Aug. 21, 1956 G. W. TEW 2,759,358

ROLL WEIGHT MEASURING DEVICE

Filed April 6, 1953 2 Sheets-Sheet 1

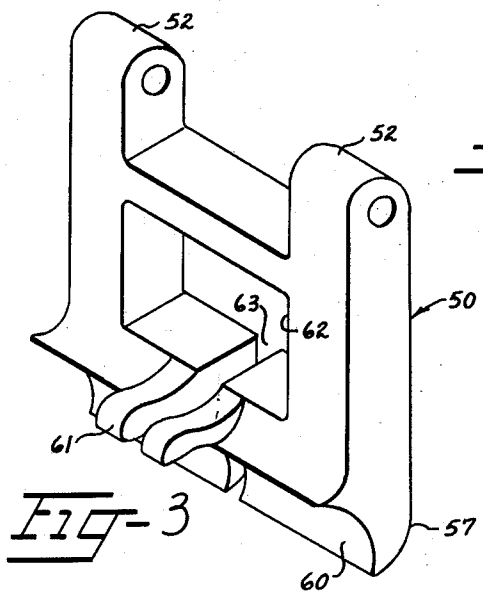


Fig-3

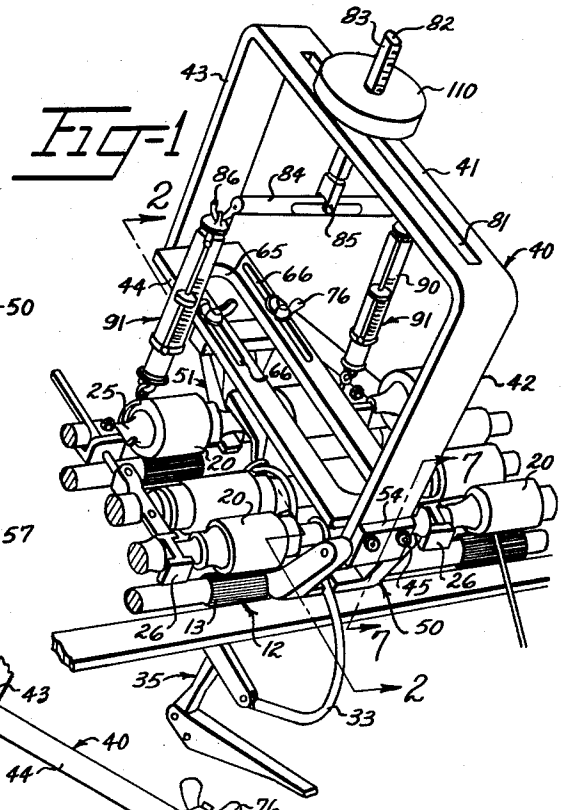


Fig-1

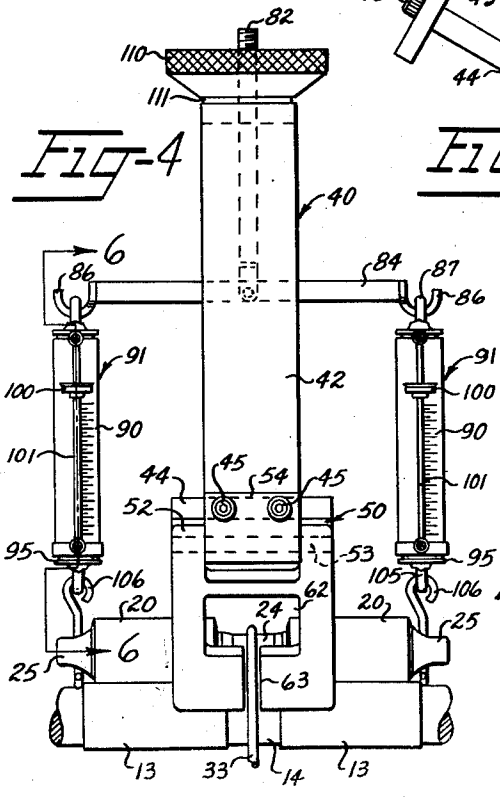


Fig-4

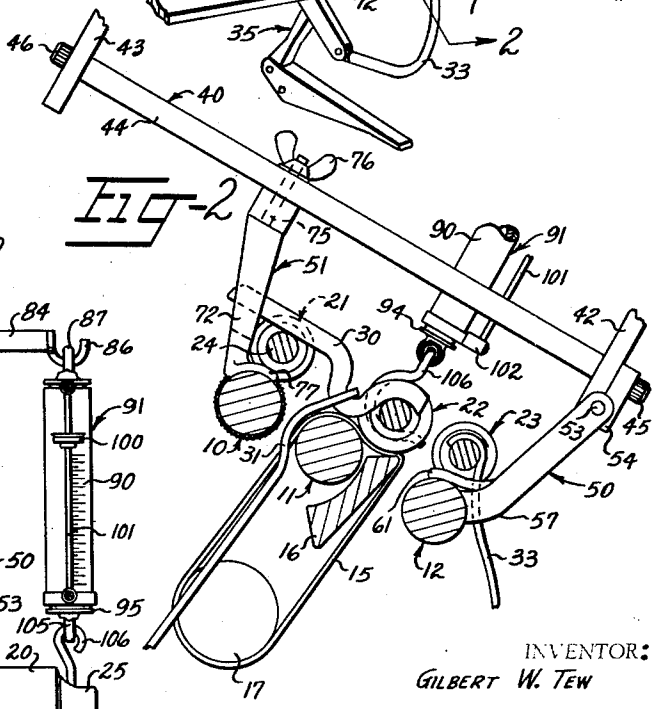


Fig-2

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Aug. 21, 1956 G. W. TEW 2,759,358

