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UNITED STATES PATENT OFFICE.

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PROCESS OF REGENERATING CELLULOSE.

No Drawing. Application filed May 6, 1919, Serial No. 295,088. Renewed June 12, 1923.

To all whom it may concern:

Be it known that we, ALBERT D. CONLEY and ELTING C. STILLWELL, citizens of the United States, residing at Baltimore city, in the State of Maryland, have invented certain new and useful Improvements in Processes of Regenerating Cellulose, of which the following is a specification.

The present invention relates to an improvement in regenerated cellulose structures such as films or filaments prepared from viscose, and to the process of making same.

Films or filaments as usually prepared from viscose, are more or less harsh to the touch, lack the desired transparency and are subject to a considerable degree of shrinkage during the drying operations.

The objects therefore of the present invention are to produce a film or filament of a soft texture, more closely resembling that of natural silk; which film or filament, when in the form of a film, will possess a high degree of transparency, and in which the shrinkage during drying will be materially lessened.

The improvement consists in preparing, by any satisfactory method, films or filaments, and while wet, subjecting them to the action of a bath consisting of an alcohol. This bath may be made acid with five per cent more or less of acid with good results but in practice we prefer to use a neutral bath. HCl and acetic acid may be mentioned as suitable acids. The filaments are subjected to this bath for such time as is necessary to produce the desired result but ordinarily a period of one minute has been found to be sufficient. In commercial operation, ordinary wood alcohol, denatured alcohol, preferably denatured with some material soluble in water, or refined fusel oil may be used.

We regard the novelty of the present invention as residing in the preparation of films or filaments from viscose in which the films or filaments are subjected while in the wet condition to a bath consisting of an alcohol, or to a bath consisting of an alcohol containing five percent more or less of acid. In connection with this step we may use other steps or combinations of steps already known to the art. In order that our mode of operation may be thoroughly understood we give the following example, but desire it understood that we do not limit our invention to the procedure given below.

As an example, we may prepare a solution of crude viscose in any approved manner, force the same through a suitable orifice to produce a filament or otherwise handle the viscose to produce a film, then subject the film or filament to a precipitating bath of hot saturated ammonium sulfate, and follow this by a cleaning in hot sodium bisulfite. The film or filament is then washed in water and immersed while still wet in methyl alcohol as described above. Following this the films or filaments are dried in a suitable manner.

What we claim is,—

1. A process which comprises setting viscose in a hot solution containing ammonium sulfate, and thereafter, without an intermediate drying, soaking in an alcoholic liquid.

2. A process of improving regenerated cellulose articles comprising forming the article and setting the same, washing the article to remove salts and while wet subjecting the article to a bath of an alcoholic liquid.

3. A process which comprises setting a viscose solution in a setting bath, and after removing the product from the setting bath, treating the same with a cleaning bath, and after removing the same from said cleaning bath, subjecting the same to treatment with an alcohol bath.

4. A process which comprises passing viscose through the following separate baths, (*a*) a setting bath, (*b*) a cleansing bath and (*c*) an alcohol bath.

5. A process which comprises passing viscose through the following separate baths, (*a*) a setting bath, (*b*) a cleansing bath, (*c*) a washing bath, and (*d*) an alcohol bath.

In testimony whereof we affix our signatures.

ALBERT D. CONLEY.
ELTING C. STILLWELL.