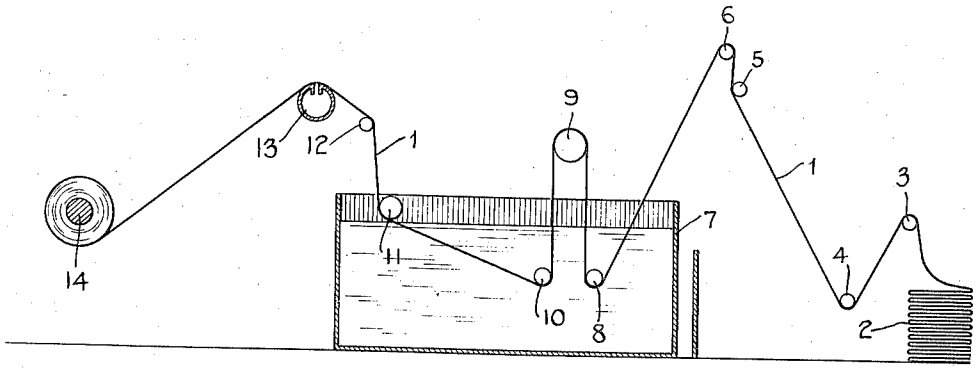
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TREATMENT OF FABRIC

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TREATMENT OF FABRICS

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This invention relates to the preliminary treatment of fabrics prior to dyeing or other finishing treatment.

An object of my invention is to prepare fabrics and the like containing yarns of organic derivatives of cellulose whereby they may be dyed, delustered or otherwise finished while in rope form without the development of creases, streaks and like defects. Other objects of my invention will appear from the following detailed description.

On the accompanying drawing,

The figure shows more or less diagrammatically one form of apparatus for carrying out my invention.

The scouring, dyeing and other liquid treatments of textile fabrics are very commonly accomplished on a machine which consists essentially of a winch mounted over a vat containing the liquid. The material bunched together in what is commonly called "rope" form, is drawn continuously or intermittently from the liquor and replaced in the same by means of the winch which may be revolved mechanically or otherwise. The "rope" may consist of a single piece of material or of several pieces suitably fastened together so as to form an endless rope which may be passed continuously through the vat by suitably rotating the winch. Such a machine is very simple in construction and in operation, and has the further advantage of very large output since the materials under treatment are bunched together and several ropes may be treated simultaneously side by side on the winch.

If the scouring, dyeing or other liquid treatment of certain materials, particularly warp knit fabric made of or containing yarns, filaments or other products of cellulose acetate or other cellulose esters or ethers and especially such yarns, filaments or other products which have been prepared by dry-spinning processes, is attempted on such winch machines, it is found that the materials are very liable to acquire creases which can only be removed with difficulty or not at all by any subsequent finishing operations. I have found that this is due, particularly in the case of warp knit fabric made of cellulose acetate yarn, to the fact that the stitches become distorted along the lines of the longitudinal folds which occur when fabric is treated on the winch because of the fact that during the liquid treatment on the winch the fabric shrinks in width and increases in length.

I have found that if the fabric is first subjected to an aqueous bath while in open width while under longitudinal tension, the fabric is caused to stretch in length and shrink in width, the stitch of the fabric is set and the fabric does not tend to develop creases or other distortions when subsequently dyed or otherwise finished while in rope form.

While this invention will be described specifically in connection with fabric containing yarns of cellulose acetate, it is also applicable to the treatment of fabrics containing yarns of other organic derivatives of cellulose such as organic esters of cellulose and cellulose ethers. Examples of such organic esters of cellulose are cellulose formate, cellulose propionate and cellulose butyrate, while examples of cellulose ethers are ethyl cellulose, methyl cellulose and benzyl cellulose.

The invention is of particular importance in connection with the treatment of warp knit fabric made of cellulose acetate yarn but it may be applied to other knit or woven fabrics.

