(No Model.)

T. WATSON.

SPINNING MACHINE, &c.

No. 279,681. Patented June 19, 1883.

Fig 1

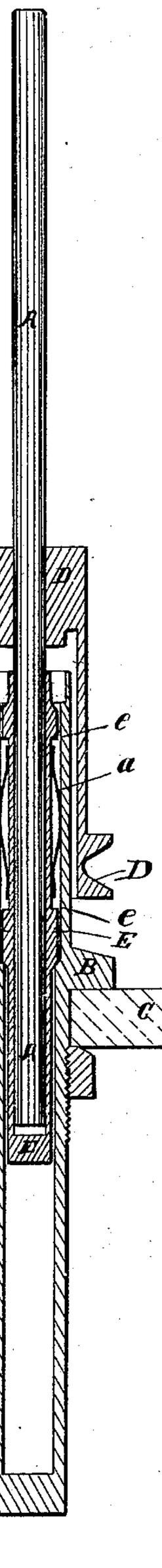

Fig 2

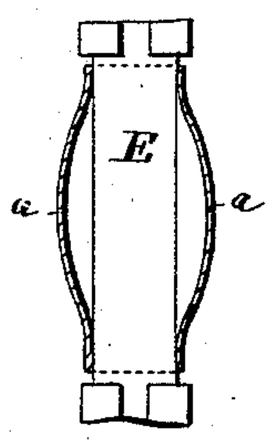

Fig 3

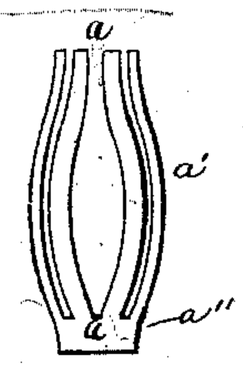

Fig 4

WITNESSES:

C. Sedgwick

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INVENTOR:

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BY Munn & Co

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UNITED STATES PATENT OFFICE.

THOMAS WATSON, OF PAISLEY, COUNTY OF RENFREW, ASSIGNOR TO JAMES & PETER COATS, OF FERGUSLIE WORKS, PAISLEY, SCOTLAND.

SPINNING-MACHINE, &c.

SPECIFICATION forming part of Letters Patent No. 279,681, dated June 19, 1883.

Application filed May 2, 1882. (No model.) Patented in England December 13, 1881, No. 5,438; in France January 31, 1882, No. 147,127, and in Belgium January 31, 1882, No. 56,940.

To all whom it may concern:

Be it known that I, THOMAS WATSON, of Paisley, in the county of Renfrew, Scotland, have invented certain new and useful Improvements in Spinning-Machines, &c., of which the following is a specification.

The object of my invention is to provide means whereby any style of spindle used for spinning or twisting yarn or thread may be given a limited degree of elasticity, in order that any tendency to eccentricity from oscillation or vibration under great speed or varying speed may be overcome or avoided.

To this end my invention consists in the construction and combination of parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal section of my invention, showing a spindle in elevation. Fig. 2 is a detail view of a portion of the bolster shown in elevation and the spring or springs in section. Fig. 3 is an elevation of one of my springs, and Fig. 4 is a plan view of the same.

A represents a common Rabeth spindle, provided with a whirl, D.

E is the bolster in which the spindle revolves.

B is the bolster case or support, secured, as usual, to the rail C. The bolster fits the support loosely to permit the spindle a little lateral movement. In practice about one-fiftieth of an inch difference between the diameter of the bolster and the diameter of the bore in the support containing it is found to be sufficient for this purpose. In making the bolster I turn down a portion of it, leaving a cylindrical body of reduced size between the shoulders or collars *e* for the admission of my springs *a*, said collars *e* being the portions of the bolster which fit the support B loosely, as stated. The body of the bolster is also reduced in size below the shoulders *f*, and the bore of the support is correspondingly reduced below the same point, leaving a shoulder on which the shoulder *f* is supported.

My spring *a* consists of a piece of thin sheet metal having several parallel slits cut through the greater portion of its length, forming several springing tongues, *a'*, united at one end by a web, *a''*, of the same sheet, similar to the teeth and back of a comb. After being so cut into shape, the spring is struck up in a die to the form shown, which I call "balloon-shaped," the web portion *a''* and the spring-points forming arcs of a size to closely clasp partly around the reduced portion of the bolster, and the convex central portion of the length of each tongue of the spring being arched radially away from the bolster, so that when the bolster is surrounded with such springs the extreme diameter of the balloon portion of the springs is considerably greater than the bore of the bolster-support in which the springs are to be used. The springs are usually made nearly semicircular in cross-section, so that two springs encircle the bolster, though more than two springs formed with correspondingly less arcs may be used. In practice the springs are placed in their recess on the bolster, between the shoulders *e*, and, with the bolster, are crowded into the support, said shoulders keeping the springs in place. The springs will be graded in their degree of stiffness or elasticity to the requirement in each case, to adapt the spindle to the work to be done. By the use of the springs the spindle is permitted to yield slightly to the lateral strain of the yarn upon its point, so that said strain will not bend it and cause it to vibrate and become eccentric at high speeds. The length of the reduced body of the bolster between the shoulders *e* must be a little greater than the normal length of the spring, to permit the free ends thereof to extend when the spring is flattened by pressure. The shoulders or collars *e* are longitudinally traversed by a number of grooves, and the bushing is provided with radial holes communicating with the interior, to permit a free circulation of oil to the spindle from the bore of the bolster-support, which serves as an oil-reservoir.

I am aware that spindles have before been provided with springs operating on the same principle as mine, but not of the same mechanical construction.

Having thus described my invention, what I claim, and wish to secure by Letters Patent, is—

The combination, with the rail C, the bolster-support B, the spindle A, and the whirl D, of a bolster fitting the bore of the support loosely, and reduced in size along a portion of its body, leaving an abrupt shoulder at each end of the reduced portion, and a spring or springs adapted to fit and operate between said reduced portion and the bolster-support, said spring consisting of a piece of sheet metal slit into a number of strips along a portion of its length from one end, but left whole at the other end, and formed into the balloon shape described, as and for the purpose specified.

THOMAS WATSON.

Witnesses:
ARTHUR C. HALL,
JOHN LEWIS.