

No. 897,191.

PATENTED AUG. 25, 1908.

E. E. BRADLEY.
QUILL OR COP WINDING MACHINE.
APPLICATION FILED OCT. 5, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

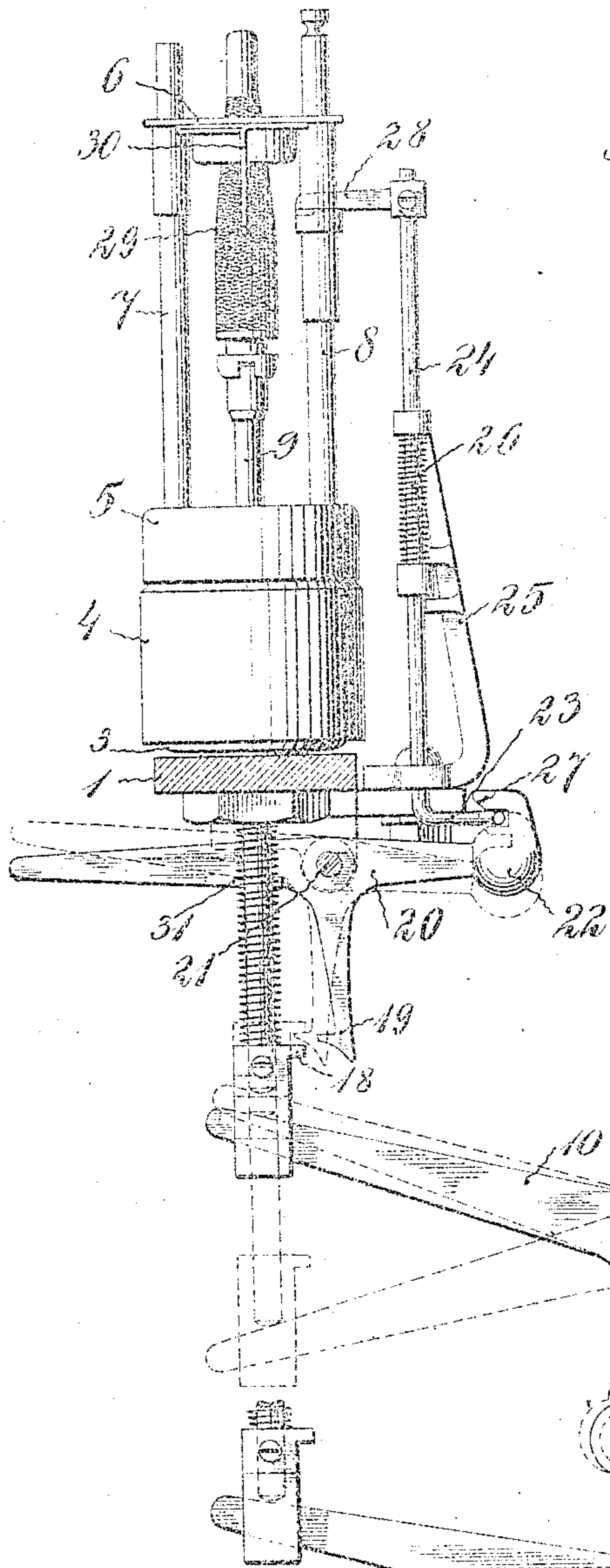


Fig. 4.

