S. H. FOLLETT & A. H. POTTER.

Spindle-Bolsters for Spinning-Machines.

No. 146,241. Patented Jan. 6, 1874.

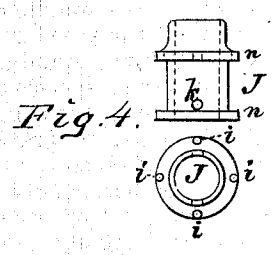

Fig. 4.

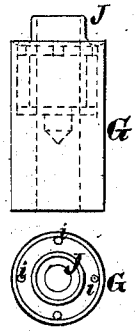

Fig. 5.

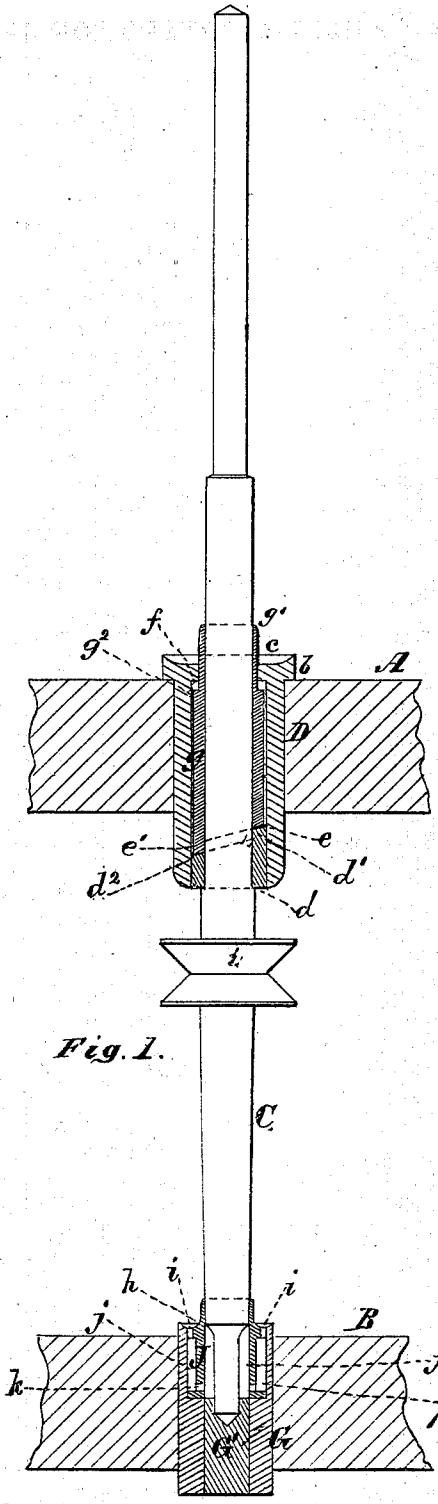

Fig. 1.

Fig. 2.

Fig. 3

Witnesses.

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UNITED STATES PATENT OFFICE.

SULLIVAN H. FOLLETT AND ALBERT H. POTTER, OF NORTH SMITHFIELD, RHODE ISLAND.

IMPROVEMENT IN SPINDLE-BOLSTERS FOR SPINNING-MACHINES.

Specification forming part of Letters Patent No. **146,241**, dated January 6, 1874; application filed August 23, 1873.

To all whom it may concern:

Be it known that we, SULLIVAN H. FOLLETT and ALBERT H. POTTER, of North Smithfield, in the county of Providence and State of Rhode Island, have invented a new and valuable Improvement in Loose Bushings; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a section of our improved bushing. Figs. 2, 3, 4, and 5 are details of same.

The object of this invention is to improve bolsters and spindles for spinning machinery by inserting into the bolster a loose bushing, which is vertically and automatically movable, for the purpose of allowing the spindle to be run at a very high rate of speed without wabbling or vibrating.

In the accompanying drawings, A represents the bolster-rail, and B the step-rail, for a spindle, C, which latter may be of the usual well-known construction for receiving and running a bobbin. We bore a hole through the bolster-rail A of uniform diameter, and into this hole is fitted a bolster, D, which has a flange, *b*, surrounding its upper end, and which is held in place by a screw tapped laterally into the rail, or by any other suitable means. This bolster is drilled through, so as to leave a cylindrical passage of two diameters, as shown in Fig. 1, and into said passage is applied two bushings, *d g*, of any suitable metal. The bushing *g*, which is loose, is first introduced into the bolster, so that its reduced upper portion g^1 passes through the upper cupped end *c* of the bolster. The shorter bushing *d* is then introduced and secured fast into its place. There is a space, g^2, above the shouldered portion of the bushing *g*, which allows it to receive vertical play, which play is obtained by short bearing-extensions e' d^1, impinging against oblique surfaces e d^2, formed on the adjacent ends of the bushings, and the friction of the spindle on the bore of the loose part of the bushing acting to turn it about its axis.

When the spindle is rotated very rapidly, the loose bushing will be turned more or less around, and in turning it will rise, owing to the oblique bearing-surfaces above named.

The extensions e' d^1 are made narrow to reduce frictional surface, and they also afford stops to prevent the bushing *d* turning entirely around.

It will be seen from the above description that the length of bearing on the spindle will be increased in proportion to the speed given the spindle, which will allow the spindle to be driven at a very high rate of speed without its vibrating; in other words, the spindle will always maintain its center of gravity, however rapidly it be run. To keep the step of the spindle well lubricated without the necessity of frequently renewing the oil, we employ a hollow step-block fixed rigidly into its rail B, and into which a hardened steel plug, G′, is driven, that affords a bearing for the lower end of the spindle C. Above this plug G′ the chamber in the step-block is enlarged, and into this portion an annularly-chambered portion, J, is rigidly secured. This portion J presents two annular flanges, *n n*, and has perforations *k* and *i*, and forms, when in place, an external chamber, *p*, an internal chamber, *j*, and a cup, *h*, which latter is on top of the portion J, as clearly shown in Fig. 1. The chambers *p j* are supplied with oil through the perforations *i k*, and whatever oil is carried up by the rotation of the spindle above the upper end of the portion J into the cup *h* flows back again to the spindle through said perforations. Thus there is continually kept up a circulation of oil and a perfect lubrication of the spindle.

What we claim as new, and desire to secure by Letters Patent, is—

The loose vertically and axially movable bushing *g* and fixed bushing *d*, constructed and fitted into the bolster D, substantially as specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

SULLIVAN H. FOLLETT.
ALBERT H. POTTER.

Witnesses:
FRANCIS L. O'REILLY,
GEORGE A. WILBUR.