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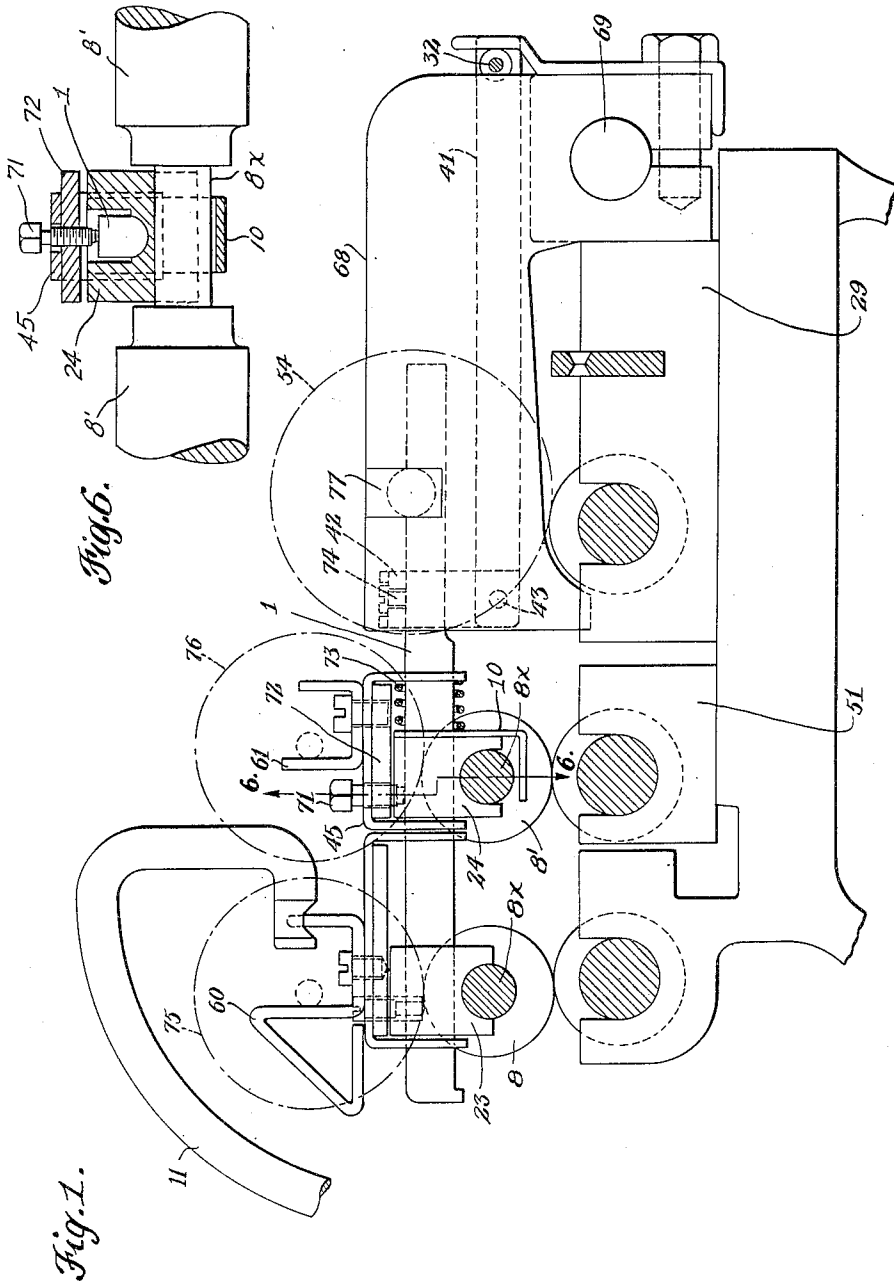
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2,326,979

