SANITARY NAPKIN HAVING COMPRESSED CORE

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ABSTRACT
Sanitary napkin comprises flexible absorbent mass surrounding core of compressed hydrophilic fibers.

7 Claims, 2 Drawing Figures
SANITARY NAPKIN HAVING COMPRESSED CORE

SUMMARY OF THE INVENTION

This invention relates to a new sanitary napkin which has the property of retaining a very large quantity of absorbed liquid.

There is a known type of sanitary napkin which comprises a mass of absorbent material such, for example, as cotton fibers or cellulose pulp, which is substantially parallelepipedic in shape. When such absorbent masses hold a large quantity of liquid slight recompression of the mass results in the liquid being squeezed out and this is a great disadvantage to the user of the napkin. It is also known that, if the absorbent mass is compressed, its retentive properties are improved, but in this case, the material becomes too hard to be correctly positioned by the user and adapted to her individual anatomy.

It is the purpose of the present invention to provide a sanitary napkin which, on the one hand, sufficiently flexible to permit its adaptation to the anatomical differences between users without irritating the mucous membranes with which they come in contact and, on the other hand, has particularly valuable retentive properties.

It is accordingly the object of the present invention to provide, as a new article of manufacture, a sanitary napkin essentially characterized by the fact that it comprises, in the first place, a flexible absorbent mass consisting of fibers or pulp and having preferably a substantially parallelepipedic shape, and, in the second place, a core consisting of compressed hydrophilic fibers, said core being surrounded on all sides by said absorbent mass and being preferably positioned in the center of said mass.

In a preferred embodiment, the absorbent mass consists of a layer of hydrophobic cotton, partially surrounding a mass of hydrophilic cotton, with the mass exposed in the area at which the liquid to be absorbed reaches the napkin. The core of compressed hydrophilic fibers consists of fibers obtained from a ground wood pulp which is subsequently compressed, for example by means of a press or calender. The fibers forming the core are recompressed at a pressure between 900 and 1,200 bars. The absorbent mass is formed into a layer which is folded around the compressed core. The absorbent mass surrounding the compressed core is positioned inside a net of cotton fibers or polyamide threads. It has been found that the retentive properties of such a sanitary napkin are considerably greater than those of a similar sanitary napkin in which the core has not been compressed. The best results in this field are obtained with a core made of wood pulp fibers, since these, when in the compressed state, absorb more than cotton fibers subjected to the same compression.

It must be emphasized that the advantages are particularly substantial when there is heterogeneity between the fibers of the flexible absorbent mass and the compressed fibers of the core. It has been found that, if the sanitary napkin is supplied with a liquid to be absorbed at one point on the hydrophilic flexible absorbent mass, the core in alignment therewith sucks the liquid from the interior of the flexible absorbent fibrous mass, which liquid distributes itself inside the core, so long as the core is not completely saturated. It has thus been found that the retentive properties of the entire core are utilized until it has become completely saturated before the retentive properties of the flexible absorbent mass which surrounds the core are fully utilized.

It should be noted that the hardness of the core formed by the compressed fibers presents no problem to the user because of the fact that this core is surrounded by a flexible absorbent mass so that it is never in contact with the mucous membranes of the user and causes no irritation.

In order that the object of the invention may be better understood a preferred embodiment thereof will now be described, purely by way of illustration and example, with reference to the accompanying drawing, in which:

FIG. 1 is a perspective view showing a sanitary napkin according to the invention; and

FIG. 2 is a transverse cross-sectional view taken along the line II—II of FIG. 1.

Referring now to the drawings, it will be seen that reference numeral 1 indicates the net which encircles a sanitary napkin of a substantially parallelepipedic shape. The napkin is about 7 cm wide and 20 cm long. Net 1 is made of cotton thread and weighs about 1.7 g.

