July 14, 1942. L. M. COTCHETT 2,289,903

SPINDLE MOUNTING

Filed June 26, 1941

Fig. 1.

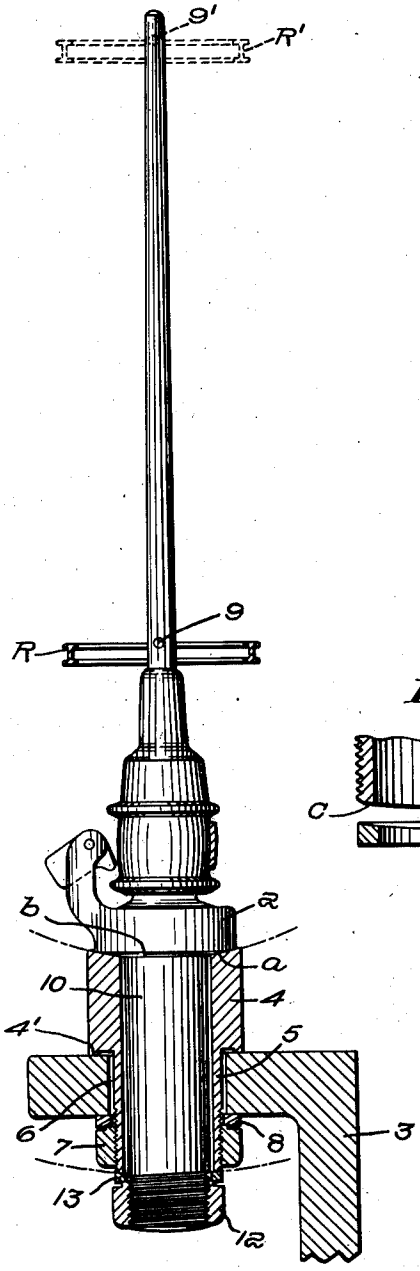
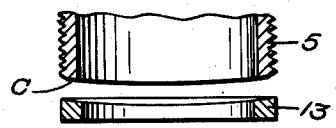


Fig. 2.



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SPINDLE MOUNTING

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Application June 26, 1941, Serial No. 399,865

6 Claims. (Cl. 57—132)

This invention relates to the spindles used in spinning and twister frames and is more especilly concerned with the means for mounting or supporting such spindles in their operative positions. For convenience both types of sprindles will usually be hereinafter designated as "spinning spindles" and the machines in which they are used will be called "spinning frames."

In setting up a spinning frame, or in overhauling and re-aligning a machine of this type, it is necessary both to center the spindles with reference to the respective rings with which they are to cooperate, and also to plumb them so that the axis of each spindle will lie substantially in the path of traverse of the center of its respective ring. The common practice has been to center the spindle on the spindle rail or box rail and then to plumb it by inserting shims of paper betwen the spindle base and the upper surface of the rail, to tighten up the nut which clamps the spindle base to the rail and then to check the adjustment so made. Usually it will be found wrong so that it is then necessary to loosen the nut, change the position of the shim, or introduce one of a different thickness, tighten the nut, check the adjustment, and to repeat these operations until the desired relationship of the parts has been obtained. It is a slow and trying process, particularly since it is difficult to make the plumbing adjustment without disturbing the centered setting.

The present invention deals with the problem presented by these considerations, and it aims to devise a spindle mounting which will reduce very substantially the labor involved in these centering and plumbing operations.

The nature of the invention will be readily understood from the following description when read in connection with the accompanying drawing, and the novel features will be particularly pointed out in the appended claims.

In the drawing,

Figure 1 is a side elevation, with certain parts in section, illustrating a spindle mounting embodying this invention; and

Fig. 2 is a vertical, sectional view, on a large scale, of parts at the lower end of the spindle base.

The spindle structure illustrated in the drawing may be of any suitable or common form. It includes a spindle base 2 which, instead of being supported directly on the spindle rail 3, in accordance with the practice heretofore commonly followed, is mounted on a tubular supplemental base 4. This member is provided with a shank 5 of reduced diameter to project loosely through an aperture 6 in the horizontal flange of the ring rail. Also, the part 4 has a shoulder provided with an annular flange 4' adapted to rest on the upper surface of the rail. The difference in diameter between the shank 5 and the aperture 6 is sufficient to afford ample adjustment for the supplemental base 4, both laterally of the rail and also longitudinally thereof, so that it may readily be centered with reference to its cooperating ring. When so centered it can be secured firmly in its adjusted position by means of the nut 7 threaded on to the lower end of the shank 5 and the washer 8 interposed between this nut and the lower surface of the horizontal flange of the rail.

This arrangement provides for the convenient centering of the supplemental base and therefore of the spindle. It then remains, however, to plumb the spindle. In order to facilitate this operation a concave seat *a* is formed in the upper end of the supplemental base 4, this surface being curved about a center located in the center of the ring R and preferably positioned at the lower level of the traversing movement of the ring. In Fig. 1 this center is indicated at 9. The spindle base 2, as shown, has a convex lower surface *b*, also curved about the center 9, and the shank 10 of the base projects freely through the bore of the supplemental base 4, a substantial radial clearance being provided between the outer surface of the shank and the wall of said bore. Below the supplemental base the shank 10 is screwthreaded to receive a nut 12, and a washer 13 is interposed between this nut and the lower end surface *c* of the part 4. As best shown in Fig. 2, the surface *c* just mentioned also is curved about the center 9, and the upper surface of the washer 13 is concaved to fit it.

