April 20, 1948. LE ROY W. SLY 2,440,158

MOUNTING AND CONTROL MEANS FOR ADJUSTABLE SAWS

Filed May 2, 1945 2 Sheets-Sheet 1

Fig. 1

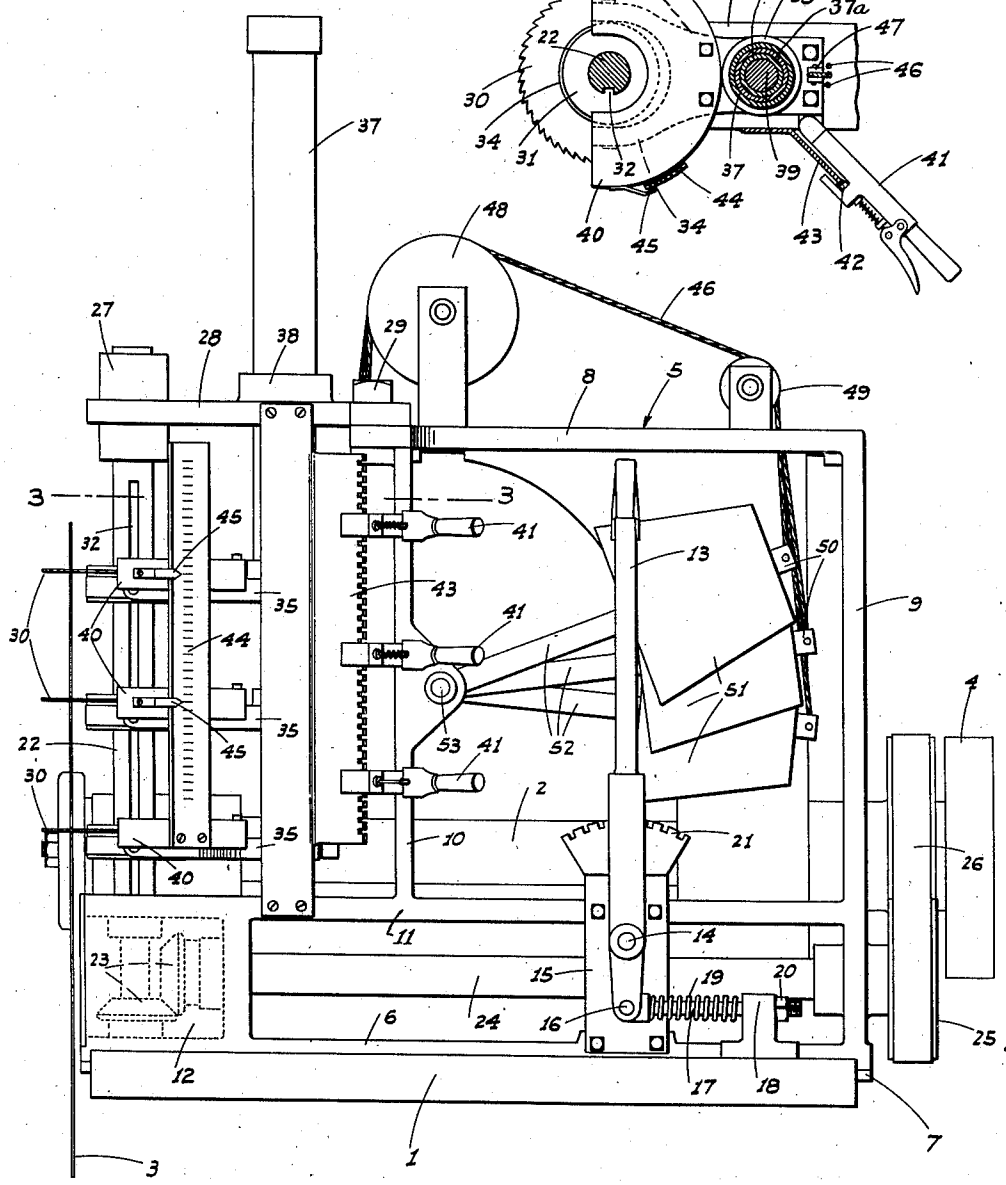


Fig. 3

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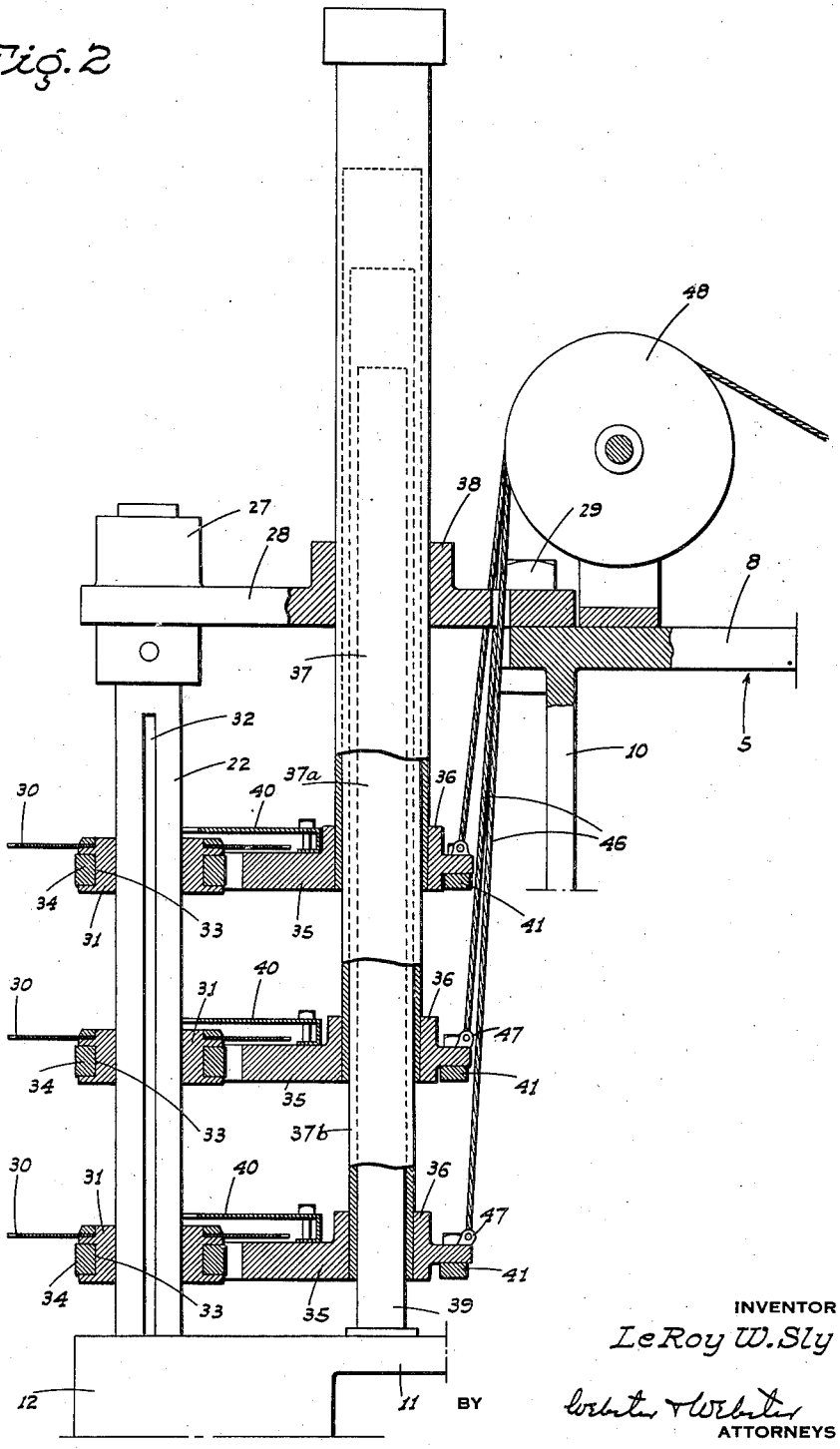
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Fig. 2



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MOUNTING AND CONTROL MEANS FOR ADJUSTABLE SAWS

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8 Claims. (Cl. 143—37)

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The present invention relates generally to sawmills, and in particular the invention is directed to, and it is an object to provide, improvements in the sawmill shown in U. S. Patent No. 1,962,329.

Another object of this invention is to provide a simplified mounting and control mechanism for the vertically adjustable edging saws of a sawmill assembly of the type to which the above identified issued patent is directed.

A further object of the invention is to provide independent and selectively operative, manual adjusting means for each of the vertically adjustable edging saws; the latter being counterbalanced for ease of adjustment.

An additional object of the invention is to provide a mount for the edging saws which permits of ready removal thereof, for replacement or sharpening, without dismantling other portions of the mill.

It is also an object of the invention to incorporate a novel gauging device in combination with the edging saws and adjusting means, whereby to visually indicate to the operator the width to which the boards will be cut by said saws.

A further object of the invention is to produce a simple and inexpensive sawmill, and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a side elevation of the improved sawmill showing particularly the adjustable mount and control mechanism for the vertically adjustable edging saws.

Figure 2 is an enlarged fragmentary sectional elevation of said mount.

Figure 3 is a fragmentary cross section on line 3—3 of Fig. 1.

