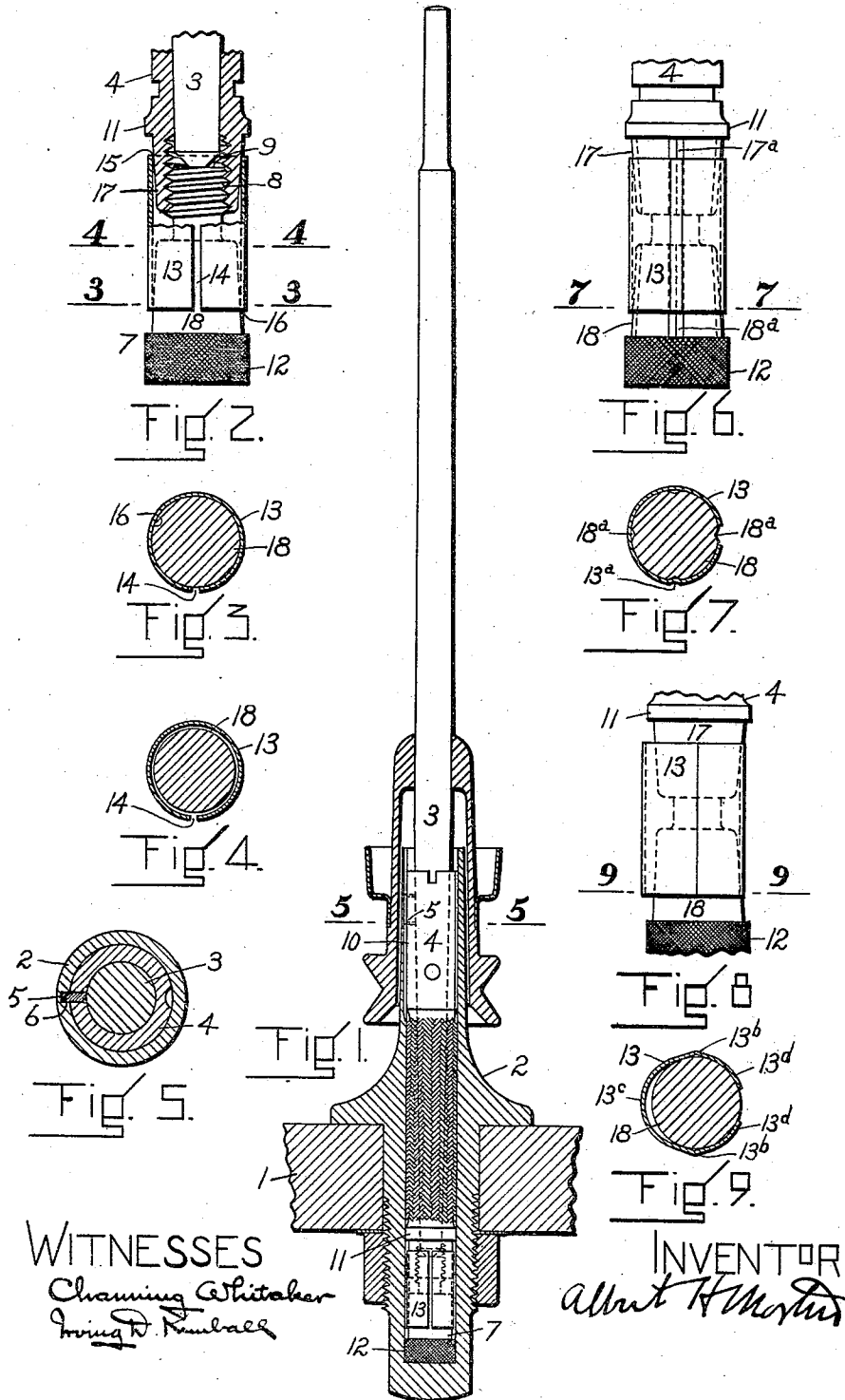


A. H. MORTON.
 SPINDLE SUPPORT FOR SPINNING, TWISTING, AND THE LIKE MACHINES.
 APPLICATION FILED OCT. 5, 1910.

988,128.

Patented Mar. 28, 1911.



UNITED STATES PATENT OFFICE.

ALBERT H. MORTON, OF LOWELL, MASSACHUSETTS.

