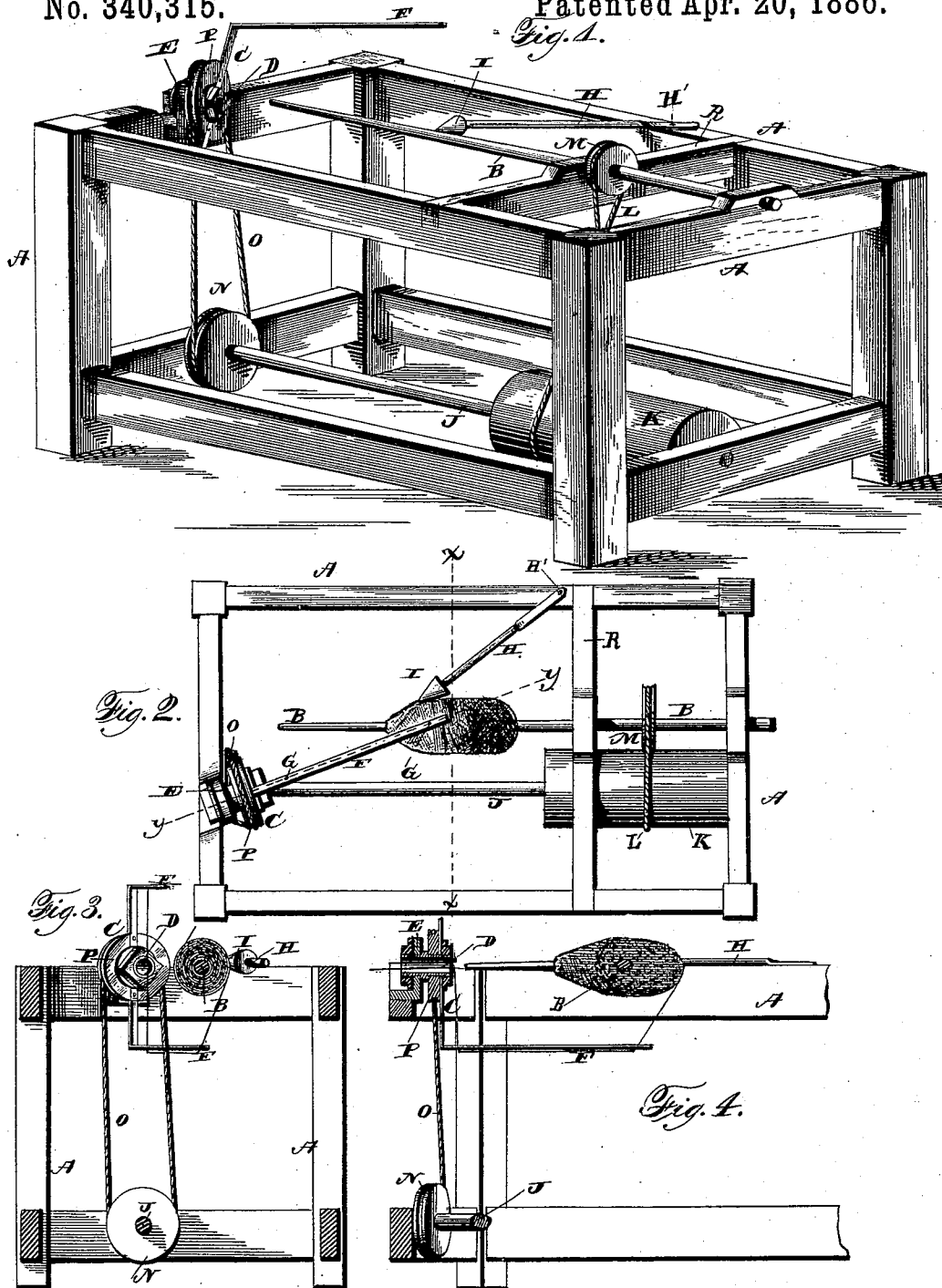


(No Model.)

S. W. HOLMAN.
COP WINDING MACHINE.

No. 340,315.

Patented Apr. 20, 1886.



WITNESSES
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UNITED STATES PATENT OFFICE.

SIDNEY WILLARD HOLMAN, OF ORANGE FACTORY, NORTH CAROLINA.

COP-WINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 340,315, dated April 20, 1886.

Application filed July 23, 1885. Serial No. 172,461. (No model.)

