

UNITED STATES PATENT OFFICE

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PILE FABRIC CONTAINING DERIVATIVES OF CELLULOSE AND METHOD OF MAKING THE SAME

No Drawing. Original application filed December 19, 1928, Serial No. 327,190, and in Canada December 7, 1929. Divided and this application filed November 10, 1931. Serial No. 574,228.

This invention relates to pile fabrics and particularly to pile fabrics having a pile comprising yarns of organic derivatives of cellulose.

5 This application is a division of my application No. 327,190 filed December 19, 1928.

An object of my invention is to produce pile fabrics having a pile of yarns containing organic derivatives of cellulose, which fabric has a desirable luster and other improved properties. Other objects of my invention will appear from the following detailed description.

15 In the preparation of pile fabrics, such as velvets having a pile containing yarns of organic derivatives of cellulose, I have found that certain precautions should be taken in order to produce a pile fabric having a desirable lustre, sheen and appearance.

20 In accordance with my invention, I prepare a pile fabric containing a pile of organic derivatives of cellulose and a back of any suitable yarn, while observing one or more of the following conditions: 1. The pile containing the yarn should be cut evenly, and the pile should preferably have a length of 1.5 to 2.0 mm. or more. 2. The pile should preferably not occupy a position at right angles to the plane of the face of the fabric. 30 3. In order to obtain better luster of the finished fabric, the pile yarns containing the derivatives of cellulose are preferably delustered or their opacity increased to some extent at least. 4. To obtain best results, if a colored fabric of solid color is to be produced, the pile yarns and the back of the fabric should be of substantially the same color and depth of color.

40 The pile of the fabric to be made or treated in accordance with my invention should contain yarns of organic derivatives of cellulose. Examples of organic derivatives of cellulose are organic esters of cellulose and cellulose ethers. Examples of organic esters of cellulose are cellulose acetate, cellulose formate, cellulose propionate and cellulose butyrate, while examples of cellulose ethers are ethyl cellulose, methyl cellulose and benzyl cellulose. However, I prefer to employ 50 yarns made of or containing cellulose acetate.

The back of the fabric may be made of yarns of any of these organic derivatives of cellulose but it is preferably made of other yarns or other fibres such as silk, cotton, wool, etc.

I have found that unless the pile of organic derivatives of cellulose is cut evenly, a ragged surface is presented, which results in uneven sheen or lustre. In accordance with my invention, the pile should be cut evenly so that the yarns comprising the pile are of substantially uniform length. However, the individual yarns of the pile should be cut cleanly and should not have ragged cut surfaces. It is well to cut the pile while damp or moist or by the use of any other suitable means for neutralizing generated electricity, in order to avoid objectionable electrical phenomena. When damp, the yarns of organic derivatives of cellulose are more elastic and therefore may be cut more evenly, whereas when these yarns are dry they are somewhat brittle and tend to break with ragged edges, when cut. In order to improve and increase the richness of the appearance of the pile fabric, the pile should preferably be of a length of 1.5 to 2.0 mm. or more.

I have found that if the pile is at right angles to the plane of the face of the fabric, the appearance is dull, due to the fact that only the ends of the pile are seen when viewed in the ordinary manner. I have found that if the pile is caused to occupy a position not at right angles to the plane of the surface of the fabric, so that it is at an acute angle to the plane of the face of the surface, or even substantially horizontal thereto, a much richer lustre is imparted to the fabric because of the panne effect. The angle of the pile to the face of the fabric may be from 0° to 70°. To obtain this position of the pile, the fabric may be ironed or calendered while damp at a temperature of 120° C. or more. Because of the thermoplastic nature of the organic derivative of cellulose in the yarn, this finish is relatively permanent, due to the molding operation entailed in the ironing or calendering at elevated temperatures. By the application of heavy pressure so that the pile yarn is substantially horizontal with

the plane of the face of the fabric, a mole-skin finish may be obtained.

For obtaining best results with pile fabrics having solid color, I prefer to have the back of the fabric the same color as the pile, since the back of the fabric contributes a large share of the color of the whole fabric. This prevents the showing of finger-marks due to the displacement of the angle of the pile.

In order to impart further richness of lustre to the fabric, I prefer to have the pile of the fabric which comprises organic derivatives of cellulose yarn, of increased opacity or subdued lustre. I have found

that ordinary yarns of organic derivatives of cellulose are so transparent that they do not reflect sufficient light to give the desired lustre to the finished fabric. However, I have found if the opacity of the yarns comprising the pile is increased, the lustre of the finished pile fabric is materially improved.

The yarns of organic derivatives of cellulose, such as cellulose acetate, may be delustered prior to being woven in the fabric, or the pile fabric may be subjected to a delustering agent after it has been woven.

Any suitable delustering agency, such as water at or near the boiling point, wet steam or solutions of suitable salts or organic compounds or hot dye bath may be employed.

The opacity of the pile yarns may be only slightly increased so as to reduce the transparency of the yarn slightly or they may be completely delustered.

While I have described several steps for obtaining improved appearance of a pile fabric containing pile yarns of organic derivatives of cellulose, it is to be understood that any one, or a combination of two or more or all of these steps may be employed without departing from the spirit of the invention, since each of these steps contributes to the obtainment of improved results.

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 claim and desire to secure by Letters Patent is:

1. Method of treating fabric having a pile comprising yarns of organic derivatives of cellulose comprising ironing or calendering the same at elevated temperature sufficient to soften said organic derivative of cellulose yarn, whereby the pile is by the resulting molding effect caused to assume a relatively permanent position which is not at right angles to the plane of the face of the fabric.

2. Method of treating fabrics having a pile comprising yarns of cellulose acetate comprising ironing or calendering the same at elevated temperature sufficient to soften said cellulose acetate yarn, whereby the pile is by

the resulting molding effect caused to assume a relatively permanent position which is not at right angles to the plane of the face of the fabric.

3. Method of preparing pile fabric of improved appearance comprising making the fabric with a pile consisting of yarns of organic derivatives of cellulose of increased opacity, and then ironing or calendering the same at elevated temperature sufficient to soften said organic derivative of cellulose yarn, whereby the pile yarn is caused to assume a relatively permanent position not at right angles to the plane of the face of the fabric.

4. Method of preparing pile fabric of improved appearance comprising making the fabric having a pile comprising yarns of cellulose acetate of increased opacity, and then ironing or calendering the same at elevated temperature sufficient to soften said cellulose acetate yarn, whereby the pile yarn is caused to assume a relatively permanent position not at right angles to the plane of the face of the fabric.

5. Method of preparing pile fabrics of improved appearance containing yarns of organic derivatives of cellulose which comprises cutting the pile yarns while they are in a damp condition and ironing or calendering the same at elevated temperatures sufficient to soften the organic derivative of cellulose yarn whereby the pile is by the resulting molding effect caused to assume a relatively permanent position which is not at right angles to the plane of the face of the fabric.

6. Method of preparing pile fabrics of improved appearance containing cellulose acetate yarns which comprises making the fabric having a pile comprising yarns of cellulose acetate of increased opacity, cutting the pile yarns while they are in a damp condition and then ironing or calendering the same at elevated temperatures sufficient to soften said cellulose acetate yarn, whereby the pile yarn is caused to assume a relatively permanent position not at right angles to the plane of the face of the fabric.

In testimony whereof, I have hereunto subscribed my name.

CAMILLE DREYFUS.