

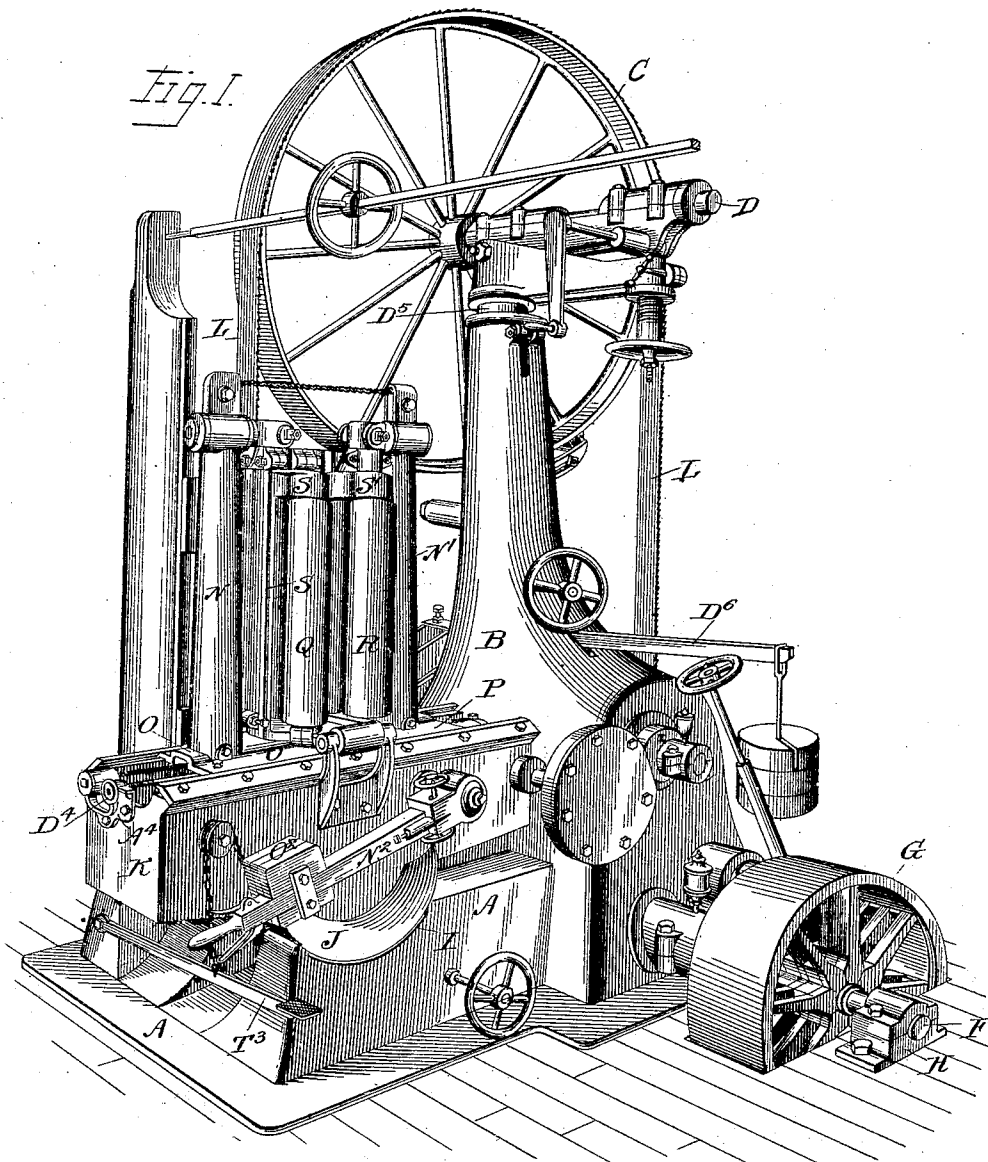
H. J. GILBERT.  
RESAWING MACHINE.

APPLICATION FILED MAY 26, 1906.

939,903.

Patented Nov. 9, 1909.

2 SHEETS—SHEET 1.



Witnesses  
Martin H. Olsen  
Harry R. Lovelace

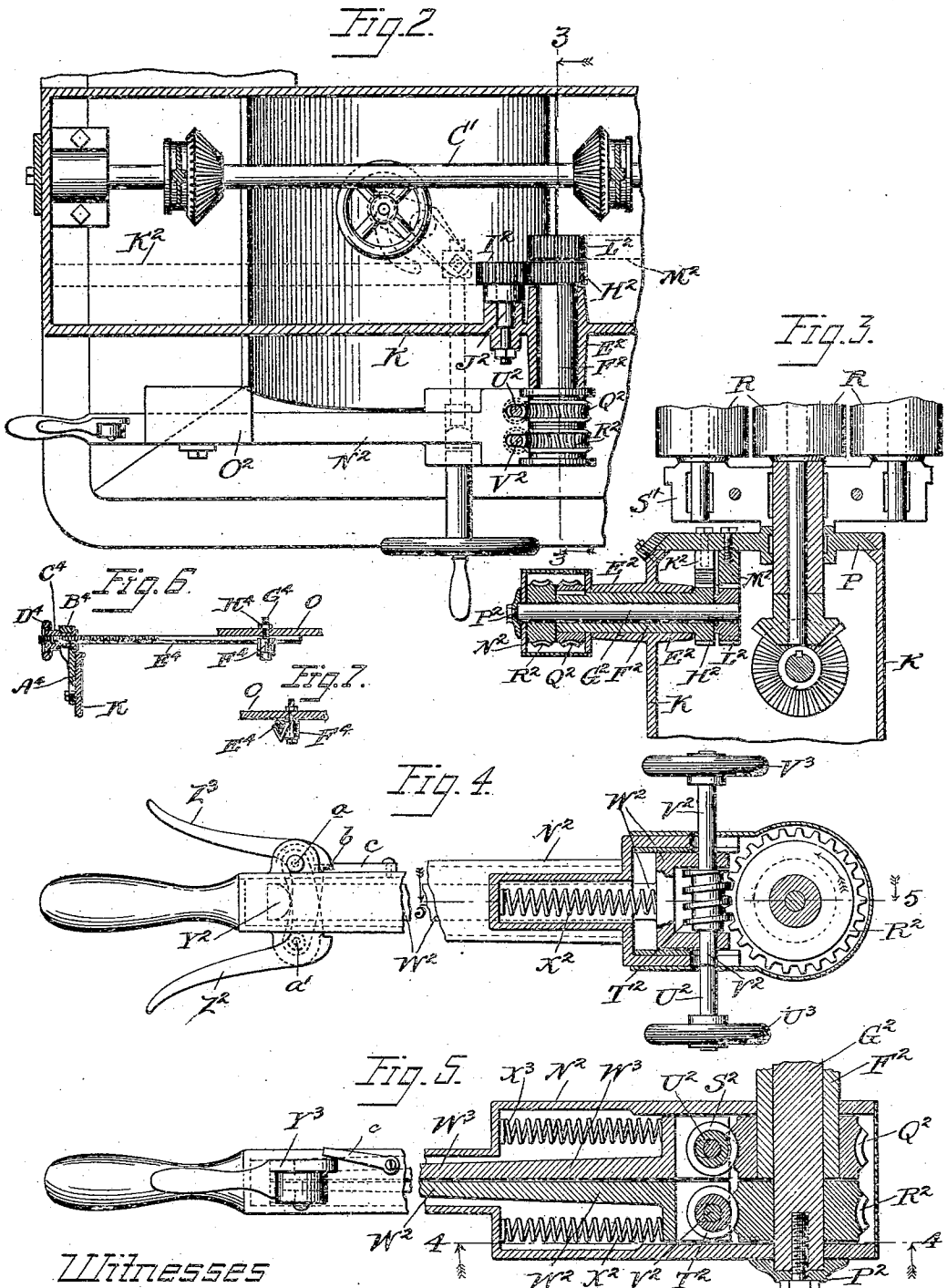
Inventor  
Henry J. Gilbert  
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2 SHEETS—SHEET 2.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## RESAWING-MACHINE.