GUIDING ARRANGEMENT FOR TOP ROLLS

Filed Sept. 25, 1940

3 Sheets-Sheet 1



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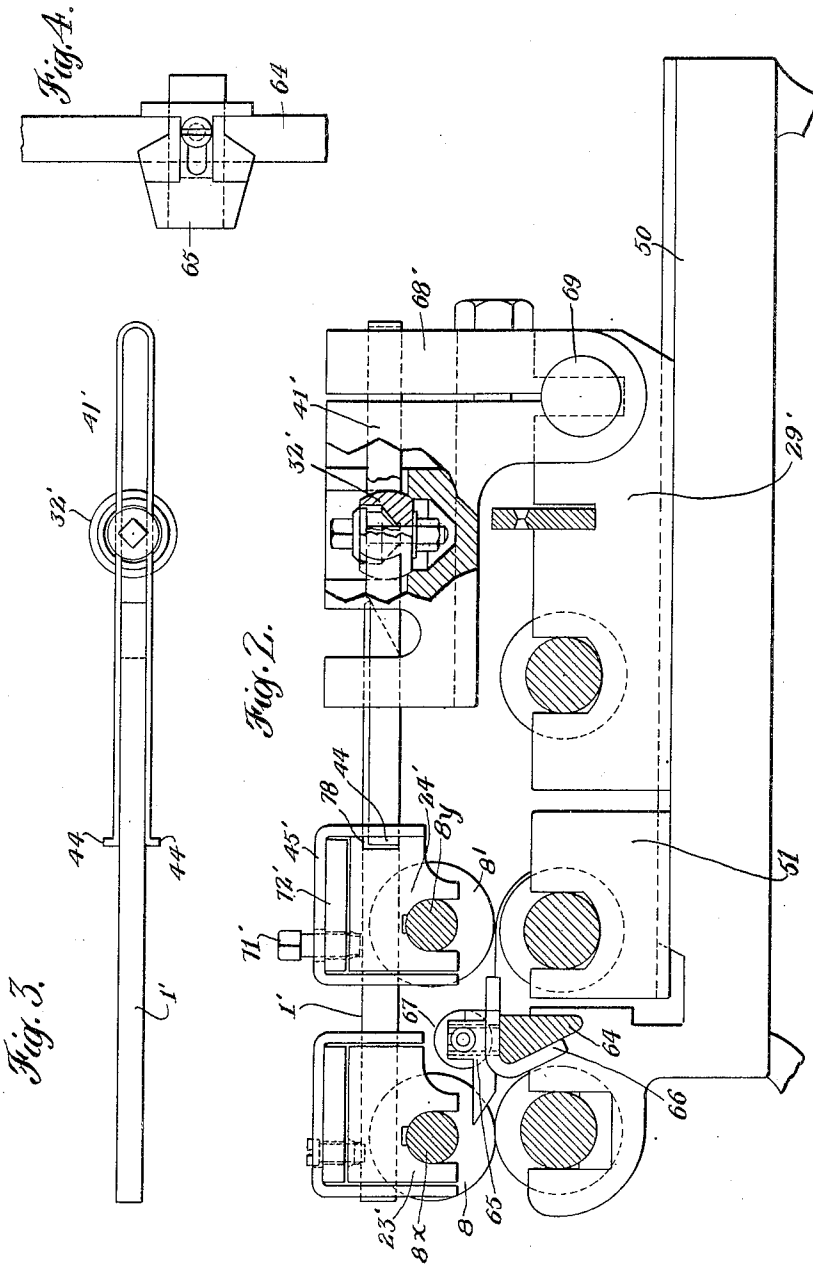
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3 Sheets-Sheet 2