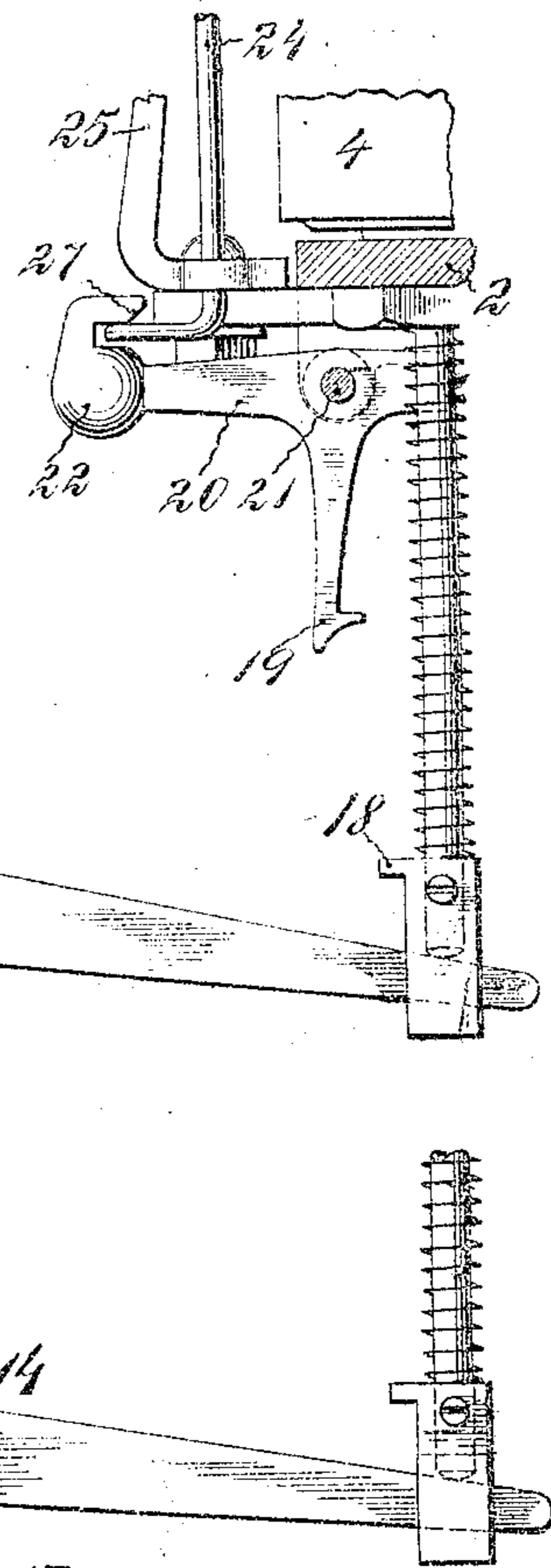
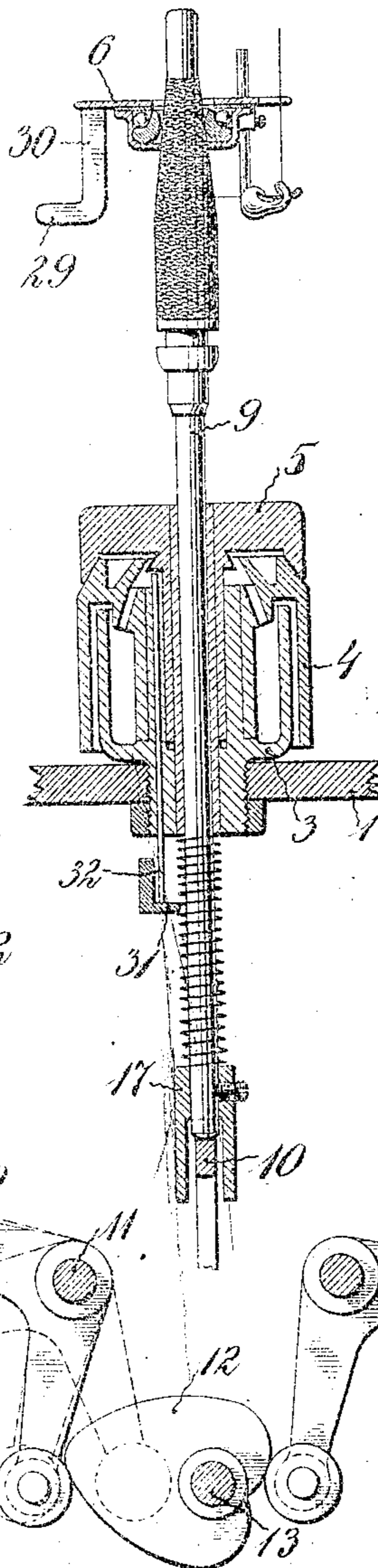


Fig. 5.