939,903.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Original application filed September 8, 1896, Serial No. 605,049. Divided and this application filed May 26, 1906. Serial No. 318,816.

*To all whom it may concern:*

Be it known that I, HENRY J. GILBERT, a citizen of the United States, residing at Saginaw, in the county of Saginaw, in the State of Michigan, have invented a certain new and useful Improvement in Resawing-Machines, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

My present application is a division of original application Serial No. 605,049, filed September 8, 1896, in which original application and in another division thereof, Serial No. 295,944, filed January 13, 1906, I have illustrated and described the machine shown in my present application and claimed certain subject-matter not covered by the present application.

My present invention consists in some respects in improvements upon the machine shown and described in Letters Patent of the United States No. 537,526, issued to me April 16, 1895, but in other respects is applicable to other machines of this character, as will be understood from the explanation of it hereinafter given.

As compared with my prior machine the principal feature of my present invention consists in novel means for adjusting the two sets of feed rolls laterally, toward and from the saw line, and holding them in adjusted position by a yielding pressure which will accommodate any inequalities in the stuff passed between them; as hereinafter more fully described and particularly pointed out in the claims.

In the accompanying drawings Figure 1 is a perspective view of a complete resawing machine embodying my present invention, looking at the left-hand forward corner thereof; Fig. 2 a horizontal sectional detail of the left-hand portion of the machine, showing the gearing connecting the self-centering devices with the slides carrying the respective sets of feed rolls; Fig. 3 a vertical sectional detail showing the same connections; Fig. 4 an enlarged front elevation, partly in section, of the weighted lever of the self-centering mechanism, and the means carried by and cooperating with said lever for adjusting the rolls; Fig. 5 a horizontal section of the parts shown in Fig. 4; and

Figs. 6 and 7 details of the means for locking one of the slides in fixed position. 55

The same letters of reference are employed to represent corresponding parts in the several views.

Referring to the general construction of the machine as shown in Fig. 1, the main frame consists of a hollow base casting A having formed integral with it at its right-hand side a hollow vertical column B which supports the upper saw wheel C, said wheel being secured upon a shaft D journaled in bearings carried by a vertically adjustable column D<sup>5</sup> fitting within the column B and supported at its lower end upon the inner end of a weighted counter-balancing lever D<sup>6</sup>. The lower saw wheel, not shown in Fig. 1 but around which and the wheel C the band saw L passes, is secured upon a shaft F extending through and journaled in bearings in the base casting A, and projecting forward of the same and having secured upon it the driving pulley G, the extreme forward end of the shaft F being journaled in a bearing H upon the floor or support upon which the machine rests. 60 65 70 75

The left-hand portion of the base casting A has formed in its upper side a concave seat I extending from front to rear thereof, in which rests a convex bearing J formed upon the underside of and projecting forward from a hollow frame K which carries the feed rolls hereinafter described. By means substantially the same as those shown and described in my prior patent, the frame K may be slid forward and backward in the seat I upon the base A, to carry the feed rolls away from and toward the saw L, and be tilted in said seat to incline the rolls at an angle to the saw, when desired. 80 85 90

Mounted in guideways on the upper side of the hollow frame K are the two slides O and P which carry the two sets of feed rolls Q and R. The rolls of the set Q are journaled at their upper and lower ends in a frame S supported at its lower end upon the slide O and connected at its upper end to the roll-stand N projecting vertically from said slide; while the rolls of the set R are mounted in a similar frame S' supported at its lower end upon the slide P and connected at its upper end with the roll-stand N' projecting vertically from said slide. In the 95 100 105

present instance there are three rolls in each pair, and the rolls of each pair are geared together at their upper ends by suitable gears inclosed within the upper ends of the frames S and S'.

The spindles of the two middle rolls of the respective pairs extend downward through the slides O and P and carry upon their lower ends beveled pinions which mesh with corresponding pinions splined upon the driving shaft C' of the feed works of the machine, Figs. 2 and 3.

As my present invention is not concerned with the general construction of the machine as a whole, and as the latter has now been described sufficiently for an understanding of my invention it will not be pursued in detail.

Coming now to my present invention, I will first describe my novel means for adjusting the two sets of feed rolls transversely of the machine, toward and from the saw line, which is as follows: As seen in Figs. 2 and 3, the vertical front wall of the frame K is provided at E<sup>2</sup> with a tubular bearing in which is journaled a hollow shaft or sleeve F<sup>2</sup> surrounding a shaft G<sup>2</sup> which projects to the front and rear of said sleeve. Secured upon or formed integral with the rear end of the sleeve F<sup>2</sup> is a pinion H<sup>2</sup>, while secured upon or formed integral with the rear end of the shaft G<sup>2</sup> is a pinion L<sup>2</sup>. This pinion L<sup>2</sup> is located beneath and meshes directly with a rack M<sup>2</sup> fast upon the underside of the right-hand slide P carrying the right-hand set of feed rolls R; while the pinion H<sup>2</sup> meshes with a pinion I<sup>2</sup> which in turn meshes with a rack K<sup>2</sup> secured to the under-side of the left-hand slide O carrying the left-hand set of feed rolls Q, the pinion I<sup>2</sup> being mounted upon the rear end of a shouldered spindle J<sup>2</sup> secured in the front wall of the frame K by a nut screwed upon its front end, as shown in Fig. 2.

By the means described the outer shaft or sleeve F<sup>2</sup> is geared to the left-hand slide O, and the inner shaft G<sup>2</sup> to the right-hand slide P, in such manner that when the two shafts are turned in unison in the same direction the two slides will be moved in opposite directions, toward or from each other. So, also, by turning either shaft independently of the other the corresponding slide and set of rolls may be moved toward or from the saw line or the other set of rolls, independently of the latter.