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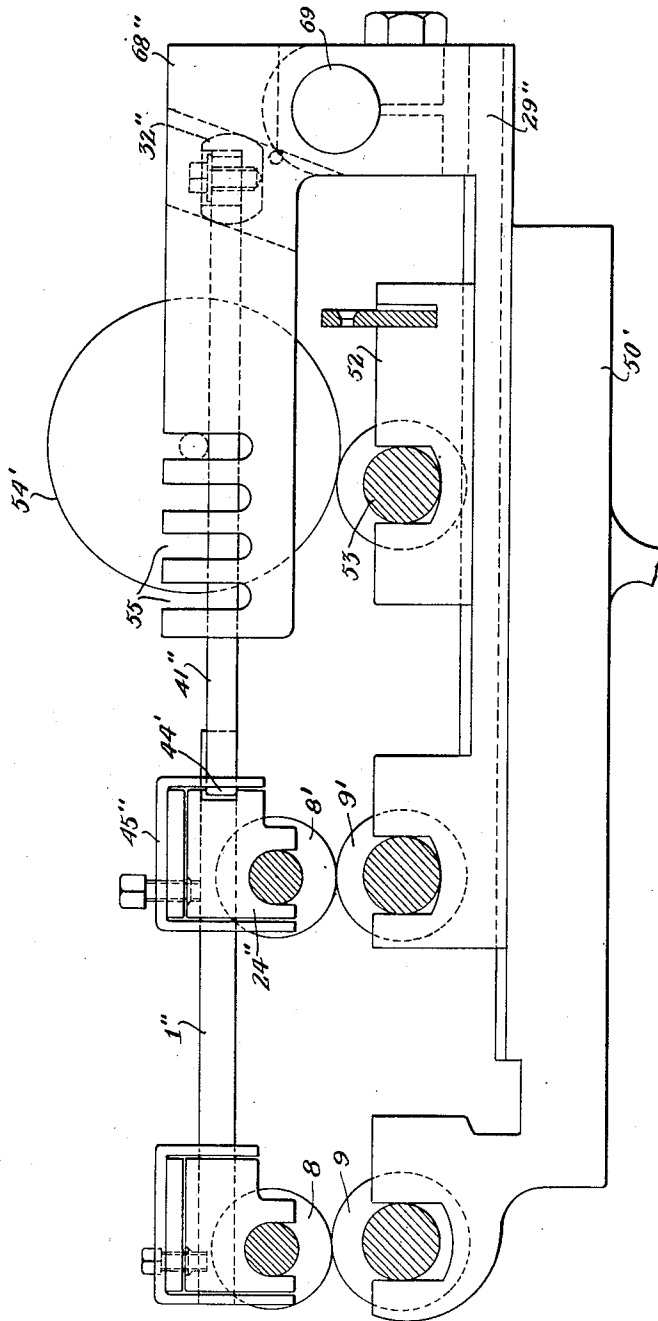
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Fig. 5.



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GUIDING ARRANGEMENT FOR TOP ROLLS

Wilhelm Stahlecker, Stuttgart-Bad Cannstatt,
Germany; vested in the Alien Property Custodian

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In Germany November 23, 1939

10 Claims. (Cl. 19—130)

This invention relates to oscillating guiding means for top rolls of spinning frames, drawing frames, speeders and other similar textile machines, and has for its object to provide certain improvements in the construction and arrangement of the guiding means for top rolls, which, according to my invention, aim to simplify the drawing mechanism and to improve the drafting and, consequently, the quality of the yarn.

In the construction of guiding levers, attached to the middle of two or more pairs of top rolls and oscillating around a centre or main joint at the other end of the guiding lever it is necessary to provide a free movability of each pair of top rolls in vertical direction. It is also desirable to avoid up-and-down movement of the oscillation centre, in case one or more top rolls, connected with the guide lever, should be the reason for such movements due to differences in diameter or due to eccentricity. Moreover, since the top rolls, during operation, have to be removed for a certain time or replaced by others, it is necessary for the guiding lever to allow quick removal or change of the top rolls attached to it.

It is an object of the present invention to provide a novel guide mechanism for two or more top rolls, which is efficient in operation and simple in construction by providing a main joint and an intermediate joint for the guide lever. The intermediate joint is arranged to prevent disturbing up-and-down movement of the main joint.

It is another object of this invention to divide the guide lever in two parts, one being a solid saddle connecting two or more pairs of top rolls, the other being flexible and connected with the solid saddle by an intermediate joint.