To all whom it may concern:

Be it known that I, SIDNEY WILLARD HOLMAN, of Orange Factory, in the county of Durham and State of North Carolina, have invented certain new and useful Improvements in Cop-Winding Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of my improved cop-winding machine. Fig. 2 is a top view of the same. Fig. 3 is a vertical sectional view taken on the line *xx* in Fig. 2, and Fig. 4 is a vertical sectional view taken on the line *yy* in Fig. 2.

The same letters refer to the same parts in all the figures.

This invention relates to that class of machines which are known as cop-winders, and which are made use of to wind the yarn into cops for weaving; and the invention has for its object to provide a machine of this class by means of which the winding of the cops may be performed rapidly, evenly, and satisfactorily, which shall be simple in construction, and by means of which the cops may be wound directly upon a spindle instead of upon a quill or cop-tube, thus causing a cop of a given size to contain much more yarn than would be the case if the quill were used, and hence enabling the loom-shuttle in which such cop is placed to run much longer without stopping.

With these ends in view the invention consists in the combination and arrangement of parts, which will be hereinafter fully described, and particularly pointed out in the claim.

In the accompanying drawings, A represents a frame, having a revolving spindle, B, and a flier, C, secured to the upper part, and a shaft, J, journaled in its lower part. The spindle is provided with a pulley, M, and moves longitudinally in its bearings in one of the end pieces and a cross-piece, R. The flier consists of the tubular shaft D, pulley P, and arms F F, secured at one side of the

frame in bearings E, so that the arms F F will revolve obliquely to and around the spindle B. The arms F F are each provided with two perforations, G G, one near the outer end, and the other near the rear end.

The shaft J is provided at one end with a pulley, N, which drives the flier by means of the belt O, and at the other end with a drum, K, which drives the spindle by means of the belt L, one of said belts being crossed, so as to drive the flier and spindle in opposite directions. The shaft J is driven by any desired mechanism, which, not being any part of the invention, is not shown in the drawings.

To one side of the top part of the frame the arm H is adjustably secured by means of the screw or pivot-pin H', the free end of said arm being provided with a conical head, I, which regulates the size and shape of the cop as it is being wound upon the spindle B.

The nearer the head is placed to the spindle the smaller will be the size of the cop, and the more blunt will be its end, while the farther away it is placed the greater will be the diameter of the cop and the more acute will be its point.

The operation of the machine is as follows: The yarn, one or two threads, as may be desired, is passed through the tubular shaft D from the spools through the perforations G of the arms F F, and secured to the spindle B. The arm H is adjusted so that the cone I is as far from the spindle as it is desired to make the radius of the cop, and securely fastened. As the spindle and flier are revolved the yarn is rapidly wound upon the spindle in the shape of an elongated ball, forming the base of the cop, until it is large enough to bear against the cone I, when the pressure of the yarn as it is being constantly wound around the ball causes the spindle to gradually move backward in its bearings, thus forming a cop of the required size. As the spindle moves backward, the belt L gradually moves along the face of the drum K, thus revolving the spindle in whatever position it may be. After the cop is completed it is removed from the spindle B and placed in the shuttle, and the yarn taken from the inside of the cop instead of from the outside.

It will be seen that by dispensing with a

quill or tube more yarn can be wound into a cop of a given diameter, and by using the yarn from the inside of the cop instead of from the outside a larger cop can be placed in the shuttle, for as the core of the cop is first removed the outside layers can then be drawn out without danger of catching and being held between the solid part of the cop and the sides of the shuttle.

- 10 I am aware that it is not new to construct cop-winders having a spindle and a flier revolving obliquely to each other, and in opposite directions, and an adjustable arm bearing against the point of the cop as it is being wound, and I do not claim such construction, broadly; but

I claim and desire to secure by Letters Patent of the United States—

The combination of a frame having two end

pieces and a cross-piece, a spindle secured in bearings upon one end piece and said cross-piece, a pulley upon said spindle between said bearings, a flier secured in bearings upon the other end piece and revolving obliquely to said spindle, an arm adjustably secured to the side of the frame, the free end of which is provided with a conical head, a rotating shaft having a pulley at one end and a drum at the other, and bands connecting said drum and pulley with said spindle and flier, as shown and described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

SIDNEY WILLARD HOLMAN.

Witnesses:

J. E. COLE,

SIDNEY M. LEA.