

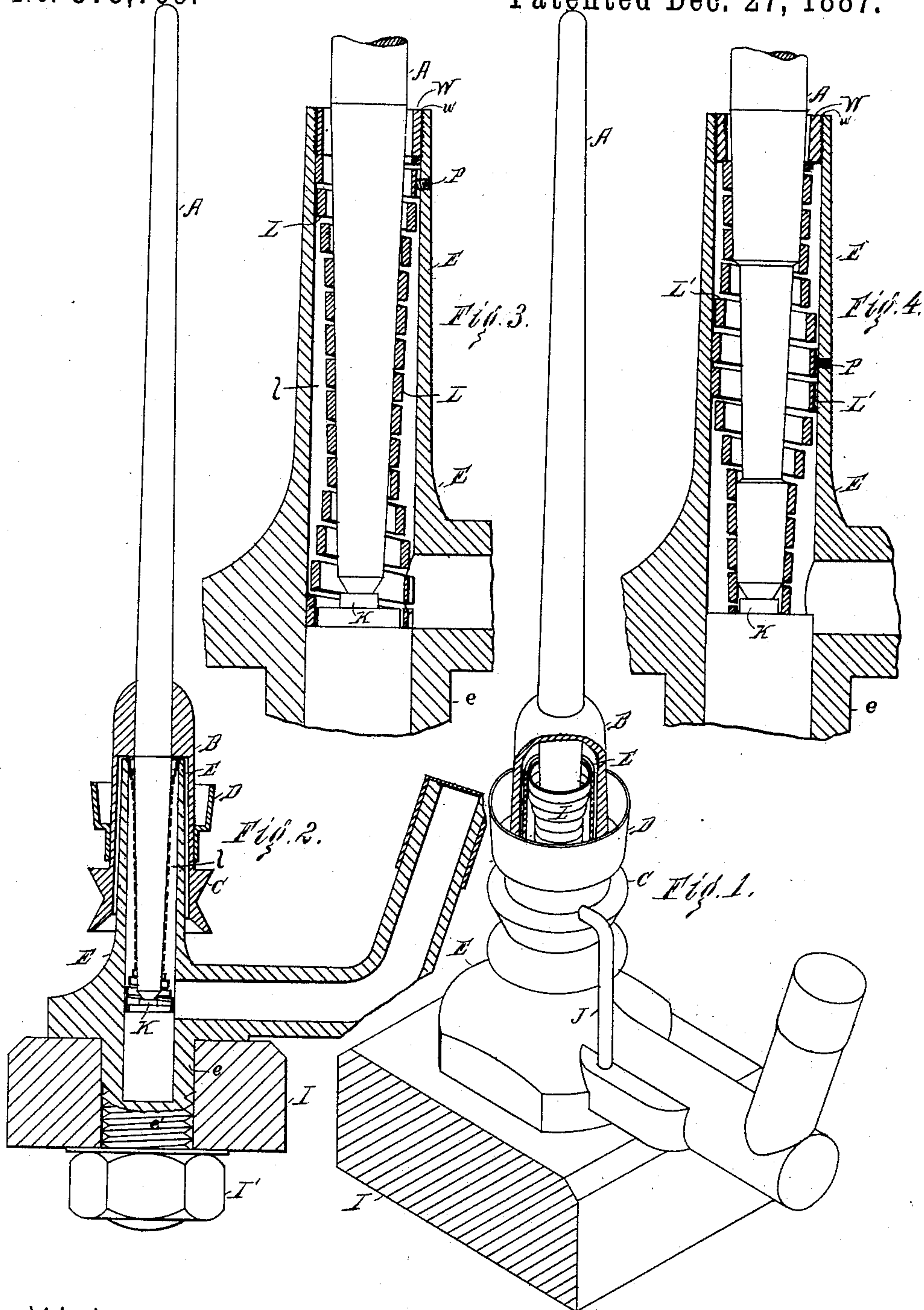
(No Model.)

T. H. LOGAN.

BOLSTER FOR SPINNING SPINDLES.

No. 375,709.

Patented Dec. 27, 1887.



Witnesses—

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Inventor—

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UNITED STATES PATENT OFFICE.

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BOLSTER FOR SPINNING-SPINDLES.

SPECIFICATION forming part of Letters Patent No. 375,709, dated December 27, 1887.

Application filed September 18, 1885. Serial No. 177,441. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. LOGAN, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Bolsters for Spinning-Spindles, of which the following is a specification.

My invention relates to bolsters for live spindles for twisting and spinning, particularly of that class of spindles which are designed to move laterally with equal freedom in every direction, in order that the spindle, with its load, may revolve around an axis which passes through the center of the combined gravity of the spindle and the load, as explained in United States Letters Patent No. 227,129, granted May 4, 1880, on the application of Francis J. Rabbeth, for improvement in spinning spindle and bearing.

