June 4, 1940. G. REPASS ET AL 2,203,419

TOP ROLL SADDLE

Filed Feb. 3, 1940

Fig. 1.

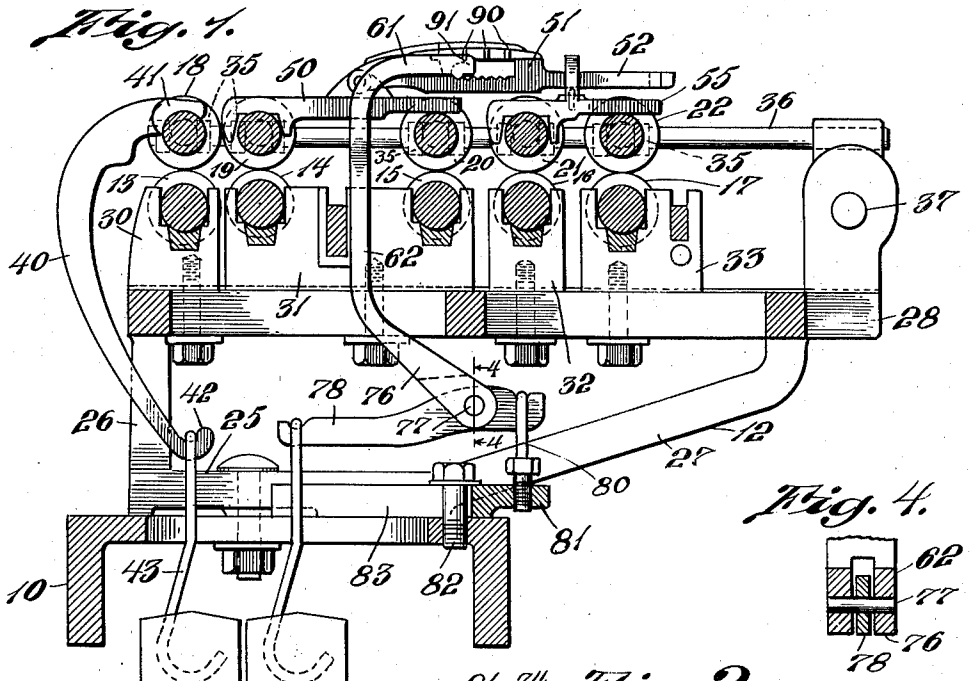



Fig. 4.



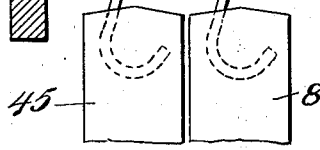
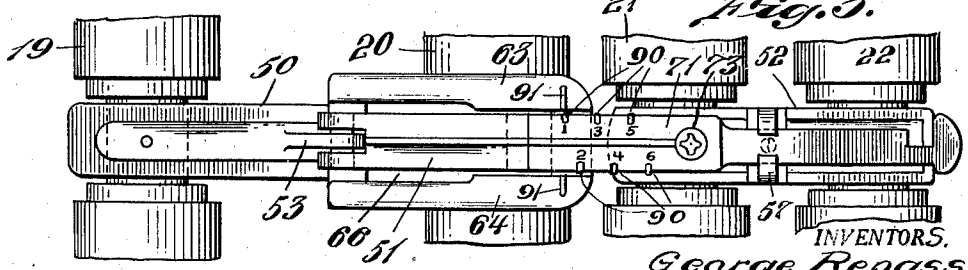




Fig. 2.




Fig. 3.




INVENTORS.
George Repass
Henry B. Ahlberg
By Barlow & Barlow
ATTORNEYS.

Patented June 4, 1940

2,203,419

# UNITED STATES PATENT OFFICE

2,203,419

## TOP ROLL SADDLE

George Repass, Pawtucket, R. I., and Henry B. Ahlberg, Attleboro, Mass., assignors to H & B American Machine Company, a corporation of Maine

Application February 3, 1940, Serial No. 317,160

10 Claims. (Cl. 19—137)

This invention relates to top roll weighting mechanisms for drafting apparatus for textile fibres, and more particularly to a new and improved saddle device for exerting pressure on top rolls of textile apparatus of this class; and has for one of its objects the arrangement of the stirrup so that it will be not only shiftable relative to its supporting saddle member into different adjusted positions, but also will be maintained in all adjusted positions against accidental displacement from its supporting saddle member when the saddle device is removed from the top rolls or during use.

