

J. M. STONE.
Spinning-Machines.

No. 153,991

Patented Aug. 11, 1874.

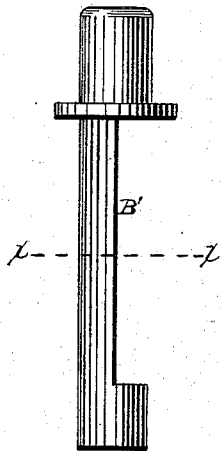


FIG. 3.

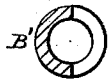


FIG. 4.

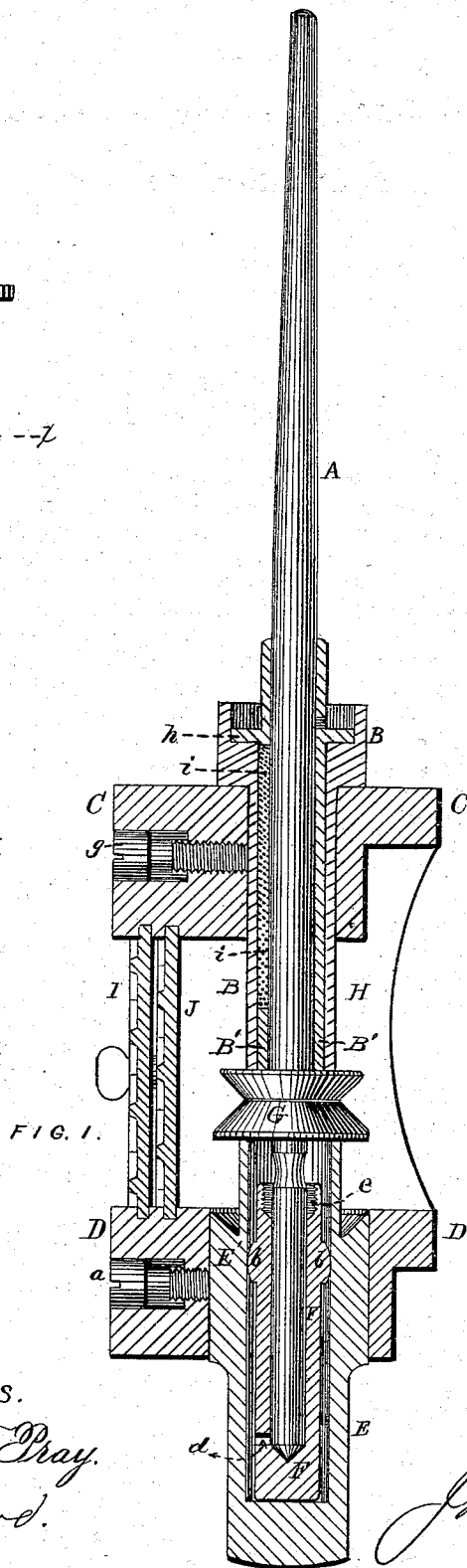


FIG. 1.

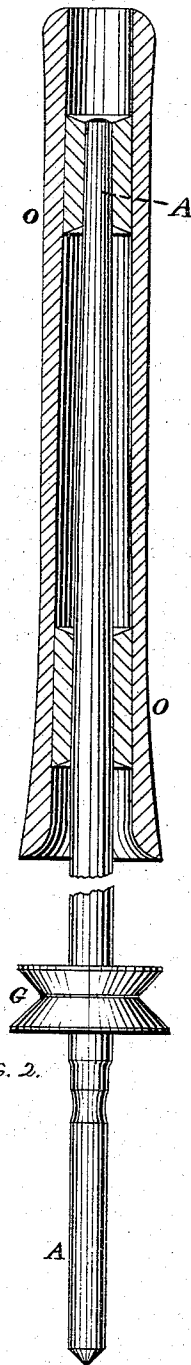


FIG. 2.

WITNESSES.

David T. Pray.
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JOSEPH M. STONE, OF NORTH ANDOVER, MASSACHUSETTS.

IMPROVEMENT IN SPINNING-MACHINES.