It is a further object of this invention to provide such a guide lever which is arranged to secure proper situation of corresponding top and bottom rolls.

Further objects and advantages will be apparent from the following description taken in connection with the accompanying drawings.

In the drawings forming part of this application, some practicable embodiments of my invention are shown in which drawings,

Figure 1 shows one preferred embodiment of the invention in sectional end elevation.

Figure 2 is a similar view of a second embodiment of the invention.

Figure 3 is a plan view of the guide lever, shown in Figure 2.

Figure 4 is a plan view of another part, shown in Figure 2,

Figure 5 is a view like Figures 1 and 2, showing another way in which the invention can be applied, and

Figure 6 is a section on the line 6—6, Fig. 1.

Referring first to Figure 1 of the drawings, there is illustrated at 1 a bar carrying saddles 23 and 24 for each of the shafts 8x for the two pairs of top rolls or bosses 8 and 8', which are driven by the bottom rolls with which they respectively co-act.

Pressure is applied to the top rolls by a loading hook 11 in the usual way.

Near its back-end the saddle carrying bar 1 is extended by a guide-lever 41 oscillating about the main joint 32. This joint consists of a pin passing through the guide lever 41. The hole, however, in the guide lever has a larger diameter, thus allowing to the guide lever not only up and down movement, but also oscillation in a plane going through the nips between top and bottom rolls.

The saddle bar 1 is connected with the guide lever 41 by means of a cross piece 42 and the intermediate joint 43 which may be of the same kind as the main joint 32. The cross piece 42 is rigidly secured to the saddle bar 1 by means of a screw 74 which is also an element for fixing the cross piece in the desired position in the length of the saddle bar 1. Owing to the connection of saddle bar 1 with the guide lever 41, the top rolls are able to move up and down and to oscillate in a plane going through the nips between top and bottom roll.

Due to the possibility of such oscillation, the top rolls connected with the guide lever will constantly be forced by the rotating bottom rolls to run automatically in a position parallel to the bottom roll. Therefore, for the guidance of the top rolls, the usual pivots and cap bars or nebs are not necessary and their drawbacks are eliminated.

The main joint 32 and the intermediate joint 43 allow not only such oscillation, but also any up and down movement in case it should be necessary due to lap formation or differences in diameter which may be caused by other reasons. The intermediate joint is able to facilitate not only the oscillation but also the up and down movement and furthermore to secure adequate pressure at the nip of the rolls.

For the latter purpose a tiltable connection of at least one of the roll pairs with the saddle 24 is provided as for the roll pair 8'. The shaft of the opposed rolls 8' is namely held in a saddle 24 which is tiltable around the axis of the saddle

bar 1. A clamping strap 45 is fastened to the saddle bar 1 by means of a screw 71 and a screwed plate 72, and a spring 73 is confined between one end of the strap 45 and a strap element 10 which bears against the adjoining side of the saddle 24. The element 10 is suspended from and is freely slidable on the bar, and its offset lower end extends under the saddle and under the roll shaft 8x, all as shown in Figs. 1 and 6. The spring acts in conjunction with the strap 45 to hold the saddle in position longitudinally of the bar 1, and as shown in Fig. 6, the saddle is permitted a tilting movement relatively to the axis of the saddle bar.

The saddle 23 for the pair of front rolls 8 can be fastened rigidly to the saddle bar as shown in Figure 1. Otherwise it may be connected in the same manner as the pair of rolls 8'.

The nip distances can be varied by adjusting the saddle 24 of the middle roll. Further setting of the rolls is enabled by the set screw 74 which connects the cross-piece 42 with the saddle bar 1.

Clearer rolls 75 and 76 may be applied in the usual way and supported by clips 60 and 61 on the saddle bar 1. The feed roll 54 can run with its pivoted ends in recesses 77 provided in the bearing block 68. The latter is held upon a stationary cross rod 69.