Another object of the invention is the provision of detent means positionable into and out of a position for restricting the vertical movement of the stirrup to prevent altering of the position of the fulcruming member of the stirrup with respect to its supporting saddle member without first removing the detent from such detaining position.

Another object of the invention is the provision of locating means on both the stirrup and its supporting saddle member for indicating the adjusted position of the fulcruming member of the stirrup on the supporting saddle member.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawing:

Fig. 1 is a transverse sectional view of a part of a textile drafting apparatus employing five pairs of drawing rolls, showing the top roll saddle device of the present invention applied thereto and in an operating position;

Fig. 2 is a longitudinal sectional view, on enlarged scale, of the improved top roll saddle device illustrated in Fig. 1, and showing its construction;

Fig. 3 is a plan view of the top roll saddle mechanism shown in Fig. 2; and

Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 1.

It is desirable in the drafting of textile fibres that the stirrup for transmitting a predetermined pressure to the top rolls be not only adjustable into different positions relative to its supporting saddle member for varying the weighting pressure exerted on the top rolls whenever changes in the adjustment in the roll settings are made to take care of different lengths of fibres being worked, but also that the stirrup be positively retained in all adjusted positions against accidental displacement, such as when the saddle device is removed from the top rolls or during its use; and in order to obtain this advantageous result, the present invention provides a simple and improved top roll saddle structure having a stirrup with a transverse member formed with a "knife edge" or tooth carried by the upper end portion of the stirrup which tooth forms the fulcruming member for the stirrup by having pivotal inter-engaging relationship with a selected one of a series of transverse notches of a toothed formation on the stirrup-carrier member of the mechanism; and there is further provided a removable detent or a bridging member normally positionable above and extending across the top of the transverse tooth-carrying member of the stirrup which detachably secures the latter in inter-engaging pivotal relation within a desired notch in the toothed formation by restricting the pivotal movement of the tooth resulting from the sidewise swinging movement of the stirrup from the vertical; and there is further provided means for indicating the particular notch of the toothed formation within which the tooth fulcruming the stirrup on its supporting saddle member is positioned; and the following is a more detailed description of the present embodiment of this invention, illustrating the preferred means by which these advantageous results may be accomplished:

With reference to the drawing, wherein the embodiment of the invention selected for illustration is shown in Figs. 1 to 4 as being applied to a textile apparatus employing five pairs of upper and lower drawing rolls, 10 designates the usual roller beam or a part of the frame of a spinning frame, drawing frame, roving frame and the like, on which is supported the roll stands 12 with the lower drawing rolls 13, 14, 15, 16 and 17 and their cooperating top rolls 18, 19, 20, 21, and 22 respectively. The roll stands 12 are of similar construction and, as illustrated in Fig. 1, each consists of a skeleton-like frame having a base 25 from which extends upwardly the two arms 26 and 27 which are joined together at their upper ends by a transverse member 28 upon which there is adjustably mounted for sliding movement thereon the slide 30 on which is journaled the lower front roll 13, the slide 31 on which is journaled the lower rolls 14 and 15, the slide 32 on which is journaled the lower roll 16, and the slide 33 on which is journaled the back lower roll 17. The top rolls 18, 19, 20, 21 and 22 are short rolls, with or without a covering of some resilient material, and supported by their cooperating lower rolls while being demountably journaled

for rotation in suitable slots in the cap bar nebs 35 which are adjustably carried by the cap bar 36 hinged as at 37 to the roll stand 12. A weight hook 40 is provided of curved form as shown in Fig. 1 having a hooked upper end 41 adapted to bear upon the front top roll 18 and be suspended therefrom. The lower end of the hook 40 is formed with a hook formation 42 from which is hung the weight strap 43 for sustaining the weight 45.

The top roll saddle mechanism comprising the present invention comprises a front saddle 50, a stirrup-carrier 51 having an elongated rearwardly extending shank 52 and pivoted to an upright portion 53 on the front saddle as indicated at 54, and a back saddle 55 provided with the fulcrum member 56 within the split eye 57 having a fulcruming engagement with the undersurface of the elongated shank 52 of the stirrup-carrier 51.

The front saddle 50 is adapted to engage and bear upon the two intermediate top rolls 19 and 20. The back saddle 55 is adapted to engage and bear upon the back top roll 22 and the intermediate top roll 21 and is shiftable along the shank 52, and also may be reversed in its position thereon whenever desired so as to alternately straddle either one of the top rolls 21 or 22.