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988,128.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT H. MORTON, of Lowell, in the county of Middlesex and the Commonwealth of Massachusetts, have invented certain new and useful Improvements in Spindle-Supports for Spinning, Twisting, and the Like Machines, of which the following description and claims, with the accompanying drawing, is a specification.

My invention has relation to 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 a spindle, and a step for the pintle, with the bolster and step connected with each other for their relative adjustment and for the consequent relative adjustment of the pintle and bolster.

More particularly, it relates to the means for maintaining the adjustment of the step to the bolster while the parts are in their operative positions and for readjusting the step to the bolster while the parts are out of their operative positions.

The invention consists essentially in the combination with a bolster and step which are connected with each other for relative adjustment, of means acting by lateral and frictional engagement to prevent longitudinal movement of the step relatively to the bolster to maintain the adjustment of the step to the bolster but not including any positive latching device or positive locking device which requires to be unlatched or unlocked by hand or otherwise prior to a readjustment of the step to the bolster and which device requires to be related or relocked after the readjustment has been made.

While the spindle is in operation, the means maintains unaltered the adjustment of the step to the bolster and consequently the adjustment of the pintle to the bolster notwithstanding the absence from the maintaining-means of anything like a positive latching or a positive locking device. While the bolster, step, and maintaining-means are out of the case, the adjustment of the step to the bolster to secure the desired adjustment of the pintle to the bolster can conveniently be made by hand without unlatching or unlocking the maintaining-means but only by slipping relatively to one another parts that are only in frictional and never in positive engagement, and, in the case of the preferred

form of the invention wherein the maintaining-means comprises no notches in series or otherwise, the adjustment can be made with the minutest degree of delicacy, closeness, and precision. The adjusted bolster, step, and maintaining-means can be placed in operative position in the case with ease without the maintaining-means having been latched or locked and without danger of accidental mal-adjustment.

In the drawing: Figure 1 shows in vertical section a spindle and its supporting means, with the invention in its preferred form; Fig. 2 is an enlargement of a part of Fig. 1; Figs. 3 and 4 are horizontal sections taken at the lines 3—3 and 4—4, respectively, of Fig. 2; Fig. 5 is an enlargement of a horizontal section taken at the line 5—5 of Fig. 1, omitting the whirl; Figs. 6, 7, 8, and 9 represent on an enlarged scale modifications of the invention.

Similar numerals refer to similar parts throughout the views.

In the drawing: 1 is a spindle-rail carrying a bolster-case 2; 3 is a spindle having a tapered pintle; 4 is a bolster, fitted loosely in the bolster-case and having an interior bearing for the pintle with the same taper as the pintle; 5 is a pin which projects from the bolster and enters a vertical groove of rectangular cross-section 6 in the bolster-case to positively prevent the rotation of the bolster within the bolster-case; 7 is a step in screw-threaded engagement with the bolster at 8 for their relative adjustment, and having a pintle-support at 9; 10 and 11 are bosses on the bolster con-axial with the bolster and 12 is a boss on the step con-axial with the step for checking the lateral movements of the bolster and step within the bolster-case.

The features thus far mentioned are as usual.

In Figs. 1, 2, 3, and 4, the spring-clip 13 is the maintaining-means which is a feature of the invention. It is a thin hollow normally cylindrical tube of spring-metal divided at a longitudinal slit 14 to permit of its elastic cross-sectional, expansion and contraction and having end-parts 15 and 16 for engagement with the bolster and the step. Normally, the hole through the clip is somewhat smaller in diameter than the slightly tapering but substantially cylindrical portions 17 and 18 of the bolster and step, respectively, with which the parts 15 and 16 are to engage laterally and frictionally. The

diameter of the portion 17 is made slightly larger near the boss 11 than elsewhere, as is shown in Fig. 2. The diameter of the portion 18 is made slightly larger near the boss 12 than elsewhere, as is shown in Figs. 2, 3, and 4. In Figs. 2 and 4 their taper is much exaggerated to make the fact that they taper appear at a glance. When the portions 17 and 18 occupy the end-portions of the clip, the cross-sections of the clip are expanded against the resistance of the spring and the tendency of the clip to contract to its normal diameter causes the end-parts 15 and 16 to clasp the portions 17 and 18 in lateral and frictional engagement. The resistance to turning of the portion 17 in the part 15 is about equal to that of the portion 18 in the part 16.

