Feb. 8, 1927. 1,616,686

W. H. FRY

LEVELING APPARATUS FOR SPINDLES IN SPINNING FRAMES

Filed March 20, 1926 2 Sheets-Sheet 1

Fig. 1.

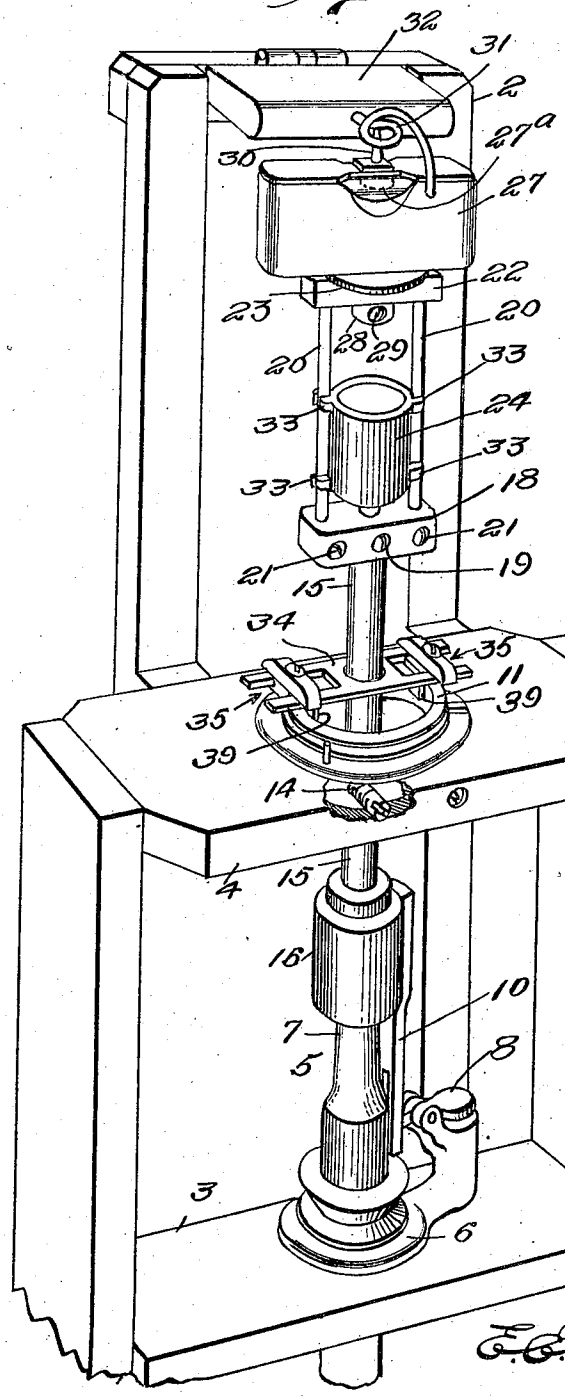


Fig. 5.

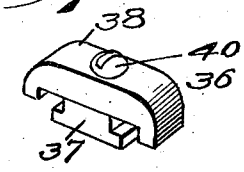
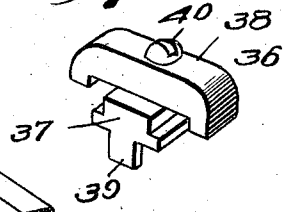


Fig. 6.



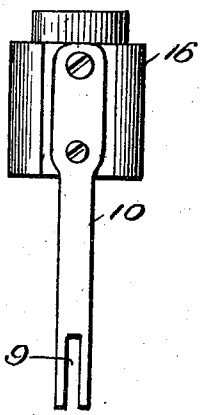


Fig. 7.

