

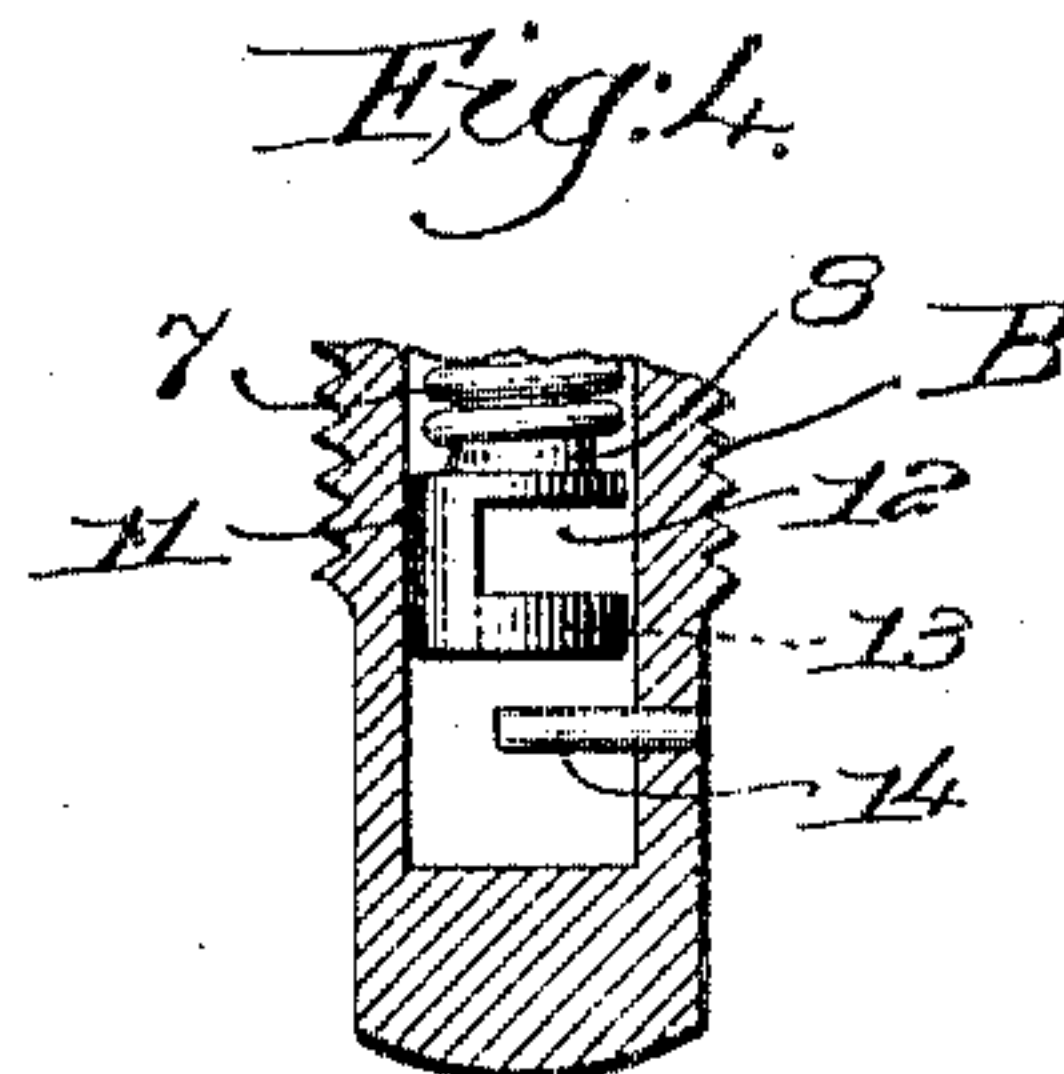
