(No Model.)

T. WARD.

SPINDLE BEARING FOR SPINNING MACHINES.

No. 547,621. Patented Oct. 8, 1895.

Fig. 1.

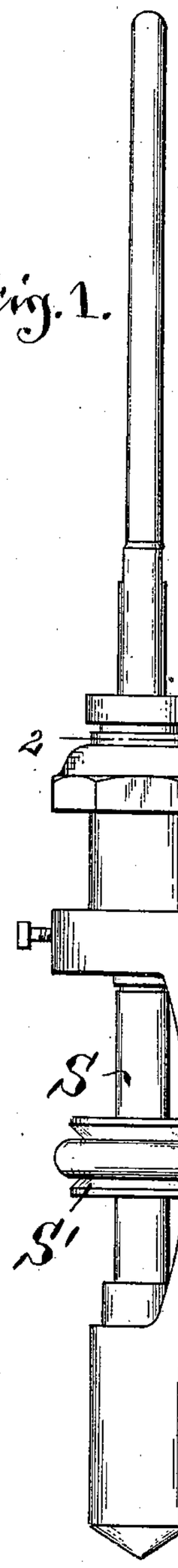


Fig. 2.

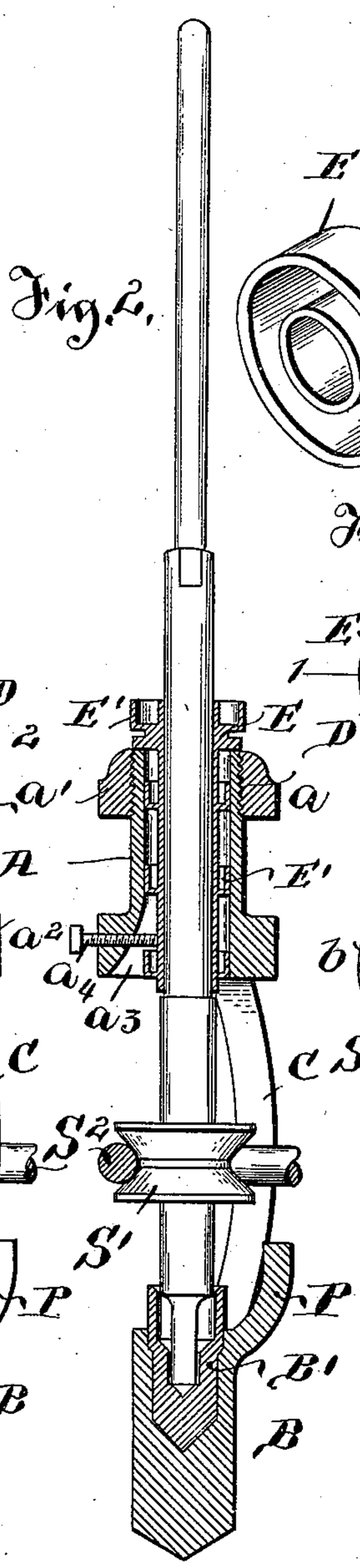


Fig. 6.

