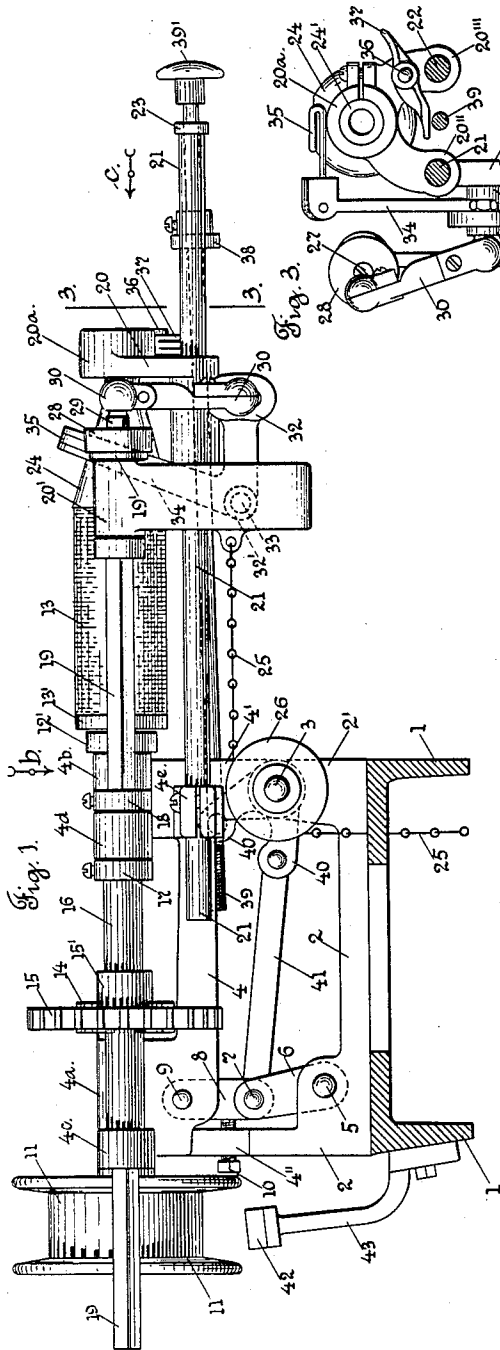


E. H. RYON.
COP OR BOBBIN WINDING MACHINE.
APPLICATION FILED MAY 8, 1912.

1,061,013.

Patented May 6, 1913.



Witnesses
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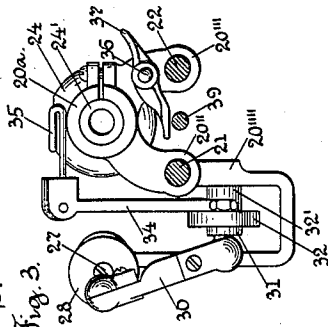
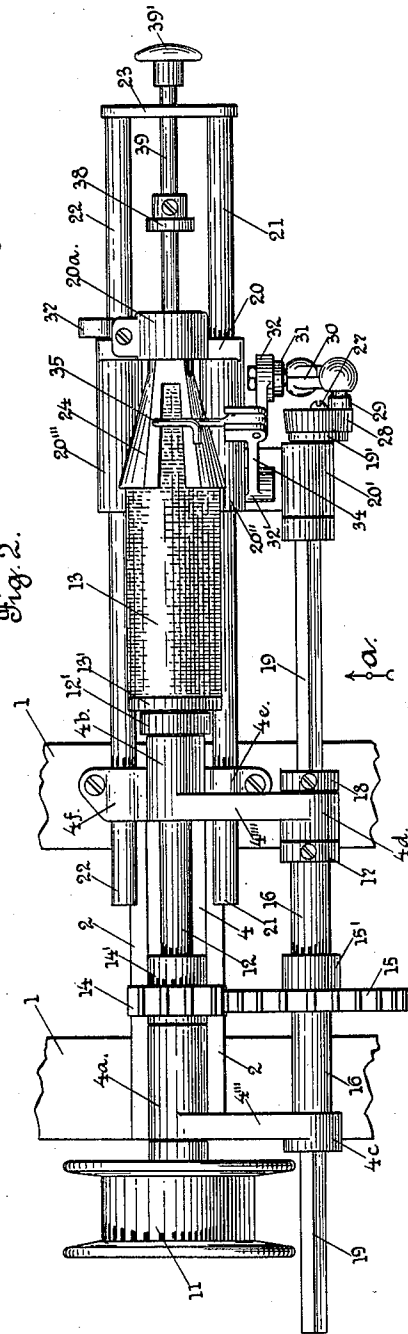


Fig. 2.



