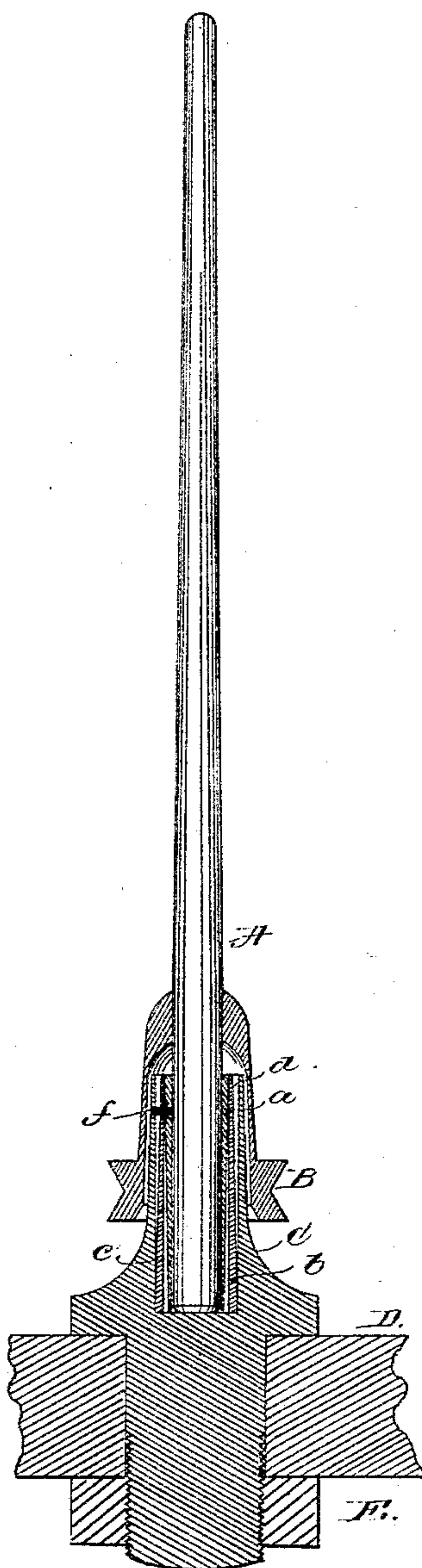


(No Model.)

J. R. GRAY.
SPINDLE BOLSTER.

No. 300,462.

Patented June 17, 1884.



Witnesses.
Arthur Lippert
John F. C. Prinkert

Inventor.
James R. Gray
by Crosby & Gregory

UNITED STATES PATENT OFFICE.

JAMES R. GRAY, OF AYER, ASSIGNOR TO GEO. DRAPER & SONS, OF HOPE-DALE, MASSACHUSETTS.

SPINDLE-BOLSTER.

SPECIFICATION forming part of Letters Patent No. 300,462, dated June 17, 1884.

Application filed August 13, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES R. GRAY, of Ayer, county of Middlesex, State of Massachusetts, have invented an Improvement in Spindle-Bolsters, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention relates more especially to the construction of the bolster placed in the bolster-case, the said bolster being composed of two or more sleeves tapered or made conical in the direction of their length, the taper being preferably from end to end, and produced, preferably, by the reduction of the external surface of each of the said sleeves, thus leaving between the outside of the innermost sleeve of the series and the one next outside of it, and between the outside sleeve and the interior of the bolster-case, wedge-shaped tapering spaces, the wider portions of the said spaces being alternately at different heights, or first opposite the lower and then opposite the upper ends of the said sleeves, whereby the said sleeves are free to yield or move to a limited extent in any direction radially when acted upon by the spindle as the latter moves to seek its true center of rotation, the said loosely-held sleeves constituting a compound bushing, taking up and receiving the blows of the spindle—blows caused by unequal loading and high speed of rotation.

I do not broadly claim a compound bolster, or one made of several concentric sleeves placed in an oil-chamber of a bolster-case closed at its bottom.

The drawing represents in elevation a spindle having on it a sleeve-whirl, the said whirl-bolster, bolster-case, and stop and nut being in section.

The spindle A, its sleeve-whirl B, the bolster-case C, rail D, and nut E are and may be all as usual, the bolster being closed at its bottom and chambered to receive the oil, which will be applied or supplied thereto in any usual manner, but preferably automatically,

as in the so-called "Rabbeth spindle." The bottom of the band-groove in the whirl will preferably be at about the center of the bushing, or midway between its ends.

The bolster is composed of two tapering sleeves, *a b*, one surrounding the other. The sleeve *a* is bored to fit the spindle; but from its upper end downward, as shown, it is tapered. The bore of the sleeve *b* is equal in diameter to the external diameter of the inner sleeve at its largest part, and externally it is tapered from one to its other end, as described, of the sleeve *a*; but the sleeve *b* has its reduced or thin end uppermost, while sleeve *a* has its reduced or thin end down. Arranging the sleeves *a b* in this way leaves spaces *c d* between the parts, as shown in white, so that the sleeves constituting the bolster are free to yield to the pressure of the lower end of the spindle as the same wanders on its end support to seek its true center of rotation. The bolster-case closed at its bottom serves as an oil-well, and the oil between the independent sleeves constituting the bolster acts to form a yielding packing. The tapering sleeves are provided with elongated holes to receive a pin or projection, *f*, fastened to the bolster-case and extended into the said holes, the said projection acting to restrain the said sleeves from rotation with the spindle, but permitting the said sleeves to slide as the foot of the spindle wanders on its step.

I claim—

The spindle bolster-case, pin or projection, combined with the compound bolster, composed of two or more tapering sleeves adapted to receive oil in the tapering oil-receiving space between them, substantially as set forth.

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

JAMES R. GRAY.

Witnesses:

GEO. W. GREGORY,
W. H. SIGSTON.