Figures 2, 3 and 4 show another modification of the invention. The ball of the main joint 32' is rigidly but adjustably connected with the fork-like guide lever 41, as illustrated, and the said lever has projecting parts 44 which enter a recess 78 of the saddle 24'. The clamping strap 45' has an opening corresponding to the width of the fork 41', but smaller than the width of the projecting parts 44, which in this way are held flexibly in position and form an intermediate joint. The fork is tempered like a spring.

The rear end of the saddle bar 1' is freely entered in the forward end of the fork and because the projecting parts 44 have some clearance within the recess 78, the saddle bar 1' and the fork 41' are afforded flexibility, preferably in a plane vertical to the axis of the rolls. Since, however, this clearance is restricted to a certain amount, the flexibility is correspondingly reduced.

Due to such flexibility the front top rolls 8 can easily be taken out from the saddle 23', which may sometimes be necessary for cleaning or exchanging the top rolls.

The saddle bar 1' holding the saddles 23' and 24' by means of clamp straps, screws and screwed plates, is supported through said saddles upon the shafts 8x and 8y, one of the saddles, 23', being rigidly, and the other, 24', tiltably connected with the saddle bar. The tilting movement prevailing about the axis of the saddle bar is possibly due to the fact that the saddle has some clearance with regard to the screw 71' and some distance from the screwed plate 72'.

For long draft systems of the single belt type, the control roll or slip roll 67, Figure 2, may be guided at its pivots in guide pieces 65 and 66 which are fastened to the nose bar 64, Figures 2 and 4.

The nip distances can be varied by adjusting the saddle 24' and the main joint 32'.

Figure 5 shows a drawing mechanism in which the distance from the main joint to the saddle 24'' and the top rolls 8' as well as to the associated bottom roll 9' cannot be varied which secures a correct position between these top and bottom rolls.

The distance, however, between the above mentioned rolls and the rolls 8 and 9 can be adjusted by moving the slide 29'' upon the stationary support 50'. The bearing block 68'' is hingedly connected with the slide 29'' by means of the bolt or rod 69.

The feed roll 54' is supported with its pivots in recesses in the bearing block. By providing a plurality of such recesses adjustability for the feed roll is given. The associated bottom roll 53 can be adjusted correspondingly by adjusting the slide piece 52 upon the slide 29''.

While the device is herein shown and described as embodied in a preferred form, it is to be understood that the invention may be embodied in other forms without departing from the spirit of the invention.

Having thus described my invention, I claim and desire to secure by Letters Patent:

1. In a machine for drawing or drafting fibrous material, the combination with the positively driven lower drawing rolls and two or more pairs of top rolls, of a guide lever disposed in a plane at right angles to the axes of the top rolls, joint members at the rear end of the guide lever enabling its oscillation in any direction, a saddle bar connected to the guide lever by an intermediate joint, a saddle for each pair of top rolls, said saddles being connected to the saddle bar and resting upon the respective top rolls, said intermediate joint allowing additional swinging of said saddle bar in any direction.

2. In a machine for drawing or drafting fibrous material, the combination with lower drawing rolls, of two or more pairs of opposed top rolls riding respectively on the lower drawing rolls, a saddle for applying pressure to and holding each pair of the top rolls, a saddle bar, clamping straps for positioning the saddles on the bar with respect to the lower rolls, a guide lever forming a rear extension of the saddle bar, said lever being loosely coupled at its forward end to one of said saddles, and a main joint at the rear end of said lever, said joint and coupling contributing mutually to a proper tracking of the top rolls on the lower rolls and to the maintenance of a constant nip between said rolls.

3. In a machine for drawing or drafting fibrous material, the combination with the positively driven lower drawing rolls and two or more pairs of top rolls, of a guide lever disposed in a plane at right angles to the axes of the top rolls, joint members at the rear end of the guide lever enabling its oscillation in any direction, a saddle bar connected to the guide lever by an intermediate joint, a saddle for each pair of top rolls, said saddles being connected to the saddle bar and resting upon the respective top rolls, said intermediate joint allowing additional swinging of said saddle bar in a plane at right angles to the longitudinal axes of the lower drawing rolls.

