napkin of claim 9 wherein said flexural-resistance of said first and said second end regions is no greater than about 1000 grams.

* * * * *

United States Patent [19]

Van Tilburg

[11] Patent Number: 4,589,876

[45] Date of Patent: May 20, 1986

[54] SANITARY NAPKIN

[75] Inventor: Kees J. Van Tilburg, Cincinnati, Ohio

[73] Assignee: The Procter & Gamble Company, Cincinnati, Ohio

[21] Appl. No.: 591,621

[22] Filed: Mar. 20, 1984

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 511,118, Jul. 5, 1983.

[51] Int. Cl.[4] A61F 13/16

[52] U.S. Cl. ..... 604/385 R; 604/393

[58] Field of Search 604/381, 387, 375, 370, 604/395

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[57] ABSTRACT

A sanitary napkin. The sanitary napkin comprises a central absorbent pad and flaps extending from each longitudinal edge of the central absorbent pad. The body of each flap contains a flexible axis about which the flap can fold on itself. The sanitary napkin preferentially bends at the line of juncture between each flap and the longitudinal edge of the central absorbent pad. When the sanitary napkin is in a panty for use, each flap bends upwardly at the lines of juncture between the flaps and the longitudinal edges of the central absorbent pad to form the base of a wall. This wall extends to the flexible axis in the body of the flap which is folded around the edge of the crotch portion of the panty. The sanitary napkin of the present invention provides effective protection to the user during the menstrual period by preventing body and clothing soiling while being comfortable to wear.

