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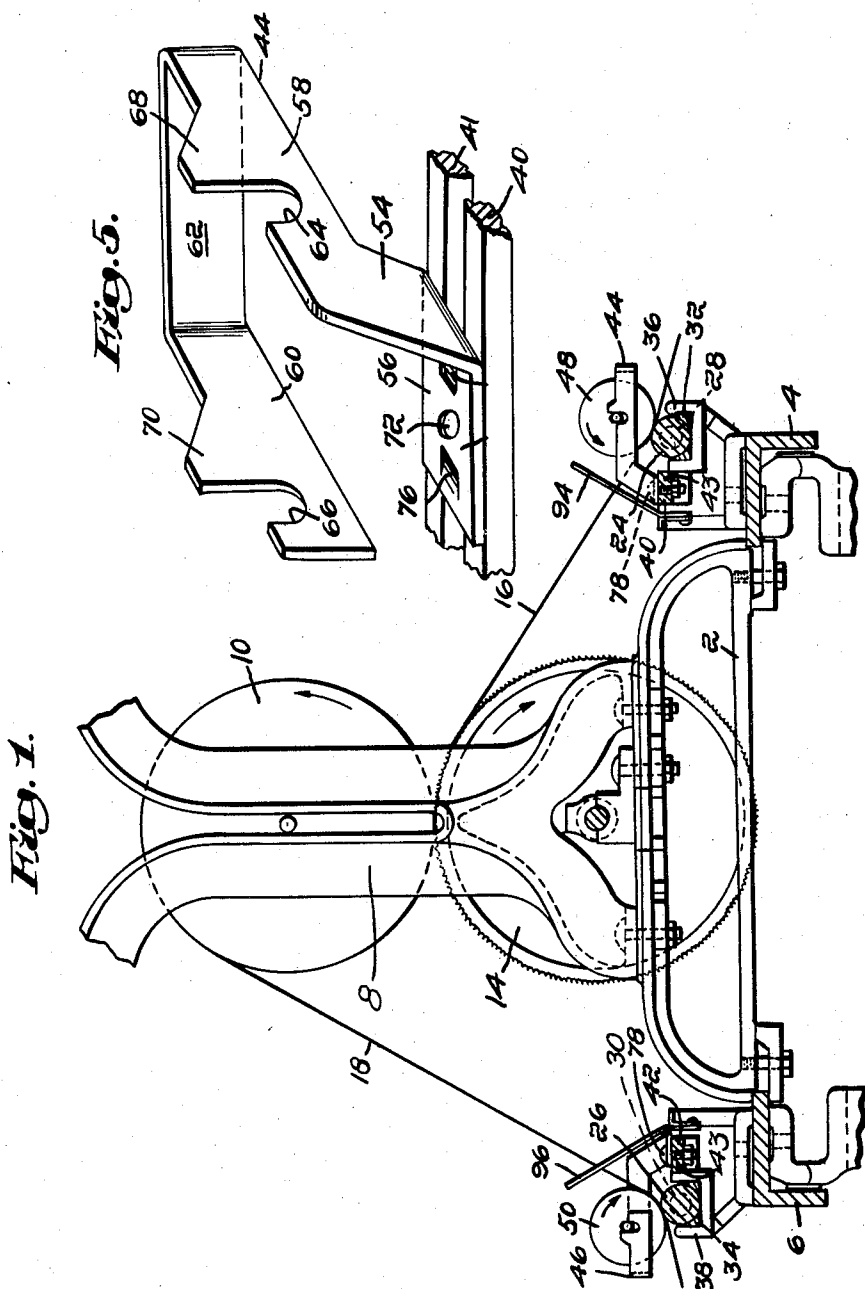
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MEANS FOR MOUNTING THE TOP ROLLS OF A SPINNING
FRAME FOR QUICK THREADING OF ROVING

