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BOTTOM ROLL CLEARER FOR TEXTILE MACHINES

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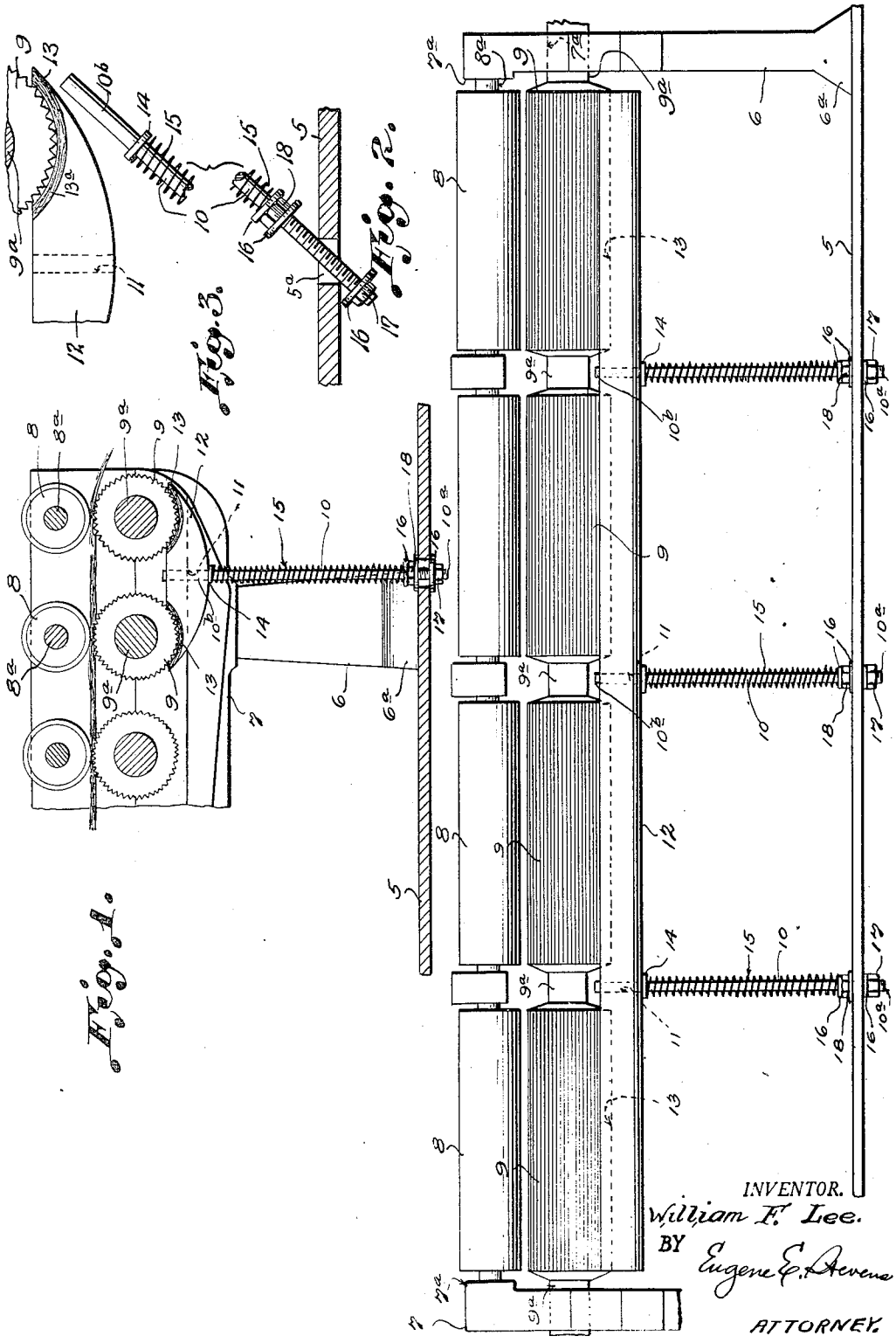


Fig. 1.

Fig. 2.

Fig. 3.

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BOTTOM ROLL CLEARER FOR TEXTILE MACHINES

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1

My invention relates to clearing mechanism for textile machines, such as roving or drawing frames, spinning frames and the like, and more especially to a supporting means whereby a clearer is resiliently held in contact with the bottom rolls of the drawing mechanism.