The front saddle 50 and the back saddle 55 may be provided with suitable grooves in their upper side which receive lubricating wicking whose ends extend through holes at the bearing portions of the saddles with the top rolls to conduct oil thereto. as is well known construction in the art.

The outer or free end of the shank 52 may be provided with a suitable enlarged headed portion adjacent to and in advance of which is a recessed part for admission of the fingers of the split eye 57 to allow the positioning or removal of the back saddle 55 into an operative relation on the shank 52 by relative rotary and sliding movement thereto, such constructions being old and well known as shown in the Dixon patents, Nos. 1,265,306 and 1,265,307 granted May 7, 1918.

The top portion of the stirrup-carrier 51 is recessed as at 60 in which recess is suspended the deflected upper end portion 61 of the stirrup 62. The upper deflected end portion 61 of the stirrup is bifurcated to form two spaced arms 63 and 64 connected together at their outer ends by a transverse rib member 65, the front saddle 50 and the stirrup-carrier 51 being disposed in the space 66 between the arms 63 and 64 during the pivoted movement of the stirrup on the transverse tooth 67 on the underside of the cross member 65 having inter-engagement with any selected one of a series of notches 68 of the toothed formation provided in the bottom of the recess 60. The top surface of the transverse rib member 65 is formed with a convex surface 70 of a contour such that when the stirrup is swung from the vertical position into the dotted position 62*a*, as indicated in Fig. 2, in an attempt to disengage the tooth 67 from inter-engagement with the desired notch 68 of the toothed formation will cause the convex surface 70 to be elevated sufficiently to cause it to engage the underside of the bridging member or detent 71 which is demountably positioned above the transverse rib 65 of the stirrup and extends across the top opening of the recess 60 thereby acting to restrict the upward movement of the stirrup relative to its supporting saddle member and to retain the tooth 67 in its inter-engaging pivotal relationship with the selected notch 68 of the toothed formation within which it is located in a desired adjusted position.

The top surface of the bridging member 71 is shown in Fig. 2 as being substantially flush with and forming an extension of the general curvilinear contour of the top surface of the stirrup-carrier 51, and in order that such a relationship may be obtained, the opposite side walls of the recess 60 are cut away to accommodate this bridging member. The bridging member 71 may be detachably secured at one end to the stirrup-supporting saddle member 51 in any suitable manner, one method being by means of the use of the patented Phillips' screw 73 having a recessed head and disclosed in the Phillips' Patents Nos. 2,046,837 and 2,046,839, granted July 7, 1936. A tongue 74 at the opposite end of the bridging member 71 insertable within a groove 75 in the adjacent side wall of the stirrup-carrier 51 holds this end of the bridging member in position connected to the carrier 51 and against vertical movement.

The lower end of the stirrup 62 is provided with a bifurcated deflected portion 76, as shown in Fig. 4, which is pivotally connected as by a pin 77 to the weighted lever 78. An upstanding fulcrum eye 80 on a slide 81 pivotally sustains the weighted lever 78 in a hinged relation with respect to the slide. The slide 81 is supported by the roller beam 10 and adjustable transversely thereof by means of the clamping bolt 82 detachably connected to the roller beam and passing through the slot 83 in the slide. A weight 85 suspended from the free end of the weight lever 78 by means of a strap 86 serves to exert the desired pressure to be transmitted by the stirrup 62 to the top roll saddle mechanism.

To locate and position the tooth 67 in any selected one of the series of notches 68 there is provided on the top surface of the bridging member 71 adjacent its longitudinal side edges a series of transverse graduations or markings 90 with respect to a selected one of which there is brought into registry a marking 91 carried on one or both of the arms 63 and 64 respectively of the stirrup to indicate the particular notch 68 into which the tooth 67 is placed. The markings 90 on the stirrup arms are so arranged thereon as to bear a fixed linear relationship thereon with respect to the position of the tooth 67. The markings 91 on the bridging member 71 are so spaced that the distances between adjacent markings correspond to the linear distances between the notches 68 of the toothed formation designated by such markings. As illustrated in Fig. 2 each marking 90 is disposed vertically above the particular notch 68 of the toothed formation designated by the marking.

