

(12) PATENT
(19) AUSTRALIAN PATENT OFFICE

(11) Application No. AU 200072543 B2
(10) Patent No. 780757

(54) Title
A sanitary napkin

(51)⁷ International Patent Classification(s)
A61F 013/472

(21) Application No: **200072543**

(22) Application Date: **2000.12.28**

(30) Priority Data

(31) Number	(32) Date	(33) Country
PI 9903096	1999.12.29	BR

(43) Publication Date : **2001.07.05**

(43) Publication Journal Date : **2001.07.05**

(44) Accepted Journal Date : **2005.04.14**

(71) Applicant(s)
Johnson and Johnson Industria E Comercio Ltda

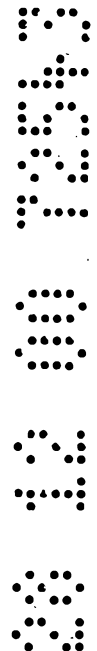
(72) Inventor(s)
Antonio Carlos Ribeiro Carvalho

(74) Agent/Attorney
Shelston IP,Level 21,60 Margaret Street,SYDNEY NSW 2000

(56) Related Art
WO 1999/055272

ABSTRACT

A sanitary napkin and particularly an intimate woman's sanitary napkin is disclosed. The object of the present invention is to provide the sanitary napkin
5 (1) with a collecting and conveying element (10), capable of conveying the flow of vaginal exudates to the central area of the sanitary napkin (1), thus minimizing the possibilities of side leakages. Such object is reached through a sanitary napkin (1) that comprises a collecting and conveying element (10) which is not aligned with the absorbent element adjacent thereto, being
10 substantially laminar, orthogonal to the surface of the sanitary napkin, and disposed along the longitudinal axis of said sanitary napkin (1).



AUSTRALIA

PATENTS ACT 1990

COMPLETE SPECIFICATION

FOR A STANDARD PATENT

ORIGINAL

Name of Applicant/s: Johnson & Johnson Industria E Comercio Ltda

Actual Inventor/s: Antonio Carlos Ribeiro Carvalho

Address for Service: BALDWIN SHELSTON WATERS
60 MARGARET STREET
SYDNEY NSW 2000

Invention Title: 'A SANITARY NAPKIN'

The following statement is a full description of this invention, including the best method of performing it known to me/us:-

File: 30356AUP00

Title: "A SANITARY NAPKIN"

The present invention is related to a sanitary napkin, particularly a woman's sanitary napkin, and more specifically an intimate woman's sanitary napkin provided with a collecting and conveying element for the menstrual flow.

5

Description of the State of the Art

As known in the art, the woman's sanitary napkins (also simply designated as napkins in the following text) are generally disposable and used to collect and retain vaginal exudates, especially menstrual blood and intermenstrual secretions.

10 Usually, such napkins are comprised of a substantially elongated absorbent core, sandwiched between a top layer and a lining layer.

The top layer contacts the user's pelvic area and is generally made of a pervious material that does not cause any irritation to the user's skin.

15 The purpose of the lining layer, opposite the top layer, is to prevent the fluid retained in the absorbent core from leaking into the user's clothes, being generally made of an impervious material.

The attachment of the sanitary napkin to the user's underwear is generally carried out through adhesive areas on the outer surface of the lining layer, which are stuck to the inner surface of the area in the user's panties between her thighs. In
20 addition, as an aid to such attachment, the napkin may be provided with side wings provided with adhesive areas that are folded and releasably adhered to the outer surface of the area in the user's panties between her thighs.

An undesirable aspect concerning the napkins known in the present art is the occurrence of leaking when the napkin is not well fitted in the user's pelvic area. When such situation takes place, the evacuation of vaginal exudate can firstly reach
25 areas near the edges instead of the central area, and therefore brings about a leakage because it cannot be promptly absorbed, and then leaks.

Still another cause of leakages during the use of napkins known in the state of the art is the distance between the point in the body where the body exudate leaves
30 and the napkin surface – the larger the distance the greater the chance of its slipping through the body surface itself and leaking.

U.S. Patent No 5,702,380, that represents a prior art very close to the present invention, describes a woman's sanitary napkin provided with a longitudinal central protuberance, said protuberance being adapted to be located between the user's labia majora, but not penetrating into her vagina. The disclosure of said patent teaches that the central protuberance 14 is an element provided with several components, viz, an absorbent packing 34 which is covered on its surface by a permeable cover layer 28 and contains the central rod 56 of an inverted T shaped fluid drawing device 54 inside same.