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UNITED STATES PATENT OFFICE.

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COP OR BOBBIN WINDING MACHINE.

1,061,013.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EPPA H. RYON, a citizen of the United States, residing at Waltham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Cop or Bobbin Winding Machines, of which the following is a specification.

My invention relates to a cop or bobbin winding machine, and particularly to a cop winding machine of the type shown and described in the U. S. Letters Patent, No. 976,698, which automatically winds cops, bobbins, or spools, and the object of my invention is to improve upon the construction of the cop winding machine of the type referred to.

My invention in this instance particularly relates to the trumpet guide or shaper, and the individual traverse motion combined therewith for each separate cop or bobbin, and a guide, independent of the spindle on which the cop or bobbin is mounted, to control the direction of movement of said trumpet guide or shaper.

I have only shown in the drawing a detached portion of a cop winding machine of the type above referred to, with my improvements applied thereto, sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawing:—Figure 1 is a side view of the spindle drive mechanism of a cop winding machine, and my improvements combined therewith, looking in the direction of arrow *a*, Fig. 2. Fig. 2 is a plan view of the parts shown in Fig. 1, looking in the direction of arrow *b*, same figure, and, Fig. 3 is a section, on line 3, 3, Fig. 1, looking in the direction of arrow *c*, same figure, showing the trumpet guide, and the traverse motion combined therewith.

In the accompanying drawing, 1 is the back girt of the machine, on which is mounted a stand 2, having the upwardly extending ears 2' carrying a bolt 3, on which is pivotally mounted the downwardly extending lug 4', which is rigidly attached to the spindle bed 4. The other end of the stand 2 is provided with a bolt or stud 5, which has loosely mounted thereon the hub of a lever 6. The upper end of the lever 6 is made forked and carries a stud 7, on which is pivotally mounted the lower end of a link 8. The upper end of the link 8 is pivotally

connected with a bolt 9, on the rear part of the bed 4, see Fig. 1.

When the lever 6 is in the position shown in Fig. 1, the link 8 bears against the end of a screw bolt 10, which is adjustable in and out in a downwardly extending projection 4'' on the spindle bed 4. The rear portion of the spindle bed 4 is raised, to cause the driving belt, not shown, to be tightened on the pulley 11, to rotate the spindle 12, which spindle is adapted to rotate loosely in bearings 4^a and 4^b on the bed 4, see Fig. 2. The inner end of the spindle 12 is provided with an enlarged head 12', which is adapted to hold the butt or head 13' of a cop or bobbin 13, on which the thread is to be wound.

All of the above mentioned parts may be of the usual and well known construction, and are fully shown and described in U. S. Letters Patent, No. 976,698, above referred to.

I will now describe my improvements, which consist particularly in moving the trumpet guide, and having an individual traverse motion combined therewith, for each separate cop or bobbin.

The spindle 12 has mounted thereon, in this instance, the hub 14', see Fig. 2, of a pinion 14, which pinion meshes with and drives a gear 15, having its hub 15' fast on the elongated sleeve 16, which sleeve preferably revolves in suitable bearings 4^a and 4^b, on arms 4''' and 4''', which extend out from the spindle bearings 4^a and 4^b, see Fig. 2. The sleeve 16 is prevented from having a side motion by two collars 17 and 18, secured to the sleeve 16, one on each side of the bearing 4^a. The sleeve 16 is preferably provided with a centrally extending hole of square shape, which loosely receives the square shaft 19, which is adapted to be rotated by the sleeve 16, through the rotation of the pinion 14 on the spindle 12, meshing with and rotating the gear 15 on the sleeve 16.

The square shaft 19, which extends in a horizontal plane, has its end suitably fulcrumed in a bearing 20', which forms a part of the trumpet guide 20, see Fig. 2. The trumpet guide 20 has the hubs 20'' and 20''', loosely mounted on the horizontally extending guide rods 21 and 22, see Fig. 2, to have a sliding reciprocating motion thereon. The rods 21 and 22 are adjustably secured in

the clamping bosses 4^e and 4', see Fig. 2, on the spindle bed 4. To the outer ends of the rods 21 and 22 is secured the transverse bar 23. A boss 20^a on the trumpet guide 20, see Fig. 2, is adapted to hold the cylindrical portion 24' of the trumpet or shaper 24, which is adapted to form the shape of the bobbin or cop 13, in the usual way.

