Patented Mar. 14, 1939 2,150,825

UNITED STATES PATENT OFFICE

2,150,825

ORGANDY

Florence M. Ford and Arnold Leroy Lippert, Wilmington, Del., assignors to Joseph Bancroft & Sons Co., Wilmington, Del., a corporation of Delaware

No Drawing. Application October 10, 1936, Serial No. 105,084

5 Claims. (Cl. 8—118)

This invention relates to organdy and has for its primary objects an economical process which gives sheerness and a finish improved both with respect to appearance and hand, and which is permanent and will withstand repeated launderings.

In the process, generally considered, the cloth is first run through the acid bath to be hereinafter described, is washed and then, preferably while wet, is given a mercerizing treatment to be described.

The acid bath is preferably composed of 88% sulphuric acid, about 114° Tw., and 12% phosphoric acid, about 115° Tw. The acid bath is at room temperature and may vary anywhere from about 20° to about 30° C. without appreciable detrimental effects. The cloth remains in the acid bath for about from 18 to 20 seconds, with a tolerance of about plus or minus 2 seconds. After leaving the acid bath, the cloth passes between squeeze rolls and then, while on a tenter frame, is subjected to a water wash, and again passes through squeeze rolls, after which it is run through a caustic soda solution of more than the usual mercerizing strength. We prefer a solution of from appreciably more than 50° Tw. up to approximately 100° Tw., 100° Tw. being most desirable as giving the best effects. The caustic soda bath may have a temperature anywhere from room temperature to about 120° F., without noticeable detrimental effects. The time of immersion in the caustic soda may vary from about 20 seconds to about 2 minutes.

The frame is interposed between the acid bath and the caustic soda bath so that the cloth may be subjected to tension to obviate the shrinkage caused by the acid.

Following the caustic soda bath, the cloth is again placed on a frame and subjected to tension. While on the frame, the cloth is subjected to a series of water washes, preferably sprays, which progressively reduce the caustic soda concentration from 10 normal (about 400 grams per liter) down to about 2 normal (80 grams per liter). Having initially high caustic soda concentration gives good results, and the progressive dilution avoids detrimental effects which otherwise might follow from the high concentration of the caustic soda bath. After this, the cloth is soured, washed and dried.

The use of an acid bath composed of sulphuric acid and phosphoric acid has a number of important advantages. The phosphoric acid slows down the action of the sulphuric acid, which affords greater operating leeway without injury to the cloth. Furthermore, the phosphoric acid inhibits, i. e., reduces the amount of shrinkage. This acid bath rather than weakening the strength of the cloth, maintains, if it does not increase, the strength. The effects of this bath are noticeably different from either a bath of sulphuric acid or a bath of phosphoric acid. The percentages of sulphuric acid and phosphoric acid may be varied, but we find that the best results are obtainable by adhering fairly closely to the 88% sulphuric acid and the 12% phosphoric acid. If the sulphuric acid content be somewhat increased, the time of subjection to the acid bath should be decreased, and if the phosphoric acid content be increased, the time of subjection may be increased. No such variation should be made as will tender the cloth.

Likewise, the order of treatment, i. e., first the acid bath and then the caustic soda bath, is of importance for if reversed, the finish would be soft, dull and opaque, whereas the desired finish is relatively stiff and has some luster.

In addition to securing an improved organdy, the process is quite economical because one can proceed at room temperature, and even higher in the case of the caustic soda bath. Furthermore, no special frame requiring many attendants is necessary between the acid bath and the caustic soda bath. An ordinary tenter frame suffices.

Of course, the cloth is preferably bleached before processing, and the invention may have applications other than to organdy.

We claim:

1. The process which comprises subjecting cotton goods to an acid bath containing sulphuric acid and phosphoric acid, the bath being composed of about 88% of sulphuric acid of 114° Tw. and of about 12% phosphoric acid of 115° Tw., the bath being at a temperature of from about 20° to about 30° C. and the time of treatment therein being from about 18 to about 20 seconds, washing the acid treated goods, and thereafter mercerizing the goods with caustic soda.

2. The process which comprises subjecting cotton goods to an acid bath containing sulphuric acid and phosphoric acid, the bath being composed of about 88% of sulphuric acid of 114° Tw. and of about 12% phosphoric acid of 115° Tw., the bath being at a temperature of from about 20° to about 30° C. and the time of treatment therein being from about 18 to about 20 seconds, washing the acid treated goods, and thereafter mercerizing the goods with caustic soda of a concentration appreciably above 50° Tw. and not in material excess of 100° Tw.

3. The process which comprises subjecting cotton goods to an acid bath containing sulphuric acid and phosphoric acid, the bath being composed of about 88% of sulphuric acid of 114° Tw. and of about 12% phosphoric acid of 115° Tw., the bath being at a temperature of from about 20° to about 30° C. and the time of treatment therein being from about 18 to about 20 seconds, washing the acid treated goods, and thereafter mercerizing the goods with caustic soda of a concentration appreciably above 50° Tw. and not in material excess of 100° Tw., the time of treatment with caustic soda being from about 20 seconds to about 2 minutes.

4. The process which comprises subjecting cotton goods to an acid bath containing sulphuric acid and phosphoric acid, the bath being composed of about 88% of sulphuric acid of 114° Tw. and of about 12% phosphoric acid of 115° Tw., the bath being at a temperature of from about 20° to about 30° C. and the time of treatment therein being from about 18 to about 20 seconds, washing the acid treated goods, thereafter mercerizing the goods with caustic soda of a concentration appreciably above 50° Tw. and not in material excess of 100° Tw., and washing the goods to progressively reduce the concentration of the caustic soda to about 2 normal.

5. The process which comprises subjecting cotton goods to an acid bath containing sulphuric acid and phosphoric acid, the bath being composed of about 88% of sulphuric acid of 114° Tw. and of about 12% phosphoric acid of 115° Tw., the bath being at a temperature of from about 20° to about 30° C. and the time of treatment therein being from about 18 to about 20 seconds, washing the acid treated goods, thereafter mercerizing the goods with caustic soda of a concentration appreciably above 50° Tw. and not in material excess of 100° Tw., and washing the goods to progressively reduce the concentration of the caustic soda to about 2 normal, tension being applied after the application of the acid and in the course of the mercerizing treatment.

FLORENCE M. FORD.
ARNOLD LEROY LIPPERT.