Nov. 5, 1929. L. ZENI 1,734,510

WINDER COP FORMER

Filed Sept. 27, 1928 2 Sheets-Sheet 1

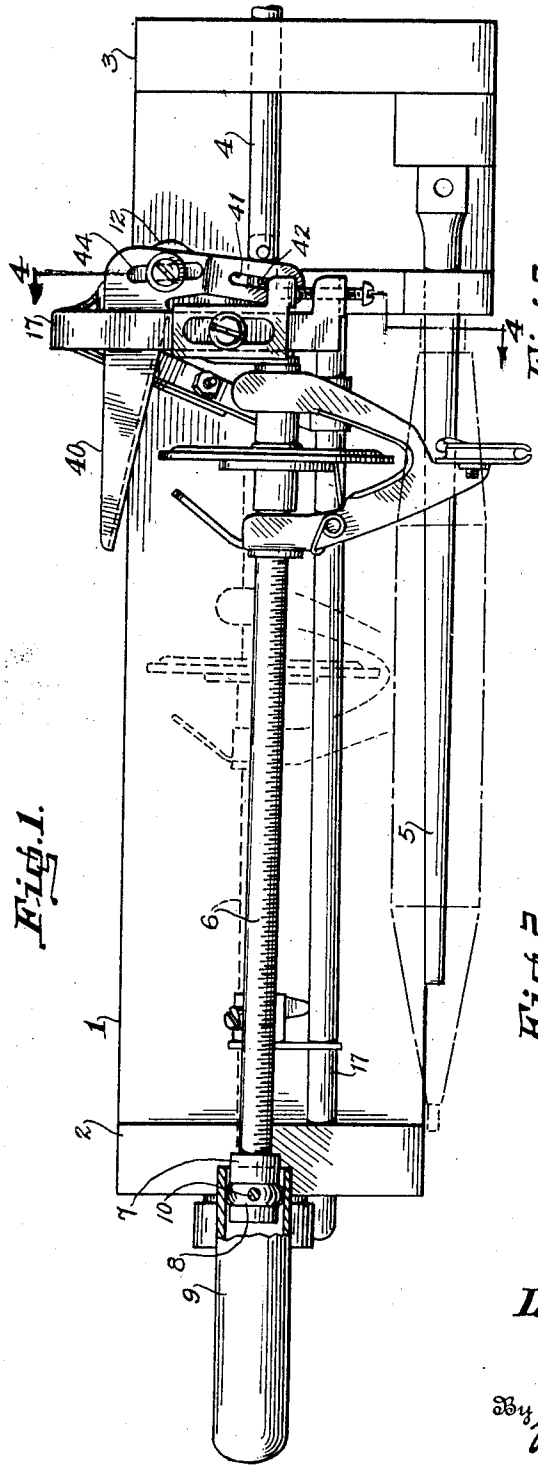


Fig. 1.

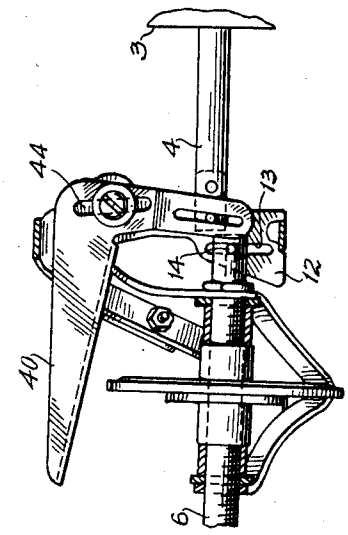


Fig. 3.

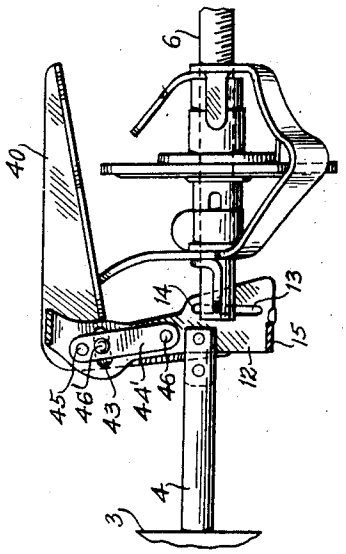


Fig. 2.

