W. F. HASTINGS.

SPINDLES AND BOLSTERS FOR SPINNING AND TWISTING MACHINERY.

No. 182,576. Patented Sept. 26, 1876.

Fig. 1.

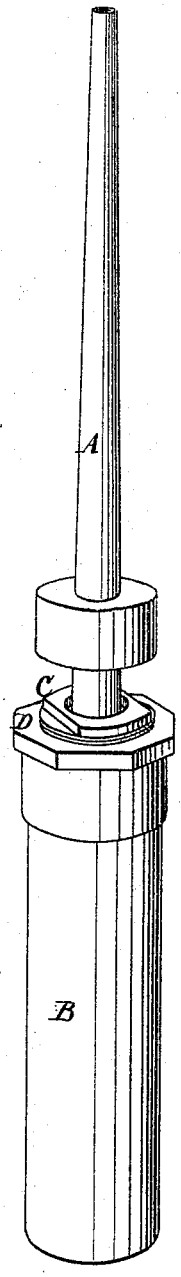

Fig. 2.

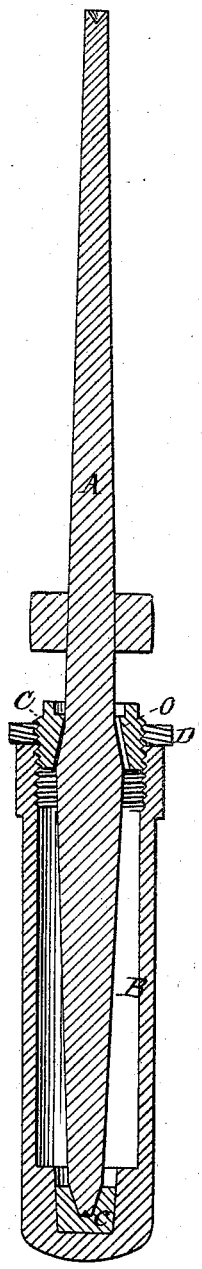

Fig. 3.

Witnesses:

W. B. Masson

Edmund Masson

Inventor.

Watson F. Hastings

By R. R. Voorhees

Atty.

UNITED STATES PATENT OFFICE.

WATSON F. HASTINGS, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN SPINDLES AND BOLSTERS FOR SPINNING AND TWISTING MACHINERY.

Specification forming part of Letters Patent No. **182,576**, dated September 26, 1876; application filed January 10, 1876.

To all whom it may concern:

Be it known that I, WATSON F. HASTINGS, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain Improvements in Spindles and Bolsters for Spinning and Twisting Machinery, of which the following is a specification:

The object of this invention is to provide the bolsters of spinning and twisting machines with a spindle which shall not only be perfectly lubricated, but which shall be capable of being safely and continuously driven at the highest speed attainable, and at a higher speed than has yet been attained. To this end, therefore, the said invention consists of a spindle provided with an upper journal, conical in shape, and running in a similarly-shaped bearing, consisting of an adjustable nut screwed into the head of a hollow bolster, the foot of the spindle being stepped in the ordinary manner in a bearing in the bottom of the bolster, whose interior forms an oil-receptacle for the lubrication of the spindle.

In the accompanying drawing, forming part of this specification, A is the spindle; *a*, its conical upper journal; and *c*, its lower bearing stepped in the bottom of the bolster B. C is an adjustable nut, bored out to fit the conical journal *a* of the spindle, and provided with threads by which it is screwed into the head of the bolster B. It can readily be seen that by setting up or screwing the nut C into the bolster the spindle will be steadily held between its upper and lower bearings. All wear can thus be easily and quickly taken up, and lost motion thereby prevented. Great attention has heretofore been paid to the efficient lubrication of spindles; but while this spindle is perfectly lubricated a nice adjustment for wear becomes necessary on account of the high speed at which it is desirable to drive it, ten thousand revolutions per minute being readily attainable. At such a speed spindles, as ordinarily mounted, and their bushings or bearings, would soon become so much worn as to require the renewal of the bushings, and even the substitution of new spindles. The jam nut or binder D is set up after the nut C is adjusted and firmly holds it where set.

The oil-channel O allows the oil forced up by the rotation of the spindle to run back again to the oil-chamber below.

It is evident that the jam-nut D may be dispensed with altogether, if desired, and the bearing-nut C may also be secured to the bolster by other equivalent or well-known means without departing from the principles underlying this invention.

Having thus fully described this improvement in spindles and their attachments to bolsters as of my invention I claim—

1. A spindle for spinning or twisting machines, provided with an upper conical or tapered journal adapted for bearings in the top of its bolster, substantially in the manner described, for the purposes hereinbefore set forth.

2. The combination, with the spindle A, having a conical or tapered journal *a*, of the adjustable bearing-nut C, in the manner substantially as hereinbefore described, for the purposes set forth.

3. The combination with the bolster B, provided with a step, *c*, of the spindle A, interiorly-tapered bearing-nut C, and jam-nut D, in the manner substantially as hereinbefore described, for the purposes set forth.

WATSON F. HASTINGS.

Witnesses:

E. J. MIDDLETON, Jr.,

P. R. VOORHEES.