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TOP ROLL CLEARER

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2 Sheets-Sheet 1

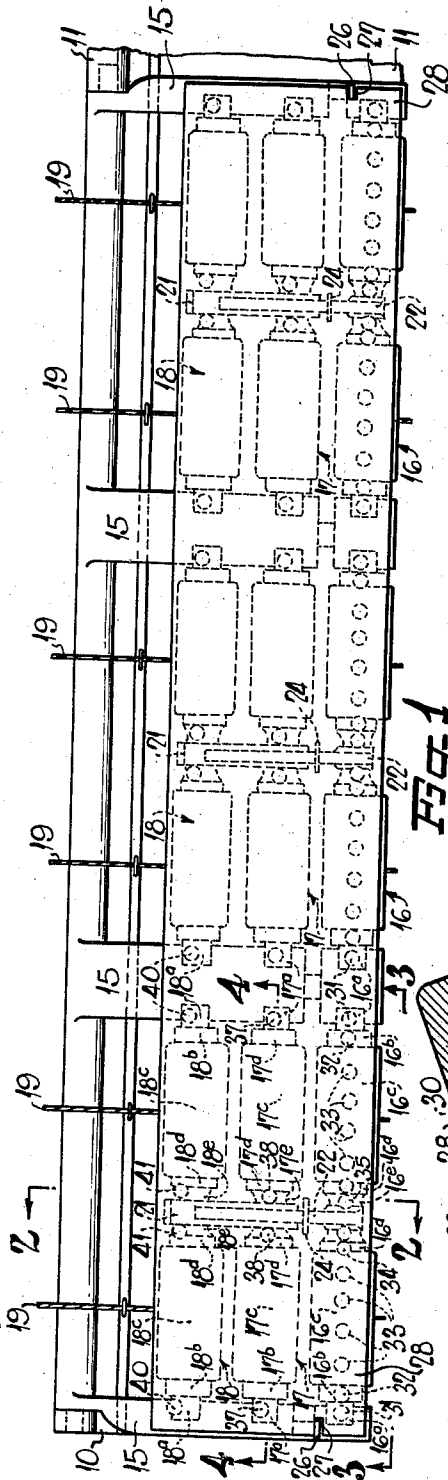


Fig. 1

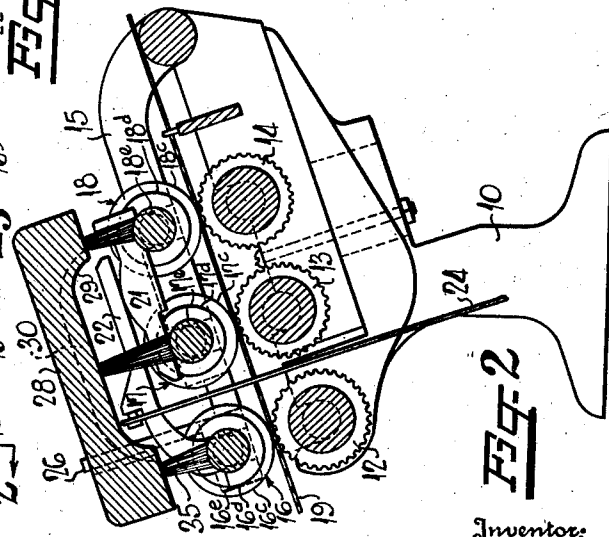


Fig. 2

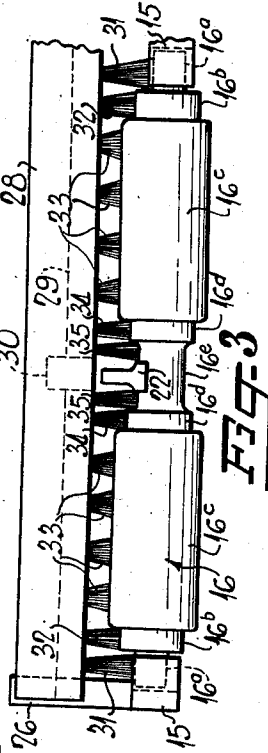


Fig. 3

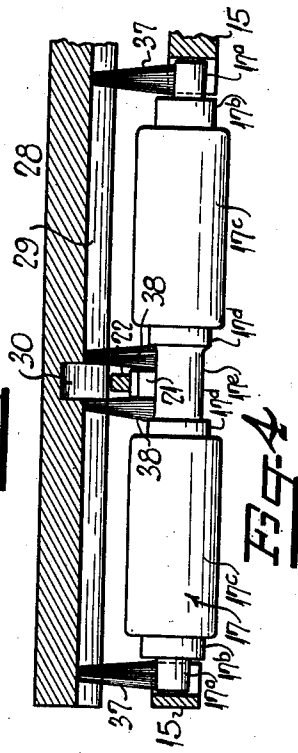


Fig. 4

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TOP ROLL CLEARER

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5 Claims. (Cl. 19—139)

