

Feb. 6, 1940.

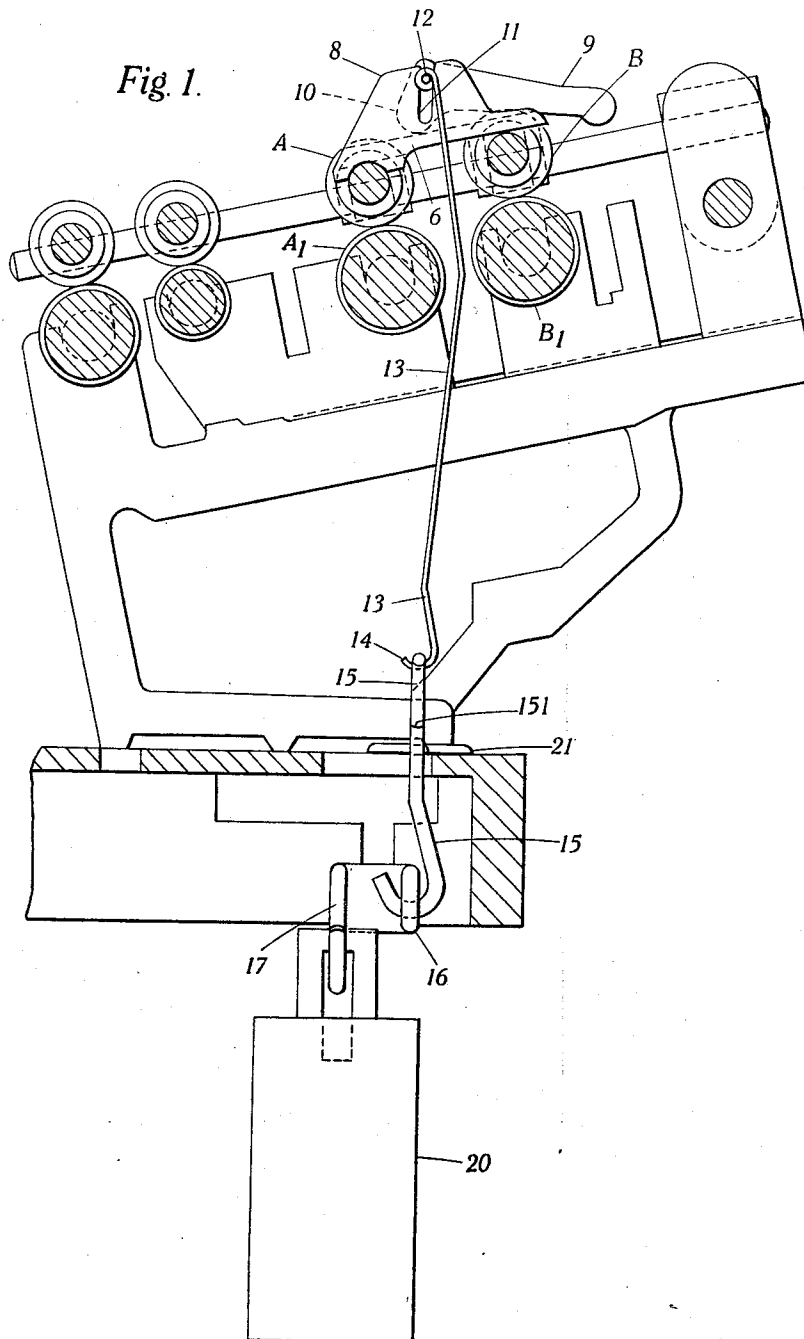
J. PILLING

2,189,368

ROLLER WEIGHT ARRANGEMENT FOR DRAWING AND SPINNING FRAMES

Filed June 29, 1938

3 Sheets-Sheet 1



Inventor,
John Pilling, deceased,
by: Ada Gertrude Pilling,
Administatratrix
By: Glasgow Downing & Seebold
Attys

Feb. 6, 1940.