Witnesses
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2 SHEETS—SHEET 2.

Fig. 2.

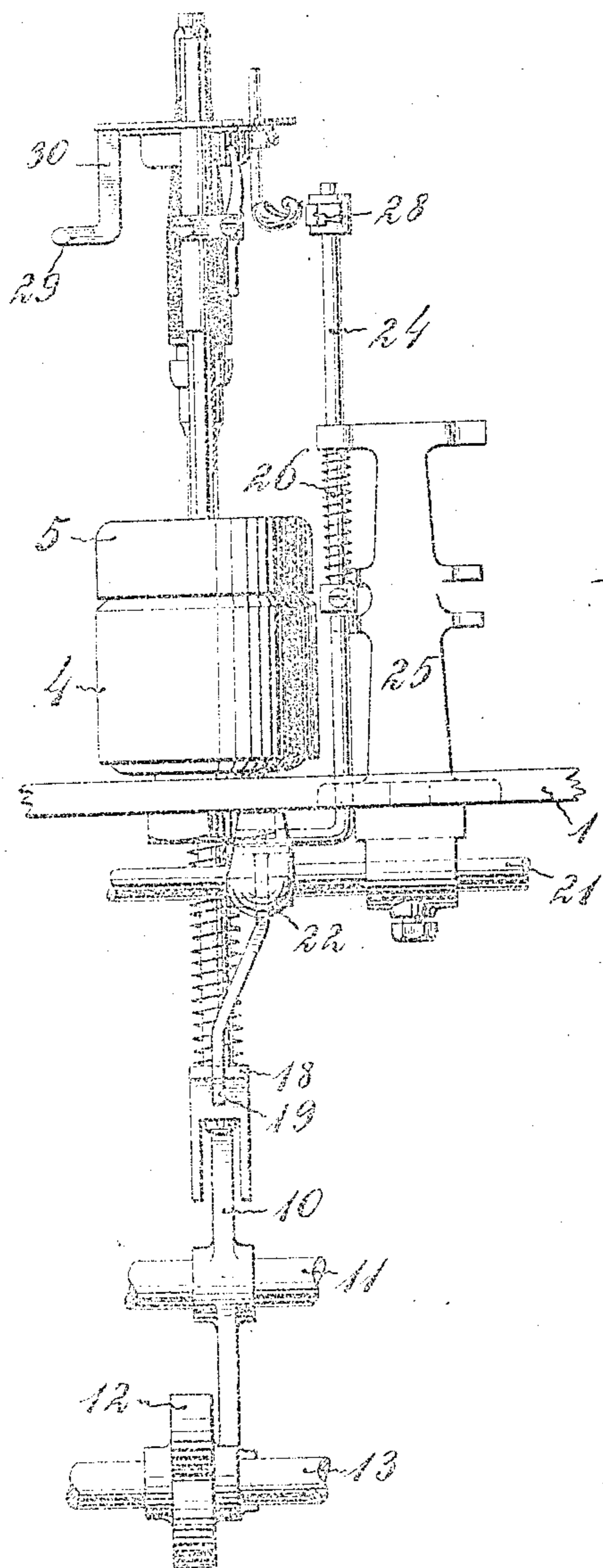
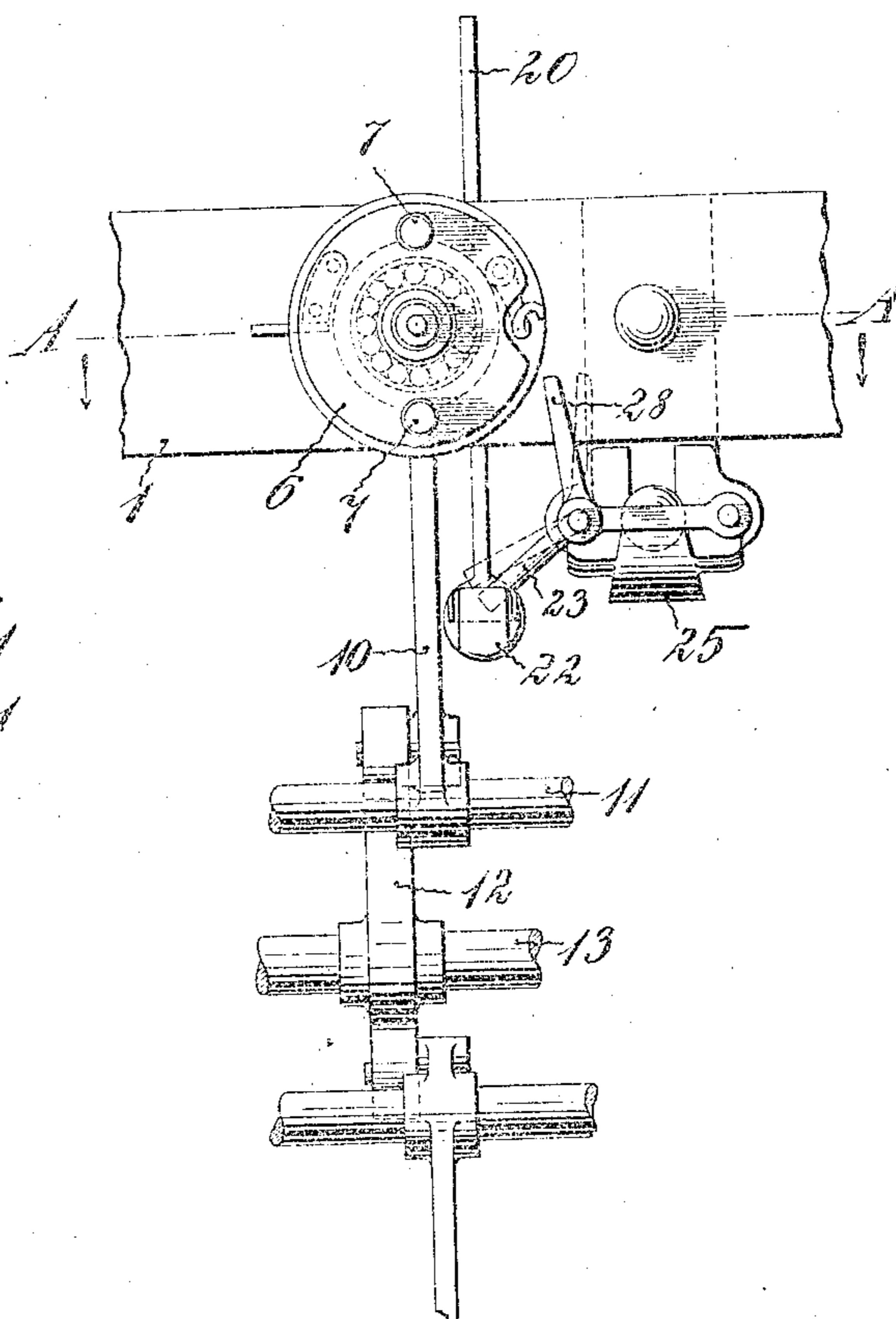


