J. W. WEST.

THREAD-SPOOLING MACHINE.

No. 189,673. Patented April 17, 1877.

Fig. 1.

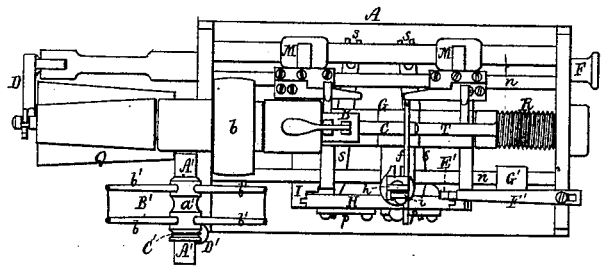


Fig. 2.

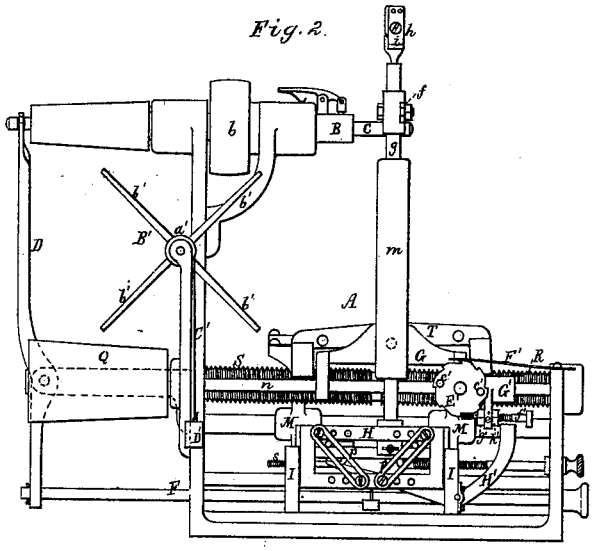


Fig. 3.

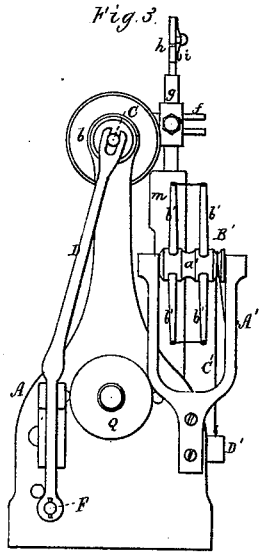


Fig. 4.

Fig. 6.

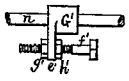
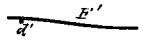


Fig. 5.



Witnesses.
S. N. Piper.
L. A. Müller

John W West
by his attorney.
R. H. Eddy

UNITED STATES PATENT OFFICE.

JOHN W. WEST, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN THREAD-SPOOLING MACHINES.

Specification forming part of Letters Patent No. **189,673**, dated April 17, 1877; application filed August 16, 1876.

To all whom it may concern:

Be it known that I, JOHN W. WEST, of Boston, of the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Machinery for Spooling Thread; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a rear elevation, and Fig. 3 an end view, of a machine embodying my invention.

On the 10th day of March, of the year 1876, I filed in the United States Patent Office an application for a patent for improvements on machinery for spooling thread. After due examination, such application was passed and allowed on the 13th day of May following.

To the machine described in the specification of the said application, and which is substantially represented in the above-mentioned drawings, I have, in carrying out my present invention, made certain additions, as follows:

First, a skein-reel and a friction mechanism; second, an automatic stop motion or mechanism to stop the machine on its completion of the load of a spool.

Heretofore, so far as I have been able to learn, it has been customary to reel the skein and subsequently wind upon a bobbin the thread from the skein, the thread being afterward taken from the bobbin directly into the spooling-machine or to its guide, and thence to the spool arranged on the arbor of the machine. By my present invention I save the intermediate operation of winding the thread upon the bobbin, or dispense with such and the bobbin, as I combine the reel directly with the machine, and apply to such reel a friction apparatus or mechanism, which will arrest the revolution of the reel on a stoppage of the machine. The machine being provided with a tension apparatus independently of the said friction apparatus of the reel, the thread is not only estopped from running off too freely from the reel, and kinking in consequence thereof, but it is delivered to the spool under a proper degree of tension.

On account of the great momentum generated in the skein and reel in the process of unwinding the skein, it has been deemed practically impossible to run the thread directly from the reel into the spooling-machine, as, in stopping the latter, the velocity of the reel, together with its weight, would cause breakage and snarling of the thread, all of which I avoid by the friction apparatus, which counterbalances the momentum of the reel and stops such reel when the machine stops.

