D. KELLEY.

Spindle for Spinning-Machines.

No. 215,935. Patented May 27, 1879.

Fig. 1.

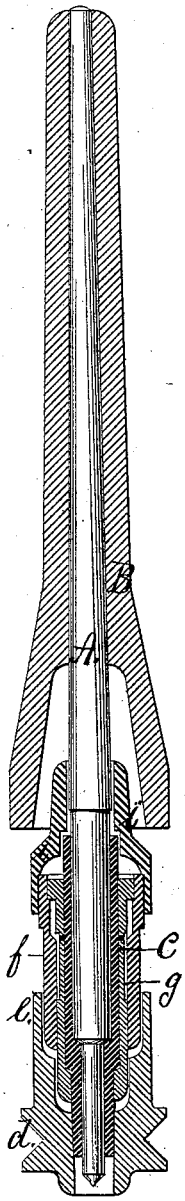



Fig. 3.

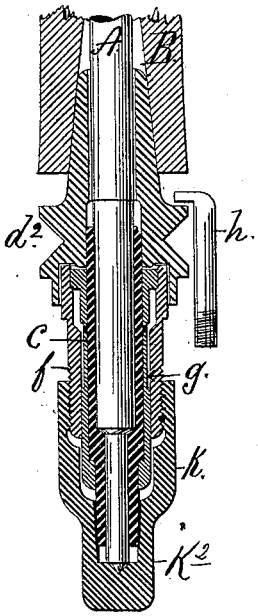
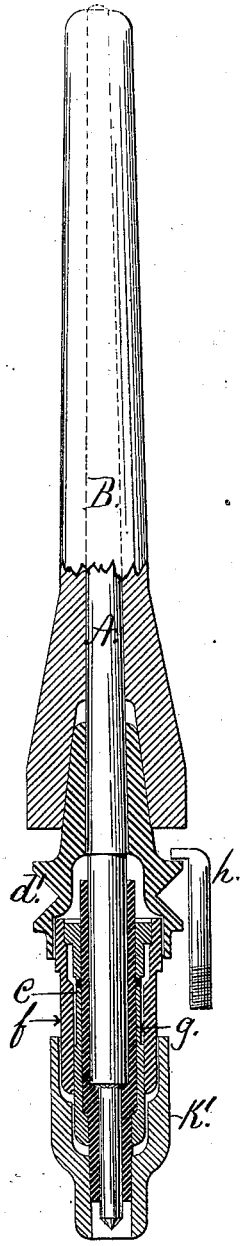



Fig. 2.




WITNESSES:

Joseph A. Miller Jr.

William L. Coop.

INVENTOR:

Dennis Kelley

by Joseph A. Miller

attorney

# UNITED STATES PATENT OFFICE.

DENNIS KELLEY, OF PAWTUCKET, ASSIGNOR OF ONE-HALF HIS RIGHT TO FOSTER & BAILEY, OF PROVIDENCE, RHODE ISLAND.

## IMPROVEMENT IN SPINDLES FOR SPINNING-MACHINES.

Specification forming part of Letters Patent No. **215,935**, dated May 27, 1879; application filed March 5, 1879.

*To all whom it may concern:*

Be it known that I, DENNIS KELLEY, of Pawtucket, county of Providence, and State of Rhode Island, have invented a new and useful Improvement in Spindles for Spinning-Machines; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to improvements in spindles for ring-spinning and twisting machines; and consists in the peculiar and novel arrangement by which the spindle proper is supported in a sleeve or tube by frictional contact, which tube revolves with the spindle in a bolster secured loose in the bolster-case, so that all the wear is confined to the tube in which the spindle is secured, all of which will be more fully set forth hereinafter, and pointed out in the claims.

Figure 1 is a sectional view, showing a spindle set within a tube, to the lower part of which a whirl is secured, so that the whirl drives the tube in which the spindle rests. The tube is surrounded by a bolster placed within a bolster-case, the top being protected by a cap loosely fitting over the whole. A bobbin is shown secured to the spindle.

