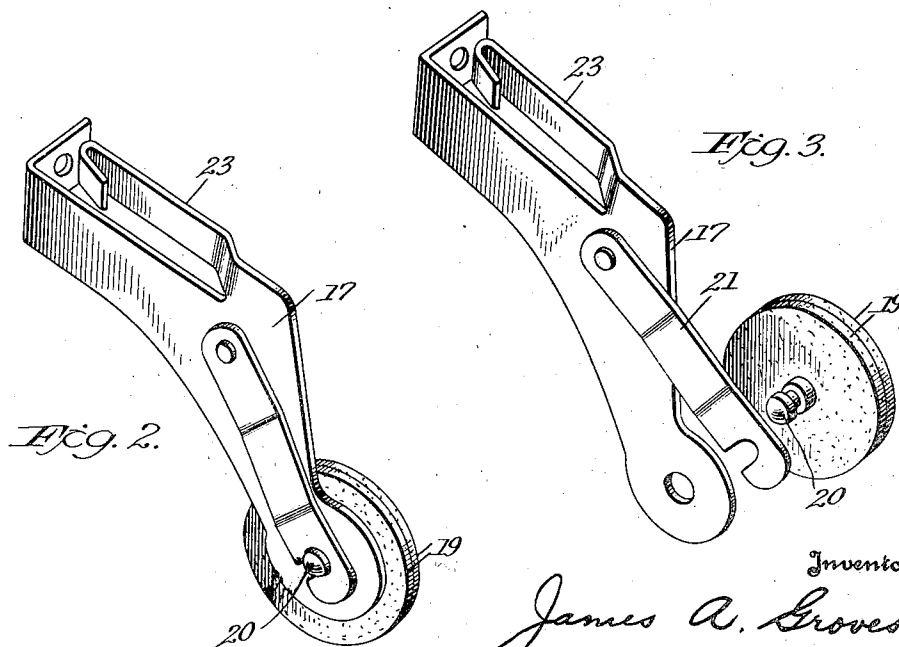
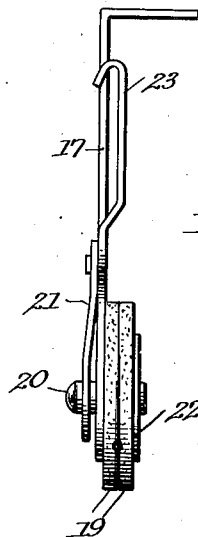
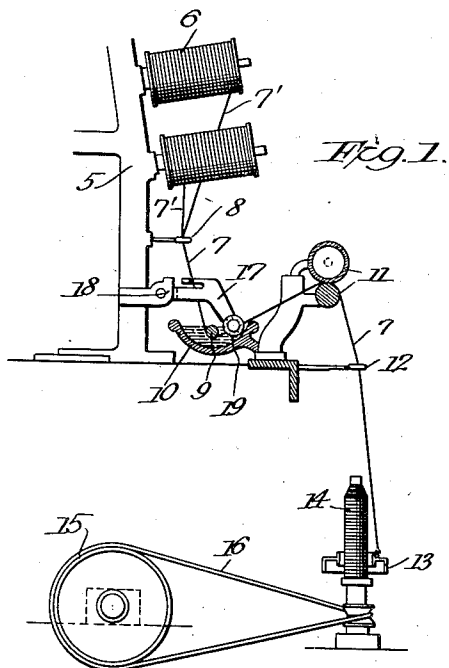


July 19, 1932.

J. A. GROVES
YARN TWISTING DEVICE
Filed Nov. 15, 1930

1,867,664



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YARN TWISTING DEVICE

Application filed November 15, 1930. Serial No. 495,972.

This invention relates to yarn twisting or methods of doubling a plurality of yarn rovings or "ends" into a single strand and aims to provide an improvement by which the necessity of gassing or singeing to remove the fuzz or loose fibre particles therefrom may be eliminated, with resultant strengthening of the strand.

As it will be best understood by description referring to illustration thereof, further statement and explanation will be made with reference to the attached drawing showing one practicable embodiment of the invention in the form of an attachment to a conventional type of twisting machine.