The napkin comprises an outer layer of hydrophobic cotton 2 enclosing a mass of hydrophilic cotton 3 in the center of which a compressed core 4 is located. The hydrophobic cotton 2 surrounds the entire napkin except for the zone 5, which must be in contact with the mucous membranes of the user, said zone consisting of the hydrophilic cotton 3. The hydrophobic cotton and the hydrophilic cotton constitute, considered together, a napkin which is folded about the core 4, with the two edges of the napkin coming into contact in the zone 5 of the sanitary napkin.

The layer 2 of hydrophobic cotton is a rose-colored carded layer, which, after conventional cotton treatment is rendered impermeable by spraying a product sold commercially as "Aquaphobol" thereon. The weight of the layer 2 is 2 g.

The mass of hydrophilic cotton 3 forms a layer which is partly carded material and partly just unwadded. The material is boiled in a bath containing, for each liter of aqueous solution, 25 grams of soda 5 grams of sodium carbonate, 5 grams of trisodium phosphate, 1 cm³ of a product sold under the trade mark CELANOL A.T.D., and 1.5 cm³ of a product sold commercially as CELON H. It is bleached with an aqueous solution containing, per liter, 2.5 g of sodium chlorite, 2.5 g of sodium nitrate, 0.5 g of a product sold under the trademark CELANOL, and 0.5 g of sodium pyrophosphate. The layer 3 of hydrophilic cotton weighs 6 g.

The material for the layer 4 is obtained by grinding a wood pulp, predominantly pine, with traces of fir. The fibers have an average length of 1.33 mm and are about 86.3 alpha-cellulose by weight. After grinding, the fibers of this wood pulp are compressed by means of a press at 1,200 bars. The weight of the core 4 is 4.30 g and its dimensions are about 100 mm × 30 mm × 5 mm.

It has been found that the sanitary napkin which has just been described has surprising retentive properties because the liquid absorbed in the zone 5 by the hydrophilic cotton 3 is sucked up by the core 4 and retained in this core until complete saturation of the core. It has also been found that, even if the liquid is supplied to a single area on the core, the liquid absorbed diffuses along the length of the core, so that local saturation
does not lead to the release of the liquid into the inner layers of the hydrophilic cotton 3.

It should be noted that, in addition to the retentive properties hereinbefore described, the sanitary napkin according to the invention has substantial absorbing properties because the absorption due to the presence of the core 4 is added to that due to the flexible absorbent mass constituted by the cotton. Finally, the fact that the cotton layer 3 is interposed between the core 4 and the mucous membranes of the user prevents the sanitary napkin from causing any chafing other than that normally caused by such napkins.

It will of course be appreciated that the embodiment which has just been described has been given purely by way of illustration and example and may be modified as to detail without thereby departing from the basic principles of the invention.

What is claimed is:

1. Sanitary napkin for external use comprising an outer flexible absorbent mass and a core (4) consisting of compressed hydrophilic fibers, said core being positioned substantially in a central zone of said absorbent mass characterized by the fact that the absorbent mass consists of an internal mass (3) of hydrophilic cotton and an external layer (2) of hydrophobic cotton partially enclosing the internal mass, the outer layer surrounding the internal mass being interrupted in the zone in which menstrual liquid will reach the napkin in normal use.

2. Napkin as claimed in claim 1 in which the internal mass (3) of hydrophilic cotton is formed from a single folded layer having abutting edges (5) so that the core (4) is completely covered by this internal mass.

3. Sanitary napkin as claimed in claim 1 in the shape of a thin parallelepiped.

4. Napkin as claimed in claim 1 in which the core of compressed hydrophilic fibers is made from fibers obtained from ground, compressed wood pulp.

5. Napkin as claimed in claim 1 in which the fibers of the core are compressed at a pressure between 900 and 1,200 bars.

6. Napkin as claimed in claim 1 in which the absorbent mass is formed into a layer which is folded to cover the compressed core.

7. Napkin as claimed in claim 1 in which the absorbent mass surrounding the compressed core is located inside a mesh made of cotton or polyamide thread.

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