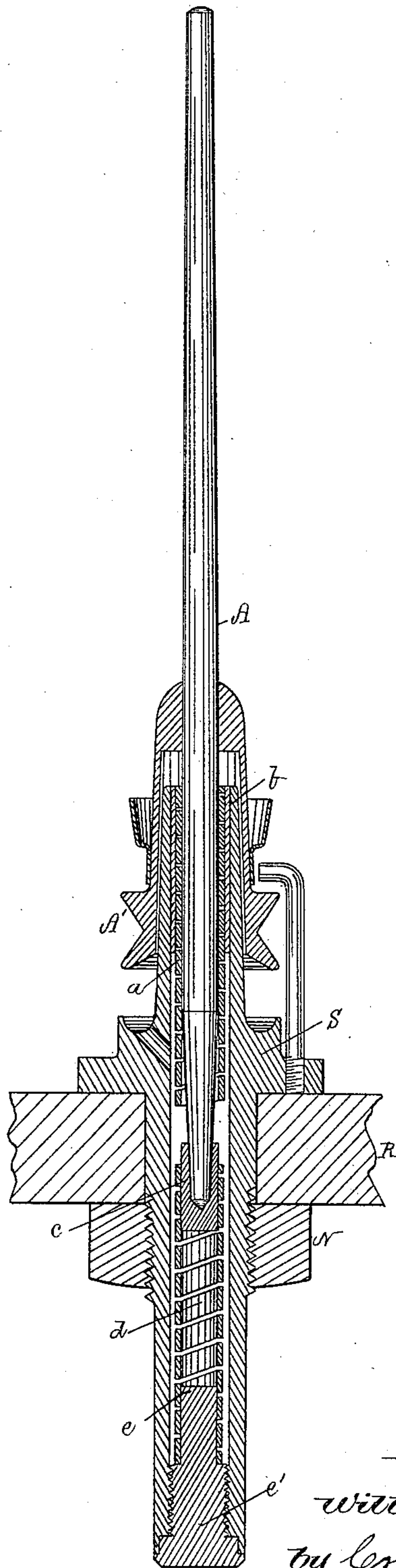


(No Model.)

W. F. DRAPER.
SUPPORT FOR SPINNING SPINDLES.

No. 441,144.

Patented Nov. 25, 1890.



Witnesses.

Fred. S. Greenleaf
Frederick L. Emery

Inventor.

William F. Draper
by Crosby & Gregory
Attys.

UNITED STATES PATENT OFFICE.

WILLIAM F. DRAPER, OF HOPEDALE, MASSACHUSETTS.

SUPPORT FOR SPINNING-SPINDLES.

SPECIFICATION forming part of Letters Patent No. 441,144, dated November 25, 1890.

Application filed April 23, 1890. Serial No. 349,186. (No model.)

To all whom it may concern:

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

10 This invention relates to that class of spindles in which provision is made to enable the foot of the spindle to move as required when the spindle is being run at high speed or is unequally loaded. In spindles of this general class it has been customary to rest the foot of the spindle on a step supported by a spiral spring set loosely into a socket in the usual supporting-case, the spring yielding vertically and also sliding somewhat laterally; but such a spring has no power within itself to self-center the step for the spindle, and so, also, a step has been supported upon and been surrounded by such materials as leather or cork; but a step supported in that manner does not yield sufficiently easy, and so, also, a step has been sustained at the lower end of a springy or yielding tube, the pintle of the spindle passing through the rigid support for the said step-holding tube, as in
25 United States Patents No. 357,904 and No. 403,862.

35 In this my invention the step is of considerable less diameter externally than the internal diameter of the supporting-case, and is fixed to and carried by the upper end of a spring, constituting a step-carrier, which is firmly anchored or attached at its lower end to a standard or block fixed with relation to the supporting-case, the gist of this invention as regards the step being that while the step-carrier is anchored at its lower end the upper end of the carrier and step is free to move with the foot of the spindle and without liability of straining or bending the spindle as
45 the latter moves to accommodate for an unbalanced load, the step-carrier by its elasticity always seeking to return the step into its central or normal position in the socket or chamber of the surrounding supporting-case and into correct position below the bolster,

which latter is entirely independent of and detached from the step.

