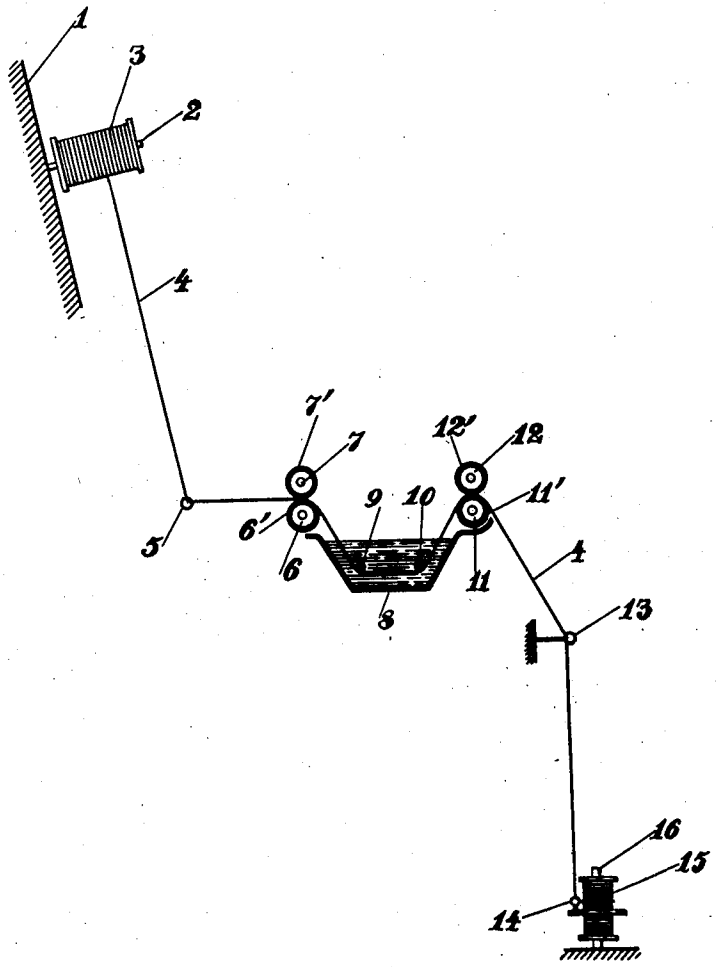
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PROCESS FOR THE TREATMENT OF ARTIFICIAL SILK YARNS AFTER SPINNING

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PROCESS FOR THE TREATMENT OF ARTIFICIAL SILK YARNS AFTER SPINNING

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It has already been proposed to treat finished artificial silk yarns after spinning in such manner, that they are twisted respectively wound under tension with a softening- or dissolving agent by means of a drawing frame.

It has been proven that extraordinary favorable crape-effects can be attained if the artificial silk yarns are not only stretched in water but if, when carrying out the process, sizing agents are added. By this operation the artificial silk fibres, when being twisted, are helically glued together by means of the penetration of the sizing agent and surrounded with a protecting envelope and armour in such manner, that thereby the stretched and helically twisted fibres held in stretched tension remain in that relation.

The process has a special importance in the manufacture of fabrics with crape-effect. In this case the size holds the wet-stretched and hard-twisted crape yarn together and when finishing the produced fabric, that is to say when washing out the size and dissolving the same, a special intensive crape-effect is obtained by shrinkage of the threads.

The present stretching-twisting-sizing process is, however, also very advantageous for sizing the artificial silk yarn used as warp which, when being wet-stretched and twisted, is brought to warp-twist. By the simultaneous twisting of the artificial silk yarn passing through the sizing liquid, the size is twisted into the various fibres of the artificial silk yarn, whereby through the stretching the strengthened artificial silk yarn obtains a still further very important increase of strength, so that an absolutely smooth solid yarn is obtained, the tenacity of which withstands every demand in the reed and in the harness.

A still greater advantage of the present new process consists therein, that, through the possibility of regulation of the draft-relation of the drawing frame, the admissible wet-stretching of the artificial silk in question can be suitably adjusted, and that furthermore for the sizing of special artificial silk yarns, which serve for the manufacture of other weaving effects and which allow no wet-stretching, the draft-relation of the drawing frame can be entirely released where necessary. In such cases the drawing frame serves also to take up the pulling-tension from the wound bobbin and to feed the yarn, without tension, to the sizing trough with the result, that not the slightest wet-stretching can take place.