ROLL WEIGHT MEASURING DEVICE

Filed April 6, 1953 2 Sheets-Sheet 2

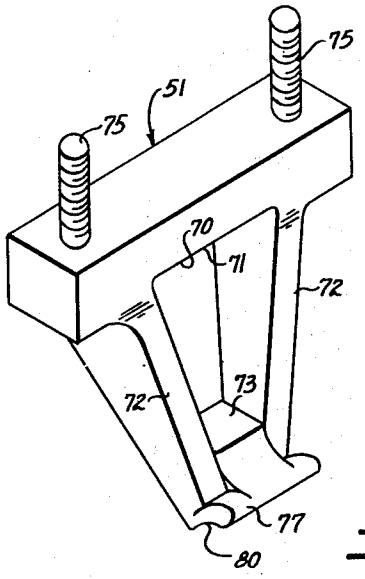


Fig-5

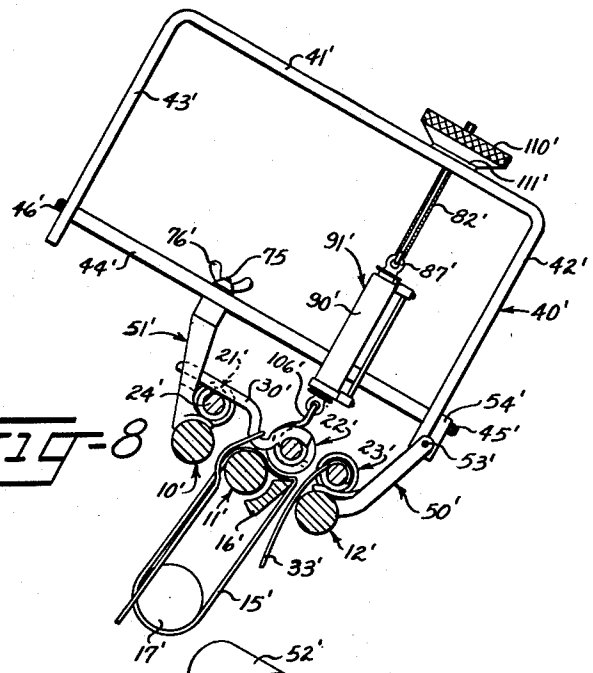


Fig-8

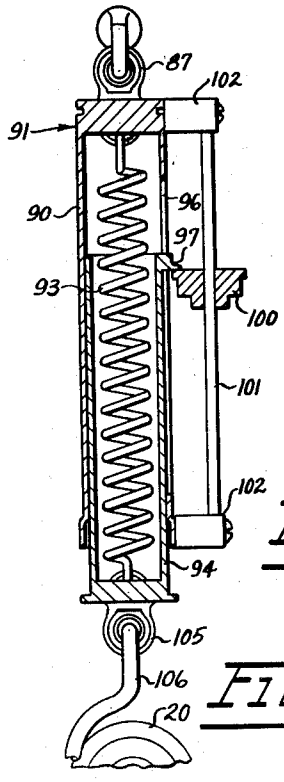


Fig-6

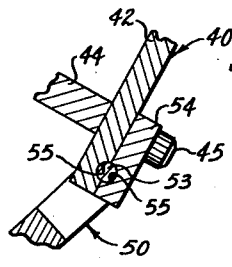


Fig-7

Fig-9

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2,759,358

ROLL WEIGHT MEASURING DEVICE

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13 Claims. (Cl. 73—141)

This invention generally relates to the art of drafting textile strands and more especially to an improved device for accurately determining the extent to which the top rolls of drafting mechanisms, such as are associated with spinning machines, roving frames, drawing frames or the like, are weighted.

It is the primary object of this invention to provide an improved roll weight measuring device of light, durable construction, which may be economically manufactured and may be readily installed without the necessity of removing any rolls or adjacent parts of the spinning frame, roving frame or the like other than the usual top roll clearer mechanisms and, also, which may be transferred from one roll section to another or from one machine to another without the necessity of removing and/or replacing any fastenings, such as screws and the like.

More specifically, it is an object of this invention to provide a device of the character described comprising a substantially rectangular frame having front and rear feet thereon which are adapted to seat against the respective front and back bottom rolls of a spinning machine or the like. The upper portion of the rectangular frame adjustably supports a lateral arm, to opposite ends of which the upper ends of a pair of spring scale devices are connected, the lower end of each of the spring scale devices being provided with hooks thereon adapted to fit beneath the journal ends of a corresponding top roll. Thus, the extent to which the top roll is weighted may be determined by adjusting the lateral arm upwardly, away from the corresponding top roll, until the top roll starts to move away from the bottom roll, whereupon the amount of pressure required to raise the top roll relative to the bottom roll will be indicated collectively on the spring scales.

It is another object of this invention to provide a device of the character described wherein the front foot thereof is pivotally connected to the frame to permit proper seating of the same on the bottom roll and the rear or back foot is mounted for longitudinal adjustment on the lower portion of the rectangular frame in order to accommodate variously spaced bottom rolls.