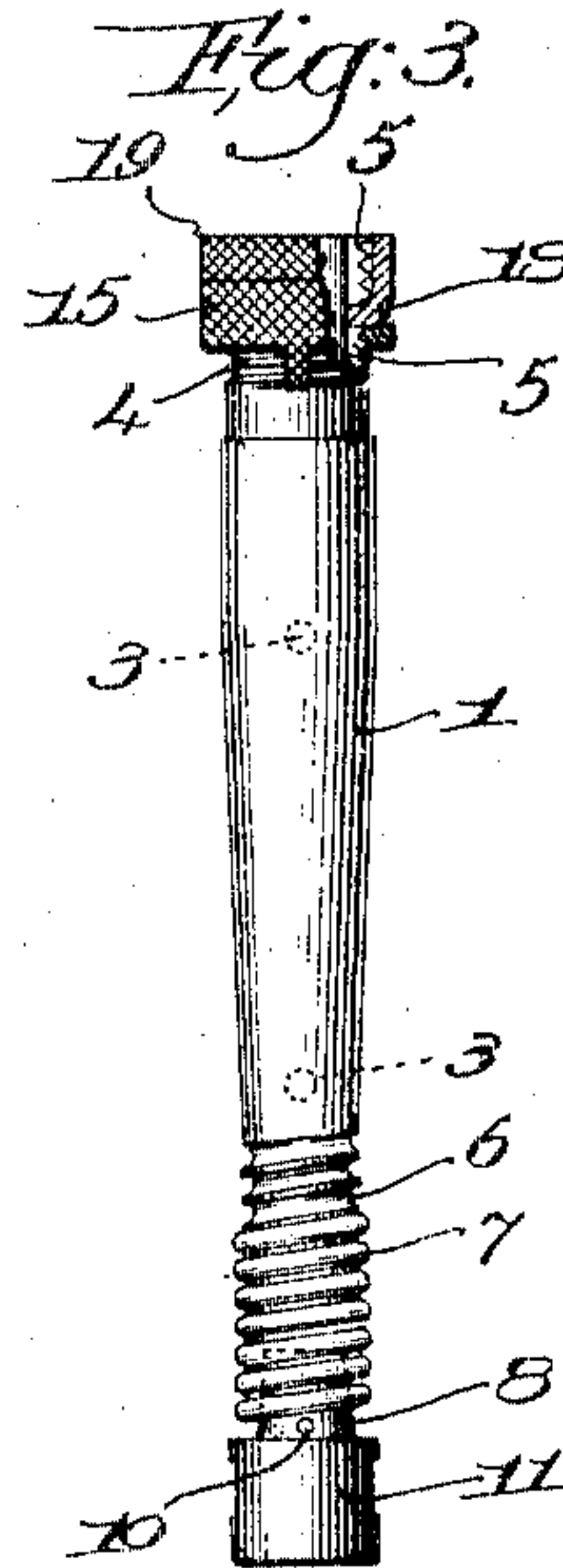
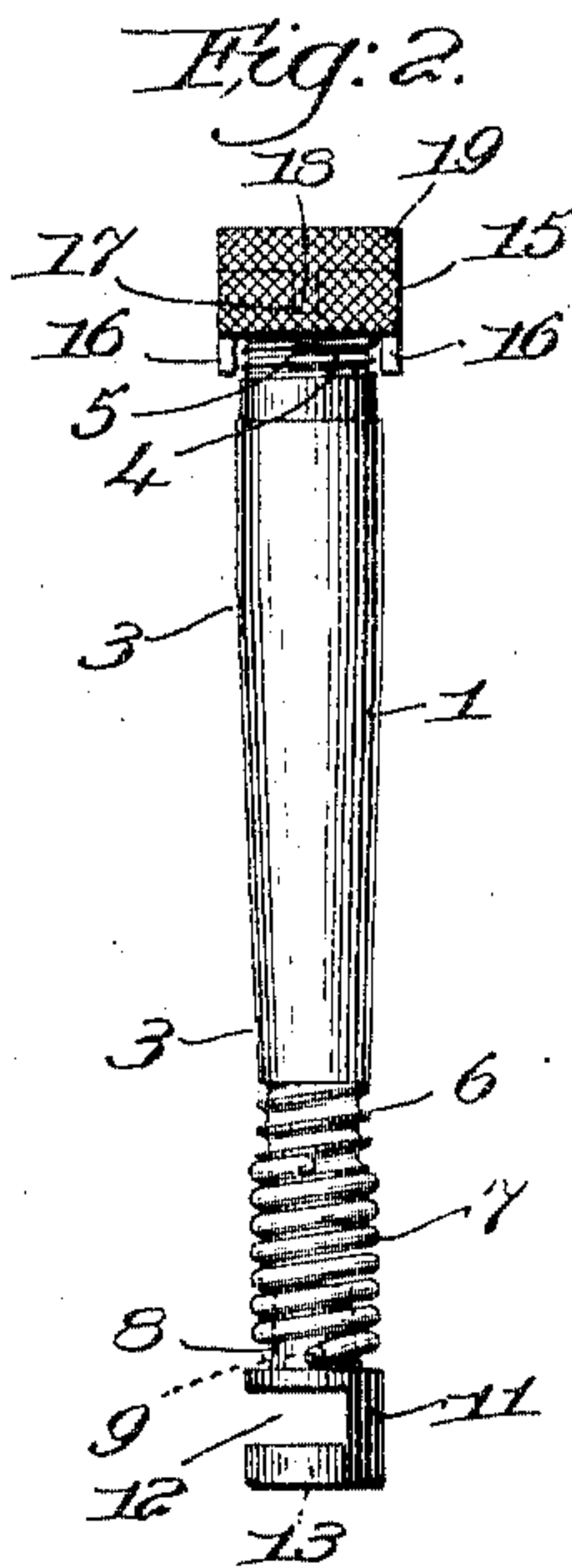