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Nov. 5, 1929. L. ZENI 1,734,510

WINDER COP FORMER

Filed Sept. 27, 1928 2 Sheets-Sheet 2

Fig. 4.

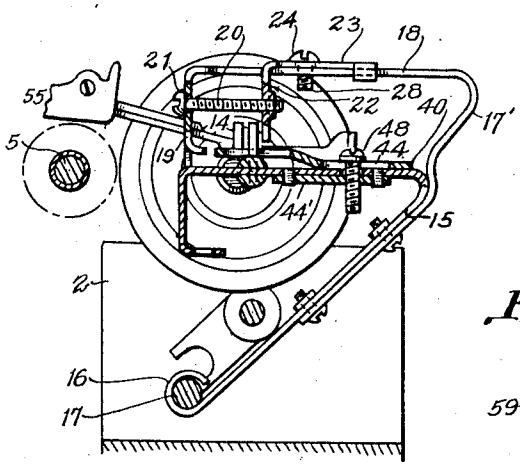


Fig. 5.

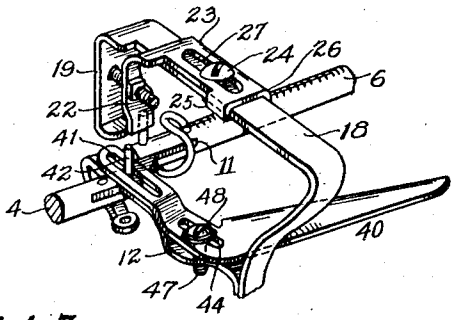


Fig. 7.

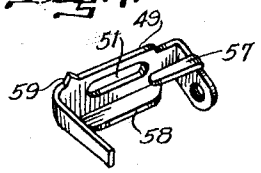


Fig. 6.

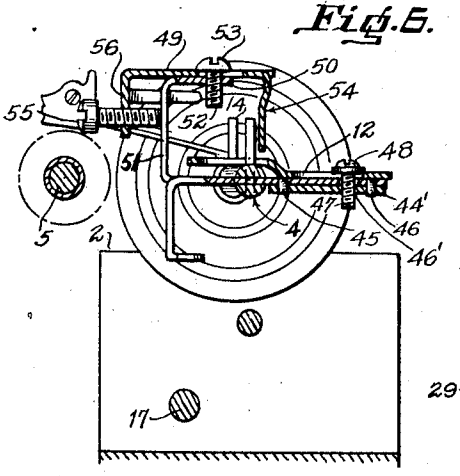


Fig. 8.

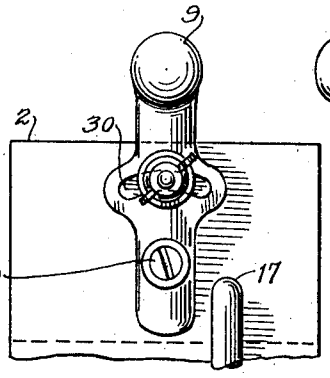


Fig. 9.

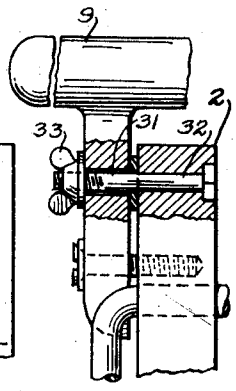


Fig. 10.

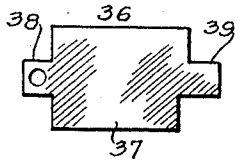


Fig. 11.

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UNITED STATES PATENT OFFICE

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WINDER-COP FORMER

Application filed September 27, 1928. Serial No. 308,799.

This invention relates generally to cop winding machines, and more particularly to machines for winding double-taper ended cops for use in loom shuttles and the like.