It is still another object of this invention to provide a roll weight measuring device of the character described wherein the lateral bar may be adjusted longitudinally of the rectangular frame in order that the spring scales may be positioned radially of any of the top rolls disposed beneath the rectangular frame, as desired.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which

Figure 1 is a perspective view of the improved roll weight measuring device in association with the rolls of a roving frame or the like;

Figure 2 is an enlarged fragmentary elevation, with parts in section, looking at the left-hand side of Figure 1, but with the upper portion thereof broken away

and, particularly, illustrating a first form of front foot member in association therewith;

Figure 3 is an enlarged isometric view looking at the left-hand side or rear end of the first form of the front foot member shown in Figure 2;

Figure 4 is an enlarged front elevation of the roll weight measuring device shown in Figure 1, showing a top roll and a portion of a bottom roll in association therewith;

Figure 5 is an enlarged isometric view of the rear foot member removed from the improved roll weight measuring device;

Figure 6 is an enlarged vertical sectional view through one of the spring scales taken substantially along the line 6—6 in Figure 4;

Figure 7 is an enlarged fragmentary vertical sectional view taken substantially along the line 7—7 in Figure 1;

Figure 8 is a view similar to Figure 2, but on a reduced scale, and also showing the upper portion of the improved device and a second form of front foot mounted thereon;

Figure 9 is an enlarged isometric view looking at the left-hand side or rear end of the second form of front foot shown in Figure 8.

Referring more specifically to the drawings, the improved roll weight measuring device is shown in association with the drafting rolls of a roving frame or the like in Figures 1, 2 and 4. The roving frame includes rear or back, intermediate and front driven bottom rolls 10, 11 and 12 which are conventionally driven at progressively increasing speeds and each of which usually has a plurality of longitudinally spaced fluted bosses 13 defining reduced portions 14 therebetween. Many spinning and roving frames are provided with an endless apron 15 which passes over and is driven by each of the bosses 13 of the intermediate rolls 11 and which is also supported by a conventional nose bar 16 and passes beneath a conventional tension pulley 17 shown schematically in Figure 2.