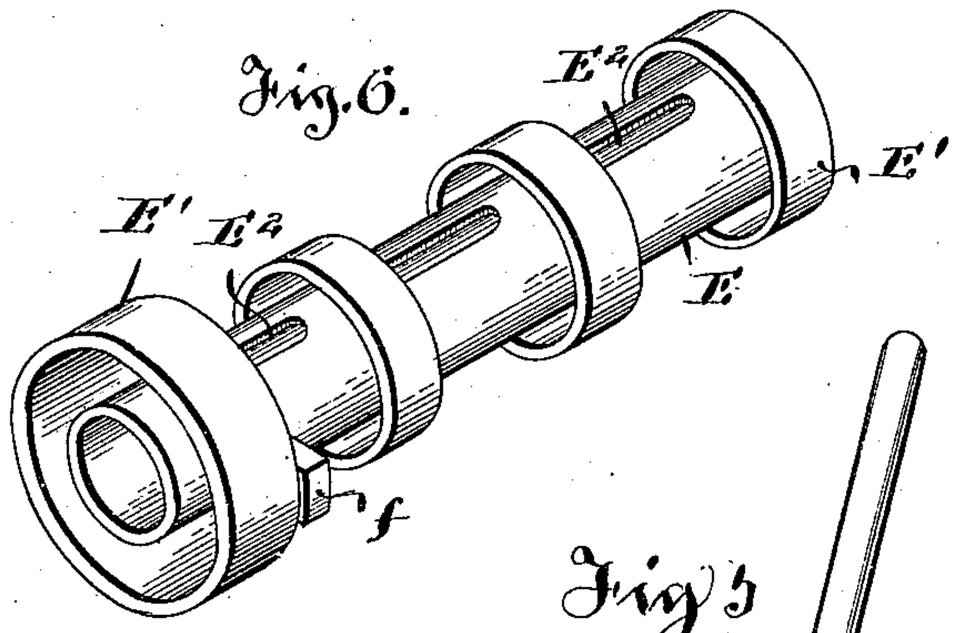


Fig. 3.

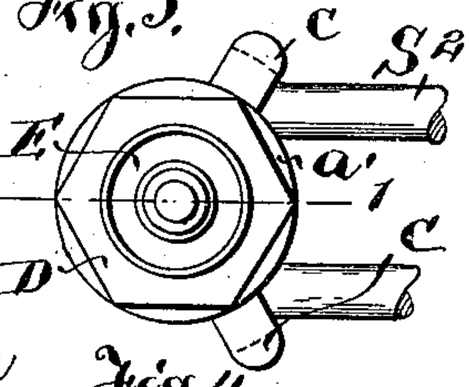


Fig. 4.

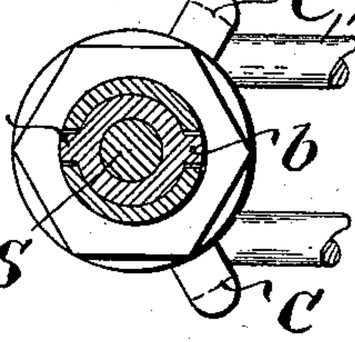
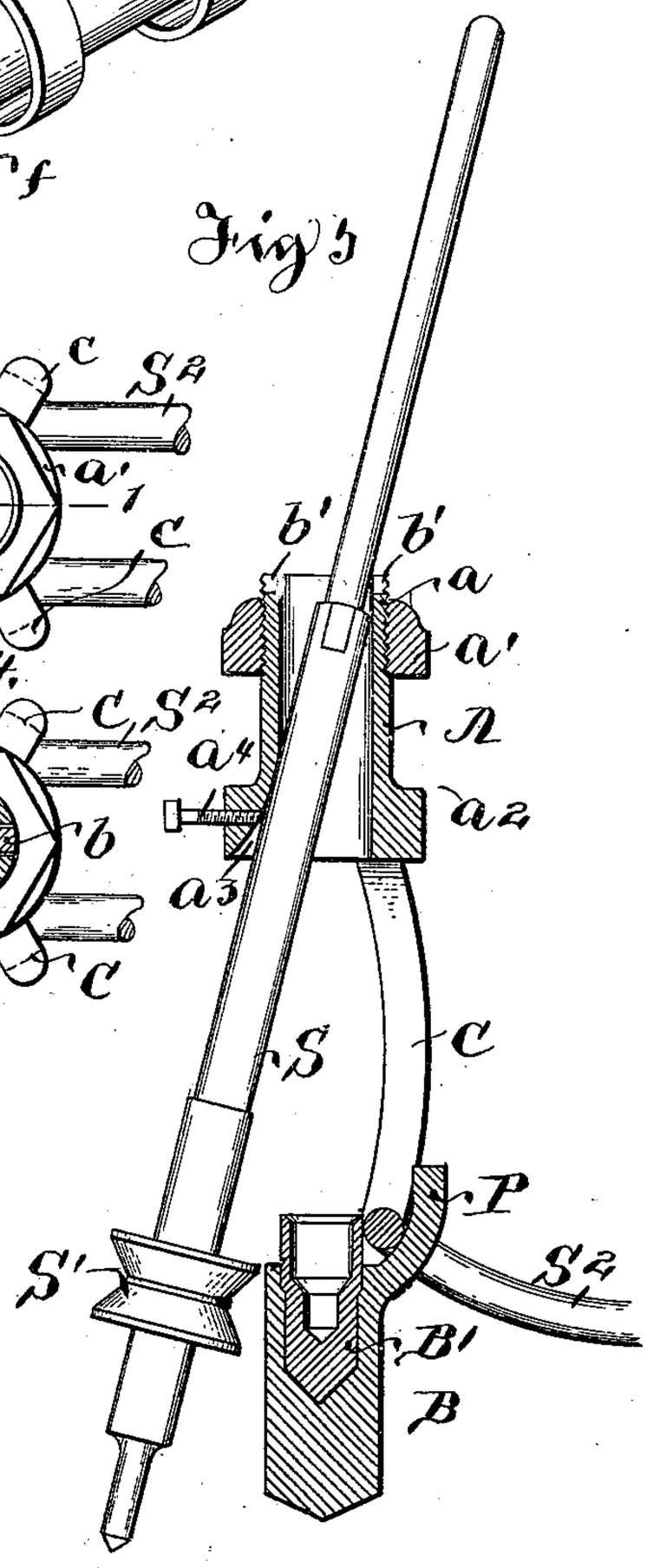


