(No Model.)

T. GORMAN.

SPINDLE SUPPORT.

No. 567,973. Patented Sept. 22, 1896.

Fig. 2

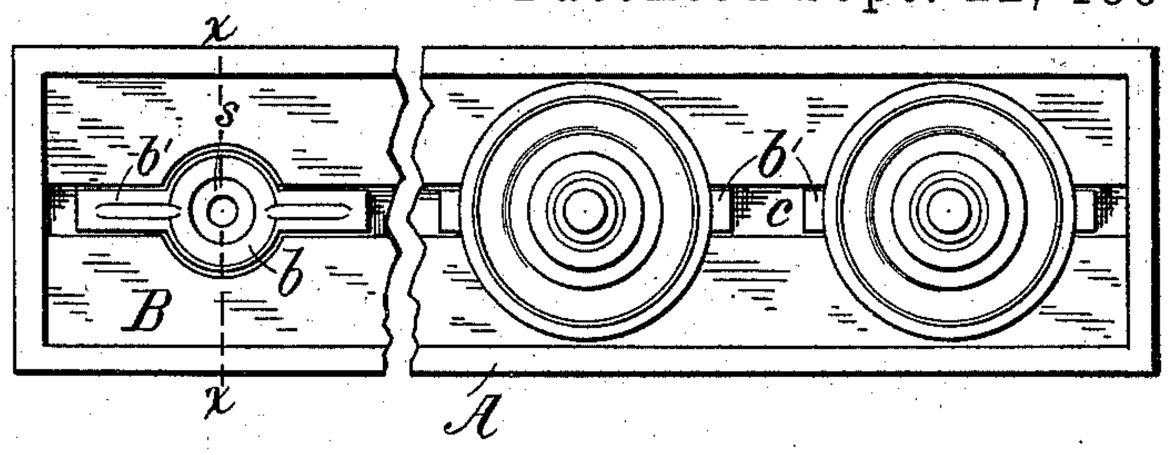


Fig. 4

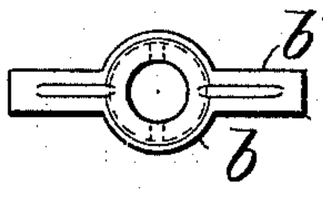


Fig. 5

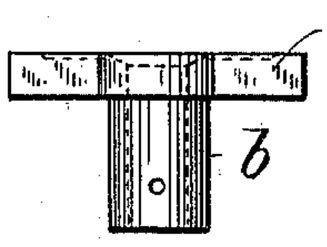


Fig. 3

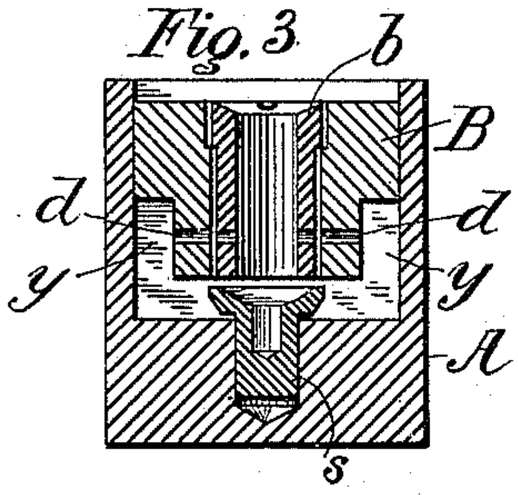
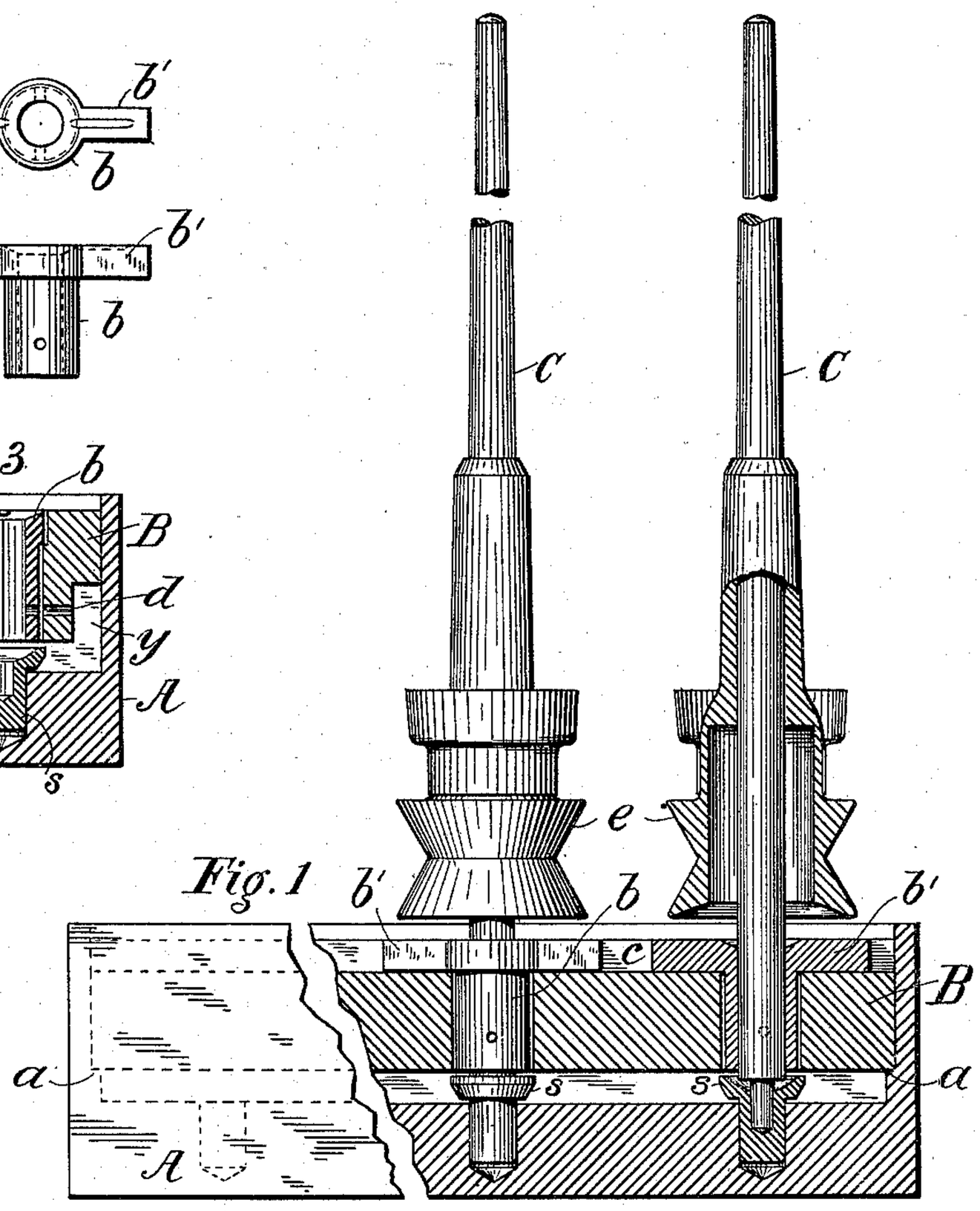


Fig. 1



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UNITED STATES PATENT OFFICE.

THOMAS GORMAN, OF WARREN, RHODE ISLAND, ASSIGNOR OF ONE-HALF TO FRANK H. BROWN, OF WARWICK, RHODE ISLAND.

SPINDLE-SUPPORT.

SPECIFICATION forming part of Letters Patent No. 567,973, dated September 22, 1896.

Application filed June 12, 1893. Serial No. 477,261. (No model.)

To all whom it may concern:

Be it known that I, THOMAS GORMAN, of Warren, in the county of Bristol and State of Rhode Island, have invented certain new and useful Improvements in Spindle-Supports; and I do hereby declare the following specification, taken in connection with the accompanying drawings, forming a part of the same, to be a full, clear, and exact description thereof.

The present invention relates to the manner of supporting the spindles of spinning-machines; and it consists, primarily, in the combination, with bolster and step rails, of a bolster-bearing loosely mounted in the bolster-rail, a separate step-bearing fixed in the step-rail, and a spindle supported in said bearings with its whirl above both of said bearings.

The invention further consists in certain combinations and arrangements of parts hereinafter described.

Referring to the drawings, Figure 1 represents a front elevation, partly in section, of bolter and step rails with two spindles mounted thereon. Fig. 2 is a top view of the same. Fig. 3 is a transverse section on the line $x\,x$ of Fig. 2. Fig. 4 is a top view, and Fig. 5 a front elevation, of the bolster-bearings.

In the drawings I have shown my invention as applied to a spinning-machine in which, while two separate rails are employed, the upper or bolster rail is supported upon the lower or step rail, and only the latter rail is directly secured to the frame, thus requiring but a single line of brackets for supporting both rails; but my invention may be employed, if desired, in a machine in which the bolster and step rails are supported upon separate lines of brackets and each rail thus secured directly to the frame.

The lower or step rail A (shown in the drawings) is to be secured to the frame of a spinning-machine by means of supporting-brackets in the usual manner. This step-rail may be of any desired or convenient length to contain any desired number of spindles. I prefer to construct said step-rail in the form of a trough inclosed at the ends, sides, and bottom, in order that it may serve as an oil-receptacle for all of the spindles mounted thereon.

