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PRODUCTION OF TEXTILE MATERIALS

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This invention relates to the production of textile materials, and relates more particularly to the production of stiffened fabrics and articles made therefrom.

It is an object of this invention to provide an improved method of producing stiffened fabrics consisting of yarns or filaments of organic derivatives of cellulose.

Another object of this invention is the provision of stiffened textile fabrics containing organic derivatives of cellulose, which fabrics are strong, are resistant to coloration by silk, wool or cotton dyes, and maintain their stiffness and flat form after treatment with hot aqueous media.

A further object of this invention is to provide improved identification tags, tapes, labels and the like, particularly for use in textile processes.

Other objects of this invention will appear from the following detailed description and claims.

While fabrics made in accordance with this invention may be used wherever stiffened fabrics are desirable, I have found that they are particularly useful for making identification tags, tapes, and labels which are to be attached to packages or articles exposed to or processed in hot aqueous media. Heretofore, such identification tags, tapes, labels, etc. were made of impregnated cotton fabric. These were not satisfactory since they became badly curled when exposed to a hot aqueous dye bath and were not resistant to cotton or silk dyestuffs. Tags and the like made from ordinary cellulose acetate fabric and from fabric made by laminating ordinary cellulose acetate fabric with cotton fabric were also unsuitable since tags made from the former material were soft and creased very easily, while tags made from laminated material were not resistant to cotton dyestuffs. Identification articles made in accordance with this invention do not suffer from the foregoing deficiencies.

In accordance with this invention, I prepare a stiffened fabric containing organic derivatives of cellulose, from which fabric improved tags, tapes and labels, as well as other articles requiring a stiffened fabric, may be produced. Fabrics containing any organic derivatives of cellulose such as cellulose esters and cellulose ethers or mixed esters or ester-ethers may be employed in accordance with the present process. Examples of cellulose esters of cellulose are cellulose formate, cellulose acetate, cellulose propionate and cellulose butyrate, while examples of ethers of cellulose are ethyl cellulose, methyl cellulose and benzyl cellulose. The fabric to be stiffened in accordance with this invention may be composed of one or more than one of the above mentioned organic derivatives of cellulose.

In one mode of carrying out my invention, fabric containing yarns having a denier of between 200 and 400 is treated with a substance tending to stiffen the fabric. Substances which I have found to be particularly suitable for this purpose are methyl methoxy ethyl phthalate, dimethoxy ethyl phthalate, dimethyl phthalate and diethyl phthalate, although other plasticizers such as, for example, monoacetin, diacetin, tricresyl phosphate, paratoluene sulphonamide and dibutyl tartrate may also be employed. The amount of plasticizer that may be employed depends largely on its plasticizing properties, on the organic derivative of cellulose used and the degree of stiffness required in the final product. I have found that amounts of plasticizer from 30 to 100% or more, and preferably 50%, based on the weight of the organic derivative of cellulose, give excellent results in the production of stiffened material suitable for use for identification tags, tapes and labels.

The plasticizer is preferably applied to the fabric by dipping the fabric into a solution of the plasticizer in a volatile solvent therefor. Any suitable volatile solvent may be employed such as, for example, alcohol, acetone, benzene, methyl ethylene ketone or ethylene dichloride. The solution of plasticizer may also be applied to the fabric by brushing, spraying or padding. After the fabric is treated with a solution of plasticizer, the excess solvent is removed therefrom in any suitable manner as by passing the same through nip rollers, and then the fabric is dried at an elevated temperature, preferably between 70 and 80° C.

In order to form the tags, tapes, labels, etc. from the treated fabric, the fabric is cut into the desired form by means of heated knives which fuse the cut edges and seal them against fraying or ravelling. However, since the fabric contains plasticizer, it may be cut by means of cold knives without the danger of becoming unravelled on the edges.

