

E. J. VALES AND J. T. BISHOP.
PRESSURE MECHANISM FOR ROLL STANDS.
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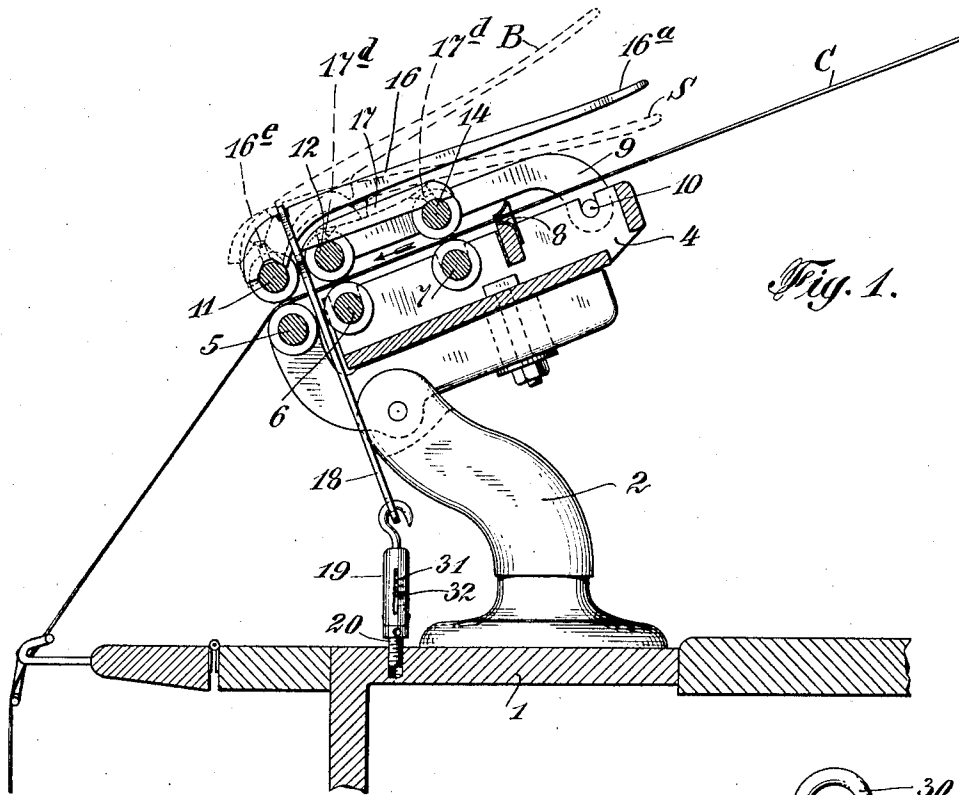


Fig. 1.

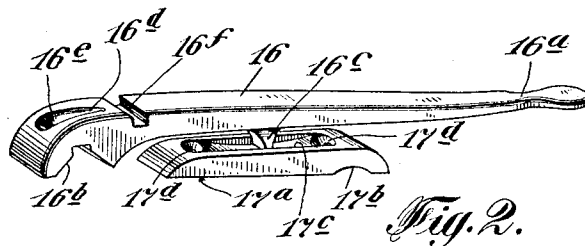


Fig. 2.

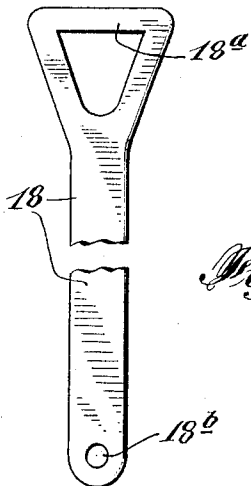


Fig. 3.

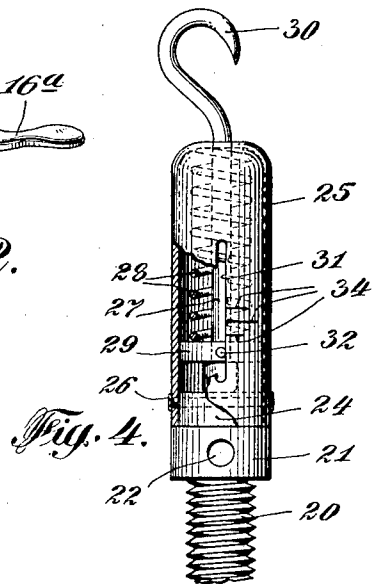


Fig. 4.

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PRESSURE MECHANISM FOR ROLL-STANDS.

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To all whom it may concern:

Be it known that we, EDWARD J. VALES and JAMES T. BISHOP, citizens of the United States, residing at Augusta, in the county of Richmond, State of Georgia, have invented certain new and useful Improvements in Pressure Mechanism for Roll-Stands, of which the following is a specification.

This invention relates broadly to spinning, and particularly to improvements in mechanism for inducing and controlling the feeding pressure of the feed rolls upon the roving in the operation of supplying it to the spindles.

