

(No Model.)

R. ATHERTON.

SPINDLE SUPPORT FOR SILK SPINNING MACHINES.

No. 468,634.

Patented Feb. 9, 1892.

Fig. 1.

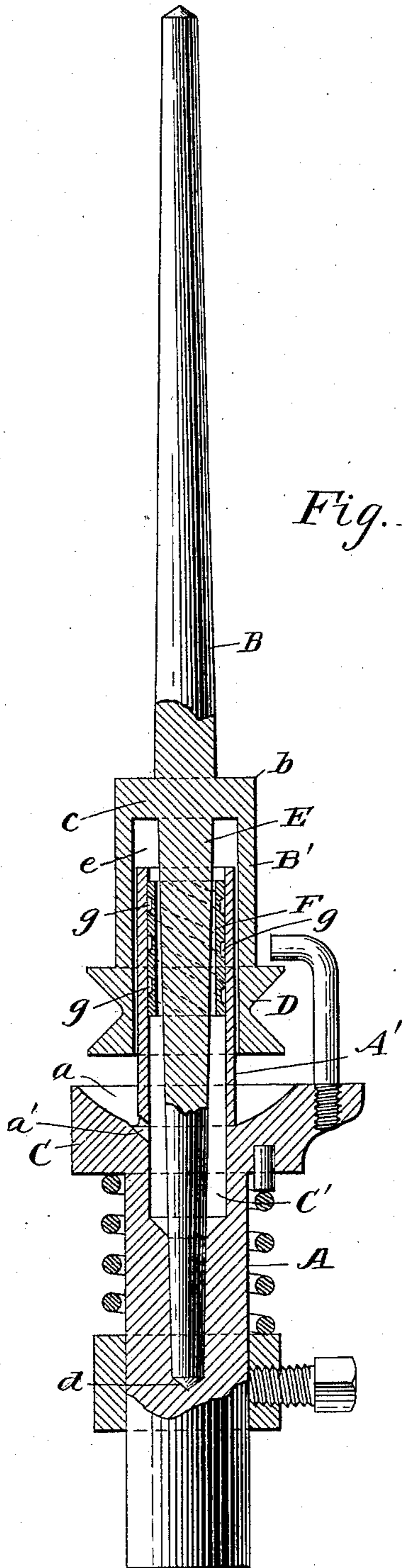
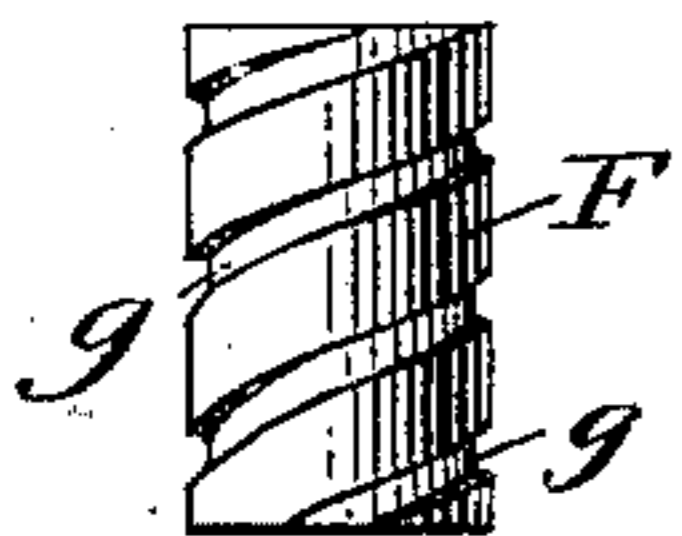


Fig. 2.



WITNESSES:

J. H. Theberath.
J. C. Sedgwick

INVENTOR:

R. Atherton
BY *Munn & Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

ROBERT ATHERTON, OF PATERSON, NEW JERSEY.

SPINDLE-SUPPORT FOR SILK-SPINNING MACHINES.

SPECIFICATION forming part of Letters Patent No. 468,634, dated February 9, 1892.

Application filed February 16, 1891. Serial No. 381,566. (No model.)