Specification forming part of Letters Patent No. **153,991**, dated August 11, 1874; application filed April 12, 1873.

To all whom it may concern:

Be it known that I, JOSEPH M. STONE, of North Andover, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Spinning-Machines, of which the following, taken in connection with the accompanying drawings, is a specification:

My invention consists of a lower spindle-bearing composed of two parts—a step-socket and an interior bushing, which is fitted into the socket in a manner to be described. The step-socket is made with a cylindrical bore or chamber of a definite depth, and the bushing is made of a smaller diameter than the bore, excepting at one part, which is made larger and of a spherical form, and of a diameter to accurately fit the cylindrical bore of the socket, and it rests at the bottom upon the bottom of the bore. This construction allows the bushing to take a position in conformity with the line of the spindle, and requires the step-socket to be accurately bored to size only in the part that receives the spherical enlargement on the bushing, which is not the case when spherical bolsters have been fitted to spherical bearings in the rail.

In the drawings, Figure 1 is a vertical transverse section of the bolster and step-rails and the spindle-bearings, and showing the spindle and its whirl in elevation. Fig. 2 is an elevation of the spindle detached, with a bobbin attached thereto, shown in section. Fig. 3 is a side elevation of the bolster-bushing, and Fig. 4 is a section of same on line *x x*.

A is the spindle; B, the bolster-socket; B', the bolster-bushing; C, the bolster-rail; D, the step-rail; E, the step-socket; F, the step-bushing, and G the spindle-whirl. The spindle A and the whirl G are constructed substantially in the usual manner. The rails D and E are cast in one piece, the two rails being connected together by the bar H in a well-known manner. The lower rail E is provided with holes for the reception of the step-socket E, of sufficient size to allow of the free passage of the whirl G through the same.

The step-socket E has its upper end E' made sufficiently large to fit the holes in the rail, and is secured therein by the set-screw *a* in a well-known manner. The step-socket E is made considerably longer than the thickness of the step-rail, and extends some distance below said rail for the purpose of inclosing the whole length of that part of the spindle below the whirl in a bearing, and said socket has formed therein a plain cylindrical chamber, into which is fitted the step-bushing F, touching the socket E only on its bottom and the exterior of the spherical enlargement *b* formed thereon, thus leaving a chamber, *c*, around said bushing F for the reception of oil for lubricating the bearing of the spindle in said bushing, to which it finds access through the hole *d* near the bottom of the spindle, and through other holes piercing said bushing at intervals, but not shown in the drawings. The bushing F is chambered out at its upper end somewhat larger than the spindle, and has a screw-thread, *e*, cut therein for the purpose of receiving the end of a screw-rod to withdraw the bushing from the socket. Instead of the internal thread *e*, a screw-thread may be formed upon the exterior of the upper end of the bushing, and a pipe or socket handle having a female thread formed therein may be used instead of the rod for withdrawing the bushing from its socket. The bolster-socket B is fitted to suitable holes in the rail C, and secured therein by the set-screw *g*, and is a cylinder open at both ends, with an enlargement of its chamber at its upper end to receive the collar *h* on the bolster-bushing B', and to form an oil-chamber. The bolster-bushing B' is cut away for the greater part of its length upon the side opposite to the direction which the spindle-belt draws, and the chamber thus formed is filled with felt, *i*, to be kept saturated with oil for the purpose of lubrication. The same construction may be applied to the step-bushing with equally good results. I and J are two sliding doors for closing up the space between the rails to keep out the dust, and, by moving the same, to give access to the belts,

but is no part of my present invention. O is a bobbin having two bearings upon the spindle, said bearings being at about equal distances from either end of the bobbin.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

The combination, with the cylindrically-bored step-socket, applied to the step-rail as described, of the bushing having a spherical

enlargement to fit said bore, the body of the bushing in other parts being free of the bore, substantially as described.

Executed at Boston, Massachusetts, this 29th day of March, 1873.

JOSEPH M. STONE.

Witnesses:

DAVID T. PRAY,
S. A. WOOD.