(No Model.)

W. F. & G. A. DRAPER.

SUPPORT FOR SPINNING SPINDLES.

No. 383,048. Patented May 15, 1888.

Fig:1.

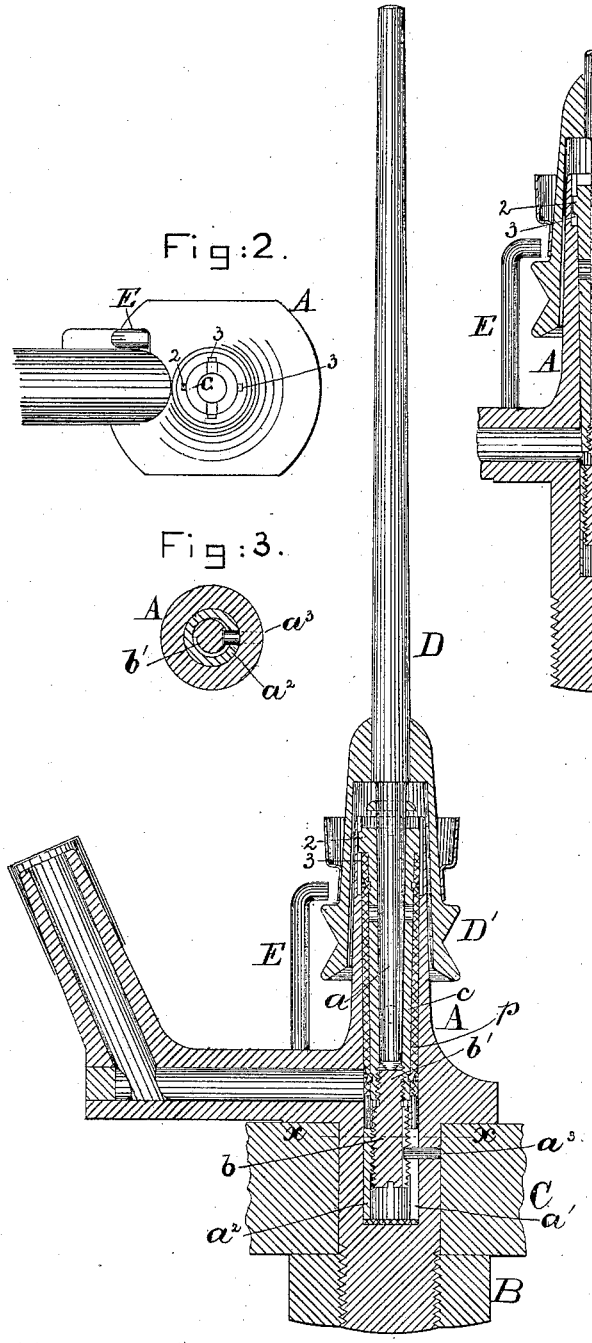


Fig:2.

Fig:3.

Fig:4.

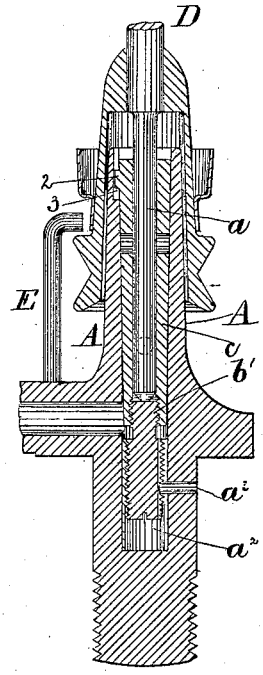
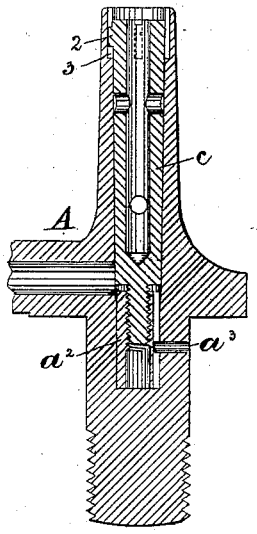


Fig:5.



Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM F. DRAPER AND GEORGE A. DRAPER, OF HOPEDALE, MASSACHUSETTS, ASSIGNORS TO GEORGE DRAPER & SONS, OF SAME PLACE.

SUPPORT FOR SPINNING-SPINDLES.

SPECIFICATION forming part of Letters Patent No. 383,048, dated May 15, 1888.

Application filed December 20, 1887. Serial No. 258,508. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM F. DRAPER and GEORGE A. DRAPER, of Hopedale, county of Worcester, and State of Massachusetts, have invented an Improvement in Supports for Spinning-Spindles, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In Letters Patent of the United States granted to us March 6, 1888, No. 378,877, we have shown and described a spindle having a tapering pintle which fits a tapering bolster, the said bolster being connected in an adjustable manner with a step, the connection being such as to permit the bolster to be moved vertically or longitudinally with relation to the step in the surrounding bolster-support, both the bolster and step being restrained from rotation, such adjustment of the parts enabling any wear between the pintle of the spindle and the interior of the bolster to be compensated for, and enabling a proper running fit to be maintained between the said parts.

It is essential for the best results in spinning that the bolster be so held or suspended in or with relation to its surrounding support that the bolster may move or vibrate and follow the vibrations of the lower end of the spindle, and the proper amount of looseness having been determined upon for the particular spindle, it is a desideratum to be able to keep the said looseness substantially the same, and it is also a desideratum to be enabled to adjust the bolster so as to vary the amount of looseness according to the requirements of the spindle. To do this we have tapered the exterior of the bolster and the interior of the surrounding support for it, and have adjustably attached to the said bolster a step, the rotation of the step with relation to the bolster enabling the bolster to be raised or lowered within its outside support, thus varying the looseness according to the demands of the spindle. In the conical space between the bolster and its support we may, if desired, use packing, or the bolster and support may come in contact in the presence of oil or air. For the more perfect results we have shown the interior of the bolster as tapered, and have tapered the pintle or lower end of the spindle as in our said application; or, if desired, as is herein also shown, the pintle or lower end of the spindle may be cylindrical, and the interior of the bolster for a portion of its length may have a cylindrical bore, and, if desired, the lower end of the spindle may be run upon a step either separable from the bolster or made as an integral part of it.

Figure 1 in vertical section shows a spindle-bearing embodying our invention, the said figure showing also the spindle-rail and in elevation the spindle. Fig. 2 is a top or plan view of a part of the bearing with the spindle removed; Fig. 3, a section looking down below the line x x, the rail being, however, omitted. Fig. 4 is yet another view showing our invention in its simplest form, but part of the spindle being shown. Fig. 5 is a modification of our invention.

The surrounding support A for the bolster is herein shown as a detachable block or standard erected upon the usual rail, C; but instead of the particular support shown we may employ any other usual or suitable support to surround the bolster and support it loosely in proper working position. The nut B, the spindle D, having a sleeve-whirl, D′, and the hook or stop E, are and may be all as usual.

Referring first to the simpler form of our invention in Fig. 4, it will be seen that the bolster c is bored cylindrically to receive the lower end or pintle, a, of the spindle; but it will also be observed that the exterior of the bolster is tapered, and that the interior of the support A is also correspondingly tapered, so as to present substantially parallel surfaces. The lower end of the spindle, or the portion a, as represented in Fig. 4, rests upon the upper end of a step, b', shown as a screw rising from a step-seat, a^2, both of which, as shown, are grooved longitudinally for the reception of a restraining pin or stud, as a^3.

Referring now to Fig. 1, it will be seen that the exterior of the bolster is tapered and that the interior of the surrounding support A is also tapered, substantially as in Fig. 4; but, in addition, the interior of the bolster is tapered to receive the lower end of the spindle, it being correspondingly tapered.

In Fig. 1 the lower end of the spindle rests upon a step, b', connected in an adjustable manner with a step-rest, a^2.

