

UNITED STATES PATENT OFFICE

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TEXTILE OPERATIONS

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10 Claims. (Cl. 28—1)

This invention relates to improvements in textile operations, and in particular to the cutting of the pile of velvets and similar pile fabrics. The invention is particularly concerned with such fabrics containing pile consisting of filaments or yarns of cellulose acetate or other cellulose esters, such as cellulose formate, propionate and butyrate, or mixed esters or ether-esters of cellulose.

The object of the invention is to enable the pile of such fabrics to be cut cleanly, this object being attained by treating the pile filaments or yarns with a substance adapted to preserve the edge of the pile cutting knife.

According to the invention, pile yarns of cellulose acetate or other esters of cellulose are treated prior to cutting, with an alkali. In order to prevent saponification of the filaments taking place, weak alkalies should be employed. Examples of weak alkalies are sodium metaborate, borax and sodium silicate. It is found that the keenness of the cutting edge of the knife is considerably preserved when the knife operates on fabrics whose pile has been treated in the above manner, a particularly important result in the cutting of weft-pile fabrics where the knife is required to cut a complete length of fabric in order that no change occurs in the appearance of the fabric in the length. The alkali may be applied in solutions of suitable concentration to the pile filaments or yarns prior to weaving. Thus, the pile yarn of a weft-pile fabric may be treated with an alkali solution at any suitable stage prior to weaving. In general, however, it is more convenient to treat a weft-pile fabric after weaving.

Even treatment of the pile yarn by the alkali solution may be facilitated by the employment of suitable wetting agents, of which soap is a suitable example; the soap also serving the further purpose of acting as a lubricant and so facilitating the cutting operation. Other lubricants may be employed if desired instead of soap, though in general it is sufficient to use soap in conjunction with the alkali solution, not only on account of the soap facilitating the even treatment of the material, but also because of the great ease with which it may be removed from the fabric in the subsequent finishing operations.

As an example of a solution which is very suitable for application to weft pile fabrics of cellulose acetate may be mentioned a solution containing 1.8 grams of soap and 8 grams of sodium metaborate per litre. This solution may be applied to the face of the fabric at a temperature of about 65°, the fabric then being dried,

preferably immediately after treatment by passage over heated cans or through other suitable drying apparatus. On cutting of the pile races either by hand or by machine, it is found that the cutting knife carries its edge very well, and no difficulties arise from the knife having to be replaced or resharpened before completing the length of the fabric.

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

1. In the manufacture of pile fabrics, the steps of impregnating pile yarns of cellulose acetate with a solution of a weak alkali, drying the pile yarns, and thereafter cutting the same.
2. In the manufacture of weft-pile fabrics, the steps of impregnating pile yarns of cellulose acetate with a solution of a weak alkali, drying the pile yarns, and thereafter cutting the same.
3. In the manufacture of weft-pile fabrics, the steps of impregnating pile yarns of cellulose acetate with a solution of sodium metaborate, drying the pile yarns, and thereafter cutting the same.
4. In the manufacture of weft-pile fabrics, the steps of impregnating pile yarns of cellulose acetate with a solution of borax, drying the pile yarns, and thereafter cutting the same.
5. In the manufacture of weft-pile fabrics, the steps of impregnating pile yarns of cellulose acetate with a solution of sodium silicate, drying the pile yarns, and thereafter cutting the same.
6. In the manufacture of pile fabrics, the steps of impregnating pile yarns of cellulose acetate with a solution of a weak alkali after weaving, drying the pile yarns, and thereafter cutting the same.
7. In the manufacture of weft-pile fabrics, the steps of impregnating pile yarns of cellulose acetate with a solution of a weak alkali and a wetting agent, and thereafter cutting the yarns.
8. In the manufacture of weft-pile fabrics, the steps of impregnating pile yarns of cellulose acetate with a solution of a weak alkali and a wetting agent having lubricating properties, and thereafter cutting the yarns.
9. In the manufacture of weft-pile fabrics, the steps of impregnating pile yarns of cellulose acetate with a solution of sodium metaborate and soap, drying the same and thereafter cutting the yarns.
10. In the manufacture of pile fabrics, the steps of impregnating pile yarns of cellulose esters with a solution of a weak alkali, drying the pile yarns, and thereafter cutting the same.

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