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ORNAMENTATION OF TEXTILE FABRICS

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This invention relates to the ornamentation of textile fabrics composed of natural cellulosic fibres, such as cotton, or regenerated cellulose artificial silk, but not to fabrics composed of cellulose acetate or other cellulose esters or of animal fibres, such as wool. The process is concerned with such fabrics when treated with materials or components which lead to the formation of an insoluble resin of the amido-formaldehyde group. It is known to treat such fabrics in this manner for the purpose of giving permanency to embossing or like mechanically produced effects or finishes upon the fabric, or for giving permanency or fastness to relatively fugitive dyeings or to dyeings of dyestuffs which have little or no affinity for these fabrics.

The object of the present invention is to provide for the production of valuable pattern effects upon fabrics which have been treated as before described.

Our invention comprises a process for producing pattern effects on textile fabrics comprising applying to selected areas of said fabric a reagent inhibiting the formation of the synthetic resin, before or after impregnating the fabric with materials or components which lead to the formation of a synthetic resin of the amido-formaldehyde group, heating the fabric to form the synthetic resin in the parts of the fabric not so treated, and then washing out the resin components or materials and the inhibiting reagent from the selected areas.

Our invention further comprises the application to the fabric in selected areas of any one or more of the nitrogenous compounds hereinafter indicated for the prevention of the formation of the insoluble resin of the amido-formaldehyde group in such areas.

Our invention further comprises applying to a dyed or undyed textile fabric a dyestuff which will not normally give dyeings fast to washing upon that fabric before, simultaneously with or subsequently to the impregnation step with the resin components or materials but prior to the heating step specified.

Our invention further comprises the step, in the process above described, of subjecting the fabric after impregnating with the resin materials or components and drying but before heating, to a mechanical treatment for the production of an embossed, glazed, schreinered or other desired effect thereby.

The fabric may be so treated in the manner previously described, as to produce both perma-

nent or fast dyeings and mechanically produced effects in parts only of the fabric.

The solution of the resin components or materials preferably contains a catalyst of an acidic nature.

Suitable nitrogenous compounds are heterocyclic bases, such as piperazine and piperidine; aldehyde-ammonia condensation products such as acetaldehyde-ammonia and hexamethylene tetramine; ammonium salts, such as the acetate, sulphate, phosphate and thiocyanate; acid amides, such as urea, thiourea and guanidine; aliphatic amino compounds such as amylamine, triethanolamine and glycine; aromatic amino compounds, such as aniline, p-phenylene diamine, diphenylamine and m-aminophenol. The resin may be produced from formaldehyde and urea or allied compounds such as thiourea and dicyanodiamide.

Further ornamental effects can be obtained by adding suitable dyestuffs to the printing pastes or by dyeing the already printed and heat-treated fabric with substantive dyestuffs, whereby the fabric will be dyed preferentially or exclusively in the parts in which the resin has not been allowed to form.

Our invention will now be illustrated by the following examples:—

Example 1

A viscose artificial silk fabric is impregnated with a solution of an early intermediate condensation product of urea and formaldehyde containing a catalyst of an acidic nature, and after drying is printed with a paste containing 20% glycine and dried. The fabric is then passed through the bowls of an embossing calender and subsequently heated for 50 seconds at 200° C. After washing and soaping the fabric shows a flat pattern on an embossed ground.

Example 2

A viscose artificial silk fabric previously dyed with 6% Chlorazol Black E (Col. Ind. No. 581) is impregnated with the solution of Example 1, printed with a paste containing 20% of piperidine, glazed in a friction calender and heat treated as in Example 1. After washing and soaping it is found that the glazed effect has only been retained in the unprinted parts.

Example 3

A cotton warp-viscose artificial silk weft fabric is impregnated with a solution of an early inter-

mediate condensation product of urea and formaldehyde containing 3% Acid Scarlet 4R (Col. Ind. No. 79) and an acidic catalyst. After drying the fabric is printed with a paste containing 20% hexamethylene tetramine, dried, embossed and heat treated as in Example 1. The result after washing and soaping is a white flat pattern on a red embossed ground.