18 Claims, 11 Drawing Figures

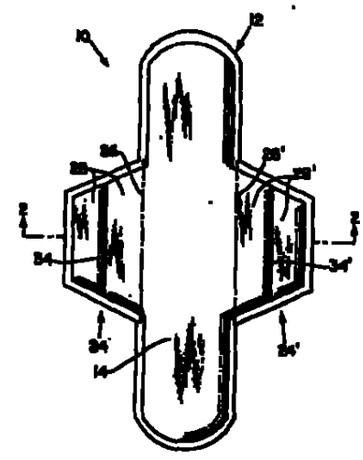

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Fig. 1

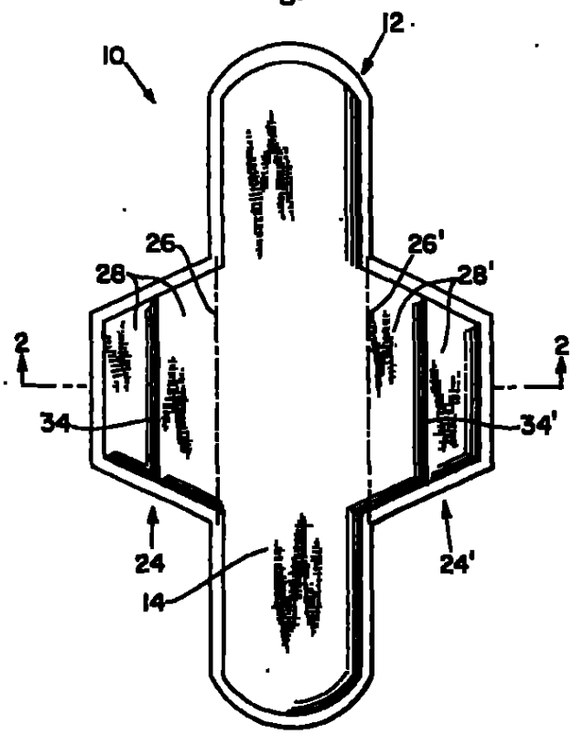

Fig. 2

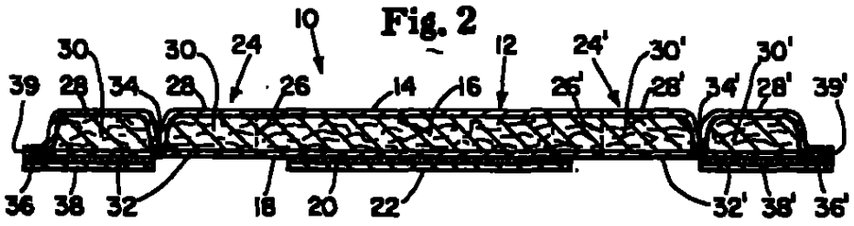

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Fig. 3

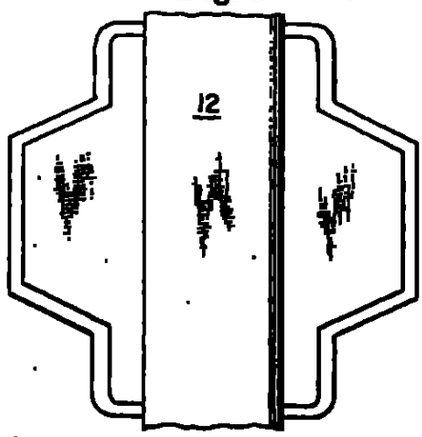


Fig. 4

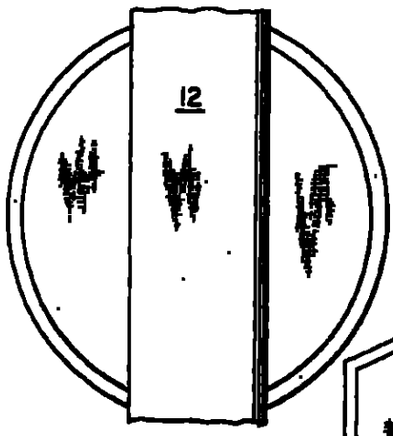


Fig. 5

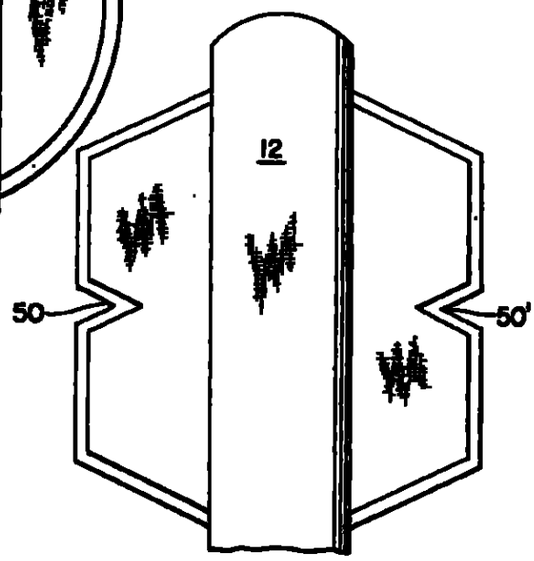


Fig. 6

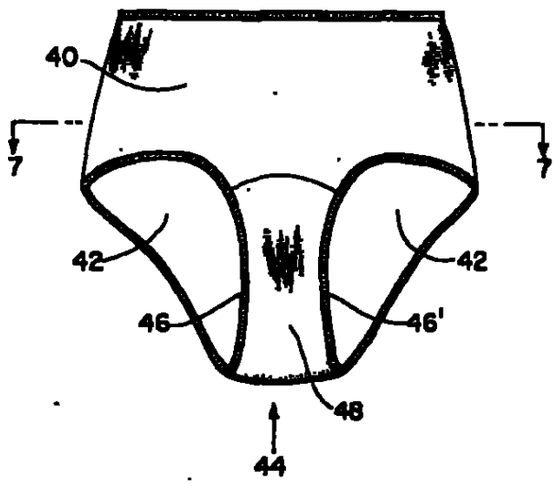


Fig. 7

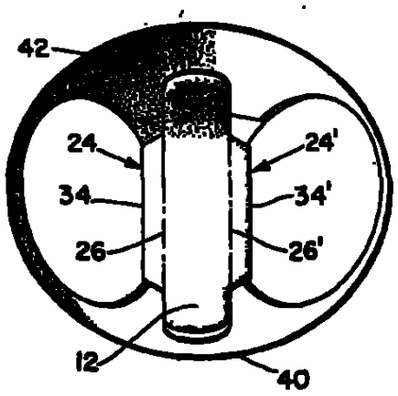


Fig. 8

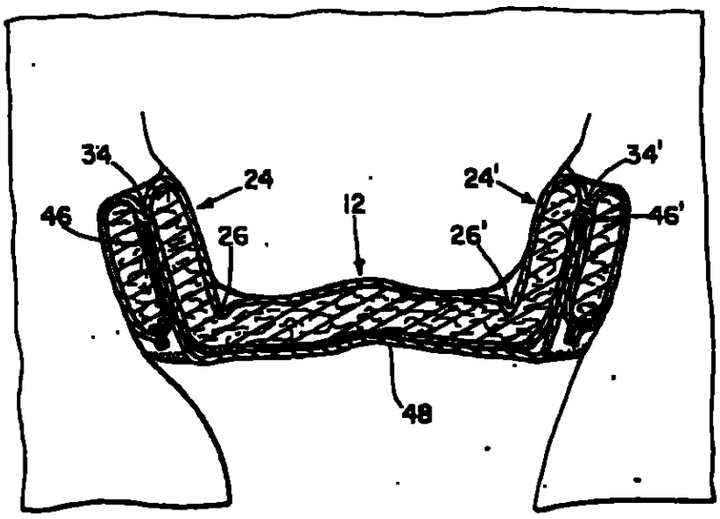


Fig. 11

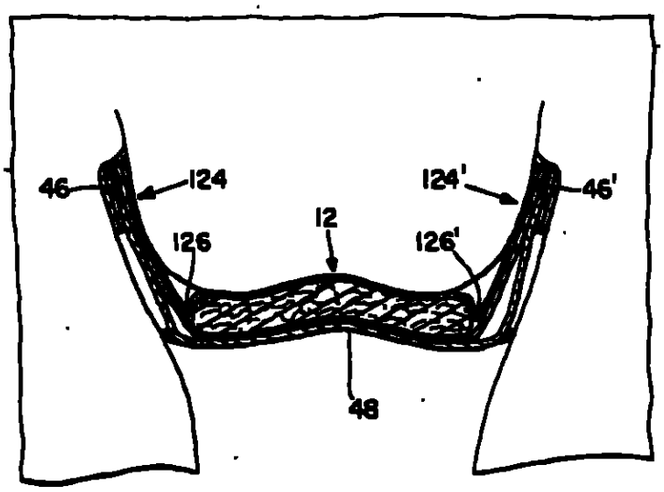


Fig. 9

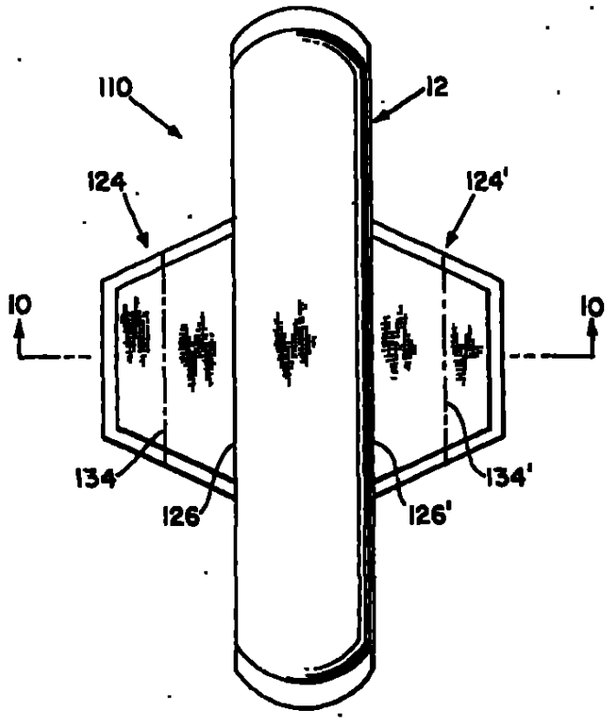
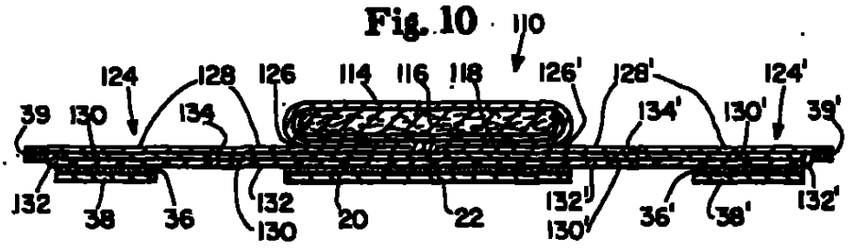


Fig. 10



SANITARY NAPKIN

CROSS-REFERENCE TO RELATED APPLICATION

This is a continuation-in-part of U.S. patent application Ser. No. 511,118 filed July 5, 1983.

BACKGROUND INFORMATION

This invention relates to a sanitary napkin. More particularly, this invention relates to a sanitary napkin that comprises a central absorbent pad that contains a flap extending from each longitudinal edge of the central absorbent pad. The body of each flap contains a flexible axis about which the flap can fold on itself. The sanitary napkin preferentially bends at the line of juncture of each flap and the longitudinal edge of the central absorbent pad. When the sanitary napkin is in a panty for use, each flap bends upwardly at the line of juncture of the flap and longitudinal edge of the central absorbent pad to form the base of a wall. The wall extends to the flexible axis in the body of the flap which is folded around the edge of the crotch portion of the panty. The sanitary napkin of the present invention provides extremely effective protection to the user during the menstrual period by preventing panty, body and clothing soiling while at the same time providing the utmost in comfort.

Clark, in U.S. Pat. No. 2,787,271 issued on Apr. 2, 1957; describes a sanitary napkin comprising a rectangular central pad and a pair of lateral flaps fabricated integrally with the pad. These flaps are adapted to fold downwardly and bear against the opposed inner surfaces of the thighs of the wearer to arrest any overflow from the central pad which would normally stain clothing. This sanitary napkin is so fabricated that the lateral flaps will bend downwardly along straight parallel hinge lines defining the respective sides of the central pad. The central pad has a core body which is a soft, absorbent, fibrous material, such as absorbent cotton, and which extends without interruption into the lateral flaps. The hinges are formed by compressing (as by steam pressing with relatively sharp-edged pressing tools) along the lateral margins of the core body in the central pad.

Rickard, in U.S. Pat. No. 3,397,697 issued Aug. 20, 1968, describes a disposable sanitary shield for undergarments. This device comprises an elongate sheet of flexible material divided into at least two panels which are joined by an intermediate neck-like portion. The edge portions of one of the panels adjacent the neck-like portion comprises opposed wing-like flaps adapted to be folded over each other and to confine and encircle the crotch portion of a panty undergarment. The width of the crotch portion of the panty is thus restricted by an encircling absorbent band which is in freely slideable relationship with the crotch portion of the panty.

McNair, in U.S. Pat. No. 4,285,343 issued Aug. 25, 1981, describes a sanitary napkin comprising a central elongate absorbent pad element having side panels extending laterally therefrom. The side panels may be formed either integrally with the central element or they may be formed separately and secured to the longitudinal edges of the central absorbent pad. Lines of common juncture between the central element and the side panels must be flexible so that each side panel can be folded about the respective lateral edge of the central absorbent pad and toward the backside of the central element when the device is used. In use, the central element is adhesively secured to the innerside of the crotch portion of the undergarment and each side panel is folded over to encompass at least half of the outer surface of the crotch portion of the undergarment.

