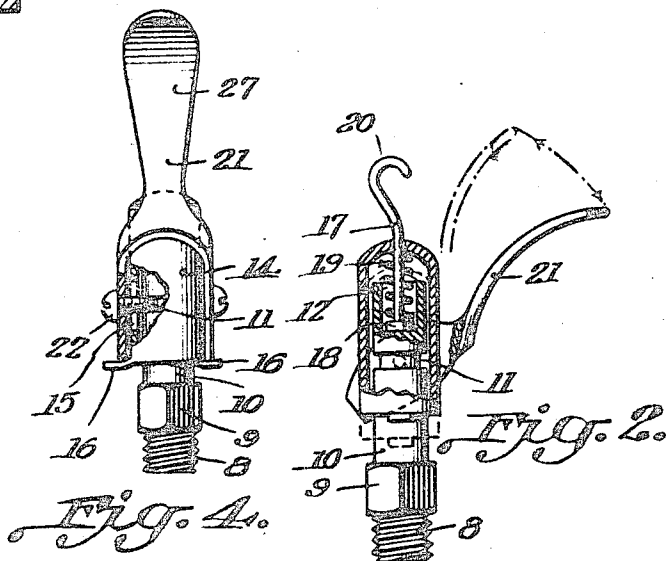
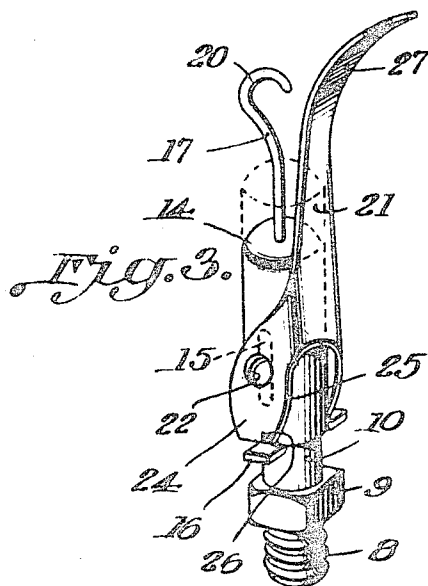
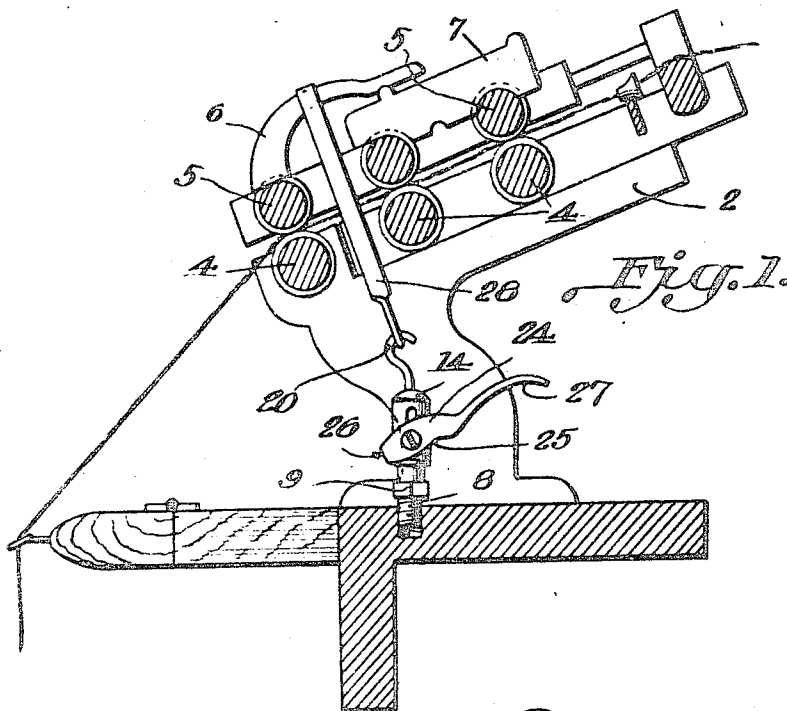


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 PRESSURE MECHANISM FOR ROLLER BED SADDLES.
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UNITED STATES PATENT OFFICE.

