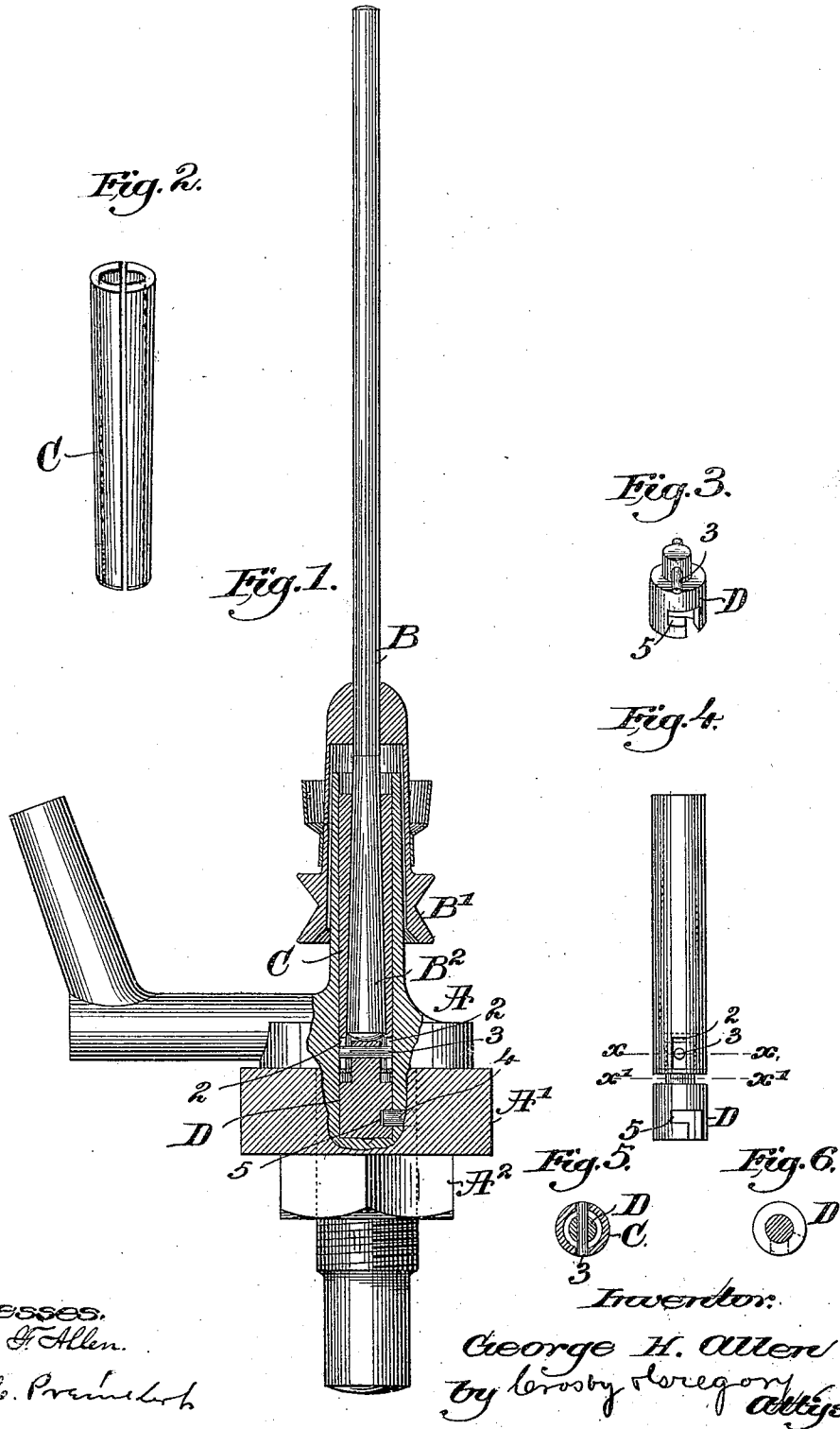


(No Model.)

G. H. ALLEN.
SPINDLE AND BEARING THEREFOR.

No. 511,719.

Patented Dec. 26, 1893.



Witnesses.
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UNITED STATES PATENT OFFICE.

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SPINDLE AND BEARING THEREFOR.

SPECIFICATION forming part of Letters Patent No. 511,719, dated December 26, 1893.

