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TREATMENT OF FABRICS

Filed March 15, 1928

Fig. 1.

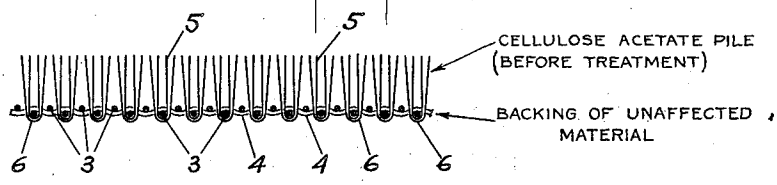
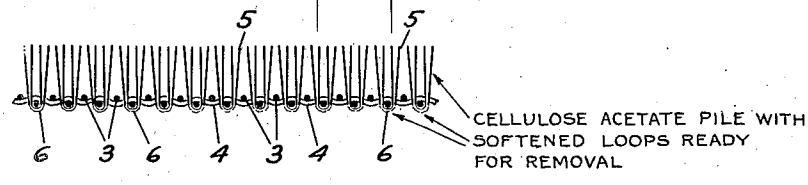


Fig. 2.



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UNITED STATES PATENT OFFICE

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TREATMENT OF FABRICS

Application filed March 15, 1928, Serial No. 262,033, and in Great Britain September 12, 1927.

This invention relates to the production of ornamental or other effects on "pile" fabrics, such as velvets or plushes, having a pile or face comprising artificial filaments of cellulose acetate or other cellulose derivative, either alone or in conjunction with other artificial filaments or natural fibres, and having a back or ground of cotton, wool, natural silk or other fibres or artificial filaments not composed of a cellulose derivative.

The effects are produced by removing the pile either wholly or in part from selected portions of the fabrics.

In the accompanying drawing in which like reference numerals refer to similar parts

Figure 1 is an enlarged sectional view of a cellulose acetate pile fabric before treatment

Figure 2 is a similar view showing the appearance of the loops of the cellulose acetate material after treatment of the same with solvent.

In the drawings 3 represents the warp and 4 the weft of the backing of a pile fabric. This backing is made with yarns or fibres other than organic derivatives of cellulose such as cotton, wool, silk, regenerated cellulose and the like—in fact any material toward which the particular reagent employed is inert. 5 represents the pile of the fabric associated with the backing fabric, which pile may consist wholly of an organic derivative of cellulose such as cellulose acetate or of an organic derivative of cellulose mixed with yarns or fibres of other description. The pile is fastened or anchored to the backing by means of the loops 6.

According to this invention, a substance which has a solvent or swelling action on the filaments of cellulose acetate or other cellulose derivative but which is inert with respect to the other filaments or fibres comprised in the fabric, is applied to selected portions of the back of the pile fabric so as to soften and weaken the loops by which the pile filaments of the cellulose acetate or other cellulose derivative are anchored to the back, and then, when the loops are in a softened and weakened state, the pile filaments of cellulose acetate or other cellulose derivative are removed mechanically from the treated portions of the face of the fabric, for instance, by plucking, brushing, carding or suction.

Any substance which, by virtue of its power of forming a liquid or solid solution with the cellulose acetate or other cellulose derivative, weakens the loops composed of cellulose acetate or other cellulose derivative sufficiently to enable the mechanical removal of the corresponding pile, without damage to the back or other portions of the fabric which are not composed of a cellulose derivative, may be employed.

As examples of such solvents or solutes, especially applicable for cellulose acetate, the following organic liquids may be mentioned: lactic acid, formic acid, acetic acid, acetone, tetrachlorethane, chloroform, ethyl aetate, phenol, and aniline.

The solvents or swelling agents may be used in admixture with each other, or diluted with liquids having little or no solvent or swelling action on the cellulose acetate or other cellulose derivative. Solutions of phenol in alcohol or benzol have proved to be particularly advantageous in the treatment of a pile fabric having a pile of cellulose acetate filaments.

"Running" of the agent used for weakening the loops, with accompanying loss of sharpness in the outline of the pattern, may be prevented by using a "weakening" agent of high viscosity, or treating the fabric while it is in a sized condition, or adding to the "weakening" agent one or more of the following: organic thickening agents, such as dextrine or glue, and inert powders, such as kaolin or barium sulphate.

The "weakening" agent or preparation containing the same may be applied to the back of the fabric by any appropriate means, for example, by printing, spraying, blocking, stencilling or the like.

The action of the agent employed for weakening the loop composed of cellulose acetate or other cellulose derivative may be accelerated by the application of heat, but care should be taken to prevent undue evaporation of the weakening agent.

The fabric may be dyed before or after the treatment constituting the present invention. When contrasting colors are applied to the different fibres or filaments, the dyeing may be effected partly before and partly after the formation of the pattern or effects, or a dye for the material of which the back is composed may be incorporated with the weakening agent. Moreover, when a fabric having a "mixed" pile is used it is possible, by the application of dyestuffs giving contrasting colors, to produce, as the result of the local removal of the pile of cellulose acetate or cellulose derivative filaments, a two color pile effect.

