

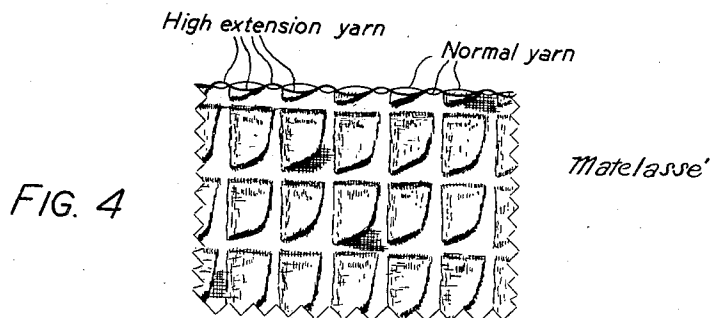
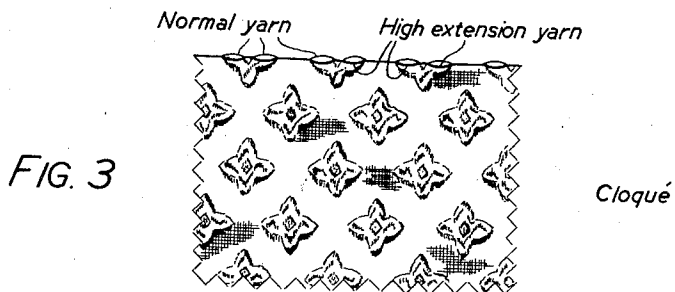
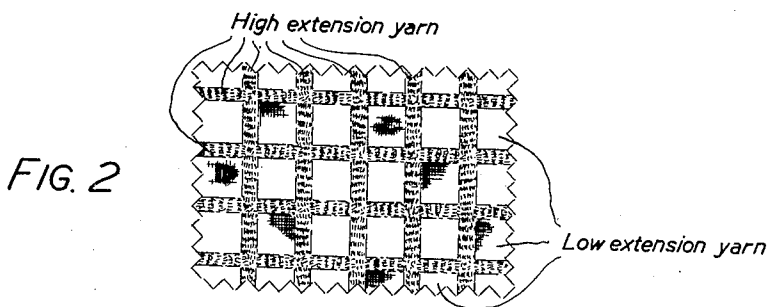
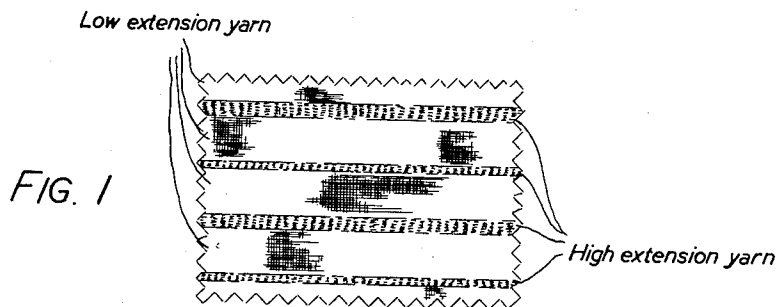
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H. DREYFUS ET AL.

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FABRIC AND ITS MANUFACTURE

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HENRY DREYFUS
WILLIAM A. DICKIE
INVENTORS

Henry Dreyfus & William A. Dickie
ATTORNEYS

UNITED STATES PATENT OFFICE

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FABRIC AND ITS MANUFACTURE

Henry Dreyfus, London, and William Alexander Dickie, Spondon, near Derby, England, assignors to Celanese Corporation of America, a corporation of Delaware

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8 Claims. (Cl. 28—1)

This invention relates to textile fabrics and the manufacture thereof, having particular reference to fabrics exhibiting relief or figured effects.

According to the invention, artificial yarns of high extensibility are introduced into fabrics along with yarn (artificial or otherwise) of lower, e. g., normal extensibility and the fabrics are subjected to dyeing, finishing and other operations adapted to cause the yarns of higher extensibility to become elongated, so that the areas containing these yarns become puckered or cockled to give a relief effect to the fabrics.

The extensibility of the yarns of high extensibility should be of the order of 30, 35 or 40% or more. For example, this property may be imparted to the yarns by subjecting them to a shrinking treatment; or again, the spinning of the yarn may be so carried out that high extensibility results.

Thus, cellulose acetate or other cellulose derivative yarn may be subjected to a treatment with organic solvents, latent solvents, or swelling agents as described in United States Patent No. 2,058,422, or with vapours of such solvents or swelling agents. Examples of suitable liquids are acetone, methyl ethyl ketone, dioxane, methylene ethylene ether, formic acid, acetic acid, methyl or ethyl alcohol, methyl acetate, methyl or ethyl formate, and dichlorethylene, methylene chloride, ethylene chloride, chloroform and ethyl acetate, as set out in the specification above referred to.

Further, in the dry-spinning of cellulose acetate or other cellulose derivative yarn, adjustment of the spinning conditions provides for a control over extensibility, high spinning solution temperature, low spinning speed, and little or no "draw down" (or even such a feed rate that shrinkage of the filaments takes place during setting) giving higher extensibility, especially when coupled with the spinning of coarse filaments, e. g., of 5, 6 or 7 denier upwards. Low concentration of the spinning solution also assists in increasing extensibility.

Upon subjection to dyeing, finishing, and like aqueous treatments, particularly hot treatments, yarns such as indicated above have a final length in the finished fabrics greater than the other yarns of normal or reduced extensibility and this difference in length provokes a puckering of the fabric surface which may be used to give a variety of ornamental effects, which are illustrated by the accompanying drawing in which Figs. 1 and 2 show stripe and check effects, and Figs. 3 and 4 cloqué and matelassé effects.

