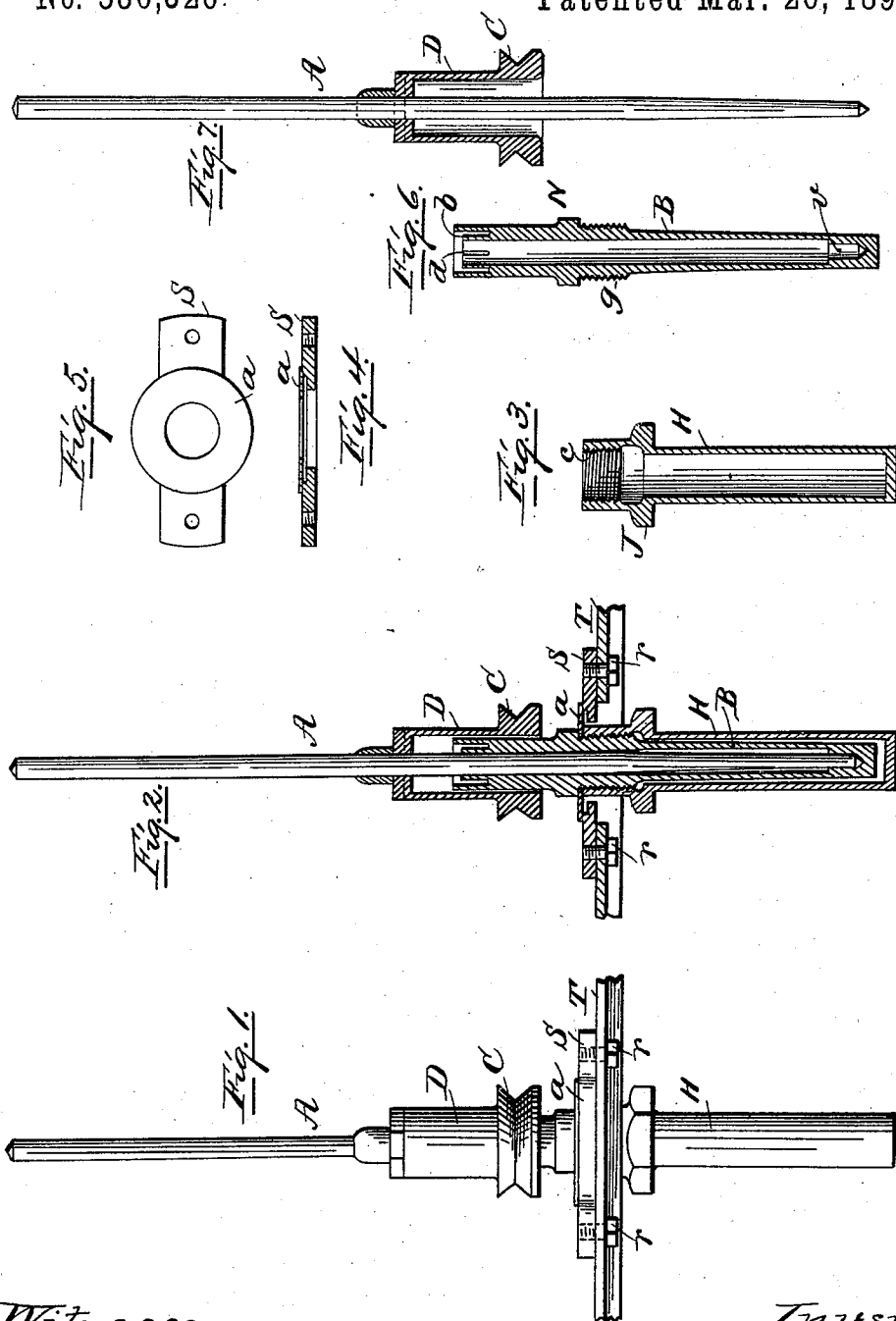


(No Model.)

J. W. & H. COLLINS.
SPINDLE FOR SPINNING AND TWISTING MACHINES.

No. 536,326.

Patented Mar. 26, 1895.



Witnesses.

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SPINDLE FOR SPINNING AND TWISTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 536,326, dated March 26, 1895.