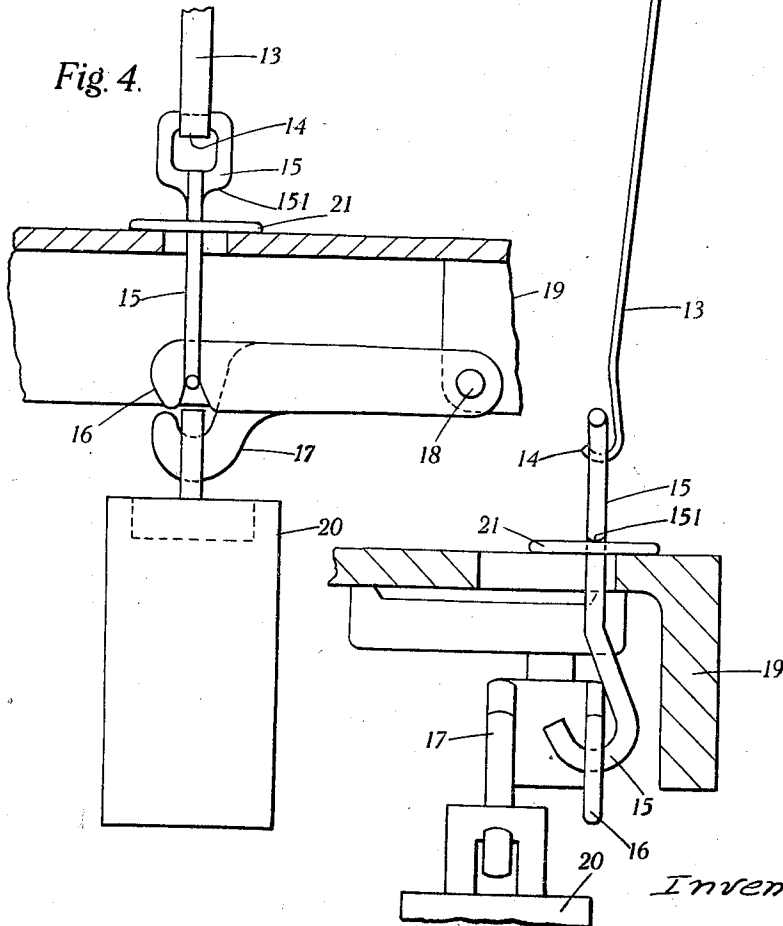
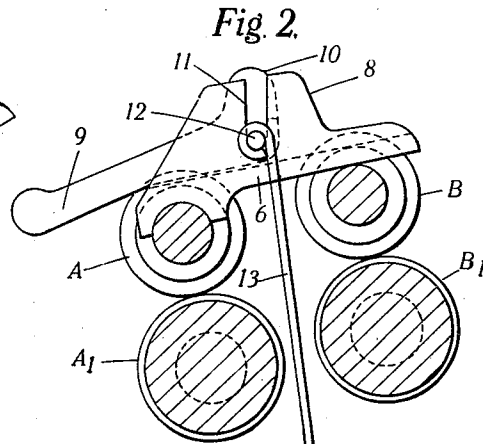
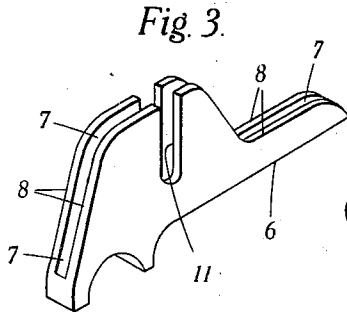
J. PILLING

2,189,368

ROLLER WEIGHT ARRANGEMENT FOR DRAWING AND SPINNING FRAMES

Filed June 29, 1938

3 Sheets-Sheet 2



Inventor,
John Pilling, deceased,
by: Ada Gertrude Pilling,
Administratrix
By: Glascock Downing & Seabolt
Attys.

Feb. 6, 1940.

