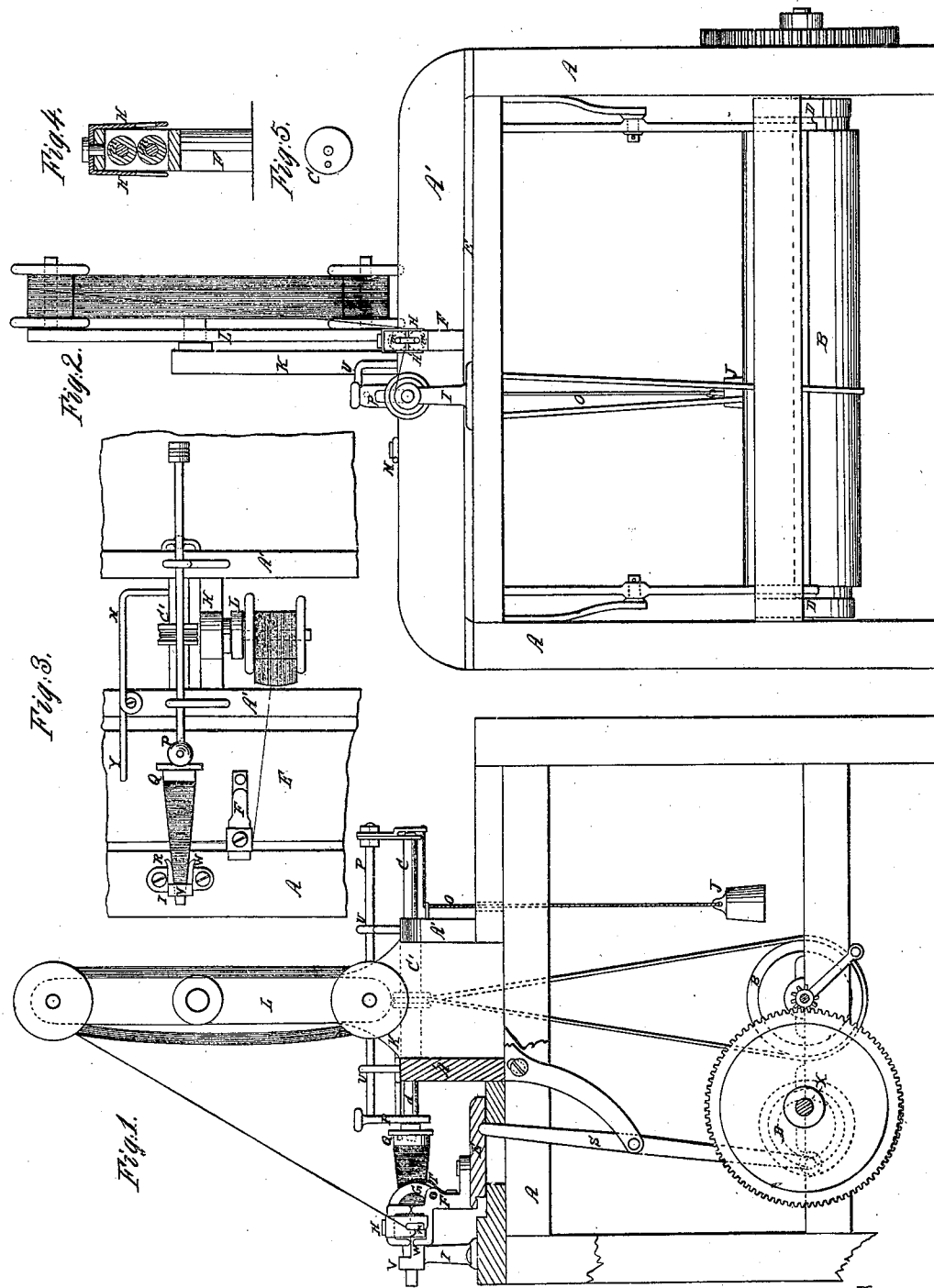


*W. Orr Jr.*  
*Winding Bobbin.*

*N<sup>o</sup> 53,746.*

*Patented Apr. 3, 1866.*



*Witnesses*  
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# UNITED STATES PATENT OFFICE.

WILLIAM ORR, JR., OF CLINTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF  
AND WM. ORR, SR., OF SAME PLACE.

## IMPROVEMENT IN MACHINES FOR WINDING YARNS.

Specification forming part of Letters Patent No. 53,746, dated April 3, 1866.

*To all whom it may concern:*

Be it known that I, WILLIAM ORR, JR., of Clinton, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Winding and Quilling Yarn; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an end view of a machine made according to my invention. Fig. 2 is a front view. Fig. 3 is a top view of the central part thereof. Fig. 4 is a separate view of the guides and their tension-rolls. Fig. 5 is an end view of the spindle.

Similar letters of reference indicate like parts.

This invention consists in an improvement in machines for winding yarn, wherein the ordinary operations of winding and quilling are combined together, the yarn being taken directly from the swifts and wound upon the quill. It is applicable both to coarse and fine yarn.

