Aug. 15, 1939. J. S. RICHARDSON 2,169,394

FEEDING MECHANISM

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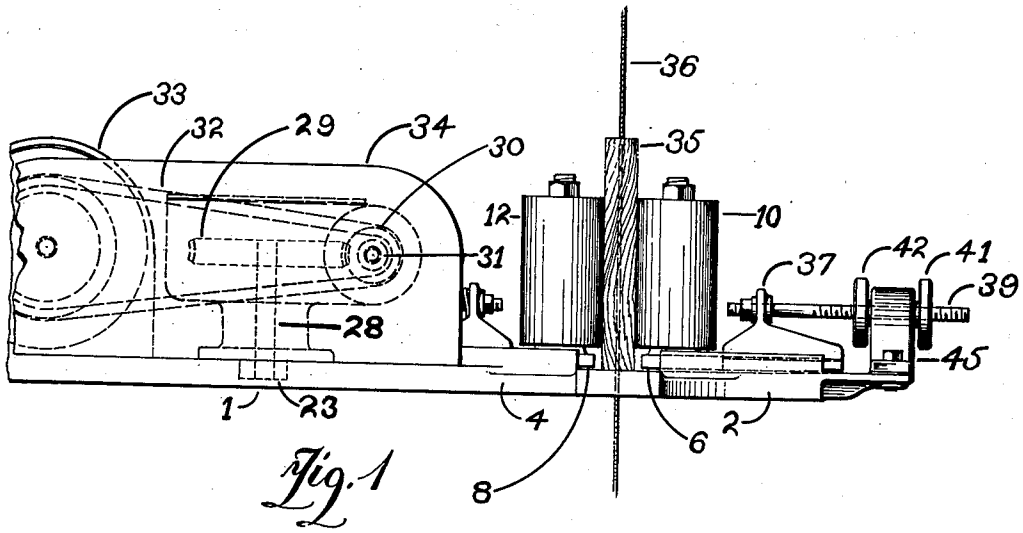