In the drawings, the spooling-machine is represented at A, B being its tubular rotary arbor; *b*, the driving-pulley thereof; C, the spindle, that slides lengthwise within the arbor; D, the furcated lever for the spindle; F, the knobbed slide-rod, to which the lever is jointed.

f is the notched guide, and *g* the vertical supporting slide-rod thereof, the latter being extended down through a guiding-standard, *m*, fixed to a carriage, G. The rod *g* is also secured to a rectangular frame, H, arranged to slide vertically in another carriage, I, which in turn is supported on parallel and horizontal rails, so as to be capable of being moved rectilinearly.

p p are the slotted guides of the frame H.

M M are the movable poppets, connected by levers and screws *s s* with the guides *p p*.

R S are screws upon one shaft with a band-pulley, Q. The threads of one screw are pitched in a direction opposite to that of the threads of the other screw.

A lever, T, pivoted at its middle to the carriage G, has at its ends female-screw projections, to engage with the screws R S, all of which, together with other parts of the spooling-machine, I have fully described in the specification of my said application for a patent.

In carrying out my present invention I apply to a furcated standard, A′, projecting up from the frame of the spooling-machine, a skein-reel, B′, arranged as shown, it being composed of an axle, *a′*, and a series of pairs of radial arms, *b′ b′*, extending therefrom. The axle has its journals supported in the standard A′. The said axle is grooved transversely to receive a cord, C′, which, attached at one end to the standard, extends in the groove, and more or less around the axle, and has a weight, D′, fixed to its lower end. The cord and weight, with the groove in the axle, serve

as a friction mechanism to arrest the revolution of the reel on stoppage of the machine.

When the reel is in use, it has each pair of its arms connected by a piece of cord or twine, which serves to support the skein arranged between the arms. The thread from the skein-reel is to be led under the tension-spring *i*, and thence through the perforated guide *h*, and to and into the notched guide *f*, and thence to the spool on the spindle C. A screw for regulating the tension or the pressure of the spring *i* on the thread goes through the spring, and screws into the guide *h*, such screw being shown in the drawing.

Furthermore, there is pivoted to the carriage G a ratchet-wheel, E′, provided with studs *e*′, projecting from its inner side. (See Fig. 4, which is an edge view of such wheel.) A spring, F′, fixed to the frame, and arranged as represented, bears upon the periphery of the ratchet-wheel, and is provided with a catch, *d*′, extended from it, as shown. (See Fig. 5, which is an edge view of the spring.) There is arranged upon one of the parallel rods *n n*, which support the carriage G, a slide, G′. Through a projection, *e*′, therefrom a headed screw-bolt, *f*′, provided with the nuts *g*′ *h*′, is extended, all being as shown, particularly in Fig. 6. A belt-shipper lever, H′, pivoted to the carriage I, has its shorter arm disposed between the bolt-head and the next adjacent nut. The longer arm of the said lever is to be suitably applied to or connected with the belt for driving the pulley *b*, to be capable of moving the said belt from a driving-pulley to and upon a loose pulley, or vice versa.

The number of teeth in the ratchet-wheel regulates the number of layers of thread to be wound upon a spool, one of said layers being so wound during each rectilinear movement of the carriage G. The ratchet-wheel should turn on its pivot with sufficient friction to prevent such wheel from being revolved by the spring while the latter may be slipping on the wheel. In each movement of the carriage in one direction the ratchet-wheel will be partially revolved by the catch of the spring, such ratchet-wheel remaining at rest while the carriage may be moving in the opposite direction. In each half-revolution of the ratchet-wheel one of its studs will be borne against the slider G′, and will move such on its rod *n* in a manner to so move the shipper-lever H′ as to cause it to effect or aid in effecting the shifting of the driving-belt from the fast to the loose pulley, in order to cause stoppage of the machine on completion of a load on the spool.

I do not claim the combination of a rotary reel and a friction brake or mechanism applied thereto, with a machine for balling yarn, all being as shown in the United States Patent No. 165,978, such machine being unprovided with any additional means for regulating the tension of the yarn while being wound upon a bobbin by the flier of such machine.

What I claim as my invention is as follows:

1. The combination of the reel B′ and its friction mechanism with the thread-spooling machine A, provided with the guide *h* and tension-spring *i*, essentially as set forth.

2. The combination of the stop-motion with the yarn-spooling machine A, such stop-motion consisting of the ratchet-wheel E′, its studs *e*′, the spring F′, its catch *d*′, the slide G′, the screw-bolt *f*′, nuts *g*′ *h*′, and the shipper-lever H′, all being arranged and applied to the machine substantially as specified.

JOHN W. WEST.

Witnesses:
R. H. EDDY,
J. R. SNOW.