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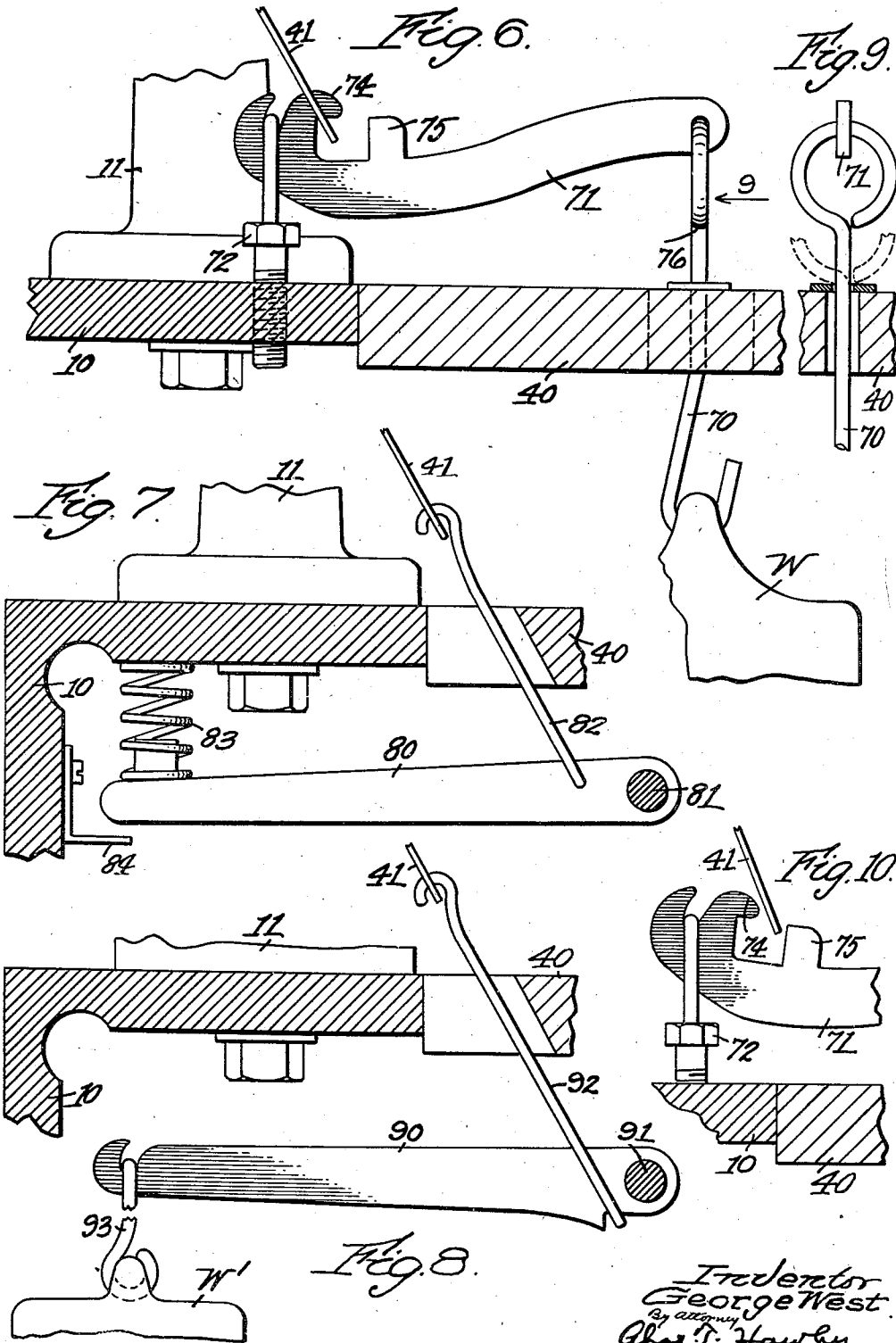
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PRESSURE APPLYING MEANS FOR SPINNING FRAMES

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PRESSURE APPLYING MEANS FOR SPINNING FRAMES

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This invention relates to spinning frames, such as are commonly used in the production of cotton yarn. In such frames, the rovings are passed between successive pairs of drawing and top rolls by which they are drafted to the size required to yield the desired weight or number of yarn. Drafting pressure has been commonly applied to the rolls by suspended weights, and the pressure has been distributed in the desired ratio to the front, middle and back top rolls through top roll saddles to which the weight has been connected by a weight lever and a stirrup or strap.