Fig. 1

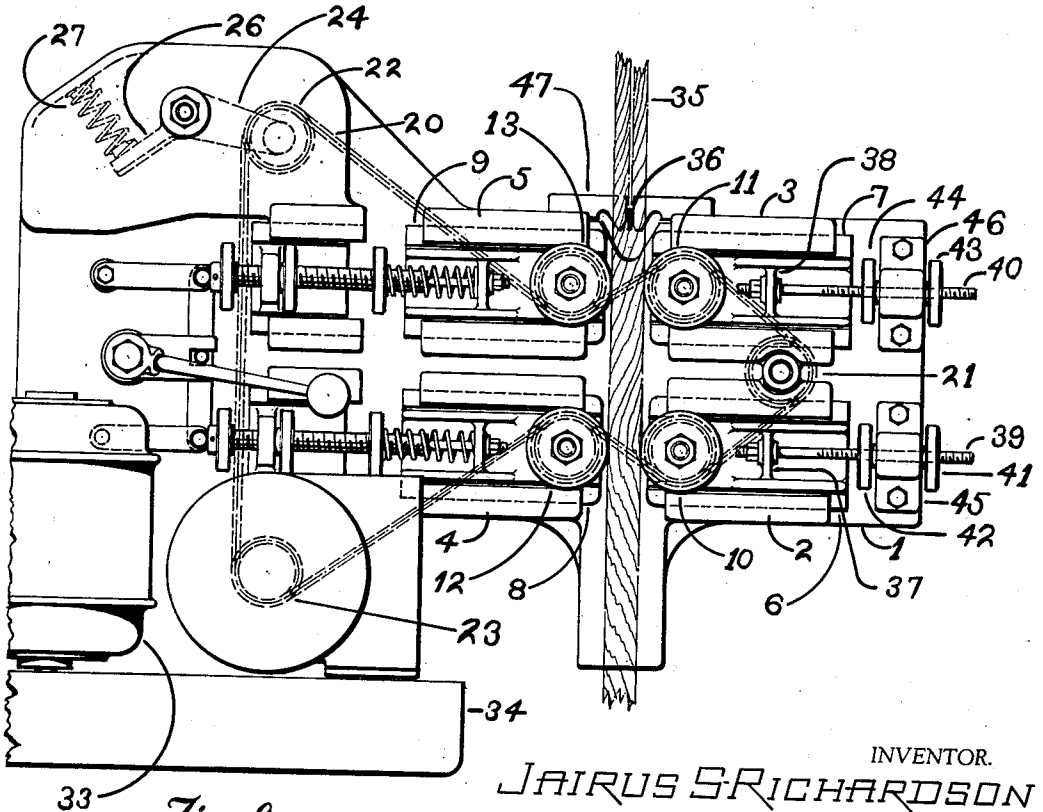



Fig. 2

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Fig. 3

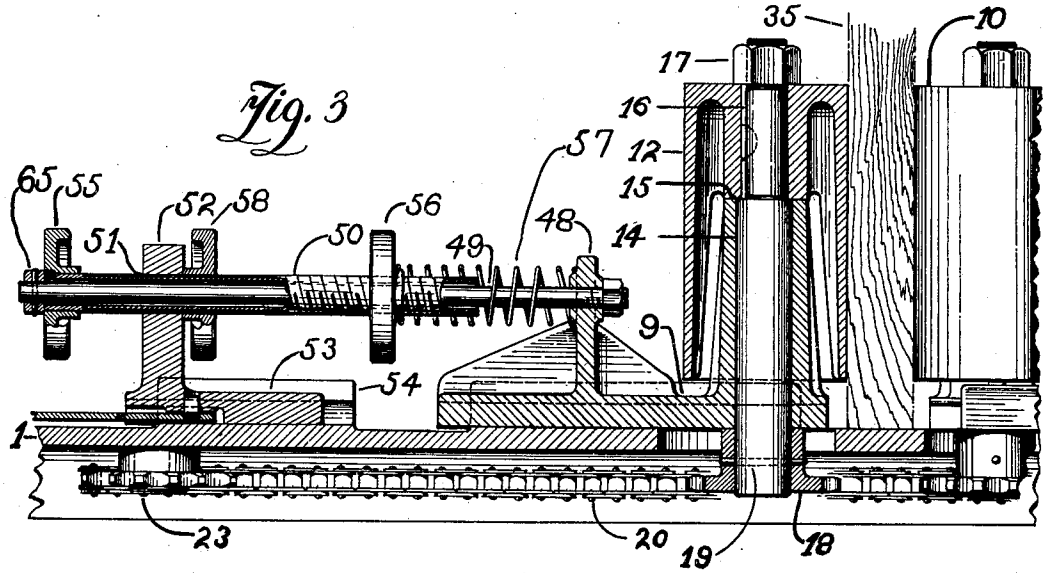
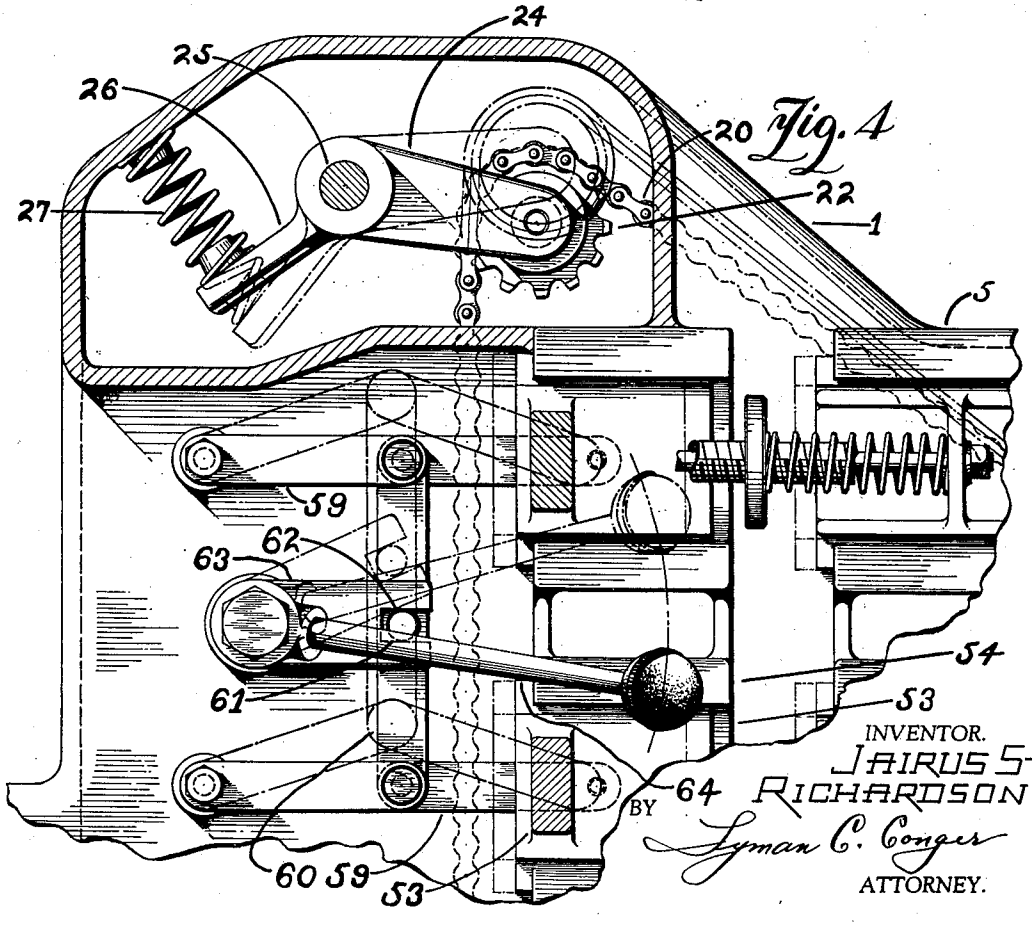



