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TREATMENT OF ARTIFICIAL SILK FILAMENTS

Aleidus G. Bouhuys, Enka, N. C., assignor to American Enka Corporation, Enka, N. C., a corporation of Delaware

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This invention relates to treating artificial silk filaments during their process of manufacture and more specifically relates to treating filaments for use in crepe effect fabrics.

In the ordinary process of manufacturing artificial silk filaments which are to be employed in crepe fabrics it has been the practice in the past to subject the filaments to the usual treating steps consisting of washing the spun filaments, desulphurizing, and subsequently drying, twisting (this may be done at the time of the spinning operation), humidifying, reeling into skeins, bleaching the skeins, drying the skeins and grading and packing. The packages of filaments or yarn, as they will hereinafter be designated, in this form were shipped to the crepe fabric manufacturers. It was then necessary for the consumer to treat the skeins with various sizing agents, straighten out the skeins, dry, wind, and crepe twist.

It is readily seen that such a procedure involves quite a number of expensive, lengthy and tedious operations. However, it is known that in order to prepare yarn for crepe twisting it is first necessary to impregnate the yarn with certain kinds of sizing materials and when employing the above outlined procedure, that is, including the skeining step, the other operations were necessary.

Another attempted process for manufacturing crepe fabrics was one in which the desulphurizing step was omitted, the idea being to allow the sulphur to remain in the yarn to act as the sizing agent. Such a method, however, was found to be very impractical and in fact could not be carried out with any degree of success. The reason for this being that it was necessary to remove the sulphur after having been made into fabric form, and in order to do this the fabric had to be treated with an alkaline reagent which materially affected the feel of the finished product.

It is an object of the present invention to produce an improved crepe effect fabric in which several of the above mentioned steps have been eliminated.

It is a further object of the invention to apply sizing and lubricating materials to the yarn immediately after spinning and washing and prior to shipment.

The invention still further contemplates processing freshly spun yarn while it is still on the spinning spool wherein the preparation of the yarn for creping is made an integral part of the manufacturing process, the completed yarn package then being ready for immediate use in the crepe twisting machines.

According to the present invention the freshly spun artificial silk is collected on foraminated spools or bobbins and the like, and thereafter washed, desulphurized and bleached (if desired) while on the spools. The spool supported yarn packages are then impregnated with suitable sizing and lubricating agents. This may be accomplished by either vacuum or pressure control and the packages so treated are dried. The yarn packages are rewound in the form of cones and the like in untwisted or only slightly twisted form, and are now in condition to be transferred to the crepe twisting machines to be twisted with a left and right hand high twist according to the usual procedure. Fabrics woven from yarn processed in the above stated manner possess a very rich feel and pebble that is highly satisfactory in the industry.

The sizing and lubricating agents which are employed, are especially adaptable to the present invention and are composed of an oil, a starch size or glue, and a softener. The oil serves the purpose of lubricating the thread in the winding and twisting operations and also performs the function of regulating the creping of the fabric when moistened. The starch or glue acts to set the twist upon the completion of the crepe twisting operation and is instrumental in creating the pebble. The softener improves the feel of the finished goods and may if desired be incorporated in the oil. These various agents are applied to the yarn in one operation.

Several examples of sizing compositions which have been found especially adaptable in carrying out the present invention are as follows:

	Percent		Percent
Sulfonated cocoanut oil	3.8	Limits	1 -10
Starch	.85	Limits	0.1 - 4
Water	95.35		
Sulfonated neat's-foot oil	3.8	Limits	1 -10
Gelatine	1.0	Limits	0.1 - 4
Sulfonated wax	.3		
Sulfonated cocoanut oil	3.7	Limits	1 -10
Gelatine	.9	Limits	.25- 4
Water	95.4		
Mineral oil	3.6	Limits	1 - 6
Soaps and emulsifiers	2.4	Soaps and emulsifiers	.5 - 6
Gelatine	0.6	Gelatine	.1 - 4
Sulfonated al coholsor derivatives	4.0	Limits	1 - 8
Gelatine	0.6	Gelatine	.1 - 4
Water	95.4		
Mineral oil	3.9	Limits	1 - 4.2
Soaps and emulsifiers	1.5	Soaps and emulsifiers	.5 - 4.0
Mineral oil sulphonate	.6	Limits	.2 - 2.0
Gelatine	.6	Gelatine	.1 - 4.0
Water	93.4		

It can be seen that several distinct advantages are realized by the present invention. The customary operations of twisting, humidifying skeining, and further drying at the time of manufacture, are eliminated. The time of manufacture and the expense involved is therefore decreased. By omitting several handling steps, injury to the filaments is lessened. In view of the fact that the skeining operation is omitted,

twisting of the filaments is not necessary until the crepe twist is applied at the consumers. The lubricating materials incorporated in the sizing agents which have been applied to the yarn during the manufacture thereof act as a protective medium for subsequent handling. The consumers duties have been materially cut down in view of the fact that the sizing has previously been applied to the yarn and it is therefore only necessary for the consumer to perform the crepe twisting prior to manufacturing the fabric.

Having thus described my invention, what I claim is:

1. A process for preparing artificial silk filaments and the like for crepe effect fabrics according to the wet spinning method which comprises winding freshly spun untwisted filaments onto foraminated bobbins, washing and desulphurizing the filaments while supporting them on the said bobbins, and directly treating the said filaments, without unwinding the same, with a sizing agent containing a substance of the class consisting of starch, glue and gelatine and having the property of maintaining a set within the filaments after the high twisting operation incident to the manufacture of crepe effect fabrics.

2. A process of manufacturing crepe effect fabrics from artificial silk filaments and the like which comprises winding freshly spun untwisted filaments onto foraminated bobbins, washing and desulphurizing the filaments while supporting them on the said bobbins, directly treating the said filaments without unwinding the same with a sizing agent having the property of maintaining a set therein, and finally setting a high twist in the filaments and manufacturing crepe effect fabrics therefrom.

ALEIDUS G. BOUHUYS.