SUMMARY OF THE INVENTION

The present invention relates to a sanitary napkin that includes a central absorbent pad that comprises a liquid pervious topsheet, a liquid impervious backsheet and an absorbent core interposed between the topsheet and backsheet. Each longitudinal edge of the central absorbent pad has a flap extending from it. The sanitary napkin preferentially bends at the line of juncture of each flap and the longitudinal edge of the central absorbent pad. Each flap preferably comprises a liquid pervious topsheet, a liquid impervious backsheet and an absorbent core interposed between the topsheet and backsheet. Additionally, each flap has a flexible axis located in the body of the flap which allows the flap to be folded on itself. In a preferred embodiment, each entire flap is flexible.

The sanitary napkin of the present invention provides numerous benefits. When the sanitary napkin is in use, a gasket-like seal is formed between the body of the user and the flaps along the flexible axis in the body of the flaps. This seal assists in preventing the menstrual fluid from penetrating beyond the flexible axes in the body of the flaps. Additional benefits result from the sanitary napkin preferentially bending at the line of juncture of each flap and the longitudinal edge of the central absorbent pad. Inherent bunching, defined below, causes the formation of flow channels, also defined below, being formed essentially only in the central absorbent pad, i.e. not the flaps. Also, the sanitary napkin can withstand much forced bunching, defined below, before flow channels are formed. Further, even if the forced bunching is harsh enough to create flow channels, the channels will be limited to the central absorbent pad and, therefore, the gasket-seal will remain intact and, thus, assist in preventing the menstrual fluid from penetrating beyond the flexible axes in the body of the flaps. Finally, even if the forced bunching is so great that flow channels are created in both the central absorbent pad and the flaps, the menstrual fluid is restrained from penetrating beyond the flexible axes in the body of the flaps.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a preferred sanitary napkin of the present invention.

FIG. 2 is a sectional view taken along line 2—2 of FIG. 1.

FIGS. 3, 4 and 5 are plan views of fragmentary portions of alternate sanitary napkin embodiments of the present invention.

FIG. 6 is a front view of a conventional panty in which embodiments of the present invention can be used.

FIG. 7 is a sectional view of the panty of FIG. 6 taken along line 7—7 of FIG. 6 and having a sanitary napkin such as shown in FIG. 1 disposed therein.

FIG. 8 is a fragmentary coronal view showing the sectioned sanitary napkin and panty of FIG. 7 in place on a user.

FIG. 9 is a plan view of an alternate embodiment of the sanitary napkin of the present invention.

FIG. 10 is a sectional view taken along line 9—9 of FIG. 9.

FIG. 11 is a fragmentary coronal view showing the sectioned panty of FIG. 6 and sectioned sanitary napkin of FIG. 9 in place on a user.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

A preferred embodiment of the sanitary napkin of the present invention is shown in FIGS. 1 and 2. The sanitary napkin is generally referred to by reference numeral 10. Sanitary napkin 10 comprises a central absorbent pad which is generally referred to by reference numeral 12. Central absorbent pad 12 is comprised of liquid pervious topsheet 14, absorbent core 16 and liquid impervious backsheet 18. Secured to backsheet 18 is a layer of adhesive 20 which is covered by removable release liner 22. Extending from each longitudinal edge of the central absorbent pad 12 are flaps 24 and 24'. Flaps 24 and 24' are preferably of similar configuration and, therefore, the detailed description of flap 24 will be understood to be applicable to the 24'. A line of juncture 26 is formed where flap 24 joins the longitudinal edge of central absorbent pad 12. Flap 24 comprises liquid pervious flap topsheet 28, flap absorbent core 30 and liquid impervious flap backsheet 32. Flap 24 is flexible along an axis 34. Secured along the outer edge of flap backsheet 32 is a layer of flap adhesive 36 which is covered by removable flap release liner 38.

Topsheet 14 is liquid permeable and, when sanitary napkin 10 is in use, is in close proximity to the skin of the user. Topsheet 14 is compliant, soft feeling and non-irritating to the user's skin. It can be made from any of the conventional materials for this type of use. Nonlimiting examples of suitable materials that can be utilized as the topsheet 14 are woven and nonwoven polyester, polypropylene, nylon, and rayon are formed thermoplastic films, with formed films being preferred. Suitable formed films are described in U.S. Pat. No. 4,324,246 issued to Mullane and Smith on Apr. 13, 1982 and U.S. Pat. No. 4,342,314 issued to Radel and Thompson on Aug. 3, 1982, both of which patents are incorporated herein by reference. The formed films are preferred for topsheet 14 because they are pervious to liquids and yet non-absorbent. Thus, the surface of the formed film, which is in contact with the body, remains dry and is more comfortable to the wearer.

In preferred embodiments of the present invention, the outer surface of topsheet 14 is treated with a surfactant. Treating the outer surface of topsheet 14 with surfactant renders such surface more hydrophilic which results in liquid penetrating topsheet 14 faster than if the surface were not treated. This diminishes the likelihood that the menstrual fluid will flow off topsheet 14, which results in clothing and body soiling, rather than being absorbed by absorbent core 16. It is preferred that the surfactant be substantially evenly and completely distributed throughout the outer surface of topsheet 14. This can be accomplished by any of the common techniques well known to those skilled in the art. For example, the surfactant can be applied to topsheet 14 by spraying, by padding or by the use of transfer rolls.

In preferred embodiments, the inner surface of topsheet 14 is secured in contacting relation to absorbent core 16. This contacting relationship results in liquid penetrating the topsheet 14 faster than if it were not in contact with absorbent core 16. Topsheet 14 can be maintained in contact with the absorbent core 16 by applying adhesive, preferably in spaced limited areas, to the inner surface of the topsheet 14. Examples of suitable adhesives used for such purpose include the acrylic emulsion E-1833BT manufactured by the Rohm & Haas Company, Philadelphia, Pa. and the acrylic emulsion WB 3805 manufactured by H. B. Fuller Company of St. Paul, Minn. The adhesives can be applied by the same methods as the surfactant is applied to the outer surface of topsheet 14.

Referring again to FIGS. 1 and 2, it can be seen that absorbent core 16 is positioned between topsheet 14 and backsheet 18. Absorbent core 16 provides the absorptive means for absorbing the menstrual fluid. Absorbent core 16 is generally compressible, conformable and non-irritating to the user's skin. It can comprise any material used in the art for such purpose. For example, suitable materials are layers of tissue paper or fibrated comminution pulp, (known as airfelt), with fibrated comminution pulp being preferred.

Backsheet 18 is impervious to liquids and, thus, prevents menstrual fluid which may be expressed from absorbent core 16 from soiling the body or clothing of the user. Any backsheet material used in the art for such purpose can be utilized herein. Suitable materials are embossed or nonembossed polyethylene films and laminated tissue.

The outer surface of backsheet 18 is coated with adhesive 20. Adhesive 20 provides a means for securing central absorbent pad 12 in the crotch portion of a panty. Any adhesive or glue used in the art for such purpose can be used herein, with pressure sensitive adhesives being preferred. Suitable adhesives are Century A-305-IV manufactured by the Century Adhesives Corporation and Instant Lok 34-2823 manufactured by the National Starch Company. Also, before sanitary napkin 10 is placed in use, the pressure sensitive adhesive 20 should be covered with removable release liner 22 in order to keep adhesive 20 from drying out or sticking to a surface other than the crotch portion of the panty prior to use. Any commercially available release liners commonly used for such purposes can be utilized herein. Nonlimiting examples of suitable release liners are BL 30 MG-A Silox E1/0 and BL 30 MG-A Silox 4 P/O both of which are manufactured by the Akrosil Corporation.

