

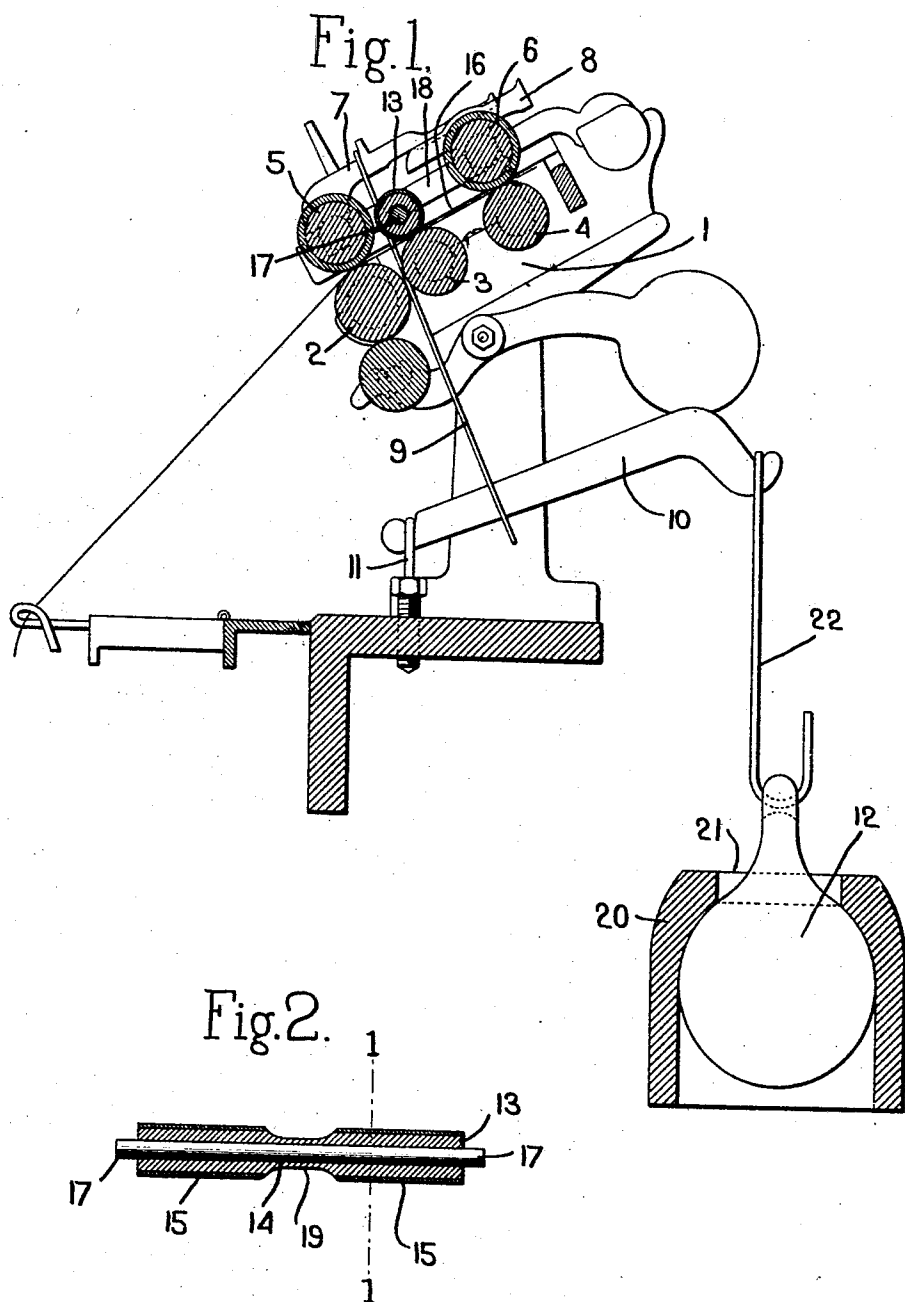
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DRAWING MECHANISM

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UNITED STATES PATENT OFFICE.

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DRAWING MECHANISM.

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This invention relates to drawing mechanism for fibrous material such as may be employed in drawing, spinning or roving frames and has for its object to provide a novel drawing mechanism by which yarn of increased strength can be produced and which will eliminate all cockle and hairy yarn regardless of variation in the length of staple.

These objects are secured by the employment of a novel top roll mechanism which includes a middle metallic covered top roll of relatively light weight but small diameter and arranged so that the metallic covering is insulated from the frame. This construction is preferably secured by providing a middle top roll with a core of wood or other relatively light material having insulating properties, which core is covered with metal.

The relatively small size of the middle top roll permits it to be set close to the front top roll so that the short fibres of the cotton will be held and controlled until twisted into the yarn. The light weight of the middle top roll permits it to perform its function in holding and controlling the short fibres while allowing the long fibres to slip through without danger of being broken.

