(No Model.)

# J. F. NICHOLS.

## BOBBIN SUPPORTING SPINDLE FOR SPOOLING MACHINES, &c.

No. 385,680. Patented July 3, 1888.

Fig. 1.

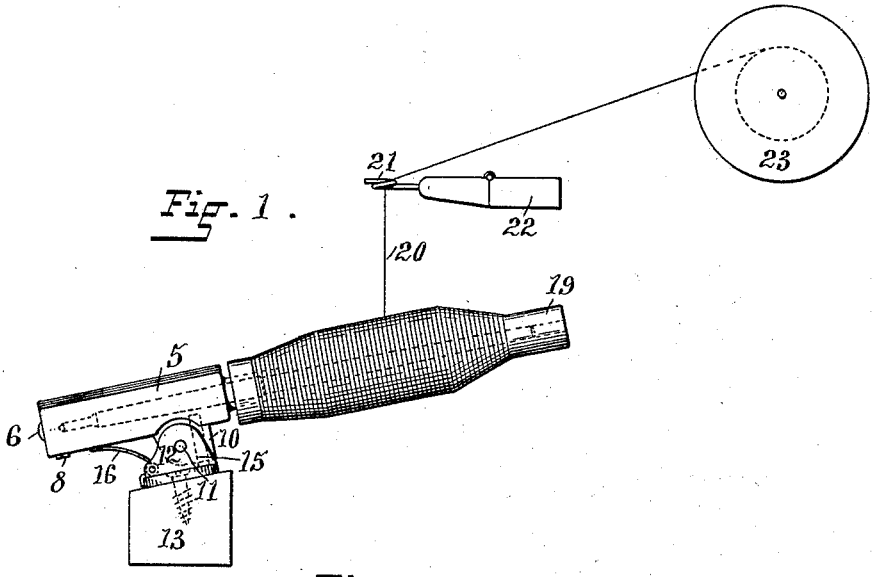



Fig. 2.

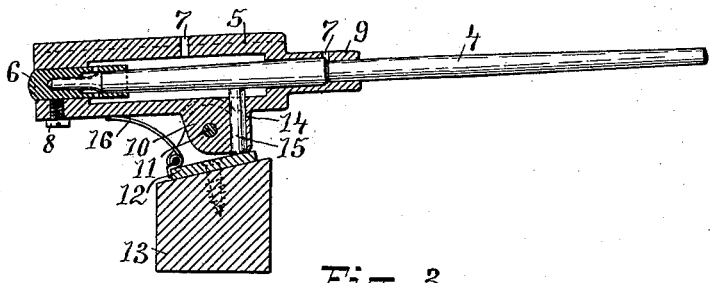
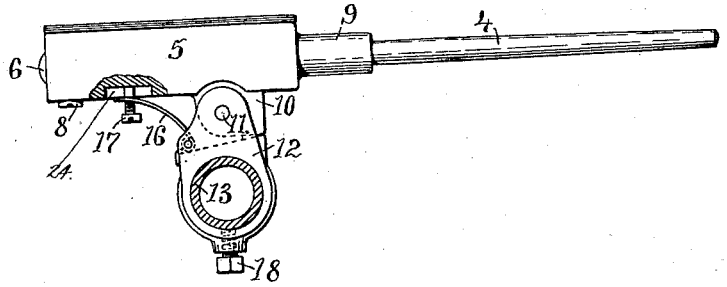



Fig. 3.

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# UNITED STATES PATENT OFFICE.

JOHN F. NICHOLS, OF FALL RIVER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO JOHN D. WARDEN, OF SAME PLACE.

## BOBBIN-SUPPORTING SPINDLE FOR SPOOLING-MACHINES, &c.

SPECIFICATION forming part of Letters Patent No. 385,680, dated July 3, 1888.

Application filed October 12, 1887. Serial No. 252,127. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN F. NICHOLS, of Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Bobbin Supporting Spindles for Spooling-Machines, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a spooling and winding machine; and the objects of the invention are to provide an improved tension device for imparting the necessary tension to the yarn to prevent the kinking of the same, and also to provide an efficient and simple brake for stopping the spindle from rotating when the yarn breaks.

To the aforesaid purposes my invention consists, essentially, in a spindle provided with a pivoted spring-acted bearing tilting from approximately the horizontal into an inclined position, and provided with a brake-pin for binding upon the spindle, the pin having a stop for checking the same; and, further, the invention consists in the details of construction, as hereinafter described.

In order that my invention may be fully understood, I have illustrated in the accompanying drawings and will proceed to describe the best forms thereof so far devised by me, and these forms admit of various modifications, without, however, making a substantial departure from the spirit of my invention.

In the accompanying drawings, Figure 1 is a side view of a spindle provided with my tension device and brake and shown as mounted on the spindle-beam, the spindle having placed thereon a bobbin, from which the yarn is shown as running thence through the yarn-guide mounted on the guide-board to the winding-on spool. Fig. 2 is a longitudinal central sectional view of the improved mechanism, and Fig. 3 is a side view of another form of my improvements.