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LEVELING APPARATUS FOR SPINDLES IN SPINNING FRAMES

Filed March 20, 1926 2 Sheets-Sheet 2

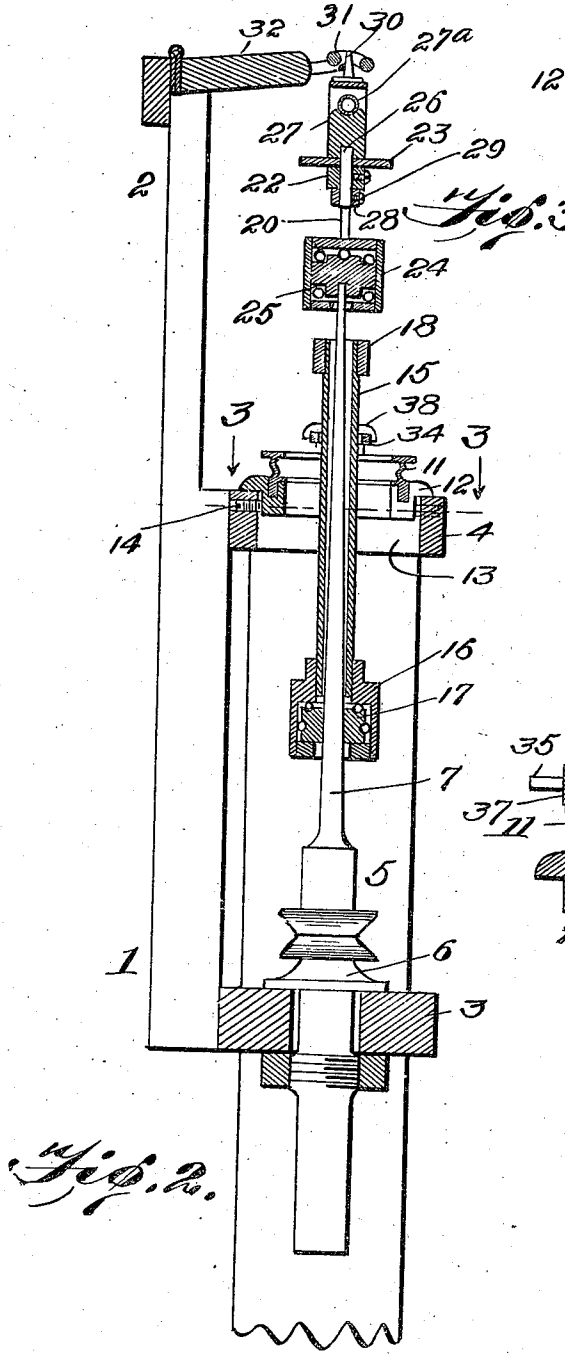


Fig. 2.

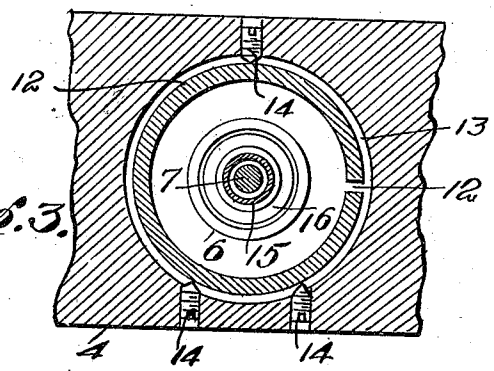


Fig. 3.

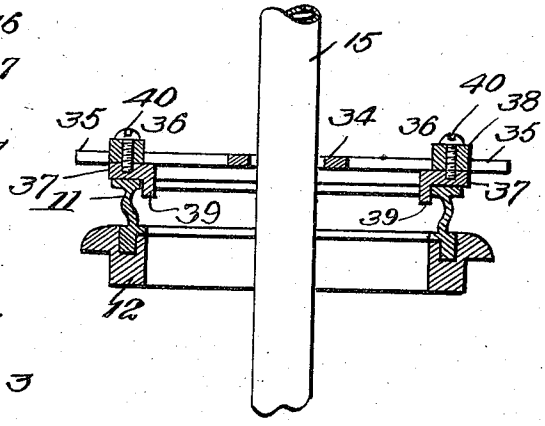


Fig. 4.

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LEVELING APPARATUS FOR SPINDLES IN SPINNING FRAMES.

Application filed March 20, 1926. Serial No. 96,227.

This invention relates to a leveling apparatus for a spindle in a spinning frame.

The object of the invention is the construction of a simple and efficient apparatus for leveling or truing-up the spindle in a spinning frame.