Fig. 5.



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THOMAS WARD, OF PHILADELPHIA, PENNSYLVANIA.

SPINDLE-BEARING FOR SPINNING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 547,621, dated October 8, 1895.

Application filed March 31, 1894. Serial No. 505,819. (No model.)

To all whom it may concern:

Be it known that I, THOMAS WARD, a citizen of the United States, residing in the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Spindle-Bearings for Spinning-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to spindle bearings or supports for spinning-machines, and has for its principal object to provide a supporting-frame for the spindle, the step, and the bolster, constructed in one integral structure in such manner that the spindle may be readily inserted in and removed from the support and be locked in position therein by a removable bolster; and my invention consists in a spindle-support having upper and lower bearing-sections connected by a pair of long yoke-arms, the lower section adapted to receive and maintain the step-bushing and the upper section to receive the removable bolster-bushing, and being cut away or recessed at a point on its inner peripheral edge to admit of the insertion and removal of the spindle, and devices between the bolster and its supporting-section whereby the spindle is supported in true vertical position therein; also, in the construction of the lower section of the support with a lug or projection to receive and hold the driving-belt when the latter is removed from the whirl of the spindle; also, in the construction of the bolster-bushing with annular oil-cups and channeled vertical grooves connecting with holes in said cups.

In the accompanying drawings, illustrating my invention, Figure 1 is an elevation of my improved spindle-support, showing the bolster and step and spindle in position therein. Fig. 2 is a vertical section thereof on the line 1 1 of Fig. 3, with the spindle shown in elevation. Fig. 3 is a full plan view of Fig. 1. Fig. 4 is a section on the line 2 2 of Fig. 1. Fig. 5 is a vertical section of the spindle-support and the step-bushing in the lower section thereof, but with the bolster-bushing removed from the upper section, and showing, in elevation, the spindle in the act of being inserted in the support. Fig. 6 is an elevation of the bolster-bushing.

These improvements are adapted for use with single-rail spinning-frames, wherein the spindles are driven by whirls maintained in the spindle-support within the yoke-arms thereof and between the upper and lower bearing-sections, the whirl of the spindle being thus supported below the rail of the spinning-frame. The spindle-support consists of the upper tubular section A, having an annular shoulder a^2, and it is inserted upward in the usual recess in the rail and held in position therein by a screw-nut a' threading with the screw-threads a. This upper section A is cast integral with a pair of long yoke-arms C and a lower section B, the latter being recessed to receive the step-bushing B′, which in turn is recessed to conform in shape to the foot end of the spindle S. The latter is of ordinary construction, having the usual tapering top and foot ends, a cylindrical intermediate portion, and a whirl S′. In Fig. 5 the spindle is shown removed from its step-bearing, while in Figs. 1 and 2 it is shown in place therein. By reference to Fig. 5 it will be observed that the spindle may be readily inserted in and removed from the spindle-support without removing the latter from the rail or disturbing it in its fixed position therein, and this is accomplished by providing recesses by cutting away a portion a^3 of the internal periphery of the upper section A, and also constructing the latter in such manner that the bolster-bearing may be readily inserted in the same from the top and removed therefrom in the same manner, and when inserted within the tubular opening of the section A is held from turning therein by bringing its lugs $b\,b$ into register with recesses $b'\,b'$ in the section A. The bolster-bearing may be further secured in place in the section A by means of a set-screw a^4. The bolster is represented in elevation in Fig. 6. It is composed of a tubular body E with a series of annular cup-like plates E′, and with longitudinal slits E^2 on the periphery of the tube E extending upward through the base of the cup-like plates E′, so that oil being poured into the top annular cup E′ will pass downward between the spindle and the interior of the bolster and through the slitted openings E^2 into the next succeeding cup E′, and thence through the next succeeding slit-