Thus, if the high-extensibility yarn is intro-

duced in stripes in alternation with yarn of lower extensibility, as shown in Fig. 1, the stripes of the high-extensibility yarn become puckered transversely to the plane of the stripes in the finishing of the fabric, giving the fabric a seersucker finish. In woven fabrics, such stripe effects may be introduced into the warp or the weft, or, to produce check effects, in both warp and weft, as shown in Fig. 2. The stripes may be regular or irregular in width and spacing, and the high-extensibility yarn may preponderate or not, according as the puckering is to appear on a major portion of the fabric surface or only on a minor portion.

In producing a figured effect, the use of high-extensibility yarn with yarn of lower extensibility has a certain similarity to the use of crêpe and non-crêping yarn in a fabric to produce figured effects, with, however, the important advantage that the finished fabric is free from the harshness that frequently accompanies the use of crêpe yarns.

For instance, as shown in Fig. 3, cloqué effects may be produced by allowing the normal yarns to float in parts of the fabric, which at such parts has a relief effect on its surface due to the presence of the high-extensibility yarn; in the other parts of the fabric both yarns appear on the surface. In the case of matelassé effects, as shown in Fig. 4, the normal yarns and the other yarns form a pattern consisting of what are really two fabric structures, one fabric consisting of one yarn appearing on the surface at one part of the pattern and the other fabric appearing in relief at another part of the pattern.

The invention may also be applied to satin-surfaced fabrics, in which the yarns of differing extensibility, though not appearing themselves on the surface of the fabrics, impart a relief effect.

The normal yarn may consist of the same or different type of artificial filaments, and may be either the same in lustre, colour, or other characteristics, apart from extensibility, or may differ in order to add a further contrast to that obtained by the relief effect. The yarn of low extensibility may, however, be natural yarn, such as cotton, silk, or wool, which may be the same in colour as the other yarn or of different colour; or use may be made of yarns having different dyeing properties from the high-extensibility yarns so as to obtain cross-dyed effects.

The yarn of high extensibility may be used as continuous-filament yarn or may be made of or contain staple fibre.

When the yarns of high extensibility are introduced into the warp of a fabric, it is advisable

to wind them and the yarns of lower extensibility on the same beam, so as to avoid the risk of unduly stretching them and thereby reducing the desired effect.

5 Having described our invention what we desire to secure by Letters Patent is:

1. Method of producing fabric having ornamental effects, which comprises introducing into a closely woven fabric unshrunk cellulose derivative yarns which extend in length by at least 30% when subjected to a finishing treatment in an aqueous medium, along with yarns which extend to a lesser degree when subjected to such finishing treatment, and subjecting said fabric to a finishing operation in an aqueous medium by which the extensible yarns are elongated.

2. Method of producing fabric having ornamental effects, which comprises introducing into a closely woven fabric unshrunk organic derivative of cellulose yarns which extend in length by at least 30% when subjected to a finishing treatment in an aqueous medium, along with yarns which extend to a lesser degree when subjected to such finishing treatment, and subjecting said fabric to a finishing operation in an aqueous medium by which the extensible yarns are elongated.

3. Method of producing fabric having ornamental effects, which comprises introducing into a closely woven fabric unshrunk cellulose acetate yarns which extend in length by at least 30% when subjected to a finishing treatment in an aqueous medium, along with yarns which extend to a lesser degree when subjected to such finishing treatment, and subjecting said fabric to a finishing operation in an aqueous medium by which the extensible yarns are elongated.

4. Method of producing fabric having ornamental effects, which comprises introducing into a closely woven fabric unshrunk cellulose derivative yarns which extend in length by at least 30% when subjected to a finishing treatment in an aqueous medium, said artificial yarns being arranged in stripe formation, along with yarns which extend to a lesser degree when subjected

to such finishing treatment, and subjecting said fabric to finishing operation in an aqueous medium by which the extensible yarns are elongated.

5. Method of producing fabric having ornamental effects, which comprises introducing into a closely woven fabric unshrunk cellulose derivative yarns which extend in length by at least 30% when subjected to a finishing treatment in an aqueous medium, said artificial yarns being arranged in stripe formation in both the warp and the weft, along with yarns which extend to a lesser degree when subjected to such finishing treatment, and subjecting said fabric to a finishing operation in an aqueous medium by which the extensible yarns are elongated.

6. Closely woven fabric comprising areas containing unshrunk cellulose derivative yarns which extend in length by at least 30% when subjected to a finishing treatment in an aqueous medium, and also comprising yarns which extend to a lesser degree when subjected to such finishing treatment, said fabric having been subjected to a finishing treatment in an aqueous medium by which the extensible yarns are elongated.

7. Closely woven fabric comprising areas containing unshrunk organic derivative of cellulose yarns which extend in length by at least 30% when subjected to a finishing treatment in an aqueous medium, and also comprising yarns which extend to a lesser degree when subjected to such finishing treatment, said fabric having been subjected to a finishing treatment in an aqueous medium by which the extensible yarns are elongated.

8. Closely woven fabric comprising areas containing unshrunk cellulose acetate yarns which extend in length by at least 30% when subjected to a finishing treatment in an aqueous medium, and also comprising yarns which extend to a lesser degree when subjected to such finishing treatment, said fabric having been subjected to a finishing treatment in an aqueous medium by which the extensible yarns are elongated.

HENRY DREYFUS.

WILLIAM ALEXANDER DICKIE.