J. W. WEST.

Spooling-Machine.

No. 161,647. Patented April 6, 1875.

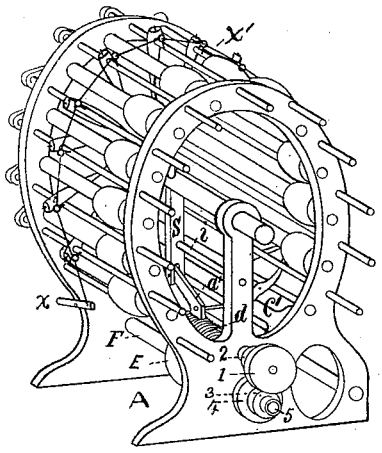

Fig. 1.

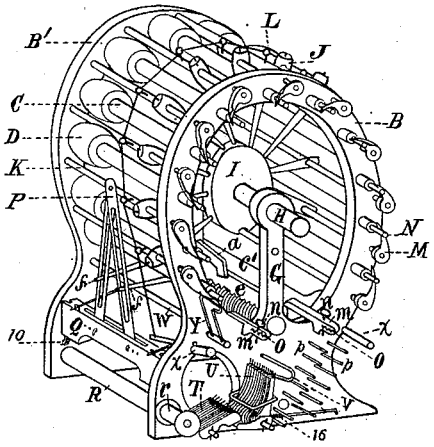

Fig. 2.

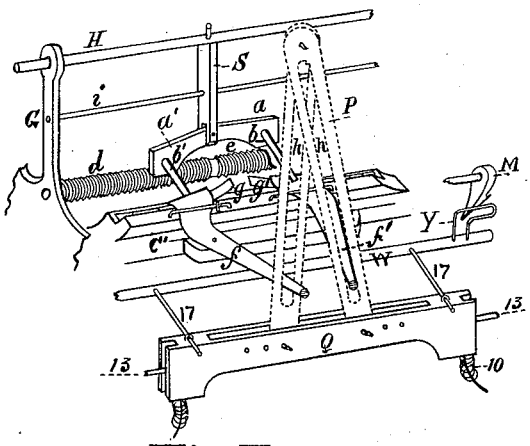

Fig. 3.

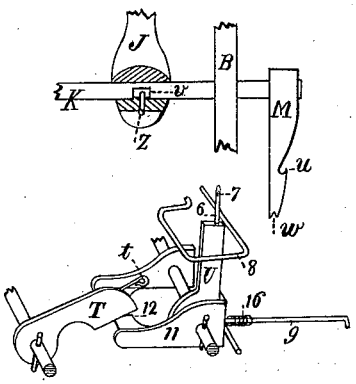

Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN W. WEST, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SPOOLING-MACHINES.

Specification forming part of Letters Patent No. **161,647**, dated April 6, 1875; application filed February 13, 1875.

To all whom it may concern:

Be it known that I, JOHN W. WEST, of Boston, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Spooling-Machines, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which my invention appertains to make and use the same, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is an isometrical perspective view, showing the actuating mechanism; Fig. 2, a like view, showing the stop-motion and regulating mechanism. Fig. 3 is a sectional view, showing the shifting mechanism; and Fig. 4, details to be referred to.

Like letters of reference indicate corresponding parts in the different figures of the drawing.

My present invention is designed as an improvement upon the spooler described in my application for Letters Patent of the United States filed October 31, 1874, and issued March 2, 1875; and consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which its capacity and effectiveness are very largely increased.

In the drawing, A is the main frame of the machine, which consists of the heads B B′, connected by the cross-beams C′ C′. A series of spool-holding rods, C, provided with the pulleys D, are disposed in the arc of a circle in the heads B B′, in such a manner as to be easily revolved therein, the ends of the rods projecting a short distance through the head B to receive the spool. Between each pair of the spool-holding rods there is a sliding rod, K, projecting through the head B, and carrying upon its outer end the polishing thread guide M. Centrally arranged in each of the heads B B′ there is an upright or standard, G, and in these standards there is disposed a sliding rod, H, carrying the annular head-stock I. This head-stock is provided with a series of radial arms or spokes, J, one of which is connected with each of the sliding rods K, in such a manner that the rods may be partially revolved in, but do not slide through, the spokes, which is accomplished by means of the lateral slot *v* in the rods and the pin *z* in the spokes, as shown in Fig. 4. The rods K are also connected with each other, and with the two pivoted levers *x*, by means of the screw-eyes L, inserted in the rods, and by means of the wires *x′*. Beneath the rod H, in the standards G, there is a fixed rod, *i*, and arranged to slide on this rod there is a vertical bar, S, the upper end of which is attached to the rod H, and in the lower end of which a horizontal rocking lever is pivoted, provided with the arms *a a′*, and the laterally-projecting studs *b b′*. The arm *a′* is provided upon its lower surface with a segmental screw, corresponding with the left-hand screw *d*, and the arm *a* with a like screw, corresponding with the right-hand screw *e*, on a shaft disposed horizontally under the rod *i* in the heads B B′. Pivoted to the cross-beam C′ are two horizontal levers, *f f′*, the inner ends of which are flattened, as shown in Fig. 3, and the outer ends of which work in the slots *h h* of the inclined bars P. Beneath the flattened ends of the levers *f f′* are two horizontally-arranged springs, *g g′*, the lower ends of which are attached to the bar C′, and the free or upper ends of which rise between the adjacent edges of the flattened ends of the levers *f f′*, with which they are also in contact, as seen in Fig. 3. A rocker-shaft, W, provided with the vertically-arranged bent lever Y, and with two horizontal arms, 17, is journaled in the heads B B′. The arms 17 carry the slotted bar Q, in which the inclined bars P are disposed, and are made adjustable laterally. The bar Q is vertically slotted at each end for the guides or ways 13, which project inwardly from the heads of the machine, and beneath the bar are two coiled springs, 10, which act expansively to force the same against the arms 17. Pivoted to the outer side of the head B, and near the base of the same, are a series of gravitating-levers, U, provided with vertical needles 6, having thread guides or eyes 7. Upon the same stud with these levers there is a gravitating-lever, 11, the short arm of which is in contact with the belt-shipper or rod 9, the rod being kept in contact with the lever by the spring 16. Near the levers U, and pivoted to the same head of the machine, are also a