ted opening into the next succeeding cup, and so on to the end of the series. The lower section B of the spindle-support is provided with an upwardly-projecting lug P on the side, terminating at a point just below the base of the whirl, its purpose being that when the driving-belt S^2 is removed from the whirl for the purpose of stopping the operation of the spindle it is dropped around the projection P and held in position thereon until it is desired to again start the operation of the spindle, this means of holding the driving-belt being a convenient and useful device in substitution for a nail for that purpose usually used by spinners, the nail being passed through the loop of the belt and its ends held against the two yoke-arms of the spindle-support.

The operation of the device is as follows: The spindle-support A B C being placed in position in the rail of the spinning-machine by inserting the tubular end of the upper section A upward through the opening in the rail, the screw-nut a' is then applied to the screw-threaded tubular end of this section and the support thus fastened in its place in the rail. The spindle S is then inserted in the support in the manner indicated in Fig. 5—namely, by passing the top end of the spindle upward through the upper section A of the spindle-support, the opening a^3 readily permitting this, and the lower end of the spindle is then dropped into the step-bearing B'. The bolster E is then passed over the top of the spindle and dropped into the tubular opening of the upper section A of the spindle-support, its lugs $b\,b$ registering with openings $b'\,b'$ in the end of the upper section A, and the spindle is thus held from rotation in the support by means of the bolster and at the same time is supported in true vertical position therein. The set-screw a^4 is then applied to further secure the parts fixedly in position on the rail of the spinning-machine. The facility of adjustment of the parts is apparent from this description, and after being adjusted the spindle-support need not be disturbed from its position on the rail for any purpose unless found unsuitable for longer service. It will be observed that in this construction also the step-bearing is necessarily so limited as to afford very little contact with the lower end of the spindle, while on the contrary the upper section A is of considerable length, admitting of a long bolster-bearing and operating to keep the spindle in true vertical position during its rotation, while the construction of the spindle-support, as described, enables the ready inserting and attachment of the spindle from its support without disturbance of the latter on the rail, and presents an easy and efficient means of locking the spindle within the support and of centralizing the same, as well as providing an easy and efficient mode of lubricating the parts.

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

1. A spindle support consisting of an upper and a lower section rigidly united by a yoke, the lower section being provided with a step bearing and the upper section having a radially extending recess on the side opposite the yoke to permit the removal of the spindle, the said section being also provided with a bolster having a diameter greater than the width of the radial recess, substantially as described.

2. A spindle support for spinning machines consisting of an upper and a lower section united by a yoke the lower section being provided with a step bearing and the upper with a radial recess to permit the removal of the spindle and a spindle bolster, means for holding the bolster from rotation and the set screw holding it from longitudinal movement, substantially as described.

3. The combination with a spindle support having a part recessed for the reception of the spindle and a bolster bearing, of a bolster bearing consisting of a cylindrical tubular body having annular cup plates and a plurality of longitudinal slots and fitting the recess of the spindle support, substantially as described.

4. In a spindle support the combination with the upper and lower sections A, B and the double armed yoke C rigidly connecting them, of means attached to section A for securing the support to the rail, a bolster bearing consisting of a cylindrical tubular body provided with annular cup plates and a plurality of longitudinal slots, and means for holding the bolster and the upper section A in a fixed relation, substantially as described.

In testimony whereof I have hereunto affixed my signature this 24th day of February, A. D. 1894.

THOMAS WARD.

Witnesses:
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H. T. FENTON.