

(No Model.)

H. P. CHASE.
SPINDLE BEARING.

No. 285,968.

Patented Oct. 2, 1883.

Fig. 7.

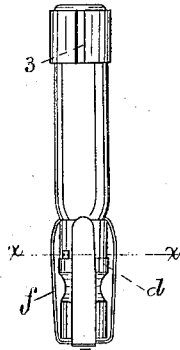
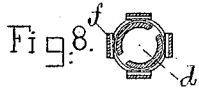


Fig. 6.

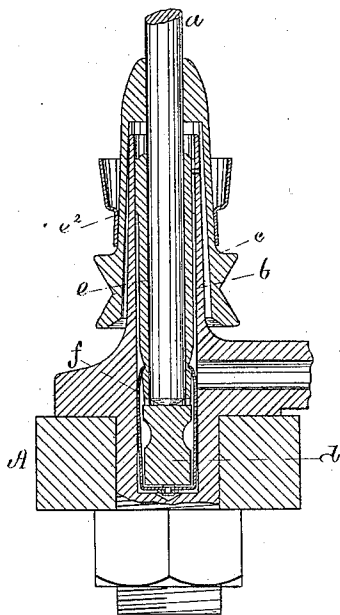


Fig. 2.

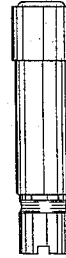
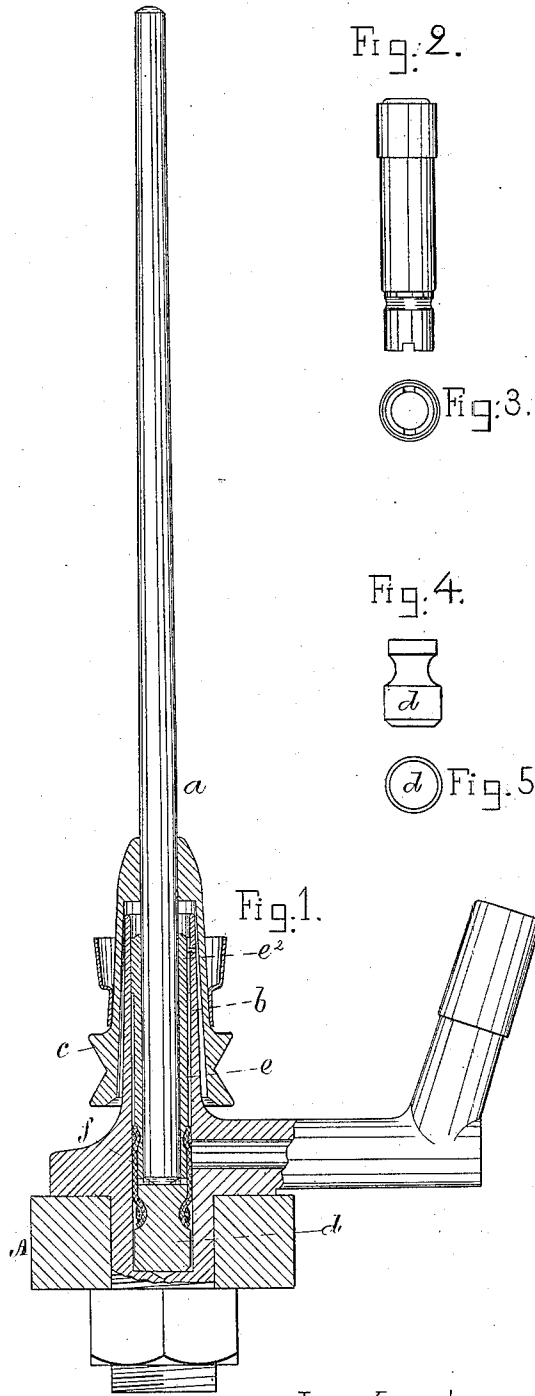


Fig. 4.



Fig. 1.



Witnesses.

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UNITED STATES PATENT OFFICE.