This invention relates to an improvement in a top roll clearer which is used in fibre preparation machinery such as drawing frames, spinning frames, and the like, in which a strand of roving or yarn is drawn from a large diameter to a smaller diameter and a certain twist to the same is given. It is quite evident that during this drawing out operation, certain loose fibres of the roving will become attached to the peripheries of the top rolls thereby decreasing the grip which is produced by the contact which the periphery of these rolls has with the lower rolls. For this reason, it has been necessary to provide means for removing this lint and loose fibres from the peripheries of the rolls in order that the same may work more efficiently and prevent these particles from becoming entangled with the roving which is being drawn between the rolls. Heretofore, a suitable felt strip has been attached to the clearing board and this board has been placed above the top rolls so that this strip will rest directly upon the bosses of the rolls. This has been to some degree effective, for removing the lint and loose particles from the peripheries of the bosses; however, it has not been sufficient to remove the lint from the bearings and from the other low places which are disposed on the roll; consequently, loose fibres and lint accumulated in these low places and thereby retarded the operation of the machinery. Also, the lint would collect near the bearing portions of the top rolls, thereby absorbing oil, and conveying this to the yarn in process on the machinery resulting in a great number of ends being down.

It is therefore, an object of this invention to provide a top roll clearer for spinning frames, drawing frames, and the like, which comprises a board having a plurality of brushes disposed on the lower side thereof, said brushes being adapted to have their lower ends contacting the peripheries of the top rolls. In other words, long and short brushes are provided so that the low places in the rolls which have a small diameter as well as the high places which have a greater diameter, will be contacted by the lower ends of the brushes and be kept free from foreign particles which might accumulate thereon.

It is a further object of this invention to provide a top roll clearer for top rolls of spinning frames, and the like, comprising a board having felt pads, at spaced intervals, secured to the lower side thereof which are adapted to rest directly on top of the bosses of the top rolls and a plurality of brushes of variable lengths disposed between said strips and having their lower ends

normally contacting the ends of said bosses to keep foreign particles removed therefrom, and also having other brushes for contacting the portions of the top rolls adjacent their bearing portions.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds when taken in connection with the accompanying drawings, in which:—

Figure 1 is a top plan view of a section of a spinning frame showing my apparatus resting thereon;

Figure 2 is a transverse sectional view taken along line 2—2 in Figure 1;

Figure 3 is an elevation looking at a top roll of a portion of the spinning frame with the top roll clearer resting thereon, this view being taken along line 3—3 in Figure 1;

Figure 4 is a longitudinal sectional view similar to Figure 3, but taken along line 4—4 in Figure 1;

Figure 5 is an inverted isometric view of a portion of the apparatus;

Figure 6 is an inverted isometric view of a portion of a top roll clearer showing a slightly modified form thereof;

Figure 7 is a cross-sectional view through the upper portion of a spinning frame showing the form of the apparatus shown in Figure 6 resting thereon;

Figure 8 is an inverted isometric view of still another modified form of the apparatus;

Figure 9 is a top plan view of a portion of a spinning frame showing the form of the apparatus shown in Figure 8 resting thereon;

Figure 10 is a transverse sectional view taken along line 10—10 in Figure 9.

Referring more specifically to the drawings, the numerals 10 and 11 denote suitable roll stands which have rotatably mounted therein conventional bottom rolls 12, 13, and 14. Pivotal secured to the back portions of roll stands 10 and 11 is a top roll frame 15 in which is rotatably mounted top rolls 16, 17, and 18, these rolls being adapted to rest upon the rolls 12, 13, and 14 respectively, to perform a drawing operation upon a strand 19 which passes therebetween. The top rolls 16, 17, and 18 are subjected to pressure to press them against the bottom rolls by a conventional stirrup and saddle apparatus, which comprises a bar 21 which rests upon the rolls 17 and 18 and a second bar 22 which has one end thereof resting upon the top front roll 16 and its other end resting on top of member 21 at a point intermediate its ends. The pressure is applied upon member 22 by means of a stirrup 24 and part

of this pressure is transmitted through member 21 to rolls 17 and 18 which gives the desired downward pressure upon all three of the top rolls. This is a conventional mechanism but it is deemed necessary to show this much of the conventional structure to more clearly describe the operation of the present invention.

The top roll 16 has bearing portions 16a, collars 16b, high bosses 16c, intermediate shoulders 16d, and saddle bearings surface 16e. Likewise, roller 17 has bearing portions 17a, collars 17b, bosses 17c, intermediate shoulders 17d, and saddle bearing portion 17e.

Also, the back roll 18 has similar parts which bear corresponding reference characters. In the top front rolls, the portions 16a, 16b, 16d, and 16e, have heretofore been neglected and no means have been provided for keeping these surfaces clear of lint and accumulated loose particles. Heretofore, only the boss 16c has been cleared and this has been done by means of a felt strip which has been tacked to the lower side of the clearing board. The same has been true regarding the back rolls 17 and 18; however, it may be stated that it is not as important that the surfaces of these rolls be kept free from foreign particles since they do not revolve nearly so fast as the front rolls and therefore, do not have as much lint and foreign particles accumulated thereon.