With the foregoing and other objects in view, my invention comprises certain novel constructions, combinations and arrangements of parts as will be hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the drawings:

Figure 1 is a perspective view of my apparatus, showing the same on a spindle in a spinning frame, while

Figure 2 is a vertical, sectional view of the same.

Figure 3 is a sectional view taken on line 3—3, Figure 2, and looking in the direction of the arrows.

Figure 4 is a fragmentary sectional view of my apparatus shown on the traveler's ring.

Figure 5 is a perspective view of one of the two gage devices, while

Figure 6 is a similar view of the said device, with the parts in different positions to that shown in Figure 5.

Figure 7 is a view in elevation of the lower section of the frame of my apparatus.

Referring to the drawings by numerals, 1 comprises the spinning frame, which includes the upper part 2 and horizontal members 3 and 4. Mounted on the horizontal member 3 is a spindle device 5 that includes a base portion 6 and a removable spindle 7. The spindle 7 is kept on the base 6 by the weighted latch 8 (Fig. 1); this latch 8 has its inner end projecting into the slot 9 of the depending leg 10 of my apparatus, so that while the spindle may be revolving, with my apparatus in position thereon, yet the apparatus will be held stationary.

On the member 4 of frame 1 is positioned the traveler's ring 11, and this ring has a sleeve 12 that extends into a large opening 13 (Fig. 3) in member 4, and by shifting the screws 14, either inwardly or outwardly of the support member 4, the position of sleeve 12 can be bodily changed upon the support member 4.

My apparatus includes a central sleeve or tubular like member 15 that fits over the spindle 7 (Fig. 2) and mounted on the lower end of sleeve 2 is a casing 16 that has a ball bearing member 17 therein; this ball bearing member 17 fits snugly upon the spindle 7 and spaces the sleeve 15 and casing 16 from the spindle, so that the spindle can be revolving very rapidly and yet the sleeve 15 in casing 16 remains stationary because to casing 16 is attached the leg 10 that has the latch 8 extending into its slotted or bifurcated portion 9.

A cross head 18 is fastened on the upper end of sleeve 15, preferably by screw 19 (Fig. 1), and a pair of rods 20 is mounted in the cross head 18; each rod 20 of this pair has its lower end extending into the cross head 18, and by screws 21, these lower ends are fastened into place. A second cross head 22 is fastened on the upper end of rods 20, and mounted upon the top of cross head 22 is a disc 23. Slidably mounted upon the rods 20 is a cap casing 24. In this casing 24 is a rotatable ball bearing follower 25. The upper end of the spindle 7 engages and extends into follower 25 of cap casing 24, as shown in Figure 2. This cap casing 24 helps to support the frame structure of my apparatus upon the spindle, with the spindle rapidly revolving, but by reason of the ball bearing member 17 and ball bearing follower 25, no damage is done, for these elements permit my leveling apparatus to perform its function during the running of the machine.

A pin 26 extends at its upper end into an ordinary spirit level, with bubble 27^a, and pin 26 extends through cross head 22, with a sleeve 28 and screw 29 on its lower end for locking the level 27 upon the disc 23 against displacement, although the level 27 is free to rotate upon the disc. A pointer 30 is fastened to the top of level 27, preferably in its center, and this pointer 30, when the spindle 7 is registering true, will be right in the center of the eye element 31 that is attached to the upper part of the frame, preferably by means of a hinged support 32. The thread from the ordinary spool or bob-

bin that is usually mountd on the spindle 7 passes through the eye element 31.

It is to be noted that casing 24 is provided with side bifurcated lugs 33 that straddle the rods 20 whereby the casing is retained upon the rods, but is allowed to slide vertically thereon.

