Dec. 30, 1924. 1,521,557

J. D. JOYCE

WINDING MACHINE

Filed May 1, 1924

FIG. 1.

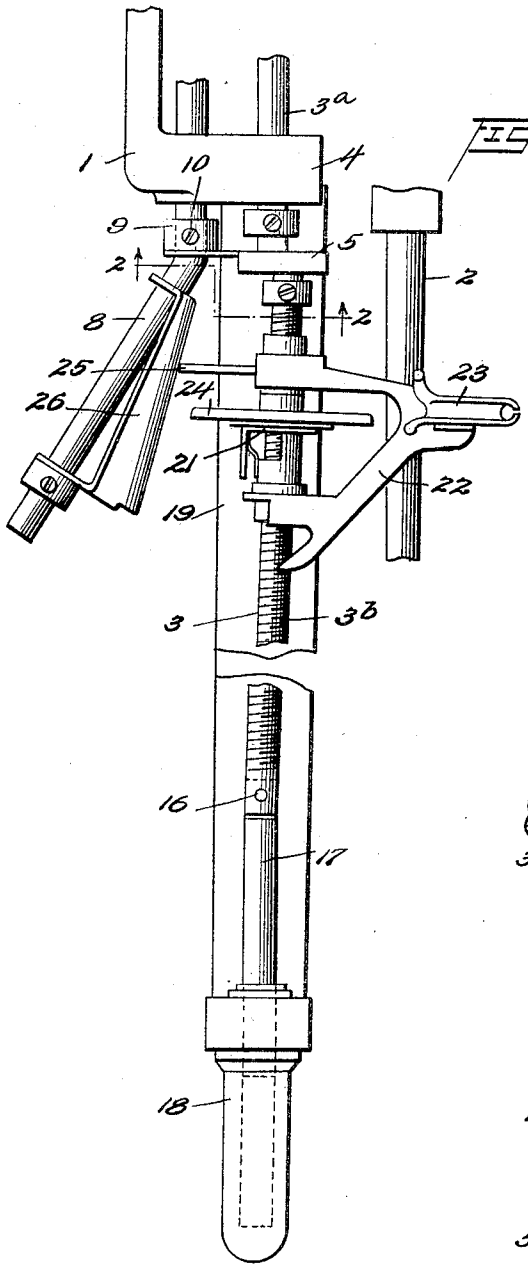


FIG. 2.

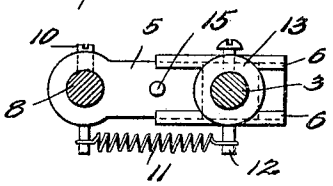


FIG. 3.

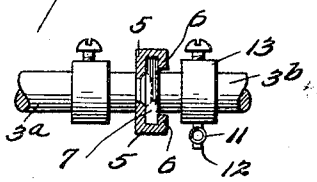
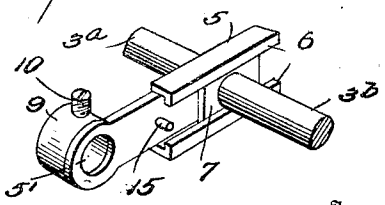


FIG. 4.



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UNITED STATES PATENT OFFICE.

JAMES DANIEL JOYCE, OF PHILADELPHIA, PENNSYLVANIA.

WINDING MACHINE.

Application filed May 1, 1924. Serial No. 710,253.

To all whom it may concern:

Be it known that I, JAMES D. JOYCE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Winding Machines, of which the following is a specification.

This invention relates in general to winding machines and more particularly to machines for winding double taper ended cops for use in loom shuttles and the like, such a machine being disclosed in my co-pending applications Serial No. 710,252 and Serial No. 710,254, both filed May 1, 1924.

The taper of the nose of such a cop is governed by a shaper which controls the position of the contact or progression wheel with relation to the spindle or cop during the process of the winding of the heel of the cop.

It is the object of my invention to provide a novel and improved means for supporting the progression wheel adjustably with relation to the spindle of the winding machine. This adjustable carrying means for the progression wheel is to be comprised of a two part traverse bar one portion of which is to be adjustable laterally, as disclosed in the applications above referred to and my invention has for its more specific object the provision of an improved device which is comprised of a minimum number of parts, simple in construction, assembly and operation.

Other objects of my invention will appear in the following specification and claims and will be disclosed in the accompanying drawings in which—

Figure 1 is a top plan view of my device with portions broken away;

Figure 2 is an end view of a section taken on the line 2—2 of Fig. 1;

Figure 3 is a side elevation partly in section of a portion of the device shown in Figure 1;

Figure 4 is a detail in perspective of a portion of the device shown in Figure 1.

Referring now with greater particularity to the drawings it will be seen that my device is comprised as follows:

The winding machine shown is of the same type as shown in the co-pending applications above referred to and has the usual frame 1, rotating spindle 2, and a two part reciprocating traverse bar 3.

The traverse bar portion 3^a bears in a bearing 4 in the frame 1 and has secured to its forward end a transversely disposed plate 5. This plate 5, has for a portion of its length, crimped over edges 6 adapted to provide a guideway for a thin square plate 7 secured to the traverse bar portion 3^b. The other end of the plate 5 is bored at 8^a to enable the same to be mounted on a shaper rod 8 to which it is secured through means of a collar 9, the collar 9 being secured to the shaper rod by means of a set screw 10. The shaper rod 8 has suitable bearings 14 in the frame 1. The lower end of the set screw 10 extends through the rod 8 and has secured thereto one end of a tension spring 11. The other end of the spring 11 is secured to the lower end of a set screw 12 extending through a collar 13 adjustably mounted on the traverse bar portion 3^b. The tension of the spring 11 tends to hold the two traverse bar portions 3^a and 3^b in alignment, a stop 15 being provided to limit movement of the traverse bar portion 3^b away from the spindle.

