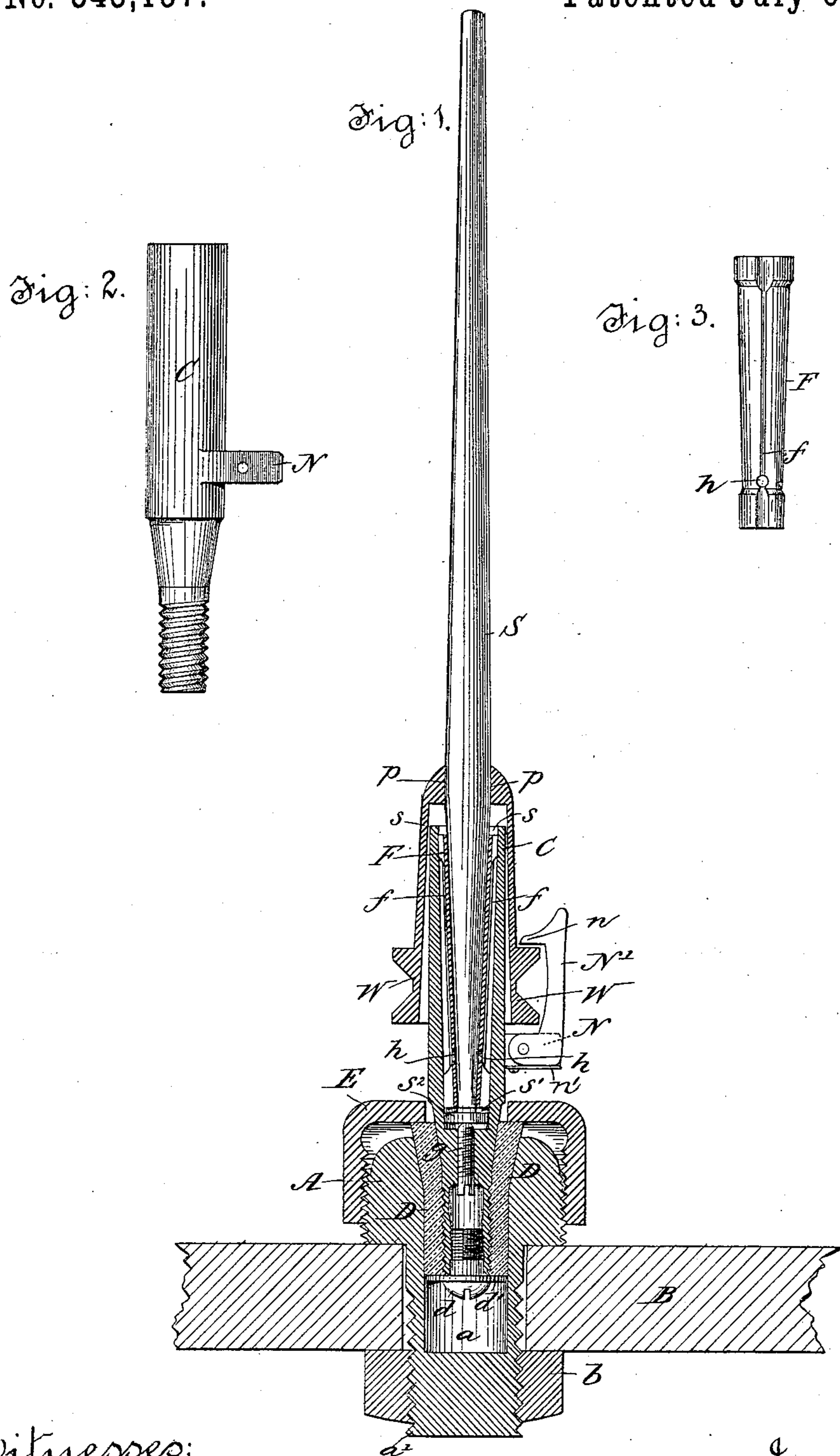


(No Model.)

T. H. LOGAN.
SPINDLE AND SUPPORT THEREFOR.

No. 345,157.