Application filed May 12, 1893. Serial No. 474,015. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. ALLEN, of Fall River, Bristol county, Massachusetts, have invented an Improvement in Spindles and Bearings Therefor, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

The pintles of spindles as now commonly made are either cylindrical or else they taper, the taper growing smaller from near the whirl downwardly. This class of spindle is usually surrounded by a bolster of similar shape internally, the bolster being mounted loosely in a supporting-case so as to move laterally therein, and to keep this class of spindle in place during the operation of doffing the bobbin, some sort of a hook or device has always been used to co-operate with the whirl and serve as a stop to prevent the lifting of the spindle during doffing. In my efforts to improve this class of spindle, I have, for the first, reversed the taper of the pindle, *i. e.*, made it to increase in diameter from below the whirl toward its lower end, and I have surrounded this "bat-like" pindle with a bolster correspondingly tapered internally, but the said bolster externally may have a sliding fit in the upright tubular portion of the supporting-case. The spindle step enters the lower end of the bolster loosely, and is shown as jointed to the bolster, the hook connection represented being a pin or projection carried by one, entering a slot of the other, so that the bolster may rise in the bolster-case by the action against it of the wedge-like sides of the pindle, as the extremity of the spindle in its gyration moves laterally on or over the step. The step will preferably be restrained from rotation by means of a pin or projection from the supporting-case entering a locking slot in the outer side of the step, a pin carried by the step entering slots in the bolster so as to restrain its rotation with the spindle, the said slots, however, permitting the bolster to rise vertically, as will be described, under the action of the spindle.

In my invention the spindle will be lifted somewhat during the doffing operation, and

the bolster will rise with the spindle, the extent of such movement being, however, determined by the looseness between the pin and slot connecting the bolster and step.

Figure 1 in elevation and section represents a spindle and bearing therefor embodying one form of my invention. Fig. 2 shows the bolster removed from the supporting-case. Fig. 3 shows the step detached. Fig. 4 is a modification of my invention, and Figs. 5 and 6 are respectively sections below the lines *x* and *x'* of Fig. 4.

The bolster-case A having its shank extended through the rail A' and seated thereon by the nut A² is and may be as usual.

The spindle B, shown as having an attached sleeve whirl B', has a bat-like pindle B², or a pindle tapered reversely to the common form, or a pindle which increases in diameter from at or below the junction of the whirl and spindle toward the extremity of the pindle of the spindle.

The bolster C is tapered internally upward and inward from its lower end and may be in sections, and referring to Fig. 2, where the bolster is shown as detached, I have represented two such sections, each section having a slot as 2, in which enters a suitable pin or projection 3, said pin, in this instance of my invention, being carried by the step D, the acting surface of the step, being extended loosely into the lower end of the bolster, being prevented from rotating with the spindle by a pin or projection 4 on the supporting-case A entering, as herein shown, a suitable bayonet shaped slot 5 made in the step.

It will be obvious that the bolster cannot rotate because the pin 3 in the slots 2 will prevent that.

Figs. 4, 5 and 6 show the modification of my invention, said modification consisting essentially of making the bolster C in one piece rather than in two pieces as described of Figs. 1 and 2.

Where the bolster is made in one piece, or as a tube, and has a tapered interior which grows smaller toward its upper end, as provided for, then the said bolster must be put upon the spindle from its upper end before the whirl is attached to the spindle.

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

1. A whirl spindle having a pintle which increases in diameter from below the whirl toward the lower end of said pintle; an outside bolster supporting-case; and a suitable step for the spindle; combined with a loose bolster having its internal surface shaped to co-operate with the taper of and to surround and fit said pintle at and below the line of band pull on the whirl, the exterior of the bolster being smooth in order that it may rise freely vertically within the bolster-case and on the pintle of the spindle by the action of the spindle within it, substantially as described.

2. A supporting-case; a bolster bearing therein tapered internally, the direction of taper being inwardly and upwardly from its lower end; and an independent step connected loosely with said bolster; combined with a whirl spindle having a pintle which is tapered outwardly and downwardly from below said whirl toward the free end of said pintle, to operate substantially as described.

3. A supporting-case; a bolster bearing therein tapered internally, the direction of taper being inwardly and upwardly from its lower end, said bolster bearing supporting the pintle substantially to its lower end; and a whirl spindle having a pintle which is tapered outwardly and downwardly from below

the whirl substantially to its free end; combined with a step; means to restrain the rotation of the step, and with means to connect the said step and bolster bearing loosely whereby the bolster bearing is permitted to move vertically for a limited extent independently of the step, as and for the purposes set forth.

4. A whirl spindle having a pintle which increases in diameter from below the whirl toward the lower end of said pintle; a bolster supporting-case; and a step having a substantially smooth top upon which the enlarged lower end of said pintle rests; combined with a bolster having its internal surface shaped to co-operate with and fit the taper of the spindle from the line of band pull substantially to the lower end of the pintle and interposed between said pintle and the interior of the said supporting-case loosely, said bolster being free to move vertically to a limited extent in the supporting-case by or through the action of the pintle of the spindle as the latter vibrates or moves laterally upon the said step and within said bolster, substantially as described.

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

GEORGE H. ALLEN.

Witnesses:

GEORGE E. BAMFORD,
HENRY H. EARL.