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PRESSURE MECHANISM FOR ROLLER-BED SADDLES.

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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 Roller-Bed Saddles, of which the following is a specification.

10 This invention relates broadly to spinning machines and analogous mechanisms, and more specifically to a simplified device adapted to replace saddle weights for the saddles of the upper feed rolls of the roll stand.

15 The principal object of the present invention is to provide a simple light weight mechanism adapted to replace saddle weights and whereby a substantially even pressure may be maintained upon the said saddles by a direct line connection with the roller stand bed and wherein any vibration due to side swing of parts is obviated.

20 A still further object of the present invention is to provide a mechanism adapted to replace saddle weights and which mechanism includes a minimum number of parts capable of free vibration and wherein the parts are located to obviate side vibrations due to side swing of the various elements.

25 A still further object of the present invention is a device adapted to replace saddle weights and wherein the adjustment elements thereof are mounted beneath the roller stand but in such position as to be safely and easily reached without endangering the operator during adjustments which may be made while this machine is running.

30 A still further and more specific object of the present invention is the provision of a cam controlled spring adapted to have a straight line pull upon a saddle link whereby a substantially uniform pressure may be maintained upon the upper rolls in a feed roll stand of a spinning frame or analogous machine.

35 A still further and more specific object of the present invention is the provision of mechanism for applying pressure to the saddle of a feed roll stand and wherein the

parts are arranged in a substantially straight line with an elastic member thereof compressed to substantially its limit of action when the parts are adjusted for operation.

55 A still further object of the present invention is the provision of mechanism for maintaining a uniform pressure upon upper feed rolls of a spinning frame, which mechanism includes a protected spring anchored at one end to the bed of the roll stand and at the other end to a link connected with the upper saddle and provided with adjusting mechanism whereby the tension upon said spring may be maintained during the operation of the machine, or released for suitable adjustment of the parts.

60 Other and further objects will in part be obvious and will in part be pointed out hereinafter by reference to the accompanying drawings wherein like parts are represented by like characters throughout the several figures thereof.

Referring now to the drawings which form a part of this specification,

75 Figure 1 is a more or less diagrammatic view showing a section through a roll frame and showing the device in position thereon.

Fig. 2 is a detail sectional view illustrating the construction of the device and showing how the coiled spring therein is under extreme compression when the cam lever is operated to maintain the parts in the relation intended while the machine is in operation.

85 Fig. 3 is a view showing the cam lever raised as when the device is positioned for operation of the machine.

Fig. 4 is a view showing a portion of the device broken away to illustrate the relationship between the parts thereof.

90 The most common structure in the prior art for applying pressure to the top saddles of a roll frame is a system of weighted levers whereby a heavy weight is supported on the end of a lever of the third class, with one end of this lever pivotally anchored to the machine frame and the intermediate portion of the lever connected with links constructed to apply pressure to the top 100

saddle of a pair of overlapping saddles whereby pressure is maintained upon the upper feed rolls. Because of the high speed usually maintained in the spinning arm structure of a spinning frame the entire frame in the machine is generally subjected to considerable vibration. This vibration causes more or less swinging of the weighted arm and consequently considerable variation in the thickness of threads being produced by the machine. Various types of spring constructions have been devised to obviate this difficulty, but heretofore so far as applicants are aware such constructions have either been of such length, or such proportions that vibration would be inherent in the spring member *per se* or else the springs had been arranged in angular relation to the frame of the machine whereby side vibrations would be set up in the construction.

In high speed machinery it is desirable to provide for necessary adjustments in such manner that the operator is not liable to injury while making the said adjustments and to this end adjustable saddles have been provided with the adjustment members above the feed rolls. Any auxiliary mechanism protruding above the feed rolls is positioned in more or less of an exposed portion of the machine and consequently to this extent is more or less objectionable. The adjustments in the present invention while being placed beneath the roller bed are so positioned as to be easily reached without danger of coming in contact with moving elements and the adjustments are of such character that few movements of the operator are required to complete the adjustments necessary.