The free end of the pivoted frame has extending upwardly therefrom bars 26 which bars are adapted to fit in suitable slots 27 which are cut in each end of top roll clearing board 28. The clearing board 28 has a plurality of brushes of suitable lengths extending downwardly from the lower surface thereof which are adapted to operate upon the various surfaces or peripheries in the top rolls of the spinning frame. The lower surface of board 28 also has a cavity 29 extending its entire length, and also spaced cavities 30 which are provided in order that the stirrup and pressure applying members 21 and 22 will have the proper clearance. In the form employing brushes exclusively, the lower side of the clearing board need not be hollowed out except where the same coincides with the stirrup and saddle.

The top front roll 16 is cleared or contacted by a row of bristles which are secured in the lower edge of board 28. The bearing portions 16a are contacted by bristles 31; the collars 16b are contacted by bristles 32; the high boss portions 16c are contacted by bristles 33; the intermediate collar or shoulder portions 16d are contacted by bristles 34; and the intermediate saddle bearing portions 16e are contacted by bristles 35. It is thus seen that all of the peripheries of this front roll are contacted in order to properly clear it.

As to the intermediate rolls 17, the brushes 37 contact the bearing portions 17a, and brushes 38 contact saddle bearing portion 17e; but the other portions are not provided with any clearing means, since this roll does not rotate sufficiently fast to necessitate clearing means upon the other surfaces. The back roll 18 is provided with clearing means similar to that shown for the center rolls 17 which comprises brushes 40 and 41 for contacting bearing surfaces 18a and 18e, respectively.

Figures 6 and 7 show a slightly modified form of the invention in which the center top rolls 18 have been replaced with self-weighted or floating rolls 42. In this case it is necessary to

provide a new saddle 43 which spans the center roll 42 and has its ends contacting only the intermediate bosses 16e and 18e of the front and rear top rolls 16 and 18, respectively. In this case, it is impractical to provide brushes contacting the roll 42 since it would retard its rotation and thereby have a tendency to break down the ends; therefore, the form shown in Figures 6 and 7 is identical in all respects to the form shown in Figures 1 to 5 inclusive, except the center brushes 37 and 38 are omitted.

Figures 8, 9, and 10 show still another modified form of the invention in which the board 28 has secured to the front and rear edges and on the lower side thereof suitable U-shaped bars 45 to which are secured felt pads 46, said pads being adapted to contact the high bosses 16c of the front roll 16 and the high bosses 18c of the rear rolls 18. In order to provide means for clearing the intermediate low places of the front roll 16, brushes 31, 32, 34, and 35 are provided for contacting surfaces 16a, 16b, 16d, and 16e, respectively, which have been previously described.

Likewise, as to the rear rolls 18, the brushes 40 and 41 are used for normally clearing the bosses 18a and 18e.

It is therefore, seen that I have provided means for cleaning all of the desired peripheries of the upper top rolls regardless of their diameter.

In the drawings and specification there has been set forth a preferred embodiment of the invention, and although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being set forth in the appended claims.

I claim:

1. A top roll clearer for drawing machines in which the top rolls have bosses and reduced bearing portions comprising a board adapted to be disposed above the top rolls and having bristles projecting downwardly therefrom to engage the bosses of the top rolls and also having other bristles projecting downwardly therefrom to engage the reduced portions of the top rolls their bearing portions to remove lint from the said top rolls.

2. A top roll clearer for drawing frames in which the top rolls have bosses and reduced bearing portions, comprising a member adapted to be disposed above the top rolls and having a continuous line of bristles for engaging all portions of the front top rolls for removing foreign particles therefrom and also having bristles therein for engaging the ends of the bosses and the reduced portions adjacent the bearing portions of the other top rolls for removing lint and other foreign particles therefrom.

3. A top roll clearer for drawing machines in which the top rolls have bosses and reduced bearing portions, comprising a board adapted to be disposed above the top rolls and having felt members for engaging the bosses of the top rolls and having bristles for engaging the ends of the bosses and the reduced portions adjacent the bearing portions for removing foreign particles therefrom.

4. A top roll clearer for drawing machinery in which the top rolls have bosses and reduced bearing portions comprising a board adapted to be disposed above the top rolls and having bristles projecting from the lower surface thereof for engaging the bosses and having other longer bristles for engaging the reduced bearing portions of the top rolls.

5. A top roll clearer for drawing frames in which the top rolls have bosses and reduced bearing portions, comprising a board adapted to be disposed above the top rolls and having
5 bristles projecting from the lower surface of the board for engaging the reduced portions adjacent the bearing portions for removing lint from the reduced portions to prevent the lint from conveying lubricant from the bearing portions onto the bosses.

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