In accordance with the foregoing construction of the saddle device of the present invention, the tooth-carrying member of the stirrup is confined within the recess in the top portion of the stirrup-carrying member of the saddle and in positively locked inter-engagement with a selected one of the series of notches of the toothed formation on the stirrup-supporting member of the saddle device, thus limiting the pivotal movement of the tooth in said toothed formation. The separation of the stirrup from its supporting saddle member and/or the adjustment of the stirrup on the same is also prevented and cannot be effected without first either removing or loosening the connection of the bridging member sufficiently from the stirrup-carrier to permit sufficient vertical movement of the stirrup to effect separation of the tooth of the stirrup from the toothed formation of the stirrup-carrier to enable the stirrup to be

shifted along the latter for positioning the tooth into another selected one of the notches of the toothed formation.

The present invention is not to be limited to the foregoing illustrated and described embodiment of a saddle for a five-roll drafting system as it is to be understood that it may be embodied in various other forms of top roll saddle constructions for use in three and four-roll drafting systems without departing from the spirit of the invention. We desire it to be understood that we reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention being defined and limited only by the terms of the appended claims.

We claim:

1. In a top roll saddle mechanism, a front saddle, a stirrup-supporting member associated with said saddle provided with a toothed formation presenting a series of transverse notches within any of which a weight stirrup can be selectively positioned and hung, a weight stirrup for said saddle having an upper end portion provided with a transverse tooth having a fulcruming engagement within a selected notch of said toothed formation, and means positionable with respect to said upper end portion of the stirrup whereby in one position of said means the upward movement of the stirrup will be restricted relative to its supporting saddle member so as to prevent separation of said tooth from inter-engagement with a selected notch of said toothed formation when the stirrup rests in a desired adjusted position.

2. In a top roll saddle mechanism, a front saddle, a stirrup-supporting member associated with said saddle provided with a toothed formation presenting a series of transvese notches within any of which a weight stirrup can be selectively positioned and hung, a weight stirrup for said saddle having an upper end portion provided with a transverse tooth having a fulcruming engagement within a selected notch of said toothed formation, and means positionable with respect to said upper end portion of the stirrup whereby in one position of said means the upward movement of the stirrup will be restricted relative to its supporting saddle member so as to prevent separation of said tooth from inter-engagement with a selected notch of said toothed formation when the stirrup rests in a desired adjusted position, said means being detachably connected to the stirrup-supporting saddle member so that when said means is removed from its stirrup-restricting position thereon the vertical movement and longitudinal adjustment of the stirrup will be permitted whereby said tooth will be engaged into any of the other notches of the toothed formation.

3. In a top roll saddle mechanism, a back saddle, a front saddle having a stirrup-supporting member in fulcruming engagement with the back saddle, a stirrup suspended from said stirrup-supporting member of the front saddle, the upper end of said stirrup being provided with a portion having a tooth pivotally engaging a notch of a toothed formation provided on said stirrup-supporting member of the front saddle, and means demountable on said stirrup-supporting member arranged above said tooth-carrying portion of the stirrup to be engaged by the same and limit the pivotal movement of the tooth within the selected notch of said toothed formation against vertical movement to an extent sufficient to effect separation of the parts for the positioning of the stirrup to rest in a different notch of said toothed formation.

4. In a top roll saddle mechanism, a back saddle, a front saddle, a stirrup-carrier pivoted to said front saddle and having a fulcruming engagement with the back saddle, a stirrup hung from said stirrup-carrier having a deflected upper end engaging the stirrup-carrier and shiftable therealong, said deflected upper end of the stirrup being provided with a tooth pivotally engaging a toothed formation upon the stirrup-carrier in all adjusted positions of the stirrup with respect to the stirrup-carrier, and means detachably arranged on said stirrup-carrier at a location for retaining the tooth of the stirrup in inter-engaging pivotal relationship with the toothed formation of the stirrup-carrier against vertical movement of the stirrup relative to the stirrup-carrier.

5. In a top roll saddle mechanism, a back saddle, a front saddle, a stirrup-carrier provided with a recessed portion and pivoted to said front saddle and having a fulcruming engagement with the back saddle, a stirrup hung from said stirrup-carrier having a deflected upper end engaging the stirrup-carrier and shiftable therealong, said deflected upper end of the stirrup being provided with a tooth pivotally engaging a toothed formation within the recessed portion of the stirrup-carrier in all adjusted positions of the stirrup with respect to the stirrup-carrier, and means detachably arranged on said stirrup-carrier at a location for retaining the tooth of the stirrup in inter-engaging pivotal relationship with the toothed formation of the stirrup-carrier against vertical movement of the stirrup relative to the stirrup-carrier.

