

UNITED STATES PATENT OFFICE

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PRODUCTION OF EFFECTS ON TEXTILES

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The present invention relates to the production of effects on textiles.

We have found that special local effects, such as patterns and the like, by mechanical operations such as printing, stencilling or spraying upon textile materials of vegetable, animal or other origin can be obtained by treating the said materials with preparations containing a substantial proportion of a methylol compound of a urea such as mono- or dimethylolurea or -thiourea or methylol compounds of other derivatives of urea or mixtures of said methylol compounds. The said methylol compounds are easily converted at ordinary or elevated temperatures, in the presence or absence of condensing agents, into elastic resinous bodies so that prints and like local effects can be obtained in a particularly stable form.

Prints and like special effects of better fastness to rubbing, soaping and light and frequently of more beautiful and clearer shades than those obtained by employing the hitherto usual agents for this purpose are obtained on cotton, wool, silk and artificial silk fabrics by printing with preparations which contain methylol compounds of the aforesaid nature and colorless pigments or any organic or inorganic coloring materials and also if desired agents which promote the formation of the elastic resinous bodies. The following agents can be converted into valuable preparations by an addition of the methylol compounds:—colorless and colored pigments or other insoluble powders and color carriers such as wool dust, glass powder, lithopone, smalt, carbon black, metal bronzes, slate powder, asbestos powder, mica powder, talcum powder and the like and in particular water insoluble metal salts and color lakes of organic dyestuffs and precipitates of dyestuffs on china clay and the like, and also basic, substantive, sulphur and vat dyestuffs and the like and if desired several of such materials and softening agents. In contrast to all expectation also no bleeding occurs but distinct and accurate patterns are obtained. Usually, after printing or the like operation the effects are stabilized by an ageing treat-

ment such as heating, steaming or also simple hanging in the air.

Another kind of effects can be obtained by applying preparations containing methylol compounds but no coloring materials onto the desired parts of any kind of fibre whereby a local lustre and damask effect is obtained without any loss in strength of the fibre. For example by printing on acetate silk with a paste containing a thickener and 5 per cent of dimethylol urea, lasting damask effects are obtained after drying and rinsing.

The said preparations are also suitable for the production of crêpe effects on cotton textiles, since the formaldehyde split off has been found to restrain the mercerizing action of the strong lyes even in the low concentration of the aldehyde. The simultaneous formation of a resin at the places which have been printed and protected against the action of the alkali renders it possible to combine the crêpe effect with effects of other kinds.

When converting vegetable fibres, yarns or textiles into materials of a crêpe-like nature by means of inorganic acids a previous printing with a paste containing small additions of dimethylol urea or similar methylol compounds upon a material which has been evenly treated with a dilute solution of one of the said methylol compounds before printing causes quite a marked protection of the fibres. Moreover since in this case the vegetable material may be subjected to a longer treatment with acids without the fear of their destruction, it is possible to produce quite new kinds of effects.

The following examples will further illustrate the nature of this invention but the invention is not restricted to these examples. The parts are by weight.

Example 1

200 parts of smalt are made into a paste with 775 parts of aqueous British gum, 1 to 1, and 25 parts of mono- or dimethylol urea are then stirred in. By printing a fabric with the paste and then steaming the printed fabric or hanging it in the air, dark

blue pigment prints fast to rubbing and washing are obtained.

Example 2

Acetate silk is printed with a paste containing gum arabic and 5 per cent of dimethylol urea, steamed or hung in the air, and good damask effects are thus obtained, the printed spots being mat on the glossy original ground of acetate silk.

Example 3

The following discharge paste is printed onto a dischargeable ground:—20 parts of rhodamine B (G. Schultz, Farbstofftabellen 1923, No. 573), 60 parts of polyglycol ether, 140 parts of water, 50 parts of dimethylol urea, 350 parts of an aqueous gum arabic paste, 1 to 1, 100 parts of sodium formaldehydesulphoxylate, 80 parts of aniline oil, and 200 parts of tannin dissolved in alcohol in the ratio of 1 to 1. The printing fabric is steamed and rinsed and red discharge effects are obtained which are much faster to rubbing than is the case without the dimethylol urea.