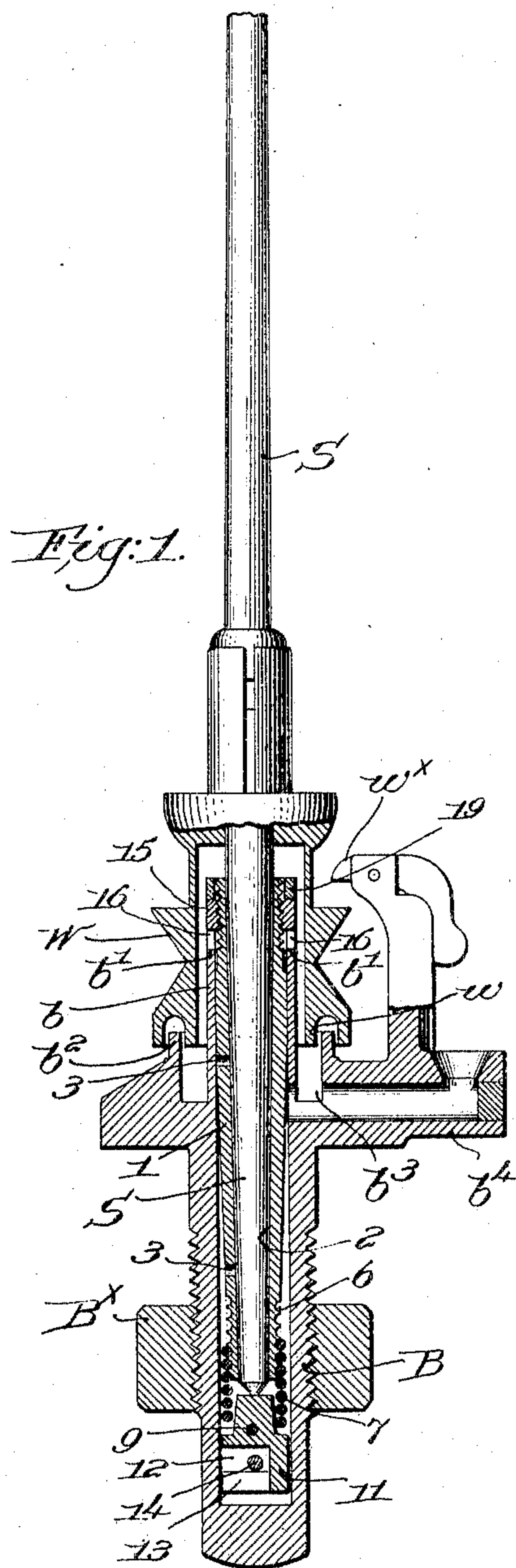
No. 776,122.