The preliminary treatment of this invention is conveniently carried out in a bath of water which may or may not contain other ingredients such as soap. The temperature of this bath is above room temperature and preferably is 30° to 40° C. While passing through this bath while under longitudinal tension and in open width, a warp knit fabric of cellulose acetate yarn may shrink in width from 20 to 40% in extent and may increase in length from 25 to 45% in extent.

After this preliminary treatment the fabric may be dried wholly or partially. The fabric is then preferably sewn to join the longitudinal edges whereby it is in tubular form.

After the preliminary thorough wetting out treatment, the fabric or garment may then be subjected to a dyeing, saponification, delustering or other finishing treatment while in rope form.

The fabrics may be subjected after the finishing treatment to any other desired treatment such as scouring, rinsing, drying, tentering, etc. The resulting fabrics are free of creases and distortions.

In order further to illustrate my invention, but without being limited thereto, the following specific example is given, reference being had to the drawing.

Example

A warp knit fabric 1 made of yarns of cellulose acetate and having a width of 80 inches is drawn from the batch 2 while in open width over guides 3 and 4 and opening or spreader bars 5 and 6 into the tank 7 containing warm water of a temperature of 30 to 40° C. The fabric 1 is guided by and caused to pass through the water

by means of rollers 8, 9, 10 and 11, after which it passes over the spreader bar 12. The fabric is then passed over the slotted suction device 13 which extracts most of the water to the wooden shell 14 which is positively rotated and around which the fabric is wound. The fabric so treated shrinks from a width of 80 inches to a width of 50 inches and has increased in length by 15 yards for each original 35 yards in length.

The fabric so pretreated and which has had a large percentage of its water removed by the suction extractor 13, may now be sewn in tubular form without intermediate drying and can be placed directly on the winch and can be dyed and finished in tubular form without the appearance of any appreciable number of distortions known as rivers.

If the fabric is dried in tubular form, the hand of the fabric is full, soft and glovey.

It is to be understood that the foregoing detailed description and drawing is given merely by way of illustration and that many variations may be made therein without departing from the spirit of my invention.

Having described my invention, what I desire to secure by Letters Patent is:

1. Method of avoiding creasing in the liquid treatment of warp knit fabric containing cellulose acetate yarn, comprising wetting out the fabric while in open width under longitudinal tension and while free to shrink in width, in an aqueous bath at 30–40° C. until the fabric shrinks about 37.5% in width and increases about 42% in length, and then subjecting it to the desired liquid treatment in rope form.

2. Method of avoiding creasing in the liquid treatment of warp knitted fabric comprising yarns of organic derivatives of cellulose comprising first subjecting the fabrics to treatment with an aqueous liquid while in open width and under longitudinal tension and while free to shrink in width until the fabric shrinks about 20 to 40% in width and increases about 25 to 45% in length and then subjecting them to a desired liquid treatment in rope form.

3. Method of avoiding creasing in the liquid treatment of warp knitted fabric containing cellulose acetate yarn comprising first subjecting the fabrics to treatment with an aqueous liquid while in open width and under longitudinal tension and while free to shrink in width until the fabric shrinks about 20 to 40% in width and increases about 25 to 45% in length and then subjecting them to a desired liquid treatment in rope form.

4. Method of avoiding creasing in the liquid treatment of warp knit fabric containing cellulose acetate yarn comprising drawing under longitudinal tension the fabric while in open width over spreader means and while free to shrink in width then through an aqueous bath at a temperature between 30 and 40° C. until the fabric shrinks about 20 to 40% in width and increases about 25 to 45% in length, and then subjecting it to a desired liquid treatment in rope form.

5. Method of avoiding creasing in liquid treatment of warp knit fabric containing cellulose acetate yarn comprising drawing under longitudinal tension the fabric while in open width over spreader means and while free to shrink in width then through an aqueous bath at a temperature between 30 and 40° C. until the fabric shrinks about 20 to 40% in width and increases about 25 to 45% in length, then over a suction device adapted to extract water therefrom, and then subjecting it to a desired liquid treatment in rope form.

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