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TEXTILE MATERIAL DRAWING

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Fig.1

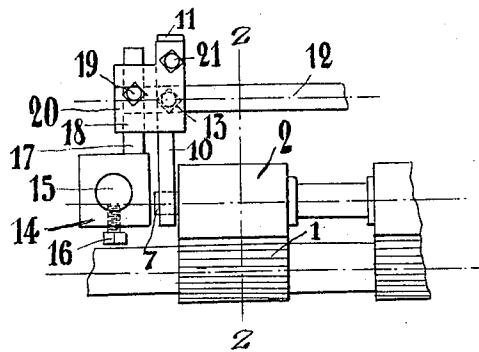
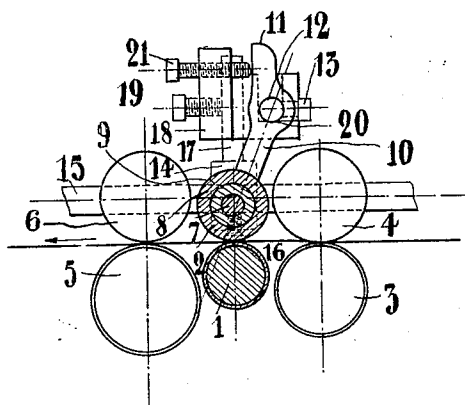


Fig.2



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TEXTILE-MATERIAL DRAWING.

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The present invention has for its object to obtain the most constant possible support and advance of textile fibers in the various drawing zones of a fiber-drawing mechanism or apparatus; the term "drawing zone", as here used, indicating the space existing between two pairs of drawing rolls which rotate at different speeds and by which the roving is forcibly pinched or nipped all at once.

To effect this object, particularly where there is a drawing zone, I reduce as much as possible and once for all (because thereafter they stay fixed) the distance between the pinching points of the drawing rolls, and I make such distance or space a trifle greater than the length of the longest fibers to be drawn. Then I interpose between said points one or more pairs of rolls of small diameter, the function of which is to sustain and advance the roving; these sustaining rolls having the same linear speed as the roving at the tangents where the roving and the said rolls meet. The advance of the fibers cannot, as a matter of fact, be assisted in a better way than by moving the rolls and the fibers in unison.

The lower sustaining roll (or rolls) is driven positively and by utilizing the usual spinning means or devices, while the upper roll, which is driven frictionally by the lower one, has a slightly lower speed. The said lower roll serves to advance the roving in conformity with it, and the said upper roll serves to maintain the roving while smoothing it. The latter roll is very light, and its pressure can be accurately regulated by a rising-and-falling movement and an oscillating movement, for which purpose the roll is mounted in an oscillating frame which is itself mounted pendulum-fashion. The roll so mounted moves away from the path of the roving by describing a curve, and then returns to its normal position without shock.

Owing to the arrangements just described, the fibers on the one hand, cannot be nipped by two pairs of drawing rolls at once since they are shorter than the distance between the rolls; and, on the other hand, they can no longer be broken between a pair of drawing rolls and a pair of sustaining rolls, since the latter exert too slight a nipping action to injure them in any way. Hence, it follows that, without changing the distance between the rolls, it is possible to utilize without danger all lengths of fibers, and even waste, and that the roving becomes more regular or

uniform, owing to the decrease in the number of floating or loose, ungripped fibers; both the quality and the amount of the output being thereby improved.

The embodiment of the invention illustrated in the accompanying drawing and described hereinafter relates to a cotton-spinning frame, and is intended to serve merely as an example. The invention could, of course, be applied to other machines or devices with suitable variation according to the textile material to be worked, the frame and the available space, without departing from the scope of my invention.

In said drawing, Figure 1 is a front elevation and Fig. 2 a transverse vertical section on line 2—2, Fig. 1, of a draw frame embodying my invention.

As shown thereon, a pair of small sustaining rolls 1 and 2 is interposed between the usual front drawing rolls 3 and 4 and rear drawing rolls 5 and 6; the lower rolls 3, 1 and 5 being fluted, and the upper rolls 4, 2 and 6 being faced or covered with felt and leather. The roll 2, in the construction represented, consists of a case iron core or sleeve 8 which rotates freely on a horizontal spindle or rod 7 and is provided with a jacket 9 of felt, leather etc.; but said roll may, of course, be of one-piece construction.