This patent has a number of drawbacks:

- 10 - the central protuberance 14 is aligned with the rest of the napkin element, in such a way that when the napkin is moved according to the movements of the user, the protuberance is also moved and rubbed against the inner walls of the labia majora and might cause discomfort to the user;
- 15 - the central protuberance 14 is provided with absorbent material, thus, storing fluid and providing the user with a damp feeling
- the central protuberance 14 is of complex construction, either in view of its integration with the napkin surface (figures 3A, 3B and 3C) or due to the existence of the fluid drawing device 54 inside same.

Also, the American paper Statutory Invention Registration H1614 can be mentioned which discloses a woman's napkin provided with two superposed adjacent absorbent structures, the first one being protuberant and approximately tubular in the longitudinal direction, the second one being planar and elongated, wherein the first one is more comfortable and smoother than the second one, so that during the use it contacts the user's labia majora, being partially inserted between them. This achievement also provides faulty aspects, as follows:

- 25 - the first absorbent structure, although being adjustable, provides an apparently excessive volume to be comfortably inserted between the user's labia majora without being inconvenient;
- 30 - the first absorbent structure is attached over the second absorbent structure, thus causing a movement according to the user's movement, bringing about discomfort and even pain to the user during use;

- the first absorbent structure retains fluids, and therefore provides the user with a damp feeling..

Any discussion of the prior art throughout the specification should in no way be considered as an admission that such prior art is widely known or forms
5 part of common general knowledge in the field.

Brief Description of the Invention

It is an object of the present invention to overcome or ameliorate at least one of the disadvantages of the prior art, or to provide a useful alternative.

10 The present invention provides a sanitary napkin comprising a collecting and conveying element for vaginal exudates and an absorbent element, said collecting and conveying element being substantially laminar by having a thickness of lower than 5 mm and is orthogonal to the surface of said napkin, and not aligned with said absorbent element.

15 Concisely, some aspects of the invention are the collection of the vaginal exudate, the conveyance of the exudate to the absorbent medium but not the alignment of the collecting and conveying element with the absorbent element, and the cooperation of the sanitary napkin with the user's vulva area.

20 Within a particular embodiment of the present invention, the laminar collecting and conveying element for vaginal exudates (blood, urine, intermenstrual secretions, and the like.), is embodied as a non-woven veil preferably joined only to the ends of the sanitary napkin by attachment points substantially disposed along the central longitudinal axis of the sanitary napkin. When put in use, the sanitary napkin assumes longitudinally arcuated
25 configuration following the anatomy of that area of the body, thus orthogonally suspending said laminar element in relation to the surface of the sanitary napkin. In that position, during the use, said laminar element penetrates, even partially, between the user's labia majora, thus urging any exudate discharge to contact and follow the surface of the laminar element as far as the central area
30 of the sanitary napkin surface. The leakage trend due to discharges of exudates close to the sanitary napkin edges, mainly the most voluminous ones, is thus prevented, since the laminar element conveys the exudate flow to the center of the absorbent pad – the effect is theoretically compared to that

attained in a chemistry laboratory, wherein a liquid to be poured inside a beaker flows down a glass rod. Additionally, since the laminar collecting element is sufficiently thin and delicate, this propitiates the partial insertion of an appendix of the sanitary napkin between the user's labia majora. The drawback found in
5 prior art products is greatly reduced.

In a preferred way, the laminar collecting element of the sanitary napkin of the invention is equidistantly located with respect to the side edges.

Although not essential, the resiliency of at least the edge of the laminar collecting element (which edge contacts the user's vaginal area) facilitates its
10 orthogonal positioning in relation to the surface of the absorbent element, and consequently its insertion in the user's vaginal area.

As felt with respect to this invention, the laminar collecting element of the sanitary napkin is not aligned with the absorbent element, the result of which is that the movement of the absorbent element, caused by the movement of the
15 user's body, is not integrally or substantially transmitted to the laminar collecting element. That is, the laminar collecting element and the absorbent element have not many parts in common, and those parts that do are minimally joined to one another, in order to prevent the transference of the movement from one to the other – optionally, the laminar collecting element is joined to only two points
20 of the absorbent element, viz, each of the two opposing longitudinal ends which the laminar collecting element is adhered to. In other words, only at one point from each one of the two opposing longitudinal extremities of the absorbent element.