6. In a top roll saddle mechanism, a back saddle, a front saddle, a stirrup-carrier pivoted to said front saddle and having a fulcruming engagement with the back saddle, a stirrup hung from said stirrup-carrier having a deflected upper end engaging the stirrup-carrier and shiftable therealong, said deflected upper end of the stirrup being provided with a tooth pivotally engaging a toothed formation upon the stirrup-carrier in all adjusted positions of the stirrup-carrier with respect to the stirrup-carrier, and means positioned above and extending across said recess on said stirrup-carrier at a location for retaining the tooth of the stirrup in inter-engaging pivotal relationship with the toothed formation of the stirrup-carrier against vertical movement of the stirrup relative to the stirrup-carrier.

7. In a top roll saddle mechanism, a back saddle adapted to rest upon two top rolls, a front saddle adapted to rest upon two top rolls, a stirrup-carrier pivoted to said front saddle and having a fulcruming engagement with the back saddle, a stirrup hung from said stirrup-carrier having a deflected upper end engaging the stirrup-carrier and shiftable therealong, said deflected upper end of the stirrup being provided with a tooth pivotally engaging a toothed formation upon the stirrup-carrier in all adjusted positions of the stirrup with respect to the stirrup-carrier, and means detachably arranged on said stirrup-arrier at a location for retaining the tooth of the stirrup in inter-engaging pivotal relationship with the toothed formation of the stirrup-carrier against vertical movement of the stirrup relative to the stirrup-carrier.

8. In a top roll saddle mechanism, a back saddle, a front saddle, a stirrup-carrier pivoted to

said front saddle and having a fulcruming engagement with the back saddle, a stirrup hung from said stirrup-carrier having a deflected upper end engaging the stirrup-carrier and shiftable therealong, said deflected upper end of the stirrup being provided with a tooth pivotally engaging a toothed formation upon the stirrup-carrier in all adjusted positions of the stirrup with respect to the stirrup-carrier, and means detachably arranged on said stirrup-carrier at a location for retaining the tooth of the stirrup in inter-engaging pivotal relationship with the toothed formation of the stirrup-carrier against vertical movement of the stirrup relative to the stirrup-carrier, and means for indicating the position of said tooth of the stirrup with respect to a selected notch in which the tooth rests in said toothed formation.

9. In a top roll saddle mechanism, a back saddle, a front saddle, a stirrup-carrier pivoted to said front saddle and having a fulcruming engagement with the back saddle, a stirrup hung from said stirrup-carrier having a deflected upper end engaging the stirrup-carrier and shiftable therealong, said deflected upper end of the stirrup being provided with a tooth pivotally engaging a toothed formation upon the stirrup-carrier in all adjusted positions of the stirrup with respect to the stirrup-carrier, and means detachably arranged on said stirrup-carrier at a location for retaining the tooth of the stirrup in inter-engaging pivotal relationship with the toothed formation of the stirrup-carrier against vertical movement of the stirrup relative to the stirrup-carrier, and indicator markings on said stirrup bearing a fixed linear relationship thereon with respect to the position of the tooth of the stirrup adapted to be brought into registry with a selected one of a series of spaced indicator markings on the stirrup-carrier in which the distances between said last-named markings corresponds to the linear distances between the notches of the toothed formation designated by such series of markings.

10. In a top roll saddle mechanism, a back saddle, a front saddle, a stirrup-carrier associated with said front saddle and having a fulcruming engagement with said back saddle, a stirrup hung from said stirrup-carrier member having a deflected upper end engaging the stirrup-carrier and shiftable therealong, said deflected upper end of the stirrup being provided with a transverse member having a tooth pivotally engaging a selected one of a series of notches of a toothed formation upon the stirrup-carrier in all adjusted positions of the stirrup with respect to the stirrup-carrier, and a detent member detachably arranged on said stirrup-carrier at a location thereon above and crosswise of said transverse member of the stirrup for retaining the tooth of the stirrup in inter-engaging pivotal relationship within the toothed formation of the stirrup-carrier against vertical movement of the stirrup relative to the stirrup-carrier sufficient to effect separation of said pivot parts, the top portion of said transverse member of the stirrup being formed with a convex surface so shaped as to engage the undersurface of the detent member upon pivotal movement of the stirrup in a direction to raise the transverse member whereby separation of the tooth of the stirrup from the notch of the stirrup-carrier into which it rests is prevented.

GEORGE REPASS.
HENRY B. AHLBERG.