Heretofore, various methods have been employed for holding the clearer against the bottom portion of the bottom rolls so that the lint which accumulated on the periphery thereof would be removed and deposited upon the clearer. In most instances, the clearers have been held in contact with the bottom rolls by a direct pull from the top of the clearer, by a leather thong passed over the rolls and having one end secured to the clearer and the other end to a weight. The objection to this clearer supporting expedient is that the leather thong or cord becomes worn and requires frequent replacement. Furthermore, the arrangement indicated made it difficult to adjust the amount of pressure of the clearer against the rolls; and when it would becme necessary to remove the clearer from association with the rolls, the weights from the leather thongs would have to be taken off. Some mechanical expedients involving springs have been availed of for maintaining a clearer in contact with drawing machine rolls, but such structures have involved a number of levers and have meant a rather complicated mechanism, aside from taking up considerable space and necessitating care and attention, not to mention incident expense.

It is, therefore, the primary object of the instant invention to provide novel and improved yielding supporting means for the lower roll clearer of a drawing machine which will enable the clearer to be readily separated from the roll when it is desired to remove accumulated lint from the clearer, the nature of the clearer support being such that the springs or other yielding means can be readily replaced while the machine is in operation; and furthermore, to provide for removal of the clearer from the machine without removal of the yielding supporting means which maintains the clearer in operative engagement with the rolls.

Additionally, the invention contemplates clearer supporting means for the purpose specified which is very simple in construction, easy to

2

install, involves very little expense and which is substantially fool-proof in operation, aside from requiring but very little space and not cluttering up the machine with movable parts in multiple which are calculated to accumulate lint and get out of order.

The foregoing and other incidential objects of the invention will be readily understood and appreciated by those skilled in the art upon reference to the accompanying drawing illustrating the now preferred example of the invention.

It is to be understood, however, in this connection, that the invention is susceptible of various other mechanical expressions within the spirit and scope of the subject matter claimed hereinafter.

In the drawings, wherein the same reference characters have been used to designate the same parts throughout the several views—

Fig. 1 is a cross-sectional view through a portion of a drawing mechanism of a textile machine showing the invention applied thereto;

Fig. 2 is an elevational view taken at right angles to Fig. 1, and illustrating the application of the invention; and

Fig. 3 is a detailed sectional view illustrating how the individual clearer supporting rods can be lowered slightly and canted to admit of removal of the clearer supporting springs.

Referring to the drawings by reference characters, numeral 5 designates a roll stand support for the roll stand which embodies the standards 6.

Between the standard portions 6 of the roll stand are rotatably mounted, suitably fluted bottom drawing rolls 9, upon which normally rest top rolls 8. Between these pairs of rolls 8, 9, a strand, or sliver, of yarn is adapted to be passed during a drawing operation.

Figure 2 illustrates the fluted lower drawing rolls 9 as having reductions 9a at their ends and intermediate the fluted portions of the roll. The roll reductions 9a, at the ends of the rolls 9 provide pintles which are received in suitable bearing portions in the respective roll stand standard 6, as indicated at 7a.

The upper rolls 8 are mounted on a shaft 8a which is received in appropriate bearing portions 7a of the roll stand standards 6.

The rolls 8, 9, or one of each pair is suitably

driven and customarily a clearer is associated with the top rolls 8 which latter may be leather covered, but such top clearer proposition is not the subject of the instant invention. What the instant invention is concerned with is the clearer 12, for the lower fluted rolls 9, and the yielding support for said clearer 12.

In carrying out the invention, the clearer 12 in its preferred form comprises the elongated bar 12 which preferably has its bottom convexly curved transversely throughout its length for a purpose to be presently explained. The upper surface of clearer 12 is plane and is provided with transversely concave troughs 13 adjacent each longitudinal edge and running the full length of the bar or clearer 12. The transversely concaved troughs 13 receive felt or other fabric liners 13a which make friction contact with the periphery of the fluted roll portions 9 for removing lint accumulations therefrom.

Referring now to the novel supporting means for the clearer 12, it will be seen that same comprehends a plurality of upstanding rods 10 which are spaced from one another in the direction of the length of the clearer 12. These rods 12 have their upper ends 10b slidably received in transverse holes 11 in the intermediate thickened portion of said clearer bar 12.

The lower ends of the rods 10 are threaded as at 10a for a substantial distance and are received in over-sized transverse holes 5a in the roll stand support 5. The advantage of the slightly over-sized holes 5a for receiving the threaded rod ends 10a will be appreciated as the description proceeds.

Surrounding each of the rods 10 is a compression coil spring 15, whose upper end is adapted to bear against the washer 14 on said rod 10 to urge the juxtaposed clearer 12 upwardly. The lower end of each compression coil spring 15 bears against a similar washer 16 on the associated rod above a nut 18, which is threaded onto the rod. The respective nuts 18 serve as stops to determine the position of the upper ends 10b of the rods 10 in the slide holes 11 of the clearer 12.

