(No Model.)

J. NELSON & A. NELSON.

A. NELSON, Administrator of J. NELSON, Dec'd.

SPOOLING MACHINE.

No. 335,473. Patented Feb. 2, 1886.

Fig. 1.

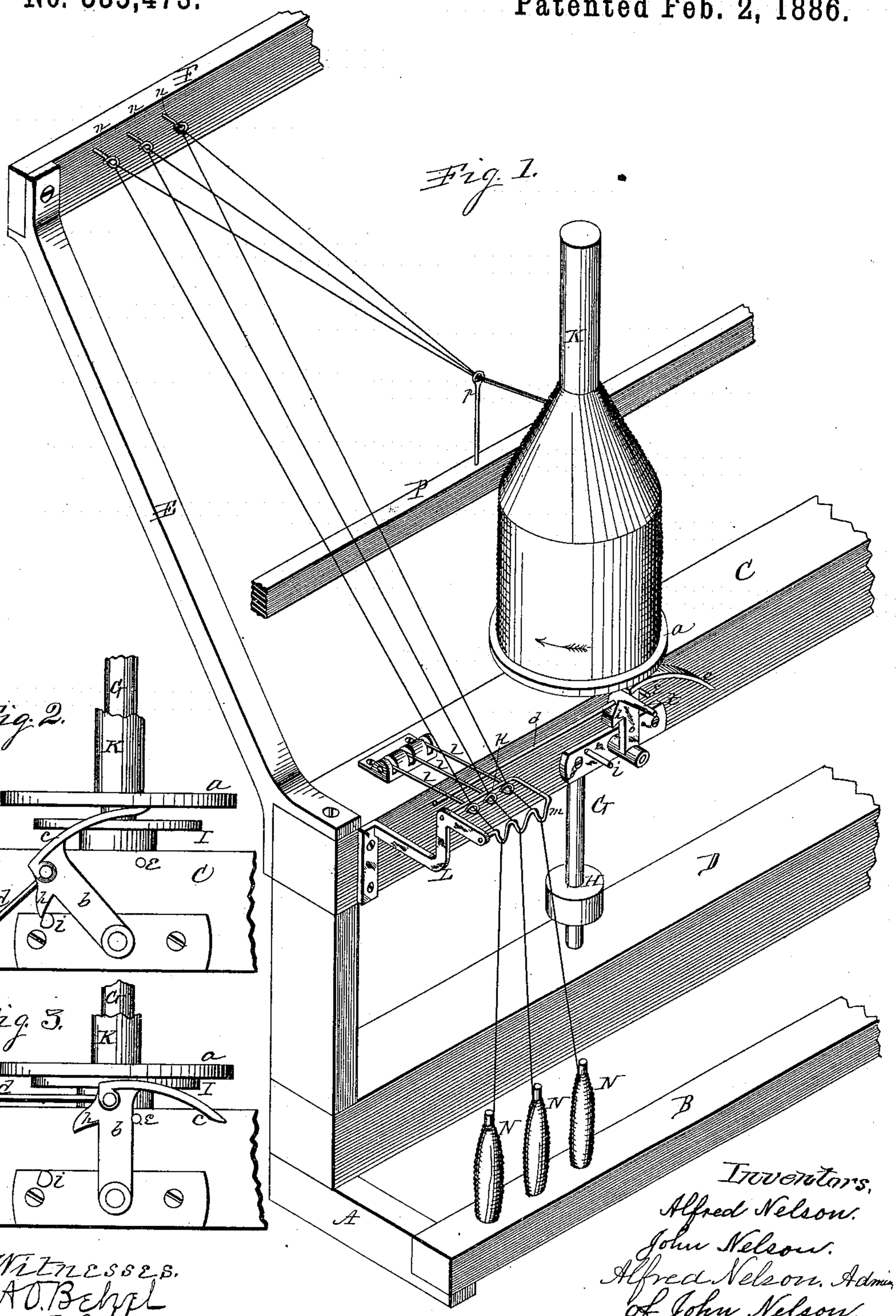

Fig. 2.

Fig. 3.

Witnesses.
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UNITED STATES PATENT OFFICE.

ALFRED NELSON (ADMINISTRATOR OF J. NELSON, DECEASED) AND ALFRED NELSON, OF ROCKFORD, ILLINOIS, ASSIGNORS TO ALFRED NELSON, ADMINISTRATOR, RALPH EMERSON, AND WILLIAM A. TALCOTT, ALL OF SAME PLACE.

SPOOLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 335,473, dated February 2, 1886.

Application filed April 23, 1885. Serial No. 163,233. (No model.)

To all whom it may concern:

Be it known that JOHN NELSON, late a citizen of the United States, and a resident of the city of Rockford, in the county of Winnebago and State of Illinois, and ALFRED NELSON, a citizen of the United States, residing in the city, county, and State aforesaid, did invent new and useful Improvements in Doubling Spooling-Machines, of which the following is a specification.