Bosses or cots 20 of rear, intermediate and front top rolls 21, 22 and 23 bear against corresponding bosses 13 of the bottom roll 10, the aprons 15 and corresponding bosses 13 of the front bottom roll 12, respectively. In this instance, each of the top rolls 21, 22 and 23 has two of the bosses or cots 20 thereon which define reduced intermediate portions or roller necks 24 on each of the top rolls and reduced journal end portions 25 on each of the top rolls 21, 22 and 23. The reduced journal end portions 25 of the top rolls 21, 22 and 23 are rotatably supported in the usual cap bars 26 which overlie certain of the reduced portions 14 of the bottom rolls 10, 11 and 12 disposed between adjacent sections of top rolls.

The roving frame is provided with conventional means for applying downward pressure to the top rolls 21, 22 and 23 to cause the same to engage the bottom roll 10, the aprons 15 and the bottom roll 12 with enough pressure to hold the fibers of the strands being processed firmly at the bites or nips of the rolls. Of course, many spinning frames, roving frames and the like are not provided with aprons, such as the apron 15 in Figure 2, in which instance, the bosses 20 on intermediaite top roll 22 bear against the bosses 13 of the intermediate bottom roll 11.

Pressure is applied to the rear and intermediate top rolls 21 and 22 by means of a saddle 30 which engages the upper surfaces of the roller necks or intermediate reduced portions 24 of the top rolls 21 and 22 and has the upper end of a stirrup 31 pivotally connected to the medial portion thereof between the top rolls 21 and 22. The middle and back roll stirrup 21 extends downwardly

between adjacent aprons 15, only one of which is shown, and is connected to a suitable weight means, not shown.

In Figures 1, 2 and 4, the means for applying downward pressure to the front roll 23 comprises a hook-shaped front roll stirrup 33 which is hooked over the roller neck or medial portion 24 of the front roll 23 and passes downwardly and curves outwardly forwardly of the front bottom roll 12. It will be observed in Figure 1 that the front roll stirrup 33 then curves inwardly and is connected to a suitable adjustable weight means or pressure means generally designated at 35. It might be stated that the front roll stirrup shown in Figures 1, 2 and 4 is of a type usually employed in association with roving frames and the front roll stirrup in Figure 8 is of the type usually employed in association with spinning machines.

The parts heretofore described are conventional and the improved roll weight measuring device is particularly applicable for use with drafting mechanisms of this type for determining the extent of the weight or downward pressure applied to each of the top rolls.

The improved roll weight measuring device comprises a substantially rectangular frame broadly designated at 40 and including an inverted substantially U-shaped bridge member having an upper longitudinal frame member 41 and front and rear substantially vertical frame members 42 and 43, respectively. The rectangular frame also has a lower frame member 44. The terms "upper," "lower," "front" and "rear" as applied to the upper and lower frame members 41 and 44 and the front and rear frame members 42 and 43 of the substantially rectangular frame member 40 are merely used as relative terms and are not to be construed as limitations because, as a matter of fact, when the roll weight measuring device is in use, all of the frame members 41, 42, 43 and 44 are normally disposed at an angle corresponding to the attitude of the top and bottom rolls.

In this instance, the front and rear vertical frame members 42 and 43 are formed integral with the upper frame member 41, and the lower frame member 44, which is preferably, but not necessarily, of greater width than the vertical frame members 42 and 43, is suitably removably secured between the proximal lower portions of the substantially vertical frame members 42 and 43, as by respective screws 45 and 46.

An important feature of the present invention is the manner in which the rectangular frame 40 is supported while in use and, to this end, front and rear foot members 50 and 51, respectively, are provided. The upper end of the front foot member 50 is pivotally connected to the lower end of the front frame member 42 and the rear foot member 51 is secured for longitudinal adjustment on the lower longitudinal frame member 44.

In this instance, the upper end of the front foot member 50 is provided with bifurcations 52 which straddle the lower end of the frame member 42, below the lower frame member 44, and are pivotally mounted on opposite ends of a pivot shaft 53 carried by the frame member 42. To facilitate ease in mounting the front foot member 50 on the lower end of the frame member 42, a clamping block 54 is secured to the front lower portion of the frame member 42 and the proximal surfaces of the clamp member or block 54 and the frame member 42 are each provided with a substantially semi-circular cavity 55 (Figure 7) in which the medial portion of the pivot shaft 53 is clamped. The pivoted mounting of the front foot member 50 greatly facilitates positioning of the weight measuring device on the bottom rolls and obviates the necessity of removing the top rolls or associated parts.