Patented July 6, 1886.



witnesses:
John H. Rennie.
A. J. Harrison.

Inventor,
Thomas H. Logan.
Per Wright, Brown & Crossley,
his Attys.

UNITED STATES PATENT OFFICE.

THOMAS H. LOGAN, OF LOWELL, ASSIGNOR OF TWO-THIRDS TO GEORGE A. BYAM, OF CHELMSFORD, AND LARKIN T. TRULL AND JEREMIAH E. HELME, BOTH OF LOWELL, MASSACHUSETTS.

SPINDLE AND SUPPORT THEREFOR.

SPECIFICATION forming part of Letters Patent No. 345,157, dated July 6, 1886.

Application filed March 20, 1886. Serial No. 195,943. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. LOGAN, of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Spindles and Supports Therefor, of which the following is a specification.

My invention relates to spindles for spinning-machines and supports therefor, and particularly to such devices, and contrivances in which the spindle is flexibly mounted in its supports for the purpose of enabling it to accommodate itself in its rotation to any unevenness of strain thereon.

The invention has for its object to so construct the cushioning-support for the bolster as to give to the spindle the most natural freedom of motion in finding its true center of rotation.

It is also the object of the invention to so construct the means for supporting the bolster that jars or vibrations given to the bolster-rail shall not be communicated or fully communicated to the spindle.

It is also the object of the invention to provide improved means for adjusting the devices which permit the spindle to yield laterally in its rotation, so as to render them more or less rigid, and to permit of this adjustment being made while the spindle is in operation.

It is also the object of the invention to incidentally improve the spindle and its supports in carrying out the above-recited objects.

To the foregoing ends my invention consists in the improvements hereinafter described, and subsequently set forth in the claims.

Of the drawings hereto annexed and forming a part of this specification, Figure 1 represents a longitudinal vertical section of my invention, certain parts being shown in elevation. Fig. 2 represents a side elevation of the bolster-case, and Fig. 3 a like elevation of the bolster.

Similar letters of reference indicate similar parts in all of the figures.

A designates the socket or base, being shown as provided with a chamber, *a*, and a threaded shank, *a'*, adapted to pass through the rail B, the nut *b*, upon the end of the shank *a'*, serving to keep the socket or base firmly connected

to the rail. The chamber *a* is shown as slightly tapering for a short distance from the crown or top end of the socket or base A, and thereafter it is continued in a straight line to its lower extremity. The bolster-case C is formed with tapered and straight lower end, which corresponds with and extends down to the chamber *a* in the socket A, the straight lower portion of the said bolster-case being threaded to receive thereon a sleeve or collar, D, of cork, rubber, or other analogous yielding material, which is adapted to fit quite snugly in the chamber *a*. As shown in the drawings, the lower end of the said bolster-case C is made hollow, and a portion of it is threaded to receive the threaded shank of a screw, *d*, said screw *d* holding in place a washer, *d'*, which bears against the lower end of the bolster-case C, and the yielding collar or sleeve D serving to keep the latter more securely upon the bolster-case. The threaded periphery of the socket or base A receives upon it a cap, E, which, when screwed thereon, bears upon the upper end of the collar or sleeve D, which projects slightly above the crown of the socket or base A, a depression of this cap E serving to force or compress the collar or sleeve D further into the chamber *a*, giving greater rigidity to the bolster-case and consequently allowing of less gyration of the spindle S in its revolution. An elevation of the cap E lessens the pressure upon the collar or sleeve D; and permits greater freedom of lateral or vibratory movement of the bolster-case, allowing it to yield to accommodate itself to any unequal load or strain upon the spindle S. The bolster F, held, as usual, in the case C by friction, is provided with channels or passages *f* in its periphery made in the direction of its length, down which and through a hole, *h*, in the bolster the oil or other lubricant passes to lubricate the spindle S. This bolster F is of such length as to leave a space, *s*, at the top and a space, *s'*, at the bottom, the space at the top forming a substantial oil-cup at that point and preventing the overflow of the oil or lubricant over the top of the bolster-case, as would be the case if the bolster and bolster-case were made flush at their upper ends. The space *s'*

at the bottom allows for the placement of a step, s^2 , shown as provided, preferably, with a raised center whereon the spindle S revolves. This step S^2 is made adjustable by the set-