Central absorbent pad 12 can be essentially of any dimension. However, it is preferred that the width of central absorbent pad 12 between lines of juncture 26 and 26' be relatively quite narrow. The crotch width of panties is generally about 7.5 centimeters. If the width of central absorbent pad 12 between lines of juncture 26 and 26' is wider than the width of the panty crotch, then the walls, as discussed below, are not as apt to be formed. Without the walls, numerous benefits of the sanitary napkin of the present invention are not obtained. Furthermore, in general, the narrower the central absorbent pad 12, the longer the walls will be.

It should also be noted that a narrow central absorbent pad 12 is also effective because the overall configuration and use of the sanitary napkin 10 results in central absorbent pad 12 being maintained in close proximity to the body. Such proximity of central absorbent pad 12 places it precisely where it should be: very near the body at the vaginal opening. Central absorbent pad 12 can then absorb the vast majority of the menstrual fluid before it has an opportunity to flow along central absorbent pad 12. Thus, there is no advantage for the central absorbent pad 12 to be wide. It is preferred that the

width of central absorbent pad 12 between lines of juncture 26 and 26' be from about 1 to about 11.5 centimeters, more preferably from about 2 to about 7 centimeters, and most preferably from about 2 to about 5 centimeters.

Central absorbent pad 12 need not have an absorbent capacity much larger than the total amount of menstrual fluid to be absorbed: Thus, central absorbent pad 12, in addition to being narrow, can be relatively very thin. Furthermore, a narrow and thin central absorbent pad 12 is extremely comfortable to the user.

Referring again to FIGS. 1 and 2, flap topsheet 28 is liquid permeable, permitting liquids to readily penetrate through it. Further, it is compliant and non-irritating to the wearer's skin. Flap topsheet 28 can be made of any of the conventional materials that are used for this purpose. The same materials that can be used as topsheet 14, as discussed above, can be used for flap topsheet 28. Also, as with topsheet 14, and for the same reasons, flap topsheet 28 can be treated with surfactant and can be secured such that it is in contacting relationship with flap absorbent core 30. This can be accomplished as described above.

Flap absorbent core 30 is positioned between flap topsheet 28 and flap backsheet 32. Flap absorbent core 30 provides a means for absorbing the menstrual fluid that is not absorbed by absorbent core 16. Flap absorbent core 30 is generally compressible, conformable and non-irritating to the user's skin. It can be made from any of the materials that can be used to make central absorbent core 16, as described above.

Flap backsheet 32 is impervious to liquids, thereby preventing any menstrual fluid expressed from flap absorbent core 30 from soiling the body or clothing of the user. Flap backsheet 32 can be constructed of any of the materials that can be used to construct backsheet 18, as described above.

Attached to the outer surface of flap backsheet 18 is flap adhesive 36. Flap adhesive 36 is used to assist in maintaining the flap 24 in position after it is wrapped around the edge of the crotch portion of a panty. When sanitary napkin 10 is placed in a panty for use, flap adhesive 36 is secured to the inner or outer portion of the center crotch area of the panty or to the fluid pervious top layer of the other flap. The same materials used for adhesive 20 can also be used for flap adhesive 36. Also, just as adhesive 20, flap adhesive 36 is preferably covered with removable flap release liner 38. The same release liner materials that are used for release liner 22 can also be used for flap release liner 38.

As shown in FIGS. 1 and 2, topsheet 14 and flap topsheet 28 are secured to backsheet 18 and flap backsheet 32, respectively, along seam 39. Seam 39 can be formed by any means commonly used in the art for this purpose such as by gluing, crimping or heat sealing. As an alternative to forming seam 39, topsheet 14 and flap topsheet 28 can be individually or jointly wrapped completely around the absorbent core and backsheet and be sealed to themselves by the same means used to form seal 39.

Referring again to FIGS. 1 and 2, flap 24 contains flexible axis 34. As discussed below, flap 24 is folded, in use, around the edge of the crotch portion of a panty along flexible axis 34. It is essential that flexible axis 34 be located in the body of the flap and not along the line of juncture 26. If flexible axis 34 were to be along line of juncture 26, then no well, as discussed below, would be formed because sanitary napkin 10 would have no separate axis on which the flap 24 could be folded on itself.

It is essential that flap 24 be flexible along axis 34 so that flap 24 can fold over on itself. Such flexibility permits a good gasket-like seal to be formed between the edge of the outer fold in flap 24 and the body of the user. It also permits the portion of the flap beyond flexible axis 34 to be folded below the panty so that the outer portion of flap 24 (beyond flexible axis 34) does not chafe the leg of the user.

Numerous methods can be used to render flexible axis 34 flexible. For example, the absorbent core can be scored, compressed, reduced or eliminated along flexible axis 34. It is preferred that flexible axis 34 have a flexibility such that it has a resistance to bending through 90° of less than about 200 grams, more preferably less than about 50 grams, and most preferably less than about 25 grams as measured under TAPPI standard conditions with a PCA Score Bend Tester manufactured by the Thwing-Albert Instrument Company, Philadelphia, Pa. with a flexible axis 34 which is 7.6 centimeters long and which is maintained 2.54 centimeters above the bottom edge of the tilting plate of the tester.

Flap 24 can be of essentially any shape; it need not be centered along the longitudinal edge of sanitary napkin 10. Exemplary shapes of flaps are shown in FIGS. 3; 4 and 8. The flaps of FIG. 3 are extended along the longitudinal edge of the central absorbent pad. Such extension provides additional protection in order to prevent soiling. The notches 50 and 50' in FIG. 8 are to permit the flap to be wrapped around the edge of the crotch portion of a panty without the flap wrinkling.

Referring to FIGS. 1 and 2, line of juncture 26 is formed where flap 24 meets the longitudinal edge of central absorbent pad 12. Flap 24 can either be integral to central absorbent pad 12 or be a separate member affixed to the central absorbent pad 12 at line of juncture 26. Topsheet 14 and flap topsheets 28 and 28' can be cut from a single continuous piece of material; backsheet 18 and flap backsheets 32 and 32' can be cut from a single piece of liquid impervious material.

It is essential that sanitary napkin 10 preferentially bend at the lines of juncture 26 and 26'. Sanitary napkin 10 preferentially bends at lines of juncture 26 and 26' because lines of juncture 26 and 26' are shorter than the longitudinal edge of central absorbent pad 12. However, if lines of juncture 26 and 26' are of the same length as central absorbent pad 12, then lines of juncture 26 and 26' must be rendered flexible so that the sanitary napkin 10 preferentially bends at lines of juncture 26 and 26'. This can be accomplished by the same methods used to render flexible axis 34 flexible.

In use, sanitary napkin 10 can be held in place by any support means well known for such purpose. Belts worn about the waist of the user can be used. The sanitary napkin can be pinned to the user's garments. Preferably, the sanitary napkin is placed in the user's panty, as described below.

FIG. 6 is an undergarment of the type commonly worn by many women and well known as a panty. It comprises front section 40, back section 42, and crotch portion 44 which joins the front and back sections. The crotch portion comprises two side edges, 46 and 46', and center crotch portion 48.

Sanitary napkin 10 of the present invention is used by removing release liners 22, 38 and 38' and thereafter placing the sanitary napkin in a panty as shown in FIG.

7. The center of central absorbent pad 12 is placed in crotch portion 44 of the panty with one end of central absorbent pad 12 extending toward front section 40, and one end toward back section 42 of the panty, and with backsheet 18 in contact with the inner surface of the panty. Adhesive 20 maintains central absorbent pad 12 in such position. Flaps 24 and 24' are folded around side edges 46 and 46' of the panty along flexible axes 34 and 34'. Flap adhesives 36 and 36' secure flaps 24 and 24' in such position and thereby assist in preventing flaps 24 and 24' from becoming unwrapped from around side edges 46 and 46'. Thus flaps 24 and 24' are folded over on themselves.