The other end of the transverse bar portion 3^b is pivotally secured at 16 to a rod 17 slidably mounted in a bearing 18 in an arm 19 of the frame 1. The traverse bar portion 3^b is screw-threaded to engage with the single threaded nut 21 of the threaded guide carrier 22 carrying the thread guide 23 and the progression wheel 24. The thread guide carrier has a finger 25 which is adapted to engage the surface of a shaper 26 secured to the shaper rod 8. The shaper 26 is adjustable to present a surface of any desired pitch to be engaged by the finger 25 during the winding of the heel of the cop.

My device having been described in detail its operation will be seen to be as follows:

When the winding is to be started, the shaper is adjusted to the desired pitch and the thread guide carrier moved backward along the rod 3^b until the finger 25 engages the shaper 26. Upon further backward movement the rod 3^b will be forced to turn about its pivot laterally toward the spindle 2 and against the action of the spring 11 until the progression wheel 24 touches, or is in proximity to the tube in the spindle. The winding is then started. As the yarn or thread builds up on the tube the progression wheels contacts with the winding rotating the progression wheel and moving the thread guide carrier assembly outwardly along the rod

3^b. As the thread guide carrier is moved outwardly the finger 25 moves outwardly along the shaper and the rod 3^b, together with the progression wheel 24, is gradually moved away from the spindle until the rod 3^b abuts the stop 15 and the finger is free of the shaper. It is this controlled movement of the threaded guide carrier which gives the taper to the heel of the cop. From this point on the winding proceeds regularly, the body of the cop being substantially cylindrical and the nose, naturally having a taper reversed to that of the heel. It will be noted that the traverse bar which I have provided is comprised of a minimum number of parts, simply constructed and easily assembled.

I claim:

1. In combination, in a winding machine of the character described, a rotating spindle and a reciprocating traverse bar, said bar being composed of two sections, one of said sections being slideably mounted in fixed bearings in said frame parallel to the axis of the winding spindle, and the other of said sections being pivoted to a member having sliding engagement with said frame and adapted to be swung laterally toward said winding spindle, said first named section having a pin extending laterally therefrom and adapted to be engaged by a collar on said second named section, and a tension spring tending to keep the two said sections in alinement; said first named section having a laterally extending plate fixedly secured thereto, said plate having crimped over edges to provide a guideway, a plate fixedly secured to said second named member and slideably held within said guideway, and resilient means tending to keep the two said sections in alignment.

2. In combination, in a winding machine of the character described, a rotating spindle and a reciprocating traverse bar, said bar being composed of two sections, one of said sections being slideably mounted in fixed bearings in said frame parallel to the axis of the winding spindle, and the other of said sections being pivoted to a member having sliding engagement with said frame and adapted to be swung laterally toward said winding spindle, said first named section having a pin extending laterally therefrom and adapted to be engaged by a collar on said second named section, and a tension spring tending to keep the two said sections in alignment, said first named section having a laterally extending plate fixedly secured thereto, said plate having crimped over edges to provide a guideway, a plate fixedly secured to said second named member and slideably held within said guideway, resilient means tending to keep the two said sections in alignment, and a stop secured to said plate for limiting the motion of said second named section under the influence of said resilient means.

3. In combination with a winding machine having a rotating spindle, and a thread guide adapted to be reciprocated longitudinally of said spindle, a traverse bar comprised of two sections, one of said sections being slideable in bearings parallel to the axis of said spindle and carrying a shaper, the other of said sections being pivotally connected to a member having a sliding engagement with a bearing in the frame of said machine, and resilient means tending to align said sections.

4. In combination with a winding machine having a rotating spindle, and a thread guide adapted to be reciprocated longitudinally of said spindle, a traverse bar comprised of two sections, one of said sections being slideable in bearings parallel to the axis of said spindle and carrying a shaper and shaper supporting rod, and other of said sections being pivotally connected to a member having a sliding engagement with a bearing in the frame of said machine, and resilient means connected at one of its ends to said shaper supporting rod, and at the other of its ends to said second named section and tending to align said sections.

5. In combination with a winding machine having a rotating spindle, and a thread guide adapted to be reciprocated longitudinally of said spindle, a traverse bar comprised of two sections, one of said sections being slideable in bearings parallel to the axis of said spindle and carrying a shaper, the other of said sections being pivotally connected to a member having a sliding engagement with a bearing in the frame of said machine, said sections having means secured to their adjacent ends to provide of sliding engagement with each other, and resilient means tending to align said sections.

6. In a winding machine, a rotating spindle, a reciprocating traverse bar comprised of two sections, one of said sections being slidably mounted in fixed bearings in the frame of said machine and carrying a shaper, the other of said sections being pivotally mounted to a member slideable in said frame, resilient means tending to align said sections, the thread guide carrier assembly including a progression wheel, and an arm contact with said shaper to move said second named section laterally out of alignment with said first named section against the tension of said spring.

In testimony whereof I affix my signature.

JAMES DANIEL JOYCE.