The spindle 7 is supported at its ends in a pair of rocker arms 10 (only one of which appears) that are mounted for angular adjustment on an upper horizontal rod or spindle 12 to which they may be secured in the position desired by means of screws 13. The spindles 12 and 7 and the two arms 10 thus form a rigid rectangular frame as will be understood; and this frame is disposed cross-wise of the machine and is supported by a pair of sliding blocks 18 having recesses or seats 20 wherein the ends of spindle 12 are received, said seats being shown in dotted lines. The blocks 18 are mounted for vertical adjustment on upright pins 17 carried by lower supporting blocks 14 which are slidably fitted on horizontal bars 15 and are held in adjusted position by screws 16; there being one of these bars 15 at each side of the machine, though only one of them shows in the drawing. The upper blocks 18 are secured in position on the uprights 17 by means of screws 19 which pass through said blocks, and the latter are additionally provided with screws 21 which bear against angularly-positioned extensions 11 formed on the rocker

arms 10 so that the inclination of said arms and, hence, of the frame itself can be varied by tightening or loosening screws 21, thereby providing a rocking or turning movement of the top spindle or cross-rod 12 in its seats 20.

Due to the above-described arrangement, it will be apparent that the aforesaid frame comprising the parts 10, 12 and 7 and carrying the upper roll 2 can be raised or lowered, shifted laterally either forward or backward, and rocked in either direction about its member 12 as an axis so as to bring the said roll 2 into the most favorable position and to regulate the pressure which it imposes on the lower roll 1; the several screws being tightened after the adjustments have been completed. Moreover, dismantling can readily be effected, because the frame is lift-able bodily from the machine when the screws 21 have been loosened sufficiently.

I claim as my invention:—

1. In a machine for drawing textile fibers, the combination, with spaced front and rear pairs of drawing rolls, of a pair of sustaining rolls of small diameter arranged in the space between the first-named pairs to engage the fibers passing from one pair to the other, and an inclined frame wherein the upper sustaining roll is mounted; said frame being adjustable both bodily and angularly either forwardly or backwardly to vary its position and inclination and the pressure of said upper roll with relation to the lower sustaining roll, and being removable bodily with the former roll from the machine.

2. In a machine for drawing textile fibers, the combination, with spaced front and rear pairs of drawing rolls, of a pair of sustaining rolls of small diameter arranged in the space between the first-named pairs to engage the fibers passing from one pair to the other, and an inclined frame wherein the upper sustaining roll is mounted; said frame being adjustable both bodily and angularly either forwardly or backwardly to vary its position and inclination and the pressure of said upper roll with relation to the lower sustaining roll.

3. In a machine for drawing textile fibers, the combination, with spaced front and rear pairs of drawing rolls, of a pair of sustaining rolls of small diameter arranged in the space between the first-named pairs to engage the fibers passing from one pair to the other, and a rigid, rectangular frame wherein the upper sustaining roll is disposed; said frame being mounted to rock about its horizontal top member as an axis, either forwardly or rearwardly to vary its inclination and thereby adjust the pressure of the upper sustaining roll upon the lower roll.

4. A machine according to claim 3, in which the frame comprises a top spindle, a pair of rocker arms fixed to the spindle and forming the sides of the frame, and a bottom spindle whereon the upper sustaining roll is carried; supporting blocks wherein the ends of the top spindle are freely journaled; and means carried by said blocks for engagement with the side arms to rock the latter about said top spindle and thereby vary the inclination of the frame.

5. A machine according to claim 3, in which the frame comprises a top spindle, a pair of rocker arms fixed to the spindle and forming the sides of the frame, each arm having an extension at its upper end, and a bottom spindle whereon the upper sustaining roll is carried; supporting blocks wherein the ends of the top spindle are journaled for free rotation; and adjusting members carried by said blocks for engagement with the extensions of the side arms to rock the latter about said top spindle and thereby vary the inclination of the frame.

6. In a machine according to claim 3, and wherein the top member of the rocking frame is freely journaled at its ends in a pair of vertically adjustable blocks, a pair of longitudinal bars disposed at opposite sides of the machine; a pair of blocks slidable along said bars; and vertical pins carried by the last-named blocks and whereon the first-named blocks are slidably fitted.

In testimony whereof I affix my signature.

CHRISTOPHE SIMON.