Fast upon the front end of the outer shaft or sleeve F<sup>2</sup> is a worm wheel Q<sup>2</sup>, while fast upon the outer end of the shaft G<sup>2</sup> is a second worm wheel R<sup>2</sup>. By turning the wheel Q<sup>2</sup> in one direction or the other the slide O and left-hand set of feed rolls may be moved toward or from the saw line, while by turning the wheel R<sup>2</sup> the slide P and right-hand set of rolls may be moved toward or from

the saw line. By turning the two wheels in unison, in one direction or the other, the two sets of rolls may be simultaneously moved toward or from each other.

The worm wheels Q<sup>2</sup> R<sup>2</sup> are respectively engaged by a pair of worms S<sup>2</sup> T<sup>2</sup> carried by a weighted lever N<sup>2</sup> hung upon the axis of said wheels, said lever being in the present instance forked to embrace said wheels and having its outer fork hung upon the extreme forward end of the shaft G<sup>2</sup>, while its inner fork is hung upon the sleeve F<sup>2</sup>, a washer and nut P<sup>2</sup> upon the outer end of the shaft G<sup>2</sup> holding the parts in position.

Each of the worms S<sup>2</sup> T<sup>2</sup> is provided with a hand wheel for turning it, the hand wheel U<sup>3</sup> for the worm S<sup>2</sup> being secured to the lower end of the shaft U<sup>2</sup> which carries said worm, Figs. 4 and 5, while the hand wheel V<sup>3</sup> for the worm T<sup>2</sup> is secured to the upper end of the shaft V<sup>2</sup> which carries the worm T<sup>2</sup>. By turning either hand wheel, therefore, the worm wheel engaged by its worm may be turned in one direction or the other, and the corresponding slide and set of feed rolls be thereby adjusted toward or from the saw line.

The foregoing adjustment of the feed rolls by means of the worms and worm wheels has no effect upon the lever N<sup>2</sup>, but the engagement of the worms and worm wheels serves to connect the lever N<sup>2</sup> with the worm wheels, and, through said wheels and the shafts F<sup>2</sup> G<sup>2</sup> which carry them and through the gearing at the rear ends of said shafts, to connect it with the slides O P and the respective sets of feed rolls Q R. The gravity of the weight O<sup>2</sup> upon the outer end of the lever N<sup>2</sup> (which rests upon a suitable stop) thus serves to yieldingly hold the respective sets of feed rolls in any position to which they may have been adjusted by means of the worms and worm wheels. If the rolls be forced apart the weighted end of the lever will be thereby lifted, and its gravity will return them to normal position when the pressure which has forced them apart is removed.

As will be understood from the foregoing, either set of feed rolls may, by means of the worms and worm wheels, be adjusted toward or from the saw line independently of the other set of rolls, and independently of any movement of the weighted lever N<sup>2</sup>, and while the latter remains connected with and in condition to exert its pressure upon both sets of rolls.

The adjustment of the feed rolls by means of the worms and worm wheels, in the manner above described, is necessarily quite slow, and these adjusting devices are intended for use in adjusting the rolls to the exact position desired, after they have been more rapidly moved to approximately such position by other means. In the present in-

stance, I accomplish the more rapid and approximate adjustment of the rolls by means of the lever  $N^2$  and devices for connecting it with and disconnecting it from the worm wheels  $Q^2 R^2$  at will, which may now be described. The shaft  $V^2$  which carries the worm  $T^2$  has its bearing in the right-hand forked end of an arm  $W^2$  which extends to the left within the hollow body of the lever  $N^2$  to a point adjacent the grasping handle upon the left-hand end of said lever, Figs. 4 and 5, the worm  $T^2$  being embraced by the forks of the arm  $W^2$ , as shown. The shaft  $V^2$  extends through elongated openings in the opposite forks of the lever  $N^2$ , which permit the shaft and worm  $T^2$  to move laterally with the arm  $W^2$ , to carry the worm  $T^2$  out of and into mesh with the worm wheel  $R^2$ . A coiled spring  $X^2$  confined within the hollow housing which forms the body of the lever  $N^2$  at the left of the shafts  $U^2 V^2$ , and pressing against the arm  $W^2$  which carries the shaft  $V^2$ , yieldingly maintains the worm  $T^2$  in engagement with the worm wheel  $R^2$ . The arm  $W^2$  is provided at its extreme left-hand end, within the hollow lever  $N^2$ , with a lug  $Y^2$  projecting from its forward side (shown in dotted lines in Fig. 4) which lug coöperates with a lever  $Z^2$  pivoted upon the upper side of the lever  $N^2$  at  $a$  (within a housing formed upon the upper side of said lever) and extending downward through the same and curved thence to the left into position to be grasped by the fingers of the hand holding the main handle of the lever. When the lever  $Z^2$  is pressed upward toward the handle of the lever  $N^2$ , its engagement with the lug  $Y^2$  upon the endwise moving arm  $W^2$  will draw the latter to the left, against the resistance of the spring  $X^2$ , and withdraw the worm  $T^2$  from engagement with the worm wheel  $R^2$ .

The shaft  $U^2$  which carries the worm  $S^2$  is mounted in a forked arm  $W^3$ , Fig. 5, corresponding to the forked arm  $W^2$ , and like the latter extending to the left within the lever  $N^2$  and provided upon its rear side near its end with a lug  $Y^3$  corresponding to the lug  $Y^2$  upon the arm  $W^2$  (dotted lines Fig. 5) and coöperating with a lever  $Z^3$  pivoted to the other side of the lever  $N^2$  at  $a^1$  and extending upward through said lever and curved thence to the left into position to be grasped with the main handle of the lever. The shaft  $U^2$ , like the shaft  $V^2$ , extends through elongated openings in the opposite forks of the lever  $N^2$ , which permit endwise movement of the arm  $W^3$  to carry the worm  $S^2$  out of and into mesh with the worm wheel  $Q^2$ . A coiled spring  $X^3$  corresponding to the spring  $X^2$  serves to press the arm  $W^3$  to the right and yieldingly maintains the worm  $S^2$  in mesh with the worm wheel  $Q^2$ . When the left-hand end of the lever  $Z^3$  is pressed downward toward

the handle of the lever  $N^2$  the arm  $W^3$  will be drawn to the left, against the resistance of the spring  $X^3$ , and the worm  $S^2$  be withdrawn from engagement with the worm  $Q^2$ .

