

UNITED STATES PATENT OFFICE

2,094,081

TEXTILE FABRIC AND METHOD OF TREAT-
ING SAMEHerbert Platt, Cumberland, Md., assignor to
Celanese Corporation of America, a corpora-
tion of DelawareNo Drawing. Application October 12, 1934,
Serial No. 748,088

4 Claims. (Cl. 28—1)

This invention relates to the production of crush and embossing effects on textile fabrics having a pile such as plush and velvet and textile fabrics having long floats on one face such as satin or uncut pile such as terry, said fabrics preferably containing filaments of an organic derivative of cellulose.

An object of the invention is the economic and expeditious production of a textile fabric having novel and pleasing effects produced therein which are permanent to washing, ironing and wear.

Another object of the invention is the production of unique designs embossed in a fabric which are substantially uniform yet of a random pattern. Other objects of the invention will appear from the following detailed description.

The patterns produced in the textile fabric according to this invention are permanent to washing and other treatments commonly given fabrics in their use as drapes and wearing apparel.

According to my invention, I wet the textile fabric to be given a permanent pattern by immersing same in an aqueous bath maintained at an elevated temperature for a sufficient length of time to thoroughly wet-out the fabric and, while said fabric is still wet and at least warm from said bath, it is twisted and/or folded in various manners and allowed to cool or a dry fabric may be twisted and/or folded and, while held in the twisted and/or folded condition, it may be subjected to steam followed by a cooling so as to set the folds, wrinkles, etc.

The aqueous bath may contain a small percentage of soap. The percentage of soap necessary to give the best results will depend somewhat upon the textile fabric to be treated. It has been found, however, that the best results are obtained on the majority of fabrics when from 1 to 8 grams per liter of soap are used and the amount of the bath relative to the material treated is sufficient to easily and totally immerse the said material therein.

Small amounts of other substances may be employed in the bath in connection with the soap, either as aids to the soap in wetting-out the fabrics or as protecting materials. Examples of protecting materials are the inorganic salts such as Glauber's salt which prevent a change in luster of the material while being subjected to the hot bath. Examples of aids to the soap are small amounts of solvents or swelling agents for the particular organic derivative of cellulose in the fabric treated, such as 1 to 3 grams per liter of acetone or ethyl-ether of diethylene glycol.

The bath is preferably maintained during treat-

ment of the textile fabric at a temperature of between 90° C. and 100° C., say about 98° C., and the textile fabric is kept immersed therein until thoroughly wetted. The time required for the thorough wetting-out of the fabric will depend upon the type of material and substances of which the textile fabric is formed. For velvets having a silk backing and a cellulose acetate filament pile of average length from 2 to 15 minutes are sufficient to wet-out the fabric.

Before the textile fabric, removed from the bath, has cooled to any considerable extent, it is twisted into a form similar to a rope or it may be doubled back and forth upon itself once or several times and then twisted into a form similar to a rope. When a strip of textile fabric is doubled back and forth upon itself several times, it may be twisted into a form similar to a rope first lengthwise of the fabric then untwisted and twisted crosswise the fabric producing crush or crease effects running substantially at right angles to each other. Alternatively, the crush, embossing or crease effect may be produced by rolling the textile fabric loosely on to a tube and pushing in the ends so as to obtain a corrugation, a series of folds or wrinkles, then steaming the roll with steam at about 5 lbs. pressure, or the roll may be resubmerged in the heated bath. After either treatment it is cooled. In the latter embodiment of the invention, the steam treatment is maintained from 5 to 15 minutes depending on the amount and type of material comprising the roll. The textile material may be doubled once or a number of times lengthwise or crosswise the fabric prior to being wound loosely on the tube thus producing a series of repeats, lengthwise or crosswise the textile fabric, in a random design.

A very novel crush effect on velvet or other pile textile fabric may be obtained by drawing the wet warm velvet over a corrugated or fluted board and rolling the same upon a tube either loosely so that further crush may be imparted by pushing in the ends of the rolled fabric to the center of the width of the tube or by grouping it in any other suitable manner. The drawing of the wet velvet over the corrugated or fluted board lays the pile contacting with the raised part of the board in one direction producing a fairly regular design which may be added to by pushing in the ends of the rolled fabric or it may be twisted by hand. Further, the fabric, whether having been drawn over a corrugated or fluted board or not, may be rolled up with some definite creasing, as pleat-like folds, either lengthwise or crosswise the fabric.

By the above embodiments of the invention there will be formed a somewhat regular, yet irregular random pattern, permanently imparted to the material.