PATENTED NOV. 29, 1904.

G. O. DRAPER.  
SPINNING SPINDLE.

APPLICATION FILED AUG. 1, 1904.

NO MODEL.



Witnesses  
Edward H. Allen  
Warren D. Owen.

Inwitness  
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by Crosby Gregory,  
attys.



# UNITED STATES PATENT OFFICE.

GEORGE OTIS DRAPER, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO  
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## SPINNING-SPINDLE.

SPECIFICATION forming part of Letters Patent No. 776,122, dated November 29, 1904.

Application filed August 1, 1904. Serial No. 218,992. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE OTIS DRAPER, a citizen of the United States, and a resident of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Spinning-Spindles, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

10 This invention has for its object the production of a novel bearing for spinning-spindles of the type wherein the tapering pintle of the spindle is supported in the correspondingly-tapered bore of a bolster, suitably sustained in a bolster-case adapted to be secured to the spindle-rail.

In my present invention the bolster is maintained under the control of a spring under tension, permitting the spindle to run without vibration or jarring at very high speeds and with unbalanced loads. Means are also provided for regulating or adjusting the fit of the spindle-pintle in the bolster and for varying the tension of the bolster-controlling spring.

25 The various novel features of my invention as contained in one practical embodiment thereof will be fully described in the subjoined specification and particularly pointed out in the following claims.

30 Figure 1 is a vertical sectional view and part elevation of a spinning-spindle embodying one form of my invention. Figs. 2 and 3 are side elevations of the bolster, connected spindle-step, and the suspension connection for the bolster removed from the bolster-case, the parts in Fig. 3 being turned one-quarter around from the position shown in Fig. 2 and with the suspension connection partly broken out and in section; and Fig. 4 is a detail in section of the bottom of the bolster-case viewed at right angles to Fig. 1.

Referring to Fig. 1, the spindle S, having a tapering pintle S' and provided with a sleeve-whirl W, the bolster-case B, adapted to be clamped as usual to the spindle-rail by a nut B<sup>x</sup>, and the downhold w<sup>x</sup> for the whirl may be and are all substantially of well-known construction. The upturned end b of the bolster-case is provided with one or more notches

b', and surrounding the lower part of such upturned end is a circular wall b<sup>2</sup>, and the chamber formed thereby communicates at b<sup>3</sup> with the oil-reservoir b<sup>4</sup>, which, as will be noted, is quite low down.

In the present embodiment of my invention the oil has a tendency to run over the top of the bolster, and when it runs down outside the upper end b of the bolster-case it falls within the wall or guard b<sup>2</sup> and is returned through the opening b<sup>3</sup> to the reservoir and the interior of the bolster-case. The whirl is provided with a petticoat w, which extends down within and below the top of the guard b<sup>2</sup>, so that the oil cannot be thrown outward.

The bolster 1, having a tapering bore 2 to receive the spindle-pintle and provided with oil-holes 3, has a coarse screw-thread 4 formed on its upper end, while a longitudinal slot 5 is cut therein for a purpose to be described. A spiral groove 6 is cut on the lower end of the bolster to receive the coils at the upper end of a spiral spring 7, the coils tightly gripping the bolster and permitting the latter to be screwed thereinto, but preventing its rotation in the reverse direction. A spindle-step 8 is loosely inserted within the lower end of the spring and attached thereto by inserting the inturned extremity 9 of the spring into a transverse hole 10 in the step. The foot 11 of the step is enlarged and recessed transversely at 12 with a notch 13 in the lower part at right angles to the recess, (see Fig. 1,) the foot of the step being recessed and notched to cooperate with a pin 14, (see Figs. 1 and 4,) projecting inward from the side wall of the bolster-case near its bottom for a purpose to be described.

A suspension connection for the bolster is shown as an internally-threaded collar 15, adapted to receive with a rather loose fit the threaded portion 4 of the bolster, the collar having depending locking-lugs 16, Figs. 1, 2, and 3, to enter the notches b' when the collar is seated on the top of the part b of the bolster-case, as in Fig. 1. The bolster is thus suspended within the bolster-case, and relative rotation of the bolster and collar will effect vertical adjustment of the bolster.



In order to prevent rotation of the bolster in the suspension connection, the latter is provided with a notch 17 to receive a depending lug 18 on a locking-washer 19, adapted to rest upon the collar 15, the lug being intumed to also enter the slot 5 in the bolster, as shown in Fig. 3. By this arrangement the bolster and the suspension connection 15 are locked together, and the lugs 16 lock all from rotation in the bolster-case.

To assemble the parts, the locking-washer is removed and the bolster is turned in the connection 15 sufficiently to permit the recess 12 in the foot of the spindle-step to receive the pin 14 when the bolster and connected step are pushed down into the bolster-case.

In Fig. 4 the foot of the step is shown as about to pass down to its lowest position, the notch 13 permitting the lower part of the foot to pass below the pin 14. The bolster and step are then turned bodily through one-quarter of a revolution, so that the pin 14 will lie within the recess 12 and across or at right angles to the notch 13, thereby holding the step from further rotation. The spring 7 is now stretched or put under tension by screwing the suspension connection 15 down upon the bolster, thereby raising the latter until the position of the bolster with relation to the step has determined a proper fit of the blade in the bolster. When the desired fit is secured, the lugs 16 are dropped into the locking-notches 6' and the locking-washer 19 is applied, locking the bolster and connection from rotation. If now it is found necessary to increase the spring tension, it is attained by rotating the bolster and connection 15 while they are locked together, for thereby the spiral groove 6 of the bolster is screwed farther into the spring 7, stretching it accordingly as its lower end is held by the spindle-step locked in the bottom of the bolster-case.

