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SPINDLE SUPPORT FOR SPINNING, TWISTING, AND LIKE MACHINES.

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1,039,432. Patented Sept. 24, 1912.

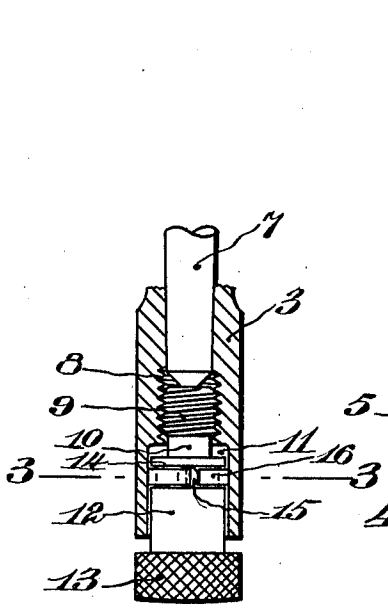

Fig. 2.

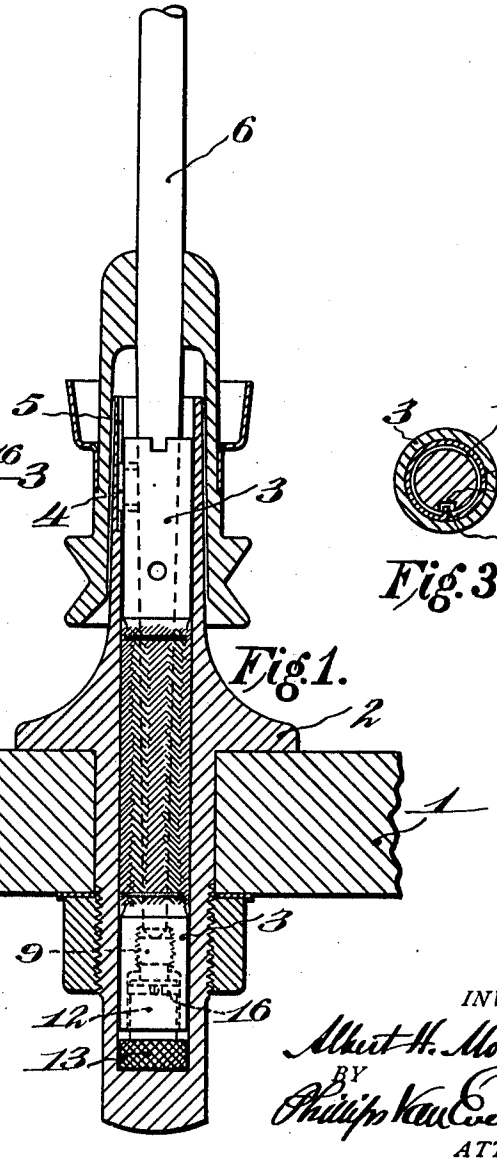

Fig. 1.

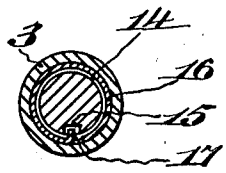

Fig. 3.

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SPINDLE-SUPPORT FOR SPINNING, TWISTING, AND LIKE MACHINES.

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To all whom it may concern:

Be it known that I, ALBERT H. MORTON, a citizen of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Spindle-Supports for Spinning, Twisting, and the Like Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to an improvement in spindle supports for spinning, twisting and the like machines, that is, to spindle supports of the class comprising a bolster case, a bolster having a tapered interior to receive the tapered pintle of the spindle and a step for the pintle with the bolster and step in screw-threaded connection with each other for their relative adjustment and for the relative adjustment of the pintle and bolster.

The object of the present invention is to reorganize and improve the construction of such spindle supports by simplifying the construction rendering it cheaper in production, easy of adjustment and certain in holding its adjusted position.

To these ends the invention consists in the spindle support hereinafter described and particularly defined in the claims.

In the accompanying drawing illustrating the preferred form of the invention; Figure 1 is a vertical section of a spindle and its supporting means; Fig. 2 is a vertical section of the lower end of the bolster taken in the plane of Fig. 1; and Fig. 3 is a section on the line 3—3 of Fig. 2.