Example 4

A cotton textile is printed with a printing paste from aqueous British gum and 20 per cent of dimethylol urea is passed through cold caustic soda solution of 30° to 35° Beaumé without stretching, and passed directly over a roller into a rinsing vat of running water. The fabric is then treated with an aqueous solution of an acid to remove remainders of alkali. A good crimping effect is obtained the caustic soda solution attacking only the spots which have not been covered with the paste.

Example 5

A cotton textile which has been printed with a paste containing British gum and 5 per cent of dimethylol urea, is passed through a 5 per cent aqueous solution of dimethylol urea and is then immersed in a sulphuric acid solution of more than 51° Beaumé whereby useful crêpe effects are obtained without appreciable injury to the texture, the sulphuric acid attacking only the spots which have not been printed upon, i. e. the spots which do not contain a double layer of dimethylol urea.

Example 6

A fabric consisting of artificial silk made from cellulose acetate is treated in a padding mangle with an aqueous paste containing 150 parts of dimethylol urea and 450 parts of gum arabic per each 1000 parts of the paste and is then dried, the surface of the fabric becoming mat hereby. The fabric is then printed with a paste comprising 200 parts of triethanol amine and 800 parts of

methyl cellulose, steamed in the rapid ager (see "The Dyer Calico Printer, Bleacher, Finisher and Textile Review", vol. 65, 1931, pages 602-3) and then rinsed. Effects having the gloss of the original silk on a mat ground are thus obtained.

Example 7

A fabric consisting of artificial silk made from cellulose acetate is printed with a paste comprising 200 parts of triethanol amine and 800 parts of methyl cellulose, dried, treated in a padding mangle with a paste comprising mono- or dimethylol urea and then steamed in the rapid ager (see "The Dyer Calico Printer, Bleacher, Finisher and Textile Review", vol. 65, 1931, pages 602-3). After rinsing, on a mat ground glossy patterns having the gloss of the original silk are obtained.

Example 8

A fabric consisting of artificial silk made from cellulose acetate is printed with a paste comprising 200 parts of triethanol amine and 800 parts of methyl cellulose and 1.4-diamino-5-nitro anthraquinone or a similar dyestuff, whereupon padding with the paste comprising mono- or di-methylol urea is performed in the manner described in the foregoing example. A colored glossy effect is obtained on a mat ground.

What we claim is:—

1. A process for the production of local effects on textiles which comprises applying local patterns onto a textile material with a preparation comprising a methylol compound of a urea.
2. A process for the production of local effects on textiles which comprises applying local patterns onto a textile material with a paste comprising a methylol compound of a urea.
3. A process for the production of local effects on textiles which comprises applying an aqueous paste comprising a methylol compound of a urea to portions of the surface of a textile material.
4. A process for the production of local effects on textiles which comprises applying a preparation comprising a methylol compound of a urea and a thickener to portions of the surface of a textile material.
5. A process for the production of local effects on textiles which comprises applying a preparation comprising a methylol compound of a urea, a thickener and a coloring material to portions of the surface of a textile material.
6. A process for the production of local effects on textiles which comprises applying a discharge paste comprising a methylol compound of a urea to portions of the surface of a textile material.
7. A printing paste for the production of

local effects and patterns on textiles, comprising a methylol compound of a urea and a thickener.

5 8. A printing paste for the production of effects and patterns on textiles, comprising a methylol compound of a urea, a thickener and a coloring material.

10 9. A patterned textile material, the patterns of which contain an aged methylol compound of a urea.

10. A patterned textile material, the patterns of which contain an aged methylol compound of a urea and a coloring material.

15 In testimony whereof we have hereunto set our hands.

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