Filed Oct. 17, 1956

2 Sheets-Sheet 1



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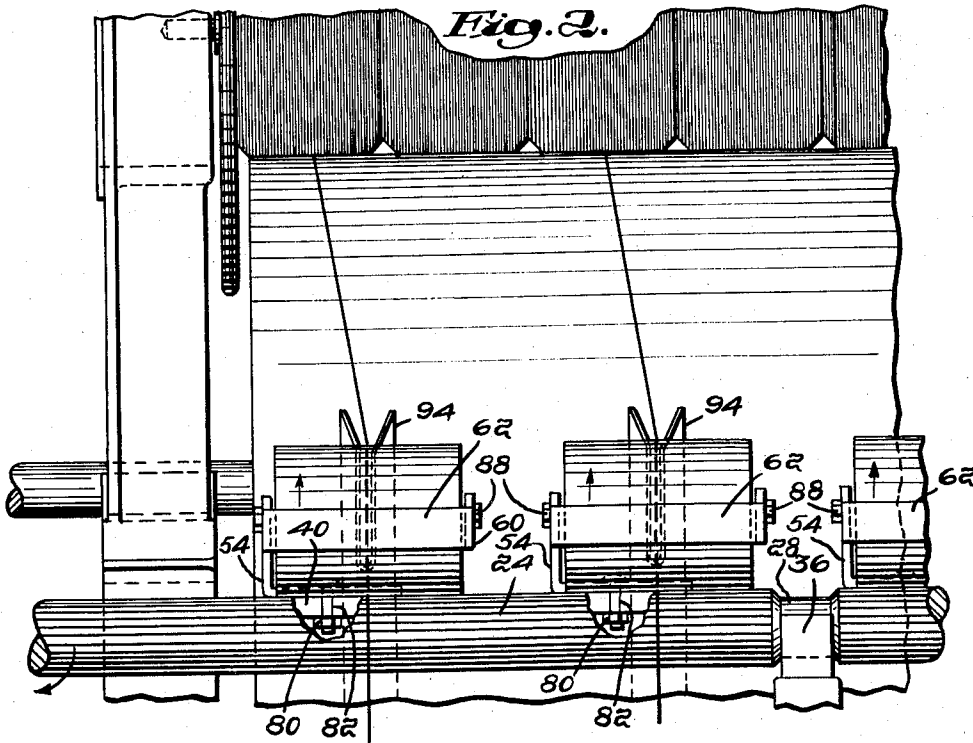


Fig. 3.

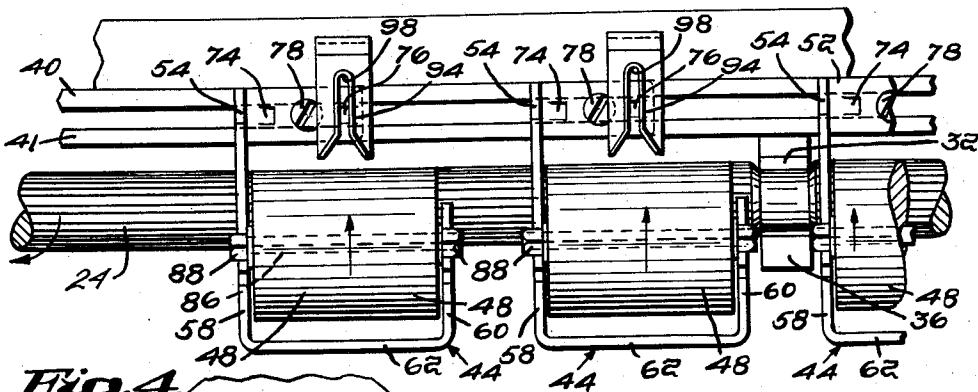
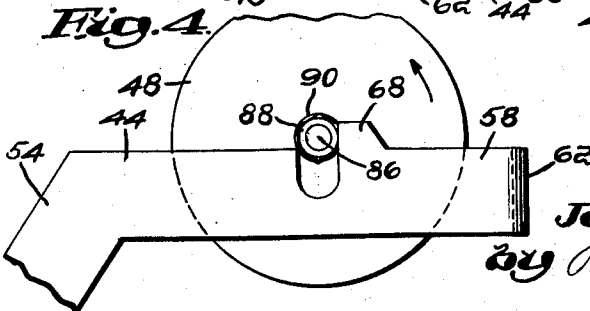


Fig. 4.