In order to attain an optimized performance of the present invention, it is
25 essential that the laminar collecting element, when the absorbent of the invention is in use, extends from the area in contact with the user's vagina to the surface of the absorbent element, even if it is not joined or otherwise adhered thereto. This is explained by the fact that the vaginal exudate, when contacting any portion of the laminar collecting element, flows along the surface thereof, for
30 example, by capillarity, the purpose of which is to reach the surface of the absorbent, to be absorbed and retained therein. The embodiments that favor a greater contact between the laminar collecting element and the absorbent surface are preferred.

As can be understood from this text, the absorbent element of the sanitary napkin comprises at least a pad of absorbent material, typically a wood pulp fiber block, but it can include other components (such as superabsorbent substrata, other types of fibers and materials and the like) also in distinct layers (for example, a non-woven layer or perforated plastic film and the like located on the absorbent material itself to contact the user's body).

The laminar collecting element can be comprised of one or more layers of a same material or distinct materials. The preferred material is the non-woven one, without excluding any other, for example, tissue, plastic film, paper and the like. Its thickness, as denoted by the designation "laminar", is greatly lower than the length or width dimensions, thicknesses lower than 5 mm, preferably lower than 2 mm. Its surface can be continuous or discontinuous, surfaces having orifices or discontinuities with round, square shaped forms, or of any another format being within the scope of the invention. Also within the scope of the invention, configurations of the laminar collecting element comprise:

- a set of filaments which are spaced apart and/or parallel, with little or no interconnection transverse to the direction of the descending movement of the fluid to be conveyed;
- a corrugated laminar material, of one or more layers associated with one another;
- an arrangement where two or more layers are associated with one another thus forming tubular passages generically parallel to the direction of the descending movement of the fluid to be conveyed.

The laminar conveying element can be hydrophobic, hydrophilic, or concomitantly contain independent portions of opposing hydrophilic character. The affinity for the aqueous medium can be of the material per se or acquired through some treatment or coating.

The laminar collecting element can optionally contain an absorbent material, without departing from the scope of the invention. It can also be provided with lines or embossed areas, that is, more compressed than the material adjacent thereto, in such a way that it affects the speed of liquid distribution.

The laminar collecting element can be configured to be able to penetrate between the user's labia majora, or to simply contact them externally.

Unless the context clearly requires otherwise, throughout the description and the claims, the words 'comprise', 'comprising', and the like are to be construed in an inclusive sense as opposed to an exclusive or exhaustive sense; that is to say, in the sense of "including, but not limited to".

Brief Description of the Drawings

The present invention will be described in full details below based on a practical example represented in the accompanying drawings. The respective figures show:

Figure 1 - a perspective view of a preferred embodiment of the sanitary napkin made in accordance with the present invention;

Figure 2 - a cut view of the napkin illustrated in Figure 1;

Figure 3 - a cut view of a variation of the preferred embodiment of the napkin illustrated in the figures above;

Figure 4 - a cut view of a second embodiment of the napkin in question; and

Figure 5 - a cut view of a third variation of the napkin in question.

Detailed Description of the Figures

The sanitary napkin 1 of the present invention is comprised as shown in Figures 1 and 2 of an elongated absorbent core 6, wrapped by a top layer 3 and a lining layer 4.

The top layer 3 contacts the pelvic area of the user and usually is made of impervious material that does not cause any irritation to the user's skin, for example, non-woven or perforated plastic film.

The purpose of the lining layer 4, opposite the top layer, is to prevent the fluid retained in the absorbent core from passing to the user's clothes and usually is a thin film made of impervious material, for example, polyethylene.

According to the present invention, the napkin 1 is also comprised of a substantially straight and elongated collecting and conveying element 10, substantially disposed along the longitudinal axis of said napkin 1. According to

a particular embodiment, said element 10 extends along a longitudinal length corresponding to $\frac{2}{3}$ of the length of the napkin 1, but it can extend along said entire length, or extend along shorter lengths, for example less than the half of the length of the napkin 1.

5 Still according to a preferred embodiment, the conveying element 10 comprises a longitudinally elongated main portion 15 which is preferably elastic (for example, due to the presence of an elastic thread 14), and extends from between the two main attachment points 17 of the element 10 of the napkin 1. A continuous curtain portion 16 vertically extends along the main portion 15 as
10 far as the top layer 3 of the napkin 1 and along the entire length of the conveying element 10.