In order that the front foot member 50 may more readily clear the front top roll 23, the lower portion thereof is turned inwardly or rearwardly, as at 57, to result in the rear face of member 50 having, along a portion of its length, an arcuate configuration substantially corresponding to the curvature of roll 33. The free lower end of member 50 is provided with a concave lower surface 60 having a curvature substantially conforming to the fluted bosses 13 of the front bottom roll 12. Since the front foot member 50 may be of substantially greater width than the distance between adjacent bosses 20 of the front top roll 23, the lower portion of the front foot member 50 has a relatively narrow rearwardly or inwardly extending projection 61 integral therewith which extends beneath the intermediate reduced portion or roller neck 24 of the front bottom roll 23 and the lower surface thereof is curved substantially coincident with the curved lower surface 60 and rests upon the corresponding reduced medial portion 14 of the front bottom roll 12.

In order to minimize the weight of the front foot member 50, it is preferably provided with an opening 62 intermediate the upper and lower ends thereof and the lower portion of the front foot member 50 including the projection 61, has a substantially vertically extending slot 63 therethrough communicating with the opening 62 for reception of the stirrup 33 of the type shown in Figures 1, 2 and 3.

Also, in order to minimize the weight of the frame 40, the central portion of the bottom longitudinal frame member 44 is preferably provided with a longitudinally extending slot or opening 65 therein and the longitudinal frame member 44 is also provided with a pair of longitudinally extending adjustment slots 66 which are disposed astride the opening 65. The slots 66 are provided for adjustably securing the rear or back foot member 51 to the lower surface of the longitudinally extending member 44.

Referring to Figure 5, it will be observed that the rear or back foot member 51 is in the form of a block having an opening 70 therein defining an upper portion or bar 71, downwardly converging side walls or portions 72 and a lower wall or portion 73. The upper bar portion 71 thereof extends outwardly beyond the upper ends of the side wall portions 72 to form ears thereon in which studs 75 are fixed. The studs 75 penetrate the corresponding slots 66 in the frame member 44 and each has a wing nut 76 threadably mounted thereon for adjustably securing the rear foot member 51 to the lower frame member 44.

It will be noted that the side wall portions 72 of the rear foot member 51 also extend inwardly or forwardly at an angle relative to the upper surface of the bar portion 71 in order that these side wall portions 72 may clear the roller neck or intermediate reduced portion 24 of the back top roll 21.

The lower end of the rear or back foot member 51 has a forwardly or inwardly projecting portion 77 thereon provided with a concave lower surface 80 having a curvature substantially the same as that of the corresponding reduced portion 14 of the back bottom roll 10. The opening 70 is provided in the rear foot member 51 for reception of the rear end of the saddle 30. The lower end of the rear foot member 51 is of substantially less width than the length of the reduced portion 14 of the corresponding back bottom roll 10. It is thus seen that the lower ends of the front and rear foot members 50 and 51 may seat upon the respective front and back bottom rolls 12 and 10 and will amply clear the corresponding portions of the respective top rolls 23 and 21.

The upper longitudinal frame member 41 of the frame 40 also has a longitudinally extending adjustment slot 81 therein which is slidably penetrated by the upper portion of a threaded shaft 82. It will be observed in Figure 1 that opposite sides of the threaded shaft 82 are provided with flats 83 to prevent rotational movement of the threaded shaft 82 relative to the upper frame member 41, but allowing substantially vertical and horizontal movement of the threaded shaft 82 in the slot 81.

The lower end of the threaded shaft 82 is bifurcated and has the medial portion of a lateral spring scale supporting bar 84 oscillatably mounted therein, as at 85. Opposite ends of the lateral spring scale supporting bar 84 each has a hook portion 86 thereon which is dis-

posed beyond the vertical plane of the corresponding side edge of the lower longitudinal frame member **44** and each of which fits in an eye portion **87** of a cylinder or housing **90** of a spring scale broadly designated at **91** (Figure 6). There are various types of spring scales which may serve the purpose of the spring scales **91** and they may be of a type manufactured by John Chatillon & Son, 85 Cliff St., New York 38, N. Y., under their catalog number 0011 and which has a capacity of thirty pounds and the casing or cylinder of which is provided with eight ounce graduations.