As will be understood from the foregoing description, the worms  $S^2 T^2$  may be readily disengaged from and reengaged with the worm wheels  $Q^2 R^2$  by manipulating the levers  $Z^3 Z^2$  upon the lever  $N^2$ . If the lever  $N^2$  be lifted and the worms be then disengaged from the worm wheels and held out of engagement with them while the lever is returned to normal position the feed rolls will be spread apart and left in separated position; while if the worms be disengaged from the wheels before the lever is lifted and reengaged with them at its return movement the feed rolls will be moved toward each other. By successive manipulations of the lever  $N^2$  in the manner first described, the feed rolls may be rapidly moved away from each other, while by manipulations of it in the manner last described the rolls may be rapidly moved toward each other. Likewise, if it be desired to move either set of rolls toward or from the saw line or the other set of rolls, without changing the adjustment of the latter, it may be accomplished by similar manipulations of the lever  $N^2$ , in which case, however, the worm corresponding with the set of rolls whose adjustment is not to be changed will be kept continuously in or out of engagement with its worm wheel, while the other worm will be disengaged from and reengaged with its worm wheel in the manner described. The two sets of feed rolls may thus be easily and rapidly adjusted toward or from the saw line or each other, either simultaneously or independently, and the more exact adjustment of them desired be then secured by turning the worms and worm wheels by means of the hand wheels  $U^3 V^3$ .

It will be manifest that the adjustment of the rolls by means of the hand wheels and worms and worm wheels is quite independent of their adjustment by the manipulations of the lever  $N^2$ , and that it is not at all essential to the adjustment of the rolls by means of the lever that the means for connecting the lever with and disconnecting it from the feed rolls shall include the worms and worm wheels for securing the finer or more exact adjustment of said rolls. Thus, it will have been understood from the foregoing description of the adjustment of the rolls by means of the lever  $N^2$  that in such adjusting operation the worms  $S^2 T^2$ , in their coöperation with the worm wheels  $Q^2 R^2$ , act merely as teeth or dogs, and that the worm wheels  $Q^2 R^2$ , in their coöperation with the worms, serve merely the purpose of ordinary spur gears to be engaged by said teeth or dogs. Such being the case, a simple modification which would do away with

the worms and worm wheels as the connecting and disconnecting devices, and yet retain the adjustment of the feed rolls by means of the lever  $N^2$ , would be the substitution of spur gears for the worm wheels, and the provision of teeth or dogs upon the right-hand ends of the arms  $W^2$   $W^3$  to cooperate with such gears; and in the original application of which this is a division I have illustrated and described, and specifically claimed, such modification.

As has been explained, the adjustable weight  $O^2$  upon the outer end of the lever  $N^2$  serves to press the two sets of rolls toward each other and yieldingly maintain them in the position to which they have been adjusted by the manipulations of the lever and the operation of the hand wheels; but being held in such adjusted position only by the gravity of the weight and lever, it follows that the rolls are free to automatically yield and be spread apart, against the resistance of such weight, to accommodate any inequalities in the stuff passed between them to be sawed, the left-hand end of the lever  $N^2$  and the weight  $O^2$  being lifted more or less by such spreading of the rolls, according to the degree of movement of the latter.

For the purpose of enabling the rolls to be quickly spread apart to a limited degree, there is provided a foot lever  $T^3$ , Fig. 1, pivoted at its rear end to the base casting  $A$  of the machine and having connected to it one end of a chain which is passed upward over a pulley mounted upon the forward side of the frame  $K$  and connected at its opposite end to the lever  $N^2$  or weight  $O^2$ . Upon depressing the front end of the lever  $T^3$  with the foot the weighted lever  $N^2$  may be quickly raised and the feed rolls be thereby spread apart to a limited extent to permit the entrance between them of any stuff of extra thickness.

It is often desirable, in using machines of this character, to maintain one set of rolls in a fixed position, and to adjust the other set toward and from it, and for the purpose of permitting such operation in the present machine the following devices are employed: Inasmuch as the lever  $N^2$  may be disconnected at will from either set of feed rolls by means of the levers  $Z^2$   $Z^3$ , in the manner heretofore described, it follows that in order to employ either set of rolls as a fixed set of rolls all that is necessary is to disconnect the lever  $N^2$  from such set of rolls and maintain such disconnection, and provide suitable means for holding such set of rolls in fixed position while so disconnected from the lever. In the present instance I have made provision for disconnecting the lever from the left-hand set of rolls  $Q$  and employing the latter as the fixed rolls when desired. To this end I

provide a pivoted latch  $c$  upon the upper side of the lever  $N^2$ , Fig. 4, which latch is adapted to have its left-hand or outer end swung under the shoulder  $b$  of the lever  $Z^3$  when the latter is pressed downward toward the handle of the lever  $N^2$  to disengage the worm  $S^2$  from the worm wheel  $Q^2$  and thereby disconnect the lever  $N^2$  from the left-hand set of feed rolls, in the manner heretofore described.

The means provided for holding the set of rolls  $Q$  in fixed position, after they have been disconnected from the lever  $N^2$  and the latch  $c$  engaged with the shoulder of the lever  $Z^3$  to maintain such disconnection, is shown in Figs. 6 and 7. As shown in Fig. 6, and also in Fig. 1, the left-hand end of the frame  $K$  has bolted to it a bracket plate  $A^4$  having two upwardly extending arms, the forward one of which carries a journal box  $B^4$ , Fig. 6, in which fits the elongated hub  $C^4$  of a hand wheel  $D^4$ , said hub being provided with a circumferential groove or recess which fits within the journal box and prevents longitudinal movement of the hub and hand wheel, while permitting them to turn. Passed through the threaded bore of the hub  $C^4$  is the left-hand threaded end of a rod  $E^4$  which extends to the right beneath the left-hand slide  $O$  and rests in a V-shaped seat or jaw formed upon a casting  $F^4$ , Fig. 7, carried by the lower end of a bolt  $G^4$  which passes upward through a hole in the slide  $O$  and has a nut  $H^4$  screwed upon its upper end. By tightening up the nut  $H^4$  the rod  $E^4$  may be clamped against the under-side of the slide  $O$ , and the latter and the rolls carried by it be thereby firmly held in fixed position. During the time the rod  $E^4$  is clamped to the slide  $O$  in this manner the slide and left-hand set of rolls carried by it may be adjusted toward and from the saw line by turning the hand wheel  $D^4$  in one direction or the other, so that while the rolls are being employed as fixed rolls they may nevertheless be easily adjusted back and forth as may be required. During the time said rolls are being employed as fixed rolls the right-hand set of rolls  $R$  may be adjusted toward and from them by means of the hand wheel  $V^3$  and worm and worm wheel  $T^2$   $R^2$ , or by manipulating the lever  $N^2$  and the lever  $Z^2$ , or by both means. The right-hand set of rolls will also yield automatically, against the resistance of the weighted lever  $N^2$ , to accommodate any inequalities in the stuff passed between them and the fixed set of rolls.

Having thus fully described my invention, I claim:

1. In a re-sawing machine, the combination, with the roll-stand slides movable toward and from each other and the saw line, of a pair of independently rotatable wheels

geared to the respective slides, and a weighted lever connected with said wheels and tending to turn them together in a direction to move the rolls toward the saw line.

