United States Patent [19]

Toyama

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[54] **PANTIES WITH PAD RETAINER**

[76] Inventor: **Chiyoko Toyama**, 139-13, Kamisakunobe, Kawasaki-shi, Kanagawa-ken, Japan

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[52] **U.S. Cl.** **128/288**
[51] **Int. Cl.** **A61f 13/16**
[58] **Field of Search** 128/288–291

[56] **References Cited**

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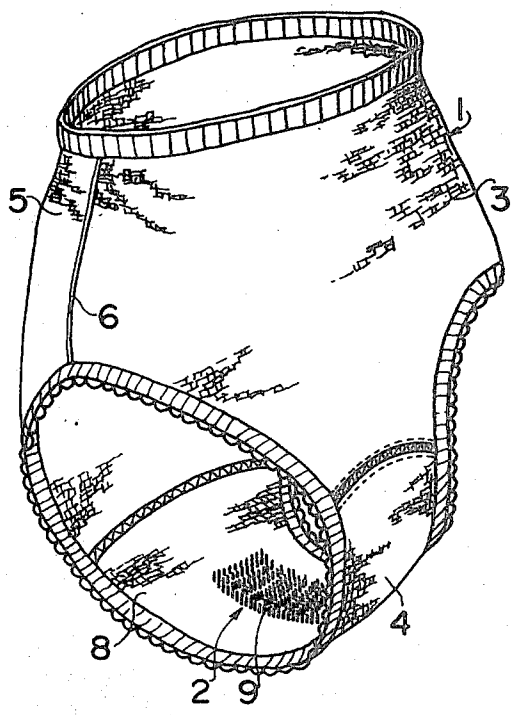
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Primary Examiner—Charles F. Rosenbaum
Attorney—William C. Linton et al.

[57] **ABSTRACT**

Panties provided with pad retainer which comprises a number of acicular projections planted on the inner surface thereof at the groin portion. The acicular projections are distributed only over the area which is to be covered by a pad and exhibits flexibility and resilience similar to those of mono-filaments of thermoplastic resin as well as a degree of rigidity so as to engage a pad placed thereover and to hold it in place.

9 Claims, 5 Drawing Figures



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SHEET 1 OF 2

FIG. 1

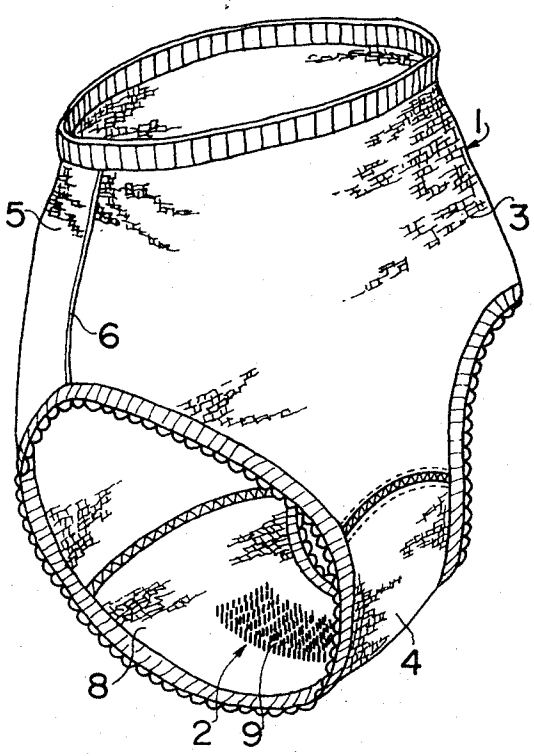
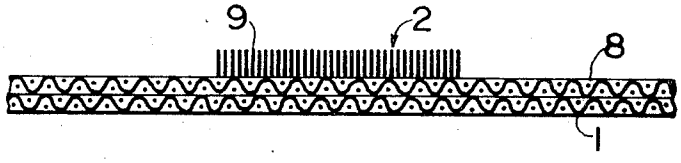


