G. RICHARDSON.

Spindle, Bolster and Step for Spinning-Machine.

No. 197,565. Patented Nov. 27, 1877.

Fig. 1.

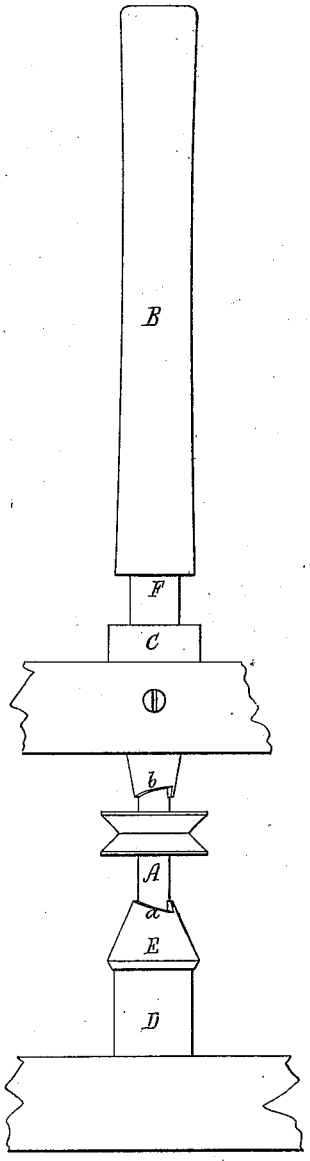


Fig. 4.

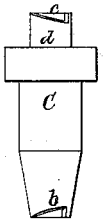


Fig. 5.

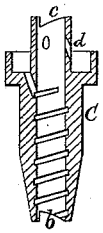


Fig. 3.

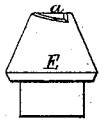


Fig. 2.

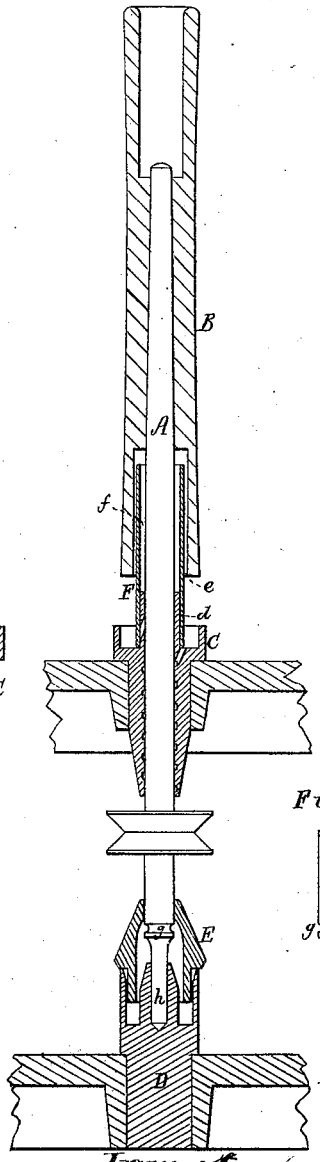
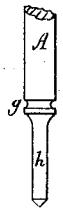


Fig. 6.



Witnesses.
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UNITED STATES PATENT OFFICE.

GEORGE RICHARDSON, OF LOWELL, MASSACHUSETTS.

IMPROVEMENT IN SPINDLE BOLSTERS AND STEPS FOR SPINNING-MACHINES.

Specification forming part of Letters Patent No. **197,565**, dated November 27, 1877; application filed January 23, 1877.

To all whom it may concern:

Be it known that I, GEORGE RICHARDSON, of Lowell, of the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Spindle Bolsters and Steps for Spinning-Machines; and do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a front elevation, and Fig. 2 a vertical and longitudinal section, of spinning-machine spindle, with its step and bolster provided with my invention, such figures exhibiting a bobbin in place on the spindle.

The special purpose of my improvement is to prevent waste or fibrous matters from working or entering into the bearings of the spindle or into the bolster or step. Another object is to prevent oil from being wasted or thrown upon the bore of the bobbin.

My said invention consists, first, in a step-cover having its upper end notched or formed with a helix curve, or oblique or inclined to the axis of the said cover or to that of the spindle; second, in a bolster having either or each end notched or formed with a helix curve, or oblique or inclined to the axis of the said bolster or that of the spindle; third, the bolster provided with a tubular guard extended up from the spindle-bearing of such bolster, and encompassing the spindle without contact therewith, or serving in any respect as a bearing or support thereto; fourth, the step-cover chambered around the lower part of the spindle and the groove therein, and extended down within, and opening into, the oil-chamber of the step, all being substantially as set forth.

In the drawings, A denotes the spindle, B the bobbin, C the bolster, and D the step, the latter being provided with a tapering or frusto-conical cover, E. The upper end of this cover, instead of being, as heretofore, square to the axis of the cover or spindle, is inclined or oblique thereto, or is formed with a helix curve, as shown at *a*, and particularly in Fig. 3, which is a side view of the cover. This inclined or helical upper edge of the cover, while the spindle may be in revolution, causes, by the action of the spindle, any waste or fibrous filaments that may gather on such edge to be forced upward on the spindle in a manner to prevent the said waste or filaments from working into the cover and the step.

The lower end of the bolster I also make oblique to the spindle or with a helical curve, as shown at *b*, which serves also, by the action of the spindle while in revolution, to prevent waste from working into the bolster or spindle-bearing thereof at its lower entrance. The upper end of the bolster may also be made oblique to the axis of the bolster or that of the spindle, or with a helical curve, such as shown at *c* in Fig. 4, which is a side view of the bolster, and in Fig. 5, which is a vertical section of it. This obliquity of the upper edge of the bolster will cause, by the action of the spindle, the filaments of waste that may be received upon it to be forced upward on the spindle, so as to prevent them from working into the bearing in the bolster.

The bolster I provide with a guard or tube, F, which encompasses and fits upon the neck *d* of the bolster, and extends upon such and around the spindle and into the lower chambers *e* of the bobbin, in manner as represented. This guard does not touch the spindle, there being a space, *f*, between the two and concentric with them. This guard prevents waste of the oil and its discharge from the spindle upon the walls of the lower chamber of the bobbin while the spindle may be revolving.

Furthermore, the spindle is provided with a small groove, *g*, arranged in it and to extend around it just above its foot-journal *h*, and within the interior of the step-cover, such being shown in Fig. 2, and more particularly in Fig. 6, which is an elevation of the lower part of the spindle. This groove is for the purpose as hereinbefore stated. It prevents oil from escaping through the top of the step-cover.

I claim—

1. The step-cover E, constructed with its upper end formed with a helix curve, or oblique or inclined to the axis of such cover or that of the spindle, substantially as and for the purpose set forth.

2. The bolster C, having either or each end formed with a helix curve, or oblique or inclined to the axis of bolster or to that of the spindle, substantially as and for the purpose set forth.

3. In combination with a spindle, A, and

bolster C, and with a bobbin, B, therefor, chambered at its lower end, and provided with an adhesive spindle-bearing extending from and over such chamber, a tubular guard, F, open at its upper end and extended up from the bolster, and encompassing the spindle without any contact therewith or any bearing therefor, or serving directly or indirectly as a support thereto.

4. In combination with the open step D and with the spindle A, provided with the groove *g*, arranged in it, as set forth, the cover E, chambered around the said groove and the spindle-pivot, and extended down within, and opening into, the oil-chamber of the step, all substantially as shown and described.

GEORGE RICHARDSON.

Witnesses:

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