

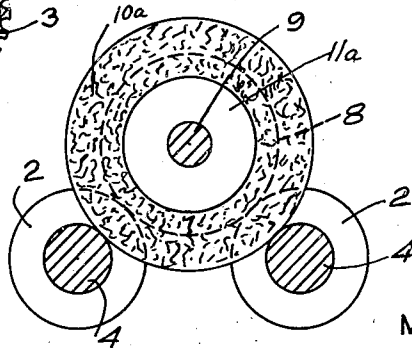
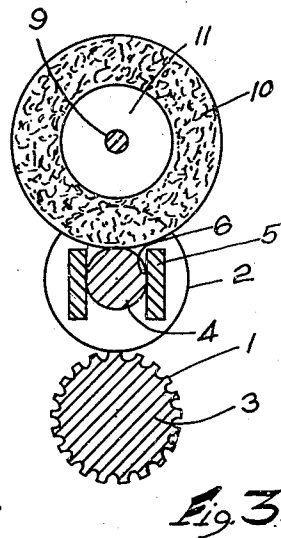
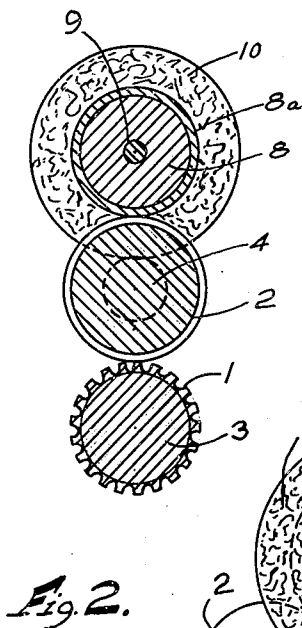
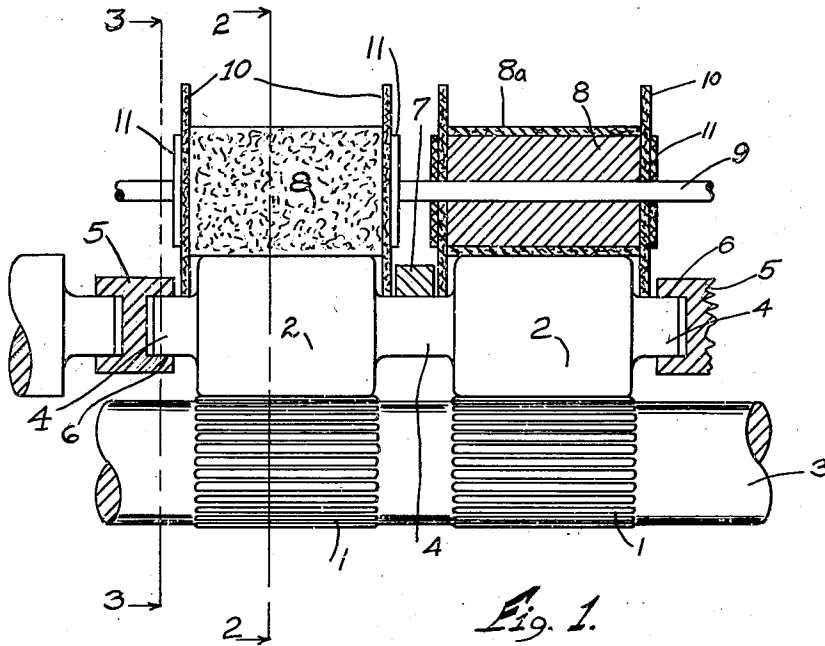
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ROLL CLEANING APPARATUS FOR SPINNING FRAMES AND THE LIKE

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ROLL CLEANING APPARATUS FOR SPINNING  
FRAMES AND THE LIKE

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2 Claims. (Cl. 19—140)

The present invention relates to improved apparatus for cleaning the drawing rolls of spinning frames and similar textile machinery, the apparatus being particularly adapted for keeping the cylindrical working surfaces as well as the ends of the rolls free from the accumulation of fly, lint, and lubricant.

In the operation of spinning frames and similar textile machinery, involving the drawing of lengths of fibers through cooperating rolls, there is always present a certain amount of loose fiber from the moving slivers or threads which tends to collect on the rolls in the form of fly or lint. While it has been customary to remove this lint from drawing rolls by means of cleaning rolls covered with a fibrous material, such as felt, to which the lint will adhere, difficulties have been encountered from the tendency of the lint to work over the ends of the rolls into the vicinity of the reduced portions or necks between the cylindrical working surfaces. This tendency for fly and lint to accumulate around the roll necks is aggravated by the necessity for employing a lubricant where the roll necks are engaged by the cap bars or other devices which hold the rolls in position.

According to the present invention, there is provided an arrangement for cleaning both the cylindrical working surfaces and the necks of drawing rolls and the like, characterized by the employment of cleaning disks of fibrous material at the ends of each cylindrical cleaning surface, which disks extend towards the drawing roll to engage the reduced necks thereof in the vicinity of the cap bars. As a result, the cleaning disks prevent the accumulation of fly, lint and lubricant at the roll ends and necks, without removing lubricant from the bearing surfaces of the cap bars. The above and other advantageous features of the invention will hereinafter more fully appear from the following description, considered in connection with the accompanying drawing, in which:

Fig. 1 is a view in front elevation of a portion of a spinning frame, with cleaning apparatus embodying the invention applied to the drawing rolls.

Figs. 2 and 3 are vertical sectional views along the lines 2—2 and 3—3 of Fig. 1, looking in the direction of the arrows.