FIG. 3



INVENTOR
CHIYOKO TOYAMA

BY Sinton and Sinton
ATTORNEYS

FIG. 2

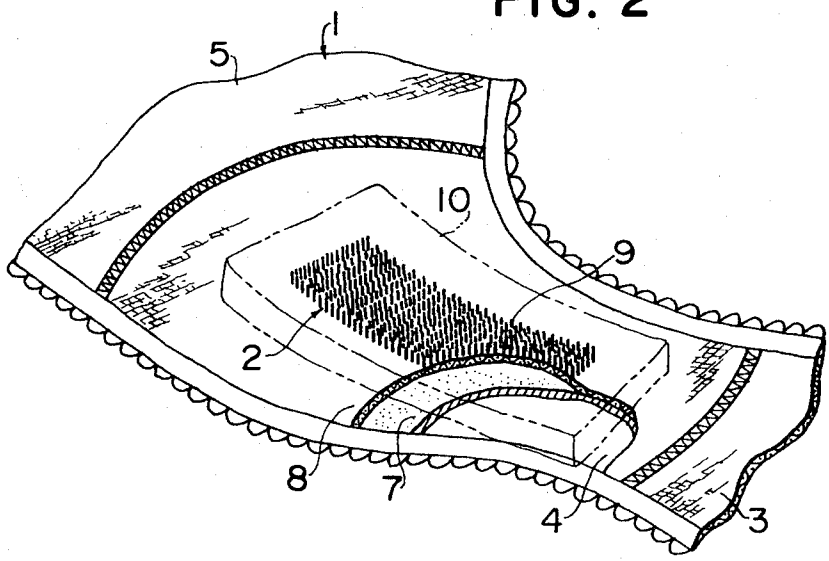


FIG. 4

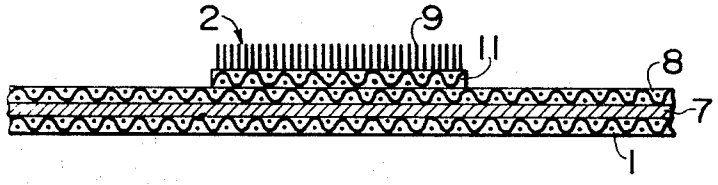
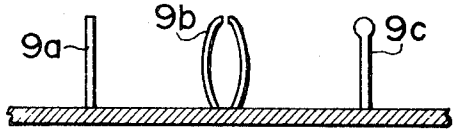


FIG. 5



INVENTOR

CHIYOKO TOYAMA

BY Linton and Linton

ATTORNEYS

PANTIES WITH PAD RETAINER

The invention relates to panties with pad retainer, and more particularly, such panties primarily for use during women's menstrual period or after parturition.

For panties with pad, it is desired that the pad is firmly held in place in the groin portion of panties. Where panties are used during menstrual period, the user will walk about substantially in the same manner as usual and hence her body motion must not cause a displacement of panties which would cause a discharge to find a way out or otherwise cause user's discomfort. Usually panties comprises a number of laminated papers or formed cotton or a combination thereof, and in either case is pliable and has a high water absorbing capacity. While it may appear to be a simple matter, or even possible with conventional panties without the need for any additional means, to fix such pad in the groin portion of panties, this proved unsuccessful. Without a securing means, the pad is liable to become dislodged with a movement of body, and it is difficult to locate such means in a manner in which it is perfectly effective and still avoids user's discomfort.

Therefore it is an object of the invention to provide panties provided with a pad retainer for firmly holding a pad in place and preventing its displacement while avoiding discomfort in use and in which the pad can readily be mounted on or dismounted from the pad retainer.

It is another object of the invention to provide panties with a pad retainer that is simple in construction and can readily be manufactured.

In accordance with the invention, the panties are provided with a pad retainer comprising a group of acicular projections located well within a region in the groin portion thereof which is to be covered by a pad. When the pad is placed on the retainer, the acicular projections extend into the pad to firmly retain it, and more firmly engage the pad when panties with pad is in use to cause the pad to be pressed against the user's body. The acicular projections are designed so that they do not reach further into the pad beyond a shallow partial depth of the pad, thereby preventing their points from reaching the user's body.

For a better understanding of the invention, several embodiments thereof will be described more fully below with reference to the drawings, in whcih:

FIG. 1 is a perspective view of panties with pad retainer according to the invention,

FIG. 2 is a perspective view, partly broken away, of the groin portion of the panties of FIG. 1,

FIG. 3 is a section of another embodiment of the invention which is slightly different from that of FIG. 2,

FIG. 4 is a section showing still another embodiment of the invention, and

FIG. 5 is an elevational view illustrating several examples of an acicular projection used in the pad retainer.

