

UNITED STATES PATENT OFFICE

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STIFFENING FABRIC AND METHOD OF MAKING THE SAME

No Drawing.

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This invention relates to a stiffening fabric containing organic derivatives of cellulose and process of producing the same.

An object of my invention is to produce a fabric containing organic derivatives of cellulose that is suitable for use as a stiffening material wherever such fabric is necessary. Other objects of my invention will appear from the following detailed description.

In the making of garments, particularly outer garments such as suits, coats, top coats, etc. the use of stiff material is necessary in certain places to help retain the shape of the garment. Likewise it is often desirable to use a stiff fabric as an inner lining in neckwear such as cravats, to impart desirable stiffness to the same. Heretofore, coarsely woven fabrics made of wool, cotton or the like, reinforced or not by stiffer material such as hair, have been used for this purpose. These materials are open to the objections that they are apt to soften when damp and are often bulky.

In accordance with my invention I prepare a stiff fabric containing yarns of organic derivatives of cellulose which fabric may be used as a stiffener in all kinds of wearing apparel and for such other uses to which it may be put. Because yarns of organic derivatives of cellulose are not affected by humidity, they will retain their stiffness under conditions wherein fabrics of other fibres will become softened. Examples of organic derivatives of cellulose are organic esters such as cellulose acetate, cellulose formate, cellulose propionate and cellulose butyrate and organic ethers such as ethyl cellulose, methyl cellulose and benzyl cellulose. The fabric may be composed wholly of one or more of the above named organic derivatives of cellulose, or it may be a mixed fabric containing one or more of the above organic derivatives of cellulose and some other fibres such as cotton, mohair or wool.

This invention may be carried out in diverse manners and a few modes of carrying out the same will be given here.

In one form of my invention, the stiffening material may assume the form of a comparatively open mesh fabric made of cellu-

lose acetate yarns. In order to impart the desired stiffness, the yarns used for this purpose are of high twist and preferably of higher denier say above 200 or 300 denier. This fabric may also have in admixture with the cellulose acetate yarn, other yarns of such comparative stiff fibres such as wool, mohair or cotton.

In another mode of carrying out my invention the fabric is made of "spun" cellulose acetate yarn. In making cellulose acetate yarns ordinarily the filaments are made continuously and are associated together by twisting to form yarns of continuous length. If this continuous yarn is cut up in comparatively short lengths, and the short lengths of yarn spun in a manner analogous to the spinning of cotton or wool yarns, yarns of continuous length known as "spun" cellulose acetate yarns are formed. These yarns form fabrics that are stiffer than those formed of yarn made of continuous filaments of cellulose acetate. In the spinning of the yarn, other fibres such as that of cotton or wool may be incorporated with the cut cellulose acetate yarn and a stiff fabric may be made of this mixed yarn. The fabric may also be made of pure cellulose acetate "spun" yarns and yarns of cotton, wool or mohair.

Another mode of making a stiff fabric containing organic derivatives of cellulose is to treat a fabric containing the same with a material tending to stiffen it. The fabric may be of any desired knit or weave and may or may not contain other fibres such as cotton, silk or wool. Among the substances that may be used for this purpose are solvents, softening agents or swelling agents for the organic derivatives of cellulose. The stiffening substance may be applied by brushing, flowing, spraying, dipping or in any other suitable manner. As an example of this mode of carrying out my invention, a cellulose acetate fabric is sprayed with ethylene dichloride. Upon evaporation of the ethylene dichloride, the fabric is stiffened appreciably and may be applied to the above described use. The degree of stiffening obtained by the use of the ethylene chloride may be varied by adding a diluent such as water to the ethylene

chloride, the amount of stiffening varying with the concentration of the ethylene chloride.

It is to be understood that the foregoing
5 detailed description is given merely by way of illustration and that many variations may be made therein without departing from the spirit of this invention.

Having described my invention, what I
10 claim and desire to secure by Letters Patent is:

1. In the process of producing a stiffening material, the steps of imparting stiffness to a fabric containing filaments of organic derivatives of cellulose by treatment with an organic solvent or softening agent for said organic derivatives of cellulose at least partially to coalesce the filaments and then removing the solvent or softening agent.

2. In the process of producing a stiffening material, the steps of imparting stiffness to a fabric containing filaments of cellulose acetate by treatment with an organic solvent or softening agent for said cellulose acetate at
25 least partially to coalesce the filaments and then removing the solvent or softening agent.

3. In the process of producing a stiffening material, the steps of imparting stiffness to a fabric containing filaments of cellulose propionate by treating with an organic solvent or softening agent for said cellulose propionate at least partially to coalesce the filaments and then removing the solvent or softening agent.

4. In the process of producing a stiffening
35 material, the steps of imparting stiffness to a fabric containing filaments of cellulose ethers by treating with an organic solvent or softening agent for said cellulose ethers at least partially to coalesce the filaments and then
40 removing the solvent or softening agent.

5. In the process of producing a stiffening material, the steps of imparting stiffness to a fabric containing filaments of ethyl cellulose by treating with an organic solvent or softening agent for said ethyl cellulose at least partially to coalesce the filaments and then removing the solvent or softening agent.

In testimony whereof, I have hereunto subscribed my name.

50 CAMILLE DREYFUS.

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