In this instance, each of the spring scales **91** also includes a tension spring **93** which is disposed within the cylinder or casing **90** and whose upper end is suitably connected to the upper wall of the cylinder **90** and whose lower end is suitably connected to the lower wall of a hollow piston **94** mounted for longitudinal sliding movement in the cylinder **90** and projecting outwardly from the open lower end thereof.

The cylinder **90** has a longitudinally extending slot **96** therein through which a weight indicating pointer **97** carried by the hollow piston **94** loosely extends, the outer surface of the cylinder **90** being suitably graduated adjacent the slot **96**, as shown in Figure 1, for indicating the amount of weight applied to the lower end of the piston **94**. Also, the spring scale **91** preferably has a maximum reading indicator **100** which is mounted for axial sliding movement on a rod **101** fixed at opposite ends thereof in projections **102** extending radially from the upper and lower ends of the casing or cylinder **90**.

Thus, upon the distal ends of the cylinder **90** and the hollow piston **94** being placed under tension, the spring **93** will be distended and the pointer **97** will move downwardly in the slot **96** against the maximum reading indicator **100**, causing the latter indicator **100** to move with the pointer **97**. Upon the tension on the distal ends of the cylinder **90** and the piston **94** being relaxed, the pointer **97** will then move away from the maximum reading indicator **100** and the amount of tension previously exerted on the distal ends of cylinder **90** and piston **94** may readily be determined by the position of the maximum reading indicator **100** relative to the graduations on the casing or cylinder **90**.

The closed lower end of each piston **94** also has an eye **105** thereon to which one end of a hook member **106** is pivotally connected. The hook members **106** are sufficiently large so they may readily be positioned beneath the journal ends **25** of any of the rolls **21**, **22** and **23**, as shown in Figures 1, 2 and 4.

The upper portion of the threaded shaft **82** has a relatively large nut **110** threadably mounted thereon which slidably and rotatably engages a washer **111** on shaft **82**. The washer **111** slidably engages the upper longitudinal frame member **41** of the rectangular frame **40**. It is thus seen that the roll weight measuring device may be readily supported on the front and rear bottom rolls **12** and **10**, respectively, and the nut **110** may be rotated to permit the hook members **106** on the lower ends of the spring scales **91** to be readily inserted beneath the journal ends **25** of any one of the top rolls **21**, **22** or **23**. In Figure 1, the hook members **106** are shown in engagement with the journal ends **25** of the back top roll **21** while, in Figure 2, it is evident that the threaded shaft **82** has been adjusted forwardly along the slot **81** so the hook members **106** are in engagement with the journal ends **25** of the intermediate top roll **22**. Of course, the threaded shaft **82** may be adjusted further forwardly in the event that the operator wishes to determine the extent to which the front top roll **23** is weighted.

In operation, it is desirable that a strip of tissue paper or the like be inserted between the particular top roll whose weight is to be determined and the corresponding bottom roll before the weight for the corresponding top roll is measured, although the use of such a strip is not absolutely necessary.

All that is then necessary in order to determine the extent to which a top roll is weighted is to tighten the nut **110** on the threaded shaft **82**, causing the lateral bar **84** and the cylinders **90** of the spring scale **91** to move upwardly or away from the corresponding top roll and at the same time the operator exerts a slight pull on the strip of paper or the like previously positioned between the corresponding top and bottom rolls. It is evident that, when the tissue paper or the like becomes free of the nip of the top and bottom rolls, the top roll will have been raised out of engagement with the corresponding bottom roll, whereupon the amount of weight applied to the top roll may be determined by the positions of the indicating pointers on the spring scales **91**. Since each of the scales will be supporting substantially half of the weight applied to the top roll, it is evident that the weight indicated on each scale **91** should be added to the other to determine the total extent to which the top roll is weighted.

In Figure 8, a modified form or second form of roll weight measuring device is shown wherein only the front foot thereof differs from the front foot member **50** shown in Figures 1, 2, 3 and 4, all of the remaining parts in Figure 8 being identical to those shown in Figures 1, 2 and 4 and bearing the same reference characters with the prime notations added.