To all whom it may concern:

Be it known that I, ROBERT ATHERTON, of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Spindle-Support for Silk-Spinning Machines, of which the following is a full, clear, and exact description.

The object of this invention is to provide means for the perfect lubrication of the spindle in its supporting-box and prevention of oil escape therefrom.

To this end my invention consists in the construction and combination of parts, as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a portion of this specification, in which similar letters of reference indicate corresponding parts in both the views.

Figure 1 is a view of the spindle and its box broken away to expose the interior portions, and Fig. 2 is a perspective view of an important portion of the invention detached from the parts it engages.

A represents the box wherein the spindle B is supported to revolve and is maintained in a vertical position. The spindle-box A is of a well-known form of construction as relates to its lower end portion and attachments thereto, whereby it is adjusted in place upon the spinning-frame. Hence these will need no further description.

At a proper distance above the lower end of the box A an oil-cup C is provided, which consists of a radial enlargement formed upon the body of the box having an annular recess *a* produced in its upper surface around a vertical extension A'. The portion A' of the spindle-box is cylindrical and axially perforated from its upper end toward the lower end a sufficient distance and proper diameter to afford an oil-chamber C' above an axially-formed step-socket, which is provided for the support of the spindle, as will be further mentioned. A small perforation or oil-passage *a'* is extended from the bottom of the annular recess *a* into the oil-chamber C', so that lubricating-liquid may be introduced therein when the device is in use.

The spindle B is diametrically enlarged from a point *b* downwardly, providing a seat for spun yarn at that point. Near the lower

terminal of the spindle enlargement B' just mentioned a grooved whirl D is formed or secured on it for the transmission of revoluble motion to the spindle by a band. (Not shown.) The spindle enlargement B' is hollow, and from its upper end wall *c* a spindle-leg E is centrally projected in alignment with the spindle proper.

At the lower terminal of the spindle-leg E a conical step *d* is formed, which engages the step-socket before mentioned, which latter is slightly flared upwardly and the body of the spindle-leg made tapering to fit it, thereby facilitating the removal of the spindle from its box when this is necessary.

The central location of the spindle-leg E within the cylindrical enlargement B' affords an annular channel *e* between the body of the leg and the inner wall of the portion last named, which channel is of such a relative diameter as will permit the box extension A' to loosely engage the inner surface of B', which will be laterally supported by such a contact.

Within the longitudinal bore of the box extension A' a bushing-sleeve F is inserted tightly, having its upper end located a short distance below the upper terminal of the box extension A'.

The bushing-sleeve F consists of a tubular piece having its exterior surface spirally grooved, as shown at *g*, one or more such channels being formed thereon of proper dimensions to allow oil or other lubricating-fluid to freely traverse therein.

Such a proportionate diameter is given to the true bore of the bushing-sleeve F that the spindle-leg E will have loose contact, free revoluble movement being permitted and im-proper wobbling prevented.

In service the rapid rotation of the spindle B will cause the lubricating-liquid in the chamber C' to work upwardly around the spindle-leg E and lubricate the portion of the latter which has contact with the bore of the bushing-sleeve F, and as the upper end of this piece F is below the edge of the box extension A' no oil can work over the latter, but the oil will be conducted downwardly into the oil-chamber C' below the sleeve.

The provision of the spirally-grooved sleeve

F is important, as it prevents injury to the delicate material operated upon, which must be kept from contact with the oil while it is being spun.

5 I am aware that a spindle-bearing arranged locally in the same relation as my bushing has been constructed of a wire helically coiled; but the same was clasped tightly about the spindle-leg and was not intended for the same
10 purpose as mine and could not so well perform it, since it could not permit free passage of oil upward.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

The combination, with the spindle B and box A, having, respectively, the parts B' and A', fitted together as shown, of the solid bushing F, having the exterior spiral groove *g* and a smooth bore of such diameter as to adapt
20 the sleeve to fit loosely on the spindle-leg E, as shown and described.

ROBERT ATHERTON.

Witnesses:

THOMAS C. SIMONTON, Jr.,
T. C. SIMONTON.