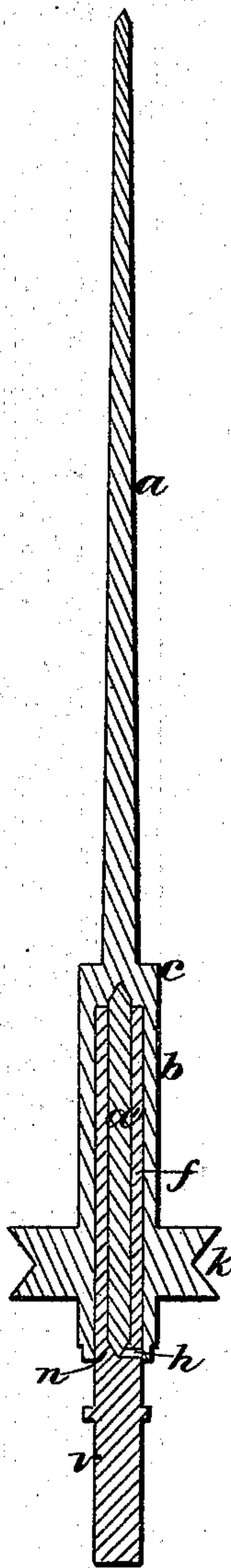


W. T. CARROLL.

Spindles for Spinning-Machines.

No. 144,601.

Patented Nov. 18, 1873.



WITNESSES
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By

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UNITED STATES PATENT OFFICE.

WILLIAM T. CARROLL, OF WOONSOCKET, RHODE ISLAND, ASSIGNOR TO
SIMEON S. COOK, OF SAME PLACE.

IMPROVEMENT IN SPINDLES FOR SPINNING-MACHINES.

Specification forming part of Letters Patent No. **144,601**, dated November 18, 1873; application filed
September 8, 1873.

To all whom it may concern:

Be it known that I, WILLIAM T. CARROLL, of Woonsocket, in the county of Providence and State of Rhode Island, have invented certain Improvements in Spindles, of which the following is a specification:

Figure 1 is a central vertical section of the invention.

The present invention relates to certain new and useful improvements in spindles, having for its object the construction of a spindle which is light, durable, conveniently lubricated, and operated with less power and at greater velocity than the spindles ordinarily in use.

My invention consists in an auxiliary spindle operating in combination with the main spindle and bolster, substantially as hereinafter specified.

In the drawing, *a* represents the top of a slender tapering spindle, formed with a projecting tapering base, *b*, having near its bottom a whirl, *k*, and fitting over a stem, *f*, of a bolster, *v*. The stem *f* is formed with a bore, and contains an auxiliary loose spindle, *a''*, that turns in a seat or bearing, *n*, formed in the upper portion of the bolster *v*. The top of the auxiliary spindle *a''* forms a seat or bearing for the upper portion of the base *b*, which revolves on it, as well as on the top of the stem *f*. A lubricating-passage is formed between the auxiliary spindle *a''* and the interior of the stem *f*, consisting of an orifice, *h*, which is supplied with a wooden or other plug, through which the oil percolates, thus lubricating the desired portions of the spindle. By means of the auxiliary spindle *a''*, the friction of the main spindle is greatly lessened, and therefore can be operated with greater facility than heretofore.

By diminishing the diameter of the upper portion *a* of the spindle, and extending it in a tapering form, so as to securely hold and allow for the wear of the bobbin, which is revolved with it, the weight of the spindle is decreased, and the friction caused by the bob-

bin revolving on the top bearing of a dead spindle is entirely overcome. Besides, a bobbin revolving on a dead spindle soon has a hole worn in its top, which prevents its running steadily; but in my improvement the bobbin is tightly fitted on a live spindle that revolves with it, thereby obviating this objection.

By reference to the drawing, it will readily be seen that my improved spindle is run both on the inside and outside of the stem *f* of the bolster, *v*, which is formed with a seat or bearing, *n*, to receive the auxiliary spindle *a''*, thus giving a firm support to the spindle, and subjecting it to but little vibration, and consequently allowing it to be run at a greater rate of speed, and an increased number of spindles to be actuated with less power than heretofore.

By arranging the spindle as hereinabove described, and forming the whirl *k* and the greater part of the spindle above the top rail of the frame, one rail of the machine may be dispensed with, the height of the spindle is shortened, and its weight, which in ordinary ring spinning-spindles is about twelve ounces, is, by the present arrangement, reduced to three ounces, and therefore requires less power to operate it.

Having thus fully described my improvements, what I claim as my invention, and desire to have secured to me by Letters Patent, is—

The auxiliary spindle *a''*, operating in the socket or stem *f* on the seat *n*, and forming a seat or bearing for the base *b* of the spindle *a*, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM T. CARROLL.

Witnesses:

HENRY P. WILLIAMS,
GEORGE A. WILBUR.