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METHOD OF TREATING FABRIC AND
PRODUCT THEREOFHerbert Platt, Cumberland, Md., assignor to Cel-
anese Corporation of America, a corporation of
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4 Claims. (Cl. 8—20)

This invention relates to the subduing of the lustre of fabrics containing yarns of organic derivatives of cellulose, and relates more particularly to the treatment of fabrics, containing such yarns, to prevent the formation thereon of a surface sheen.

An object of the invention is to subject textile fabric to a treatment, which causes reduction of the lustre thereof, wherein the fabric is caused to become delustered and has no surface sheen. Other objects of the invention will appear from the following detailed description.

Often it is desirable to subdue the normally high lustre on fabrics containing yarns of organic derivatives of cellulose. However when such a fabric is subjected to a delustering treatment under ordinary conditions the deluster obtained is somewhat peculiar in that, when the fabric is held in a certain light, it appears quite delustered but, when looked at from another angle, it is observed to possess a surface sheen which may at times, be quite lustrous. I have found that this sheen is greater the greater tension placed upon the fabric during delustering. I have also found that by removing all tension from the fabric, while delustering same, there will be produced a true deluster without a surface sheen.

According to my invention, then, I deluster yarns containing organic derivatives of cellulose or more particularly fabrics formed from such yarns by treating same in a suitable delustering bath in such a way that there is no or substantially no tension placed upon the yarns that contain organic derivatives of cellulose. By such a method a much less drastic treatment of the fabric produces a deluster that is greater, more even and without surface sheen than produced by methods formerly employed.

This invention is applicable to the treatment of yarns that contain organic derivatives of cellulose and to fabrics that contain such yarns. The yarns may be formed entirely of organic derivatives of cellulose or they may contain organic derivatives of cellulose admixed with filaments or fibres of other materials such as cotton, reconstituted cellulose (viscose or cuprammonium) silk, wool, flax and other textile fibres. The fabrics may contain besides yarns containing organic derivatives of cellulose yarns of other materials such as cotton, silk, etc. For example the fabric may be formed with a silk warp and a cellulose acetate weft, or the fabric may be formed with a cellulose acetate yarn warp and a reconstituted cellulose, wool or cotton weft. The fabrics may be formed from the yarns by any suitable

method, such as weaving, warp knitting, circular knitting, netting, knotting, braiding or other methods of forming textile fabric from yarns, straws and bristles, etc.

The organic derivatives that most readily lend themselves to the formation of yarns, amenable to this invention, are the organic esters and ethers of cellulose, the ether-esters of cellulose and the mixed organic and inorganic esters of cellulose. Examples of organic esters of cellulose are cellulose acetate, cellulose formate, cellulose propionate and cellulose butyrate, while examples of organic cellulose ethers are methyl cellulose, ethyl cellulose and benzyl cellulose. An example of the mixed esters of cellulose is nitrocellulose acetate.

The filaments or fibers of organic derivatives of cellulose, or other artificial filaments employed to form at least a part of some of the yarns of the fabric, may be lubricated. Examples of lubricants are olive oil, teaseed oil, mineral oil, glycols, glycerols, ethoxy butyrate and mixtures of these and similar compounds that may or may not contain a delustre promoting agent for example phenol, hexaresorcinol, cyclo hexanol, xylene, organic acids and similar agents.

Any suitable delustering agent may be employed in my process. Examples of such delustering agents are wet steam, water at or near the boiling point, say from 80° to 100° C. or hot aqueous solutions containing soaps or other salts that promote the delustering action. The action in these aqueous baths may be speeded up by employing a delustre promoting agent in the lubricant for the yarn. The material may be delustered by the precipitation therein of a white insoluble salt such as barium sulphate or zinc sulphide. This is done by treating the same with a solution of an alkali earth salt, such as barium chloride, or a zinc salt such as zinc chloride, which solution either contains or acts as a swelling agent for the yarn, and then precipitating the metal as an insoluble salt. Thus the barium salt may be precipitated in the form of a sulphate by the addition of sulphuric acid while the zinc may be precipitated in the form of the sulphide by the addition of sodium sulphide. The solution of the salt itself may be a swelling agent, such as barium sulphocyanate, or a foreign swelling agent, such as acetic acid, may be added thereto.

When employing a heated soap bath as the delustering medium, such aids as xylene, naphthalene, phenol, silk gum and similar compounds or mixtures of these may be present. Thus a de-

lustering bath may be formed of 20 parts phenol, 20 parts Turkey red oil in an aqueous medium containing 20 grams per litre of soap or the delustering bath may be formed of 5% xylene, 5% naphthalene, 60% Turkey red oil and 30% water. The soap baths for certain delustering purposes may contain protective salts, such for example as sodium sulphate.

The delustering bath may also contain a dye for the fabric, in which case the fabric is delustered and dyed simultaneously. If desired, the fabric may be dyed either before or after the delustering treatment, but I prefer to do the same after such treatment, in which case no special precautions are necessary in the dyeing to avoid distortions or wrinkles.

The fabric may be delustered by padding same with a delustre promoting agent and then subjecting it to treatment in an aqueous bath, the aqueous bath acting as the delustering agent.

During the delustering treatment, the fabric or yarn is so suspended or supported that the tension on the yarns containing organic derivatives of cellulose is reduced as low as possible. Many methods may be used to accomplish this reduced tension. Thus if the warp is the only part of the fabric that is formed of organic derivatives of cellulose the fabric may be suspended from a selvedge by clips. If the weft of a woven fabric or the pile of a pile fabric is the only part of the fabric that is formed of organic derivatives of cellulose the same may be treated in a jig type device with as little resistance as possible set up by the feed roll.

During the delustering treatment of fabric, all yarns of which contain organic derivatives of cellulose, which includes woven fabrics, warp knit fabrics and circular knit fabrics, the fabric material is supported to prevent tension. Thus the material may be folded in a vat and the delustering bath added thereto and drained therefrom or the fabric may be supported on a traveling apron or a multiplicity of rollers as it is carried through a delustering bath or other types of conveyors may be employed. Other methods of treatment wherein no tension is placed on the material may be employed other than stated above without departing from the spirit of my invention.

As illustration and not as a limitation the following example is given.

Example

A fabric of yarns containing cellulose acetate is folded into a bath containing soap, with or without a dye therefor being present. The fabric is so folded on the bottom of the tank containing the bath that it is in a flat lying condition. The temperature of the bath is then raised to above 85° C. and maintained at such a temperature until the desired delustre of the fabric is obtained. The fabric is then removed, dried and finished in the customary manner.

It is to be understood that the foregoing detailed description 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. The method of delustering textile fabric, containing yarns of organic derivatives of cellulose, which comprises subjecting the fabric, while free from tension and in a flat lying condition, to the action of a delustering agent.

2. The method of delustering textile fabric, containing yarns of cellulose acetate, which comprises subjecting the fabric, while free from tension and in a flat lying condition, to the action of a delustering agent.

3. The method of delustering textile fabric, containing yarns of organic derivatives of cellulose, which comprises subjecting the fabric, while supported so that the cellulose derivative yarn is substantially free both from applied tension and from tension due to the weight of the fabric, to the action of a hot aqueous delustering bath.

4. The method of delustering textile fabric, containing yarns of cellulose acetate, which comprises subjecting the fabric, while supported so that the cellulose derivative yarn is substantially free both from applied tension and from tension due to the weight of the fabric, to the action of a hot aqueous delustering bath.

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