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WEIGHTING AND UNWEIGHTING
DEVICE FOR DRAFTING ROLLS
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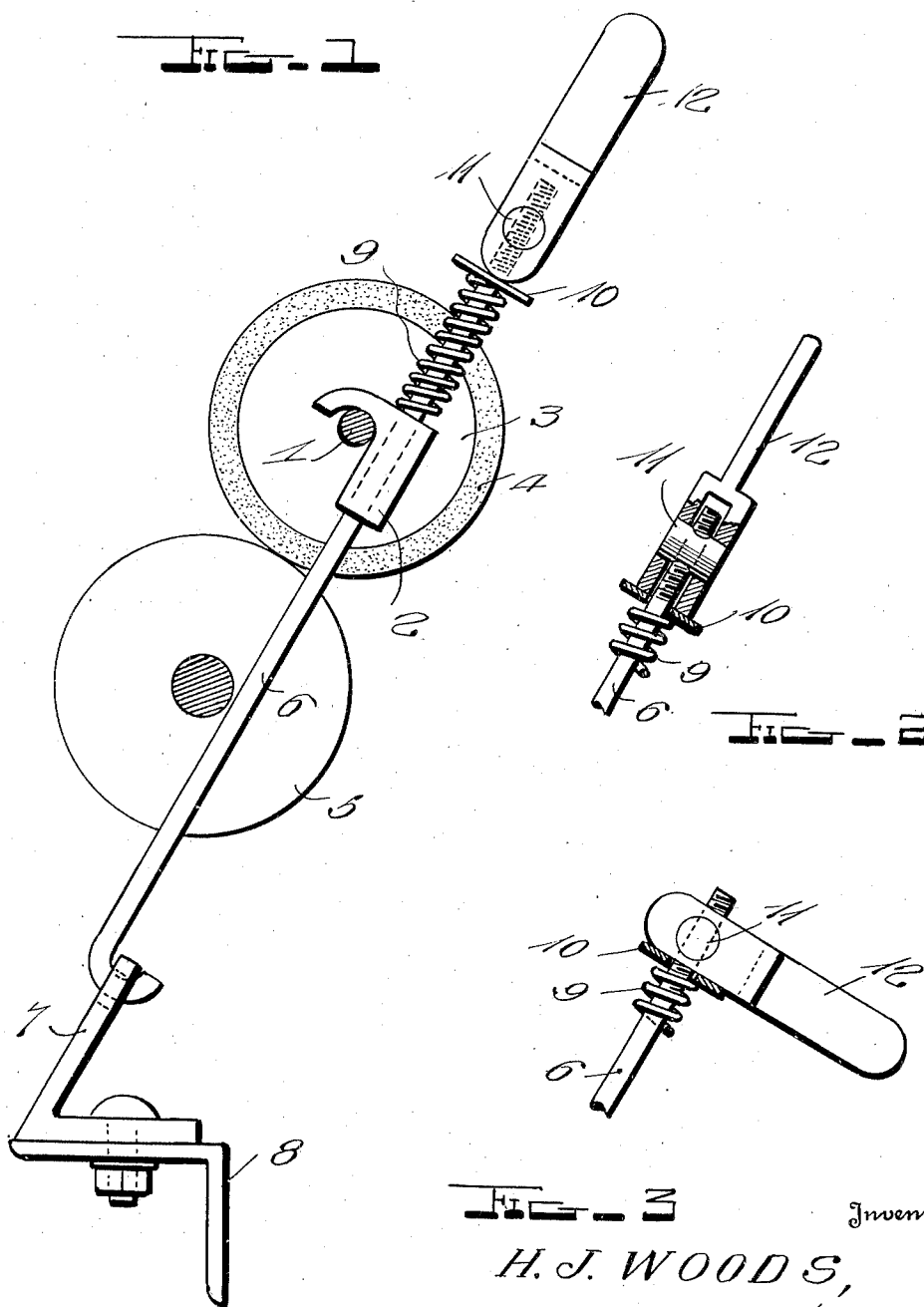


Fig. 3

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WEIGHTING AND UNWEIGHTING DEVICE
FOR DRAFTING ROLLSHerbert J. Woods, Greensboro, N. C., assignor to
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The invention relates to improvements in spinning machinery, and more particularly to a weighting and unweighting device for drafting rolls of such machinery. It has been found that it is most desirable to be able to release quickly the weight applied to drafting rollers for the reason that drafting rollers are covered with soft material such as combinations of flannel and leather, cork, rubber, synthetic rubber and synthetic plastic materials. All these materials are plastic and compressible to a degree, and in the event rolls are left stopped and weighted, a flat place at the point of contact of the two rolls seriously interferes with the continuity of the spinning operation at such time as the machines are again started. Such a flat place would eventually become rolled out to normalcy, giving trouble meanwhile.