- 5 This invention is applicable to textile fabrics which contain filaments of organic derivatives of cellulose only or organic derivatives of cellulose filaments woven or knitted with other materials such as silk, cotton, wool or regenerated cellulose. 10 Thus, a cellulose acetate wool filled satin may be employed in which there will be produced very pleasing effects. Also velvets, plushes, mohair, corduroy or any of the pile fabrics respond exceptionally well to treatment according to this 15 invention. For example, velvet made of a silk backing and a pile of cellulose acetate filaments is particularly susceptible to imprints, crushes, etc., by this invention. The fabrics may be woven as velvets, plushes, satin, etc., or they may be 20 knitted as warp knit fabrics having long floats that lie free on the surface of the cloth, being knitted into the backing only at spaced points.

The filaments formed of the organic derivatives of cellulose may be of normal luster or delustered and may contain besides the derivative of cellulose effect materials as pigments, filling materials, dyes or lakes, fire retardants, plasticizers, lubricants and sizes either incorporated in the filaments or applied as coating to the filaments.

- 30 The filaments may be employed as yarns under which term are included, threads, assemblies or bundles of a number of continuous filaments which may be in parallel relationship or which may be twisted together, artificial bristles, straws, short lengths of staple fibers or long threads spun from such lengths of staple fibers. The yarns may be composed entirely of filaments of an organic derivative of cellulose with or without effect materials or with the filaments of an organic 40 derivative of cellulose there may be filaments of other materials such as cotton, wool, silk and other fibers.

The organic derivative of cellulose employed to form at least a part of the filaments of the fabric to be treated may be the organic esters or 45 ethers of cellulose. Examples of organic esters of cellulose are cellulose acetate, cellulose formate, cellulose propionate and cellulose butyrate, while examples of organic ethers of cellulose are 50 ethyl cellulose, methyl cellulose and butyl cellulose.

For the purpose of further describing the invention without intending to limit it thereto the following specific examples are given.

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Example I

A medium weight satin having a base comprised of filaments of an organic derivative of cellulose and the floats or filling of wool is immersed in an aqueous-soap bath at 98° C. for 2 minutes. The material is removed from the bath and immediately twisted up into rope form and allowed to cool. Permanent creases of close but irregular pattern are imparted to the material.

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Example II

A velvet consisting of a backing of silk and a pile of filaments of cellulose acetate is wetted-out in an aqueous-soap bath at 98° C., the velvet is removed from the bath and twisted into a rope 70 and allowed to cool. The effect obtained is an extremely irregular crush effect. The size of the individual crush pattern, however, is dependent upon the operator and may be formed into

rather lengthy lines or relatively short lines running in random directions with a tendency to the longitudinal direction.

Example III

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A material similar to the material used in Example II is drawn over a corrugated board, lengthwise of the corrugations, and is then loosely rolled on a tube. The material is then bunched on the tube by pushing in the ends of the material towards the center of the material. This roll is then either steamed for 5 minutes in a steam bath at 5 lbs. per inch pressure or wetted in a soap bath at 98° C. The fabric when cool is unrolled and found to contain parallel stripes of crushed pile formed by the corrugations on the board and also irregular crush effects partially obliterating the regular parallel stripes of crushes. The crush effect is permanent to washing and general use such as heat, moisture, light acids and cleaning fluids. 10 15 20

It is to be understood that the foregoing detailed description and examples are merely given by way of illustration and many alterations may be made therein without departing from the spirit of my invention. 25

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

1. Process for the production of improved and pleasing effects in textile fabrics comprising filaments of an organic derivative of cellulose and filaments of a different material, which comprises wetting the textile fabric in a heated aqueous bath, removing said textile fabric from said bath, rolling the textile fabric while wet and hot into the form of a tube, and pressing the ends of the tube so formed towards each other so as to crush the tube of textile material and thus cause corrugations to be formed in the textile fabric. 30 35 40 45 50

2. Process for the production of improved and pleasing effects in textile fabrics comprising filaments of cellulose acetate and filaments of a different material, which comprises wetting the textile fabric in a heated aqueous bath, removing said textile fabric from said bath, rolling the textile fabric while wet and hot into the form of a tube, and pressing the ends of the tube so formed towards each other so as to crush the tube of textile material and thus cause corrugations to be formed in the textile fabric. 55 60 65

3. Process for the production of improved and pleasing effects in velvets having a pile comprising filaments of cellulose acetate and a backing of silk, which comprises wetting the velvet in a heated aqueous soap bath, removing the velvet from said bath, rolling the velvet while wet and hot into the form of a tube, and pressing the ends of the tube so formed towards each other so as to crush the tube of velvet and thus cause corrugations to be formed in the velvet. 70

4. Process for the production of improved and pleasing effects in velvets having a pile comprising filaments of cellulose acetate and a backing of silk, which comprises wetting the velvet in an aqueous soap bath maintained at a temperature of 98° C., removing the velvet from said bath, rolling the velvet while wet and hot into the form of a tube, and pressing the ends of the tube so formed towards each other so as to crush the tube of velvet and thus cause corrugations to be formed in the velvet.

HERBERT PLATT.