Numerous benefits are derived from the use of the sanitary napkin of the present invention. Flaps 24 and 24' are wrapped around each edge of the crotch portion 44 of the panty as shown in FIG. 7. This encapsulation of the panty crotch assists in preventing the menstrual fluid from coming into contact with the center crotch portion of the panty. Thus, the center crotch portion of the panty will not be soiled.

There are two other benefits. One is that the portion of the flaps containing the flexible axes around which the flaps are folded (such as flexible axes 34 and 34' of flaps 24 and 24') provide an excellent gasket-like seal against the body. The other is that the central absorbent pad, such as central absorbent pad 12, is maintained in excellent contiguous relationship to the body.

The edge of the crotch portion of a panty generally contains an elastic material. When a panty is worn, the elastic of the edge of the crotch portion generates an upward force, i.e., against the body, due to the energy in the elastic and the fit of the panty. The placement of the flexible axes, such as flexible axes 34 and 34', between the body and the edges of the crotch portion of the panty results in the upward force generated by the edge of the crotch portion of the panty pushing the portion of the flaps containing the flexible axes snugly against the body. This results in a gasket-like seal being formed along the flexible axes between the flaps and the body. This is illustrated in FIG. 8 which is a fragmentary coronal view showing the sectioned sanitary napkin and panty of FIG. 7 in place on a user. (A coronal view is the frontal plane that passes through the long axis of the body.) The gasket-like seal assists in preventing menstrual fluid from penetrating beyond the flexible axes which, in turn, minimizes soiling of the legs and adjoining clothing. Another benefit derived from the flaps being pushed snugly against the body along the flexible axes is that the central absorbent pad is forced into close proximity to and into conformity with the body. This, too, is illustrated in FIG. 8. The maintenance of the central absorbent pad against the body is known as "good body contact". Good body contact is beneficial because it provides a barrier to lateral flow of menstrual fluid. Without such a barrier, menstrual fluid would tend to flow quickly along the topsheet, thereby providing less time for it to be absorbed by the absorbent core. Unabsorbed menstrual fluid can flow beyond the sanitary napkin and produce clothing and body soiling.

Inherent bunching is the formation of wrinkles along the lateral axes of a sanitary napkin resulting from the initial placement of the sanitary napkin in a panty for use. This is due to the facts that a sanitary napkin is essentially linear along its longitudinal axis and that the anatomical contour of the body where the sanitary napkin is placed is essentially "U" shaped. Thus, as soon as a sanitary napkin is put in place, its shape is changed along its longitudinal axis from being essentially linear to "U" shaped. This change in shape creates wrinkles along the lateral axes of the sanitary napkin, with the vast majority of the wrinkles being at the point of greatest curvature of the body, i.e. the crotch area.

Forced bunching is the wrinkling of a sanitary napkin, along either its lateral or longitudinal axes, caused by movement of the legs of the user.

Wrinkles in a sanitary napkin created by inherent and forced bunching are known as flow channels because menstrual fluid can easily flow along the trough of the wrinkle because there is little body contact along the wrinkle.

The sanitary napkin of the present invention provides numerous benefits due to the fact that it preferentially bends at the line of juncture of each flap and the longitudinal edge of the central absorbent pad. In particular, the benefits provided are that:

(1) inherent bunching results in flow channels being formed substantially only in the central absorbent pad, not the flaps;

(2) the sanitary napkin of the present invention can withstand much forced bunching before flow channels are created;

(3) even if the forced bunching is harsh enough to create flow channels, the channels formed will be essentially limited to the central absorbent pad; and

(4) even if the forced bunching is so great that flow channels are created in both the central absorbent pad and the flaps, menstrual fluid is restrained from penetrating beyond the flexible axes of the flaps.

These four benefits are obtained because the sanitary napkin of the present invention preferentially bends at the line of juncture of each flap and the longitudinal edge of the central absorbent pad. The anatomical features of the crotch area of a woman are such that the crotch width is substantially trapezoidal shaped, with the center area of the crotch, which is located at the vaginal opening, being the base of the trapezoid. When the sanitary napkin of the present invention, such as shown in FIG. 1, is in use, the anatomical features of the crotch area force the sanitary napkin to preferentially bend at the line of juncture of each flap and the longitudinal edge of the central absorbent pad. This results in the sanitary napkin forming a wall at each longitudinal edge of the central absorbent pad; the wall extends from the line of juncture of the flaps and the central absorbent pad (26, 26') to the flexible axes of the flaps (34, 34') as illustrated in FIG. 8. Thus, in use, the sanitary napkin of the present invention has a wall-like shape with the plane formed by the flexible axes (34 and 34') that are wrapped around the edge of the crotch portion of the panty (46, 46') being higher than the plane formed by the lines of juncture (26 and 26').

Inherent bunching in the sanitary napkin of the present invention is substantially limited to the central absorbent pad. Essentially no flow channels are formed in the walls. Without being bound by any theory, it is believed that when the flow channels are being formed, the energy creating the flow channels is transmitted across the central absorbent pad and the flow channels are extended. This proceeds until the flow channels reach the longitudinal edges of the central absorbent pad. The flow channels extend no farther than this because, it is believed, the line of juncture of each flap and the longitudinal edge of the central absorbent pad relieves the energy extending the flow channels. Thus the flow channels will not reach the gasket-like seal and,

therefore, it will remain intact. When menstrual fluid is released, the gasket-like seal will still form a dam and block the flow of the menstrual fluid. Menstrual fluid can then be absorbed by the absorbent core.

The sanitary napkin of the present invention can withstand much forced bunching before any flow channels are created because the energy transmitted to the sanitary napkin by the forced bunching results in the walls tending to rotate around each line of juncture 26 and 26'. Without such rotation flow channels would be formed. In fact, forced bunching does not result in the formation of flow channels in the sanitary napkin of the present invention until the sanitary napkin has been compressed to the width of the central absorbent pad.

Even if the forced bunching is harsh enough to create flow channels, the channels will be substantially limited to the central absorbent pad. This is true for the same reasons that inherent bunching forms flow channels only in the central absorbent pad. Therefore, the gasket-like seal will remain intact and form a dam and block the flow of menstrual fluid until it can be absorbed by the absorbent core.

Even if the forced bunching is so great that flow channels are created in both the central absorbent pad and the flaps, menstrual fluid is restrained from penetrating beyond the flexible axes of the flaps. Such flow channels are likely to break the gasket-like seal. However, menstrual fluid is restrained from penetrating beyond the flexible axes of the flaps because the walls themselves will form a barrier to flow of menstrual fluid. Menstrual fluid would have to flow up the walls, which is substantially directly against the force of gravity when the user is in an upright position, in order to penetrate the break in the gasket-like seal. Thus the walls themselves restrain the flow of the menstrual fluid.

In summary, the sanitary napkin of the present invention forms flow channels essentially only in the central absorbent pad which results in the gasket-like seal remaining intact. Thus, menstrual fluid will not flow beyond the gasket-like seal. However, if the forced bunching is so great that the gasket-like seal breaks, the walls restrain the flow of menstrual fluid.

FIGS. 9 and 10 illustrate an alternate embodiment of the sanitary napkin of the present invention. In these figures features and elements which are substantially identical to corresponding features and elements in FIGS. 1 and 2 are identically designated; features and elements which are functionally similar to corresponding features and elements in FIGS. 1 and 2 are identified by three digit reference numerals in which the last two digits correspond to the reference numerals used in FIGS. 1 and 2. Accordingly, the discussion of sanitary napkin 110 does not contain redundant descriptions of elements and features identical to or similar to elements and features shown in FIGS. 1 and 2. Rather, the following discussion of sanitary napkin 110 is primarily directed to the differences between it and sanitary napkin 10 of FIG. 1.

