

UNITED STATES PATENT OFFICE.

MARCEL MELLIAND, OF MANNHEIM, GERMANY, ASSIGNOR TO MELIANA CORPORATION OF AMERICA, A CORPORATION OF NEW YORK.

PROCESS FOR INCREASING THE STRENGTH AND ELASTICITY OF COTTON FIBERS.

No Drawing. Application filed June 21, 1926, Serial No. 117,643, and in Germany July 2, 1925. Renewed November 26, 1928.

Many processes for increasing the strength and elasticity of all kinds of vegetable fibers and products manufactured therefrom are in existence. These consist, however, as a rule of an aftertreatment, and are usually applied when sizing and finishing as well as to curl the fibers or induce their contraction to produce a crape effect. In all these processes, however, the effects secured disappear upon further treatment when bleached, dyed, washed and so on. Also the curling of vegetable fibers to give them a woolly appearance by treating them with concentrated sulphuric acid, nitric acid, zinc chloride and cuprammonium is well known, but this application of concentrated acids tends to weaken their fibers.

It has now been found that the use of strong caustic alkalis as sodium hydroxide and potassium hydroxide in concentrations of from 50 to 125° Bé. (about 49 to 100%) at a temperature of from 60 to 100° C., or even higher, produces hitherto unknown effects on vegetable fibers, raising their strength and elasticity, and increasing the curliness. The application of this process varies according to the nature of the vegetable fibers to be treated, and according to their origin (Egyptian, Indian, American) and also according to the kind of fabric. The fiber undergoes a change, and attains quite different properties, rendering it much more valuable for the industry. After this treatment with strong caustic alkalis within the limits described above, the fibers or fabrics can be sub-

jected to any suitable aftertreatment hitherto known, whereby they undergo no further change or only to a very limited extent. This behaviour has the advantage that goods which have been treated in this way, when made up as garments or underwear show no shrinkage when they become wet, or are washed. The character of goods treated in this way is much improved and more advantageous, rendering, in most cases, finishing with the usual additions, superfluous. The strength and elasticity may increase according to the weave and nature of the fabric treated by as much as 150%. The crinkling resembles that of wool, and the appearance of fabrics, according to the weave, more resembles wool, silk, or linen. The lustre is dull and not so striking as with mercerized cotton.

What I claim is:

1. Process for increasing the strength and elasticity of cotton fibers and for curling the same which comprises treating such fibers with caustic alkalis of at least 50° Bé. at a temperature of 60-100° C. without application of any tension to the fiber.

2. Process for increasing the strength and elasticity of cotton fibers and for curling the same which comprises treating such fibers with sodium hydroxide of at least 50° Bé. at a temperature of 60-100° C. without application of any tension to the fiber.

In testimony whereof I affix my signature.

MARCEL MELLIAND.