In the preferred form of the invention, the frictional resistance to the relative rotation of the bolster and step varies but little within the entire range of the possible adjustment. It is more than enough to prevent such rotation during the operation of the spindle, but when the bolster, the step, and the clip are out of the bolster-case, such rotation can be effected by hand, and the step and the pintle can be easily and accurately adjusted to the bolster. While the adjustment is being effected by hand: the spindle is in its working position relatively to the bolster and step, and it is used as a rotatable gage whereby to ascertain whether and when the adjustment has been accurately accomplished; either the portion 17 of the bolster, the portion 18 of the step, or, both of the portions 17 and 18 may slip within and rotate relatively to the clip; and, the construction will equally embody my invention if only the bolster, only the step, or both the bolster and the step slip within and rotate relatively to the clip. The step has no notch which must register with a pin in the bottom of the case and the adjusted parts can be quickly placed in operative position without disturbing the adjustment.

It is not necessary in all cases of my invention that both a portion of the bolster and a portion of the step shall be constructed to slip within and rotate relatively to the clip. If the clip, intermediate the bolster and step, is fastened by well-known means either to the bolster or to the step and it by any means acting by lateral and frictional engagement maintains the adjustment of the step to the bolster, it is within my invention.

The substantially cylindrical preferred forms of the clip 13, of the portion 17 of the bolster, and the portion 18 of the step facilitate the turning of those portions within the clip and tend to secure uniformity of the resistance to the turning, but the form of either the clip, the portion 17, the portion 18, or, of all of them may vary.

It would be within my invention to make

the portions 17 and 18 of the bolster and step strictly cylindrical, instead of slightly tapering. But the cost would be larger to manufacture in commercial quantities bolsters and steps having strictly cylindrical portions 17 and 18 so precisely equal in diameter that either of those portions would turn in the clip with about the same resistance as the other. By slightly tapering the portions 17 and 18, as in the preferred form of my invention, the desirable equality in their resistance to turning in the clip is secured with only the usual accuracy and cost of the ordinary manufacturing process.

A modification of my invention is shown in Figs. 6 and 7, wherein the portion 17 has a series of grooves 17^a 17^a while the portion 18 has a series of grooves 18^a 18^a. A corresponding portion of the clip has a corrugation 13^a inwardly turned to enter any of such grooves for laterally and frictionally engaging the bolster and step for maintaining their adjustment. The inter-engaging grooves and corrugations of this modification are longitudinal and permit relative longitudinal movement of the bolster, the clip, and the step. They are also flaring or V-shaped in cross-section and permit relative rotation by hand of the bolster, the clip, and the step. In the modification shown in Figs. 8 and 9 the spring-clip 13 has two diametrically opposed, longitudinally extended, and V-shaped portions 13^b 13^b united by the off-set portion 13^a and with the cylindrical extensions 13^a 13^a approaching one another at the longitudinal slit 14. The clip 13 by its tendency to contract clasps or laterally and frictionally engages the portion 17 and 18 of the bolster and step, respectively, with force sufficient to maintain the adjustment of the step to the bolster while the spindle operates and to prevent accidental change thereof.

I claim:

1. A spindle-support for spinning and the like machines comprising in combination, a bolster-case, a bolster and step having screw-threaded connection for relative adjustment, means positively engaging the bolster-case and the bolster, and means intermediate the bolster and step acting by lateral and frictional engagement to maintain the adjustment of the step to the bolster.

2. A spindle-support for spinning and the like machines comprising in combination, a bolster-case, a bolster and step having screw-threaded connection for relative adjustment, means positively engaging the bolster-case and the bolster, and means laterally and frictionally engaging with the bolster and step for maintaining their adjustment.

3. A spindle-support for spinning and the like machines comprising in combination, a bolster-case, a bolster and step having screw-threaded connection for relative adjustment,

and means laterally and frictionally engaging with the bolster and step for maintaining their adjustment.

4. A spindle-support for spinning and the
5 like machines, comprising in combination, a bolster-case, a bolster and step having screw-threaded connection for relative adjustment, and a spring-clip circumferentially engaging slightly tapering portions of the
10 bolster and step.

5. A spindle-support for spinning and the like machines, comprising in combination, a

bolster-case, a bolster and step, and laterally acting frictional holding means for engaging and connecting the bolster and step to
15 hold each of them from longitudinal movement with relation to the other.

In testimony whereof, I affix my signature in the presence of two witnesses.

ALBERT H. MORTON.

Witnesses:

CHANNING WHITAKER,
IRVING D. KIMBALL.

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