More specifically the present invention comprises an anchor bolt adapted to replace the slotted screw now in common use with weighted lever constructions within the bed of the roller stand. This anchor bolt comprises a guide for a compressible spring which through a suitable hook is directly connected with a link extending between the forward feed rolls and over the top saddle. The anchor bolt is provided with a groove which forms the fulcrum for a cam lever that coöperates with the cap covering the compressible spring and the end of the anchor bolt. The cam lever is provided with a pair of pivotal screws or trunnions which extend through slots in the side walls of the cap and into the groove in the anchor bolt so that when the thumb piece is operated to stand substantially parallel to the axis of the bolt dwells on the end of the cam lever coöperate with wings on the end of the cap so that the compressible spring is compressed to substantially its limit of movement. This action causes the hook con-

nected with the spring to apply a uniform pull upon the link whereby pressure is transmitted to the top saddle. It is to be noted that all parts are operated in substantially a direct line and are of very small mass so that uniform pressure is applied by mechanism which substantially eliminates inherent vibration of the pressure maintaining parts.

Referring now to the drawings the machine frame or bed 1 carries a roller stand 2 which is provided with lower feed rolls 4 and upper feed rolls 5. A pair of suitable members 6 and 7 rest upon the upper feed rolls, as is common in the art.

An anchor bolt 8 is adapted to be screwed into the machine frame 1 and to replace the slotted screw or bolt usually used with weight constructions. This anchor bolt 8 is provided with a square portion 9 to enable the bolt to be easily turned by suitable wrenches, and is also provided with a cylindrical portion 10. The cylindrical portion 10 is formed with an annular groove 11 near the upper end of the cylindrical portion and a cup 12 is formed directly in the end of the cylindrical portion. A cover cap 14 is rotatably and slidably mounted upon the cylindrical portion 10 of the anchor bolt 8 and is provided with a pair of longitudinal slots 15 in the side walls and a pair of outwardly extending wings 16 substantially beneath the said slots. There is a small opening in the upper end of the cover cap and the spring carrying member 17 extends through this opening. The spring carrying member 17 is formed with a head 18 on one end which coöperates with the compressible spring 19 carried on the member 17 so that the spring may be compressed between the head 18 and the end wall of the cap 14. The outer end of the member 17 is provided with means to engage a suitable link, preferably a small hook 20. A lever 21 is adapted to substantially inclose one side of the cover cap and this cam lever carries a pair of pivot screws or trunnions 22 which are screw threaded in the wings 24 of the cam lever and extend through the slots 15 of the cover cap 14 and into annular groove 11 in the anchor bolt 8. The side portions of the wings 24 as at 25 are curved to comprise cam surfaces and the lower ends of the wing portions as at 26 are flattened to form dwells which coöperating with the outwardly extending wings 16 on the cover cap tend to maintain the cam lever in position against the cover cap. The upper end of the cam lever is formed into a thumb piece 27. A link 28 of strong light material extends downwardly between the forward feed rolls and connects the hook 20 with the upper saddle 6 so that when the cam lever 21 is in vertical position the dwells 26 coöper-

ating with the wings 16 force the cover cap 14 downwardly thereby compressing the spring 19 substantially to its limit hence applying a steady strong pull to the link 28 which transmits the pull as pressure to the saddles. It will be noted from inspection of this device that the parts are well protected from lint and other extraneous or foreign substances which usually collect upon textile machinery.

It is further to be noted that the connecting parts are relatively rotatable so that these parts automatically adjust themselves to any stress or strain that might be caused due to torsion. The threaded portion of the anchor bolt 8 is of sufficient length to permit of adjustment by screwing or unscrewing the bolt into or out of the machine frame bed.

