

UNITED STATES PATENT OFFICE

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METHOD OF TREATING TEXTILE THREADS

No Drawing.

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This invention relates to treating textile threads and more particularly to a method of subjecting artificial silk to a simultaneous lubrication or sizing and tinting or staining.

Artificial silk in the form of threads or filaments is destined for weaving or knitting machines. In order to increase the resistance to friction in knitting and weaving of the threads or filaments, the artificial silk is usually subjected to a sizing or lubricating operation. This operation also tends to lay any loose filaments. The conditioning compositions used are subsequently removed from the fabrics in any well known manner such as the usual alkaline scour. Recently it has become the practice to tint various artificial threads with various colors for the purpose of distinguishing them as to size and source. In the manufacture of crepe fabrics, tinting is utilized to distinguish the right hand and left hand twisted threads. Differently tinted threads are also utilized in plating, which is the system of knitting wherein artificial silk, for example, is laid on the face and cotton or wool on the back. In this system of knitting, due to the differently colored threads the operation of the machine and any misplatings may be readily observed.

Prior to this invention tinting was obtained by the use of water-soluble dyestuffs. In most instances, the tinting material was applied to skeins of artificial silk by the ordinary skein-dyeing process. This process consisted in immersing skeins in a dye bath and subsequently extracting, drying and beating out. Such a process was cumbersome and expensive, particularly so because of the extra handling and drying involved. In addition, the process and particularly the skein-turning in the dye bath degraded the artificial silk skein to a considerable degree. In order to prepare a cone of tinted artificial silk the throwster, after shaking out the skeins, immersed them in a dye bath containing the desired tinting material. After the tint was applied, the skeins were allowed to drain and were then extracted and finally dried, the latter step requiring several hours.

I have found that I can overcome the above-mentioned defects by subjecting artificial silk to a lubricating composition containing a color dissolved or suspended therein, whereby a simultaneous tinting and lubrication is obtained.

It is, therefore, an object of this invention to provide a method of simultaneously lubricating and tinting artificial silk.

Another object of this invention is to provide a method of preparing a package such as a cone, bobbin, cop, etc., of tinted thread, said tinting being effected during the formation of the package and whilst the thread is being lubricated.

Other objects will appear from the following description and appended claims.

The invention, as stated, comprises subjecting artificial silk to the combined or simultaneous action of a tinting agent and a conditioning material. In carrying out the invention the tinting colors are dissolved or suspended in the conditioning material so that, when the threads are conditioned in the usual manner, they will also be tinted. The tinting colors do not remain fast on the rayon. They are temporary or fugitive, that is to say, upon the removal of the conditioning compound the color or tint will also be removed.

Various colors may be used in carrying out the invention. They may be dissolved or suspended in the lubricant. If a solution of the color in the lubricant is desired the color employed must be soluble in oil. I have found that such colors as unsulphonated anthracene or anthraquinone blue, Sudan I, II, III, azo-toluene, benzene-azo B naphthol, methyl violet base, Victoria blue base, rhodamine B base, green M base and safranin base produce satisfactory results. The colors may be used in various concentrations. I have found that lubricants containing 1 to 25 grams per liter of color give satisfactory results. It is to be understood that the colors and proportions set forth do not limit the invention thereto. They are illustrative of the invention and not limitative thereof.

The size, oil or lubricant used may be any of the well-known textile conditioning oils

or compounds and are capable of easy boil-off. In the claims the expression "conditioning compounds" is intended to broadly cover these materials.

5 In carrying out the process, the lubricant and color solution may be applied to the thread by any well-known manner of thread lubrication. For instance, the skein may be immersed in a bath containing the lubricant
10 and color and the surplus thereof subsequently removed in any suitable manner. If desired, the thread may be brought in contact with a wick immersed in the lubricant and color composition or it may be passed over a
15 roller rotating in a bath containing the composition. After the lubrication and tinting the threads may be fabricated into fabrics and the color and lubricant removed by any of the usual methods.

20 In order to more fully explain applicant's invention the following specific examples are set forth. It is to be understood that these examples are not intended to limit the invention in any way whatsoever.

25 *Example I.*—5 kilograms of artificial silk composed of regenerated cellulose are immersed in 50 liters of conditioning compound containing equal parts of olive oil and kerosene and 5.0 grams of benzene-azo B
30 naphthol. After the skeins are completely saturated they are removed, allowed to drain and then extracted to the desired oil content. Skeins treated in this manner are colored a brilliant orange.

35 *Example II.*—A 0.5% solution of methyl violet base in a suitable textile conditioning oil is placed in the oil trough of a "Universal" coning machine. This machine includes a
40 roller partly immersed in the oil and over which the thread passes. When such a set-up is used to make a cone of cellulose acetate artificial silk, it is found that the package is colored violet.

The invention above described may be applied to textile fibers of any material. It
45 may be used to treat cotton, immunized cellulosic fibers, mercerized fibers and artificial silk produced from viscose, cuprammonium cellulose, cellulose nitrate, cellulose acetate,
50 or other cellulose derivatives. By reason of the simultaneous lubrication and tinting, skein-turning and excessive handling are eliminated, whereby degradation of the artificial silk is reduced to a minimum. Further-
55 more, in the process above described no drying is necessary. By proper regulation of the surplus removal, the necessary and desired quantity of lubricant may be obtained.

Though this invention has been described
60 particularly with respect to the formation of packages on a coning machine, it is not limited thereto, since it is apparent that it may be used under other conditions. For example, untinted cones or other packages may
65 be supplied to a knitting machine and the

thread tinted and oiled in its passage to the needle.

I claim:

1. In a method of treating artificial thread, the step of subjecting said thread to a non-
70 aqueous composition comprising a thread conditioning compound and a methyl violet base dissolved therein, whereby the thread is simultaneous tinted and conditioned, said
75 conditioning compound and color being readily removable.

2. In a method of treating artificial thread, the step of subjecting said thread to a non-
80 aqueous composition comprising a 0.5% solution of methyl violet base in a conditioning oil, whereby the thread is simultaneous tinted and conditioned, said oil and dye-stuff being
85 readily removable.

In testimony whereof, I have affixed my
signature to this specification. 85

WILLIAM HALE CHARCH.

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