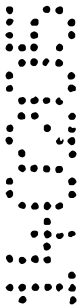
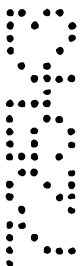
Optionally, said curtain portion 16 can be discontinuous, for example, through a plurality of orifices (not shown) perpendicular to the longitudinal axis. Depending on its efficiency, the size of the curtain portion 16 can be reduced.

15 Said attachment points 17 are preferably provided by joining (that is, any process known to the skilled artisan such as sewing, ultrasonic sealing, adhesivation, and the like) the main portion 15 to the top layer 3 of the napkin 1. Notwithstanding said fact, the ends of the main portion 15 also can be adequately joined to any other elements of the napkin 1, such as the lining layer
20 4.

The main portion 15 and the eventual curtain portion 16 that are integral with the element 10 may or may not be made of absorbent, hydrophilic or hydrophobic material. Preferably, said material is a non-woven film and therefor it can be a piece of tissue, a perforated or non-perforated plastic film, laminates
25 or said materials compounded with themselves or other materials, etc. Lower thicknesses of the element 10 are preferred.

The main portion 15 and the curtain portion 16 that are integral with the element 10 of the sanitary napkin 1 according to this invention may optionally be configured as an orthogonal continuation of the top layer 3 of the sanitary
30 napkin 1 itself.

Said main portion 15 also can be made of a non-elastic material. In this case, its length will be preferably shorter than the corresponding longitudinal length of the napkin 1, so that the main portion 15 can be stretched and moved



away from the corresponding longitudinal length of the top layer 3 of the napkin 1 when the latter is opened or unfolded, thus facilitating the formation of the straight portion of use illustrated in Figure 1.

Said main portion 15 is preferably conformed as a elongated strap, that
5 represents a prolongation of the curtain portion curtain 16 (alternatively, two or more curtain portions 16 can be present). The main portion 15 can alternatively be conformed as an elongated strap disposed perpendicular to the curtain portion 16 (see Fig. 3), or still as a channel member having a V cross-section (see Fig. 4) or a "U" cross-section (see Fig. 5). An alternative similar to that of
10 Figures 4 or 5 is not illustrated where the main portion 15 is planar and not as a channel member.

In the embodiments illustrated in Figures 1 and 2, the main portion 15, during the use, is partially inserted between the user's labia majora, while in the
15 embodiments of Figures 3, 4 and 5 the main portion has a wider external contact with the user's genitalia.