Realizing that our invention may be embodied in constructions other than the specific disclosure herewith we desire it to be understood that this specific structure herein disclosed is illustrative and not intended to be considered in a limiting sense.

Having thus described our invention what we claim is:

1. In a device of the character described, in combination, a roll stand, a set of lower feed rolls mounted upon said roll stand, an upper set of feed rolls mounted over said lower feed rolls, a pair of saddles upon said upper feed rolls, a link connected with one of said saddles, a bed plate carrying said roll stand, an anchor bolt secured within said bed plate, a member mounted upon said anchor bolt and adapted to have reciprocatory and rotary movement relative thereto, a lever having its fulcrum upon said anchor bolt, and a cam face upon said lever adapted to cooperate with said member, a compression spring, a spring carrier, a connection between said spring carrier and said link, and means on said spring carrier to cause said spring to be compressed between said means and said member when the said lever operates to move said member toward the bed plate.

2. In a device of the character described, in combination, a roll stand bed, a roll stand mounted upon said bed, feed rolls in said roll stand, saddles bearing on certain of said feed rolls, a link connected with certain of said saddles and extending between said feed rolls toward said roll stand bed, an anchor bolt mounted in said roll stand bed, a cap rotatably mounted upon and being guided by said anchor bolt, a spring operatively connected with said link and completely covered by said cap, and means for adjusting the tension of the said spring to regulate the pressure upon said saddles.

3. In a device of the character described, in combination, a bed plate constructed to

carry a roll stand, a roll stand mounted upon said bed plate, lower feed rolls mounted in said roll stand, removable upper feed rolls mounted over said lower feed rolls, a saddle resting upon said upper feed rolls, an anchor bolt in said bed plate and beneath said roll stand, a link extending from said saddles toward said anchor bolt, a slidable collar rotatably mounted upon said anchor bolt, resilient means beneath said collar and operatively connected with said link, and devices for adjusting the effective operation of said resilient means to regulate the pressure upon said saddles.

4. In a device of the character described, in combination, a roll stand bed, a roll stand mounted upon said bed, lower feed rolls carried by said roll stand, upper feed rolls carried by said roll stand, saddles bearing on said upper feed rolls, an anchor bolt mounted in said roll stand bed, a link operatively connected with said saddles and extending toward said anchor bolt, a cap rotatably and slidably mounted upon said anchor bolt, said anchor bolt being provided on its upper portion with an annular groove, said cap being provided on the side portions with a pair of longitudinal slots, a lever having wings extending over said slots, a pair of pivoted screws carried by said wings and extending through said slots and into said annular groove, a compression spring mounted in the upper portion of said cap, means operatively connecting said spring and said link, projections upon said cap, and cam portions having dwells formed upon the wing members of the said lever, whereby said cam portions and said dwells may cooperate with the projections on said cap to cause said cap to compress said spring.

5. As an article of manufacture, a substitute for the weight system of a roll stand, said article comprising an anchor bolt having a screw threaded portion and a cylindrical portion, a cap slidably mounted upon said cylindrical portion, a spring under said cap and completely covered by said cap, a member extending through said cap and operatively connected with said spring, and means whereby said cap may be moved relatively to said anchor bolt to compress said spring.

6. As an article of manufacture comprising a substitute for the weight system of a roll stand, said article comprising an anchor bolt having a screw threaded portion and a cylindrical portion, said cylindrical portion being provided with an annular groove, a cover cap rotatably and slidably mounted upon said cylindrical portion, said cover cap having longitudinal slots in the side walls thereof, a thumb lever having wings extending over said slots, a pair of pivoted screws

carried by said wings and extending through said slots and into the annular groove in the anchor bolt, said thumb lever being provided with cams, projections on said cap and adapted to cooperate with said cams, whereby a movement of said lever may cause said cap to move relatively to said anchor bolt, a spring beneath said cap, and means extending through said cap and cooperating with said spring, whereby said spring may be compressed when said cap and anchor bolt are moved to cause these members to telescope.

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