Fig. 4




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# UNITED STATES PATENT OFFICE

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## FEEDING MECHANISM

Jairus S. Richardson, Sheboygan Falls, Wis.

Application March 15, 1937, Serial No. 130,903

2 Claims. (Cl. 143—5)

My invention relates to improvements in feeding mechanism for woodworking machines such as, for example, a saw, and the objects of my invention are, first, to provide means for feeding stock toward fabricating means such as a saw, said stock being held firmly in position for accurate fabrication; second, to provide means for adjusting the feeding mechanism to accommodate stock of various sizes; third, to provide spring urged means for engaging said feeding mechanism with the stock; fourth, to provide means for adjusting the tension of the spring without affecting the adjustment of the feeding mechanism and, fifth, to provide means whereby the feeding mechanism may readily be engaged with or disengaged from the stock.

Other objects and advantages will become apparent from the detailed description hereinafter.

I attain these objects by the mechanism illustrated in the accompanying illustration, in which—

Figure 1 is a side view of the feeding means; Figure 2, a plan view thereof; Figure 3, a side view thereof partly in longitudinal section through a roll and the mounting means therefor and Figure 4, a plan view of a portion thereof showing the engaging and disengaging means, certain parts being broken away to show the interior mechanism.

The mechanism is mounted on the base 1 which is provided with the ways 2, 3, 4 and 5. Roller bases 6, 7, 8 and 9 are slidably mounted in the ways 2, 3, 4 and 5 as shown. Feeding rollers 10, 11, 12 and 13 are rotatably mounted on the roller bases 6, 7, 8 and 9 by any suitable means such as the spindle 14 which is journaled in the roller base and is provided with the shoulder 15 and the reduced portion 16, the roller being provided with a cylindrical bore adapted to receive the reduced portion 16. A nut 17 provides means for clamping the roller upon the shoulder 15.

The bottom portion of the spindle 14 is provided with a sprocket wheel 18, mounted beneath the base 1 which is hollowed out as shown in Figure 3 and attached to the spindle by suitable means such as the pin 19. It will be understood that each of the rollers 10, 11, 12 and 13 are provided with a similar spindle and sprocket wheel.

The spindles 14 are driven through the sprocket wheel 18 by means of an endless chain 20 which also passes over the sprockets 21 and 22 and the sprocket 23. The sprocket 22 is mounted on the bracket 24 which is pivoted on the shaft 25 and is provided with an extending arm 26. A spring 27 bears at one extremity on the frame 1 and at the other extremity on the arm 26 thus tending to pivot the bracket 24 about the shaft 25 and keeping the chain 20 under constant spring tension.

The sprocket 23 is non-rotatably secured to the shaft 28 which, in turn, is non-rotatably secured to the worm gear 29 which meshes with a worm gear 30 mounted on the shaft 31, driven by the belt 32 from the motor 33. A suitable housing 34 may be provided if desired.

It will be noted that, as shown in Figure 2, the chain 20 passes over opposite sides of the sprockets of rollers 10 and 12 and likewise on opposite sides of rollers 11 and 13. Thus the rollers 10 and 11 are driven in a direction opposite to that of the rollers 12 and 13 thus both sets of rollers operate to feed the stock 35 through the passageway between the rollers 10 and 11 and 12 and 13 toward the fabricating mechanism, in this instance the saw 36.

Roller bases 6 and 7 are provided with upstanding lugs 37 and 38 to which are attached adjusting rods 39 and 40 threaded to receive adjusting wheels 41 and 42 and 43 and 44 respectively, the rods 39 and 40 passing through bores in brackets 45 and 46 secured to the base 1. Rotation of the adjusting wheels causes longitudinal travel of the adjusting rods and corresponding movement of the roller bases. Thus the feeding rollers 10 and 11 may be moved inwardly or outwardly to accommodate stock of various sizes or to change the location of the cut on the stock.