Fig. 2 is a sectional view of a spindle, set, like Fig. 1, into a tube, to the lower end of which tube a cap is secured, which, extending upward, incloses the lower part of the bolster and bolster-case, and, while it allows some lateral play to the tube and spindle, prevents the tube from being drawn out when the spindle is removed the same as the whirl does, as shown in Fig. 1. The whirl is, however, placed above the bolster and secured to the spindle, so that the tube forming the bearing for the spindle is in this case driven by the spindle, and the spindle cannot be removed without detaching the driving-band and removing the whirl.

Fig. 3 is a sectional view of a portion of a spindle, showing the whirl secured to the upper part of a tube in which the spindle is secured by dry frictional contact, and a step-bearing is given to the spindle in the lower cap, extending upward and secured to the bolster-case. This cap is not secured to the bolster, but is held by the turn-button from rising when the spindle is withdrawn.

The object of this invention is to construct a spindle so that it can be run at a high speed, perfectly true, with the least possible expenditure of power, in which the wearing parts can be readily renewed at small cost, and in which the spindle proper is not subjected to wear in the bolster.

In the drawings, A represents the spindle proper; B, the bobbin. C is the tube, in which the spindle is held by frictional contact. *d*, Fig. 1, is a whirl, driven onto the tube C, so as to revolve with the same. The sleeve *e* of the whirl extends upward to or nearly to the bolster-rail. *f* is the bolster-case, which is secured in the bolster-rail in any of the usual manners, and it is provided with a projecting shoulder, by which it rests on the rail. *g* is the bolster, fitting into the bolster-case, and arranged so that annular spaces between the bolster and the bolster-case will retain oil, and furnish lubrication to the tube C through holes in the bolster. *h*, Figs. 2 and 3, is a turn-button, by which the whirl is prevented from rising when the spindle is running. *i*, Fig. 1, is a cap, loosely fitting around the spindle and over the bolster-case, so that the same can be readily lifted when the bolster is to receive oil, and will cover and protect the bolster while the spindle is running. $d^1$, Fig. 2, is a whirl, provided with a cone arranged to receive the base of the bobbin. This whirl is secured directly to the spindle. $d^2$, Fig. 3, is a similar whirl, but secured to the spindle-tube C at its upper part.

K, Fig. 3, is a cap covering and extending over the lower end of the bolster-case, and secured to the same by a screw. The lower part of the cap K is provided with a step, $K^2$. The cap K may therefore be screwed upon the bolster-case *f*, and adjusted so that the spindle will rest sufficiently on the step to receive the weight of the spindle and bobbin, and relieve the spindle-tube C from a portion of the wear caused by the weight of the spindle.

The cap K differs from the cap $K^1$, in that the latter is fixed to the tube C, and revolves with the same around the bolster-case *f*, to

which the former cap, K, is secured. The cap K, arranged to form a step for the spindle, as shown in Fig. 3, may be used with the spindle and whirl shown in Fig. 2, so as to bear the weight of the spindle and bobbin on a step.

Various modifications may be made in the forms and proportions of the parts under varying conditions, and other arrangements may be made for the lubrication of the spindle-tube, without changing the nature of my invention.

The whirl may be secured to the upper or lower end of the spindle-tube, or to the spindle, and the weight of the spindle may be supported in a step, as shown in Fig. 3.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the spindle A, of the tube C, bolster *g*, bolster-case *f*, and the whirl *d*, as described, all arranged to operate substantially as and for the purpose set forth.

2. The combination, with the tube C, arranged in frictional contact with the spindle A to revolve therewith, of a whirl, the bolster and bolster-case, and a cap arranged to fit over the lower part of the bolster-case, substantially as and for the purpose set forth.

In witness whereof I have hereunto affixed my name.

DENNIS KELLEY.

Witnesses:
JOSEPH A. MILLER,
JOSEPH A. MILLER, Jr.