FIG. 10 shows flexible axis 134 comprising no more absorbent core than will allow it to be flexible enough to be easily wrapped around the edge of the crotch portion of a panty. Furthermore, flap absorbent core 130 of flap 124 is essentially uniform throughout flap 124. Thus any axis in the body of flap 124 can be used as flexible axis 134. It is preferred that flap 124 have a flexibility such that it has a resistance to bending through 90° of less than about 200 grams, more preferably less than about 50 grams, and most preferably less than about 25 grams as measured by the technique described above. When such a flap 124 is used, it is preferred that flap absorbent core 130 comprises layers of tissue paper.

Such overall flexibility as that described above permits flap 124 to be wrapped around the edge of the crotch portion of a panty without the necessity of altering the natural path of the edge of the crotch portion of the panty. Thus, the edge of the crotch portion of the panty need not be stretched to fit into the flexible axis of the flap as is essential with a sanitary napkin such as sanitary napkin 10 in FIG. 1. Furthermore, the natural path of the edge of the crotch portion of a panty results, when the sanitary napkin is in place for use, in the highest wall being formed; this, in turn, provides the greatest barrier to flow of the menstrual fluid. FIG. 11 is a fragmentary coronal view showing the sectioned panty of FIG. 6 and sectioned sanitary napkin of FIG. 9 in place on a user.

Another distinction between sanitary napkin 10 of FIG. 1 and sanitary napkin 110 of FIG. 9 is that while the latter includes essentially an infinite number of flexible axes, in the former each flexible axis comprises a unique (or defined) hinge means.

It is important to note that only a minimal amount of flap absorbent core 130, or even no flap absorbent core 130 at all, is not inimical to the prevention of soiling by menstrual fluid. This is due to the fact that the primary function of the walls is menstrual fluid containment rather than absorbency. Central absorbent pad 12 absorbs the vast majority of the menstrual fluid. Furthermore, a minimal amount of flap absorbent core is much less bulky and, therefore, more comfortable to the user.

It will be understood by those skilled in the art that the invention has been described with reference to an exemplary embodiment and that variations and modifications can be effected in the described embodiments without departing from the scope and spirit of the invention.

What is claimed is:

1. A sanitary napkin that is sized and configured to be worn in a user's panties which panties are so sized and configured that the crotch edge portions can be positioned in the user's groins while the crotch region of the panties noncompressively cover the user's labia majoria, said sanitary napkin comprising a longitudinally elongate absorbent core, a liquid barrier backsheet, and a pair of flexible side flaps, said core being sized and configured to only span across the distal surfaces of the user's labia majoria, and said flaps being sufficiently flexible and sized and configured to be so disposed in a user's panties that proximal portions of said flaps extend upwardly to the user's groins and cover the laterally outwardly facing surface areas of the user's labia majoria, and so that distal portions of said flaps extend downwardly from said user's groins and are disposed intermediate edge portions of said crotch region of the user's panties and areas of the user's inner thigh regions.

2. The sanitary napkin of claim 1 wherein said medial width is about 5 centimeters.

3. The sanitary napkin of claim 1 wherein the medial width of said core is from about thirty percent to about one-hundred percent of the medial width of the crotch region of a properly sized pair of panties for said user.

4. The sanitary napkin of claim 1 wherein the medial width of said core is from about thirty to about seventy

percent of the medial width of the crotch region of a properly sized pair of panties for said user.

8. The sanitary napkin of claim 1 wherein the medial width of said core is about seventy percent of the width of the crotch region of a properly sized pair of panties for said user.

6. The sanitary napkin of claim 1, 2, 3, 4, or 5 further comprising means for being releasably adhered to the crotch of the user's panties.

7. The sanitary napkin of claim 6 wherein said means for being releasably adhered to the user's panties comprises an area of adhesive on the outwardly facing surface of said sanitary napkin which area is subjacent said absorbent core whereby said sanitary napkin can be releasably adhered to the inside surface of the crotch of the user's panties.

8. The sanitary napkin of claim 6 wherein said means for being releasably adhered to the user's panties comprises a region of adhesive on the outwardly facing surface of the distal portion of each of said flaps whereby said sanitary napkin can be releasably adhered to the outer surfaces of crotch of the user's panties which regions are disposed adjacent the leg openings of the panties.

9. The sanitary napkin of claim 8 wherein said means for being releasably adhered to the user's panties further comprises an area of adhesive on the outwardly facing surface of said sanitary napkin which area is subjacent said absorbent core whereby said area can be releasably adhered to the inside surface of the crotch of the user's panties.

10. The sanitary napkin of claim 1 wherein said core has a medial width of from about 2 to about 7 centimeters.

11. The sanitary napkin of claim 10 wherein said width is from about 2 to about 5 centimeters.

12. A laterally articulated sanitary napkin comprising an elongate central absorbent core having side edges, two proximal side panels having proximal and distal edges, and two distal side panels, said proximal side panels extending laterally outward from central portions of said side edges of said central absorbent core, and having said proximal edges coextensive therewith, and said distal side panels extending laterally outward from said distal edges of said proximal side panels, said sanitary napkin further comprising means for articulating said distal side panels relative to said proximal side panels, and means for being folded along the coextensive edge portions of said central absorbent core and said proximal side panels.

13. The sanitary napkin of claim 12 wherein said central absorbent core and said proximal side panels are a unitary structure.

14. The sanitary napkin of claim 12 or 13 wherein said proximal side panels have end edges which intersect said side edges of said central absorbent core at an oblique angle.

15. The sanitary napkin of claim 12 or 13 wherein said central absorbent core is sized and configured to cover the distal portions of a user's labia majoris, said proximal side panels are sized and configured to cover laterally outwardly facing areas of the user's labia majoris and to be positioned so that said distal edges are disposed along the user's groins, and said distal side panels are configured to extend downwardly from the user's groins and be disposed adjacent the user's inner thigh areas.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 4,589,876

DATED : May 20, 1986

INVENTOR(S) : Kees J. Van Tilburg

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 10

Claim 2, line 1 "1" should be -- 10 --.

Signed and Sealed this

Fifteenth Day of August, 1995

Attest:

BRUCE LEHMAN

Attesting Officer

Commissioner of Patents and Trademarks

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

IPEA/ US

PCT

CHAPTER II

DEMAND

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

For International Preliminary Examining Authority use only	
Identification of IPEA	Date of receipt of DEMAND

Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION		Applicant's or agent's file reference: 17692.10
International application No.: PCT/US02/18264	International filing date *(day/month/year)*: 05 June 2002 (05/06/02)	(Earliest) Priority date *(day/month/year)*: 08 June 2001 (08/06/01)
Title of invention: INTERLABIAL PAD HAVING A TAB		

Box No. II APPLICANT(S)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*	Telephone No.: 920-721-7068 Facsimile No.: 920-721-7339 Teleprinter No.: Applicant's registration No. with the Office:
KIMBERLY-CLARK WORLDWIDE, INC. 401 North Lake Street Neenah, Wisconsin 54956 US	

State *(that is, country)* of nationality:	State *(that is, country)* of residence:
US	US

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*	
State *(that is, country)* of nationality:	**State *(that is, country)* of residence:**

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*	
State *(that is, country)* of nationality:	**State *(that is, country)* of residence:**

☐ Further applicants are indicated on a continuation sheet.

International application No.
PCT/US02/18264

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

The following person is ☒ agent ☐ common representative

and ☒ has been appointed earlier and represents the applicant(s) also for international preliminary examination.

☐ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.

☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

YEE, Paul Y.
KIMBERLY-CLARK WORLDWIDE, INC.
401 North Lake Street
Neenah, Wisconsin 54956 US

Telephone No.
920-721-2435

Facsimile No.
920-721-7339

Teleprinter No.