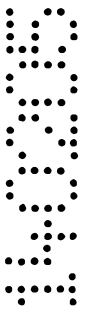
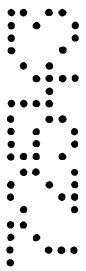
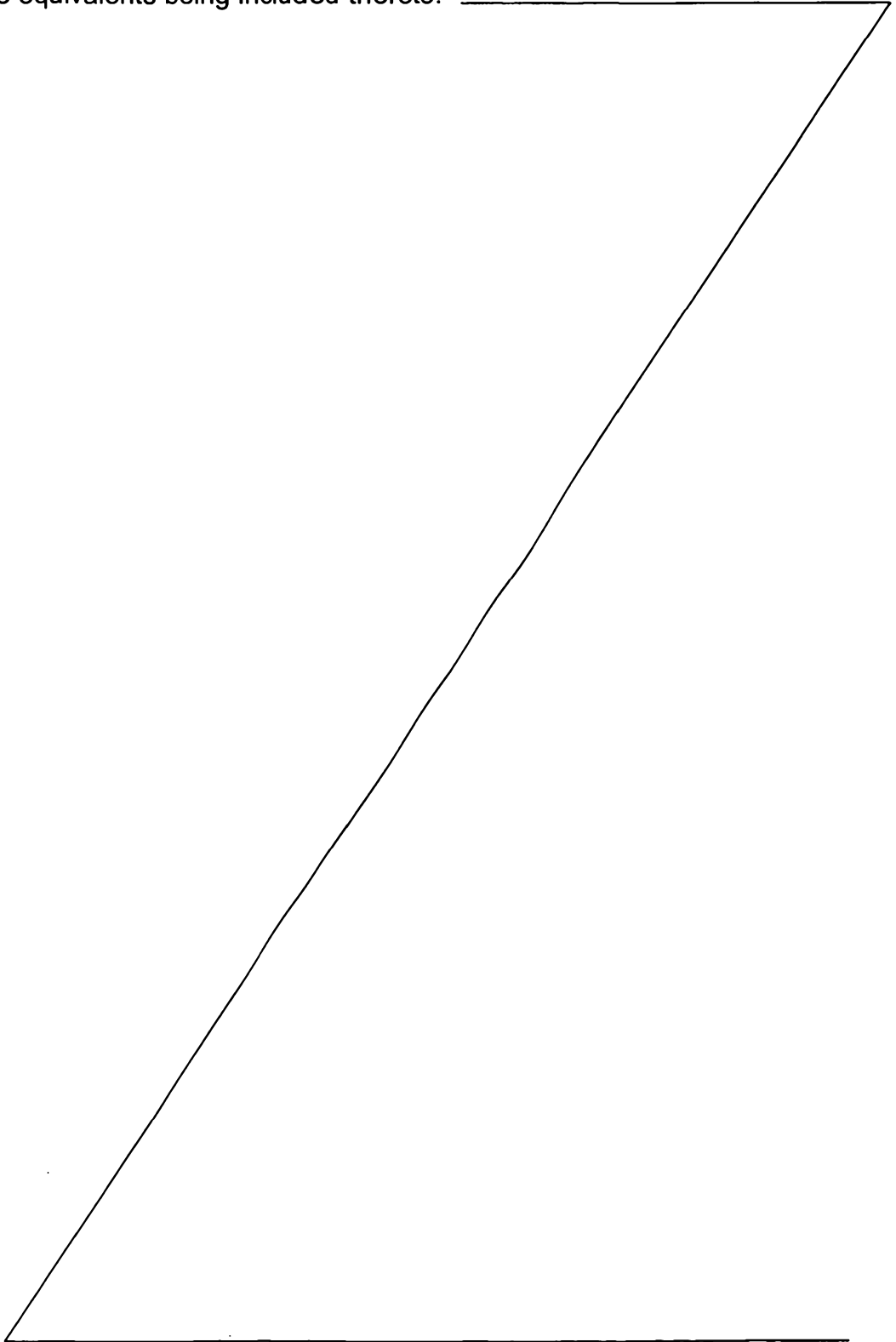
In the presence of the curtain portion 16, firstly the vaginal exudate contacts with the main portion 15 of the conveying element 10, and is conveyed later (through the surface tension, capillarity, and the like) by said curtain portion
20 16 towards the top layer 3 of the napkin 1. Thus, the fluid is advantageously conveyed to a central area of the napkin which is capable to withstand larger fluid discharges than the peripheral areas of the napkin 1 without any leakage. Thus, the possibility of leakage is considerably mitigated.

It is not essential that the curtain portion 16, beyond the attachment points 17, be joined through sealing, gluing or any other method, to the surface
25 of the absorbent element, in this example embodied by the top layer 3 - most importantly, a physical proximity between the curtain portion 16 and the top layer 3 is required so that the fluid can be transferred to and stored in the absorbent core 6.

An optional embodiment (not shown) foresees a main portion 15
30 including an upward bending in its longitudinal medium portion orthogonal to the surface of the napkin 1, so that it has an increased penetration in the user's vulva area, thus incrementing the advantages of this invention.

After the examples of the preferred embodiments have been described, it should be understood that the scope of the present invention embodies other possible variants, being limited only by the text of the accompanying claims, the possible equivalents being included thereto.

5



THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A sanitary napkin comprising a collecting and conveying element for vaginal exudates and an absorbent element, said collecting and conveying element being substantially laminar by having a thickness of lower than 5 mm and is orthogonal to the surface of said napkin, and not aligned with said absorbent element.
2. The sanitary napkin in accordance with claim 1, comprising a top layer, a lining layer and an absorbent core, the absorbent core being disposed between the top layer and the lining layer, the collecting and conveying element being associated with the top layer in main attachment points located in extremity and opposing points of the longitudinal axis of the napkin.
3. The sanitary napkin in accordance with claim 1, comprising a top layer, a lining layer and an absorbent core, the absorbent core being disposed between the top layer and the lining layer, the collecting and conveying element being associated with the lining layer in the main attachment points located in extremity and opposing points of the longitudinal axis of the napkin.
4. The sanitary napkin in accordance with claim 1, comprising a top layer, a lining layer and an absorbent core, the absorbent core being disposed between the top layer and the lining layer, the collecting and conveying element being associated with the lining layer in the main attachment points located along the longitudinal axis of the napkin.
5. The sanitary napkin in accordance with any one of claims 2-4, wherein the collecting and conveying element is an orthogonal prolongation of the top layer.
6. The sanitary napkin in accordance with any one of claims 1-4, wherein the collecting and conveying element comprises a main portion and a curtain portion, the curtain portion extending from the main portion to a top layer.
7. The sanitary napkin in accordance with claim 6, wherein the curtain portion extends from the main portion to the top layer along the entire longitudinal length of said element.