In the said drawings like numbers of reference designate corresponding parts throughout.

Referring to the drawings, the number 4 designates the spindle, which is mounted and turns in the bearing 5, acting as a bolster therefor, the bearing being provided with the step 6 for the spindle and formed with the oil-holes 7. The step 6 is removable and is held in operative position by the set-screw 8. The end 9 of the bearing 5 is made to closely hug the spindle to prevent the escape of the lubricating-oil, and the spindle may be inserted in the bearing through the butt-end thereof, where the step is located. The bearing 5 is formed with a depending lug, 10, which is pierced by the pivot 11, set across the stand 12, which is mounted on the spindle beam or rail 13. This lug 10 is formed with perforation 14, normal to the axis of the bearing or bolster 5 and communicating with the interior thereof, and in this perforation is loosely disposed the gravity brake-pin 15, the upper end of which engages and binds upon the spindle, while the foot thereof rests upon the stand 12, which serves as a stop to check the brake-pin.

The bearing is provided with the spring 16, which is secured to the stand 12, and with its free end engages the under side of the bearing, and this spring tends to normally maintain the bearing tilted in the downward position, as shown in Figs. 2 and 3, thereby forcing the brake pin against its stop and binding the spindle.

In Fig. 3 I show some slight modifications in the construction of the spring 16, which in this form is secured to the stand, as in my other form; but at its outer free end it is provided with a hole, into which the set-screw 17 is tapped, so as to increase or diminish the tension which the spring may exert upon the tilting bearing, according as the set-screw is screwed down tight or not. A portion of the set-screw 17 may be formed smooth or free from the screw-thread and may slide in the groove 24, formed in the under side of the bearing 5; or the groove 24 may be dispensed with and the rounded point of the screw 17 allowed to simply slide on the under side of the bearing, as the free end of the spring does in my other form; also, in this form the stand 12 is made adjustable along and about the spindle rail or rod 13, and is provided with

the set-screw 18, for holding the stand in adjusted position.

The operation of the improved mechanism is as follows: The bobbin 19 is placed on the spindle 4, and the yarn 20, passing therefrom through the yarn-guide 21, mounted on guide-board 22, is wound onto the rotating spool 23. The yarn, in unwinding from the bobbin as it rotates with the spindle, elevates the inner end of the bearing 5 against the action of the spring 16, and allows the spindle to slip on the brake-pin sufficient to maintain a uniform tension on the yarn and prevent kinking. Under this condition, should the yarn break, the spring 16 will tilt the bearing downwardly, thereby pressing the spindle down upon the brake pin 15, and causing the same to bind upon the spindle and stop the same.

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

1. The combination, as hereinbefore set forth, with the spindle and the pivoted tilting bearing therefor, of the brake-pin loosely mounted in the bearing and engaging the spindle, and a stop for checking the brake-pin and causing the pin to bind the spindle when the load on the spindle tilts the bearing downwardly, as and for the purpose herein described.

2. The combination, as hereinbefore set forth, with the spindle and the pivoted tilting bearing therefor, provided with a perforation for the brake-pin, of the gravity brake-pin for binding upon the spindle, and the stop for checking and holding the brake-pin, so as to bind on the spindle and stop the same from rotating when the bearing is tilted downwardly, as and for the purpose herein described.

3. The combination, as hereinbefore set forth, with the spindle and the pivoted tilting bearing therefor disposed in the horizontal, or nearly so, of a spring for engaging the bearing and normally holding the bearing tilted downwardly, and acting in connection with a brake-pin mounted in the bearing and engaging the spindle to impart a tension to the yarn, as and for the purpose herein described.

4. The combination, as hereinbefore set forth, with the spindle and the spring-acted tilting bearing therefor, of the brake-pin loosely mounted in the bearing for binding upon the spindle, and the stop for checking the pin, as and for the purpose herein described.

5. The combination, as hereinbefore set forth, with the spindle rail or beam and a stand adjustable along and about the rail or beam, of the spring-acted tilting bearing provided with the spindle, the brake-pin, and perforation for guiding the pin, and pivoted to the stand and tilting from approximately the horizontal into the inclined position, as and for the purpose herein described.

6. The combination, as hereinbefore set forth, with the spindle 4, of the tilting spring-acted bearing 5, formed with the oil-holes 7 and the small end 9, and provided with the removable step 6, as and for the purpose herein described.

7. The combination, as hereinbefore set forth, with the spindle 4, of the tilting bearing 5 and the stand 12, to which the bearing is pivoted, the bearing formed with the perforation 14 having the brake-pin 15 working therein, as and for the purpose herein described.

8. The combination, as hereinbefore set forth, with the spindle-rail 13 and the stand 12, mounted on the rail and capable of adjustment thereon, of the bearing 5, provided with the spindle 4, the brake-pin 15, and the perforation 14, and pivoted to and tilting on the stand and provided with the spring 16, substantially as and for the purpose herein described.

JOHN F. NICHOLS.

Witnesses:
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