In the drawing the spindle rail 1 carries the bolster case 2 in which the bolster 3 is supported being held from rotation in the bolster case by pin 4 which projects therefrom into a groove 5 in the interior of the bolster case. The spindle 6 has its pintle 7 supported in the bolster 3. The spindle 6 has a tapered pintle 7 which is received in a correspondingly tapered bore formed in the bolster. The lower end of the bolster is internally threaded at 8 to engage with the screw-threaded upper end 9 of the step 10. The extreme lower end of the bolster is counter bored to form an axially alined friction recess 11 which is adapted to loosely receive the drum 12 of the step. The lower end of the step is provided with a head 13 having a diameter approximating that of the bolster and which is knurled to enable it to be readily grasped and manipulated in order to secure a longitudinal adjustment of the step relative to the bolster. The drum 12 of the step is provided near its upper end with an annular groove 14 having a hole 15 formed in the bottom thereof. This groove receives an expansive clutch ring 16 formed of elastic steel and having an inturned end 17 which projects into the hole 15 in the bottom of the groove and locks the ring against rotation relative to the step. The clutch ring is normally of a greater diameter than the internal diameter of the recess 11, thus causing the ring to be contracted when the drum 12 of the step is pressed into the recess 11. This causes the ring to frictionally engage the walls of the recess, locking the bolster and step against rotation relative to one another. The threaded end 9 of the step engages the threaded hole in the bolster loosely in order that it may be freely turned to raise and lower the step in the bolster and thus secure the proper running position of the spindle pintle 7. The clutch ring 16 being normally of such a size as to require it to be sprung over the end of the drum 12 in order to insert it in the groove 14, holds itself in position in the groove after it has been placed there by reason of its contraction. The projection 17 on the end of the clutch ring is of such a length that it must be received in the hole 15 when the step is in position in the bolster. The clutch ring 16 is contracted by external pressure until it is reduced in size sufficiently to be inserted with the step in the friction recess 11 in the lower end of the bolster, then the threaded end of the step is screwed into the hole in the lower end of the bolster until its end engages the bottom of the spindle pintle so as to support the latter in proper bearing relation to the bolster. The clutch ring maintains the step in proper adjustment when it has been adjusted. There are numerous advantages incident to this construction apparent to those skilled in the art, among which may be mentioned the facility of manufacture which is secured by reason of the fact that the extreme nicety of size of the parts is not required.

The screw-threaded end of the step may vary in size considerably from the screw-threaded opening in the bolster without impairing the capacity of the thread to hold

the parts in correct longitudinal adjustment with relation to each other. The size of the drum 12 within certain comparatively wide limits, is immaterial as the drum is not required to fit the recess 11. These features eliminate the requirement of extreme nicety in dimensioning the parts, cheap and rapid machine tools being available for performing the operations. Again the size of the clutch ring, within certain limits, is not of greatest importance so long as it is large enough to engage the inside of the recess 11 with sufficient pressure to cause enough frictional resistance to turning, to hold the step from rotation in the bolster under the strains to which it is ordinarily subjected. This reduces the cost of making the clutch rings for obvious reasons. Another feature of advantage is found in the fact that when the step is removed from the bolster the spring is not detached and liable to be dropped or lost or required to be separately assembled when the step is reinserted in the bolster. This feature conduces to convenience of use of the spindle support, and to a certain extent, also to cheapness of manufacture. Furthermore, when assembled the clutch ring is not exposed. But perhaps the most important feature of the construction resides in its extreme simplicity by virtue of which the spindle support is little liable to derangement in use or accidental injury.

While the form of the invention illustrated in the drawing and described in the foregoing description constitutes the preferred form of the invention because of its simplicity and because of its facility of manufacture it is to be understood that the invention may be embodied in other forms within the scope of the following claims.

I claim—

1. A spindle support for spinning and the like machines having, in combination, a bolster case and a bolster and step having screw-threaded connection for relative adjustment, the bolster being provided with a friction recess in its lower end and the step being provided with a clutch device to engage the inside of the recess in the lower end of the bolster to permit rotation of the bolster and step with relation to each other under adjusting strains and to hold them against relative movement under running strains, substantially as described.

2. A spindle support for spinning and the like machines having, in combination, a bolster case and a bolster and step having screw-threaded connection for relative adjustment, the bolster having a friction recess in its lower end and the step being provided with a clutch ring engaging the friction recess in the lower end of the bolster, substantially as described.

3. A spindle support for spinning and the like machines having, in combination, a bolster case and bolster and step having screw-threaded connection for relative adjustment, a bolster having a friction recess in its end and the step having an expansive clutch ring held from rotational movement with relation to the step and engaging the surface of the friction recess in the bolster for holding the step in adjusted position in the bolster, substantially as described.

4. A spindle support for spinning and the like machines having, in combination, a bolster case and a bolster and step having screw-threaded connection for relative adjustment, the bolster being provided with a friction recess in its lower end and a step having a portion adapted to be received in the friction recess provided with a groove and an expansive clutch ring held in the groove and engaging the friction recess for holding the step in adjusted position in the bolster, substantially as described.

5. A spindle support for spinning and the like machines having, in combination, a bolster case and a bolster and step having screw-threaded connection for relative adjustment, a clutch ring mounted on one of them and positively held from rotation with relation thereto, and frictionally engaging a coöperating surface on the other and holding the step in adjusted position in the bolster, substantially as described.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."