One part of my invention consists in the combination, with a bolster-case and a bolster, of a step-carrier entirely independent of
55 and disconnected from the bolster and composed of a spring having its lower end fixed or anchored in the lower part of the socket of the supporting-case, the said step fixed to the upper end of the step-carrier and free to move bodily both vertically and laterally, having side walls to fit the spindle, the said step-carrier normally acting to center the step with relation to the supporting-case and bolster, as will be described.

65 Other features of my invention will be herein set forth, and specified in the claims.

The drawing, in section and elevation, represents a spindle and its support embodying my invention.

70 The rail R receives the supporting-case S, which is held in place by a nut N. The supporting-case has a bolster-bearing *a*, which is herein shown as a spirally-twisted strip of metal fitted at its upper end within a tube *b*, and in turn fitted within the supporting-case, the construction of the bolster being such as to leave its lower end free to yield laterally when required by the foot of the spindle, which spindle has attached to it a usual sleeve-whirl *A'*.

75 The step *c* is bored or socketed to receive the lower end of the spindle and constitute both end and side bearings therefor. This step is connected firmly to the upper end of a yielding step-carrier *b*, herein shown as a spirally-twisted metallic spring of considerable length, the lower end of which is anchored or fixed to a part *e* of a fixed standard or block *e'*, represented as screwed into the lower end of the supporting-case. This step-carrier, anchored or firmly fixed at its lower end with relation to the case and having the step fixed to its lower end, acts constantly when the step is pushed out of true central position by the lateral movement of the foot of the spindle to restore the said step into its central position in the said case, and it will be noticed, inasmuch as the step-carrier is below the step and entirely disconnected from
80 85 90 95 100

the bolster, and inasmuch as the spindle does not extend through the rigid support for the step-carrier, as heretofore, that the step has greater freedom of motion with the least possible strain on the spindle.

I am aware that a step has been mounted upon the upper end of a rod free to tip in the bolster-case; but the rod will not permit the step to move bodily laterally and also to rise and fall as will the spring herein represented.

The external diameter of the step-carrier is considerably less than the interior diameter of the socket in the bolster-case, thus leaving ample space in which the said step may be moved laterally, and, as shown, the lower end of the bolster (represented as a spring) is externally of considerable less diameter than the interior of the surrounding case, such form of bolster being preferable because it is free to yield at its lower end, and whenever it yields, the spindle in moving has to overcome the normal resistance of the spring to be flexed.

The step may move within certain limits defined by the space between the step-carrier and the supporting-case without the step-carrier coming in contact with the supporting-case, yet the least lateral movement of the foot of the spindle moves the step laterally, and such movement is resisted by a resistance measured by the strength of the step-carrier.

It is obvious that the part *e* might be a part of the bolster-case.

I am aware that a rigid pin fixed at the bottom of the supporting-case and extended

upwardly has had fitted over it loosely the shank of a step in which the foot of the spindle enters, as in United States Patent No. 361,359.

I claim—

1. A sleeve-whirl spindle, a socketed supporting-case, and bolster-bearing therein, combined with a step-carrier made as a spiral spring anchored or fixed at its lower end with relation to the supporting-case and entirely disconnected from the bolster, the said step-carrier having connected to its upper end a step provided with side walls to fit the spindle, the combination being and operating substantially as described.

2. The spindle, the supporting-case and bolster therein made yielding at its lower end, combined with a step-carrier made as a spring and having a rigid support to which it is anchored below the lower end of the spindle, in order that the spindle may not be restrained as to its vibration by the said rigid support, and a step fixed to the upper end of the said spring, the said step having side walls to fit the spindle, the spring always acting to self-center the step with relation to the supporting-case, as and for the purpose set forth.

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

WILLIAM F. DRAPER.

Witnesses:

GEO. OTIS DRAPER,

F. J. DUTCHER.