In order to avoid the formation of such flat places on soft drafting rolls the present device was designed to permit the immediate relief of the weight from the soft covered upper roller during any period when the machine is left standing, avoiding concentration of the weight on a comparatively small area of the surface of the roll.

The primary object of the invention is accordingly to provide improved means for the application or release of weight or pressure to the drafting rolls which are a conventional part of spinning machinery.

Another object of the invention is to provide simple and inexpensive means for quickly applying or releasing pressure to or from the drafting rolls.

A further object of the invention is to provide means whereby adjustment of the pressure mechanism may be readily made without the use of separate tools.

A further object of the invention is to provide means whereby the upper drafting roll and associated mechanism may be readily removed without the use of outside tools.

In accordance with the present invention a pressure adjusting cam lever is pivotally mounted in operative relation to the roll tensioning or weighting means, which lever when in one position is arranged to apply tension to the rolls, while in another position tension is relieved. Tension may be adjusted to take up slack due to wear of the rolls by using the lever as a wrench or by turning the lever in the opposite direction the lever and associated mechanism may be removed, thus permitting removal of the upper drafting roll.

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The invention will be more readily understood by reference to the accompanying drawings and the following detailed description. In the drawings:

Fig. 1 is a side view partly in section showing a pair of drafting rolls equipped with my improved tensioning means, the cam lever being shown in a position for applying tension to the rolls;

Fig. 2 is a detail fragmentary view of the operating cam lever and associated parts in the pressure applying position;

Fig. 3 is a fragmentary side view of the cam lever and associated parts in pressure releasing position and illustrating also the means by which pressure may be adjusted or the cam lever and associated mechanism removed.

Referring to the drawings, a pair of drafting rolls are indicated at 3 and 5, which rolls may be of conventional type employed in spinning machinery. The upper roll 3 is provided with a soft covering 4 of any suitable material. Both of the rolls are carried by the spinning frame in any suitable manner, the soft covered roll 3 being mounted for movement toward or from the roll 5 when pressure is applied or released, as is well understood in the art.

When pressure is to be applied to the roll 3 this may be accomplished by means of a hook portion of a bearing or saddle member 2 slidable on a holder rod 6, the lower end of which rod is shown as releasably attached to a bracket 7 carried by a portion of the frame 8 of the machine. The hook portion of the slidable member 2 is adapted to engage a reduced portion on the shaft 1 of the roll 3.

Pressure may be applied to the slidable hook member 2 by means of a helical spring 9, the lower portion of which engages the slidable member 2 while the upper portion is adapted to engage a slidable washer or the like 10 the upper surface of which is adapted to be engaged by a cam lever 12 pivotally and adjustably mounted on the screw threaded upper end of the rod 6. This is accomplished by means of a threaded pintle 11 screwed onto the threaded portion of the rod 6. As shown, the lever 12 is forked at its lower portion and is pivoted to the pintle 11, the lower ends of the forked portion being rounded to provide a cam for engagement with the washer 10.

Operation

Referring to Fig. 1 it will be noted that when the lever 12 is in upright position pressure is ap-

plied to the washer by means of the rounded ends of the forked portion of the pivoted lever 12 and thence pressure is applied through spring 9 and the slidable hook member 2 to the roll 3. Pressure may be released by moving the lever 12 side-
wise in either direction as illustrated, for example, in Fig. 3. Adjustment may be provided by rotating the lever in one direction so as to compensate for wear on the rolls, the lever then acting as a wrench and serving to screw the pintle downwardly upon the threaded end of the rod 6.

To remove the upper roll and associated mechanism the lever is rotated in such direction as to unscrew pintle member 41 from the threaded upper end of the rod 6, after which the washer 10, spring 9 and hook member 2 may be removed. Thereupon the rod 6 may be removed from the bracket 7 by rotating the said rod about the hooked end portion and then releasing the hook. The drafting rolls are then accessible and the upper roll may be readily removed without the use of outside tools. The parts may be replaced by a similar series of operations in the reverse order.

The present device differs from weighting devices in common use in the industry by having a means of weight application without the use of outside tools and the feature of weight release also without the use of tools. Further in this connection, adjustment to the weight applied may be made without the use of tools. In the event of complete disassembly of the unit, which may be necessitated by a desire to remove the soft covered roller and associated mechanism, the whole removal may be effected by suitably rotating the cam lever 12 in a counter-clockwise direction since the bolt and the pintle are threaded with right-hand threads.