It will be manifest that there can be no leakage of oil from the bottom of the bolster-case, as the latter is closed.

The adjustment of the parts either to vary the fit of the spindle-pintle in the bolster or to increase the tension of the spring must obviously be effected when the spindle is removed from the bolster.

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

1. In a spindle-bearing, in combination, a bolster-case, a bolster therein having a tapering bore to receive the pintle of the spindle, a spring under tension attached to and controlling the bolster, means to vertically move the bolster to vary the fit of the spindle-pintle therein, and separate means to adjust the tension of the spring.

2. In a spindle-bearing, in combination, a bolster-case, a bolster therein having a tapering bore to receive the pintle of the spindle, a suspension connection between the bolster

and bolster-case, the bolster being longitudinally movable relatively to said connection to change the fit of the spindle-pintle, and means independent of the bolster-case to lock the bolster and suspension connection together and prevent relative movement thereof.

3. In a spindle-bearing, in combination, a bolster-case, a bolster therein having a tapering bore to receive the pintle of the spindle, a spring under tension connected with the lower end of and controlling the bolster, means to adjust the tension of the spring by or through rotation of the bolster relatively to the spring, and separate means to vertically adjust the bolster to change the fit of the spindle-pintle therein.

4. In a spindle-bearing, in combination, a bolster-case, a bolster therein having a tapering bore to receive the pintle of the spindle, a spring under tension connected with the lower end of and controlling the bolster, a suspension connection between the latter and the bolster-case, simultaneous rotation of the bolster and connection adjusting the tension of the spring, relative rotation of said parts vertically adjusting the bolster to change the fit of the spindle-pintle therein, and a device to lock the bolster and suspension connection together.

5. In a spindle-bearing, in combination, a bolster-case, a bolster therein having a tapering bore to receive the pintle of the spindle, and externally threaded at its upper end, an internally-threaded suspension connection to coöperate with the threaded portion of the bolster and maintain the latter suspended within the bolster-case, means to lock said connection on the bolster-case, a spring under tension connected with the lower end of the bolster, and means to fixedly hold the other end of said spring, rotation of the bolster relatively to the spring increasing the tension thereof.

6. In a spindle-bearing, in combination, a vertically-adjustable bolster having a tapering bore to receive the pintle of the spindle, a spring under tension connected with the bolster, and means to adjust the tension of the spring by or through rotation of the bolster relatively thereto.

7. In a spindle-bearing, in combination, a bolster-case, a vertically-adjustable bolster suspended therein, a spring under tension connected with and controlling the bolster, and means located at the top of the bolster-case to effect vertical adjustment of the bolster.

8. In a spindle-bearing, in combination, a bolster-case, a vertically-adjustable bolster suspended therein, a spring under tension connected with and controlling the bolster, and separate means located at the top of the bolster-case to effect vertical adjustment of the bolster and change the tension of the spring respectively.

9. In a spindle-bearing, in combination, a



bolster-case, a bolster having a tapering bore located within and vertically adjustable relatively to the bolster-case, a spring adjustably connected with the lower end of the bolster, means to fixedly hold the lower end of the spring in the bottom of the bolster-case, and means at the top of the latter to effect vertical adjustment of the bolster and change the tension of the spring.

10 10. In a spindle-bearing, a bolster having a tapering bore to receive the pintle of the spindle, and having an external spiral groove on its lower end, a spiral spring cooperating at one end with said groove, and a spindle-  
15 step having a transverse recess in its foot, fixedly connected with the other end of the spring.

11. In a spindle-bearing, a bolster having a tapering bore to receive the pintle of the  
20 spindle, a spindle-step, a spring fixedly attached at one end thereto, and means to adjustably connect the other end of the spring and the lower end of the bolster, combined with a bolster-case having a locking-pin in its  
25 lower end, to cooperate with the step and lock

it from movement, and a suspension connection between the upper end of the bolster and the bolster-case.

12. In a spindle-bearing, a bolster-case, a bolster therein having a tapering bore, a suspension connection between the upper end of the bolster and the bolster-case, relative rotation of the bolster and connection effecting vertical adjustment of the bolster, a spring under tension connected with the lower end  
30 of the bolster, a locking device to cooperate with the bolster and the connection and prevent their relative rotation, simultaneous rotation of said parts increasing the tension of the spring, and separable means to fixedly  
35 hold the lower end of the spring in the bottom of the bolster-case.  
40

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

GEORGE OTIS DRAPER

Witnesses:

JOHN C. EDWARDS,  
MABEL PARTELOW.