This invention relates to machines employed in winding single or multiple threads; and its object is to stop the winding when a thread is broken.

It consists in a system of drop-levers to stop the winding upon the breakage of the thread.

In the accompanying drawings, Figure 1 is an isometrical representation of a portion of a winding-machine embodying the invention. Fig. 2 is a detail elevation showing the position of the parts when the winding is stopped, and Fig. 3 is a like detail elevation showing the position of the parts when winding.

In the figures, the several parts, consisting of the end sills, A, front sill, B, spindle-beams C, braces E, and elevated eye-supporting beam F, constituting the main frame, are substantially the same as frames employed in spooling, winding, or doubling machines heretofore in use, and may be in the form shown or of any other suitable construction to support the operating parts. A winding-spindle, G, is supported to revolve in bearings in the spindle-beams, and its lower portion is fitted with a pulley, H, to receive a belt connecting it with a prime mover to cause it to rotate. A collar, I, is fixed to the spindle above the beam C, to revolve therewith. A bobbin, K, is placed upon the spindle loosely, having the head *a* of its lower end resting on the collar I of the spindle, to cause it to rotate therewith. A trip-lever consisting of a radial arm, *b*, an eccentric segment-arm, *c*, and a tripping-bar, *d*, is pivotally supported in the vertical plane of the spindle, and in such position relatively with the head of the bobbin that when in its vertical position slightly over its pivotal support, as shown in Fig. 3. limited by a stop-pin, *e*, the peripheral surface of its segment-arm will be slightly below the under face of the bobbin-head, and when carried forward over its pivotal support its eccentric segment-arm will engage the under face of the bobbin-head, and the momentum of the rotating bobbin will carry it to its forward inclined position, (shown in Fig. 2,) and in this movement the eccentric portion of the segment-arm will lift the bobbin from the rotating spindle-collar and stop its rotation. The trip-lever is fitted with a hook, *h*, to engage a pin, *i*, to prevent rebounding and limit the forward movement of the lever. A bracket, L, fixed to the frame, serves as a support to a fixed thread-guide having its horizontal arm *k*, a suitable distance above the plane of the trip-bar. Drop thread-guides *l* are pivoted to the frame, having their guide ends extending over the trip-bar *d* and under the horizontal arm *k* of the fixed thread-guide in such a manner that when the free end of the drop-guides are liberated they will drop onto the trip-bar and trip the trip-lever, causing it to engage the bobbin and lift it from its connection with the collar of the spindle. Cops N are supported in proper position, preferably on the frame, and the threads from these cops are passed over the corrugated bar *m* of the fixed guide, through the eyes in the free ends of the drop-guides, and over the horizontal bar of the fixed guide, and thence through guide-eyes *n*, fixed in the elevated beam F; thence through a guide-eye, *p*, fixed in the builder-beam P, and thence to the bobbin, to be wound thereon.

The building-beam of this improved doubling and spooling machine may be of any of the known forms, operated in the usual manner to place the yarn or thread on the bobbin in any proper manner.

From the foregoing it will be seen that if motion be imparted to the builder-beam and to the bobbin to cause it to revolve in the direction of the arrow, the yarn from the cops will be doubled and wound upon the bobbin in the number of plys or threads corresponding to the number of cops employed; and it will further be seen that if any one or more of the threads should from any cause be broken the drop-guides corresponding to the broken

thread or threads will drop onto the trip-bar, and cause the trip-lever to engage the bobbin and stop its rotation until the thread is united and the parts adjusted. In this instance three cops are employed and consequently three threads to be wound on the bobbin; but more or less cops and threads may be employed, and in every instance the breaking of a single thread, or more than one thread, will stop the winding until readjusted. The trip-lever is fitted with an arm, *t*, extending laterally from the radial arm of the lever, and serves to enable the attendant to trip the lever and stop the bobbin by hand.

What is claimed is—

1. The combination, with a spindle provided with a collar, of a trip-lever having an eccentric segmental arm and a tripping-bar and pivotally secured in the vertical plane of the spindle, and a drop thread-guide for throwing said segmental arm into contact with the head of a bobbin arranged upon the spindle, substantially as described.

2. The combination, with a spindle having a collar, as described, and with a fixed thread-guide and a drop thread-guide, of a trip-lever consisting of a pivoted radial arm formed with a hook, an eccentric segment-arm, and a tripping-bar, and stops for supporting said radial arm in either its vertical or inclined position, substantially as described.

3. The combination, with the spindle provided with a collar to support a bobbin, of a fixed thread-guide, a pivoted drop thread-guide, a tripping-lever having a tripping-bar which is operated by said pivoted drop-guide when a thread is broken, and an eccentric segmental arm which is adapted to raise the bobbin by contact with the bobbin-head, substantially as described.

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Witnesses:
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