J. H. Le MOYNE.

Spindle for Spinning-Machines.

No. 161,888. Patented April 13, 1875.

Fig. 1.

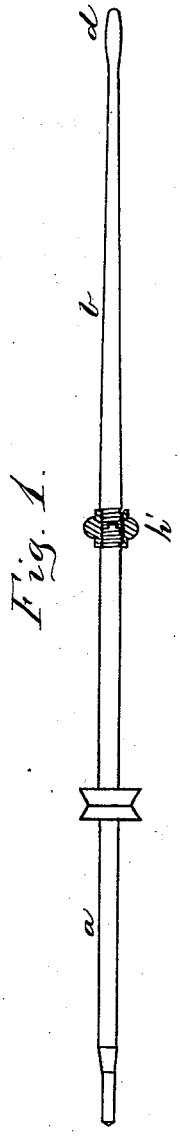


Fig. 3.

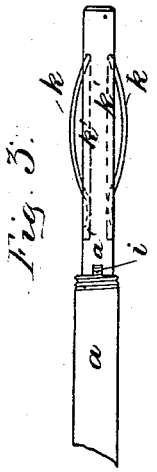
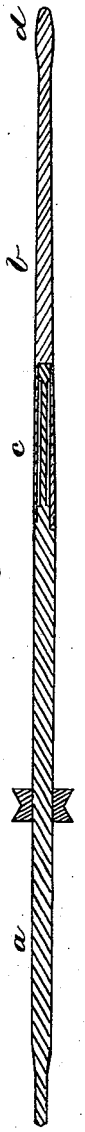


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOEL H. LE MOYNE, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SPINDLES FOR SPINNING-MACHINES.

Specification forming part of Letters Patent No. **161,888**, dated April 13, 1875; application filed February 20, 1875.

To all whom it may concern:

Be it known that I, JOEL H. LE MOYNE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Mule and Shuttle Spindles; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in mule-spindles made in two parts, that are attached firmly together during the operation of spinning the cop on the spindle, and after which operation that part of the spindle on which the cop is spun is detached from the lower part of said spindle, and inserted with the cop on it in a shuttle to be used in the ordinary manner in a loom.

I provide such detachable upper part of the improved mule-spindle with a number of annular projections, flanges, or swells, by which I am able to hold the thread firmly on the spindle, and thus prevent the breaking of the thread when the spindle is inserted in the shuttle afterward.

The upper part of my improved mule-spindle is attached to the lower part by means of a cylindrical projection, provided with suitable springs in one part of the spindle fitting in a bored-out sleeve in the other part of said spindle; and to prevent the upper part of my improved spindle from remaining stationary when the lower part revolves around its axis, I provide one part of the said spindle with a key or projection that fits in a corresponding recess made on the other part of said spindle, and to further lock both parts of my improved mule-spindle together during the operation of spinning the cop thereon I make a screw-thread on the exterior of both parts, where they join together, and screw a suitable check-nut over said ends.

It will thus be seen that the object of my invention is to make a mule-spindle in two parts, the upper one of which is to be detached from the lower one after the cop is spun around it and inserted in the shuttle without transferring the cop from one spindle to another, as has heretofore been the case where solid mule and shuttle spindles have been used.

As the cop is not transferred from the spindle on which it is spun until it is gradually fed out from the eye of the shuttle it will readily be understood that I may provide my improved mule-spindle with any number of annular projections, swells, or flanges, by the employment of which the thread can be held much firmer on the spindle, as compared with the ordinary tapering spindles now in use, and by which I obtain a great saving in thereby preventing the thread from breaking when the spindle is used in the shuttle.

On the accompanying drawings, Figure 1 represents a side elevation of my improved mule-spindle. Fig. 2 represents a central longitudinal section of the same, and Fig. 3 represents an enlarged view of the locking device of my improved spindle.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

a b represent my improved mule-spindle, of which *a* represents the lower and *b* the upper part, which parts are joined together at *c*, as shown—that is, the lower part *a* is provided with a shank, *a'*, that is inserted in a corresponding bored-out sleeve in the end of the part *b*, or vice versa. A small projection, *i*, is made at the base of the shank *a'*, that fits in a corresponding recess in the sleeve of the part *b*, or vice versa, and the shank *a'* is furthermore provided with one or more side springs, *k k*, fitting in recesses *k' k'*, shown in dotted lines in Fig. 3, by means of which an increased friction is obtained against the inside of the bored-out sleeve in the part *b*. I also use in addition a lock-nut, *h'*, shown in Fig. 1, that is screwed over the ends of the parts *a b*, as shown in Fig. 1, said ends being for this purpose provided with a screw-thread cut on their exterior surfaces.

The upper part *b* of my improved mule-spindle is provided with a number of annular

projections, flanges, or swells, *d d d*, so as to more firmly secure the cop to said spindle part, and to prevent the cop from breaking when the spindle is used in the loom-shuttle.

What I wish to secure by Letters Patent and claim is—

In combination with the parts *a b* of a mule-spindle, the locking device, consisting of the shank *a'*, projection *i*, springs *k k*, bored-out sleeve in the part *b*, and the check-nut *h'*, as herein shown and described.

In testimony that I claim the foregoing as my own invention I have affixed my signature in presence of two witnesses.

JOEL H. LE MOYNE.

Witnesses:

ALBAN ANDRÉN,

JOHN R. HEARD.