

UNITED STATES PATENT OFFICE

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ARTIFICIAL FORMS OR THREADS FAST TO WATER AND EASILY DYED AND PROCESS OF MAKING SAME

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The present invention relates to artificial forms or threads fast to water and easily dyed and a process of preparing the same. It comprises the new products as well as the method of making these products.

It is known that of the various kinds of artificial silk the commonly called acetate silk possesses the most valuable properties, as it is considerably faster to water than the other kinds of artificial silk and has a lustre which closely resembles that of natural silk.

The disadvantage of acetate silk, however, is its small tendency to absorb the hitherto usually employed dyestuffs, so that for this particular purpose new dyestuffs have to be brought on to the market.

By the present invention an acetate silk is made which can be dyed easily and intensely by means of the hitherto usual dyestuffs and has all the advantageous properties of acetate silk by mixing with the cellulose acetate solution which is to be made into artificial forms or spun, a certain proportion of nitrocellulose, and subsequent to the formation or spinning of the product, denitrating the latter by use of a denitrating bath of more energetic action than such baths as have previously been used for denitrating products made of pure nitrocellulose. Such a bath contains for instance more than 8 per cent. of a soluble hydrosulfide, and its temperature lies above 50° C.

This result, which is really surprising, represents an essential advance in the art of making products from acetyl cellulose capable of being easily dyed.

As a rule, the addition of 5-20 per cent. of a nitrocellulose to the cellulose acetate proves sufficient for obtaining the desired effect. However, it is important and should be expressly emphasized that the denitration should be intensive; the hitherto usual denitration by means of treatment with a solution of sodium hydrosulfide of 7-8 per cent. strength at 40-50° C. does not produce the desired result.

The following example illustrates the invention:—

A cellulose acetate solution is mixed with

5-10 per cent. (calculated on the content of cellulose acetate) of nitrocellulose whereupon the mixture is spun into threads in known manner. The spun product is passed in the course of about 3 hours through an aqueous solution of sodium hydrosulfide containing 10-12 per cent. of NaSH and advantageously also 6-12 grams of magnesium chloride per litre, the temperature of the solution being 65° C. The goods are then washed and dried. The threads thus obtained have an excellent affinity for dyestuffs, whether they be acid, basic, mordant-dyeing, direct-dyeing or vat-dyestuffs, including sulfur dyes. Thus it is possible to dye the threads easily very different tints and densities. The fastness to water, as well as the elasticity and strength are very good.

Instead of alkali hydrosulfide a soluble hydrosulfide, such as an alkali earth hydrosulfide, may be used.

What I claim is:—

The process of forming cellulose filaments, fast and dyeable with wool and cotton dyes, which consists in preparing a cellulose solution containing acetate cellulose and nitrocellulose in proportions ranging from 80 to 95 parts of acetate cellulose as compared with 20 to 5 parts of nitrocellulose, forming filaments therefrom, treating the filaments thus formed in a denitrating bath having not less than an 8 per cent hydrosulfide content and maintained at a temperature of above 50 degrees centigrade.

In witness whereof I have hereunto signed my name this 5th day of March, 1927.

FRITZ STRAUB.