An object of the invention is the provision of an improved means for inducing and regulating the pressure of the upper feed rolls in a roll stand, which means is positive and certain in operation, susceptible of application to a variety of forms of machines now in use, simple and compact in construction, easy to install and operate, and proof against casual misadjustment or unintentional disablement.

Another object is the provision of a pressure control device for roll stands which is easily adjustable so as to provide a desired variation in the pressure or weighting of the rolls, and to accommodate different adjustments of the roll stand.

A further object of the invention is to provide a device of the sort described which may be easily manipulated to permit inspection or adjustment of the rolls or roll stand without requiring disconnection or causing displacement of the pressure mechanism.

A further object of the invention is the provision of a device of the sort described which is effective to indicate the amount or relative degree of pressure effective upon the rolls.

Other and further objects of the invention will be obvious from the following specification, or indicated in the appended claims, or illustrated in the accompanying drawing, in which Figure 1 is a diagrammatic side elevation of a roll stand illustrating the application of our improved device;

Fig. 2 is a perspective view of the saddle or pressure applying elements comprising a portion of our improved device;

Fig. 3 is a fragmentary front elevation of the pressure transmitting link; and

Fig. 4 is an elevational view partly in section of the pressure sustaining and adjustment element.

It is to be understood that the structure illustrated in these drawings, and now about to be described, is disclosed herein as an illustrative form in which our invention may be embodied, and that the form, construction, and arrangement of parts herein illustrated may be departed from without departing from the spirit of our invention or sacrificing the advantages thereof.

As identified by the reference characters applied, it will be understood that 1 may be a portion of the roller beam of the frame, serving as a support for the stand or body member 2, which may be of conventional form, and which supports the adjustable slide 4. On the body member and slide are provided the proper bearings for supporting the bottom feed rolls 5, 6, and 7. The slide 4 may also carry the trumpet 8 and provide a place of attachment for the cap bars 9, which may be pivoted at 10 and arranged to maintain in proper position the top rolls 11, 12, and 14. All of the foregoing construction is well known in the art and may be comprised in any of a variety of conventional forms. By means well known in the art the structure may be adapted to permit the adjustment of the middle and back bottom rolls 6 and 7 relative to the front roll 5, and also to permit variation or adjustment of the inclination of the roll stand. As will be understood by one skilled in the art, the top rolls 11, 12 and 14 are adapted to cooperate with the bottom rolls 5, 6, and 7 to effect the progressive supply of the roving,—designated by the letter C,—in the direction indicated by the arrow. It will be understood also by one skilled in the art that it is desirable to apply pressure to the top rolls to regulate their cooperation with the bottom rolls in the feeding of the roving, and also that it is desirable to provide for selective variation in the inclination of the stand and the spacing of the rolls. The means constituting our invention is for the purpose of supplying such pressure while providing for such adjustments. It includes a primary pressure applying device 16 and a secondary pressure applying device 17. The latter is in the form of a bridge or bearing member adapted for engagement upon suitable journal portions of the top rolls 12 and 14. It

affords a lower bearing surface having the forward portion 17^a thereof adapted for engagement with the middle roll 12, and having the rear portion thereof 17^b slightly concave for engagement with the rear roll 14. On the upper side this member is provided with a longitudinal channel or guide-way 17^c, from which oil channels 17^d lead through the member. At its extremities the upper face of the member may be conveniently beveled or sloped off as illustrated. The primary pressure applying member 16 is in the form of a lever having one arm in the form of a manually engageable portion 16^a, and having the other arm terminating in a roll engaging portion 16^b. The member 16^a includes a fulcrum portion 16^c which is adapted for operative engagement within the channel 17^c of the member 17. The forward extremity of the roll engaging arm may be conveniently sloped or tapered off and in its upper face is provided with a short longitudinally extending channel 16^d terminating at an oil channel 16^e leading to the roll engaging member 16^b. The roll engaging arm is also provided with a link retaining portion which may be provided by a notch or groove 16^f. A pressure transmitting member is provided and may be in the form of a link 18 of suitable length, having at its upper extremity an aperture adapted to permit its passage onto the member 16 so that the portion 18^a may engage the link retaining portion 16^f. The lower extremity of the link 18 is provided with a connecting portion 18^b for attachment to the pressure sustaining member.

The pressure sustaining member is designated by the numeral 19 in Fig. 1, and is illustrated in detail in Fig. 4. It comprises a base adjusting screw 20 having a head portion 21 provided with one or more transverse channels 22 and a reduced portion 24. A spring casing 25 is fitted on the head and secured on the reduced portion 24 by suitable means 26. Slidable within the casing 25 is the spring pressed member 27 extending longitudinally through the expansion spring 28 and carrying near its lower extremity a spring follower washer 29. The upper extremity of the spring pressed member 27 extends through an aperture in the casing 25 and is shaped to form a connecting device 30 for attachment to the portion 18^b of the link 18. The casing 25 is provided with a lateral slot or aperture 31 in which an indicating member 32, mounted on the follower 29, is adapted to travel. Adjacent the slot 31 the casing 25 is provided with graduation marks 34 arranged for visible association with the indicating member 32.