It will be observed that in this arrangement the suplemental base 4 supports the spindle base 2 for angular adjusting movement in an infinite number of vertical planes all passing through the center 9 of the concave seat *a*. Consequently, it is a relatively simple matter to adjust the spindle structure so that its axis passes through said center. Since this is the center of the ring R when the latter is at the lower end of its traverse, it follows that if this adjustment is made correctly, then the spindle axis will also pass through the same center 9' of the ring when the latter is at the upper limit of its traverse, as shown at R'. As soon as this adjustment has been checked and found accurate, the spindle

structure can be secured in its plumb position by tightening the nut 12.

It should be observed that the centering adjustment is made first and that the plumbing operation hereafter performed cannot disturb the centered setting. And this is true even though it may be found necessary to modify the first plumbing adjustment made if that setting does not check out accurately. This construction, however, greatly simplifies the matter of plumbing for the reason that the supplemental base on which the spindle base is mounted can be initially centered accurately so that the workman starts the plumbing operation from a center accurately positioned and which remains so positioned notwithstanding changes which he makes in the angular location of the spindle in endeavoring to bring it into a plumb position.

While I have herein shown and described a preferred embodiment of my invention, it will be evident that the invention may be embodied in other forms without departing from the spirit or scope thereof. For example, the drawing shows a live spindle but the invention is equally useful with stationary or "dead" spindles.

Having thus described my invention, what I desire to claim as new is:

1. A mounting for spinning and twister spindles comprising the combination with a spindle rail having an aperture therethrough, of a supplemental base adjustable laterally and longitudinally in said aperture, means for clamping said supplemental base in its adjusted position on said rail, a spindle structure including a spindle base mounted on said supplemental base for angular adjustment to bring it into a plumb position, and means operable independently of the aforesaid means for securing said spindle base in said plumb position.

2. A mounting for spinning and twister spindles comprising the combination with a spindle rail having an aperture therethrough, of a supplemental base adjustable laterally and longitudinally in said aperture, means for clamping said supplemental base in its adjusted position on said rail, a spindle structure including a spindle base mounted on said supplemental base for angular adjustment thereon about a center spaced a substantial distance above said supplemental base and through which the spindle axis must pass when the spindle is centered and plumb, and means operable independently of the aforesaid means for clamping said spindle base to said supplemental base in its adjusted position relatively thereto.

3. A mounting for spinning and twister spindles comprising the combination with a spindle rail having an aperture therethrough, of a supplemental base projecting loosely through said aperture and having a shoulder to rest on said rail whereby it may be adjusted both laterally and longitudinally of the rail, means for clamping said supplemental base to said rail in its adjusted position relatively thereto, said supplemental base being constructed and shaped to support a spindle base for angular adjustment about a center above said spindle base into a plumb position.

4. A mounting for spinning and twister spindles comprising the combination with a spindle rail having an aperture therethrough, of a supplemental base projecting loosely through said aperture and having a shoulder to rest on said rail whereby it may be adjusted both laterally and longitudinally of the rail, a nut threaded on a part of said supplemental base below said rail for clamping said supplemental base to the rail in its adjusted position relatively thereto, said supplemental base having a concave seat at its upper end, a spindle structure including a base having a convex surface to fit in said seat, whereby said structure may be adjusted angularly into a plumb position, and screw-threaded means for clamping said spindle base to said supplemental base to secure the spindle structure in its plumb position.

5. A mounting for spinning and twister spindles comprising the combination with a spindle rail having an aperture therethrough, of a tubular supplemental base projecting loosely through said aperture and having a shoulder to rest on said rail whereby it may be adjusted both laterally and longitudinally of the rail, a nut threaded on said tubular portion of the supplemental base below said rail for clamping said supplemental base to said rail in its adjusted position relatively thereto, said supplemental base having surfaces at its opposite ends curved about a common center, a spindle structure including a base projecting loosely through said supplemental base and resting on the upper of said curved surfaces, said center being located in the spindle structure whereby said curved surfaces support it for angular adjustment into a plumb position, and means cooperating with said spindle base and the lower of said surfaces to clamp the spindle base to said supplemental base and thereby to secure it in said plumb position.

6. A mounting for spinning and twister spindles comprising the combination with a spindle rail having an aperture therethrough, of a tubular supplemental base projecting loosely through said aperture and having a shoulder to rest on said rail whereby it may be adjusted both laterally and longitudinally of the rail, a nut threaded on said tubular portion of the supplemental base below said rail for clamping said supplemental base to said rail in its adjusted position relatively thereto, said supplemental base having a concave seat in its upper end curved about a center positioned in the axis of the spindle blade and also having a lower end surface curved about the same center, a spindle structure including a base resting in said seat and a shank projecting loosely through said supplemental base whereby said structure is supported for adjustment on the supplemental base into a plumb position, a washer curved to engage said lower curved end of the supplemental base and a nut screw-threaded on the lower end of said shank and serving to clamp said washer against said lower curved surface of the supplemental base to secure the spindle structure in its adjusted position.

LOUIS M. COTCHETT.

CERTIFICATE OF CORRECTION.

Patent No. 2,289,903. July 14, 1942.

LOUIS M. COTCHETT.

It is hereby certified that the name of the assignee in the above numbered patent was erroneously described and specified as "Saco-Lovell Shops" whereas said name should have been described and specified as --Saco-Lowell Shops, of Boston, Massachusetts, a corporation of Maine--; as shown by the record of assignments in this office; page 1, first column, line 5, for "sprindles" read --spindles--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of August, A. D. 1942.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.