The second form of front foot member indicated at **50'** differs from the first form of front foot member **50** in that the front foot member **50'** is devoid of a slot, such as slot **63**, shown in Figure 3. The front foot member **50'** is adapted to be used with a different form of front stirrup for applying downward pressure to the front roll **23'** than that shown in Figures 2 and 4. In this instance, the front stirrup, indicated at **33'** is also hooked over the medial reduced portion **24'** of the top roll **23'** in Figure 8, but extends rearwardly and downwardly between the apron **15'** and the rear surface of the front bottom roll **12'** in Figure 8, thus obviating the necessity of providing a slot in the foot member **50'** for reception of the stirrup **33'**.

It is well known to those familiar with the art that some types of spinning frames, roving frames or the like are provided with composite saddles so that a front saddle operates in conjunction with the rear saddle for applying downward pressure to the front top roll and, in the event of this front saddle extending forwardly beyond the front top roll, it will not interfere with the proper positioning of either of the front foot members **50** or **50'** on the front bottom roll **12**, since the front end of this front roll saddle may merely extend into the opening **62** or **62'**.

It is thus seen that I have provided an improved roll weight measuring device which, due to the fact that two spring scales are used instead of one, may have sufficient capacity to accommodate the weighting of top drafting rolls of various drafting machines. The device is constructed from a minimum of parts, is of a relative light weight, can be readily adapted to spinning frames, roving frames and the like, and can also be readily transferred from one machine to another without removing any part of the machine other than the usual clearing devices positioned above the top rolls and which, even then, may be quickly placed in operating position.

In the drawings and specification, there has been set forth a preferred embodiment of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being defined in the claims.

I claim:

1. A portable device for determining the amount of force urging the top rolls of a drafting mechanism toward the bottom rolls thereof, said device comprising a

frame, foot members carried by said frame and adapted to rest on the bottom rolls, tension indicating means supported by said frame, said indicating means having means thereon adapted to be connected to one of said top rolls, means to tension the connection between said indicating means and said one top roll.

2. A portable device for determining the amount of force urging the top rolls of a drafting mechanism toward the bottom rolls thereof, said device comprising a frame, foot members carried by said frame and adapted to rest on the bottom rolls, tension indicating means carried by said frame, means for positioning said tension indicating means substantially radially of a selected top roll, and means carried by said frame and adapted to be operatively connected to said selected top roll through said tension indicating means to relieve the pressure of said selected top roll on the corresponding bottom roll.

3. Apparatus for determining the extent to which top rolls of a series of top and bottom drafting rolls are weighted comprising a frame, a pair of foot members carried by the lower portion of said frame and adapted to rest upon the foremost and rearmost of the bottom rolls of said series, a pair of extensible weight indicating scales, means for connecting the scales to opposite ends of a selected top roll, and means acting through said scales to urge separation of the last named roll from the corresponding bottom roll.

4. A device for measuring the amount of downward pressure exerted upon a series of top rolls positioned above a series of bottom rolls in a drafting mechanism comprising a frame having an upper portion and a lower portion, foot members secured to the lower portion of said frame and adapted to seat upon the bottom rolls, a pair of scales, support means for pivotally suspending said scales from the upper portion of said frame, and hook means on said scales adapted to fit about the opposite ends of a top roll, said support means having integrally associated therewith means adapted to act through said scales and said hook means to separate said last named roll from the corresponding bottom roll.

5. Apparatus for determining the extent to which top rolls of a series of top and bottom drafting rolls are weighted comprising a frame, a pair of foot members carried by the lower portion of said frame, a lateral bar, means carried by the frame for forcefully varying the distance between the lateral bar and a selected top roll, a pair of spring scale weight indicating members connected to opposite ends of said lateral bar, and means for connecting the lower ends of the spring scale weight indicating members to opposite ends of a selected top roll, whereby said foot members may rest upon the foremost and rearmost of the bottom rolls of said series and the lateral bar may be adjusted away from said rolls to determine the extent to which a corresponding roll is weighted.