5 screw g in the bolster-case C, the said set-screw serving to permit the step to be adjusted to the spindle when the same becomes loosened in the bolster by friction therewith. The bolster-case E is provided with a bearing, N,
10 preferably cast integral therewith, and to which one end of an arm or finger, N' , is fulcrumed or pivoted, the other end of the said arm being shown as provided with a lip, n , which in practice is normally held above the upper face of
15 the whirl W by the aid of a flat spring, n' , fastened to the bearing N, and upon which the lower end of the finger N' rests. By this device the whirl W and the spindle S, which are held together frictionally at the point P, as is
20 usual, are prevented from being withdrawn when "doffing" or removing the bobbin. By placing the elastic cushion for supporting the bolster entirely below the spindle-step, provision is made for allowing the spindle to have
25 the most natural motion when subjected to an uneven load or uneven strain from the band on the whirl or pull of the yarn from the traveler or from a warped or otherwise imperfect bobbin on the spindle in finding its true center of rotation. Again, by making the entire
30 support intermediate of the base or bolster-rail and bolster of a yielding or cushioning character, jars and the like given to the bolster-rail will not readily be communicated to the spindle, but be taken up by the cushion or
35 yielding support, thus tending to secure steadiness in the motion of the spindle. Furthermore, by arranging the devices for adjusting the rigidity of the cushioning means
40 above the bolster-rail and outside of the base and bolster, such adjustment can readily be made while the spindle is in operation and without removing or disturbing the operative position of any of the parts.

15 It is obvious that changes may be made in the form and arrangement of the devices constituting my improvements, all within the limits of mechanical skill, without departing from the spirit of my invention.

50 I claim—

1. The combination, with the spindle, its bolster, bolster-case, and step, of the bolster-base, and devices, substantially as set forth, entirely of a yielding or cushioning character
55 intermediate of the bolster case and base and entirely below the step, whereby the spindle

is allowed an easy and natural lateral motion in finding its true center of rotation when subjected to an uneven load or strain, substantially as hereinbefore set forth.

2. The combination, with the spindle, its bolster, and bolster-case, of the bolster-base, devices, substantially as set forth, intermediate of the bolster case and base, of a cushioning or yielding character throughout, and devices
60 for adjusting the degree of rigidity of such cushioning or yielding devices, as set forth.

3. The combination, with the spindle, its bolster, bolster-case, and step, of the bolster-base, and devices, substantially as set forth, entirely of a yielding or cushioning character
70 intermediate of the bolster case and base and below the step, and devices, substantially as described, for adjusting the degree of rigidity of such yielding or cushioning devices, as set forth.

4. The combination, with the spindle, its bolster, bolster-case, and step, of the base A, the yielding collar or thimble D intermediate of the bolster-case, and base-screw d , washer
80 d' , and adjusting-cap E, as set forth.

5. The combination, with the spindle and its bolster, of the bolster case, base, devices, substantially as set forth, intermediate of the bolster case and base, of a cushioning or yielding
85 character throughout, and devices, as set forth, outside of the bolster and bolster-case, whereby the degree of rigidity of said cushioning or yielding devices may be readily adjusted while the spindle is in operation and
90 without removing any of the parts, as set forth.

6. The bolster-case and bolster, the said bolster-case having its lower end partially tapered and partially straight, the straight portion being provided with an external and
95 internal thread, the external thread receiving upon it a sleeve or collar composed of yielding material and the internal thread receiving the threaded portion of a screw, combined with said sleeve or collar and screw, and a
100 washer held in place by the said screw, and the threaded socket or base, and a cap for holding the said bolster-case firm with relation to said socket or base, substantially as described.

In testimony whereof I have signed my name
105 to this specification, in the presence of two subscribing witnesses, this 13th day of March, 1886.

THOMAS H. LOGAN.

Witnesses:

JOHN J. PICKMAN,
GEORGE W. POORE.