(No Model.)

E. E. BRADLEY.

SLEEVE WHIRL SPINDLE FOR SPINNING FRAMES.

No. 333,822. Patented Jan. 5, 1886.

Fig:1.

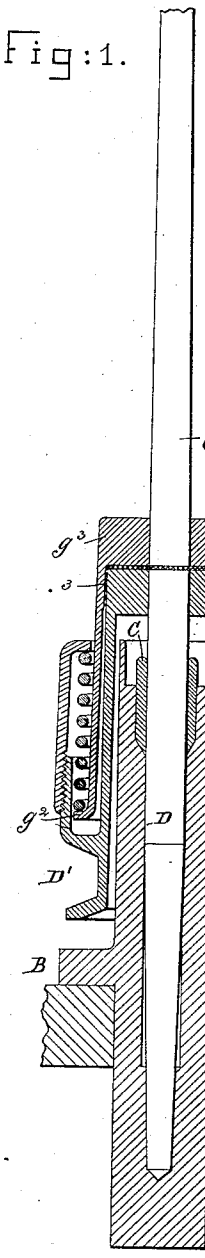


Fig:3.

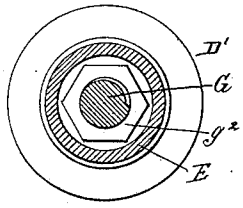
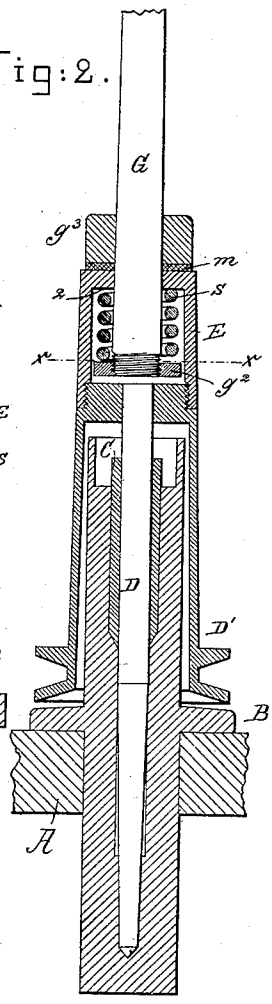


Fig:2.



Witnesses.

Arthur Lipperden

John F. C. Printkert

Inventor.

Edward E. Bradley.

by Crosby & Gregory attys.

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

EDWARD E. BRADLEY, OF STONINGTON, CONNECTICUT, ASSIGNOR TO GEORGE DRAPER & SONS, OF HOPEDALE, MASSACHUSETTS.

SLEEVE-WHIRL SPINDLE FOR SPINNING-FRAMES.

SPECIFICATION forming part of Letters Patent No. 333,822, dated January 5, 1886.

Application filed April 21, 1884. Serial No. 128,744. (No model.)

To all whom it may concern:

Be it known that I, EDWARD E. BRADLEY, of Stonington, county of New London, State of Connecticut, have invented an Improvement in Sleeve-Whirl Spindles for Spinning-Frames, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The object of my invention is to obviate evils due to too tight banding or strain of the bands, and at the same time drive the bobbin-carrying spindle frictionally or adhesively.

In my invention the spindle is divided or made in two parts, one part placed in a bolster-case and having a sleeve-whirl attached to it, being herein called the "whirl" or "driving" spindle, while the other part, which receives the bobbin upon is called the "bobbin-carrying" or "driven" spindle, the latter having attached to it a supporting-foot, which is held frictionally or adhesively to a part of the sleeve-whirl of the spindle, as will be described.

Figure 1 represents a spindle and its co-operating parts to be described, the former in elevation and the latter in vertical section; Fig. 2, a like view of a modification, and Fig. 3 a section of Fig. 2 in the dotted line *x x*.

In the drawings, A represents a spindle-rail, and B a bolster case and step of usual construction, it having a suitable bolster or bushing, C, which in practice will be grooved in any usual manner for the passage and circulation of oil. The rotatable whirl-spindle D, having its lower end entered loosely into the stationary bolster-case, has securely attached to it the sleeve-whirl D', flanged, as usual, for the reception of the spindle-driving band, and, as herein shown, the said sleeve-whirl is provided with a cap, E, having a lip or projection, 2, to support one end of a spring, *s*, the opposite end of the said spring resting against the spring-support g^2, attached to and moving in unison with the driven spindle G, the latter having attached to it the supporting foot or portion g^3.

In Fig. 1 the supporting-foot g^3 and spring-support g^2 are connected by a sleeve-like portion, which is extended downward about the tubular body of the sleeve-whirl and between it and the cap E, the spring *s* placed inside the cap and resting on the lip g^2 serving to hold the driven spindle G down with its supporting-foot g^3 against a washer, *m*, on the sleeve-whirl, thus rotating the driven spindle G through the friction exerted by the spring *s*, the force of which may be varied and made more or less by adjusting the cap E, screw-threaded, as shown in Fig. 1, and engaging a threaded part of the projection *h* of the sleeve-whirl. A small space, 3, in practice about one one-hundredth of an inch, is left between the sleeve-whirl and the supporting-foot g^3, to permit the spindle G to adjust or center itself to its load, as is well understood, the supporting-foot g^3 being held against the washer *m* by the stress of the spring *s*, as stated.

In the modification shown in Fig. 2 the cap E is attached to the upper end of the sleeve-whirl, and the lip g^2 for supporting one end of the spring *s* is made as a collar screwed upon the driven spindle, a portion of which is passed into the cap E, the portion 2 of which acts against the opposite end of the said spring.

In both the spindles described the principle of operation is the same.

I am aware that a bobbin-carrying spindle has been driven from a sleeve-whirl or lower spindle by means of a projection on one entering a notch in the other, thus forming a positive driving means; but I am not aware that one part of a spindle has been made to drive the other part frictionally through the intervention of a spring, and especially a spring the force of which may be adjusted.

I have shown but do not herein broadly claim the downwardly-extended sleeve attached to the bobbin-carrying or driven spindle G; neither do I claim its combination, broadly, with the sleeve of the whirl, as that forms the subject of claims in my application No. 128,745.

I claim—

1. The rotatable whirl-spindle D, the stationary bolster-case provided with a chamber to receive the lower end of the whirl-spindle, the whirl attached to the said spindle, the cap provided with the flange 2 and a washer, combined with the spring *s* and the bobbin-carrying spindle provided with a supporting-foot, g^3, and a lip, g^2, the said spring acted upon or held between the said flange and lip holding

the foot g^3 against the washer and permitting the bobbin-carrying spindle to move or tip laterally on or with relation to the whirl-spindle, the combination being and operating substantially as described.

2. The bobbin-carrying spindle provided with a foot and spring support and the spring, combined with the whirl-spindle D, provided with a whirl and adjustable cap, to vary the force of the spring, and with a support for the said spindle D, substantially as described.

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

EDWARD E. BRADLEY.

Witnesses:

JOS. F. JOSEPH,

WM. A. GILBERT.