The following example is given as an illustration of the process in this invention and is not to be considered as being in any way limitative:

Example

3 parts by weight of a fabric consisting of cellulose acetate yarns having a denier of 300 is dipped into a solution containing 1 to 1.5 parts by weight of dimethoxy ethyl phthalate dissolved

in 1 part by weight of alcohol. The treated fabric is passed through nip rollers to remove the excess solution and then passed through a continuous dryer, heated to a temperature of between 70 and 80° C., at the rate of 10 yards per minute.

The dried fabric is cut into ribbons of the desired width by means of an electric ribbon cutting machine, the knives of which are heated to a temperature of from about 535 to 700° C. The ribbons are then cut into suitable lengths to form tags, tapes, labels, etc. These identification markers retain ink indelibly and when employed as identification markers attached to the articles being subjected to a dye bath retain their stiffened form substantially permanently, are resistant to coloration by cotton, silk and wool dyestuffs, and are also resistant to curling and creasing.

It is to be understood that the foregoing detailed description is merely given 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 desire to secure by Letters Patent is:

1. Process for the production of an identification marker, which comprises treating a fabric containing organic derivative of cellulose yarns having a denier of at least 300 with a solution of a plasticizer in a volatile solvent therefor, and drying the fabric at a temperature of substantially 70 to 80° C. in the absence of pressure.

2. Process for the production of an identification marker, which comprises treating a fabric containing cellulose acetate yarn having a denier of at least 300 with a solution of a plasticizer in a volatile solvent therefor, and drying the fabric at a temperature of substantially 70 to 80° C. in the absence of pressure.

3. Process for the production of an identification marker, which comprises treating a fabric containing organic derivative of cellulose yarns having a denier of at least 300 with a solution of dimethoxy ethyl phthalate in alcohol, and drying the fabric at an elevated temperature in the absence of pressure.

4. Process for the production of an identification masker, which compnises treating a fabric containing cellulose acetate yarns having a denier of at least 300 with a solution of dimethoxy ethyl phthalate in alcohol, and drying the fabric at an elevated temperature in the absence of pressure.

5. Process for the production of an identification marker, which comprises treating a fabric containing organic derivative of cellulose yarns having a denier of at least 300 with a solution of dimethoxy ethyl phthalate in alcohol, and drying the fabric at a temperature of between 70 and 80° C. in the absence of pressure.

6. Process for the production of an identification marker, which comprises treating a fabric containing cellulose acetate yarns having a denier of at least 300 with a solution of dimethoxy ethyl phthalate in alcohol, and drying the fabric at a temperature of between 70 and 80° C. in the absence of pressure.

7. Process for the production of an identification marker, which comprises treating a fabric containing organic derivative of cellulose yarns having a denier of at least 300 with a solution of dimethoxy ethyl phthalate in alcohol, removing the excess solution from said fabric and drying the fabric at a temperature of between 70 and 80° C. in the absence of pressure.

8. Process for the production of an identification marker, which comprises treating a fabric containing cellulose acetate yarn having a denier of at least 300 with a solution of dimethoxy ethyl phthalate in alcohol, removing the excess solution from said fabric and drying the fabric at a temperature of between 70 and 80° C. in the absence of pressure.

9. Identification markers comprising a plasticized fabric containing organic derivative of cellulose yarns having a denier of at least 300, said markers being stiff and free from curl after exposure to hot aqueous media.

10. Identification markers comprising a plasticized fabric containing cellulose acetate yarns having a denier of at least 300, said markers being stiff and free from curl after exposure to hot aqueous media.

11. Identification markers characterized by being stiff and free from curl after exposure to hot aqueous media, comprising a fabric containing organic derivative of cellulose yarns having a denier of at least 300, said fabric having incorporated therein dimethoxy ethyl phthalate as plasticizer.

12. Identification markers characterized by being stiff and free from curl after exposure to hot aqueous media, comprising a fabric containing cellulose acetate yarns having a denier of at least 300, said fabric having incorporated therein dimethoxy ethyl phthalate as plasticizer.

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