(No Model.)

A. S. HOPKINS.

SPINDLE BOLSTER FOR SPINNING MACHINES.

No. 296,962. Patented Apr. 15, 1884.

Fig. 1

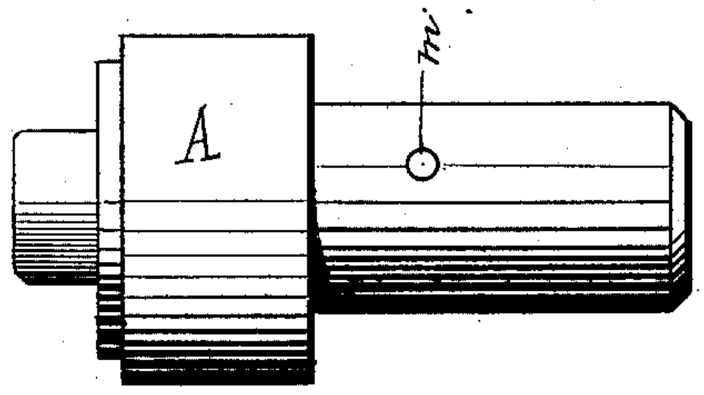


Fig. 3

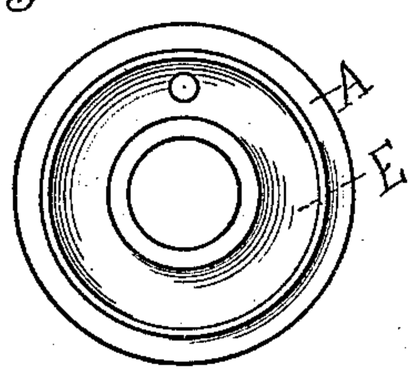


Fig. 4

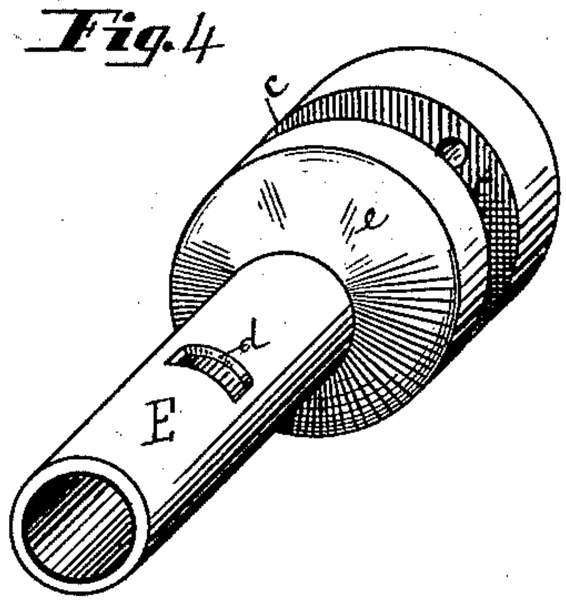
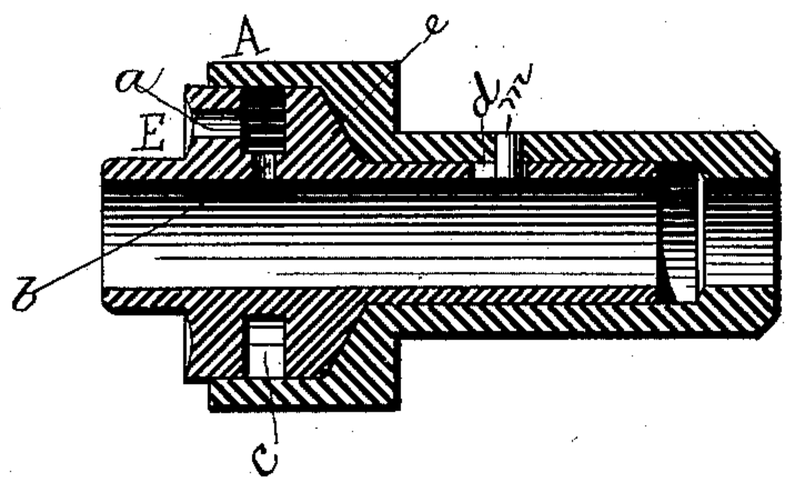


Fig. 2



WITNESSES:

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UNITED STATES PATENT OFFICE.