The device is particularly, though not necessarily exclusively, adapted for use with a band saw and in this case a saw guide 47 is positioned below the stock as shown in Figure 3. This guide, in addition to the conventional band saw guide, accurately positions the saw 36 and allows very accurate work to be done.

The roller bases 8 and 9 are provided with upstanding lugs 48 as best shown in Figure 3, to which are attached adjusting rods 49. The rods 49 are enclosed in adjusting sleeves 50, having a sliding fit therein. As will be noted, particularly from Figure 3, the adjusting sleeve 50 does not extend the full length of the rod 49 but is spaced somewhat from the lug 48. The adjusting sleeves 50 are exteriorly threaded and have threaded connection at 51 with the upstanding lugs 52 of the bases 53 which are slidably mounted in the ways 54 for a purpose hereinafter described.

Adjusting wheels 55 are mounted on the sleeves 50 but are not free to rotate or travel thereon. Spring tension adjusting wheels 56 are threadedly mounted on the sleeves 50 at a point between the

lug 52 and the lug 48. Springs 57 are positioned surrounding the rods 49 and sleeves 50 and bear, at one extremity, on the lug 48 and, at the other extremity, on the adjusting wheel 56.

It will thus be seen that rollers 12 and 13 are pressed against the stock by the pressure of the springs 57 which, in turn, presses the stock against the rollers 10 and 11 thus engaging the rollers firmly with the stock yet permitting them to give to compensate for inequalities in the stock as in such a case the rod 49 may be forced backwardly through the sleeve 50 against the pressure of the spring 57.

The stop 65 limits movement of the rod in the opposite direction so that rotation of the wheel 55, causing movement of the adjusting sleeve 50 through its threaded connection with the base 52 causes a corresponding movement of the rod 49, the spring 57 normally holding the stop 65 in engagement with the wheel 55.

The tension of the spring 57 may be adjusted by turning the wheel 56. Similarly the spacing of rollers 12 and 13 from the rollers 10 and 11 may be adjusted by turning the wheel 55. It will be noted that either of these adjustments may be made independently of the other, that is, the tension of the spring 57 may be adjusted without affecting the position of the rollers while the position of the rollers may be adjusted without affecting the tension of the spring. This forms an important feature of the invention.

A locking wheel 58 is threaded on the sleeve 50 to prevent accidental change of the adjustment.

The bases 53 are pivotally connected to one extremity of the toggle arms 59 which are pivotally connected, at the opposite extremity, to the base 1. The toggle arms 59 are pivoted intermediate their extremities and pivotally connected to the cross bar 60. The cross bar 60 is provided with the upstanding stud 61 which is adapted to have a sliding fit in the slot 62 in the arm 63 to which is attached the operating handle 64.

Operation of the operating handle 64 in the manner shown by the dotted lines of Figure 4 causes the toggle arms 59 to be bent and shortened, retracting the bases 53 in the ways 54 and thus retracting the rollers 12 and 13.

Thus the feeding of the stock may be halted at any time by retracting the rolls 12 and 13 by means of the operating handle 64 or the rollers retracted for any other purpose such as convenience in placing stock, etc.

It will be understood that the specific mechanism herein disclosed is for the purpose of illustration only and that various modifications thereof may be made without departing from the spirit of the invention, therefore I do not limit myself to the specific details shown but claim all mechanisms within the purview of my invention and the scope of the appended claims.

I claim:

1. Feeding mechanism comprising, in combination, a feeding roller base, a feeding roller mounted thereon, a second base, an adjusting sleeve having threaded connection to said second mentioned base, an adjusting rod slidably fitting in said sleeve and attached to said feeding roller base, a stop limiting motion of said adjusting rod in the direction of said base, an adjusting wheel threadedly mounted on said adjusting sleeve and a spring positioned intermediate said adjusting wheel and said roller base and adjustable to vary the thrust thereof against said roller base by means of said adjusting wheel without affecting the position of said feeding roller base.

2. Feeding mechanism comprising, in combination, a feeding roller base; a feeding roller mounted thereon; an adjusting rod attached to said feeding roller base; means for varying the adjustment of said adjusting rod whereby to vary the position of said feeding roller base; an adjusting sleeve enclosing said adjusting rod, having a sliding fit thereon and spaced from said feeding roller base; said adjusting sleeve being exteriorly threaded; a second base; a lug on said second base threadedly connected to said adjusting sleeve; an adjusting wheel threadedly mounted on said adjusting sleeve and a coil spring positioned circumjacent said adjusting rod and bearing against said adjusting wheel at one extremity and at the opposite extremity bearing against said feeding roller base.

JAIRUS S. RICHARDSON.