Fig. 3.



Witnesses.
M. G. [Signature]
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UNITED STATES PATENT OFFICE.

EDWARD E. BRADLEY, OF STONINGTON, CONNECTICUT, ASSIGNOR TO THE ATWOOD MORRISON COMPANY, OF STONINGTON, CONNECTICUT, A CORPORATION OF NEW JERSEY.

QUILL OR COP WINDING MACHINE.

No. 897,191.

Specification of Letters Patent.

Patented Aug. 25, 1908.

Application filed October 5, 1907. Serial No. 395,983.

To all whom it may concern:

Be it known that I, EDWARD E. BRADLEY, a citizen of the United States, and resident of Stonington, in the county of New London and State of Connecticut, have invented a new and useful Quill or Cop Winding Machine, of which the following is a specification.

My invention relates to quill or cop winding machines with the object in view of providing a rapid crossing of the thread on the quill or cop, and, at the same time, provide for stopping the reciprocating movement of any individual spindle without it interfering with the movements of neighboring spindles.

A further object is to provide simple means for releasing the spindle sustaining mechanism whenever desired.

A practical embodiment of my invention is represented in the accompanying drawings, in which

Figure 1 is a transverse section of so much of a quill or cop winding machine as will enable a clear understanding of the operation of the several parts to which the present invention is directed, one of the spindles and its driving and winding mechanism being shown in elevation, Fig. 2 is a view in elevation taken at an angle of 90° to the elevation shown in Fig. 1, Fig. 3 is a top plan view of the same, Fig. 4 is a vertical section in the plane of the line A—A of Fig. 3, and Fig. 5 is a partial transverse section showing a modified form of traverse lever.

The side rails of the machine are denoted by 1 and 2. They are each provided with a series of bearings or bolsters 3 for receiving the drive pulleys 4. The top of the pulley 4 is tapered to receive the tapered flange on the guide carrier support 5, the guide carrier 6 being supported from the support 5 by rods 7, 8.

The spindle denoted by 9 is mounted to reciprocate within the bolster 3, pulley 4 and guide carrier support 5 to cause the quill on the spindle to reciprocate within the guide carrier 6.

The parts above enumerated may be of any well known or approved form and are particularly shown and described in Letters Patent No. 635122, granted to W. G. Morrison, January 1, 1901.

A vertically reciprocating movement is

imparted to the spindles 9 (it being understood that these spindles are arranged in series along the rails 1, 2) during the rotary movement of the guide carrier by means of traverse levers 10 mounted on or fixed to a rock shaft 11 as may be desired, i. e., the traverse levers 10 may rock independently of one another on the shaft 11, one traverse lever for each spindle, or the gang of traverse levers may be caused to rock simultaneously by the rocking of the shaft 11.

The traverse levers are of angle lever form and are operated by means of a cam, in the present instance a heart cam 12, located on the cam shaft 13, which may be driven at a suitable speed from any part of the machine where it is feasible.

In the event the traverse levers are mounted to rock independently of one another on the shaft 11 there will be a cam 12 for each of the traverse levers while, in the event the traverse levers are fixed to rock simultaneously with the shaft 11, a single cam 12 engaging one of the levers will be sufficient to rock all.

The arrangement is such that the cam 12 will rock the traverse levers for the spindles along the rail 2 and alternately with the operating of the traverse levers for the spindles along the rail 1. If the traverse levers for the spindles along the rail 1 are mounted on a shaft independent of the traverse levers for operating the spindles along the rail 2, the cam 12 may be located between the depending ends of the two levers or, if a single lever, for instance a tri-armed lever 14, shown in Fig. 5 be utilized for operating the spindles along the two rails 1 and 2, then a cam 15 may be located at one side of the depending arm, a suitable spring 16 being employed to hold the depending arm against the cam to operate the tri-armed lever in a direction opposite that in which it is forced by the cam.

The spindle is provided at its lower end with a collar 17 bifurcated at its lower end to straddle the free end of the traverse lever 10, the said collar 17 being provided with a shoulder 18 for the reception of a latch 19 depending from a vibrating stop lever 20.

The stop lever 20 is pivoted on a rod 21 and is so weighted at its end 22 that it will normally seek the position shown in dotted lines, Fig. 1, viz; a position for its latch 19 to catch under the shoulder 18.