J. PILLING

2,189,368

ROLLER WEIGHT ARRANGEMENT FOR DRAWING AND SPINNING FRAMES

Filed June 29, 1938

3 Sheets-Sheet 3

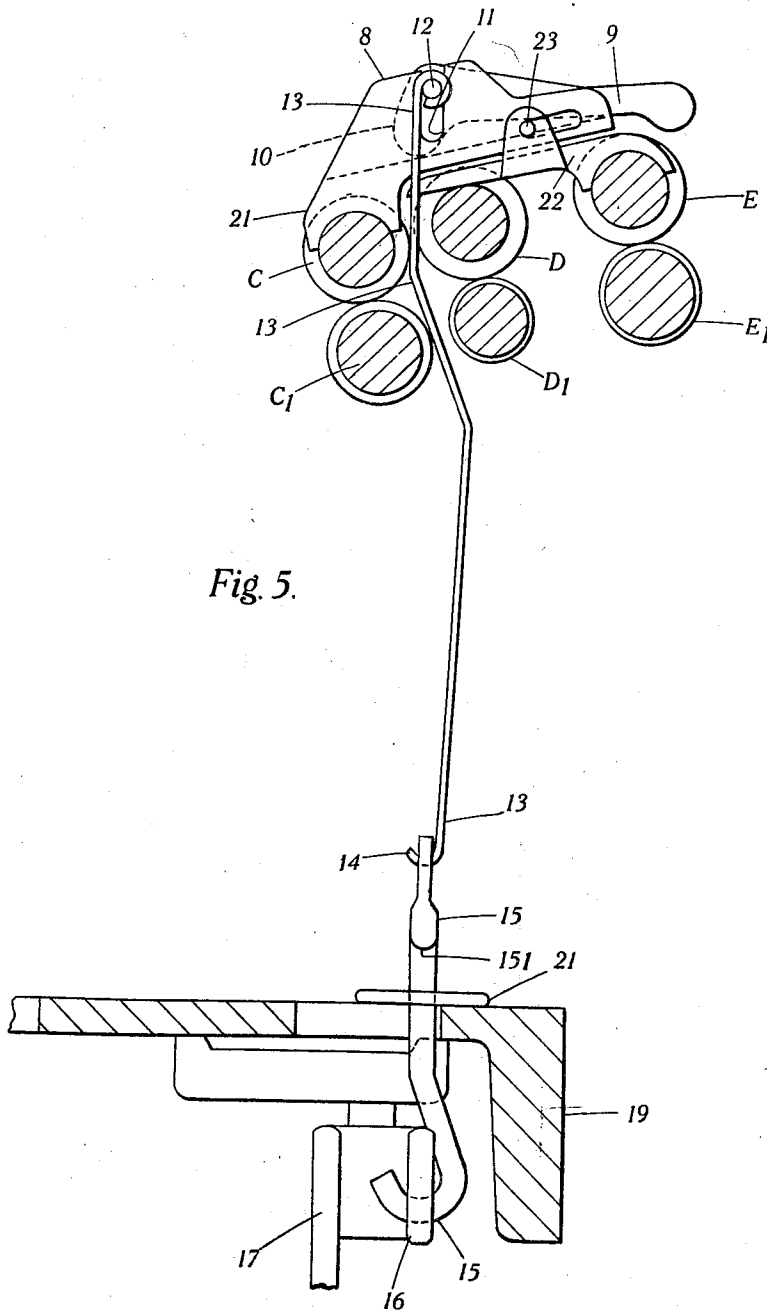


Fig. 5.

Inventor,
John Pilling, deceased,
by: Ada Gertrude Pilling,
Administratrix

Glascow, Downing & Sebold
Attys.

UNITED STATES PATENT OFFICE

2,189,368

ROLLER WEIGHT ARRANGEMENT FOR
DRAWING AND SPINNING FRAMES

John Pilling, deceased, late of Accrington, England, by Ada Gertrude Pilling, administratrix, Dartford, England, assignor to Howard and Bullough, Limited, Lancashire, England, a British company

Application June 29, 1938, Serial No. 216,634
In Great Britain July 6, 1937

4 Claims. (Cl. 19—135)

The invention has reference to the roller weighting arrangements in the drafting apparatus of machines for the preparation and spinning of cotton and other textile fibres, such arrangements being of the kind comprising a saddle spanning two or more adjacent rollers and a cam-and-lever device mounted upon said saddle and operatively associated with a weight-connection or link depending between two of such rollers.

10 The principal object of the invention is to provide an improved form of weighting mechanism of the aforesaid type which will be particularly suited for use in connection with machines where the space available between the rollers for the

15 accommodation of the weight-connection is insufficient to enable the use of certain known mechanisms in which the weight-connection partakes of a considerable fore-and-aft movement, i. e., towards or away from the rollers, during

20 the operations of applying and releasing the weighting to or from the pressure saddle.

A further object of the invention is to provide an improved roller weighting mechanism which may be adapted for use in conjunction with the

25 weight-connections and weights of existing machines, thus minimizing the number of parts requiring replacement when such machines are converted to conform to the present invention.

The use of weighting mechanism constructed in the manner hereinafter described is additionally advantageous owing to the very small amount of effort required from the operative when applying or releasing the weighting.

In a weighting mechanism of the type referred to, in accordance with the invention, the manner of operation of the weight-connection by the cam-and-lever device and the manner of suspension of the weight from said weight-connection are both associated with positive guiding means such that the operations of applying and releasing the weighting produce no fore-and-aft movement of the weight-connection.

The cam-and-lever device may be so arranged that in operation between the "weight-applied" and "weight-released" positions it passes over a dead centre and thus provides positive means for locating the parts against inadvertent displacement from those positions.