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MEANS FOR MOUNTING THE TOP ROLLS OF A SPINNING FRAME FOR QUICK THREADING OF ROVING

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8 Claims. (Cl. 57—90)

This invention relates to textile spinning machines and in particular to improvements in the roving feed section of a spinning frame.

As is well known, roving (or roping) is supplied to spinning frames on jack spools which are rotatably mounted on the top of the frame. The spools are rotated by a spool drum so that the roving is continuously unwound from the spools. As the several rovings leave the spool they first pass through the nip of the back rolls and then, by intermediate delivering and processing mechanism such as deflecting rods, twister tubes, front rolls, ring rails, and bobbin spindles, they are wound upon individual bobbins. During operation of the spinning frame the rovings may break. When this occurs, it is necessary for the operator to piece-up and re-thread the broken roving as rapidly as possible. Heretofore when rovings broke in the region of the back rolls re-threading the roving between back rolls has involved considerable difficulty. In the usual case the top back roll has been made removable so as to facilitate replacing the roving between the back rolls. However, this practice has not been entirely satisfactory, because of the time consumed. Moreover, in the conventional setup, the ends of the shafts of the top back rolls wear down at a rapid rate since the shafts are in direct contact with the supporting structure therefor.

Accordingly it is the primary object of this invention to provide novel means for removably supporting the top back rolls of a spinning frame in cooperating relation with the bottom back rolls of the machine.

Another object of this invention is to provide improved means for supporting the top back rolls of a spinning frame whereby to facilitate threading the roving between the top and bottom back rolls.

Still another object of this invention is to provide improved means for rotatably supporting the top back rolls of a spinning frame whereby to reduce wear on the shafts of said rolls and also to facilitate removal of said rolls.

Other objects and many of the attendant advantages of this invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings, wherein:

Fig. 1 is an end view in elevation of the upper portion of a spinning frame, with certain parts in section;

Fig. 2 is a side elevation looking from right to left in Fig. 1;

Fig. 3 is a plan view of the back rolls shown in Fig. 2;

Fig. 4 is an enlarged fragmentary end view in elevation of a top back roll and the improved supporting apparatus therefor; and,

Fig. 5 is an enlarged view in perspective of the improved supporting structure for the top back rolls.

Referring now to Figs. 1 and 2, there is shown the part of a spinning frame comprising an end standard or frame member 2 supported by horizontal beams 4 and 6. Secured to stand 2 is a spool stand 8 which rotatably

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supports a jack spool 10. Rotatably supported by standard 2 is a conventional spool drum 14 which acts to drive spool 10 through frictional engagement therewith. Alternate roping ends 16 and 18 are led to opposite sides of the spinning frame.

Positioned above members 4 and 6 are two long rolls, hereinafter referred to as bottom back rolls 24 and 26. These rolls run the length of the frame and are driven by suitable means (not shown) in synchronism with spool drum 14. At selected points rolls 24 and 26 have a reduced diameter indicated at 28 and 30 to accommodate bearing blocks 32 and 34 maintained in place by brackets 36 and 38 attached to beams 4 and 6.

Running parallel and secured in fixed relation to brackets 36 and 38 are two square bar members 40 and 41 on one side and two other square bar members 42 and 43 on the other side. Attached to these members are a plurality of identical brackets 44 and 46, adapted to support identical rolls 48 and 50 in cooperating relation with bottom back rolls 24 and 26 respectively. Rolls 48 and 50 are hereinafter referred to as the top back rolls.

