Aug. 17, 1943. J. M. LURIE 2,327,278

BLANKET

Filed Sept. 24, 1942

Fig. 1

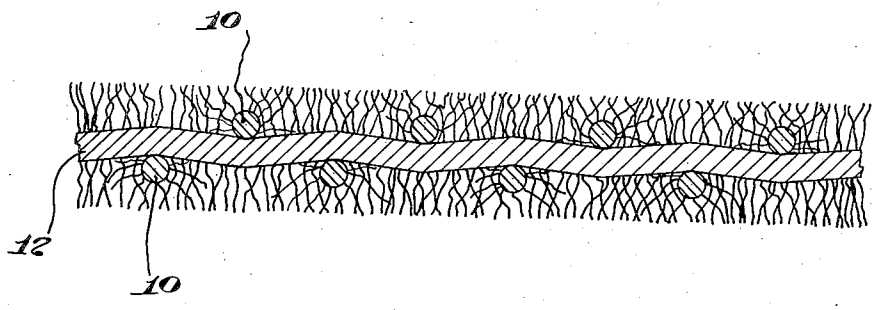
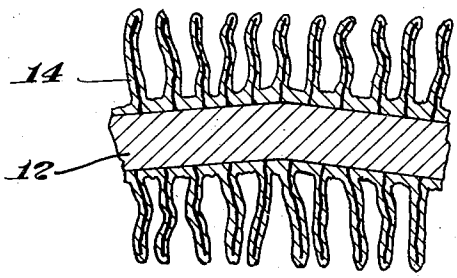


Fig. 2



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1 Claim. (Cl. 28—80)

This invention relates to a blanket.

The object of the invention is to produce a novel and superior woven blanket utilizing a cotton thread as the weft thread of the blanket composed of cotton of the softer type such as American or India cotton and which has the desirable harsh and wiry feeling of a blanket made of China cotton, together with the ability to retain this characteristic harsh and wiry feeling for long periods of time, even when subjected to nonalkaline washing, to atmospheric changes, and to other human conditions.

With this general object in view and such others as may hereinafter appear, the invention consists in the woven blanket hereinafter described and particularly defined in the claim at the end of this specification.

In the drawing illustrating the preferred embodiment of the invention, Fig. 1 is a section through a woven blanket embodying the invention; and Fig. 2 is a detail to be referred to.

Referring now to the drawing, 10 represents the warp threads and 12 represents the weft threads of a woven blanket embodying the invention. In accordance with the invention the weft threads 12 comprise cotton threads of the normally soft type of American and India cotton which have been treated to deposit thereon an acid form of an amphoteric protein 14 and by which such soft cotton fibers are converted into a condition having a wiry, harsh feeling and the general workability of China cotton. This coarse, wiry cotton weft thread imparts to the blanket the appearance and feel of a blanket made of China cotton.

It has heretofore been recognized that a certain amount of scroop could be imparted to certain fibers and fibrous materials by treatment with dilute acetic and tartaric acids. Silk is the material which has been most susceptible to such treatment and the scroop of silk, that is, the property of emitting a crackling sound when squeezed or pressed, has been generally recognized as probably due to an acid hardening of the surface of the fibers themselves, and not as an inherent property of the silk. It has also been recognized that mercerized cotton can, to some extent, have imparted to it a somewhat similar scroop by similar treatment by dilute acetic and tartaric acids. Wool, to some degree, can also be given a scroop by treatment with chloride of lime solution or with strong caustic alkali, but with the exception of silk, none of the various processes, heretofore proposed for the treatment of fibers other than silk, have assumed commercial importance and at most, the scroop has been more or less temporary.

I have discovered that a desirable harsh, wiry feeling may be imparted to soft fibers such as American and India cotton, carded rayon and other fibers by a process involving the deposition, upon the fibers, of certain proteins such as casein, alpha protein, soya bean protein and others of the type which are amphoteric. In practice, by saturating the cotton fibers, as by dipping, with a solution of the protein, and then subjecting the same to treatment to effect the deposition of the protein in acid form upon the fibers, and drying without washing, there is produced a resulting modified cotton possessing the desired harsh, wiry feeling. The modified cotton fibers may be processed in the usual manner to produce cotton threads and the latter utilized as the weft threads 12 in producing the present woven blanket. The warp threads 10 may comprise any desired character of thread inasmuch as the filling thread is the one which imparts the desired character to the woven blanket. In practice I prefer to utilize ordinary American cotton threads as the warp threads 10.

In general, several procedures may be followed. The preferred procedure may be described as follows: I prepare a solution of one hundred (100) parts by weight of the protein dissolved in a caustic solution comprising three (3) parts by weight of caustic dissolved in five hundred (500) parts by weight of water. I then add eighteen (18) parts by weight of sodium acid phosphate NaH_2PO_4 dissolved in some water. The resulting protein solution has a pH value of approximately 5.5, and to this is added twenty (20) parts by weight of formalin solution and sufficient additional water to make the complete solution fifteen hundred (1500) parts by weight. The protein in this solution appears to be in the form of a colloidal suspension. The American or India cotton is then dipped in this solution and dried without washing and during the drying, as the protein solution concentrates, the protein is deposited on the fiber in acid form, resulting in a modified cotton possessing the desired harsh feeling.

Another procedure contemplates the immersion of the cotton in an alkaline solution of one or more of the proteins such as casein, alpha protein, soya bean protein and others of the amphoteric type from which an acid form of protein may be precipitated from a very slightly acid solution. After the cotton has been thus immersed in the protein solution, the excess of the solution

may be squeezed out and then the cotton subjected to the action of a solution of a weak acid such as acetic, lactic or citric acids to thereby precipitate the protein from a slightly acid solution directly upon the fibers, after which the cotton thus treated is dried without washing. Both of the foregoing processes may be carried out at room temperatures and have the advantage that certain dyed fabrics can be treated without injury to the dye.

Still another procedure contemplates the immersion of the cotton fibers in a weak sulphurous acid solution in which a small amount, say 3% based on the weight of the cotton, of a protein of the character described has been dissolved. The solution is then boiled, evolving sulphur dioxide gas, and thus reducing the acidity to a point where the acid form of the protein is precipitated directly on the cotton fibers. Thereafter the thus treated cotton fiber is removed from the solution and dried without washing.

If desired, during the deposition of the protein fiber, the fiber may be subjected to treatment with a weak formaldehyde solution as a part of the precipitating bath to improve the resistance of the treated fiber to washing, and either with or without the formaldehyde treatment, it has been found that the deposition of the acid form of a protein of the character described not only imparts to the softer cotton fibers the desired harsh, wiry feeling.

The relatively soft cotton fibers, modified in the manner above described to impart to them the desired wiry, harsh feeling when processed and woven as weft threads in the production of the present blanket, exhibit a relatively permanent ability to withstand nonalkaline washing, atmospheric changes, and other human conditions while retaining the properties of China cotton, and as a result blankets embodying the present invention satisfactorily serve all of the commercial purposes heretofore served by blankets produced with China cotton.

Having thus described the invention, what is claimed is:

A woven blanket having the weft threads thereof composed of modified cotton having the fibers thereof in a loose condition, said fibers having deposited thereon an acid form of an amphoteric protein whereby to convert them from their normally soft condition to a condition having the wiry, harsh feeling and general workability of China cotton, said wiry cotton weft threads imparting to the blanket the wiry feeling and characteristics of a blanket made of China cotton.

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