The stop nuts 18, which is what they amount to, are clamped against the upper surface of the roll stand support 5 by means of nuts 17, which are threaded onto the threaded lower ends 10a of the rods 10 to bear against a superposed washer 16, to clamp the clearer supporting or guiding rods in rigid vertical position.

It will be apparent from the foregoing that it is a simple matter to brush out accumulated lint in the respective troughs 13 beneath the superjacent fluted rolls 9. To do this it is only necessary to push the clearer 12 down against the action of springs 15 and then by means of a few strokes of a brush, clear the accumulated lint from the troughs.

In the event that one of the springs 15 should become weakened in service or should break, it can be readily replaced by another spring without stopping the machine. In this connection, it is only necessary to loosen the upper nut 18 of the broken spring-carrying rod 10 so as to permit said rod 10 to drop down far enough to clear its upper end 10b from the guide bearing or hole 11 in the clearer 12. When this has been done, the broken or weakened spring 15 can simply be slid off, it being observed from Fig. 3 that the rod 10, when the nut 18 has been loosened, can be canted transversely of the clearer 12 so its end will be adjacent the upwardly curved concaved bottom of the clearer.

By concaving the bottom of the clearer 12, a comparatively slight cant of the rod 10 is necessary to permit the broken spring 15 to be removed therefrom. After a new spring 15 has been put in place, the bearing end 10b of the rod is again inserted in the guide hole 11 of the clearer 12, and the nut 18 tightened down to draw the superposed washer 16 above the bottom nut 17 into firm contact with the under surface of the roll stand support 5.

Employment of the washer 16 above the nut 17 gives good bearing against the under surface of the roll stand support 5, so that when the nut 18 is tightened to draw the superposed washer 16 of nut 17 into tight contact with the under surface of the roll stand support 5, the associated rod 10 will be in rigid upright position. Thus making oversized the rod receiving hole 5a in the roll stand support does not interfere at all with the normal rigidity required of the supporting means for the clearer 12.

Furthermore, the structure recited enables the clearer 12 to be removed without removal of its supporting means, namely the rods 10 and springs 15 from the roll stand support 5. When the clearer 12 is to be removed, it is only necessary to loosen all of the upper nuts 18 of the rods 10.

Another advantage of the novel supporting means for clearer 12 is that it involves but simple rod elements 10, washers and coil springs, all of which are standard and readily obtainable anywhere.

Furthermore, in order to effect mounting of the clearer on the roll stand support 5, it is only necessary to drill the series of holes 5a for loosely receiving the lower threaded ends 10a of the rods 10.

Having thus described my invention, what I claim is:

1. In a bottom roll clearer for drawing frames having a roll stand support, a roll stand carried thereby and pairs of upper and lower drawing rolls journalled in said stand; the combination of a clearer comprising an elongated bar beneath and running the length of at least one and preferably more of the lower rolls, said clearer bar having its under surface transversely convexed, the upper surface of said bar having laterally spaced lineally extending grooves co-extensive with the bar, said grooves having fabric linings in contact with superjacent rolls for removing lint therefrom, a lineal series of spaced upstanding rods carried by said roll stand support, the intermediate portion of the clearer bar having a lineal series of spaced transverse bearing holes, each of said holes slidably receiving the upper end of one of the rods, a coil spring carried by each of the said rods, the lower ends of the coil springs operatively supported by the roll stand support and the upper ends yieldably engaging the clearer, and means for adjusting said rods in the direction of their lengths whereby to clear the upper ends from the rod receiving holes of the clearer.

2. The combination set forth in claim 1, and said rod-adjusting means comprising a nut on each rod above and below the roll stand support as the means for effecting lineal adjustment of the rods and over-sized rod receiving holes in the roll stand through which said rods extend, whereby the latter after having been lowered from the holes in the clearer may be moved transversely to the tapered side of the clearer bottom to admit of removal of the springs.

3. In a bottom roll clearer for drawing frames

having a roll stand support, a roll stand carried thereby and pairs of upper and lower drawing rolls journalled in said stand; the combination of a clearer comprising an elongated bar beneath and running the length of at least one of the lower rolls, said clearer bar having its under surface transversely convexed, the upper surface of said bar having a lineally extending groove coextensive with the bar, said groove having means in contact with superjacent rolls for removing lint therefrom, a lineal series of spaced upstanding rods carried by said roll stand support, the intermediate portion of the clearer bar having a lineal series of spaced transverse bearing holes, each of said holes slidably receiving the upper end of one of the rods, a coil spring carried by each of the said rods, the lower ends of the coil springs operatively supported by the roll stand

support and the upper ends yieldably engaging the clearer, and means for adjusting said rods in the direction of their lengths whereby to clear the upper ends from the rod receiving holes of the clearer.

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