Application filed September 4, 1894. Serial No. 521,981. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH W. COLLINS and HENRY COLLINS, of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Spindles for Spinning and Twisting Machines; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to the spindles used in spinning and twisting machines, and its construction is fully explained and illustrated in the accompanying specification and drawings.

Figure 1, represents a front elevation of the spindle, its holder and a portion of the spindle rail. Fig. 2, is a vertical section taken down through the center of the spindle and other parts, shown in Fig. 1. Figs. 3, 4, 6, and 7, represent separately, the several parts of the spindle holder and spindle in section, excepting the spindle that is shown in elevation. Fig. 5, is a top view of the part shown in section, in Fig. 4.

The object of the invention is to stop the vibrations of the upper end of the spindle, that cause much trouble, both when a spinning machine is started, and also when a high rate of speed for the spindle is attained. This is accomplished by an improvement in the means used to attach the spindle holder, as we call those parts that contain the spindle step and bolster, to the spindle rail. This spindle holder is firmly held in the center of a disk of sheet steel, or of any other metal possessing sufficient resiliency. This disk is firmly attached at its outer edge only, to a plate that is rigidly bolted directly to the spindle rail, and the only connection of the spindle and its holder with the spindle rail, is through this steel disk or diaphragm. This diaphragm offers a steady resistance to any departure of the spindle from the center line of rotation, in any direction, because of the resistance of the diaphragm to being sprung out of its normal plane. This resistance being equal on all sides of the holder, operates at once to deaden all jar or vibration of the spindle from its true vertical axis of rotation,

and, being in operation at all times, it stops the jar at its inception, and enables us to attain a very high rate of speed for the spindle, with perfect steadiness and safety.

The parts of the spindle holder as shown in the drawings, consist of a lower case H, Fig. 3, which has a collar at J, squared off on its edge to receive a wrench, and is chambered out nearly its whole length, to receive the lower part of the case B, Fig. 6. It also has a screw thread *c*, made on the inside of its upper end, to fit into a screw thread *g*, on the case B. This case B, shown in section in Fig. 6, constitutes the step and bolster of the spindle. It is provided with a circular collar N, near its upper end, and has a screw thread *g*, made on it just below the collar, to engage in the screw thread *c*, in the end of the case H. It is chambered out, in like manner as case H, nearly its whole length, to receive the spindle A, and has a step recess *v*, made in its lower end, inside, for the lower end of the spindle A, to revolve in. Its upper end is fitted to form an upper bearing or bolster for the spindle, and has an annular recess *b*, made in it, with a slot *d*, cut through one side of it, to allow the oil in the recess to have access to the spindle.

Fig. 4, shows a section of the steel diaphragm *a*, and the plate S, to which it is attached at its edge, preferably by soldering, as that makes a perfect vibratory contact between the diaphragm and the plate, and leaves no chance for motion between the two. The plate S, has two holes made in it, one near each end, which have screw threads made in them to receive the bolts *r, r*, that pass up through slots in the rail T. The slots allowing room for the bolts, the plate S, can be adjusted to bring the spindle to center accurately with the ring in the ring rail.

The way the spindle holder is secured to the center of the diaphragm *a*, is shown in Fig. 2. The lower part of the case B, is put down through the hole in the center of the diaphragm *a*, until the collar N, rests on it, and then the lower part of the case B, is inserted into the chamber of the case H, and the latter is screwed up onto the screw thread *g*, until the upper end of the case bears against the under side of the diaphragm. Then a wrench is applied to the squared collar J, and

the two parts H and B, are firmly screwed together with the diaphragm *a*, between them. The spindle holder is then put down through a hole in the spindle rail, until the plate S, rests on the top of that rail. The bolts *r*, *r*, are then passed through the rail and screwed into the holes in the plate S, and the plate and rail rigidly fastened together.

The spindle A, as shown in Figs. 2 and 7, has an inverted cup D, attached by its upper end to the spindle, and at its lower end, a whirl C, by which the spindle is driven by a band in the usual way.

Having thus described our improvements, we claim as our invention—

The rail, having an opening, and a resilient

plate, secured to the rail over the said opening, and having a hole through its center; combined with a spindle holder formed of an upper case and a lower case, the said upper case being provided with a collar, and supported in the hole in the plate by the said collar which rests upon the upper surface of the plate; the said lower case engaging the plate on the lower side, and secured to the upper case, substantially as shown.

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Witnesses:

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