In the accompanying drawings, Figure 1 is an isometric view of part of a spindle-rail, a bolster-case provided with an oil-tube, a spindle with its whirl and bobbin-cup, a part of the sleeve which connects the whirl with the spindle and a part of the bolster-case being in section to show the bolster. Fig. 2 represents the spindle-rail, the bolster-case, its shank, the nut turning on said shank, the oil-tube, the spindle, its whirl, bobbin-cup, and sleeve, the spindle proper and said shank and nut being shown in side elevation, and the other parts named being in central vertical section. Fig. 3 is a central section of part of the bolster-case and its oil-tube and of my improved bolster, showing also in side elevation the lower part of the spindle and its step or foot-rest. Fig. 4 is similar to Fig. 3, except that the form of the spindle and bolster is modified therefrom.

The spindle described below is what is known as the "new Rabbeth spindle," except as hereinafter stated.

The spindle A, provided with a sleeve, B, carrying the whirl C, the cup D, secured to said sleeve and adapted to receive the tapering lower end of a bobbin, (not shown,) the bolster-case E, provided with a reduced shank, e, screw-threaded at e' at its lower end to enable said bolster-case to be secured to the spindle-rail I by passing said shank through said spindle-rail and turning a nut, I', on said

shank against the under side of said rail, the hooked wire J, the upper bent end of which may be turned over the whirl C to prevent the spindle from being lifted in the operation of doffing, and the step K are or may be all of the usual construction and operation, and as described and shown in said Rabbeth patent, except the bobbin-cup, which is not shown in said patent.

The lower end of the spindle within the bolster may be cylindrical or straight, as shown in said patent, or tapering, as now commonly constructed. Instead of the hollow bolster outwardly cylindrical and surrounded by a cushion of felt, as shown in said patent, or by a braided tube of fibrous material, as commonly used in the so called "new Rabbeth spindle," I use a bolster consisting of a spiral wire spring, L, preferably so constructed as to have a running fit on the spindle at about the middle of said bolster and near the ends fitting the inside of the bolster-case E. Such a spring-bolster allows the oil in the bolster-case free access to the spindle within the bolster and does not become clogged by impurities in the oil or other lubricant like braided tube commonly used. Moreover, if the spring-bolster used by me should become clogged it could be cleaned with very little difficulty.

In making the spring-bolster I first make a spiral spring by winding wire of brass or steel around a cylindrical mandrel. The spring is then removed from the mandrel and held in a suitable chuck, and the interior of the spring is reamed out to fit the lower part of the spindle, as shown. The spring is then given a still greater internal taper for about a quarter of an inch from each end thereof by means of a taper-reamer. The spring being held in a suitable chuck and being again placed on a mandrel, its outer surface is turned down so that its ends will fill the vertical opening in the bolster-case, and the outer surface of the spring-bolster is concaved at $\ell\ell$ out to a depth of about a sixty-fourth of an inch in the deepest part nearly from end to end thereof. It is evident that as the spring touches only at its ends the inside of the bolster-case and does not touch the spindle at these points the pull of the driving-band will move the spindle laterally, just as in the patent above referred to.

The bolster constructed as above described will retain its elasticity indefinitely. The step K, being flat on the top, as in the patent referred to, allows the foot of the spindle to
5 move laterally in every direction freely. The bolster is retained in the bolster-case by a washer, W, having a thread, *w*, cut on its circumference and engaging an internal thread at the top of the bolster-case and prevented
10 from turning in the bolster-case by a pin, P, driven through the wall of said case into the upper coil of said spring L.

A modification of my invention is shown in Fig. 4. In the figure last named the bolster
15 L' tapers from the middle toward the ends, fitting the spindle at the ends of the spring and fitting the inside of the bolster-case at the middle of the bolster. It will be understood that the whirl is placed at about midway be-
20 tween the ends of the bolster, just as in said Rabbeth patent, which being the case the form of the bolster shown in Fig. 4 will operate precisely like the form shown in the other figures.

25 I claim as my invention—

1. The combination of a bolster case or supporting tube adapted to be secured to the spindle-rail of a spinning-machine, a live spindle, a step or foot-rest within said bolster-
30 case, supporting said spindle and allowing the foot or lower end of said spindle to move laterally in every direction freely, and a bolster consisting of a spiral spring adapted to surround said spindle within said bolster-case

and to have a running fit on said spindle at 35 one or more coils of said spring and at the same coils to be out of contact with said bolster-case, and at one or more other coils of said spring having an outside diameter equal to the inside diameter of said bolster-case, said 40 bolster at said last-named coils being out of contact with said spindle to allow a free access of oil to the bolster-bearing of said spindle and to allow said spindle to have a lateral motion by the lateral yielding of the coils of 45 said spring not in contact with said bolster-case, as and for the purpose specified.

2. The combination of the bolster case or supporting tube adapted to be secured to the spindle-rail of a spinning-machine, a live 50 spindle, a step supporting said spindle and allowing the same to move laterally in every direction freely, a bolster consisting of a spiral spring internally shaped to conform at and near its middle portion to the shape of said 55 spindle and to fit the same and to form a suitable bearing for said spindle, and above and below such bearing enlarged internally to be out of contact with said spindle, said bolster being shaped externally to fit said bolster-case 60 above and below the bolster-bearing of said spindle, substantially as and for the purpose specified.

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Witnesses:

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