To adjust my apparatus accurately within the traveler's ring 11, I provide a rotatably mounted bar 34, which is provided with bifurcated ends 35. Slidably mounted on the bifurcated ends 35 are gage devices 36. Each device 36 comprises a lower section 37 and an upper section 38. The upper section 38 straddles the bar 34, and the lower section 37 extends up into the bifurcation 35, with the leg 39 extending down and against the inner face of ring 11. The sections 37 and 38 are held together by screw 40. By loosening screw or bolt 40, the gage device can be adjusted longitudinally of bar 34, whereby the gage devices will fit any size ring 11, with their depending legs bearing agaginst the inner face of the ring, and permitting, when properly adjusted, easy revolution of bar 34 and gage devices 36 upon the ring, whereby the operator will know that the apparatus is properly fitting the ring. The bubble 27^a in level 27 showing when the spindle 7 is in perfect vertical position and if the bubble 27^a is not in the center of the level, with the legs 39 of the gage devices against the inner face of the ring 11, then the operator will know that he must slightly adjust screws 14 to shift the ring 11, and then by placing any suitable wedges (not shown) under base 6 and on top of element 3, the spindle 7 can be shifted slightly so that the bubble 27^a will be in the exact center of level 27, whereupon the pointer 30 will register with the center of the eye element 31. Then, as indicated hereinbefore, when the spool or bobbin is placed on the spindle 7, the thread or yarn therefrom will pass truly through the eye element 31.

When the spindle 7 is registering perfectly, the traveler's ring gaging means, constituted by bar 34 and gage devices 36, can be made to revolve freely on said ring; the level will have its bubble registering in the center irrespective as to the rotary position of the level on the disc 23. It is important that the level 27 be rotatably mounted upon the frame of my apparatus, so that it can be slowly rotated to determine whether the bubble stands in the middle of the level, in the cycle of movement of the level upon the disc 23, and if the bubble does stand in the middle, then the operator who is using my testing and leveling apparatus on a spindle will know that the spindle is correctly positioned upon the spinning frame.

From the foregoing description, it is to be understood that I have produced a frame, broadly speaking, that is adapted to be mounted upon a spindle, and on this frame is mounted a traveler's ring gaging means, as well as a rotatable spirit level. I have also provided means whereby the leveling means of my apparatus may be held stationary upon the rapidly rotating spindle, without any injury occurring to my apparatus.

While I have described the preferred embodiment of my invention and illustrated the same in the accompanying drawings, certain minor changes or alterations may appear to one skilled in the art to which this invention relates during the extensive manufacture of the same, and I, therefore, reserve the right to make such changes or alterations as shall fairly fall within the scope of the appended claims.

What I claim is:

1. In an apparatus of the class described, the combination of a frame, a bar provided with bifurcated ends mounted on said frame, gage devices mounted in the bifurcated ends of said bar, each gage device comprising an upper and a lower section, said lower section provided with a depending leg, and leveling means carried by said frame.

2. In an apparatus of the class described, the combination with a spinning ring provided with a support member, of a traveler ring provided with a sleeve, said sleeve extending downward through said support member, means on the support member for bodily adjusting said sleeve in a horizontal plane upon said support member, and a spindle carried by said spinning frame and extending through said ring and sleeve.

3. In an apparatus of the class described, the combination of a frame, said frame provided with a pin in its upper end, means fastening said pin on said frame, a level secured to the upper end of said pin, and traveler ring centering means on said frame.

4. In an apparatus of the class described, the combination of a frame including a sleeve and a cap casing mounted above the sleeve, a casing fixedly secured to the lower end of said sleeve, spindle engaging ball bearing means in said casings, ring gaging means on said sleeve, and a level on the frame above said cap casing.

5. In an apparatus of the class described, the combination with a support, a spindle and a latch on said support, of a spindle-engaging level device provided with a depending leg engaged by said latch, and means carried by said spindle-engaging level device for gaging a traveler ring.

6. In an apparatus of the class described, the combination of a frame provided with a stationary and a slidable casing, spindle-engaging ball bearing devices in said casing, a level carried by said frame, and a traveler ring gaging device carried by said frame.

7. In an apparatus of the class described,

the combination of a spindle surrounding frame provided with a level receiving disc at its upper end, a level rotatably mounted on said disc, and ring gaging means on the frame between its ends.

8. In an apparatus of the class described, the combination of a frame provided with a sleeve, a spindle-engaging ball bearing device at one end of said sleeve, a movable cap casing provided with a spindle-engaging ball bearing device above one end of said sleeve, and a level on the frame above said cap casing.

In testimony whereof I hereunto affix my signature.

WILLIAM H. FRY.