

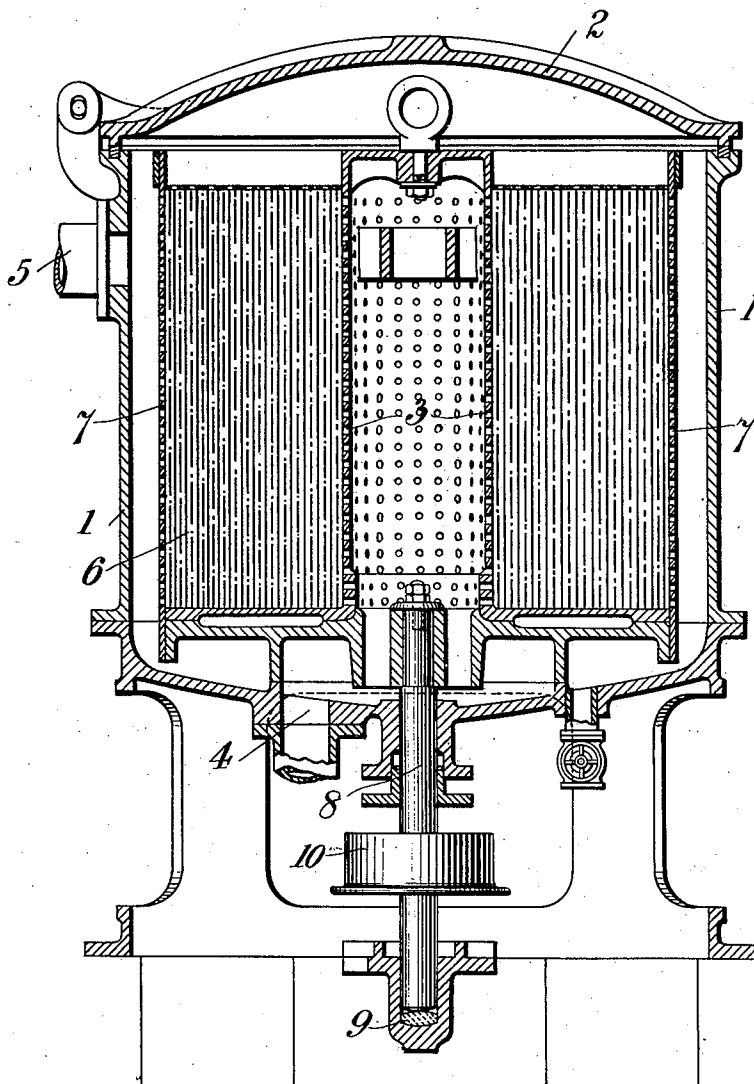
No. 824,255.

PATENTED JUNE 26, 1906.

W. MATHER, J. HÜBNER & W. J. POPE.

PROCESS OF MERCERIZING.

APPLICATION FILED MAR. 8, 1905.



WITNESSES.

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UNITED STATES PATENT OFFICE.

WILLIAM MATHER, JULIUS HÜBNER, AND WILLIAM JACKSON POPE, OF
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PROCESS OF MERCERIZING.

No. 824,255.

Specification of Letters Patent.

Patented June 26, 1906.

Application filed March 8, 1905. Serial No. 249,063.

To all whom it may concern:

Be it known that we, WILLIAM MATHER, JULIUS HÜBNER, and WILLIAM JACKSON POPE, subjects of His Majesty the King of Great Britain, and residents of Manchester, England, have invented a new and useful Improved Process of Mercerizing Fabrics and Material, of which the following is a specification.

10 The invention relates more particularly to the mercerization of fabrics and materials such as fine muslin, lace, yarns, and the like, as well as unspun cotton, which it has been difficult to treat by the methods hitherto employed, since, owing to their loose and delicate structure, they are unable to withstand tension applied directly to them.

15 The object of the present invention is to prevent the material or fabric contracting under the influence of the caustic with which it is treated, and this object is attained by subjecting the material or fabric to a preliminary treatment which includes the compression of the fabric or material between pervious surfaces which by their pressure produce and augment surface friction, so as to prevent or minimize the contraction of the fibers especially while the mercerizing liquid is acting. This preliminary treatment, which may be carried out either in a continuous or non-continuous manner, as desired, consists in steaming the fabric or material, saturating it with water or a weak solution of caustic, and at the same time subjecting it to pressure between pervious surfaces, one or more of which is flexible, such treatment having for its object the elimination of the air contained in the material, thus facilitating the subsequent mercerizing process and rendering it more effective and uniform. In cases where the mercerizing is carried out in a single machine in successive stages such preliminary treatment is repeated between the successive stages of mercerizing, and finally the material is washed.

20 In the accompanying drawing is shown a machine by which the improved process of mercerizing is conveniently carried into effect by a non-continuous process.

25 In the drawing, 1 is a closed vessel having a hinged lid 2, by which access is obtained to the interior of the vessel. Central of the vessel 1 is a hollow perforated core 3, the interior of which communicates by a pipe 4 with any suitable suction means. Any suitable arrangement of steam, air, and water supply pipes and control devices and pipes and control devices for the delivery of the mercerizing and other liquids are also connected with the suction-pipe 4 and delivery-pipe 5, which latter opens into the interior of the vessel 1, so that by making the proper connection any desired liquid, air, or vapor may be admitted.

55 The material to be treated is wound tightly about the perforated core 3 simultaneously with a sheet 6 of flexible pervious material, such as fine wire gauze, so that the material under treatment alternates with a layer of the pervious material and is compressed between the layers of the latter, the alternating layers being shown in the figure by whole and broken lines. The compound roll thus produced is surrounded by a tightly-fitting pervious or perforated jacket 7. The vessel 1 having been closed, the material is subjected to the preliminary treatment by causing steam, either alone or simultaneously with or alternately with water or weak caustic, to pass through the compound roll either from the exterior out through the interior of the hollow core 3 or vice versa, the former course being preferable. After this preliminary treatment the usual mercerizing liquid is admitted and caused to circulate through the material, when the surface friction and pressure of the pervious layers and the jacket will hinder the tendency to contract produced by the mercerizing liquid, and thereby an automatic tension will be set up in the cotton. At the end of the mercerizing process water may be passed through in a similar manner to wash the cotton, and also, if required, dyeing, bleaching, and other liquors, while to dry the cotton after such treatment dry air may be forced through. To facilitate, however, the expulsion of the liquids, the core 3 may, as shown, be mounted on a shaft 8, having a foot-step at 9 and provided with a driving-pulley 10, so that the core and the material wound thereon may be rotated to drive out radially by the centrifugal action thus set up the various liquids used.

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What we claim is—

1. The herein-described process of mercerizing which consists in first steaming and wetting the material while under constrictive

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pressure between pervious but inextensible and non-absorbent surfaces and subsequently causing the mercerizing liquid to pass through it while still held between such surfaces, and
5 finally washing out the mercerizing liquid.

2. The herein-described process of mercerizing which consists in rolling the material to be treated together with an alternating layer
10 of pervious but inextensible and non-absorbent material to form a roll, which is first subjected to a steaming and wetting process after which the mercerizing liquors are caused

to pass therethrough and the roll finally washed.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

W. MATHER.

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Witnesses:

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