The present device further differs from anything used in the industry at the present time inasmuch as weight release accomplished at present by the use of a nut on a rod, such as rod 6, compressing the spring by being screwed on the end of the rod against a washer such as 10. When weight relief is accomplished by the conventional nut and a wrench being used, all adjustment is lost and it is necessary, when re-application of the weight is made, to use considerable judgment by trial and error in order to secure the correct weighting. With this new and useful device it is possible by merely tripping the cam lever by hand to relieve the weight at any time, and when reapplication is desired to re-attain the critically adjusted weight simply by moving the lever in a vertical position.

It is further apparent that the life of the soft roller covering may be greatly extended by such weight relief.

The present invention may be usefully applied to all manner of drafting rollers employed in the spinning of cotton yarns, rayon yarns, woolen yarns, worsted yarns, linen yarns, flax yarns, and, in fact, all manner of textile fibers. The term "spinning" is here used to include the picking, drawing, roving, gilling, and all manner of processes employed in the spinning operations wherein stock, yarn fibers, and textile materials are passed through the nip of weighted rollers.

The invention has been described in detail for the purpose of illustration, but it will be obvious that numerous modifications and variations may be resorted to without departing from the spirit of the invention.

I claim:

1. In a drafting apparatus for spinning ma-

chinery including a frame, a pair of drafting rolls mounted on parallel axes, at least one of which is mounted for movement toward or away from the other, and means for applying and releasing pressure to and from said movable roll, comprising a rod supported at one end by said frame, a member slidable upon said rod having a portion adapted to engage said movable roll, a spring engaging said slidable member and means for compressing and releasing said spring, comprising a cam lever pivotally mounted upon said rod adapted in one position to apply pressure and in another position to release pressure, said rod having a threaded portion at the upper end thereof, a pintle member for said cam lever adjustably mounted upon said threaded portion whereby removal of the cam lever or adjustment for wear of the rolls is permitted.

2. In a drafting apparatus for spinning machinery including a frame, a pair of drafting rolls mounted on parallel axes, at least one of which is mounted for movement toward or away from the other, and means for applying and releasing pressure to and from said movable roll, comprising a rod supported at one end by said frame, a member slidable upon said rod having a portion adapted to engage said movable roll, a spring engaging said slidable member and means for compressing and releasing said spring, comprising a cam lever pivotally mounted upon said rod adapted in one position to apply pressure and in another position to release pressure, said rod having a threaded portion at the upper end thereof, a pintle member for said cam lever adjustably mounted upon said threaded portion whereby removal of the cam lever or adjustment for wear of the rolls is permitted, said rod being releasably secured to the frame of the machine, and removable therefrom after removal of said cam lever and associated mechanism.

3. In a drafting apparatus for spinning machinery including a frame, a pair of drafting rolls mounted on said frame on parallel axes, at least one of which is mounted for movement toward or away from the other, and means for applying and releasing pressure to and from said movable roll, comprising a holder rod having a hook portion releasably supported by said frame, a saddle member slidable upon said rod having a portion adapted to engage said movable roll, a spring engaging said slidable member and means for compressing and releasing said spring, comprising a forked cam lever pivotally mounted at the upper end of said rod and adapted in one position to apply pressure to said movable roll and in another position to release pressure therefrom, said rod having a threaded portion at the upper end thereof, a pintle member for said cam lever adjustably mounted upon said threaded portion whereby removal of the cam lever or adjustment for wear of the rolls is permitted.

4. In a drafting apparatus for spinning machinery including a frame, upper and lower drafting rolls mounted on parallel axes, the upper roll being mounted for movement toward or away from the other, and means for applying and releasing pressure to and from said upper roll, comprising a holder rod supported at one end by the spinning frame, a saddle member slidable upon said holder rod having a portion adapted to engage said roll, a spring mounted on said rod and engaging said slidable member at one end and means for compressing and releasing said spring, comprising a forked cam lever piv-

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otally mounted upon said rod adapted in one position to apply pressure and in another position to release pressure upon the upper roll, said rod having a threaded portion at the upper end thereof, a pintle member for said forked cam lever adjustably mounted upon said threaded portion whereby removal of the cam lever or adjustment for wear of the rolls is permitted, said holder rod having a hook portion releasably secured to the frame of the machine, and removable therefrom after removal of said cam lever and associated mechanism.

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