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TEXTILE MATERIAL

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This invention relates to textile fabrics and articles made therefrom which are more or less impervious to water and moisture and which have other desirable properties such as stiffness.

5 An object of my invention is to prepare textile material that is more or less impervious to water and moisture in a cheap and expeditious manner. A further object of my invention is to prepare textile materials and articles made therefrom 10 which are more or less stiff and which can be readily cleaned. Other objects of my invention will appear from the following detailed description.

I have found that textile materials which are 15 impervious to moisture to any desired degree and which are as stiff as may be required may be made by causing two or more layers of fabric containing organic derivative of cellulose yarn to adhere together by means of an adhesive that is 20 relatively impervious to water or moisture. Any desired article or wearing apparel may be made from such textile material.

In accordance with my invention I prepare textile materials that have any desired degree of 25 water-proofness and stiffness by causing two or more layers of fabric containing yarns of organic derivatives of cellulose to adhere together by means of a composition that has the desired degree of stiffness and imperviousness or water- 30 proofness.

The fabric employed may contain yarns of organic derivatives of cellulose such as organic esters of cellulose and cellulose ethers. Examples of such organic esters of cellulose are cellulose acetate, cellulose formate, cellulose propionate and cellulose butyrate, while examples of cellulose 35 ethers are ethyl cellulose, methyl cellulose and benzyl cellulose. The fabric may be dyed any desired color or it may be printed with any desired colored design. The fabric may be a woven, 40 knitted or netted fabric.

Any suitable relatively impervious composition may be used for causing the layers of fabric to adhere together. This composition may be of in- 45 organic nature or of organic nature such as rubber or water-resistant glue. However I prefer to employ for this purpose a composition containing a derivative of cellulose, which may be cellulose nitrate or an organic derivative of cellulose as above described and a plasticizer and/or softening agent therefor. Examples of suitable plasti- 50 cizers are camphor, dimethyl phthalate, diethyl phthalate, dibutyl tartrate, diethyl tartrate, triacetin, triphenyl phosphate, etc. The amount of plasticizer and/or softening agent employed may

vary from 5 to 200% of the weight of the organic derivative of cellulose present. In the case of cellulose nitrate, oils usually employed for this purpose may be incorporated in any desired 5 amount so that the final product has the desired stiffness or pliability, as is understood in the art. By controlling the amount of plasticizer and/or softening agent used, the stiffness of the result- 10 ing product may be controlled, that is to say the less plasticizer and/or softening agent used, the stiffer the product will be.

The composition of the derivative of cellulose and plasticizer or softening agent may be applied to the surfaces of the fabric in the form of a solu- 15 tion in a volatile solvent, which preferably does not exert a considerable solvent action on the organic derivative of cellulose of the fabric, which is then permitted to evaporate, or it may be applied in the form of a plastic composition or in the form of a dry powder. The stiffness and im- 20 perviousness of the resulting material may be controlled by the nature of the composition used as the adhesive layer and also the thickness of such layer.

After the impervious adhesive layer is inter- 25 posed between the layers of the fabric, the assembly is pressed at elevated temperatures to cause firm adhesion of the same. This pressing may be done in any convenient manner and by any suitable means; for instance the assembly of fabric and adhesive layer may be passed between hot 30 calendaring rolls. Preferably the conditions of pressing are such that the yarns of the fabric are not coalesced so that the woven or knitted appearance of the fabric is preserved.

The material made by this invention may be 35 used for making collars, cuffs, stiff shirt bosoms and the like. It may also be used for making waterproof articles such as bathing bags, rain-coats, etc. It also may be used as a stiffening fabric in the making of men's clothing, neckties, 40 etc.

The material made by this invention, may be worked up into articles very cheaply. If the fabric employed consists wholly of cellulose ace- 45 tate yarn, the whole material is of thermoplastic character. Therefore the material can be cut by means of a hot knife or blade, and because of the heat the edges will fuse and thus be sealed against fraying. A convenient method of mak- 50 ing such articles is to stamp them out by means of a hot die. If collars or cuffs are to be made, the die may contain members for stamping out the button holes at the same time; and in the case of collars the material may be scored to 55

5 permit the folding over of the same. Alternatively the material may be cut by ordinary means and the cut edges sealed against fraying by application of a solvent such as acetone. However
10 the material may be cut and sewn in the ordinary manner.

Fabrics and articles made by this invention possess many unique advantages. Since cellulose acetate or other organic derivative of cellulose yarn does not absorb grease or dirt into
15 the interior of the fibres or filaments, when the articles are soiled they may be cleansed by simple rinsing, wiping or light brushing in a manner very similar to that employed for cleaning celluloid collars. Yet, they have the appearance
20 of fabrics, since the appearance of the outer layers of fabric is preserved. Moreover when the method of stamping or severing by means of hot dies or blades is employed, the necessity of sewing the seams or edges is avoided. Thus superior
25 products are made in a very cheap way.

It is to be understood that the foregoing detailed description is given merely by way of illustration and many variations may be made there-
30 in 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 manufacture of textile articles from materials having at least two layers
35 of fabric comprising filaments or fibres of an organic derivative of cellulose held together by means of a layer of a relatively impervious plastic composition containing a derivative of cellulose, said filaments or fibres of the fabric being exposed
40 on the outer surfaces thereof, which comprises stamping the articles from the said material by means of a hot die adapted to seal the edges of the articles.

2. Process for the manufacture of textile articles from materials having at least two layers

of fabric comprising filaments or fibres of cellulose acetate held together by means of a layer of a relatively impervious plastic composition containing cellulose acetate, said filaments or
5 fibres of the fabric being exposed on the outer surfaces thereof, which comprises stamping the articles from the said material by means of a hot die adapted to seal the edges of the articles.

3. In a process for the manufacture of textile articles from materials having at least two layers
10 of fabric comprising filaments or fibres of an organic derivative of cellulose held together by means of a layer of a relatively impervious plastic composition comprising a derivative of cellulose, said filaments or fibres of the fabric being exposed
15 on the outer surfaces thereof, the step of cutting out the articles by means of a hot cutting edge whereby the edges of the articles are sealed by fusion.

4. In a process for the manufacture of textile articles from materials having at least two layers
20 of fabric comprising filaments or fibres of cellulose acetate held together by means of a layer of a relatively impervious plastic composition comprising a derivative of cellulose, said filaments or fibres of the fabric being exposed
25 on the outer surfaces thereof, the step of cutting out the articles by means of a hot cutting edge whereby the edges of the articles are sealed by fusion.

5. In a process for the manufacture of textile articles from materials having at least two layers
30 of fabric comprising filaments or fibres of cellulose acetate held together by means of a layer of a relatively impervious plastic composition comprising cellulose acetate, said filaments or fibres of the fabric being exposed on the outer
35 surfaces thereof, the step of cutting out the articles by means of a hot cutting edge whereby the edges of the articles are sealed by fusion.

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