4. In a machine for drawing or drafting fibrous material, the combination with the positively driven lower drawing rolls and two or more pairs of top rolls, of a guide lever disposed in a plane at right angles to the axes of the top rolls, joint members at the rear end of the guide lever enabling its oscillation in a plane at right angles to the longitudinal axes of the lower drawing rolls, a saddle bar connected to the guide lever by an intermediate joint, a saddle for each pair of top rolls, said saddles being connected to the saddle bar and resting upon the respective top rolls, said intermediate joint allowing additional swinging of said saddle bar in any direction.

5. In a machine for drawing or drafting fibrous material, the combination with the positively driven lower drawing rolls and two or more pairs of top rolls, of a guide lever disposed in a plane at right angles to the axes of the top rolls, a joint at the rear end of the guide lever, a saddle bar connected to the guide lever by an intermediate joint, a saddle for each pair of top rolls, said saddles being connected to the saddle bar and resting upon the respective top rolls, each of said joints permitting swinging of said bar and lever in a plane at right angles to the longitudinal axes of the lower drawing rolls, and one at least of said joints affording swinging movement in a plane parallel to said longitudinal axes.

6. In a machine for drawing or drafting fibrous material, the combination with the positively driven lower drawing rolls and two or more pairs of top rolls, of a combined guide lever and saddle bar disposed in a plane at right angles to the axes of the top rolls, a saddle for each pair of top rolls, said saddles being connected to the saddle bar and resting upon the respective top rolls, a joint at the rear end of the lever permitting automatic adjustment of the top rolls into parallel relation with the bottom rolls, and means providing for movements of the forward saddle-bar portion of the lever independently of said joint and with respect to the rear portion of the lever in a plane at right angles to the longitudinal axes of the bottom rolls.

7. In a machine for drawing or drafting fibrous material, the combination with the positively driven lower drawing rolls and two or more pairs of top rolls, of a bar disposed in a plane at right angles to the axes of the top rolls and connecting the latter, a joint anchoring the rear end of said bar in the machine, and a joint in the bar intermediate the rear end of the bar and the proximate pair of top rolls, each of said joints affording movements of the bar in a plane at right angles to the longitudinal axes of the lower rolls.

8. In a machine for drawing or drafting fibrous

material, the combination with the positively driven lower drawing rolls and two or more pairs of top rolls, of a bar disposed in a plane at right angles to the axes of the top rolls and connecting the latter, and means permitting universal self-adjustment of said bar, said means including a joint anchoring the rear end of said bar in the machine, and a joint in the bar intermediate the rear end of the bar and the proximate pair of top rolls, each of said joints affording movements of the bar in a plane at right angles to the longitudinal axes of the lower rolls.

9. In a machine for drawing or drafting fibrous material, the combination with the positively driven lower drawing rolls and two or more pairs of top rolls, of a bar disposed in a plane at right angles to the axes of the top rolls, saddles connected to said bar and engaging the respective top rolls, one at least of said saddles being tiltable about the longitudinal axis of said bar, a joint anchoring the rear end of said bar in the machine, and a joint in the bar intermediate the rear end of the bar and the proximate saddle, each of said joints affording movements of the bar in a plane at right angles to the longitudinal axes of the lower rolls.

10. In a machine for drawing or drafting fibrous material, the combination with the positively driven lower drawing rolls and two or more pairs of top rolls, of a bar disposed in a plane at right angles to the axes of the top rolls, saddles connected to said bar and engaging the respective top rolls, one at least of said saddles being tiltable about the longitudinal axis of said bar, means permitting universal self-adjustment of said bar, said means including a joint anchoring the rear end of said bar in the machine, and a joint in the bar intermediate the rear end of the bar and the proximate saddle, each of said joints affording movements of the bar in a plane at right angles to the longitudinal axes of the lower rolls.

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