Fig. 4 is a transverse sectional view similar to Fig. 3, illustrating the application of a single cleaning roll and disks to a pair of drawing rolls.

Referring to the drawing, the invention is shown as being applied to a portion of a spin-

ning frame which provides a series of sets of cooperating drawing rolls 1 and 2, between which lengths of fibrous material in the form of threads or slivers are adapted to be drawn in the usual manner. The lower rolls 1 provide fluted or corrugated surfaces formed on a metallic shaft 3, while the upper rolls 2 provide cylindrical surfaces covered with cork or leather, with reduced necks 4 therebetween. The upper rolls 2 are arranged in pairs and are maintained in position to engage the lower rolls 1 by means of cap bars 5, providing seats 6 for receiving the necks 4 at the ends of each pair of rolls 2. Preferably, each middle neck 4 has a saddle 7 bearing thereon and, in the operation of the mechanism, it is necessary that a lubricant in some form be employed between the cooperating surfaces of the stationary cap bars 5 and saddles 7 and the necks 4 which rotate with the upper rolls 2 as the latter are driven from the lower rolls 1.

As previously pointed out, the passage of thread or sliver between the sets of drawing rolls 1 and 2 results in the production of loose fly and lint, which exhibits a tendency to adhere to the cork or leather surfaces of the upper rolls 2 in preference to the fluted metal surfaces of the lower rolls 1. Therefore, it is necessary to clean only the upper rolls 2 and for this purpose the present invention contemplates the use of a series of cleaning rolls 8 mounted on a shaft 9 extending parallel to the roll shaft 3. The cleaning rolls 8 are slightly longer than the upper rolls 2, and the cylindrical surface of each roll 8 is provided with a covering 8a of felt, or similar fibrous material, to which lint will adhere more readily than to the cork or leather surface of the upper roll 2 on which the cleaning roll 8 bears. Consequently, operation of the drawing rolls 1 and 2 results in lint being picked up from the rolls 2 and collected on the cleaning rolls 8 and thus kept away from the thread or sliver as it passes through the machine.

In order to prevent accumulation of lint or fly on the ends of the upper rolls 2 in the vicinity of the necks 4, each cleaning roll 8 provides end disks 10 composed of fibrous material such as felt, similar to the covering 8a of the associated cylindrical portion. It is obvious from a consideration of Figs. 1 and 3 that the disks 10 extend down to engage the roll necks 4 in the vicinity of the cap bars 5 and saddle 7 of each pair of upper drawing rolls 2, thereby preventing any accumulation of fly and lint at these points. Furthermore, any lubricant employed for the bearing surfaces of the cap bars 5 and saddle 7 will not

be appreciably removed by the cleaning disks 10, although the disks 10 will prevent travel of the lubricant along the roll necks 4 towards the ends of the cylindrical working surfaces of the rolls 2, where it would affect the quality of the material being drawn. Thus the cleaning disks 10 perform a double function in preventing the accumulation of fly and lint where it would interfere with the free rotation of the roll necks 4, while at the same time preventing any dispersal of the lubricant such as would result in drying out of the bearings.

In order to stiffen the relatively flexible disks 10 and maintain the periphery of the disks in contact with the roll necks 4, the shaft 9 also carries a series of reinforcing disks 11, serving to press each cleaning disk 10 against the end of its associated roll 8. As best shown in Fig. 3, the disks 11 are of smaller diameter than the roll 8 and are composed of a relatively stiff material, such as fiber-board, or a similar composition possessing strength and lightness. As a result, only the outer peripheral portion of each cleaning disk 10 is free to yield to some extent as it bears on a neck 4 to perform its combined cleaning and lubricant retaining action.

From the foregoing, it is apparent that by the present invention there is provided an improved arrangement for effectively cleaning the top rolls of a spinning frame, or similar filament drawing machine, in such a manner as to prevent any accumulation of fly and lint in the necks between the cylindrical drawing surfaces, with such cleaning being carried out without interfering with proper lubrication of the roll necks. While, for purposes of illustration, the cleaning apparatus has been shown and described above as operating in connection with a single drawing roll 2, the arrangement is readily applied to a pair of such

rolls. In Fig. 4, the axis of the cleaning roll 8 is shown as being disposed equidistant from the parallel axes of a pair of upper rolls 2, with its cleaning disks 10a engaging the spaced necks 4, 4 of both rolls 2. Obviously, the cleaning arrangement of Fig. 4 will function in the same manner as previously described with reference to Fig. 3.

I claim:

1. Apparatus of the class described comprising in combination, drawing rolls having cylindrical working surfaces, with reduced necks therebetween, cleaning rolls bearing on said working surfaces for the removal of fly and lint therefrom, cleaning disks of soft yieldable material mounted at the ends of said cleaning rolls, and of larger diameter than said rolls, and reinforcing disks of stiff material of less diameter than said cleaning rolls for holding the peripheries of said cleaning disks in continuous wiping engagement with said roll necks.

2. Apparatus of the class described comprising in combination, drawing rolls having cylindrical working surfaces, with reduced necks between the rolls and adjacent the ends thereof, cleaning rolls bearing on said working surfaces for the removal of fly and lint therefrom, cleaning elements of soft yieldable material mounted at the ends of said cleaning rolls, said cleaning elements being of circular form and of greater diameter than said cleaning rolls to extend into contact with said roll necks, and circular reinforcing elements of stiff material of less diameter than said cleaning elements mounted between and adjacent the ends of said drawing rolls, said reinforcing elements being turnable with said cleaning rolls for holding the peripheries of said cleaning elements in continuous wiping engagement with said roll necks.

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