A chain 25, see Fig. 1, is secured at one
 10 end to the trumpet guide 20, and passes over a guide sheave 26, loosely mounted on the bolt 3. A weight, not shown, is preferably secured to the other end of the chain 25, which weight acts to yieldingly move the
 15 trumpet guide 20, and the trumpet 24, toward the cop 13, to have the thread wound on the butt 13', in the usual way. The square rod 19 has in this instance secured on its end an eccentrically located tapered head 19', see Fig. 2, to which is adjustably secured, by a screw 27, see Fig. 3, the cap 28 forming a crank device, and having the crank pin 29, which in this instance is of round shape, to extend loosely within the
 25 ball shaped end on the upper end of a downwardly extending connector 30, to form a ball and socket joint connection. The lower end of the connector 30 has a ball shaped end and is pivotally connected to a pin or
 30 stud 31 having a round shaped end, to form a ball and socket joint connection.

The stud 31 is adjustably secured to the end of an arm 32, which arm has its hub 32', see Fig. 3, pivotally mounted on a stud, see
 35 Fig. 1, secured to a bracket 20''', see Fig. 3, on the trumpet guide 20. Extending upwardly from the hub 32' is the traverse guide lever 34, which has its upper end provided with a thread guide 35, which is suitably held in the end of the transverse guide lever 34, and is adapted to guide the thread in the usual way, to form the cop 13, to be wound in the usual way.

A stud 36, see Fig. 3, on the trumpet guide
 45 20, has loosely and centrally mounted thereon a lever 37, which is adapted to engage a collar 38, adjustably secured on the horizontally extending rod 39. The rod 39 has a knob 39' on its outer end for the operator, so that said rod may be manually operated
 50 to stop and start the rotation of the spindle 12.

After the cop 13 is wound to a predetermined amount, the lever 37 will engage
 55 the collar 38, and move the rod 39 toward the right. The inner end of the rod 39 is suitably secured to one arm of an angle lever 40, see Fig. 1, which has its hub loosely mounted on the stud 3. The second arm of the angle lever 40 has pivotally connected thereto one end of a connector 41. The other end of the connector 41 is pivotally connected to the stud 7 on the lever 6, see Fig. 1. The moving of the rod 39 to the right in the drawing, causes, through intermediate

connections to the lever 6, said lever 6 to rock, and through the link 8 causes the spindle bed 4 at its outer end to be lowered, to loosen the belt on the pulley 11, and cause said pulley 11 to rest on the friction device
 70 42 on the upper end of the arm 43, secured to the cross girt 1, see Fig. 1, and stop the rotation of the spool, all as fully described in the U. S. Letters Patent, No. 976,698, above referred to.

In my improved construction the trumpet
 75 guide is movable in the direction of the length of the cop or bobbin to be wound, and there is an individual traverse motion combined therewith, for each separate cop or bobbin, and a guide, comprising in this
 80 instance rods 21 and 22, independent of the spindle on which the cop or bobbin is mounted, to control the direction of movement of said trumpet guide.

It will be understood that the details of
 85 construction of my improvements may be varied if desired.

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

1. In a winding machine of the class described, a spindle mounted to rotate on a spindle bed, and said bed, mounted to turn on a pivotal center, a trumpet or shaper, adapted to be moved by the yarn wound on a bobbin or carrier, and said bobbin or carrier, connected with said spindle to rotate therewith, and a guide to control the movement of said trumpet or shaper in a direction parallel to said spindle, said guide being attached to and movable with said spindle bed.

2. In a winding machine of the class described, a spindle to cause the rotation of a bobbin or carrier, a trumpet or shaper adapted to be moved by the increased mass of yarn wound on said bobbin or carrier, a traverse guide mounted to move with said trumpet or shaper, a crank device also mounted to move with said trumpet or shaper, a rotatable and slidable shaft connected to said crank device, to operate the same, and means to rotate said shaft.

3. In a winding machine of the class described, a spindle to cause the rotation of a bobbin or carrier, a trumpet or shaper adapted to be moved by the increased mass of yarn wound on said bobbin or carrier, a traverse guide mounted to move with said trumpet or shaper, a crank device also mounted to move with said trumpet or shaper, said crank device comprising an eccentrically located tapered head, having a cap having a taper corresponding to the taper of said head, and a crank pin on said cap, and means to hold the cap on said head.

4. In a winding machine of the class described, a spindle to cause the rotation of a bobbin or carrier, a trumpet or shaper adapted

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ed to be moved by the increased mass of yarn wound on said bobbin or carrier, a traverse guide mounted to move with said trumpet or shaper, a crank device also
5 mounted to move with said trumpet or shaper, said crank device, comprising an eccentrically located tapered head, having a cap having a taper corresponding to the taper of said head, and a crank pin on said cap, and means to hold the cap on said head, 10 and a connection from said crank pin to the traverse guide, said connection including a connector with ball and socket joints.

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Witnesses:

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