5 2. In a re-sawing machine, the combination, with the roll-stand slides movable toward and from each other and the saw line, of a pair of independently rotatable wheels geared to the respective slides, a weighted  
10 lever connected with said wheels and tending to turn them together in a direction to move the rolls toward the saw line, and means for disconnecting said lever from and re-connecting it with said wheels at will.

15 3. In a re-sawing machine, the combination, with the roll-stand slides movable toward and from each other and the saw line, of a pair of independently rotatable wheels geared to the respective slides, a weighted  
20 lever connected with said wheels and tending to turn them together in a direction to move the rolls toward the saw line, and means for disconnecting said lever from one of said wheels at will while leaving it con-  
25 nected with the other wheel.

4. In a re-sawing machine, the combination with the roll-stand slides movable toward and from each other and the saw line, of a concentric sleeve and shaft so geared at  
30 their rear ends to the respective slides as to move the latter in opposite directions, toward or from the saw line, when the shaft and sleeve are turned in unison in one direction or the other and provided upon their  
35 front ends with a pair of wheels for turning them, to adjust the respective sets of rolls toward and from the saw line.

5. In a re-sawing machine, the combination, with the roll-stand slides movable toward and from the saw line, of a concentric  
40 sleeve and shaft so geared at their rear ends to the respective slides as to move the latter in opposite directions, toward or from the saw line, when the shaft and sleeve are  
45 turned in unison in one direction or the other and provided upon their front ends with a pair of wheels, and a weighted lever connected with said wheels and tending to turn  
50 them together in a direction to move the rolls toward the saw line.

6. In a re-sawing machine, the combination, with the roll-stand slides movable toward and from each other and the saw line, of a concentric sleeve and shaft so geared  
55 at their rear ends to the respective slides as to move the latter in opposite directions, toward or from the saw line, when the shaft and sleeve are turned in unison in one direction or the other and provided upon their  
60 front ends with a pair of wheels, a weighted lever connected with said wheels and tending to turn them together in a direction to move the rolls toward the saw line, and means for disconnecting said lever from and  
65 reconnecting it with said wheels at will.

7. In a re-sawing machine, the combination, with the roll-stand slides movable toward and from the saw line, of a concentric sleeve and shaft so geared at their rear ends to the respective slides as to move the latter  
70 in opposite directions, toward or from the saw line, when the shaft and sleeve are turned in unison in one direction or the other and provided upon their front ends with a pair of wheels, a weighted lever connected  
75 with said wheels and tending to turn them together in a direction to move the rolls toward the saw line, and means for disconnecting said lever from one of said wheels at will while leaving it connected with the other  
80 wheel.

8. In a re-sawing machine, the combination, with the roll-stand slides movable toward and from the saw line, of a concentric sleeve and shaft so geared at their rear ends  
85 to the respective slides as to move the latter in opposite directions, toward or from the saw line, when the shaft and sleeve are turned in unison in one direction or the other and provided upon their front ends with a  
90 pair of wheels, a weighted lever connected with said wheels and tending to turn them together in a direction to move the rolls toward the saw line, means for disconnecting said lever at will from one of said wheels  
95 while leaving it connected with the other, and means for securing in fixed position the set of rolls corresponding to the disconnected wheel.

9. In a re-sawing machine, the combination of a roll-stand slide movable toward and from the saw line, a worm wheel geared to said slide, a weighted lever, and a worm carried by said lever and serving to connect  
100 it with said wheel, and whereby the weight of the lever tends to turn the wheel in a direction to press the slide toward the saw line, and whereby the slide may be adjusted toward and from the saw line, by means of the worm, without disconnecting the slide  
105 from the lever.

10. In a re-sawing machine, the combination with a roll-stand slide movable toward and from the saw line, a worm wheel geared to said slide, a weighted lever, and a worm  
115 carried by said lever and engageable with and disengageable from said wheel, whereby when the worm is engaged with the wheel the weight of the lever tends to turn the wheel in a direction to press the slide toward  
120 the saw line and the slide may at such time be adjusted toward and from the saw line, by means of the worm, without disconnecting the slide from the lever, and whereby the lever may be disconnected from the slide by  
125 disengaging the worm from the worm wheel.

11. In a re-sawing machine, the combination with the roll-stand slides movable toward and from the saw line, of a pair of worm wheels geared to the respective slides,  
130

- a weighted lever, and a pair of worms carried by said lever and engaged with the respective worm-wheels, whereby the weight of the lever tends to turn said wheels in a direction to press the rolls toward the saw line, and whereby the wheels may be independently turned by their respective worms to adjust either set of rolls toward or from the saw line without disconnecting them from the weighted lever.
12. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line, of a pair of worm wheels geared to the respective slides, a weighted lever, and a pair of worms carried by said lever and engageable with and disengageable from the respective worm wheels.
13. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line, of a pair of worm wheels geared to the respective slides, a weighted lever, a pair of worms carried by said lever and normally engaged with the respective worm wheels, and means for disengaging one of said worms from its wheel while leaving the other worm in engagement with its wheel.
14. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line, of a pair of worm wheels geared to the respective slides, a weighted lever, a pair of worms carried by said lever and normally engaged with the respective worm wheels, and means for disengaging either worm from its worm wheel at will and leaving the other worm engaged with its wheel.
15. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line, of a concentric sleeve and shaft geared at their rear ends to the respective slides, a pair of worm wheels secured to the front ends of said sleeve and shaft, respectively, and a pair of worms engaging the respective wheels, whereby the latter may be independently turned in either direction to adjust the respective sets of rolls toward or from the saw line independently of each other.
16. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line, of a concentric sleeve and shaft geared at their rear ends to the respective slides, a pair of worm wheels secured to the front ends of said sleeve and shaft, respectively, a weighted lever, and a pair of worms carried by said lever and engaged with the respective worm wheels, whereby the weight of the lever tends to turn said wheels in a direction to press both sets of rolls toward the saw line, and whereby the wheels may be independently turned by their respective worms to adjust either set of rolls toward or from the saw line without disconnecting them from the weighted lever.
17. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line, of a concentric sleeve and shaft geared at their rear ends to the respective slides, a pair of worm wheels secured to the front ends of the sleeve and shaft, respectively, a weighted lever, and a pair of worms carried by said lever and engageable with and disengageable from the respective worm wheels.
18. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line, of a concentric sleeve and shaft geared at their rear ends to the respective slides, a pair of worm wheels secured to the front ends of the sleeve and shaft, respectively, a weighted lever, a pair of worms carried by said lever and engaged with the respective worm wheels, and means for disengaging one of said worms from its wheel while leaving the other worm engaged with its wheel.
19. In a resawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line, of a concentric sleeve and shaft geared at their rear ends to the respective slides, a pair of worm wheels secured to the front ends of said sleeve and shaft, respectively, a weighted lever, and a pair of shafts journaled in independently movable bearings upon said lever and carrying worms engageable with and disengageable from the respective worm wheels, and means for turning said shafts and worms in either direction at will.
20. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line, of a concentric sleeve and shaft geared at their rear ends to the respective slides, a pair of worm wheels secured to the front ends of the sleeve and shaft, respectively, a weighted lever, a pair of worms carried by said lever and engaged with the respective worm wheels, and means for disengaging either worm at will from its worm wheel while leaving the other worm engaged with its wheel.
21. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line, of a concentric sleeve and shaft geared at their rear ends to the respective slides, a pair of worm wheels secured to the front ends of said sleeve and shaft, respectively, a weighted lever, a pair of worms carried by said lever and engaged with the respective worm wheels, means for disengaging one of said worms from its worm wheel at will, and means for securing in fixed position the set of rolls connected with said worm wheel.