In Figs. 1 and 5 the bolster near its upper end has a projection, as 2, which enters one or the other of a series of slots, 3, made in the surrounding support A, or it may be just the reverse of this, the said slot and projection constituting means for preventing rotation of the bolster in the bolster-case with the spindle, such rotation of the bolster being very injurious, if not absolutely destroying the utility of the bearing.

In Fig. 5 we have shown yet another modification, in which the lower end of the bolster has screwed or attached fixedly to it a screw or equivalent stud, which enters and is made adjustable longitudinally in the step-rest a^2, the lower end of the spindle fitting the solid bottom of the bolster.

In Fig. 1 we have shown the externally-tapered bolster as surrounded by an elastic packing, p, introduced between the bolster and support A; but in Fig. 4 we have omitted the packing, letting the exterior of the bolster come in contact with the interior of the support A, separated only by a film of oil or air, the differences in diameter between the exterior of the bolster and the opening at the interior of the support being in practice found effective when as little as one one-hundredth of an inch, that amount of looseness effectually doing away with the jar due to gyration.

In Fig. 1 the bolster and step-rest are connected by a single piece, shown as having threaded portions of two diameters, one of the threaded portions being screwed into the step-rest, while the other has screwed upon it the lower end of the bolster.

By rotating the bolster with relation to the step-rest, which rests upon or is supported by or through the bottom of the chamber left in the support A, the height or distance of the upper end of the bolster with relation to the lower end of the step-rest may be varied in such manner as to vary the width of the space between the exterior of the bolster and the interior of its surrounding support, thus controlling and determining the extent of looseness of the bolster within its surrounding support.

To provide for yet further adjustments for substantially such adjustments as provided for in our application, Serial No. 246,994, the bolster will be rotated more or less upon or with relation to the step or the upper end of the connecting device b', interposed between the bolster and step-rest, until the contact between the tapering exterior of the spindle and the tapering interior of the bolster is uniform, and thereafter, as the spindle and bolster become worn by use, the said bolster may be again turned to move it longitudinally with relation to its step, thus compensating for any wear and maintaining the normal fit between the spindle and bolster. When making these adjustments, the bolster will be raised from its surrounding support sufficiently to disengage the projection 2 from the slot 3, the connection between the step-rest and surrounding support being such as to permit, if desired, the removal of the entire bolster and its attached parts.

The bolster will have suitable holes or passages for oil.

We claim—

1. A spindle-bearing containing the following instrumentalities, viz: a bolster tapered externally, a surrounding internally-tapered support for the bolster, into which the bolster is fitted loosely, and a step and means to adjust the said bolster vertically with relation to the said support to thus increase or decrease the extent of looseness between the said parts, and means to restrain the loose bolster from rotation in the said support, substantially as described.

2. A bolster-support and bolster placed therein loosely, and a step-rest, combined with an intermediate connection, substantially as described, between the said bolster and step-rest, whereby the bolster may be adjusted longitudinally within its support and with relation to the said step rest, as and for the purposes set forth.

3. A surrounding support having a tapering interior, a bolster having a tapering exterior and a tapering interior and placed in the bolster-support loosely, a spindle supported in the said bolster, and a step rest, combined with a connecting device, substantially as described, whereby the bolster may be adjusted longitudinally with relation to the step-rest, and with means to restrain the rotation of the bolster in its surrounding support, for the purposes set forth.

4. A surrounding support having a tapering interior, a bolster having a tapering exterior and a tapering interior and placed in the bolster-support loosely, a spindle supported in the said bolster, and a step-rest, combined with a connecting device, substantially as described, whereby the bolster may be adjusted longitudinally with relation to the step-rest, and with means for restraining the rotation of both the bolster and the step-rest in or with relation to the surrounding support.

5. In a spindle-bearing, a bolster tapered externally, a surrounding support tapered internally, and an adjustable step to sustain the weight of the spindle, combined with pins or projections to restrain the rotation of not only the step, but also the bolster within the bolster-support, as and for the purposes set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WM. F. DRAPER.
GEO. A. DRAPER.

Witnesses:
H. F. SEARLES,
FRANK DEWING.