The letter A designates a frame for supporting the operating parts of the machine. B is the ordinary drum driving the spindle C by means of a belt which passes over a pulley on a sleeve, C', which surrounds the spindle, and is so connected therewith as to allow the latter to have motion endwise through it. The sleeve is prevented from having endwise motion by being confined loosely between the side pieces, A' A', of the frame in which the spindle has its bearings.

P designates a frame, which is connected with the spindle near its ends, and which is so supported in guides U U as to be allowed to move endwise therein. This frame is connected, by a cord, O, with a weight, J, and the cord is conducted to the frame in such a way as to cause the weight to draw it constantly toward the left, (observing Fig. 1,) and consequently to move the spindle through its sleeve and keep it engaged with the quill. The inner end of the spindle has two pins on its end, as seen in Fig. 5, which lock it with the adjacent end of the quill in the usual way.

I designates a stand which holds the stem

of the quill. The stand has a socket, V, with conical sides, through which the extremity of said stem is free to pass, and on the inner side of the socket is a half-socket, W, which expands toward the quill, as shown in the plan view, Fig. 3. The object of expanding the sides of the half-socket and of making the socket V conical is to force the quill as it fills gradually back against the spindle, thereby making room for more thread, while the weight J causes the spindle to remain engaged with the quill in order to give rotary motion to the latter.

K is a standard to which the swift-lever L is pivoted. Said lever is hung at a point one side of its center, in order to keep it when undisturbed in a vertical line, from which position it is drawn aside at certain times by the yarn, as hereinafter explained.

The cam-shaft X carries a cam, D, at either end thereof, which impart reciprocating motions, through the arm S, to a traversing carriage or bar, E, mounted on the frame of the machine. This carriage or bar carries upon it a standard, F, which supports in suitable bearings thereon an elastic roll, *m*, the axis of which lies parallel with the spindle, and to the right-hand side of said standard is hinged a curved arm, G, whose end extends above the said shelf, and also carries an elastic roll, *m*, on its under side, so as to bring the two rolls *m* in contact. The roll *m* of the hinged arm G is kept in such contact with the lower roll by means of a spring, T, that bears against said arm. The yarn from the swifts passes between these rolls on their way to the quill.

On the top of the curved arm G is fixed adjustably a frame whose two sides, H H', extending downward on each side of the rolls, form guides for the yarn. The guide H, which sustains the yarn on the receiving side of the rolls, has a slot bounded all around, except on one side, while the guide H', which is on the delivery side, has a vertical slot that extends through the bottom of the guide.

The spring T produces a gentle pressure of the upper roll on the lower, so as to maintain a slight tension on the yarn as it passes between them, and thereby causes it to be wound in a regular and uniform manner on the quill, and to hold the yarn from being delivered beyond the guides when the machine is stopped.

When in the operation of winding the yarn receives a sudden jerk or twitch from accelerated motion of the spindle, or from starting it suddenly after tying a break, or other cause, such jerk is likely to break it when the skein is fixed. I have therefore devised a method of easing it when such a jerk is given by hanging the lever L of the swift so that it is pendulous, whereby the swifts and their lever will yield a little in vibrating on the pivot from which the lever depends. This provision against exposing the yarn to be broken by sudden jerks is constantly useful in winding yarn, because, since the drum is continually revolving, when the spindle has been withdrawn from the quill in order to mend the yarn, or for any other purpose, and it is again introduced into the quill after the yarn has been tied, the quill is suddenly put into rapid revolution and produces a sudden jerk, which would break the yarn but for the capacity of the swift-lever to yield by vibrating on its pivot as above set forth.

Upon the edge of one of the side pieces, A', I have pivoted a brake, N, which is operated by its handle Y, or otherwise, so as to be applied to the sleeve C of the spindle for the purpose of retarding its motion until any slack of the thread which may be made at any time is taken up.

In operating the machine the yarn is wound first upon that part of the quill which is next to the spindle, the spindle being advanced so far to the left (observing Fig. 1) as to bring

the stem of the quill beyond the socket-rest V, and therefore to bring its head nearly opposite the guide-standard F. As the quill is filled up the trumpet-mouthed socket V and the inclined shape of the half-socket W will crowd the quill gradually toward the right and expose the rest of the quill gradually to the yarn, said yarn meanwhile being laid with uniformity and evenly on the quill by means of the traverse motion given to the guides H H'.

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

1. In machines for winding yarn, hanging the swift on a pivot at one side of the center of its length, or at one side of its center of gravity, so as to give it a pendulous character, substantially as described.

2. Passing the yarn on its way from the swifts to the quill between elastic rolls, arranged and applied substantially as and for the purpose above described.

3. In combining in one machine devices for winding yarn from the swifts and quilling the yarn, when the two operations are performed by such combination in one connected operation by means of the sockets V W, the guides H H', and the elastic rolls m, substantially as described.

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Witnesses:

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