The upper or bolster rail B is supported upon the lower or step rail, and when said step-rail is constructed in the form of a trough the bolster-rail is preferably constructed to fit within said step-rail, as shown in the drawings. In such case the step-rail is preferably provided with an offset or ledge a at each end, upon which ledges the ends of the bolster-rail rest, as shown in Fig. 1. The bolsters b are fitted loosely in the bolster-rail and so as to have a certain amount of lateral play therein. Each bolster b is provided at its upper end with projecting lugs b', adapted to enter and engage with a longitudinal groove c, formed in the upper surface of the bolster-rail, as shown in Figs. 1 and 2, whereby the bolster is prevented from turning with the spindle. If desired, also, said projecting lugs b' may serve as the means for supporting the bolster vertically in the rail.

The bottom of the bolster-rail B is preferably cut away upon each side of the bolster, as at $y\,y$, Fig. 3, so that only the central longitudinal portion of the bolster-rail is the full depth of the bolster, and so that the receptacle formed by the step-rail A may be filled with oil to a level above the lower ends of the bolster.

Transverse holes $d\,d$ are made in the downwardly-projecting portion of the bolster-rail, which said holes communicate with corresponding holes in the side walls of the bolsters, all as shown in Fig. 3, and by means of which the oil may be conducted to the spindle to lubricate the bolster-bearings. This cutting away of the bolster-rail and the formation of the oil-passages referred to, however, are not necessary, as the bolster-bearings may be properly lubricated by the sucking action induced by the high revolution of the spindle, which, as is well known, will operate to draw up from the receptacle a sufficient quantity of oil between the bolster and the spindle to properly lubricate the bolster-bearings.

The steps s are firmly secured in the step-rail A, and when the receptacle formed by the step-rail is filled with oil the step-bearings

will be immersed in the oil and will thus be thoroughly lubricated.

The spindle C is provided with the usual whirl *e*, which said whirl is located above both the bolster and step bearings and preferably only a short distance above the upper end of the bolster-bearing, as shown in the drawings.

With the combination and arrangement of parts above described, that is, with separate bolster and step bearings, the bolster-bearing being loose in its supporting-rail and the step-bearing being fixed in its supporting-rail, and with the spindle supported in said bearings, with its whirl located above both of the bearings, a high speed of revolution may be obtained without chattering, while the location of the whirl above both bearings permits the spindle to be removed when desired with the same facility as in a single-rail machine in which a combined bolster and step and a sleeve whirl-spindle are employed. Moreover, by employing the construction and arrangement of rails shown in the drawings, in which the upper or bolster rail is supported upon the lower or step rail and in which only the step-rail requires to be directly secured to the frame, thus requiring only a single line of brackets for supporting both rails, the invention may be readily applied to such single-rail machines by simply substituting the double rail with separate bearings for the single rail and combined bolster and step bearings of said machine.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a step-rail, a step-bearing fixed in said step-rail, a bolster-rail, a bolster-bearing loosely mounted in said bolster-rail, and a spindle supported in said bearings with its whirl located above both of said bearings, substantially as described.

2. The combination of a step-rail, a step-bearing fixed in said step-rail, a bolster-rail, a bolster loosely mounted in said bolster-rail, said bolster being provided at or near its upper end with one or more lugs or projections by means of which said bolster may be supported vertically in said bolster-rail, and a spindle supported in said bearings with its whirl located above both of said bearings, substantially as described.

3. The combination of a step-rail, a step-bearing fixed in said step-rail, a bolster-rail provided with a groove or recess in its upper face, a bolster-bearing loosely mounted in said bolster-rail, said bolster-bearing being provided at or near its upper end with one or more lugs or projections adapted to enter said recess in the bolster-rail to prevent the bolster from turning in said rail, and a spindle supported in said bearings with its whirl located above both of said bearings, substantially as described.

4. The combination of a step-rail adapted to be secured to the frame of a spinning-machine, a step-bearing fixed in said step-rail, a bolster-rail supported by said step-rail, a bolster-bearing loosely mounted in said bolster-rail, and a spindle supported in said bearings with its whirl located above both of said bearings, substantially as described.

5. The combination of a step-rail adapted to be secured to the frame of a spinning-machine, said step-rail being constructed in the form of a trough to form an oil-receptacle, a step-bearing fixed in said step-rail, a bolster-rail supported by said step-rail, a bolster-bearing loosely mounted in said bolster-rail, and a spindle supported in said bearings with its whirl located above both of said bearings, substantially as described.

THOMAS GORMAN.

Witnesses:
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