It is necessary to relieve the pressure on the top rolls from time to time to permit cleaning of the top rolls or scouring of the drawing rolls, and it is also desirable to relieve the pressure on the top rolls when the machine is to remain idle for any considerable time.

It is the general object of my invention to provide improved means for applying pressure to the top rolls and for quickly and conveniently releasing the pressure when desired.

I also provide improved pressure-applying and pressure-releasing means which leave the roller beam and creel board substantially unobstructed, so that they may be easily kept clear of dirt and lint.

My invention further relates to arrangements and combinations of parts which will be herein-after described and more particularly pointed out in the appended claims.

Preferred forms of the invention are shown in the drawings, in which

Fig. 1 is a sectional end elevation of pressure-applying means embodying my improvements;

Fig. 2 is a detail view illustrating the operation of the releasing means;

Fig. 3 is a detail plan view, looking in the direction of the arrow 3 in Fig. 1;

Fig. 4 is a sectional side elevation, taken along the line 4—4 in Fig. 3;

Fig. 5 is a sectional end view, taken along the line 5—5 in Fig. 4;

Figs. 6, 7 and 8 are partial sectional end elevations, showing modified pressure-applying devices;

Fig. 9 is a detail side elevation, looking in the direction of the arrow 9 in Fig. 6;

Fig. 10 is a partial view, similar to Fig. 6 but showing the parts in a different position; and

Fig. 11 is a front elevation, partly in section, and looking in the direction of the arrows 11 in Fig. 2.

Referring to Figs. 1 to 5, I have shown parts of a spinning frame including a roller beam 10

supporting a plurality of roll stands 11 which provide bearings for a front drawing roll 12, a middle drawing roll 14 and a back drawing roll 15. Top rolls 20, 21 and 22 rest on the rolls 12, 14 and 15 respectively, and are held for rotation in the position shown by usual guide means not shown.

Top roll saddles are provided for each set of top rolls and these comprise front saddles 25 and rear saddles 26. The front end of the front saddle 25 rests on the front top roll 20 and applies pressure thereto, while the back saddle 26 rests on the middle and back rolls 21 and 22 and applies pressure to said rolls in a predetermined ratio.

The parts thus far described are of the usual construction and in themselves form no part of my present invention which relates particularly to improved means for applying pressure to the top roll saddles and for conveniently relieving the pressure when desired.

For the purpose of applying pressure to a set of top rolls, I provide a spring 30 mounted on a hook 31 which is slidable in a bracket 32 secured by a bolt 33 to the under side of the roller beam 10. A collar 35 on the hook 31 forms a stop to limit downward movement of the hook.

The spring 30 is centered in cup washers 36, one of which engages the under side of the bracket 32 while the other is held in adjusted position on the hook by lock nuts 38. The hook 31 extends upward through a slot 39 in the usual removable creel board 40 and engages the lower end of a stirrup or strap 41.

The upper end of the stirrup 41 is forked to provide ears 42 (Fig. 1) which are pivoted to a cam lever 43 by a pin 44 (Fig. 11) secured in the ears 42 and extending through openings in the side walls 46 of the lever 43.

The pin 44 also extends through slots 50 (Figs. 4 and 5) in the side walls 51 and 52 of a block 53. The block 53 is preferably made of sheet metal with slotted end walls 54 and 55 which receive an adjusting screw 56 having a head 57 and a collar 58. When the parts are assembled, the slotted end wall 55 extends between the head 57 and the collar 58.