The object of the present invention is to eliminate the necessity for providing machines of this type with a plurality of different sizes of progression wheels in order to wind cops of different sizes on the same machine.

In order to secure the elimination referred to, I have provided machines of this type with an oscillating traverse bar adjustable at each of its ends to correspond with the size of the cop desired and with the size of the progression wheel arranged to form the cop.

Other objects of the invention will appear as the detailed description thereof proceeds.

In the drawings:

Figure 1 is a top plan view of my invention;

Figure 2 is a bottom plan view of the adjustable shaper forming part of my invention;

Figure 3 is a top plan view of the said shaper;

Figure 4 is a central vertical section through adjustable stop mechanism at the shaper end of the traverse bar which regulates the rearward movement of the said end of said bar;

Figure 5 is a perspective view taken from the rear side of the cop shaper and of the adjusting mechanism for regulating the movement of the traverse bar toward and from the shaper;

Figure 6 is a central vertical section through a modification of the adjusting mechanism forming part of the present invention;

Figure 7 is a perspective view of an adjustable cop forming part of the modification shown in Figure 3;

Figure 8 is an end elevation of my invention;

Figure 9 is a side elevation of the end of my invention remote from the shaper end thereof;

Figure 10 is an elevation of a stop gauge designed for adjusting the winding end of the traverse bar into proper position relative to the rotating spindle forming part of the winding machine; and

Figure 11 is a perspective view of the winding end of the traverse bar and of the rotating spindle of the winding machine, illustrating the method of adjusting the said traverse bar relative to the spindle in order to control the size of the cop wound thereon.

Referring to the drawings:

The reference numeral 1 designates the base of the winding part of the machine. Standards 2 and 3 extend upwardly from the base 1 and are provided with the usual bearings in which the traverse bar 4 and rotating spindle 5 are operably mounted.

A screwthreaded bar 6 which forms a continuation of the traverse bar 4 has its outer end mounted to slide in a sleeve 7 which is swiveled by means of an annular bushing 8 to swing in an outboard bearing 9, the bushing 8 being secured to the sleeve 7 by means of a screw 10. The other end of the bar 6 is provided with a horizontal slot 11 (see Figure 5) which receives a plate 12 fixed to the end of the traverse bar 4.

The plate 12 is provided with a slot 13 in which is slidably mounted a pin 14 secured to the end of the bar 6 and forming the usual pin and slot connection between the traverse bar proper and the screwthreaded extension thereof which carries the progression wheel. The plate 12 extends rearwardly of the machine and is provided with a downwardly extending arm 15 terminating in a cylindrical lug 16 which slidably embraces a rod 17 extending between the standards 2 and 3 (see Figure 4) and acts to prevent rotation of the traverse bar during the reciprocations thereof.

Suitably secured to the back of the arm 15 is an upwardly extending support 17′ provided with a horizontal branch 18 and a downwardly extending support 19 for an adjusting screw 20 forming part of stop mechanism to regulate the movement of the shaper end of the bar 6 toward and from the spindle 5.

The adjusting screw 20 passes freely through an aperture 21 formed in the support 19 and is screwthreaded into a downwardly

extending part 22 of a stop member 23 which is slidably mounted on the horizontal branch 18 and may be clamped in position thereon by means of a screw 24. As shown clearly in Figure 5, the stop member 23 is provided with lugs 25 and 26 embracing the branch 18 and is also provided with a slot 27 through which passes a shank 28 of screw 24 which is screwthreaded into the branch 18.

The screw 24 is a clamping screw for holding the stop member 23 in any position on the branch 18 to which it may be adjusted by means of the screw 19. The downwardly extending part 22 is long enough to extend into the path of movement of the pin 14 which as previously described is secured to the end of the bar 6 and extends upwardly through the slot 13. It will be obvious from inspection of the drawing that adjustment of the stop member 23 controls the displacement of the bar 6 relative to the traverse bar 4 and thereby, so far as the shaper end of the machine is concerned, controls the diameter of the cop.