The nature of the invention and the manner of its performance are hereinafter more fully described with reference to the accompanying drawings, in which Fig. 1 is a side view of the drafting head of a speed frame having a weighting mechanism constructed in accordance with the invention applied to the two rear pairs of

rollers thereof, the parts being illustrated in the "weight-applied" position. Fig. 2 is a fragmentary view of the relevant parts of the arrangement shown in Fig. 1, showing the position of the mechanism when the weighting has been released. Fig. 3 is a perspective detail view of the saddle illustrated in Figs. 1 and 2. Fig. 4 is a detail view illustrating the manner of suspension of the weight from the weight-connection, viewed at right angles to Figs. 1 and 2. Fig. 5 is a similar view to Fig. 2, illustrating the application of the invention to the weighting of three adjacent rollers by the same mechanism.

In Figs. 1 and 2 the two pairs of rollers are respectively indicated at A, A1 and B, B1. The two top rollers A and B support a common saddle 6 positively located by means of a half-bearing by which it seats upon the roller A. As shown in Fig. 3, the saddle is provided with a hump-like portion which is slotted longitudinally at 7 to form two parallel cheeks 8 between which is located a lever 9 having a cam-like toe 10 adapted to co-act with the groove at the bottom of the slot 7, the width of such slot 7 being just sufficient to afford freedom of movement to the lever 9 and cam 10 between the positions of the latter respectively illustrated in Figs. 1 and 2.

The cheeks 8 of the saddle are additionally slotted vertically at 11, in such manner as to form a positive guide for the movement of a transverse pin or stud 12 fixed in the heel of the lever 9 when the latter is operated between the aforesaid extreme positions in the slot 7. The pin or stud 12 is extended at either end sufficiently to form pivots for the bifurcated portions of a link or weight-connection 13, which latter depends between the pairs of rollers.

The link 13 may be attached to a weight loosely depending from a hook 14 at its extremity, in which case the movements of such link during the operations of the lever 9 are solely vertical and are unaffected by its connection with the weight. In some cases, however, the arrangement illustrated in the accompanying drawings is preferred, in which the hook 14 of the link 13 engages the upper loop of a weight-hook 15, which is connected to one arm 16 of a two-armed lever 16, 17 pivoted at 18 (see Fig. 4) upon the frame 19 about an axis at right angles to the rollers. The other arm 17 of said two-armed lever is employed to suspend the weight 20.

The weight-hook 15 is preferably shouldered at 151 in such manner as to be capable of seating, except when otherwise raised, upon the sides of an apertured eye 21, thus limiting the distance

through which the weight 20 need be lifted when the weighting is applied, and also facilitating the disengagement and engagement of the hook 14 of the link 13 from and with the weight-hook 15 when it is desired to remove or re-assemble the saddle 6 and its associated parts.

Fig. 1 depicts the relative positions of the parts of the mechanism when the weighting is applied to the saddle. The lever 9 has been turned rearwardly so that its cam-like toe 10 may co-act with the slot 7 to raise the pivotal connection 12 in the vertical slot 11; this movement operates to draw the weight-connecting link 13 upwardly, raising the weight 20 through the media of the hook 15 and the lever 16, 17.

To release the saddle 6 from the pressure of the weight, the lever 9 is turned forwardly to the position shown in Fig. 2 so that as its cam-like toe 10 slides out of contact with the slot 7 the pivotal connection 12 may sink in the slot 11 and lower the weight 20 until it is supported against further downward movement by the impingement of the shoulder 151 of the weight-hook 15 with its seating 21. The continued movement of the lever 9 after this point has been reached has the effect of disengaging the hook 14 of the link 13 from the weight-hook 15, whereafter the saddle 6 and the parts supported thereby may be removed from the rollers, the link 13 being drawn upwardly between the latter.

In Fig. 5 the application of the invention to a weighting system for three adjacent pairs of rollers C, C1; D, D1 and E, E1 is illustrated. In this case the saddle is articulated, being formed of two complementary portions 21 and 22, the former of which bears solely upon the front roller C, whilst the latter rests upon the two rear rollers D and E, having a half-bearing whereby it is positively located in respect to the roller E. The two portions of the saddle are pivotally connected in known manner at 23 so as to be adjustable for use in conjunction with a wide range of roller settings. The pressure of the weight is transmitted by the link 13 to a lever 9, of which the cam-like toe 10 co-acts with a groove formed by a slot formed longitudinally in the portion 22 of the saddle, so that the weighting is applied simultaneously to all three pairs of rollers.

It is preferred to make the link 13 from a length of spring steel or other flexible material which, by reason of its inherent resilience, will constitute a shock-absorbing or cushioning connection between the weight and the saddle.