The side walls 51 and 52 (Fig. 5) have out-turned lower flanges 59, and the side wall 52 is pressed to the position shown in Fig. 5 after the screw 56 has been assembled in the block. The screw 56 is threaded in a lug 60 (Fig. 1) on the front saddle 25 and provides means for adjusting the block 53 forward or rearward on the front saddle 25, to thereby increase or decrease the proportion of weight carried by the front top roll 20.

The cam lever 43 is shown in normal running position in Fig. 1, with the pressure of the spring 30 applied through the cam surfaces 52 to the out-turned flanges 59 of the block 53, which flanges are supported on the front saddle 25.

When it is desired to relieve the pressure on the top rolls, the lever 43 is swung to the position shown in Fig. 2, thus lowering the pin 44 and allowing the collar 35 to engage the bracket 32. This relieves the spring pressure, so that the front top roll 20 or the back top roll 22 may be freely removed for clearing, or the stirrup 41 may be unhooked from the hook 31 and the front and back saddles and the stirrup 41 may then be removed as a unit, thus freeing all of the top rolls.

If desired, the releasing movement of the lever 43 may be continued to the dotted line position shown in Fig. 2, in which position the clearer boards (not shown) may be replaced above the rolls if the machine is to stand idle.

In Figs. 6, 7 and 8 I have shown modified constructions for applying pressure to the stirrup 41. In Fig. 6 I have shown a weight W suspended by a hook 70 from a weight lever 71 having its front end hooked into an adjustable lever screw 72. The lever 71 is provided with a hook 74 to receive the lower end of the stirrup 41, and is also provided with a lug 75 which prevents accidental disengagement of the stirrup from the lever when the pressure is released. The stirrup may be readily disengaged manually from the lever 71, however, as shown in Fig. 10, if the stirrup and top roll saddles are to be removed as a unit. The eye of the hook 70 provides a shoulder 76 which acts as a stop to support the upright when the hook 74 is disengaged from the stirrup 41.

This type of lever is very useful not only in the construction herein shown, but also in the usual commercial arrangement.

In Fig. 7 a lever 80 is mounted on a fixed pivot 81 below the creel board 40 and is connected by a hook 82 to the lower end of the stirrup 41. A spring 83 provides pressure to the stirrup 41, and the end of a bracket 84 limits downward movement of the lever 80 by the spring 83.

In Fig. 8 a lever 90 is pivoted at 91 and is con-

nected by a hook 92 to the stirrup 41, substantially as in Fig. 7. Pressure is applied to the lever 90, however, by a weight W' suspended from the free end of the lever 90 by a link 93.

The construction shown in Fig. 6 more closely resembles the usual commercial structure now in use, while the constructions shown in Figs. 1, 7 and 8 have the advantage of leaving the upper surface of the roller beam 10 and creel board 40 substantially unobstructed.

The construction shown in Fig. 1 has the further advantage that the springs 30, hooks 31 and brackets 32 may be assembled and the springs adjusted as to pressure, before these parts are inserted in the spinning frame. Accurate and uniform setting of all of the springs 30 may thus be conveniently accomplished.

All forms of my invention have the very great advantage that the top roll pressure can be relieved from above the rolls and without interference with either the rovings or the yarn.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

1. Pressure-applying means for spinning frames comprising a stirrup, means to tension said stirrup, a front top roll saddle, a block mounted on said saddle, means to adjust said block longitudinally of said saddle and a tension-applying member having a pivotal lost-motion connection with said block and having a pivotal connection with the upper end of said stirrup, said member resting upon and being supported directly by said block independently of said lost motion connection.

2. Pressure-applying means for the top rolls of a spinning frame comprising a stirrup, means to tension said stirrup, a front top roll saddle, a block mounted for longitudinal adjustment on said saddle, and a lever having a pin-and-slot connection with said block and having a pivotal connection with the upper end of said stirrup, said lever having a portion directly engaging said block with a cam action to apply pressure to the top rolls.

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