The outboard bearing 9 for the bar 6 is pivotally mounted on the standard 2 (see Figures 8 and 9) to swing about a pivot screw 29 and has the vertical part thereof provided with an arcuate slot 30 through which passes the screwthreaded end 31 of a clamping bolt 32 suitably secured in the upper part of the standard 2. A wing nut 33 engages the screwthreaded end 31 of the bolt 32 and serves to lock the bearing 9 in any position of angular adjustment about its pivot 29.

From the description so far it is apparent that the traverse bar is adjustable at each of its ends toward and from the spindle 5. The object of this adjustment is to obviate the use of different sized progression wheels for winding different sized cops. The adjustment of the bar 6 toward and from the spindle 5 is effected by means of gauges 34 and 35. The gauge 34 is wider than the gauge 35 as it ought to be in order to compensate for the taper of the spindle 5 and insure parallelism between the axes of the bar 6 and spindle 5 when the progression wheel is free of the shaper plate. In setting the bar 6 it is more convenient to use two gauges, but a single gauge may be used to set each end separately, one of such gauges being illustrated in Figure 10.

Each of the gauges comprised a wide end 36 and a narrow end 37 and has positioning lugs 38 and 39 extending from each side thereof. The lugs 38 and 39 are adapted to rest on the bar 6 and the spindle 5. The wide end 36 is used to space the bar 6 relative to the narrow end of the spindle 5 while the narrow end 37 of the gauge is used to space the other end of the bar 6 relative to the wide end of the spindle 5. When the gauges are so used and positioned on bar 6 and spindle 5, the stop pin 14 on the shaper end of bar 6 occupies a predetermined position in the slot 13. In this position of the stop pin 14, the adjusting screw 20 is turned so as to bring the arm 22 of the stop member 23 hard up against the rear side of stop pin 14. The clamping screw 24 is then turned down into clamping position to lock the stop member 23 in adjusted position on the branch 18 of the support 17.

When the parts are adjusted as described, it is obvious that the diameter of the wound cop will vary with the extent of displacement of the pin 14 relative to the axis of the traverse bar 4, providing the same progression wheel is used on the screwthreaded bar 6.

In order to provide for the shaping of the conical end of the cop at the heel thereof, a shaper plate 40 is adjustably mounted on the plate 12 which is fixed to the traverse bar 4. The shaper plate 40 is provided with a slot 41 which is slidable relative to a pin 42 projecting from the traverse bar 4. The pin and slot connection just described are provided to limit the inward and outward movement of the shaper plate relative to the traverse bar 4. The shaper plate 40 may also be adjusted laterally of the plate 12; and to effect this adjustment, the plate 12 is provided with an arcuate slot 43 (see Figure 2) arranged immediately under a straight slot 44 on the shaper plate 40 (see Figures 1 and 3).

In order to clamp the plate 40 in adjusted position on the plate 12, the lower part of the plate 12 has seated thereon a clamping plate 44′ which is prevented from movement relative to said plate by means of small dowels 45 and 46 and corresponding holes formed in the plate 12 to receive said dowels. In proper position below the slots 43 and 44 the clamping plate 44′ is provided with a screwthreaded aperture 46′ to receive corresponding screwthreaded shank 47 or a clamping screw 48. The operation of the adjusting mechanism described will be obvious to those skilled in the art by inspection of the various figures of the drawing.

The modification shown in Figure 7 is merely the converse of that just described. In this modification, the stop member 49 (see Figures 6 and 7) is secured adjustably to the horizontal branch 50 of a support 51 which is formed integral with the front end of the plate 12. The stop member 49 is provided with a slot 51 adapted to receive the shank 52 of a clamping screw 53 which is screwthreaded into the horizontal branch 50 of the support 51.