8. The sanitary napkin in accordance with claim 6 or claim 7 wherein one main portion, during use, is adapted to be partially inserted between a user's labia majora.

9. The sanitary napkin in accordance with any one of claims 6 to 8, wherein
5 the main portion is substantially parallel with the top layer and is vertically spaced apart from the top layer along at least a portion of the collecting and conveying element.

10. The sanitary napkin in accordance with any one of claims 6 to 9, wherein the main portion is planer and disposed perpendicular to the curtain portion.

10 11. The sanitary napkin in accordance with claim 6 or claim 7, wherein the main portion is configured with an elongated strap that is a prolongation of the curtain portion, or else is disposed perpendicular to said curtain portion.

12. The sanitary napkin in accordance with claim 6 or claim 7, wherein the main portion has a V or U cross-section which is disposed perpendicular to said
15 curtain portion.

13. The sanitary napkin in accordance with claim 6 or claim 7, wherein said curtain portion of said collecting and conveying element is fully or partially joined to the top layer.

14. The sanitary napkin according to claim 1, wherein said thickness is lower
20 than 2mm.

15. The sanitary napkin in accordance with claim 1, wherein said collecting and conveying element has a longitudinal length of approximately 2/3 of the longitudinal length of said absorbent element.

16. The sanitary napkin in accordance with claim 6 or claim 7, wherein the
25 collecting and conveying element is fully or partially elastic per se or by being associated with elastic materials

17. The sanitary napkin in accordance with claim 6 or claim 7, wherein the collecting and conveying element is fully or partially made of a non-woven material.

18. The sanitary napkin in accordance with claim 6 or claim 7, wherein the curtain portion is continuous.

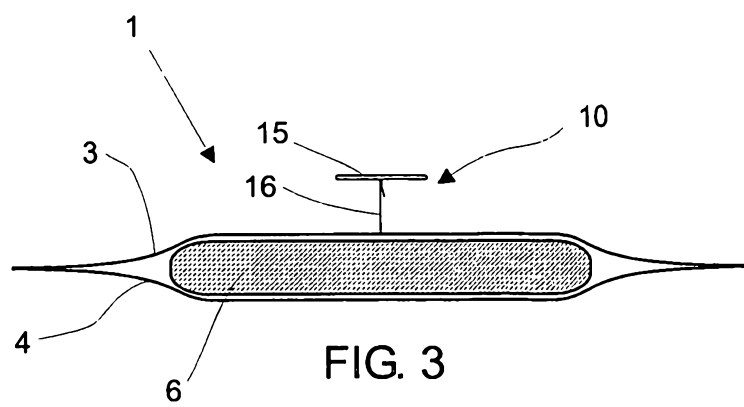
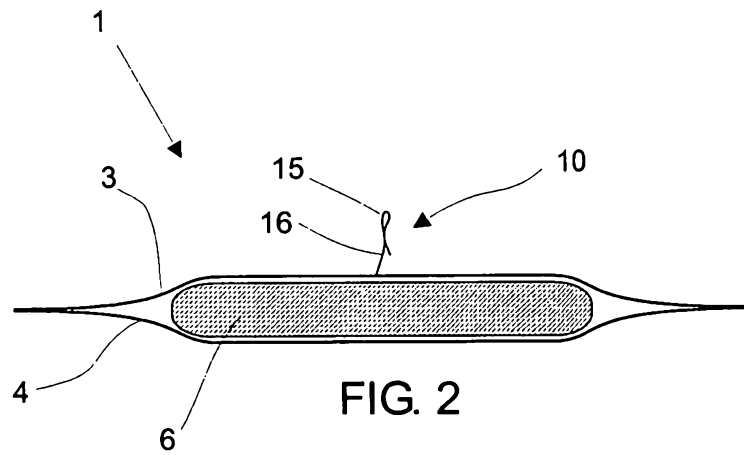
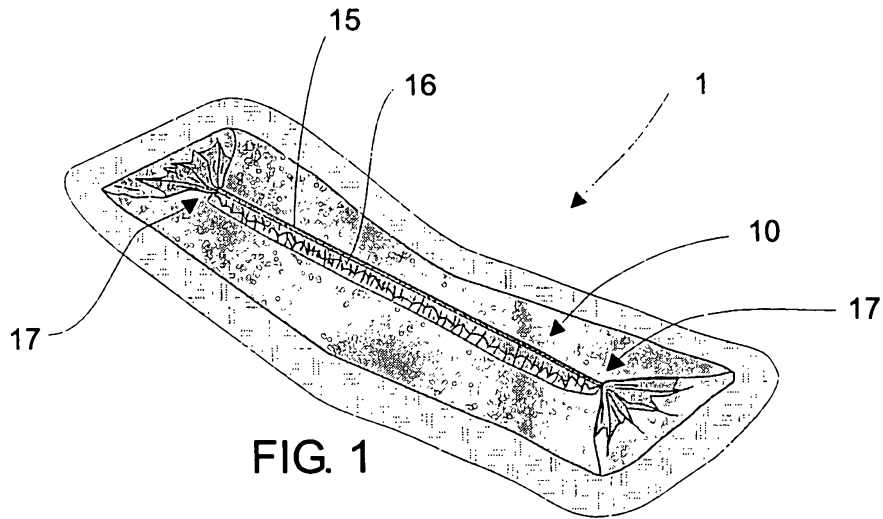
19. The sanitary napkin in accordance with claim 6 or claim 7, wherein the curtain portion is discontinuous.