Referring to FIG. 1, there is generally shown panties 1 provided with a pad retainer 2 according to the invention. Panties 1 may be constructed in any configuration, but typically comprises a piece of fabric patterned and cut to form stomach portion 3, groin portion 4 and waist portion 5 which are stitched together along their sides 6. For panties adapted for use with a pad, water proofing means is provided on the inner surface of the groin portion 4. An example of such water proofing means is illustrated in FIG. 2 and comprises a water-proof fabric 7 such as thin film of rubber or polyurethane foam stitched to the inner surface of the panties fabric 1 at the groin portion 4. Thus, in the illustrated embodiment, to the inner surface of the water-proof fabric 7 is stitched a lining 8 on which is provided the pad retainer 2. The pad retainer 2 comprises a number of acicular projections 9 which are supported by the lining 8 and project therefrom toward the interior of the panties. Thus when a pad 10, shown in chain lines, is placed on the retainer, the respective acicular projections 9 extend into the pad to hold it against lateral displacement.

Acicular projections 9 used for the pad retainer 2 may be of several configurations as depicted in FIG. 5, which shows a needle-shaped projection 9*a*, a loop-shaped projection 9*b* with a single cut, and a needle-shaped projection 9*c* with a swelling at the top. The simple needle-shaped projection 9*a* is considered most desirable in view of the ease of engagement and disengagement with the pad. The projection 9*a* need not have a pointed end since the needle itself is thin enough. For either form of acicular projections, it is most preferably formed of a mono-filament of thermoplastic resin. This favors in particular the acicular projection of the form 9*c* since the swelling at the top can be formed by heat treatment. However, suitable materials other than thermoplastic monofilament can be used, provided they have a degree of rigidity and resilience. The manner in which the acicular projections 9 are mounted on the fabric does not form part of the invention, but they are conveniently planted in the fabric when it is woven. For acicular projection of the form 9*b*, they are formed as loops on the fabric as it is woven and subsequently cuts are made in the loops.

FIG. 3 shows an example in which the lining 8 provided with pad retainer 2 is subjected to water-proof treatment. Thus with this example, there is no need for the water-proof fabric 7 shown in FIG. 2, and the lining 8 is directly applied to the inner surface of the panties fabric 1 at the groin portion 4.

FIG. 4 shows panties which are slightly different from the embodiment of FIG. 2. Here, the pad retainer 2 is not provided on the lining 8, but is carried by a devoted fabric 11 which is stitched to the lining 8. This simplifies the manufacturing since a special fabrication process for the lining 8 can be eliminated.

In either embodiment, the acicular projections 9 which constitute the pad retainer 2 extend inwardly from the groin portion 4 of the panties and are distributed in a region on which the pad 10 is to be placed. So long as the acicular projections are located within such a region, they may be located in separate groups or they may not occupy the whole area of the region. The pad retainer 2 thus positioned get into the material of the pad 10 placed thereon to hold it firmly against lateral displacement for a movement of user's body.

The pad retainer, when contaminated, can readily be removed. It is of great convenience to a user that the mounting and dismounting of the pad retainer take place with no trouble.

While the invention has been described with reference to particular embodiments, it should be understood that the invention is not limited thereby but is solely defined by the appended claims.

What is claimed is:

1. Panties with pad retainer comprising a panty body having a groin portion, a water-proof material positioned on said groin portion, and a plurality of acicular projections supported on said water-proof material and extending inwardly of said panty body groin portion for receiving a pad thereon.

2. Panties with pad retainer according to claim 1, in which the acicular projections are in the form of needles.

3. Panties with pad retainer according to claim 1, in which the acicular projections have swellings at their top.

4. Panties with pad retainer according to claim 1, in which the acicular projections are in the form of loops with a cut therein.

5. Panties with pad retainer according to claim 1, in which the acicular projections are formed of monofilament of themoplastic resin.

6. Panties with pad retainer as claimed in claim 1 wherein said water-proof material comprises a lining, a water-proof fabric interposed between said lining and said panty body, and said acicular projections being supported by said lining.

7. Panties with pad retainer as claimed in claim 1 wherein said water-proof material comprises a lining, a water-proof fabric interposed between said lining and said panty body, a further fabric carried by said lining and said acicular projections are supported by said further fabric.

8. Panties with pad retainer as claimed in claim 1 in which said water-proof material comprises a water-proof lining of said groin portion; supporting said acicular projections.

9. Panties with pad retainer as claimed in claim 1 in which said water-proof material comprises a water-proof lining of said groin portion, and a further fabric is carried by said lining and supports said acicular projections.

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