A. E. JURY.

THREAD TWISTING MACHINE.

APPLICATION FILED JULY 24, 1918.

1,350,812.

Patented Aug. 24, 1920.

Fig. 2.

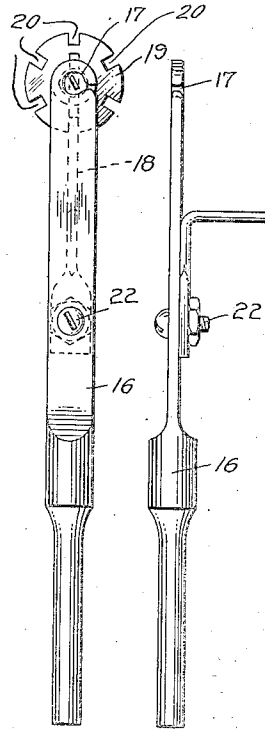


Fig. 3.

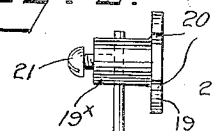


Fig. 1.

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THREAD-TWISTING MACHINE.

1,350,812. Specification of Letters Patent. Patented Aug. 24, 1920.

Application filed July 24, 1918. Serial No. 246,472.

To all whom it may concern:

Be it known that I, ALFRED E. JURY, a citizen of the United States, residing at Newark, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Thread-Twisting Machines, of which the following is a full, clear, and exact description.

This invention relates to improvements in thread twisting machines and has for its object to secure substantial uniformity in the number of twists imparted to a plurality of threads in any unit of length of the cord, so that the cord may be of uniform strength throughout. To this end I provide a guide device adapted to receive the threads intermediate the feeding rolls and the receiving spool, and means for moving the said guide member synchronously with the movement of the ring rail or equivalent member which serves to distribute the cord uniformly upon the spool. Thus the twist will always be intermediate the guide member and the spool, and inasmuch as the guide member follows the ring rail in the movement of the latter, the rotation of the twisting spindle will always act upon the same length of threads, with the result that substantial uniformity in the number of twists in any unit of cord length will be secured, and the tensile strength of the cord will be uniform throughout its length.

The invention will be understood from the accompanying drawings in which:

Figure 1 is a perspective view, partly in section, of certain parts of a twisting machine, to which an embodiment of the invention has been applied;

Fig. 2 is a plan view of the guide disk and its supporting element; and

Fig. 3 is a side elevation of the same.

In the drawings, I have illustrated part of a twisting machine, comprising the table A, supply spool frame B, spindle support C and vertically reciprocating ring rail D. Frame B is provided with three fixed spindles 1 for the supply spools 2, the three threads *a*, *b*, *c*, leading from the supply spools through the eyelets of pig tail guide 3, and thence under a glass guide rod 4 supported by brackets, such as the bracket 5, from frame B. The three threads pass from guide rod 4 through guide eyelets 6 on a bar 7 supported upon table A and pass thence under feed roll 8, over feed roll 9, and under feed roll 10. The small rolls 8 and 10 are positively and continuously driven. The larger roll 9 is an idler.

The spindle support C is provided with the usual rotary twisting spindles 11, adapted to receive receiving spools, such as the spool 12. The ring rail D is of the usual construction, being provided with rings 13 surrounding the twisting spools, each ring providing an annular guide way for a traveler 14 through which the twisted thread passes on its way to the spool. In the present embodiment of the invention, the thread guide-member which moves synchronously with the ring rail, is carried by the latter. To this end, there is secured to the ring rail at the side of each ring 13 a vertical rod 15 (one rod only being shown). Near its upper end the rod is provided with an aperture to receive the reduced end of an arm 16 formed at its opposite end with a guide eye 17. Below the guide eye, and supported by means of the angular bracket 18, is a guide disk 19 formed with a notch or eyelet 20 for each one of the threads. The guide disk is provided with an apertured boss 19× adapted to receive the end of the bracket 18, a set screw 21 serving to hold the disk in position. The bracket is secured to arm 16 by means of a screw bolt 22.

By reference to Fig. 1 it will be seen that the threads after leaving the feed rolls pass through eyelet 17 in arm 16 and thence extend downwardly through the spaced guide notches or eyelets 20, through guide eyelet 23 and thence to the traveler 14 on ring rail 13.

Inasmuch as the twist occurs intermediate the guide disk 19 and a point on the spool determined by the position of the ring rail, and the guide disk has a movement synchronous with that of the ring rail, the twisting spindle 11 always acts upon the same length of thread, and substantial uniformity in the number of twists in any unit of length of the cord is secured.

On the up stroke of the ring rail, the thread is being continuously fed to the guide 19, and during such stroke the twist constantly takes place from a point immediately below the guide 19 and extending down to the traveler 14. There is a very slight take up of the thread during this stroke, but this is so small relatively to the entire amount of thread wound on the spindle

in the same time, that the increase in the average number of twists per unit of length is almost infinitesimal and practically negligible. On the down stroke there is a slight give up of the thread and the average number of twists per unit of length is correspondingly reduced to a negligible extent. No part of the twist takes place intermediate the guide 19 and the feed rolls, all of the twist taking place intermediate the guide 19 and the traveler, the distance between these two points being maintained constant, and the number of twists per unit of length of the thread will not vary substantially at any time. The feed rolls advance the thread at a speed which is not less than the speed at which it is wound on the spindle, and sufficient thread is fed intermediate the rolls and the guide eye 17 to prevent any material strain on the threads during the up stroke of the ring rail.

Having thus described my invention, what I claim and desire to protect by Letters Patent is:

1. In thread-twisting machines, feed rolls for a plurality of threads, a twisting spindle for a receiving spool, a ring-rail and reciprocating means therefor, a guide device adapted to receive the threads intermediate their point of twist and the rolls, and means for moving said guide device synchronously with the movement of the ring rail.

2. In thread-twisting machines, feed rolls for a plurality of threads, a twisting spindle for a receiving spool, a ring rail and reciprocating means therefor, a supporting arm carried by the ring rail, and a member on said arm adapted to guide the threads for a constant length twist intermediate the same and a spool on said spindle.

3. In thread twisting machines, feed rolls for a plurality of threads, a twisting spindle for a receiving spool, a ring rail and reciprocating means therefor, a vertical arm carried by the ring rail, and a guide member carried by said arm and adapted to hold the threads in spaced relationship.

4. In thread twisting machines comprising feed rolls, a twisting spindle for a receiving spool, and a ring rail surrounding the said spindle, means for reciprocating the rail relatively to the spindle to distribute the twisted thread, and a device reciprocating synchronously with the ring rail and adapted to fix the point of twist relatively to the latter and thereby maintain constant the length of threads under twist.

5. In thread twisting machines, feed rolls having a plurality of threads, a twisting spindle for a receiving spool, a ring rail having reciprocatory movement relative to said spindle and rolls, a support for the threads at the point of twist and means for moving said support synchronously with the ring rail.

Signed at Newark, N. J., this 19th day of July, 1918.

ALFRED E. JURY.