Details of one of the brackets are illustrated in Fig. 5. Each bracket 44 and 46 comprises a horizontal base 52 having at one side edge an upstanding leg 54 that is set at an angle so as to extend beyond the front edge 56 of the base. Formed integral with leg 54 is a horizontally projecting arm 58 which is held in parallel spaced relation with a second arm 60 by means of a horizontal connecting portion 62 disposed parallel to the front edge 56 of base 52. Both arms 58 and 60 are provided with U-shaped slots 64 and 66 respectively on their top edges. Both arms are also provided with upstanding projections 68 and 70 on their top edges. These projections function as extensions of the forward vertical edge of slots 64 and 66. The base 52 of the bracket is provided with a hole 72 disposed between two lugs 74 and 76 which protrude from the bottom side of the base. Brackets 44 and 46 are secured to bar members 40 and 42 by means of screw bolts 78 and nuts 80. Bolts 78 extend through holes 72 in the brackets and holes 82 in bar members 40 and 42. These bar members are also provided with depressions for receiving lugs 74 and 76 whereby to prevent the brackets from rotating relative to the bar members about screw bolts 78. The groups of brackets 44 and 46 are uniformly spaced on bar members 40 and 42. Due to the construction of the brackets the slots 64 and 66 are located above and slightly in advance of rolls 24 and 26.

The top back rolls 48 and 50 are of identical construction. The peripheral surfaces of back rolls 48 and 50 are usually covered with a suitable material such as a synthetic rubber adapted to assist feeding of the roving by bottom rolls 24 and 26 without injury to the roving. Referring now to Figs. 3 and 4 each roll 48 is secured to a shaft 86 the ends of which are provided with oil-less bearings 88 whose exterior surfaces are hex-shaped as shown. Alternatively, the exterior surfaces of bearings 88 may be in the shape of a square or any other polygon having two parallel sides. Shafts 86 rotate relative to bearings 88. The latter are received in slots 64 and 66. Rolls 50 are provided with identical bearings. Spacers or washers 90 act to prevent the rolls 48 and 50 from shifting axially relative to the brackets. These spacers may be formed integral with the bearings 88 or may be separately mounted on shafts 86. The slots 64 and 66 are sufficiently deep so that bearings 88 will be above the bottoms of the slots when rolls 48 and 50 are in engagement with rolls 24 and 26. Thus rolls 48 and 50 will be maintained in engaging relation with rolls 24 and 26 by virtue of gravity. Because the bearings are in the form of an hexagon so that diametrically opposite sides thereof are parallel to each other, the sides of the bear-

ings will engage the side edges of the slots to prevent the bearings from rotating. Since slots 64 and 66 are open at the top, it is a simple matter to remove or replace top rolls 48 and 50.

Also carried by the frame are two rows of bifurcated roving guides 94 and 96 which are mounted for limited reciprocating motion longitudinally of the spinning frame. The mechanism for reciprocating the guides is not shown since it forms no part of the present invention and because the roving guides are conventional. As shown in the drawings an individual roving guide is provided for each top back roll. These guides are positioned between the top back rolls and spool 10. The roving ends 16 and 18 pass through the slots 98 of the guides. By virtue of the reciprocating motion of the guides, the constantly moving roving ends are repeatedly moved back and forth axially of rolls 48 and 50 so that substantially all of the peripheral surfaces of the top rolls are utilized to facilitate feeding of the roving by bottom back rolls 24 and 26.

With a spinning frame having brackets corresponding to brackets 44 and 46 for supporting top back rolls in engaging driven relation with the bottom back rolls, as previously described, it is a simple matter to thread roving between the top and bottom back rolls. As previously noted the rear end of arm 60 of each bracket is not directly attached to the base 52. Therefore, there is a space between arm 60 and base 52 through which access may be had to guides 94 and 96. Accordingly when it is desired to thread a roving end between the nip of roll 24 and one of the rolls 48, for example, the operator simply inserts the roving in slot 98 of the appropriate guide 94, pulls the end laterally toward the arm 60 of the bracket, and positions it between the top and bottom back rolls at the end nearest arm 60. The bottom back roll 24 picks up the roving end and the latter is then carried forward between the bottom roll and the top roll for delivery to the twister tubes. Threading of the roving is accomplished without lifting up one end or completely removing the top roll, thereby saving time and making the threading operation simple and safe.

