Nov. 2, 1954 D. P. BLANCHARD ET AL 2,693,439

SANITARY NAPKIN

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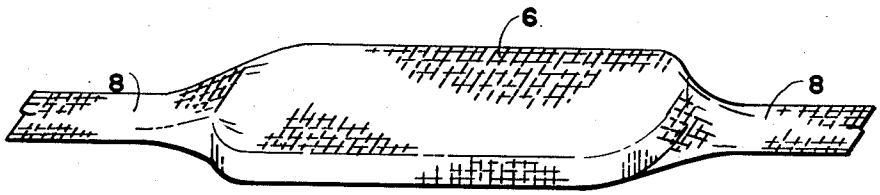

FIG. 1

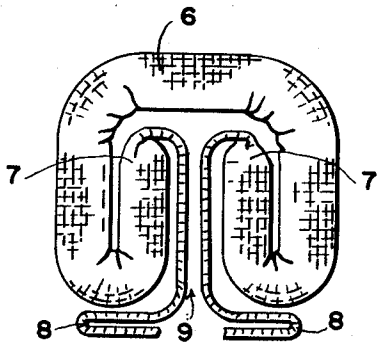

FIG. 2

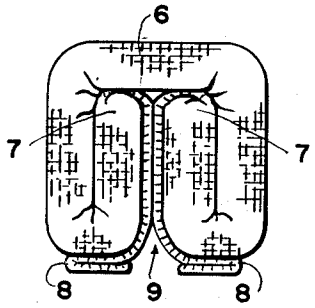

FIG. 3

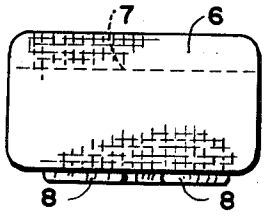

FIG. 4

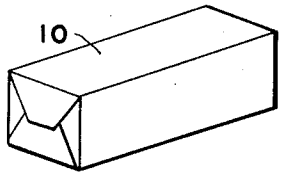

FIG. 5

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SANITARY NAPKIN

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3 Claims. (Cl. 167—84)

This invention relates to sanitary napkins and has as a particular object the provision of a napkin compressed to dimensions which enable it to be carried inconspicously in a hand-bag. It is a further object of our invention to provide a napkin which readily holds its compressed size and shape until it is intentionally unfolded, thus obviating the need of containers of metal or other strong material and making possible the use of coverings which may be crushed when removed and may be disposed of easily. Still another object of our invention is to provide a napkin which contains a deodorant, the deodorant being applied in liquid combination with a stiffening and solidifying agent so as to be absorbed by the fibers of the napkin and to be retained thereby when the dried and virtually solidified napkin is unfolded and softened for use. A further object of our invention is to provide a compressed napkin so formed and arranged and so impregnated that it may easily be restored to a usable condition.

In the accompanying drawing, Fig. 1 shows in perspective a sanitary napkin in its original uncompressed, or subsequently decompressed condition;

Fig. 2 shows schematically the manner in which the napkin may be folded for compression;

Fig. 3 is an end view, on an enlarged scale, of a compressed napkin, and Fig. 4 is a side view of the same; and

Fig. 5 illustrates a suitable covering for the compressed napkin.

In carrying out our invention we first apply to the unfolded napkin **6** a liquid composition containing a deodorant and a binder or solidifying agent. A suitable deodorant which may be carried in an aqueous vehicle is zinc sulphocarbolate, which may be combined with water in proportions of approximately one part by weight of zinc sulphocarbolate to four parts by weight of water. To such a mixture we add as a binding and solidifying agent about two-tenths part by weight of starch or other material having like binding properties, such as gum tragacanth. Other materials may be added provided they do not greatly increase the hygroscopicity of the napkin, as it is a feature of our invention that the product contains practically no free water in its finished form.

The napkin **6** is thoroughly wetted with a liquid composition of approximately the foregoing formula, not only the usual inner gauze pad but the outer coverings or laminations being moistened. The wetted napkin is then allowed to dry sufficiently to permit the starch or gum binder to bind the zinc sulphocarbolate to the fibers of the napkin, assuring thorough impregnation of the napkin by the deodorant and minimizing loss of deodorant in the following compression step. When partially dried but still flaccid, the napkin is folded transversely involutely as shown in Fig. 2, the ends **7** of the napkin being brought to the center of the folded mass and the fastening tabs **8** being brought outwardly between the two involute folds and folded on the surface containing the involute entrance **9**.

The folded napkin is then subjected to great compression, in the manner that a bale of cotton is compressed, the pressure being applied on all sides. Because the ordinary fluffy napkin actually contains very little solid matter, it is possible to effect a compression ratio of fifteen or twenty to one, a napkin which when fluffed out has a volume of about 30 cubic inches being compressed to a volume of only 1.5 to 2 cubic inches.

During this compression step the napkin is substantially dehydrated, the moisture content of the napkin being squeezed out and carrying with it that portion of the starch which is still in solution and which has not effected a bond with the fibers of the napkin. Some of the zinc sulphocarbolate will also be lost with the expressed aqueous vehicle, but a large proportion will remain bonded to the fibers. The now nearly dry remaining starch, present in the fibers in only moderate concentration, quickly stiffens the fibers of the napkin and holds the napkin together in its compressed form, but lightly and with bond easily ruptured, so that while the napkin will not break open and expand of its own accord it may be manually unfolded and restored to softness. In its compact state, the napkin may be packaged in a cover **10** of paper of light weight and will retain the zinc sulphocarbolate with which it is impregnated, also preserving the deodorant properties. In itself, and without the cover **10**, the compressed napkin forms a substantially air-impermeable container for the deodorant.

To restore the napkin to useful condition, it is only necessary to remove the cover **10**, pick up the ends of the fastening tabs **8** and pull them with a separating motion. This causes separation of the folded napkin ends **7** along the involute entrance **9** and permits the napkin to be straightened. The mere straightening of the laminations of the napkin will start the fibers breaking from their starch bond, and mild twisting and manual pressure will restore the napkin to softness and fluffiness.

We claim:

1. A sanitary napkin comprising a highly compressed fibrous body and end tabs for fastening said body folded involutely with said tabs extending outwardly from the fold, said body being initially impregnated with a deodorant and a bonding agent in a liquid carrier and being compressed to a dry compact condition in which it is lightly retained by said bonding agent.

2. A sanitary napkin as set forth in claim 1, in which said deodorant is zinc sulphocarbolate and said bonding agent is a starch.

3. A sanitary napkin comprising an elongated and flattened fibrous pad of natural softness and fluffiness impregnated with a deodorant initially liquid and folded involutely at both ends so as to have a large portion of one flattened surface and all of the opposed surface concealed within the involutions, and tabs on the infolded ends of said pad folded reversely to said involutions and extending outwardly of said folded pad to provide means for restoring said pad to an unfolded condition, said pad being compressed to a state of substantial dehydration while in said involute condition, the initially moist surface fibers being compacted to retain said deodorant.

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(1st addition to No. 638,841)