UNITED STATES PATENT OFFICE.

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MERCERIZATION.

1,343,138. Specification of Letters Patent. Patented June 8, 1920.

No Drawing. Application filed November 23, 1919. Serial No. 341,272.

To all whom it may concern:

Be it known that I, SAMUEL MANSFIELD JONES, a citizen of the United States, and a resident of North Adams, in the county of Berkshire and State of Massachusetts, have invented new and useful Improvements in Mercerization, of which the following is a description.

This invention particularly relates to a method of mercerizing cellulosic fibers of natural growth such as cotton or linen, when interwoven or intermingled with filaments of artificial silk known as viscose, while at the same time protecting such viscose filaments from deleterious attack by the caustic alkali employed for mercerization.

Letters Patent No. 1,316,958, were granted to me September 23, 1919, for an invention which accomplished by its own particular method therein set forth the novel utility just specified; but I have discovered that other methods are available for accomplishing the like ultimate result, and that among these is the method herein described which involves the modification of the caustic alkali solution used for mercerization by introducing into it formic aldehyde otherwise known as formaldehyde.

For the purpose of the present invention I find it practically satisfactory to compose the mercerizing liquid by adding formic aldehyde in the proportion of 57 grams to 943 grams of an aqueous solution of sodium hydrate at 60° Twaddell. This proportion is not rigid; but if the ratio of the quantity of formic aldehyde to that of the caustic alkali in solution at the hydrometric density stated is much less than the ratio just indicated the viscose silk will not be adequately protected; and if such ratio is much greater the mercerizing efficiency of the caustic alkali thus modified will tend to become impaired.

Otherwise than such required modification of the mercerizing solution the treatment of the fabric into which mercerizable cellulosic fibers such as cotton or linen have been interwoven with viscose-silk filaments is substantially the same as that customarily employed in the mercerization of woven fabrics composed entirely of cotton including the usual means and mode of applying tension thereto for the prevention of shrinkage.

The employment of a mercerizing solution of caustic alkali which has been modified by the addition thereto of formic aldehyde as hereinabove provided enables the process of mercerization to be successfully practised upon cellulosic fibers of natural growth such as cotton or linen, while at the same time the viscose-silk filaments interwoven with these are effectively protected against injury from the caustic alkali; so that the resulting product is expeditiously obtained without incurring the extra expense and labor required for separately mercerizing the cellulosic fibers in the yarn before interweaving the same with the viscose silk.

Manifestly also this invention although especially well adapted for the production of woven mixed goods of the kind hereinabove referred to, may likewise be practised upon yarns or other unwoven textile fabrics which are composed partly of mercerizable cellulosic fibers such as cotton or linen and partly of viscose-silk filaments and which are subjected to any well known and acceptable process of mercerization suitable for imparting luster to the cellulosic components of a fabric thus constituted; except only that instead of employing therein the old mercerizing chemical agent alone there is to be substituted therefor a solution of caustic alkali modified by the addition of formic aldehyde, whereby injury to the viscose components of the fabric is avoided.

I claim:

1. The method of treating textile fabrics composed of mercerizable cellulosic fibers intermixed with artificial silk filaments of viscose, for the purpose of mercerizing such cellulosic fibers without injury to the viscose silk, by subjecting the composite fabric thus constituted to a process of mercerization wherein the solution of caustic alkali is modified by the addition thereto of formic aldehyde.

2. The method of treating textile fabrics composed of yarn spun from mercerizable cellulosic fibers and interwoven with artificial silk filaments of viscose for the purpose of mercerizing the fibers of such yarn without injury to the viscose silk, by subjecting the woven fabric thus constituted to a process of mercerization wherein the solution of caustic alkali is modified by the addition thereto of formic aldehyde.

3. The method of treating textile fabrics composed of cotton fibers intermixed with

artificial silk filaments of viscose, for the purpose of mercerizing such cotton fibers without injury to the viscose silk, by subjecting the composite fabric thus constituted, to a process of mercerization wherein the solution of caustic alkali is modified by the addition thereto of formic aldehyde.

4. The method of treating textile fabrics composed of cotton yarn interwoven with artificial silk filaments of viscose for the purpose of mercerizing the fibers of such cotton yarn without injury to the viscose silk, by subjecting the woven fabric thus constituted to a process of mercerization wherein the solution of caustic alkali is modified by the addition thereto of formic aldehyde.

SAMUEL MANSFIELD JONES.