In said drawing:

Fig. 1 is a somewhat diagrammatic representation of a twisting machine showing a plurality of yarn rovings from loader spools combined by twisting into a single strand wound onto a bobbin;

Fig. 2 is a perspective view of one form of attachment device embodying the invention;

Fig. 3 is a similar view thereof illustrating the mode of applying a part; and

Fig. 4 is a plan view of said device.

The invention being applicable to various forms of yarn twisting, winding or doubling machines, a conventional type of twister is here represented with one form of the attachment device in place for accomplishing its designed purpose. This machine comprises a base structure with frame or creel supporting a plurality of bobbins or spools for the yarn rovings. These rovings or "ends", represented at 7', are drawn in desired number from the spools to a point of twisting unity into a single strand 7. This may be done initially through an eyelet 8 or else directly under the usual roller 9 rotating in a trough 10 of water by which the rovings are wetted or saturated.

In the ordinary machine, the rovings or ends passed under said roller are then drawn between a pair of twister or compacting rollers 11 and thence through a guide eyelet 12 to a traveler 13 by which it is wound evenly onto a loader bobbin 14. A conventional arrangement is here represented, including

a power-driven pulley 15 for rotating said bobbin through the medium of a belt 16.

However, the strand of rovings thus twisted together is left with fine particles of fuzz or loose fibres splaying therefrom, in spite of the wetting received under the roll in the water trough. This fuzz must be removed by gassing or singeing before mercerizing or weaving into cloth, especially in the case of fine yarns or those used for knitting and the like. The gassing or singeing has a tendency to weaken the yarn and it has long been desirable to eliminate the necessity for it.

The present invention accomplishes that purpose by a very simple expedient. At a point near the roller (9) in the water trough, the wetted rovings of yarn combining or twisting into a single strand are caused to be drawn tensionally over or between surfaces of frictioning material adapted to lay the fuzz particles thereon, with the effect of pasting them down in place so as not to splay or fly loose from the strand as it is wound onto the twister bobbin. This not only eliminates the necessity of gassing or singeing, but tends to strengthen the strand, because the multiplicity of fibre particles twisted thereinto adhere closely together with an increased binding effect. So effectually does this expedient accomplish the purpose that it is only in rare cases of extremely fine yarn that any gassing or singeing would be necessary.

This improvement is easily applied to the conventional and ordinary twisting machine by a very simple attachment. Said attachment may be in the form of a bracket-like member 17 of elbow form (as shown in Figs. 2 to 4). This member, secured by support 18 to the spool frame or creel (5) extends downwardly toward the level of the water in the aforesaid trough (10), with its extended end lying between the roller in said trough and the twister or compacting rollers (11). On said end, it carries the frictioning material over or between layers of which the twisting yarn rovings are drawn, such material in this instance being in the form of washers 19 mounted on a stud 20 extendi

through a hole at the end and engaged by a notched lock piece 21 pivoted to swing for release, as illustrated in Fig. 3. Said stud of course has a backing 22 between which and the main part of the bracket said washers of the material are held close together so as to offer some resistance to the rovings of yarn passed therebetween.

The material of which these washers are formed is in this instance felt, which is particularly adaptable to the purpose because of its soft fibrous surface, but some other material of a similar character might be used instead. In some cases a spongy rubber or other like material might be used, the essential thing being that the surface is of a character to engage the rovings or strand all the way around and act effectually upon the fuzz or loose fibres thereon.

A part of the member is cut away and bent to form an arm 23 with end bent back upon itself (see Figs. 2 and 3) to provide a guide through which the rovings are led under the roller in the water trough. This serves to keep the rovings in alinement with the frictioning washers between which they are passed to the twister or compacting rollers.

The described improvement has the particular advantages already explained, and in addition to laying the fuzz or fibres on the yarn tends to clean it more thoroughly. The yarn passing over or between surfaces of the frictioning material is put in far better condition for use and makes it possible to put more yarn on the loader bobbin than was formerly possible. The frictioning material also has a tendency to set the twist of the yarn to a great extent, due evidently to the bindive effect of the fuzz or fibres twisted into the strand instead of being subjected to the gassing or singeing process. These advantages will be apparent to any one skilled in the art.