The invention will be described in further detail with special reference to the treatment of a plush fabric having a cotton back and a cellulose acetate pile. It will be understood, however, that the invention may be applied to the treatment of other pile fabrics of the kind previously indicated, and moreover is not limited to the use of the particular agents or conditions hereinafter mentioned.

Example I

A mixture containing—

10 parts by weight of phenol
10 parts by weight of alcohol
20 parts by weight of kaolin

is stencilled on the back of the fabric in sufficient quantity to soften and weaken the loops without damaging the pile, and the pile is removed from the affected parts by brushing or plucking while the material is still damp.

Example II

A mixture containing—

10 parts by weight of phenol
10 parts by weight of alcohol

is sprayed through a stencil on to the back of the fabric, and the pile is brushed or plucked out from the affected portions as described in Example I.

Example III

The fabric in the sized condition is treated by spraying or stencilling with a mixture containing—

10 parts by weight of phenol
10 parts by weight of alcohol
10 parts by weight of water containing a direct cotton color.

After removing the pile from the affected parts, a clear cut figured effect is produced with the cotton back substantially dyed at the parts from which the pile has been removed. The fabric is then treated in an oven at 80° C. for two hours in order to fix the dyestuff and volatilize the phenol.

The term cellulose derivative is used herein as including cellulose acetate or other carboxylic acid esters of cellulose (e. g. cellulose formate, butyrate or propionate) or other esters of cellulose (e. g. substituted thio-carbamic esters of cellulose) or cellulose ethers (e. g. methyl, ethyl or benzyl cellulose) or the corresponding condensation products of cellulose and glycols or other polyhydric alcohols.

What we claim and desire to secure by Letters Patent is:—

1. A process for treating pile fabrics having a pile comprising filaments of a cellulose derivative and a back of a material other than a cellulose derivative which comprises softening and weakening, in selected areas of the fabric, the loops of the pile filaments composed of the cellulose derivative, and afterwards mechanically removing the weakened pile filaments from the treated parts of the fabric while they are in a substantially undissolved state and in filament form.

2. A process for treating pile fabrics having a pile comprising filaments of cellulose acetate and a back of a material other than cellulose acetate, which comprises softening and weakening, in selected areas of the fabric, the loops of the pile filaments composed of the cellulose acetate, and afterwards mechanically removing the weakened pile filaments from the treated parts of the fabric while they are in a substantially undissolved state and in filament form.

3. A process for treating pile fabrics having a pile comprising filaments of cellulose acetate and a back of a material other than cellulose acetate, which comprises softening and weakening, in selected areas of the fabric, the loops of the pile filaments composed of the cellulose acetate, and afterwards removing the weakened pile filaments while they are in a substantially undissolved state and in a filament form from the treated parts of the fabric by brushing.

4. A process for treating pile fabrics having a pile comprising filaments of cellulose acetate and a back of a material other than cellulose acetate, which comprises softening and weakening the loops of the pile filaments by applying to selected areas of the back of the fabric a solvent for the cellulose acetate, and afterwards mechanically removing the weakened pile filaments from the treated parts of the fabric while they are in a substantially undissolved state and in filament form.

5. A process for treating pile fabrics having a pile comprising filaments of cellulose acetate and a back of a material other than cellulose acetate, which comprises softening and weakening the loops of the pile filaments by applying to selected areas of the back of the fabric a solvent for the cellulose acetate, and a diluent for said solvent, and afterwards mechanically removing the weakened

pile filaments from the treated parts of the fabric while they are in a substantially undissolved state and in filament form.

6. A process for treating pile fabrics having a pile comprising filaments of cellulose acetate and a back of a material other than cellulose acetate, which comprises softening and weakening the loops of the pile filaments by applying a liquid comprising phenol to selected areas of the back of the fabric and afterwards mechanically removing the weakened pile filaments from the treated parts of the fabric while they are in a substantially undissolved state and in filament form.

7. A process for treating pile fabrics having a pile comprising filaments of cellulose acetate and a back of a material other than cellulose acetate, which comprises softening and weakening the loops of the pile filaments by applying a liquid comprising phenol and alcohol to selected areas of the back of the fabric and afterwards mechanically removing the weakened pile filaments from the treated parts of the fabric while they are in a substantially undissolved state and in filament form.

8. A process for treating pile fabrics having a pile comprising filaments of cellulose acetate and a back of a material other than cellulose acetate, which comprises softening and weakening the loops of the pile filaments by applying to selected areas of the back of the fabric a solvent for the cellulose acetate, and afterwards removing the weakened pile filaments while they are in a substantially undissolved state and in filament form from the treated parts of the fabric by brushing.

9. A process for treating pile fabrics having a pile comprising filaments of cellulose acetate and a back of a material other than cellulose acetate, which comprises softening and weakening the loops of the pile filaments by applying a liquid comprising phenol and alcohol to selected areas of the back of the fabric and afterwards removing the weakened pile filaments while they are in a substantially undissolved state and in filament form from the treated parts of the fabric by brushing.

In testimony whereof we have hereunto subscribed our names.

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