5 20. The sanitary napkin in accordance with claim 6 or claim 7, wherein the main portion and/or the curtain portion are made of absorbent material.

21. The sanitary napkin in accordance with claim 6 or claim 7, wherein the main portion and/or the curtain portion are made of a non-absorbent material.

10 22. A sanitary napkin substantially as herein described with reference to any one of the embodiments of the invention illustrated in the accompanying drawings and/or examples.

15 DATED this 14^h day of FEBRUARY, 2005
SHELSTON IP
Attorneys for: JOHNSON & JOHNSON INDUSTRIA E COMERCIO LTDA



2025

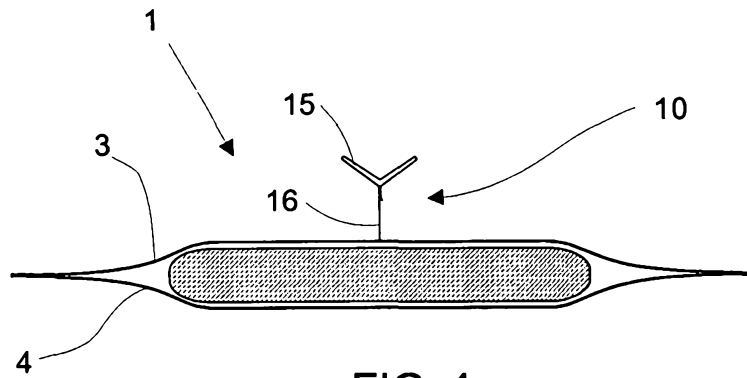


FIG. 4

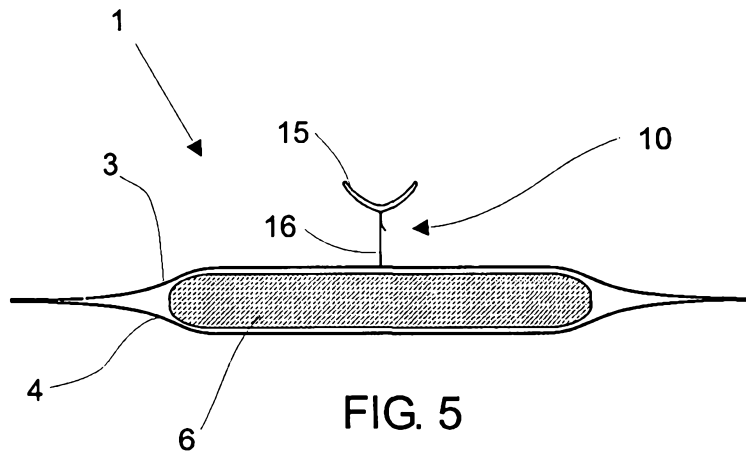


FIG. 5

20

30