series of corresponding gravitating-levers, T, provided with the drop-wires or eyes *t*.

A series of bobbin-holders or spindles, *p p*, project laterally from the head B, and near them are two tension-clamps, composed of the jaws *m* O and thumb-screws *n*. The fingers M are provided with a slot, *w*, and shoulder *u*, for guiding the thread onto the spool, and also act to compress and polish the same as the spools fill.

In the use of my improved spooler the bobbins from which the yarn, thread, or silk is to be taken are first placed upon the spindles *p p*. The threads are then carried over the rest *v*, through the eyes 7, wires *t*, and around the spool *r* on the end of the shaft R. From thence the threads are divided, one-half being carried through each of the tension-jaws *m* O, and to spools on the outer ends of the rods C, sufficient tension being given by the screws *n* to elevate the levers T from contact with the lever 11, and to properly wind the thread upon the spools. If, now, the parts being as seen in Fig. 3, power is applied to the pulley E on the main shaft F, motion will be communicated, through the pulleys 1 2 3 4, to the screws *d e*, which being caused to rotate, the bar S, rod H, head-stock I, spokes J, and rods K will be caused to traverse toward the head B by means of the segmental screw in the arm *a'*, engaged with the screw *d*, until the stud *b'* passes out from under the flattened end of the lever *f*, and up the inclined end of the spring *g* sufficiently far to cause the stud *b* to pass beyond the flattened end of the arm *f'*, disengage the screws *a' d*, and engage the screws *a e*, when the movements of the head-stock I and spool-rods K will be reversed, and so on until all of the spools are filled, in a manner which will be readily understood by all conversant with such matters without a more explicit description.

It will be obvious that the traverse of the rods K, and, consequently, the length of the layers of thread wound upon the spools, will depend upon the distance between the flattened ends of the levers *f f'*. This is automatically regulated by the thread on the spool nearest the bent lever Y.

The head of the spool being flaring, the shortest layer is wound first; but, as the spool fills, the thread presses outwardly against the finger M, and that, in its turn, against the lever Y, causing the shaft W to be partially rotated, depressing the arms 17 and bar Q, drawing down the inclined bars P, with their converging slots *h h*, and thus gradually separating the flattened ends of the levers *f f'* by causing their outer ends to be moved toward each other.

When the frame is doffed, or the filled spools removed from the rods C, the pressure on the finger M being relieved, the spring 10 will elevate the bar Q, preparing the machine to wind a short layer of thread on the next set of spools.

The spool-rods C are designed to be actuated by a continuous belt passing around the pulleys D and main pulley E, the speed being graduated by the cones 1 2 3 4.

The design of the vertical levers U is to prevent knotted threads from being wound onto the spools. The knots, being unable to pass the eyes 7, cause the levers to trip, and thus actuate the shipping-rod 9 to stop the machine.

The object of the levers T is to cause the machine to stop on the breakage of a thread, which is effected by the lever connected with the broken thread filling upon the lever 11, and through it actuating the rod 9.

The object of the levers *x x*, eyes L, and wires *x'*, in connection with the rods *k*, is to partially rotate said rods simultaneously, and thus remove the guides M from the spools for doffing the frame, and bring them into contact with the same again, as required.

I do not herein claim anything shown or described in the Letters Patent above referred to, when in and of itself considered; but

Having thus described my invention, I claim, in a spooling-machine constructed substantially as described, the following instrumentalities, to wit:

1. The head-stock I, rods K, bar S, rod H, screw *d e*, and arms *a a'*, in combination with a device for automatically changing the movements of the rods K, substantially as and for the purpose specified.

2. The arms *a a'*, provided with the studs *b b'*, in combination with the levers *f f'*, springs *g g'*, and screw *d e*, substantially as and for the purpose specified.

3. In combination with the finger M, the rocking shaft W, bar Q, and slotted bars P, for actuating the levers *f f'*, substantially as set forth.

4. In combination with the rods K, the wires *x'*, eyes L, and lever *x*, substantially as and for the purpose described.

5. The rod K, provided with the slot *v*, and the spoke J, provided with the pin *z*, combined to operate as and for the purpose specified.

6. The stop mechanism described, the same consisting of the levers U, provided with the needles 6, the levers T, provided with the eyes *t*, and the lever 11, combined to operate with the shipper 9, substantially as set forth.

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Witnesses:
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