ADDISON S. HOPKINS, OF PASCOAG, RHODE ISLAND.

SPINDLE-BOLSTER FOR SPINNING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 296,962, dated April 15, 1884.

Application filed May 31, 1883. (No model.)

To all whom it may concern:

Be it known that I, ADDISON S. HOPKINS, of Pascoag, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Spindle-Bolsters for Spinning-Machines, of which the following is a specification.

My invention relates to spindle-bolsters or bearings for spindles; and it consists of the peculiar construction, hereinafter described, of the loose bushing or bolster and bolster-case, the former being slightly smaller in diameter than the internal diameter of the latter, which allows the spindle to cause both vertical and axial play of the bolster within the case, as far as permitted, by an engaging-pin projecting into a recess in the bolster, for the purpose of automatically adjusting and retaining the spindle in its true center of inertia while rapidly rotated.

In the accompanying drawings, Figure 1 is an elevation of the bolster-case, and showing the end of the projecting bushing or bolster; Fig. 2, a section through the center of both bushing and bolster; Fig. 3, a top view of both, and Fig. 4 a perspective view of the inside loose bushing or bolster.

A represents the bolster-case, which is rigidly retained, as usual, in a recess in the rail of the spinning-machine. The larger of the two internal diameters is provided with a bevel-edge, which is a counterpart of the bevel-edge of the under side of the enlarged part of the loose bushing, in order that the latter may rest in and be supported by the former at that point, instead of at the bottom of the bolster-case, or by a lug or pin, as heretofore. The bolster is composed of a metal tube, closely fitting the spindle, which is inserted within it, and is made slightly smaller in diameter than the internal diameter of the bolster-case, to allow partial axial and vertical movement within the latter, which movements are regulated and controlled by the mechanism hereinafter described, and enable the spindle to be run at a high rate of speed without vibration or continued vibratory movement.

M is an engaging-pin inserted in the bolster-case and extending into a slot or recess, *d*, made in the bolster at a point below the cone-shaped bearing-surface, said slot being a little wider than the diameter of the pin, to allow partial vertical movement, and extending around the bolster less than its whole circumference, to allow an axial movement less than complete rotation.

An annular groove, *c*, is made in the projection or enlarged part of the bushing, which groove is filled with wicking to receive the oil which flows down into the groove *c* through the holes *a*, the upper surface of the bushing being dished or grooved (see Fig. 3) to receive the oil, and holes *b* are made in the groove *c*, to allow the oil to strain through the wicking and through said holes *b* to the inner surface of the bushing and against the spindle.

The projecting shoulder of the bolster fits into the enlargement of the bolster-case, so that the former shall not move laterally to any appreciable extent in the latter, but not so tightly but that the bolster may move vertically and axially and shift its axis in the case when the spindle binds in the bearings, and accommodate itself to the constant tendency of the spindle while rapidly rotating to find and maintain its center of inertia. The tapering cone-shaped bearing *e* facilitates such adjustment, which would not be the case with a square shoulder or bearing.

With my improvement as described it is not necessary to make the bushing or bolster eccentric with the case, as is sometimes done, and the action is different from that of ordinary loose bolsters depending upon lateral play within the case to permit the spindle to find its true axis, and with which, when the spindle vibrates at top, such vibration is resisted and reacts upon the spindle, having a tendency to keep up and rather increase than diminish the vibration. With my device the operation of the parts is such that when the spindle vibrates at top the bolster gives way and moves as hereinabove described, offering comparatively no resistance, and the tendency is to distribute the vibration, or rather throw it off, and the spindle promptly regains its equilibrium.

Having thus described my invention, what I claim as new and original with me, and desire to secure by Letters Patent, is—

The bolster-case A, having a socket for the reception of the bolster, and provided in its upper end with a conical shoulder and a pin, M, in combination with the bolster E, having a projecting flange formed with a conical shoulder on its upper side adapted to fit loosely and be supported upon the conical shoulder in the bolster-case, and provided below its bearing-surface with a slot, *d*, for engagement with the pin M, as and for the purpose set forth.

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

ADDISON S. HOPKINS.

Witnesses:
FRANCIS S. BROWN,
H. T. FENTON.