HORACE P. CHASE, OF LOWELL, ASSIGNOR OF ONE-HALF TO GEORGE
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SPINDLE-BEARING.

SPECIFICATION forming part of Letters Patent No. 285,968, dated October 2, 1883.

Application filed September 11, 1882. (No model.)

To all whom it may concern:

Be it known that I, HORACE P. CHASE, of Lowell, county of Middlesex, State of Massachusetts, have invented an Improvement in Spindle-Bearings, of which the following description, in connection with the accompanying drawings, is a specification.

The spindle-bolster shown in United States Patent No. 227,129 is surrounded by a tubular fibrous jacket or packing, which permits the bolster and step to yield or move as the spindle finds its true center of rotation. This tubular fibrous jacket also serves to unite the bushing with the step below it; but provision is not made to prevent the bushing from rotating with the spindle, and consequently the jacket, by the strain or friction both inside and outside, is frequently torn or twisted off.

My invention consists in a spindle, a supporting-tube, and a bolster-tube placed in the supporting-tube and provided at its upper end with an enlarged head, and a pin to engage the said head and restrain the rotation of the bolster-tube within the supporting-tube, combined with a loose step and flexible connection joining the lower end of the bolster-tube and the step, substantially as described.

Figure 1 of the drawings represents in vertical section a portion of a supporting-tube, sleeve-whirl spindle, bushing, step, and its flexible connection, to illustrate my invention, the supporting-tube being connected with the step-rail and the spindle being in elevation; Fig. 2, a side view of the bushing removed from Fig. 1; Fig. 3, a lower end view of Fig. 2; Figs. 4 and 5, side and top views of the step. Fig. 6 is a vertical section similar to Fig. 1, showing a modified form of flexible connection between the lower end of the bolster-tube and step; Fig. 7, a side elevation of the bolster-tube, step, and flexible connection removed from the supporting-tube, Fig. 6; and Fig. 8, a section of Fig. 7 on the dotted line *x*.

The step-rail *A*, spindle *a*, sleeve-whirl *c*, supporting-tube *b*, and loose step for the spindle are substantially as in the patent referred to. The bushing *e*, at its upper end, is provided with a head or enlargement, *e'*, which fits loosely the interior of the bolster, and is prevented from rotating therein with the spindle by means of a pin, 2, held by the supporting-

tube, which enters a groove, 3, in the head of the bolster-tube. The external diameter of the bolster-tube from below its head to its lower end is considerably less than the internal diameter of the opening in the supporting-tube *b*, so as to move in the said supporting-tube, and the lower end of the bolster-tube is joined with the lower independent step, *d*, by a flexible connection, *f*, (shown in Fig. 1 as a short fibrous tube;) but instead I might employ four spring-arms, which, besides inclosing the step, also embrace the grooved lower end of the bolster-tube and enable the bolster-tube to be moved or vibrated as the spindle moves at its lower end. The top of the step is shaped as shown to permit the spindle to move laterally on it when its lower end vibrates. Fitting the upper end of the bolster-tube to the supporting-tube, as described, and fastening it so that it cannot rotate, obviates the breaking or tearing off of the connections between the tube and loose step, as would be the case if connected by the fibrous tube and the bushing were rotated by the spindle. So, also, by the employment of the enlarged head on the bolster-tube, it is possible to always maintain the spindle at the center of the usual ring within which it is rotated, thus enabling the spindle to be employed to spin coarse yarn or adapt the spindle for use in a twister-frame. The bolster-receiving opening in the supporting-tube *b* is closed at its lower end to receive oil from a lateral pipe, *n*, and the bolster-tube rests and its lower end is adapted to move in the said opening in the presence of the oil therein, which acts as a cushion.

I claim—

The spindle, the supporting-tube, the bolster-tube provided with the enlarged head, and a pin to engage the said head and restrain the rotation of the bolster-tube, combined with a loose step and flexible connection joining the lower end of the bolster-tube and the said step, substantially as described.

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

HORACE P. CHASE.

Witnesses:

ALBERT M. MOORE,
EBEN S. DRAPER.