One form of execution of the present invention is shown, by way of example, in the accompanying drawing, showing more or less diagrammatically a suitable wet-stretching and sizing method.

On the bobbin board 1 are arranged pegs 2 which receive the loosely rotatable artificial silk spools 3. The yarn 4 from the bobbin passes over a guide 5, preferably made of glass, to the feed roller 6 and between the latter and the pressure roller 7. Thence the artificial silk yarn passes over the rotatable or stationary glass or porcelain rollers 9, 10 which latter dip with adjustable depth into the size contained in the size-trough 8, where the yarn is humidified with size. Thence the yarn 4 passes over the delivery roller 11 where the excess size is forced off by means of the pressure roller 12 pressing through its own weight onto the delivery roller 11. The excess size runs back into the trough 8.

The sized artificial silk yarn 4 then passes through the guide 13 to the ring-spinning traveller 14 and is twisted and wound in known manner on the bobbin 15 mounted on spindle 16.

The feed roller 6 and delivery roller 11, as well as the pressure rollers 7 and 12, are covered with a layer of felt, vulcanite or any other suitable elastic material 6′, 7′, 11′, 12′ in order to prevent the yielding between the rollers when being unwound. Furthermore care has to be taken that the excess of size adhering to the yarn be well forced out by the pressure cylinders covered with felt or an elastic substance so as to press it into every single fibre of the artificial silk yarn.

The speed of the delivery roller 11 is greater than that of the feed roller 6 so that a uniform tension is put upon the yarn between these two rollers. The speed-relation between the delivery roller 11 and the feed

roller 6 can be regulated and can be adjusted to the wet-stretching possibility of every kind of artificial silk. Said speed-relation may also be adjusted to 1:1, as is necessary when an artificial silk has to be sized which, according to the desired effect, may not receive any wet-stretching at all. The present process is well adapted for such special effects, which allow no wet-stretching, because then the feed roller 6 feeds the yarn without tension, so that any wet-stretching is avoided. In this latter case it will be advantageous that the tension in the yarn between feed roller 6 and wound spool 3 be taken over by the feed roller 6 in order that the wet artificial silk yarn, inside the size-trough 8 and between the feed roller 6 and the delivery roller 11, receives no tension at all. The sizing degree will in this case be regulated by the relatively increased dipping depth of the artificial silk yarn.

After the yarn, when reaching the delivery roller 11, has taken up sufficient size, the latter will still be more twisted into the yarn by the following twisting of the yarn itself, thus already obtaining an essential strengthening of the yarn.

The bobbins 15, which are arranged on spindles, are preferably made of aluminum or hard paper with enamel covering which are provided, on the side adjacent the spindle, with a number of holes in order to produce a quicker drying of the artificial silk yarn when the bobbins are later brought into the drying chamber. From these bobbins the warp beaming or the spooling is effected in the usual manner.

As sizing agents any suitable preparation, in accordance with the kind of artificial silk employed, can be used, preferably thin boiled starch, glycome, (the trade name of a particular sizing), gelatine and many other well known sizing agents. Evidently care has to be taken that the condition of the size be such, that it easily penetrates into the yarn structure.

The thus treated yarn is used, in its sized state, for further working and when finishing the fabric, that is to say when washing it out and dissolving the size, the special intensive crape-effect, which is the object of the present invention, is obtained by shrinkage of the threads.

The crape-effect may be further increased if the artificial silk yarn, treated according to the present process, is given a further twisting in the dry state.

I claim:

1. Process for the treatment of artificial silk yarn after the spinning process, consisting in the fact that the yarn is subjected to a twisting operation and also to the action of a water bath which contains one of the dressings which thoroughly impregnates the yarn, by which means the yarn is caused to swell and, during the twisting, is thoroughly impregnated with the dressing, and that the yarn is stretched, while it is being subjected to the sizing-water-bath, whereupon the yarn is further twisted, while it is still in its stretched, sized condition, in order to keep the fibres of the yarn under fixed, stretched tension.

2. The process of treating yarns of derivatives of cellulose to be employed in the manufacture of crepe fabrics which comprises applying a coating of sizing to the yarns, removing excess sizing therefrom, stretching or drawing said yarns while in a wet condition and thereafter twisting and drying the same.

In testimony whereof I affix my signature.

FRANZ JOSEF GAHLERT.