The spring pressed member 27 is rotatable in the follower 29 so that the screw 20 and parts affixed for rotation therewith may be

rotatively adjusted about the spring pressed member.

The application of the pressure apparatus to the roll stand is obvious from Fig. 1. The pressure sustaining device 19 is screwed into a suitable support such as the roller beam 1, the link 18 connected to it, and looped upon the primary pressure applying member 16, and the latter together with the secondary pressure applying member 17 are then applied to the proper journals of the rolls. Proper adjustment of the pressure sustaining member is secured by screwing the member 20 into the support a suitable distance to place the spring 28 under a proper degree of compression. Such adjustment of the screw 20 is easily made by means of an ordinary nail or similar small instrument engageable in the apertures 22. The tension exerted by the spring 28 against the follower 29 is transmitted through the link 18 to the pressure applying member 16 and by it suitably distributed to the front roll and the pressure applying member 17, and from the latter to the middle and rear rolls. The degree of pressure effective upon the rolls may be determined by observation of the indicating means 32 and 34, the graduation marks being arranged to indicate the various amounts or relative degrees of pressure induced by the extent to which the spring 28 is compressed; for example, the middle mark may indicate compression of 15 pounds, the lower mark 4 pounds more, and the upper mark 4 pounds less.

Once applied, it is practically never necessary to remove this pressure apparatus, excepting when it is desired to dismantle the roll stand, as the device is so compact as to be entirely out of the way, and is so constructed as to accommodate all desired adjustments and ordinary manipulations of the rolls and roll stand. The provision of the oil holes 16^e and 17^b accommodates the necessary operation of oiling the journals, while the adjustability of the member 16^a within the seat 17^c accommodates any desired adjustment of the middle and back rolls relative to the front rolls. Moreover, the device permits inspection of the roll bearings, and even removal of the rolls without requiring dismantling of the mechanism. By manipulation of the manually operable portion 16^a the pressure applying member 16 may be rocked on its fulcrum to the position indicated by the dotted line at S to disengage the front roll 11, while the raising of the manually operable portion 16^a so as to rock the member 16 upon the portion 16^b to the position illustrated by the dotted line at B will be effective to disengage the member 17 and the middle and rear rolls. The spring 28 gives the necessary play to accommodate these movements of the member 16. Due to the adjustability of the screw 20 and to the

free connection of the members, the device is adapted to accommodate any desired adjustments in the inclination of the roll stand.

It will be observed that the device assembled in this fashion is particularly adapted to keep its proper position and adjustment and does not offer the possibility of disarrangement or misadjustment inherent in arrangements employing weights, levers, and other unstable connections. It is obvious, furthermore, that due to its being specially adapted to accommodate manipulation of the rolls and roll stand, it is not likely to become displaced or receive misadjustment by such operations. Furthermore, it will be observed that it is adapted for adjustment to any of a variety of machines now in commercial use without requiring alterations or special fittings of the machine parts.

We claim—

1. In a pressure mechanism for roll stands a pressure applying hand lever adapted to overlie the top rolls, a hand grip on said lever extended beyond said rolls and a fulcrum portion formed at the opposite extremity adapted to engage a roll, a second fulcrum portion spaced apart from said extremity and adapted to engage a pressure applying member effective upon rolls, spring means for maintaining said hand lever under tension against said rolls whereby said lever may be rocked on either fulcrum by manual pressure on said hand grip to permit the removal of the respective rolls.
2. In a pressure mechanism for roll stands the combination of a pressure applying hand lever effective upon rolls and normally supported at two fulcrum points, a pressure transmitting member effective upon said hand lever between its fulcrum points, a pressure sustaining member effective to maintain the pressure transmitting member

under yielding pressure and a grip portion on said hand lever whereby said lever may be rocked on either fulcrum point against the pressure of the pressure sustaining member.

3. In a pressure mechanism for roll stands the combination of a primary pressure applying member, comprising an extended hand lever and a secondary pressure applying member effective upon rolls, said primary pressure applying member having normally a fulcrum point on said secondary pressure applying member and on a roll, an indicating means for maintaining said primary member under predetermined pressure whereby said primary member may be rocked upon either fulcrum by manual pressure on said extended hand lever to permit the disengagement of the respective rolls and returned to its normal condition of pressure in accordance with said indicating means.

4. In a pressure mechanism for roll stands the combination of a primary pressure applying member comprising an extended hand lever and a secondary pressure applying member both effective upon rolls the primary member having a fulcrum portion arranged to engage the secondary member, and a separate fulcrum portion arranged to engage a roll, a pressure sustaining member effective upon the primary pressure applying member to transmit pressure to the secondary member, said secondary member including a longitudinal guide forming a restricted seat for the fulcrum of said primary pressure applying member, while said primary and secondary pressure applying members are under the influence of said pressure sustaining member.

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