Agent's registration No. with the Office
29,460

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

Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION

Statement concerning amendments:*

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

☒ the international application as originally filed

the description ☐ as originally filed
☐ as amended under Article 34

the claims ☐ as originally filed
☐ as amended under Article 19 (together with any accompanying statement)
☐ as amended under Article 34

the drawings ☐ as originally filed
☐ as amended under Article 34

2. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.

3. ☐ The applicant wishes the start of the international preliminary examination to be postponed until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). *(This check-box may be marked only where the time limit under Article 19 has not yet expired.)*

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

Language for the purposes of international preliminary examination: English

☒ which is the language in which the international application was filed.

☐ which is the language of a translation furnished for the purposes of international search.

☒ which is the language of publication of the international application.

☐ which is the language of the translation (to be) furnished for the purposes of international preliminary examination.

Box No. V ELECTION OF STATES

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

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

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Sheet No. .3.

International application No.
PCT/US02/18264

Box No. VI CHECK LIST

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:			For International Preliminary Examining Authority use only: received	not received
1. translation of international application	:	sheets	☐	☐
2. amendments under Article 34	:	sheets	☐	☐
3. copy (or, where required, translation) of amendments under Article 19	:	sheets	☐	☐
4. copy (or, where required, translation) of statement under Article 19	:	sheets	☐	☐
5. letter	:	sheets	☐	☐
6. other *(specify)*	:	sheets	☐	☐

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

1. ☒ fee calculation sheet
2. ☐ original separate power of attorney
3. ☐ original general power of attorney
4. ☐ copy of general power of attorney; reference number, if any:
5. ☐ statement explaining lack of signature
6. ☐ sequence listing in computer readable form
7. ☒ other *(specify)*: Post Card and PCT Int'l Search Report

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

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

Paul Yee

Paul Y. Yee
Patent Attorney

For International Preliminary Examining Authority use only

1. Date of actual receipt of DEMAND:
2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):
3. ☐ The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply. ☐ The applicant has been informed accordingly.
4. ☐ The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.
5. ☐ Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.

For International Bureau use only

Demand received from IPEA on:

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CHAPTER II

PCT

FEE CALCULATION SHEET

Annex to the Demand

International application No. PCT/US02/18264	For International Preliminary Examining Authority use only
Applicant's or agent's file reference 17692.10	Date stamp of the IPEA

Applicant

KIMBERLY-CLARK WORLDWIDE, INC.

CALCULATION OF PRESCRIBED FEES

1. Preliminary examination fee	750.00 P	
2. Handling fee *(Applicants from certain States are entitled to a reduction of 75% of the handling fee. Where the applicant is (or all applicants are) so entitled, the amount to be entered at H is 25% of the handling fee.)*	146.00 H	
3. Total of prescribed fees Add the amounts entered at P and H and enter total in the TOTAL box	896.00 TOTAL	

MODE OF PAYMENT

- [X] authorization to charge deposit account with the IPEA (see below)
- [ ] cash
- [ ] cheque
- [ ] revenue stamps
- [ ] postal money order
- [ ] coupons
- [ ] bank draft
- [ ] other *(specify):*

AUTHORIZATION TO CHARGE (OR CREDIT) DEPOSIT ACCOUNT
(This mode of payment may not be available at all IPEAs)

IPEA/ US

- [X] Authorization to charge the total fees indicated above.
- [X] *(This check-box may be marked only if the conditions for deposit accounts of the IPEA so permit)* Authorization to charge any deficiency or credit any overpayment in the total fees indicated above.

Deposit Account No.: 11-0875

Date: 17 December 2002

Name: Paul Y. Yee

Signature: Paul Yee

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PCT REQUEST

17692.10

Original (for SUBMISSION) - printed on 05.06.2002 09:05:51 AM

0	For receiving Office use only	
0-1	International Application No.	
0-2	International Filing Date	
0-3	Name of receiving Office and "PCT International Application"	
0-4	Form - PCT/RO/101 PCT Request	
0-4-1	Prepared using	PCT-EASY Version 2.92 (updated 01.01.2002)
0-5	Petition The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	Receiving Office (specified by the applicant)	United States Patent and Trademark Office (USPTO) (RO/US)
0-7	Applicant's or agent's file reference	17692.10
I	Title of invention	LABIAL PAD HAVING A TAB
II	Applicant	
II-1	This person is:	applicant only
II-2	Applicant for	all designated States
II-4	Name	KIMBERLY-CLARK WORLDWIDE, INC.
II-5	Address:	401 N. Lake Street Neenah, WI 54956 United States of America
II-6	State of nationality	US
II-7	State of residence	US
II-8	Telephone No.	(920) 721-5580
II-9	Facsimile No.	(920) 721-7339
III-1	Applicant and/or inventor	
III-1-1	This person is:	inventor only
III-1-4	Name (LAST, First)	EDENS, Ronald, L.
III-1-5	Address:	4110 High Gables East Cumming, GA 30041 United States of America
III-2	Applicant and/or inventor	
III-2-1	This person is:	inventor only
III-2-4	Name (LAST, First)	HLABAN, James, J.
III-2-5	Address:	1429 Silverwood Lane Neenah, WI 54956 United States of America

III-3	Applicant and/or Inventor	
III-3-1	This person is:	inventor only
III-3-4	Name (LAST, First)	KEELY, Laura, J.
III-3-5	Address:	9407 Memory Lane Neenah, WI 54956 United States of America
III-4	Applicant and/or Inventor	
III-4-1	This person is:	inventor only
III-4-4	Name (LAST, First)	KEENAN, Thomas, P.
III-4-5	Address:	933 E. Northwood Drive Appleton, WI 54911 United States of America
III-5	Applicant and/or Inventor	
III-5-1	This person is:	inventor only
III-5-4	Name (LAST, First)	LITTLE, Sylvia, B.
III-5-5	Address:	3051 Intrepid Close Marietta, GA 30062 United States of America
III-6	Applicant and/or Inventor	
III-6-1	This person is:	inventor only
III-6-4	Name (LAST, First)	MCDANIEL, Mary, L.
III-6-5	Address:	1208 N. Harriman Street Appleton, WI 54911 United States of America
III-7	Applicant and/or Inventor	
III-7-1	This person is:	inventor only
III-7-4	Name (LAST, First)	NUNN, Stephen, L.
III-7-5	Address:	1220 W. Lawrence Street Appleton, WI 54914 United States of America
III-8	Applicant and/or Inventor	
III-8-1	This person is:	inventor only
III-8-4	Name (LAST, First)	REEVES, William, G.
III-8-5	Address:	616 E. Greenfield Street Appleton, WI 54911 United States of America
III-9	Applicant and/or Inventor	
III-9-1	This person is:	inventor only
III-9-4	Name (LAST, First)	SOREBO, Heather, A.
III-9-5	Address:	431 E. Sheffield Lane Appleton, WI 54915 United States of America