Example 4

A viscose artificial silk fabric is impregnated with the solution of Example 1, printed with a paste containing 26% urea and 6% Indigosol Scarlet HB (Col. Ind. Suppl. p. 43), dried, embossed and heated as in Example 1. The Indigosol is then developed as usual by a passage in a solution of sodium bichromate and sulphuric acid, followed by rinsing and soaping. The result is a red flat pattern on a white embossed ground.

Example 5

A viscose artificial silk fabric is impregnated with a solution of an early intermediate condensation product of urea and formaldehyde containing 2.5% Lissamine Fast Yellow 2G (Col. Ind. No. 639) and an acidic catalyst. After drying the fabric is printed with a paste containing 26% urea and 5% Soledon Brilliant Purple RR (Col. Ind. Suppl. p. 52) dried, embossed and heated as in Example 1. The Soledon is then developed as usual by a passage in a solution of sodium bichromate and sulphuric acid, followed by rinsing and soaping. The result is a violet flat pattern on a yellow embossed ground.

Example 6

A cotton warp-viscose artificial silk weft fabric is impregnated with the solution of Example 1, printed with a paste containing 25% ammonium acetate, dried, heated for 50 seconds at 200° C., washed and dyed with 2% Benzo Fast Scarlet 4BS (Col. Ind. No. 327). After washing and drying it is found that the printed portions have dyed to a deep red while the ground is only slightly tinted.

Example 7

A viscose artificial silk fabric is impregnated with the solution of Example 1, printed in a well spaced pattern with a paste containing 25% urea, overprinted in a cover pattern with a paste containing 2.5% Acid Scarlet 4R (Col. Ind. No. 79), embossed and heated as in Example 1. After washing and soaping the spaced pattern appears white and flat on an embossed ground, part of which is coloured red by the cover pattern.

Example 8

A viscose artificial silk fabric is printed in a well spaced pattern with a paste containing 25% urea, dried, overprinted in a cover pattern with a paste containing 10% (on urea) of a urea-formaldehyde condensate, and acidic catalyst, and 2.5% Acid Scarlet 4R (Col. Ind. No. 79), dried, embossed and heat treated as in Example 1. The result is similar to that of Example 7, except that not only the colour but also the embossing is limited to the unresisted parts of the cover pattern.

The invention includes fabrics treated by the processes hereinbefore described.

What we claim is:—

1. A process for producing pattern effects on textile fabrics which comprises applying to the fabric composed of natural or regenerated cellulose unreacted components of a synthetic resin of the amido-formaldehyde group and treating the fabric in selected areas with a reagent which inhibits the formation of said resin, heating the fabric to form the resin on the fabric in those portions thereof not treated with the inhibiting agent and then washing out of the selected areas the unreacted resin components and inhibiting agent.

2. The process claimed in claim 1 wherein the inhibiting agent is applied to the fabric in a dye printing paste.

3. A process for producing pattern effects on textile fabrics which comprises applying to the fabric composed of natural or regenerated cellulose unreacted components of a synthetic resin of the amido-formaldehyde group and treating the fabric in selected areas with a reagent which inhibits the formation of said resin, drying the fabric, subjecting the fabric as a whole to a mechanical treatment for the production of an embossed, glazed, schreinered or other desired effect, heating the fabric to form the resin on the fabric in those portions thereof not treated with the inhibiting agent and then washing out of the selected areas the unreacted resin components and the inhibiting agent to destroy the mechanically produced effect in those selected areas.

4. The process claimed in claim 1 wherein the said inhibiting reagent comprises at least one of the nitrogenous compounds of the group consisting of: a heterocyclic base; an aldehyde-ammonia condensation product; an ammonium salt; an acid amide; an aliphatic amino compound; an aromatic amino compound.

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