The stop lever 20 is normally held in the position shown in full lines, Fig. 1, with its latch 19 out of engagement with the shoulder 18 by the lower end 23 of a stop rod 24 mounted in a suitable bracket 25 uprising from the frame and under torsional tension by a spring 26, as is usual, tending to return it into locking position. In the present instance the end of the stop lever 20 is provided with an overhanging beveled faced nose 27 which coacts with the lower end 23 of the rod 24 to return the lever 20 to the position shown in full lines when the rod 24 is forcibly rocked as by the hand of the operator.

The upper end of the stop rod 24 is provided with a laterally projecting arm 28, as is usual, in position to be arrested by a lateral projection 29 on an arm 30 depending from the guide carrier 6 when the guide carrier has been forced upwardly to a predetermined height by the increase in diameter of the wound cop or quill, all as usual.

In operation, as the quill or cop is wound and the guide carrier 6 is gradually forced upwardly by the engagement of the wound cop or quill with it, it will effectually reach a height where the projection 29 will strike the arm 28 and rock the stop rod 24 in a direction to release its lower end 23 from the weighted end 22 of the arm 20 and the latter will rock in a direction to bring its latch 19 under the shoulder 18 on the collar 17 on the lower end of the spindle thereby retaining the spindle in its raised position and preventing it from further reciprocation. In this raised position the spindle will remain while the wound quill is being removed and an empty quill substituted and in the meantime the traverse lever for this particular spindle so held in elevated position may continue its rocking movements without having any effect upon the spindle so held raised. Furthermore the neighboring spindles, whether the rocking levers be simultaneously rocked or rocked independently may go on performing their work without in any manner interfering with the spindle so held raised.

When the new quill is placed in position and thread attached, the winding may be started by either depressing the free end of the lever 20 thereby releasing the latch 19 from the shoulder 18 or the stop rod 24 may be utilized to raise the weighted end of the lever 20 by the operator taking hold of the arm 28 and rocking the rod against the beveled nose 27 of the weighted end of the lever thereby forcing the lower end 23 of the stop rod in position, as shown in Fig. 1, to hold the weighted end of the lever 20 elevated and the latch 19 out of engagement with the shoulder 18.

It is to be understood that the stop lever

20 carries, as heretofore, an off-set 31 for operating a rod 32 to lift the guide carrier support 5 out of driving engagement with the pulley 4 whenever the lever 20 is rocked in position to engage and hold the spindle elevated thereby stopping the rotary movement of the guide carrier while permitting the pulley 4 to continue its rotation.

When the stop lever 20 is rocked in the opposite direction, the guide carrier support 5 will be allowed to fall by gravity into frictional contact with the drive pulley 4 and the winding will proceed.

What I claim is:—

1. In a quill or cop winding machine, the combination with suitable winding mechanisms, of reciprocating spindles, rocking levers for independently operating the spindles, means for operating the rocking levers and means under the control of the wound cop for maintaining a spindle in its elevated position without interfering with the continued rocking movement of the levers.

2. In a quill or cop winding machine, the combination with suitable winding mechanism, of a reciprocating spindle, a rocking lever having a loose engagement with the lower end of the spindle, a rocking latch for engaging the lower end of the spindle when the latter is at the limit of its upward stroke and means under the control of the wound cop for operating the rocking latch at a predetermined point in the winding.

3. In a quill or cop winding machine, the combination with a suitable winding mechanism, of a reciprocating spindle provided with a bifurcated collar secured to its lower end and provided with a shoulder, a rocking lever for engaging the collar between the branches of its bifurcated end, means for operating the rocking lever, a rocking latch for engaging the shoulder on the said collar when the spindle is at the limit of its upward stroke and means under the control of the wound cop for operating the latch.

4. In a quill or cop winding machine, the combination with suitable winding mechanism, of a reciprocating spindle, means for reciprocating the spindle, a rocking latch for holding the spindle elevated provided with a beveled faced nose and a rocking stop rod arranged to engage the nose and thereby rock the latch out of engagement with the spindle.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this third day of October 1907.

EDWARD E. BRADLEY.

Witnesses:

S. T. McDOWELL,

THEODORE DEWHURST.