One cause for hairy or cockle yarn is due to the fact that when in use the frame frequently becomes charged with static electricity and as the yarn passes between the metallic top rolls which are mounted on the frame the ends of the yarn will be attracted to the rolls and will thus tend to fly out from the body of the yarn which operation prevents them from being twisted into the yarn. I find that by using a middle top roll having an insulated metallic covering, this difficulty will be avoided and there will be no tendency for the fibre ends to fly out from the yarn but on the contrary they will lie parallel and will all be twisted into the yarn thus making a stronger and more even yarn.

In order to give an understanding of the invention I have illustrated in the drawings a selected embodiment thereof which will now be described after which the novel features will be pointed out in the appended claims.

Fig. 1 is a sectional view illustrating a drawing mechanism embodying my invention, the middle top roll in said figure being taken on a section line 1—1, Fig. 2;

Fig. 2 is a sectional view of the middle top roll removed.

In Fig. 1 wherein I have shown a part of a drawing mechanism embodying my invention 1 indicates the usual roller stand which may be of any desired construction and 2, 3, and 4 indicate the front, middle and rear bottom rolls while 5 and 6 indicate the front and rear top rolls. 7 indicates a front saddle which bears at its front end on the front top roll 5 and at its rear end on a rear saddle member 8 which bears on the rear top roll. Weight is applied to the saddle in usual manner through a stirrup 9 which is hung from the front saddle and is connected at its lower end to the weighted lever 10, the latter being fulcrumed at 11 and having applied to its free end a weight 12.

The parts thus far described are or may be all as usual in drawing mechanism for spinning or drawing machines and form no part of the present invention.

In accordance with my invention I employ a special middle top roll to co-operate with the middle bottom roll 3. This top roll is indicated at 13 and it is formed with a core 14 of wood, cork or some other light material having insulating properties and the portions thereof that engage the roving 16 are provided with a metal covering or shell 15 preferably of brass. This top roll is of relatively small diameter and can, therefore, be set close to the front roll 5.

The top roll 13 is shown as having a pin extending axially therethrough thereby to form trunnions 17 in its ends which operate in slots in the guides 18. This middle top roll 13 is not weighted and since it has very little weight of itself it only applies sufficient friction to the roving to hold the fibres in place. If desired, this top roll may be reduced in diameter at its central portion as shown at 19 so that it may be set nearer to the front top roll without interfering with the stirrup 9. With this construction it is possible to set the center top roll 13 so close to the front top roll that the shortest fibres will be held and controlled as the roving passes through the drawing mechanism. This will eliminate cockle yarn. The metallic covering 15 on the roll 13 is an added means for eliminating cockle or hairy yarn.

During the operation of the machine the

frame becomes more or less charged with static electricity and as a result in the operation of the ordinary spinning or roving frame the presence of this electric charge will cause the fibre ends of the yarn to fly out as during the travel of the yarn said ends approach the rolls, said ends apparently being attracted to the rolls. This leaves the fibre ends standing out from the yarn which produces a yarn having a hairy appearance. I find that by employing a middle top roll such as above described which has an insulated metallic covering that this tendency on the part of the yarn ends to fly out due to the static electricity will be eliminated and the fibres will all lie flat thereby producing a smooth yarn.

It is sometimes necessary to add more weight to the top roll and this is usually done by adjusting the fulcrum point of the stirrup on the lever 10. I have herein shown for this purpose an auxiliary weight 20 having a general bell shape with an opening 21 in the top. The interior of the auxiliary weight 20 is of a size to receive the weight 12, as shown in Fig. 1. If an added weight is desired for any top roll saddle the regular weight 12 may be unhooked from the hanger 22 and the auxiliary weight 20 slipped over the regular weight and then the regular weight may be replaced on the hanger 22. This makes a simple and inexpensive way of securing the added weight. This auxiliary weight is not herein claimed, but is made the subject of a divisional application.

I claim:

1. In a drawing mechanism, the combination with front, center and rear bottom rolls, and front and rear top rolls, of a non-weighted center top roll of small diameter

relative to the front and rear top rolls, said center top roll having a body of wood and having the portions which engage the roving provided with a metal covering, whereby said roll is relatively light in weight and has the capacity of eliminating static electricity with which the roving may become charged.

2. In a drawing mechanism, the combination with front, center and rear bottom rolls, and front and rear top rolls, of a non-weighted center top roll of small diameter relative to the front and rear top rolls, said center top roll having a body of material having insulating properties and having the portions which engage the roving provided with a metal covering which is insulated from the frame by the body, whereby said roll is relatively light in weight and has the capacity of eliminating static electricity with which the roving may become charged.

3. In a drawing mechanism, the combination with a frame carrying the usual front, center and rear bottom rolls and front and rear top rolls, of a center top roll of small diameter relative to the front top roll, the portions of the center top roll which engage the roving having a metal jacket insulated from the frame.

4. In a drawing mechanism, the combination with a frame carrying the usual front, center and rear bottom rolls and front and rear top rolls, of a non-weighted center top roll having the peripheral portions thereof which engage the roving covered with a metallic covering which is insulated from the frame.

In testimony whereof, I have signed my name to this specification.

ALBERT F. FYANS.