22. In a re-sawing machine, the combination, with a roll-stand slide movable toward and from the saw line, of a worm wheel geared to said slide and operating when  
 5 turned in one direction to move the slide toward the saw line and when turned in the opposite direction to move the slide from the saw line, an adjusting lever hung upon the axis of said wheel, and a worm carried by  
 10 said lever and engageable with and disengageable from said worm wheel, whereby said wheel may be turned in opposite directions by manipulating the lever and engaging the worm with and disengaging it from  
 15 the wheel, to adjust the slide toward and from the saw line, and whereby the wheel may also be turned in opposite directions by means of the worm, to adjust the slide toward and from the saw line independently  
 20 of its adjustment by means of the lever and without disconnecting it from the lever.

23. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw  
 25 line, of a pair of worm wheels geared to the respective slides and operating when turned in one direction to move the slides toward the saw line and when turned in the opposite direction to move them away from said line,  
 30 an adjusting lever, a pair of worms carried by said lever and engageable with and disengageable from the respective worm wheels at will, and means carried by said lever for controlling the engagement of the worms  
 35 with the wheels, whereby said wheels may be turned in one direction or the other by manipulating the lever and engaging the worms with and disengaging them from the wheels, to adjust the slides toward and from  
 40 the saw line, and whereby the wheels may also be turned in opposite directions by means of the worms, to adjust the slides toward and from the saw line independently of their adjustment by means of the lever  
 45 and without disconnecting them from said lever.

24. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw  
 50 line, of a pair of worm wheels geared to the respective slides and operating when turned in one direction to move the slides toward the saw line, and when turned in the opposite direction to move the slides away from  
 55 the saw line, an adjusting lever hung at one end upon the axis of said wheels, a pair of worms carried by said lever adjacent said wheels and engageable therewith and disengageable therefrom, and means carried by  
 60 the lever at its opposite end for controlling such engagement of the worms and worm wheels, for the purpose described.

25. In a re-sawing machine, the combination with the roll-stand slides movable  
 65 toward and from the saw line, of a pair of

worm wheels geared to the respective slides and operating when turned in one direction to move the slides toward the saw line and when turned in the opposite direction to  
 move the slides away from the saw line, a  
 70 weighted-adjusting lever hung upon the axis of said wheels, a pair of worms carried by said lever and normally engaging the worm wheels, whereby the weight of the lever tends to turn said wheels in the direction to  
 75 press the slides toward the saw line, and means for disengaging the worms from the worm wheels and reengaging them therewith at will, whereby said wheels may be turned in one direction or the other by manipulating  
 80 the lever and engaging the worms with and disengaging them from the wheels to adjust the slides toward and from the saw line, and whereby the wheels may also be turned in opposite directions by means of  
 85 the worms to adjust the slides toward and from the saw line independently of their adjustment by means of the lever and without disconnecting them from the lever.

26. In a re-sawing machine, the combination, with the roll-stand slides movable in  
 90 opposite directions toward and from the saw line, of a pair of worm wheels geared to the respective slides, so that the turning of said wheels in one direction moves the  
 95 slides toward the saw line, while the turning of them in the opposite direction moves them away from the saw line, an adjusting lever, a pair of worms carried by said lever and engageable with and disengageable from the  
 100 respective worm wheels at will, to permit said wheels to be turned in one direction or the other by manipulating the lever, and means for turning said worms for the purpose of turning the worm wheels and adjusting the slides independently of the manipulations of the lever and without disconnecting the slides from the lever.  
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27. In a re-sawing machine, the combination, with the roll-stand slides O P mounted  
 110 to slide in opposite directions toward and from the saw line, of the shaft G<sup>2</sup> geared to the slide P, the sleeve F<sup>2</sup> surrounding the shaft G<sup>2</sup> and geared to the slide O, the worm wheels Q<sup>2</sup> R<sup>2</sup> fast upon the sleeve F<sup>2</sup> and  
 115 shaft G<sup>2</sup>, respectively, the lever N<sup>2</sup> hung upon the axis of the wheels Q<sup>2</sup> R<sup>2</sup>, and the worms S<sup>2</sup> T<sup>2</sup> carried by the lever N<sup>2</sup> and meshing with the worm wheels Q<sup>2</sup> R<sup>2</sup>.

28. In a re-sawing machine, the combination, with the roll-stand slides O P mounted  
 120 to slide toward and from the saw line, of the shaft G<sup>2</sup> geared to the slide P, the sleeve F<sup>2</sup> surrounding the shaft G<sup>2</sup> and geared to the slide O, the worm wheels Q<sup>2</sup> R<sup>2</sup> fast  
 125 upon the sleeve F<sup>2</sup> and shaft G<sup>2</sup>, respectively, the lever N<sup>2</sup>, the shaft V<sup>2</sup> suitably mounted in the lever N<sup>2</sup> and carrying the worm T<sup>2</sup> and meshing with the worm wheel R<sup>2</sup>, the forked arm W<sup>2</sup> arranged within the lever  
 130

$N^2$ , the shaft  $U^2$  having its bearings in the forks of said arm, the worm  $S^2$  fast upon said shaft and meshing with the worm wheel  $Q^2$ , the spring  $X^3$  acting upon the arm  $W^3$  to yieldingly hold the worm  $S^2$  in mesh with the wheel  $Q^2$ , the lever  $Z^3$  carried by the lever  $N^2$  and coöperating with the arm  $W^3$ , and a latch  $c$  coöperating with the lever  $Z^3$ .

29. In a re-sawing machine, the combination, with the roll-stand slides  $O$   $P$  mounted to slide toward and from the saw line, of the shaft  $G^2$  geared to the slide  $P$ , the sleeve  $F^2$  surrounding the shaft  $G^2$ , and geared to the slide  $O$ , the worm wheels  $Q^2$   $R^2$  fast upon the sleeve  $F^2$  and shaft  $G^2$ , respectively, the lever  $N^2$ , the two forked arms  $W^2$  and  $W^3$  arranged within the lever  $N^2$ , the shafts  $V^2$   $U^2$  journaled in the forks of the respective arms  $W^2$   $W^3$ , the worms  $T^2$   $S^2$  fast upon the shafts  $V^2$   $U^2$  and meshing with the worm wheels  $R^2$   $Q^2$ , the springs  $X^2$   $X^3$  acting upon the arms  $W^2$   $W^3$  to yieldingly hold the worms  $T^2$   $S^2$  in mesh with the wheels  $R^2$   $Q^2$ , and the levers  $Z^2$   $Z^3$  carried by the lever  $N^2$  and coöperating with the respective arms  $W^2$  and  $W^3$ .