6. A device for determining the extent to which top rolls of a series of top and bottom rolls of a drafting mechanism are weighted comprising a substantially rectangular frame, a front foot member pivotally connected to the front of said frame and adapted to bear against the bottom front roll of said series, a rear foot member carried by said frame and adapted to bear against the back bottom roll of said series, a lateral bar, means pivotally supporting the bar in the upper portion of said frame, means for forcefully varying the distance between said lateral bar and a selected top roll, a spring scale suspended from each end of said lateral bar, and a hook member on the lower end of each of said spring scales adapted to fit about opposite ends of said selected top roll, whereby, upon adjustment of the lateral bar away from said roll, the extent to which the corresponding top roll is weighted may be determined.

7. A weight measuring device for drafting mechanisms of the type having front, intermediate and back top and bottom rolls and wherein downward pressure is applied

to the top rolls; said weight measuring device comprising a frame, a front foot member pivotally connected to the lower portion of said frame and being adapted to rest upon the front bottom roll, a back foot member adjustably secured to the lower portion of said frame, said back foot member being adapted to rest upon the back bottom roll, a threaded shaft mounted in the upper portion of said frame, means for positioning said shaft with its longitudinal axis approximately intersecting the axis of rotation of a selected one of said rolls and with its longitudinal axis extending substantially normal to a plane common to the bite of each of the pairs of top and bottom rollers, a lateral bar pivotally connected to the lower end of said threaded shaft, a weight measuring scale pivotally connected to each end of said lateral bar, and means for removably connecting the lower ends of said weight measuring scales to spaced portions of said selected top roll, and means for moving said threaded shaft away from said last-named roll until the roll moves out of engagement with the corresponding bottom roll whereupon the weight measuring scales will collectively indicate the extent to which the last-named roll is weighted.

8. A structure according to claim 7 wherein the lower portions of the front and back foot members are adapted to be positioned with their lower portions converging inwardly toward one another to thereby clear the respective front and back top rolls and the lower ends of the foot members are each provided with a curved lower surface adapted to fit against the periphery of the corresponding bottom rolls.

9. A device according to claim 7 for use with a drafting mechanism having a stirrup extending downwardly and forwardly over the front top rolls, wherein the lower portion of the front foot member is provided with a slot therethrough for reception of said stirrup when the front foot member is positioned upon the front bottom roll.

10. A measuring device for drafting mechanisms of the type having front, intermediate and back top and bottom rolls and wherein downward pressure is applied to the top rolls; said measuring device comprising a substantially rectangular frame having upper and lower frame members and opposite end frame members, a front foot member pivotally connected to the lower end of one of the opposite end frame members and being adapted to rest upon the front bottom roll, a back foot member adjustably secured to the lower frame member, said back foot member being adapted to rest upon the back bottom roll, a threaded shaft mounted in said upper frame member, a lateral bar pivotally connected to one end of said threaded shaft, a weight measuring scale pivotally connected to each end of said lateral bar, and hook means for removably connecting the lower ends of said weight measuring scales to opposite ends of a corresponding top roll, and means for moving said threaded shaft away from said last named roll until the roll moves out of engagement with the corresponding bottom roll whereupon weight measuring scales will collectively indicate the extent to which the last-named roll is weighted.

11. A structure according to claim 10 wherein the upper frame member of said rectangular frame is provided with a longitudinally extending adjustment slot, said threaded shaft being provided with flats on opposite sides thereof adapted to slidably penetrate the slot in the upper frame member to prevent rotational movement of said shaft and whereby the shaft may be adjusted longitudinally of said frame for positioning the lateral bar and weight measuring scales in substantially radial alignment with any desired top roll.

12. A weight measuring device for determining the extent to which the top rolls of a series of top and bottom drafting rolls are weighted comprising a frame, front and rear foot members carried by said frame, each of the foot members being provided with an inwardly projecting portion on the lower end thereof, the inwardly

projecting portions on the lower end of said foot members each being provided with a concave lower surface adapted to fit against the corresponding bottom roll, a lateral bar mounted in said frame, a pair of weight measuring scales connected one to each end of said lateral bar and depending therefrom, means for removably connecting the lower ends of the scales to spaced portions of a corresponding top roll, and means for forcefully varying the distance between said lateral bar and said last-named roll to thereby tension the connection between said scales and said last-named roll.

13. A structure according to claim 12 wherein the lower portion of the front foot member is bifurcated.

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