It will be seen that the manner of operation of the weight-connecting link 13 and the manner in which such link is connected to the weight are both so devised as to preclude any movement of the link in a fore-and-aft direction, i. e., towards or away from the rollers between which it is situated, during the operations of applying and releasing the weighting. The disposition and formation of the slot 11 are such as to impart a purely rectilinear movement to the link 13 on the operation of the lever 9, whilst any slight lateral movement of the link 13 which may possibly occur as the result of its connection through the weight-hook 15 with the lever 16 will be in a plane parallel to the axes of the rollers; any movement of the link in this latter direction is, of course, negligible since it is not affected by the spacing of the rollers. By the means described improved weighting mechanism may be utilized in machines where the rollers are so closely spaced together as to render impracticable

the use of weighting arrangements in which the weight-connection or link between the saddle and the weight-hook partakes of a swinging or other movement in a fore-and-aft direction.

The lever-and-cam device herein described and illustrated in the accompanying drawings has the additional advantage of positively determining the location of the parts in the "weight-applied" and "weight-released" positions of the mechanism, since the pivotal connection 12 between the lever 9 and the link 13 passes over a dead centre in moving between those positions. It will, however, be understood that alternative means, e. g. spring-pressed catches or the like, may be provided for attaining the same result.

Both the embodiments of the invention which are illustrated in the accompanying drawings and hereinbefore described with reference thereto show drafting apparatus in which an inclined roller-stand is used, but it will be evident that the invention is equally applicable to a drafting or drawing apparatus in which the line of travel of the material being drafted or drawn lies in a horizontal plane, as in the drawing frame or the slubbing frame. In such cases, the requisite rectilinear movement of the weight-connecting link will be achieved by the use of a saddle with a guiding slot 11 disposed vertically, and the weight may be suspended directly beneath the same in the usual manner of such frames. Where, however, the roller-stand is inclined, as in a speed frame or a ring spinning frame, the guiding slot 11 of the saddle may be either vertical, as in the arrangements hereinbefore referred to, or it may be so inclined in relation to the saddle as to impart to the weight-connecting link a rectilinear movement along a line at right angles to the line of travel of the roving or the like being drafted, so that such link may pass equidistantly between the upper rollers and between the lower rollers.

What is claimed as the invention and is desired to secure by Letters Patent is:

1. In apparatus for applying pressure to the upper rollers of drawing and spinning frames, a saddle spanning at least two adjacent rollers, a lever having a cam-like portion mounted for movement in a longitudinal slot in the saddle, a pivot pin carried by the lever, said saddle having a transverse slot providing a guide for the pin when the lever is turned about the pivot pin, a weight supporting link secured to said pin, and said transverse slot being so disposed as to impart rectilinear movement to the weight-supporting link during pivoting of the lever.

2. In apparatus for applying pressure to the upper rollers of drawing and spinning frames, a saddle spanning at least two rollers, a weight supporting link depending from said saddle between two adjacent rollers, a lever movably mounted on the saddle for moving the link upwardly so that the weight may be applied to the link to apply downward pressure to the upper rollers, said saddle having a transverse slot, and a pin carried by said lever engaging said slot for positively guiding the upper end of the link in a rectilinear path during movement of the lever.

3. In apparatus for applying pressure to the upper rollers of drawing and spinning frames, a saddle spanning at least two rollers, a link depending from said saddle between two adjacent rollers, a lever pivotally mounted below the rollers to swing in a plane substantially parallel to the axis of the rollers, a mass supported by said lever, means adapted to be engaged by the

lower end of said link for suspending the weight of said mass, another lever pivotally mounted on the saddle for moving the link upwardly so that the lower end thereof will engage said means and apply the weight of the mass to the saddle, and means associated with the saddle for positively guiding the upper end of the link in a rectilinear path during movement of the second mentioned lever.

4. In apparatus for applying pressure to the upper rollers of drawing and spinning frames, a saddle spanning at least two rollers, a link depending from said saddle between two adjacent rollers, a lever pivotally mounted below the rollers to swing in a plane substantially parallel to

the axes of the rollers, a mass supported by said lever, means adapted to be engaged by the lower end of said link for suspending the weight of said mass, another lever pivotally mounted on the saddle for moving the link upwardly so that the lower end thereof will engage said means and apply the weight of the mass to the saddle, said saddle having a slot therein, a pin carried by the second mentioned lever engaging said slot so as to guide the upper end of the link in a rectilinear path during the pivoting movement of the second mentioned lever.

ADA GERTRUDE PILLING.

*Administratrix of the Estate of John Pilling,
Deceased.*