30. In a re-sawing machine, the combination, with the roll-stand slides  $O$   $P$  and a frame  $K$  upon which they are mounted to slide toward and from the saw line, of the shaft  $G^2$  journaled in said frame and geared at its rear end to the slide  $P$ , the sleeve  $F^2$  surrounding the shaft  $G^2$  and geared at its rear end to the slide  $O$ , the worm wheels  $Q^2$   $R^2$  fast upon the front ends of the sleeve  $F^2$  and shaft  $G^2$ , respectively, the lever  $N^2$  hung upon the front ends of the sleeve  $F^2$  and shaft  $G^2$ , the shaft  $V^2$  suitably mounted in the lever  $N^2$  and carrying the worm  $T^2$  and meshing with the worm wheel  $R^2$ , the forked arm  $W^3$  arranged within the lever  $N^2$ , the shaft  $U^2$  having its bearings in the forks of said arm and projecting through elongated openings in the lever  $N^2$ , the worm  $S^2$  fast upon said shaft and meshing with the worm wheel  $Q^2$ , the spring  $X^3$  acting upon the arm  $W^3$  to yieldingly hold the worm  $S^2$  in mesh with the wheel  $Q^2$ , the lever  $Z^3$  carried by the lever  $N^2$  and coöperating with a lug  $Y^3$  upon the arm  $W^3$ , and a latch  $c$  coöperating with the lever  $Z^3$ .

31. In a re-sawing machine, the combination, with the roll-stand slides  $O$   $P$  and a frame  $K$  upon which they are mounted to slide toward and from the saw line, of the shaft  $G^2$  journaled in said frame and geared at its rear end to the slide  $P$ , the sleeve  $F^2$  surrounding the shaft  $G^2$  and geared to the slide  $O$ , the worm wheels  $Q^2$   $R^2$  fast upon the front ends of the sleeve  $F^2$  and shaft  $G^2$ , respectively, the lever  $N^2$  hung upon the front ends of the sleeve  $F^2$  and shaft  $G^2$ , the two forked arms  $W^2$  and  $W^3$  arranged within the lever  $N^2$ , the shafts  $V^2$   $U^2$  journaled

in the forks of the respective arms  $W^2$   $W^3$  and projecting through elongated openings in the lever  $N^2$ , the worms  $T^2$   $S^2$  fast upon the shafts  $V^2$   $U^2$  and meshing with the worm wheels  $R^2$   $Q^2$ , the springs  $X^2$   $X^3$  acting upon the arms  $W^2$   $W^3$  to yieldingly hold the worms  $T^2$   $S^2$  in mesh with the wheels  $R^2$   $Q^2$ , and the levers  $Z^2$   $Z^3$  carried by the lever  $N^2$  and coöperating with the lugs  $Y^2$  and  $Y^3$  upon the respective arms  $W^2$  and  $W^3$ .

32. In a re-sawing machine, the combination, with the roll-stand slides movable toward and from each other and the saw line, of a weighted adjusting lever and means intermediate the same and the slides by which one slide may be detached and the other be independently adjusted step by step toward and from the saw line by manipulating said lever and both slides remain pressed toward the saw line in adjusted position by the weight of the lever after the adjustment has been effected.

33. In a re-sawing machine, the combination, with the roll-stand slides movable toward and from each other and the saw line, of a weighted adjusting lever and means intermediate the same and the slides by which the latter may be adjusted toward and from the saw line either simultaneously or one at a time by manipulating said lever and both slides remain pressed toward the saw line in adjusted position by the weight of the lever after the adjustment has been effected.

34. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line, of an adjusting lever and means intermediate the same and the slides by which either slide may be disconnected from the lever at will and the other slide be adjusted step by step toward and from the saw line by means of said lever and remain in adjusted position.

35. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line, of an adjusting lever and means intermediate the same and the slides by which both slides may be simultaneously adjusted in opposite directions toward or from the saw line or one slide be disconnected from the lever and the other independently adjusted toward or from the saw line by means of said lever and remain in adjusted position.

36. In a re-sawing machine, the combination, with the roll-stand slides movable toward and from each other and the saw line, of a weighted adjusting lever, and means intermediate said lever and slides whereby the latter may be adjusted step by step toward and from the saw line independently of each other by manipulations of the lever and both remain pressed toward the saw

line in adjusted position by the weight of the lever after their adjustment has been effected.

37. In a re-sawing machine, the combination, with the roll-stand slides movable toward and from each other and the saw line, of a weighted adjusting lever, and means intermediate said lever and slides whereby the latter may be adjusted toward and from the saw line, both simultaneously and independently of each other, by manipulations of said lever, and both slides remain pressed toward the saw line in adjusted position by the weight of the lever after their adjustment has been effected.

38. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line and each provided with a rack, of a pair of independently mounted wheels geared to the respective racks, so that the turning of said wheels in one direction moves both slides toward the saw line while the turning of them in the opposite direction moves both slides away from the saw line, and an adjusting lever and means intermediate the same and said wheels whereby said wheels may be turned independently of each other to separately adjust the slides toward and from the saw line by manipulating said lever.

39. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line and each provided with a rack, of a pair of wheels geared to the respective racks, so that the turning of said wheels in one direction moves both slides toward the saw line while the turning of them in the opposite direction moves both the slides away from the saw line, and an adjusting lever and means intermediate the same and said wheels whereby said wheels may be turned either simultaneously or one at a time in either direction by manipulations of said lever, to adjust the slides toward or from the saw line either simultaneously or independently.

40. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line and each provided with a rack, of a pair of wheels geared to the respective racks, so that the turning of said wheels in one direction moves both slides toward the saw line while the turning of them in the opposite direction moves both slides away from the saw line, and an adjusting lever and means intermediate the same and said wheels, whereby said wheels may be turned either simultaneously or one at a time in either direction by manipulations of said lever, means for throwing said lever out of cooperation with one of said wheels at will, to permit the slide geared to

said wheel to remain at rest while the other slide is adjusted toward and from it by manipulations of said lever, and means for holding said first mentioned slide in fixed position while out of cooperation with the lever.

41. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line, of a pair of wheels geared to the respective slides, so that the turning of said wheels in one direction moves both slides toward the saw line while the turning of them in the opposite direction moves both slides away from the saw line, an adjusting lever and means intermediate the same and said wheels whereby said wheels may be turned in either direction by manipulations of said lever, to adjust the slides toward and from the saw line, and means for turning each of said wheels in either direction independently of said operation of them by means of the lever, whereby the slides may be adjusted toward or from the saw line by means of the lever and also by means of said independent adjusting devices.

42. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line, of a pair of wheels geared to the respective slides, so that the turning of said wheels in one direction moves both slides toward the saw line while the turning of them in the opposite direction moves both slides away from the saw line, an adjusting lever and means intermediate the same and said wheels whereby said wheels may be turned in either direction by manipulations of said lever, to adjust the slides toward or from the saw line, and means carried by said lever for turning each of said wheels in either direction independently of said operation of them by means of the lever, for the purpose described.

43. In a re-sawing machine, the combination, with the roll-stand slides movable in opposite directions toward and from the saw line, of a pair of wheels geared to the respective slides, so that the turning of said wheels in one direction moves both slides toward the saw line while the turning of them in the opposite direction moves both slides away from the saw line, a weighted lever connected to said wheels and tending to turn them in a direction to force the roll-stand slides toward each other, and means for disconnecting the lever at will from one of the wheels, and for holding in fixed position the slide geared to such disconnected wheel, while the other is pressed toward it by the weight of said lever and left free to yield against the resistance of said weight, for the purpose described.

44. In a re-sawing machine, the combination, with the roll-stand slides movable in

opposite directions toward and from each other and the saw line, of a pair of wheels geared to the respective slides and mounted to turn either in the same or opposite directions, so that the turning of said wheels in one direction moves the slides toward the saw line while the turning of them in the opposite direction moves the slides away from the saw line, a weighted lever connected with said wheels and tending to turn them in a direction to force the slides toward the saw line, and means intermediate said lever and wheels whereby said wheels may be turned the one independently of the other in either direction by manipulating said lever, to adjust the slides toward or from the saw line, and the slides remain pressed toward each other by the weight of said lever after such adjustment is effected.

45. In a re-sawing machine, the combination, with the roll-stand slides movable toward and from the saw line, of a pair of independently rotatable wheels geared to the respective slides, so that the turning of said wheels in one direction moves the slides toward the saw line while the turning of them in the opposite direction moves the slides away from the saw line, a weighted lever connected with said wheels and tending to turn them in a direction to force the slides toward the saw line, and means intermediate said lever and wheels whereby said wheels may be turned either simultaneously or one at a time in either direction by manipulations of said lever, to adjust the slides toward or from the saw line, either together or separately, and the slides remain pressed toward each other by the weight of the lever after such adjustment has been effected.

46. In a re-sawing machine, the combination, with the roll-stand slides movable toward and from the saw line, of a pair of wheels geared to said slides and independently rotatable in either direction, the turning of which wheels in one direction or the other serves to move the slides in opposite directions toward or from the saw line, and an adjusting lever hung at one end upon the axes of said wheels and provided with a grasping handle at its opposite end, suitable devices carried by the lever at its end adjacent the wheels for connecting the lever with and disconnecting it from said wheels, to enable the wheels to be turned in one direction or the other by movements of the lever, and means at the opposite end of the lever, adjacent the grasping handle thereof, for controlling said connecting devices, whereby the wheels may be given successive movements in either direction by repeated manipulations of the lever, to give the slides successive movements either toward or from the saw line.

47. In a re-sawing machine, the combination, with the roll-stand slides movable to-

ward and from the saw line, of a pair of toothed wheels geared to said slides and operating when turned in one direction to move the slides toward the saw line and when turned in the opposite direction to move the slides away from the saw line, said wheels being independently rotatable in either direction, an adjusting lever hung upon the axes of said wheels and provided at its end adjacent said wheels with devices coöperating as a dog with said toothed wheels, to connect the lever with and disconnect it from said wheels, and means at the opposite end of the lever connected to said devices and controlling their engagement with and disengagement from the toothed wheels, for the purpose described.

48. In a re-sawing machine, the combination, with the roll-stand slide movable in opposite directions toward and from the saw line, of a wheel geared to said slide and operating when turned in one direction to move the slide toward the saw line and when turned in the opposite direction to move the slide away from the saw line, an adjusting lever hung upon the axis of said wheel, and means intermediate said lever and wheel for connecting the lever with and disconnecting it from the wheel, to permit the wheel to be turned in opposite directions by manipulations of the lever, and for turning said wheel in opposite directions independently of the manipulations of the lever, to adjust the slide toward and from the saw line.

49. In a re-sawing machine, the combination, with the roll-stand slides movable toward and from the saw line, of an adjusting lever, and means intermediate the same and the respective slides for causing the movement of the lever in one direction to move the slides toward the saw line and its movement in the opposite direction to move them away from the saw line, means carried by the lever for disconnecting said lever from one of the slides at will, to permit the latter to remain at rest while the other slide is adjusted toward and from it, the hand wheel  $D^4$  having the grooved hub  $C^4$  mounted in the box  $B^4$ , so that the wheel and hub are free to turn but are held from longitudinal movement, the threaded rod  $E^4$  extending through the hub  $C^4$  and adjustable longitudinally by the turning of said hub and hand wheel, and means for connecting the rod  $E^4$  with and disconnecting it from the aforesaid disconnected slide at will, for the purpose described.

50. In a re-sawing machine, the combination, with the roll-stand slides  $O$   $P$  mounted to slide toward and from the saw line, of a shaft  $G^2$  geared to the slide  $P$ , a sleeve  $F^2$  surrounding the shaft  $G^2$  and geared to the slide  $O$ , toother wheels, as  $Q^2$   $R^2$ , fast upon the sleeve  $F^2$  and shaft  $G^2$ , respectively, a lever  $N^2$ , and means carried by said lever

and coöperating with the wheels  $Q^2 R^2$ , whereby the latter may be turned independently of each other in one direction or the other, to independently adjust the slides  $O P$  toward and from the saw line, by manipulating said lever.

51. In a re-sawing machine, the combination, with the roll-stand slides  $O P$  mounted to slide toward and from the saw line, a shaft  $G^2$  geared to the slide  $P$ , a sleeve  $F^2$  surrounding the shaft  $G^2$  and geared to the slide  $O$ , toothed wheels, as  $Q^2 R^2$ , fast upon the sleeve  $F^2$  and shaft  $G^2$ , respectively, the lever  $N^2$  fulcrumed upon the axis of the sleeve  $F^2$  and shaft  $G^2$ , the two arms  $W^2$  and  $W^3$  carried by the lever  $N^2$  and provided at

one end with means coöperating with the toothed wheels  $Q^2 R^2$  to turn the latter in one direction or the other at the movements of the lever  $N^2$ , springs yieldingly holding said arms in coöperative relation with the wheels  $Q^2 R^2$ , the levers  $Z^2 Z^3$  coöperating with said arms to withdraw them at will from coöperation with the wheels  $Q^2 R^2$ , and means, as a latch  $c$ , for holding one of said arms out of coöperative relation with said wheels.

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Witnesses:

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