J. B. BANCROFT.

SPINDLE FOR TWISTER FRAMES.

No. 251,815. Patented Jan. 3, 1882.

Fig: 1.

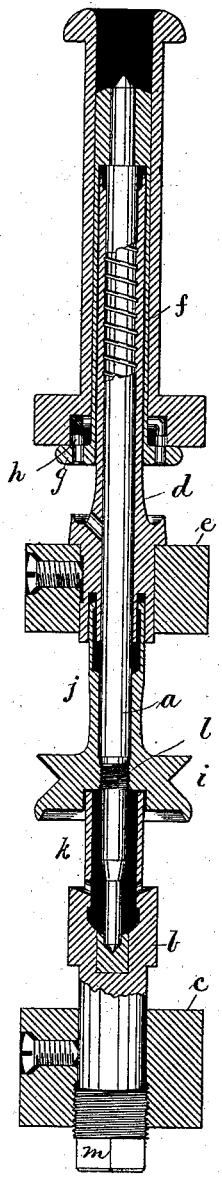
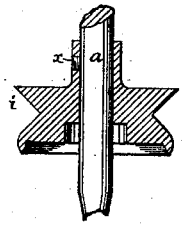


Fig: 2.



Witnesses

L. F. Connor.

N. E. Whitney.

Inventor.

Joseph B. Bancroft

by Crosby & Gregory Attys.

UNITED STATES PATENT OFFICE.

JOSEPH B. BANCROFT, OF HOPEDALE, MASSACHUSETTS.

SPINDLE FOR TWISTER-FRAMES.

SPECIFICATION forming part of Letters Patent No. 251,815, dated January 3, 1882.

Application filed July 20, 1878.

To all whom it may concern:

Be it known that I, JOSEPH B. BANCROFT, of Hopedale, county of Worcester, and State of Massachusetts, have invented an Improvement in Spindles for Twister-Frames, of which the following is a specification.

This invention relates to improvements in spindles for twister-frames, and has special reference to a twister-spindle having at its top a permanently-attached sleeve provided with bobbin-driving pins, the sleeve being of such diameter as to receive between it and the spindle an extended bolster of the Sawyer class, and having a sleeved whirl removably attached to the spindle below the bolster-rail, whereby the strain of the spindle-band is applied to the lower portion of the spindle or to its bearings, and so that by unscrewing or detaching the whirl the spindle may be removed from the frame.

In spindles for twister-frames heretofore made sleeves secured to the spindles have been provided with whirls or wharves to receive the spindle-bands; but the application of the bands to the whirls at the lower ends of the sleeves, they acting as levers having their fulcra at the tops of the spindles, strains the spindles and draws the sleeves at their lower ends against the bolsters. I find that the spindle will run steadier and better by applying the whirl to the spindle between the bolster and foot-step rails, as usual; but in order to avail myself of fixing the sleeve permanently upon the spindle, so that it always remains at exactly the proper place with relation to the spindle top and bolster and balanced on the spindle, I have made the whirl removable, which permits the spindle to be withdrawn from the bolster, bolster-rail, and frame without detaching the sleeve, as heretofore common. Where a metallic sleeve is removed from the spindle each time the spindle is withdrawn it has been found very difficult and quite impracticable to replace the sleeve in the same position on the spindle, and consequently the spindle runs unevenly.

Figure 1 shows one of my improved twister-spindles with a bobbin attached, many of the accessories of the spindle being shown in section. Fig. 2 shows a modification.

The spindle *a* rests at its lower end in the step *b* of the step-rail *c*, and extends through the long or Sawyer bolster *d*, secured to the bolster-rail *e*. Above the extended bolster, at the top of the spindle, is attached the sleeve *f*, having at its lower end a head or collar, *g*, provided with stop-pins *h*, which engage other stop-pins or equivalents in the recess at the lower end of the bobbin. This sleeve is chambered from its lower end to near its top, so as to receive within it the bolster, the said bolster lying between the spindle and sleeve. It is forced firmly upon the top of the spindle, and the outer portion of the sleeve is then turned true in a lathe, so that thereafter the sleeve which always remains upon the spindle has its outer surface concentric with and runs true with the spindle.

The whirl *i*, provided with a whirl-sleeve, *j*, to extend upward to or into the bolster, and made to surround the tube *k*, projected upward from the step, is provided with a screw-thread to engage with a screw-threaded portion upon the spindle, as at *l*. By placing the whirl upon the spindle rather than upon the sleeve *f*, as heretofore common, the strain upon the spindle and sleeve is reduced, and by making the whirl detachable from the spindle the sleeve may be made permanent and the spindle unscrewed from the whirl can be drawn up through the whirl, the bolster, and the usual ring-rail. (Not shown.) The foot-step is adjusted vertically by the tap-screw *m*, fitted to a screw-thread in the rail. In Fig. 2 the whirl is attached to the spindle by a set-screw, *x*. In such case the spindle need not be reduced in size within the whirl.

I do not broadly claim a sleeve carrying spindle combined with a spirally-grooved bolster intermediate of the said spindle and sleeve, the bolster having a cup-like collar; nor do I broadly claim a spirally-grooved bolster having an oil-inlet and a cup-like collar at its top provided with an oil-chamber and outlet, and combined with an internal spindle and external sleeve moved by it, as I am aware that such devices are shown and claimed in an application of Geo. D. aper filed June 24, 1875.

I claim—

1. The spindle and its permanently-attached metallic sleeve provided with bobbin-driving pins, combined with a bolster extended upward

between the sleeve and spindle and a whirl removably attached to the spindle between the step and bolster rails, substantially as described.

2. The spindle and the whirl *i j*, connected therewith by a screw, combined with the bolster and the step provided with a tubular portion, substantially as described.

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

JOSEPH B. BANCROFT.

Witnesses:
F. J. DUTCHER,
E. D. BANCROFT.