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III-10	Applicant and/or inventor	
III-10-1	This person is:	inventor only
III-10-4	Name (LAST, First)	WEYENBERG, Susan, M.
III-10-5	Address:	318 W. Winnebago Street Appleton, WI 54911 United States of America
IV-1	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
IV-1-1	Name (LAST, First)	YEE, Paul, Y.
IV-1-2	Address:	KIMBERLY-CLARK WORLDWIDE, INC. 401 N. Lake Street Neenah, WI 54956 United States of America
IV-1-3	Telephone No.	(920) 721-2435
IV-1-4	Facsimile No.	(920) 721-7339
IV-1-5	Agent's registration No.	29460
IV-2	Additional agent(s)	additional agent(s) with same address as first named agent
IV-2-1	Name(s)	AMBROSE, Robert, A.(51231); BAUM, Scott, A.(51237); BENDEL, Michael, J.(39605); BRODERSEN, John, L.(51236); CHARLIER, Patricia, A.(38840); CONNELLY, Thomas, J.(28404); CROFT, Gregory, E.(27542); CURTIN, Jeffrey, B.(37601); DEAN, Ralph, H.(41550); DUDKOWSKI, Alyssa, A.(40596); FIELDHACK, Randall, W.(43611); FLACK, Steven, D.(40608); GAGE, Thomas, M.(33385); GARRISON, Scott, B.(39198); HARPS, Joseph, P.(28854); HERRICK, William, D.(25468); KAPPES, Kyle, K.(34846); KIRBY, John, P.(25348); KLEMBUS, Nancy, M.(40051); KUBICKI, H., Michael(51235); KYRIAKOU, Chris, S.(42776); LEACH, Nicholas, N.(31776); LETSON, William, W.(42797); MIELKE, Thomas, J.(31399); MILLER, Douglas, L.(30406); PARKER, Thomas, M.(42063); PUGLIESE III, Sebastian, C.(42091); ROBINSON, James, B.(34912); SHANE, Rick, M.(50921); SIDOR, Karl,V.(32597); STANO, Dana, E.(50750); TULLEY, JR., Douglas, H.(34743); WATSON, Sue, C.(38850); WILSON, Patrick, C.(31893)

PCT REQUEST

17692.10

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V	Designation of States	
V-1	Regional Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	AP: GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW and any other State which is a Contracting State of the Harare Protocol and of the PCT EA: AM AZ BY KG KZ MD RU TJ TM and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT EP: AT BE CH&LI CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR and any other State which is a Contracting State of the European Patent Convention and of the PCT OA: BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG and any other State which is a member State of OAPI and a Contracting State of the PCT
V-2	National Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH&LI 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 OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW
V-5	Precautionary Designation Statement In addition to the designations made under items V-1, V-2 and V-3, the applicant also makes under Rule 4.9(b) all designations which would be permitted under the PCT except any designation(s) of the State(s) indicated under item V-6 below. 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.	
V-6	Exclusion(s) from precautionary designations	NONE
VI-1	Priority claim of earlier national application	
VI-1-1	Filing date	08 June 2001 (08.06.2001)
VI-1-2	Number	60/297,001
VI-1-3	Country	US

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VI-2	Priority claim of earlier national application		
VI-2-1	Filing date	31 December 2001 (31.12.2001)	
VI-2-2	Number	10/036,981	
VI-2-3	Country	US	
VI-3	Priority claim of earlier national application		
VI-3-1	Filing date	31 December 2001 (31.12.2001)	
VI-3-2	Number	10/038,970	
VI-3-3	Country	US	
VI-4	Priority document request The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) identified above as item(s):	VI-1, VI-2, VI-3	
VII-1	International Searching Authority Chosen	European Patent Office (EPO) (ISA/EP)	
VIII	Declarations	Number of declarations	
VIII-1	Declaration as to the identity of the inventor	-	
VIII-2	Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent	-	
VIII-3	Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application	-	
VIII-4	Declaration of inventorship (only for the purposes of the designation of the United States of America)	-	
VIII-5	Declaration as to non-prejudicial disclosures or exceptions to lack of novelty	-	
IX	Check list	number of sheets	electronic file(s) attached
IX-1	Request (including declaration sheets)	6	-
IX-2	Description	23	-
IX-3	Claims	3	-
IX-4	Abstract	1	EZABST00.TXT
IX-5	Drawings	25	-
IX-7	TOTAL	58	
	Accompanying items	paper document(s) attached	electronic file(s) attached
IX-8	Fee calculation sheet	✓	-
IX-9	Original separate power of attorney	✓	-
IX-17	PCT-EASY diskette	-	Diskette
IX-18	Other (specified):	POST CARD	-
IX-19	Figure of the drawings which should accompany the abstract	1	
IX-20	Language of filing of the international application	English	

PCT REQUEST

Original (for SUBMISSION) - printed on 05.06.2002 09:05:51 AM

X-1	Signature of applicant, agent or common representative	Thomas M. Parker
X-1-1	Name (LAST, First)	PARKER, Thomas, M.

FOR RECEIVING OFFICE USE ONLY

10-1	Date of actual receipt of the purported international application	
10-2	Drawings:	
10-2-1	Received	
10-2-2	Not received	
10-3	Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application	
10-4	Date of timely receipt of the required corrections under PCT Article 11(2)	
10-5	International Searching Authority	ISA/EP
10-6	Transmittal of search copy delayed until search fee is paid	

FOR INTERNATIONAL BUREAU USE ONLY

11-1	Date of receipt of the record copy by the International Bureau	

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PCT (ANNEX - FEE CALCULATION SHEET)

17692.10

Original (for SUBMISSION) - printed on 05.06.2002 09:05:51 AM

(This sheet is not part of and does not count as a sheet of the International application)

0	For receiving Office use only				
0-1	International Application No.				
0-2	Date stamp of the receiving Office				

0-4	Form - PCT/RO/101 (Annex) PCT Fee Calculation Sheet				
0-4-1	Prepared using	PCT-EASY Version 2.92 (updated 01.01.2002)			
0-9	Applicant's or agent's file reference	17692.10			
2	Applicant	KIMBERLY-CLARK WORLDWIDE, INC.			
12	Calculation of prescribed fees		fee amount/multiplier	Total amounts (USD)	
12-1	Transmittal fee	T	⇨	240	
12-2-1	Search fee	S	⇨	866	
12-2-2	International search to be carried out by		EP		
12-3	International fee				
	Basic fee				
	(first 30 sheets)	b1	407		
12-4	Remaining sheets		28		
12-5	Additional amount	(X)	9		
12-6	Total additional amount	b2	252		
12-7	b1 + b2 =	B	659		
12-8	Designation fees				
	Number of designations contained in international application		92		
12-9	Number of designation fees payable (maximum 5)		5		
12-10	Amount of designation fee	(X)	88		
12-11	Total designation fees	D	440		
12-12	PCT-EASY fee reduction	R	-125		
12-13	Total international fee (B+D-R)	I	⇨	974	
12-14	Fee for priority document				
	Number of priority documents requested		3		
12-15	Fee per document	(X)	15		
12-16	Total priority document fee	P	⇨	45	
12-17	TOTAL FEES PAYABLE (T+S+I+P)		⇨	2,125	
12-19	Mode of payment		authorization to charge deposit account		
12-20	Deposit account instructions				
	The receiving Office:		United States Patent and Trademark Office (USPTO) (RO/US)		
12-20-1	Authorization to charge the total fees indicated above.		✓		

PCT (ANNEX - FEE CALCULATION SHEET) 17692.10

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12-20-2	Authorization to charge any deficiency or credit any overpayment in the total fees indicated above.	✓
12-20-3	Authorization to charge the fee for priority document.	✓
12-21	Deposit account No.	11-0875
12-22	Date	05 June 2002 (05.06.2002)
12-23	Name and signature	PARKER, Thomas, M. Thom M. Park

VALIDATION LOG AND REMARKS

13-2-2	Validation messages States	Green? More designations could be made. The following States have not been designated: US. Please verify.
13-2-8	Validation messages Payment	Green? Please ensure that you have a valid deposit account with the receiving Office selected.

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Radicacion : [illegible] Folios: 148

Fecha (AMD): [illegible]

Tramite : [illegible]

Dependencia: [illegible]

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REQUISITOS NECESARIOS PARA PRESENTACION Y AGILIZACION DEL TRAMITE

	USUARIO	RADICADOR
PATENTE DE INVENCIÓN 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.	( )	( )
- Comprobante de Pago de las tasas establecidas.		
COMPLETA ( ) 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 solcitante 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:

Edwin Navarro

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