Obviously the expedient of this invention may be put into effect in various ways. For example, it may be attached at a point to act upon the rovings either before or after an initial twisting together, or may be applied doubly for passing the yarn twice through the frictioning material, first immediately after being wetted and then again immediately after passing between the twister or compacting rollers. Moreover, the attachment itself may be made in various forms according to conditions and requirements.

Accordingly, the appended claims are not intended to limit the invention to the specific form and arrangement shown.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In methods of twisting, winding or doubling a plurality of yarn rovings together in a single strand, the improvement which con-

sists in passing the combined rovings first dampened and under drawing tension over a soft surface frictioning material introduced between the dampening and drawing points and tending to lay the fuzz or loose fibres therearound.

2. The improvement in methods of twisting, winding or doubling a plurality of yarn rovings together in a single strand, which consists in drawing the strand of combining rovings under tension while wet against a frictioning member of fibrous material introduced behind the wetting element and serving to lay the fuzz or loose fibre particles thereinto with effect of strengthening the strand.

3. The improvement in methods of twisting, winding or doubling a plurality of yarn rovings together in a single strand, which consists in wetting and drawing the rovings under tension while wet against a soft-surface frictioning member disposed between the wetting and drawing points and tending to lay the fuzz or loose fibre particles thereinto while combining them in the single strand.

4. The improvement in methods of twisting, winding or doubling a plurality of yarn rovings together in a single strand, which consists in drawing the strand of combining rovings wetted and tensioned against a frictioning pliable-surface material disposed behind the wetting means and causing the fuzz or loose fibre particles to lay thereonto with result of strengthening the strand and eliminating the necessity for subsequent singeing or gassing.

5. In methods of twisting, winding or doubling a plurality of yarn rovings together in a single strand, the improvement which consists in wetting and drawing the rovings under tension while wet over a frictioning fabric member disposed between the wetting and drawing means and tending to lay the fuzz or loose fibre particles thereon while combining them into the single strand, with result of eliminating subsequent singeing or gassing and binding the rovings more securely together.

6. In methods of twisting, winding or doubling a plurality of yarn rovings together in a single strand, the improvement which consists in wetting and passing the strand under tension while wet between layers of a frictioning pliable-surface material disposed between the wetting and drawing means and tending to lay the fuzz or loose fibre particles into the strand with result of eliminating the need for subsequent singeing or gassing and binding the twisted rovings more securely together while also increasing the strength of the strand.

7. In combination with a machine for twisting, winding or doubling a plurality of yarn rovings together in a single strand and including yarn moistening and drawing

means, an attachment comprising a bracket carrying a pair of washer members of a fibrous material disposed between said moistening and drawing means between which
5 the rovings of yarn after wetting are drawn tensionally to thereinto lay the fuzz or slub particles which must otherwise be removed by gassing or singeing.

8. In a machine for twisting, winding or
10 doubling a plurality of yarn rovings together in a single strand, means for laying the fuzz or loose fibre particles of the rovings there-onto so as to assure a firm bind in the twisting and eliminate need for subsequent singeing
15 or gassing; said means comprising in combination with moistening and drawing means a friction-member of soft resilient fabric material disposed behind the moistening means and over which the rovings first wetted
20 thereby are drawn tensionally by the drawing means with an encompassment forcing said fuzz or fibre particles adherently down upon and around the rovings.

9. In combination with a machine for
25 twisting, winding or doubling a plurality of yarn rovings together in a single strand and including moistening and drawing means for the rovings, an attachment comprising a combined guiding and supporting bracket carrying
30 a washer member of a soft fibrous fabric material disposed between said moistening and drawing means over which the rovings after wetting are drawn tensionally and with an encompassment forcing the fuzz or slub
35 particles thereof to lay adherently on and around the same, thereby smoothing and strengthening the bind therebetween and eliminating the necessity for gassing or singeing to remove such particles.

40 In testimony whereof I affix my signature.
JAMES A. GROVES.

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