While the brackets have been illustrated and described as supporting top back rolls provided with replaceable bearing 88, it is to be understood that the bearings may be omitted and the shafts of the top rolls allowed to reside in slots 64 and 66 in rotatable engagement with the brackets. However, use of removable and replaceable bearings, such as bearings 88, is preferred since the bearings eliminate wearing of the shafts of the top back rolls. The upstanding projections 68 and 70 act to prevent the bearings from slipping out of slots 64 and 66 during operation.

Obviously many modifications and variations of the present invention are possible in the light of the above teachings. Therefore, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts specifically described or illustrated, and that within the scope of the appended claims it may be practised otherwise than as specifically described or illustrated.

I claim:

1. In combination with a spinning machine having a plurality of rotatable top back rolls cooperating with bottom back rolls for feeding roving to the machine from jack spools, apparatus for supporting said top back rolls comprising, a plurality of individual brackets, one for each top back roll, each bracket comprising a base portion secured to the machine, a pair of arms extending laterally of the machine provided with means for receiving the opposite ends of the shaft of one of said top back rolls, means holding said arms in spaced parallel relation to each other, and means connecting only one of said arms to said base portion acting to support said arms in vertical spaced relation to said base portion.

2. The combination of claim 1, wherein said arms

are provided with vertically extending slots open at the top for receiving the ends of the shafts of said top back rolls.

3. The combination of claim 2, further including bearing elements rotatably secured to the opposite ends of the shafts of said top back rolls, said bearing elements being removably but non-rotatably positioned in said slots.

4. A bracket for mounting the top back rolls of a spinning machine comprising, a base portion adapted to be secured to the machine, an upstanding leg integrally joined at one end to said base portion, a first horizontal arm integrally joined to the opposite end of said leg, a connecting portion extending from the forward end of said first arm in the direction of the axis of the top back roll and in front of the top back roll, a second horizontal arm supported only by said connecting portion and disposed parallel to said first arm, said connecting portion acting to maintain said arms in fixed spaced relation to each other, both arms having correspondingly located means for receiving the opposite ends of the shaft of a top back roll.

5. In combination and for use in a spinning machine, a supporting frame, a bottom back roll rotatably mounted with respect to said frame, a bracket comprising a base portion fixed on said frame and a supporting portion extending forwardly over said bottom back roll, a top back roll resting on said bottom back roll, said top back roll having an axis maintained in position by said supporting portion, a roving guide mounted in operative alignment with said rolls, the connection between said base portion and supporting portion so located with respect to said top back roll, bottom back roll and guide to permit the manual introduction of roving coming from said guide directly into the nip of said rolls while said rolls are in engagement.

6. The combination set forth in claim 5 and said top back roll being liftable from said bottom back roll and said supporting portion.

7. In combination and for use in a spinning machine, a supporting frame, a bottom back roll rotatably mounted with respect to said frame, a roving guide mounted adjacent said bottom back roll for oscillating movement with respect thereto, a top back roll supporting bracket including a base portion secured to said frame laterally of said guide, arms connected to said base portion for maintaining the shaft of a top back roll in position, a top back roll resting on said bottom back roll and with its shaft maintained in position by said arms, said bracket barring the manual positioning of roving from said guide in the nip of said rolls on one side thereof while permitting the manual positioning of roving from said guide in the nip of said rolls on the other side thereof.

8. A bracket for maintaining the top back roll of a spinning machine in position with respect to the bottom back roll and for facilitating the installation of roving coming from an adjacent guide to operative position between the nip of said rolls, said bracket comprising a base portion adapted to be secured to a fixed part of the machine, two spaced arms carried by said base portion for receiving and maintaining the shaft of said top back roll in position on said bottom back roll, one said arm and base acting to bar access to the nip of said rolls on one side, the other said arm and base being clear of the line of access to the nip of said rolls on the other side.

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