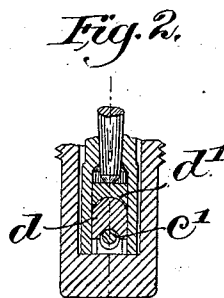
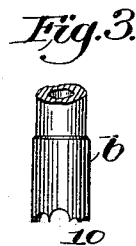
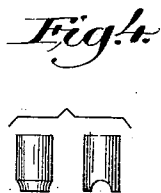
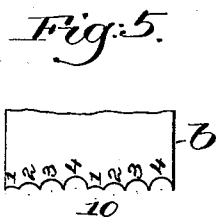
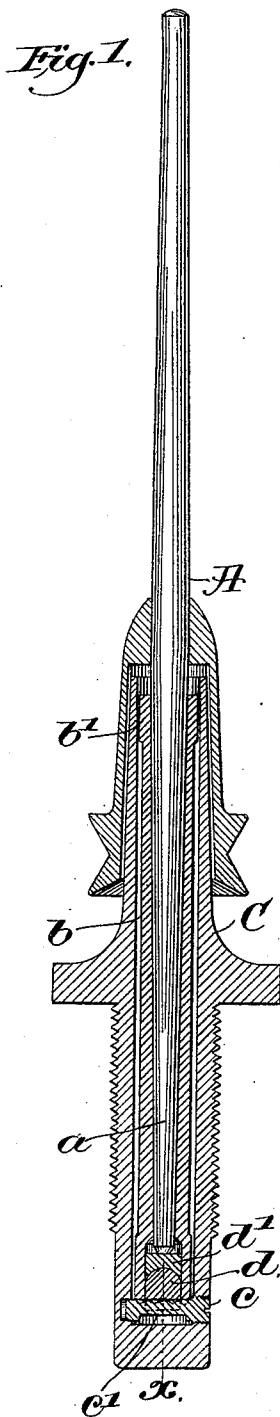


(No Model.)

W. E. ALLEN.  
SPINDLE BEARING.

No. 513,227.

Patented Jan. 23, 1894.



Witnesses.  
Louis N. Howell  
Edward F. Allen.

Inventor:  
William E. Allen  
by Crosby & Gregory Attys.

# UNITED STATES PATENT OFFICE.

WILLIAM E. ALLEN, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO GEORGE DRAPER & SONS, OF HOPEDALE, MASSACHUSETTS.

## SPINDLE-BEARING.

SPECIFICATION forming part of Letters Patent No. 513,227, dated January 23, 1894.

Application filed March 27, 1893. Serial No. 467,781. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM E. ALLEN, of Providence, county of Providence, State of Rhode Island, have invented an Improvement in Spindle-Bearings, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to provide novel means for adjusting the relative positions of the step and bolster to thus compensate for wear between the tapered lower end of the spindle and the tapered interior of the bolster due to wear between the said spindle and bolster, or to compensate for wear between the step and the end of the spindle.

Figure 1 in section shows a spindle mounted in bearings embodying my invention; Fig. 2 an enlarged sectional detail of the lower end of the supporting case, the bolster, step, spindle and adjusting device, the section being in the line *x* Fig. 1. Fig. 3 is a detail showing the lower end of the bolster. Fig. 4 shows a modified form of step, and Fig. 5, a developed view of the lower end of the bolster, on an enlarged scale to better show the varying depth of the notches, the notches of like depth and diametrically opposite each other being numbered alike.

In accordance with my invention, the supporting-case is provided with an eccentric screw or stud, the rotation of which affects the relative positions of the step and bolster, the eccentric shown acting to lower the step within the bolster as the tapering surfaces of the spindle and bolster wear by use. I have also shown the lower end of the bolster-tube as provided with a series of notches, which, in case the friction between the spindle and bolster is beyond a certain amount, will enable the bolster to turn with the spindle, so that a new set of notches of a different height may engage the pin or stud and stop the rotation of the bolster when the spindle no longer binds in the bolster.

Referring to the drawings, A represents a sleeve whirl spindle having a tapered pintle *a* which fits the tapered interior of the bolster *b*, the latter being shown as a tube open from end to end and set into a supporting case C,

the upper end of the bolster-tube having preferably a swell or collar *b'* to limit or restrain the vibration of the bolster in the case at that point. The lower end of the supporting case is provided with a screw or stud *c*, having an eccentric portion *c'*, the eccentric portion of said screw or stud, as herein represented, being of about the length of the diameter of the chamber made in the lower end of the bolster, so that the walls of the lower end of the bolster may rest upon the circular portions of the said screw or stud, the head of the screw fitting oil-tight a threaded hole in the supporting case. The lower end of the bolster, as best shown in Fig. 3, may be provided with a series of notches deep enough to partially embrace the circular portions of the screw *c*, the latter thus restraining the rotation of the bolster with the spindle, but permitting the bolster to rotate partially, provided the spindle binds in the bolster from any cause. In case the spindle and bolster should bind, such binding is frequently relieved by a partial rotation of the bolster, and this it is free to do when the friction between the spindle and bolster is more than it should be, the bolster, it having been turned partially, quickly re-engaging, by its notches 10 referred to, the said screw. The chambered lower end of the bolster receives within it the step, preferably composed of two portions, viz:—a foot *d* and a crown *d'*, the foot resting upon the eccentric portion of the screw, and the crown resting upon the foot. By making the upper portion of the foot circular, the crown may rock or tip slightly if required, and such construction admits of the crown being made of a different material, as for instance a vitreous material. This invention is not, however, limited to the exact shape shown for the step, as instead of the step shown I may employ any other surfaces commonly employed in connection with spindles and spinning-machines to support the lower end of the spindle. In Fig. 4 I have shown the step as made in one piece.

Referring to Fig. 1, supposing that the spindle has been run such length of time as to result in wearing the spindle and bolster at their points of contact, so that the tapered portion of the spindle no longer contacts prop-

erly with the tapered interior of the bolster, then the eccentric screw *c* will be turned and will lower the step somewhat, or until the proper contact between the tapered part of the spindle and the tapered part of the bolster has been effected. The series of notches 10, at the lower end of the bolster, are shown in Fig. 3 as varying slightly in depth, so that when one or another pair of the notches engage the stud *c'*, the bolster will occupy a slightly different position vertically in the supporting case, a position in which, as stated, the pintle of the spindle will not bind in the bolster.

15 Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A supporting case, a contained bolster and detached two-part step, combined with an eccentric to change the relative positions of the step and bolster, substantially as and for the purpose set forth.

2. A supporting case, a contained bolster and detached step, combined with an eccentric made as a screw and mounted in the supporting case and adapted to act upon the step to adjust it vertically with relation to the bolster, substantially as described.

3. A supporting case, a contained bolster made as a tube having a series of varying notches in pairs at its lower end, combined with a projection extending into the chamber in the bolster-case and adapted to be engaged by the notched lower end of the bolster, to operate substantially as described.

4. A supporting-case; a contained bolster and detached step; combined with a screw having eccentric and cylindrical portions, the eccentric portion of the screw co-acting with the step, while the cylindrical portions of the screw support the lower end of the bolster, substantially as described.

5. A supporting-case; a contained bolster and detached step; combined with a screw made as an eccentric and entering said supporting-case at one side oil tight, said eccentric co-operating with the step to change its position vertically with relation to the bolster, substantially as described.

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

WILLIAM E. ALLEN.

Witnesses:

AUGUSTUS O. BOURN, Jr.,  
JOHN M. FLAGG.