

(No Model.)

C. D. McDUFFIE.
SUPPORT FOR SPINNING SPINDLES.

No. 418,740.

Patented Jan. 7, 1890.

Fig: 1.

Fig: 6.

Fig: 5.

Fig: 2.

Fig: 3.

A.

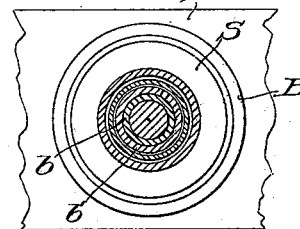
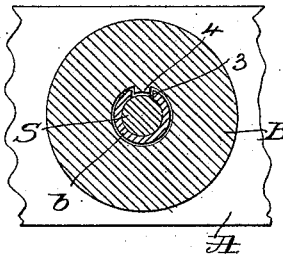


Fig: 4.

Fig: 7.



Witnesses.

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SUPPORT FOR SPINNING-SPINDLES.

SPECIFICATION forming part of Letters Patent No. 418,740, dated January 7, 1890.

Application filed June 18, 1889. Serial No. 314,707. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. McDUFFIE, of Manchester, county of Hillsborough, State of New Hampshire, 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.

This invention has for its object the production of improved spindle-bearings, wherein the spindle shall have sufficient freedom of motion to be self-centering without resistance under the requirements of an unbalanced load.

In accordance with my invention, the bolster-bearing is swiveled or supported within the bolster case or holder, so that it may rock or tip at or near the line of band-pull, and the step in which the lower end of the spindle enters is mounted loosely, so that it may rotate and also swivel or move substantially as a ball-and-socket joint, the speed of rotation of the revoluble step being slower than that of the spindle.

The particular features in which my invention consists will be described in the specification, and defined in the claims at the end thereof.

Figure 1 in partial elevation and section represents a spindle in connection with my improved spindle-bearings. Fig. 2 is a section in the line $x x$, Fig. 1. Fig. 3 is a section in the line $x' x'$. Figs. 4 and 5 show modified forms of steps. Fig. 6 shows a modified form of supporting-case, and Fig. 7 shows the cut ring by itself.

The spindle S , having the sleeve-whirl S' , is and may be of usual construction.

The rail A has attached to it a supporting case or holder B , provided at its lower end with a nut or cup C , which, as represented, is attached to the shank of the supporting-case by means of a screw-thread, the said nut or cup being represented as having a chamber the bottom c of which is curved, the curve in Fig. 1 being represented as upward. The nut or cup receives within it loosely a revoluble step c' , the space c^2 between the exterior of the said step and the interior of the nut or cup being preferably in excess of the space between the lower end of the bolster b and

the supporting-case surrounding it, so that the said step has freedom of movement laterally in any direction. The bottom of the step in Fig. 1 is curved inwardly to fit the curved part of the cup C on which it rests, the said step being also free to rotate with the spindle, but at a slower speed, the wear of the revoluble step being longer than when the rotation of the step is restrained, and, further, the step unrestrained by a pin or projection may move more readily laterally, as required by the spindle. The step has an opening at its upper end, down into which enters and in which rotates the lower end of the spindle, a portion of the body of the step being interposed between the periphery of the spindle above its tapered point and the interior of the wall of the nut or cup, the said step thus constituting a lateral bearing for the foot of the spindle, which would not be the result if only the beveled foot of the spindle entered a small pit at the upper side of the step.

The step shown in Figs. 1 and 4 has its sides parallel, or substantially so, to the inner walls of the cup C , and with the step entering the said cup loosely ample space is left about the said step in which it may move laterally, in contradistinction to tipping, as when the step is provided with a ring, as in Fig. 5.

The bolster b , preferably tapered externally from at or near its center toward its opposite ends, has a rounded or enlarged portion b' , which enters a seat of suitable shape to receive it in the supporting-case, the said portion b' being preferably made as a cut ring, (best shown in the section, Fig. 2,) which is sprung into a groove outside the bolster-bearing. Making this portion b' as an independent ring-like piece and springing it upon the bolster reduces its cost to manufacturers.

To put the bolster in place in the supporting-case, as in Fig. 1, the cut-ring will be forced down into the bolster-case into the seat made to receive it, and then the bolster will be crowded down into the cut ring; but the supporting-case B , between its upper end and the seat receiving the cut ring b' , or it may be an enlargement, may have a tubular bushing b^2 , (see Fig. 6,) which may be inserted after the bolster, carrying with it the ring or enlargement, has been put in place.

I have shown the lower end of the bolster as notched at 3 to receive a projection 4 of the supporting-case, the said notch and projection restraining the rotation of the bolster with the spindle and having enough space between them to permit the bolster to rock or tip without restraint due to the projection 4.

I do not desire to limit my invention to making the enlargement as a cut ring and separate from the bolster, although it is preferable to separate them.

In Fig. 4 I have shown a modified form of step, wherein the curve at the lower end of the step is convex, while the interior of the nut or cup on which it rests is concave. Theoretically the curve at the bottom end of the step, whether convex or concave, should be made with a radius equal to the perpendicular distance from the bottom end of the step to the line xx , or to the center of the bolster-bearing; but I find in practice that it is unnecessary to limit myself to this construction.

In Fig. 5 I have shown the step swiveled in like manner as the bolster.

I claim—

1. The combination, with a spindle support or holder, a sleeve-whirl spindle, and a rocking bolster swiveled at or near the line of

band-pull, of a swiveled or rocking step-bearing, substantially as described. 30

2. The combination, with a supporting case or holder having a seat and a sleeve-whirl spindle, of a grooved bolster and a cut ring applied thereto to form an annular projection to support the said bolster in its seat, substantially as described. 35

3. A self-centering spindle and cup C and means to support it, combined with a revolvable rocking step-bearing c' , having its sides parallel with the sides of the interior of the said cup and loosely fitting therein, substantially as described. 40

4. The combination, with a spindle support or holder, a sleeve-whirl spindle, and a rocking bolster swiveled at or near the line of band-pull, of a laterally-movable independent step constituting a lateral bearing for the foot of the spindle, substantially as described. 45

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 50

CHARLES D. McDUFFIE.

Witnesses:

DAVID CROSS,

EDWIN F. JONES.