The downwardly extending arm 54 of the stop member 49 extends into the path of the stop pin 14 of the traverse bar 6 and the stop 49 with the arm 54 may be adjusted as a whole by the screw 55 which is screwthreaded into the downwardly extending part 56 of the stop member 49 and has its end contacting with the face of the support 51. The ad-

justing and clamping operation of this modification is similar to that of the other modification and need not be further described. The stop member 49 is provided with an inwardly projected lug 57 which slides under the branch 50 of the support 51 to prevent rising of the stop member 49 upwardly from the branch 50. The member 49 is also provided with a flange 58 engaging the side of the branch 50 to prevent rotation of the member 49 laterally on the branch 50. An indicator 59 may be formed on one side of the stop member 49 to cooperate with the scale on the branch 50 and thereby indicate the adjustment of the end of bar 6 relative to the cop spindle.

What I claim is:

1. In a winding machine the combination with a support, of a rotating spindle, a traverse bar comprising two sections one of which is slidable in fixed bearings in said support parallel to the axis of said spindle, a thread guide and progression wheel in screw threaded connection with the other section, a pin and slot connection between the adjacent ends of said sections, a bearing for the other end of the said other section, means for adjusting said bearing toward and from the axis of said spindle, stop mechanism mounted on the first named section, and means for adjusting said mechanism to control the position of the adjacent end of the first named section relative to the axis of said spindle.

2. In a winding machine the combination with a support, of a rotating spindle mounted on said support, a traverse bar comprising two sections one of which is slidable in fixed bearings parallel to the axis of said spindle, means for slidably connecting the adjacent ends of said sections to each other, a bearing for the other end of the other section, means for adjusting said bearing on said support toward and from the axis of said spindle, stop mechanism, and means to adjust said mechanism to limit the movement of the slidably connected end of the other section into parallelism with the axis of said spindle.

3. In a winding machine the combination with a support, of a rotating spindle mounted on said support, a traverse bar comprising two sections one of which is slidable in fixed bearings parallel to the axis of said spindle, means for adjustably connecting the adjacent ends of said sections to each other, means for adjusting one of the said adjacent ends relative to the other and means for adjusting the other end of said other section toward and from the axis of said spindle, and means for clamping the said adjusting means in fixed position on said support.

4. In a winding machine the combination with a support, of a rotating spindle mounted thereon, a traverse bear comprising two sections one of which is slidable in fixed bearings parallel to the axis of said spindle and the other of which is adjustable bodily into different parallel positions parallel to said axis, means for adjusting the said other section into different positions parallel to the said axis, a progression wheel in screw-threaded connection with said other section, a shaper carried by the first named section, and stop mechanism to limit the movement of the said other section in one direction relative to the first named section.

5. In a winding machine the combination with a support, of a rotating spindle mounted thereon, a traverse bar comprising two sections one of which is slidable in fixed bearings parallel to the axis of said spindle and the other of which is adjustable bodily relative to said axis, means for adjusting the said other section into different positions parallel to the said axis, and means for limiting the movement of one end of said other section away from said spindle to a position in which the axis of said section is parallel to the axis of said spindle.

6. In a winding machine the combination with a support, of a rotating spindle mounted thereon, a traverse bar comprising two sections one of which is slidable in fixed bearings parallel to the axis of said spindle, a pin and slot connection between the adjacent ends of said sections, a bearing, means for adjusting said bearing on said support toward and from the axis of said spindle, means for clamping said bearing in adjusted position on said support, the other end of said other section being slidably and pivotally mounted in said bearing, and a stop adjustable relative to the first named section to limit the movement of the adjacent end of the other section relative to the axis of said spindle.

7. In a winding machine the combination with a support, of a rotating spindle mounted thereon, a traverse bar comprising two sections one of which is slidable in fixed bearings parallel to the axis of said spindle, and the other of which is slidably and pivotally connected to the first named section, stop mechanism carried by the first named section to control the movement of one end of the said other section from the axis of said spindle, a bearing adjustably mounted on said support and slidably and pivotally supporting the other end of said other section and means for adjusting said bearing on said support.

In testimony whereof I affix my signature.

LAWRENCE ZENI.