Referring now more particularly to the characters of reference on the drawings, the mill comprises a base, indicated generally at 1, adapted to be rigidly mounted and supported, intermediate its ends, a cross shaft 2 which is fitted at its forward end with a circular rip saw 3. The cross shaft 2 is driven from the opposite end by a drive pulley 4 adapted to be connected with suitable drive means (not shown).

To one side of the cross shaft 2 the base 1 supports an upstanding frame, indicated generally at 5, and which frame extends transversely

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of the base 1 parallel to the shaft 2. The frame 5 includes a bottom beam 6 formed with a horizontal slide 7 which engages with a tongue and groove fit in a matching channel in the base 1, whereby said frame 5 is slidable transversely of the base 1. The frame 5 includes a horizontal top beam 8, a vertical back beam 9, a vertical front beam 10, and a horizontal intermediate beam 11; the intermediate beam 11 and the bottom beam 6 projecting forwardly some distance ahead of the front beam 10 and at their outer ends being included in a gear box 12.

The upstanding frame is adjusted, transversely of the base 1, by an upright hand lever 13 pivoted adjacent but short of its lower end, as at 14, on an upstanding bracket plate 15 which is secured to, and extends between, the bottom beam 6 and the intermediate beam 11. The lower end of hand lever 13 is pivotally connected, as at 16, with a control rod 17 which extends rearwardly in slidable relation through an upstanding ear 18 on the base 1. A compression spring 19 surrounds the rod 17 between the lower end of lever 13 and the ear 18, while a stop nut 20 is threaded on said rod for engagement against the ear 18 on the side opposite the spring. The hand lever 13 is normally but releasably held in fixed position by means of a pawl and quadrant unit, indicated in part at 21. When the pawl and quadrant unit 21 is released, the hand lever 13 is swung in one direction or the other to effect sliding movement of the frame 5 transversely of the base 1, which controls the depth of cut of the edging saws, as will hereinafter appear. The employment of the spring 19 permits the entire frame 5 to shift rearwardly in the event that the hereinafter described edging saws strike an obstruction.

Ahead of the front beam 10 the mill includes a vertical drive shaft 22 which extends upwardly from within the gear box 12; said drive shaft being driven by a bevel gear unit 23 within said gear box, and which bevel gear unit is in turn driven by a horizontal cross shaft 24 supported in the frame 5 and extending to the back thereof. At the back of frame 5 the cross shaft 24 is fitted with a pulley 25 driven by a flexible endless belt 26 from the cross shaft 2; the flexible belt permitting of transverse adjustment of the frame 5 and its supported mechanism.

At its upper end the vertical drive shaft 22 extends through a bearing 27 fitted on the outer end of a horizontal frame bracket 28 which is removably mounted, as at 29, in connection with, and projects forwardly from, the forward and upper end of the frame 5.

A plurality of circular edging saws 30 surround the drive shaft 22 in vertically spaced relation, and each of said edging saws is fitted on a rotary collar 31 which surrounds the drive shaft 22 in vertically slidable but relatively non-rotatable relation, as each of the collars 31 includes a key riding in a vertical spline 32 of said drive shaft. In other words, the edging saws 30 are capable of adjustment up and down the shaft 22, while remaining in driven relation to the same.

Each of the rotary collars 31 is formed with an annular peripheral channel 33 in which a horizontal shifting fork 34 cooperatively engages; each shifting fork including a shank 35 which extends horizontally rearwardly. Each shank 35 is formed, adjacent its rear end, with a vertical hub 36.

The hubs 36 each engage about the lower end of a separate vertically elongated, tubular guide 37, 37*a* or 37*b*; the tubular guides being arranged in slidable telescopic relation to each other, with a minimum of loose play therebetween and with their lower ends terminating in vertically staggered relation, as shown in Fig. 2. The outer tubular guide 37 extends through a guide neck 38 on the frame bracket 28, while the innermost tubular guide 37 engages in slidable relation over a rigid guide post 39, which is mounted on and extends vertically from, the intermediate beam 11 in front of the front beam 10, i. e., parallel to the drive shaft 22. Substantially semi-circular guards 40 are mounted on the fork shanks 35 and surround the rear half portion of the circular edge saws 30.

Each edging saw unit, as above described, is manually vertically adjustable by means of the following arrangement:

Each of the fork shanks 35 is fitted at the rear with a horizontal rearward and laterally diagonaled hand lever 41 by means of which the corresponding edging saw unit may be shifted up or down relative to the drive shaft 22. Each of the horizontal hand levers 41 includes a spring pressed latch 42 adapted to engage, at any selected point, with a vertical rack 43 mounted on the frame 5 adjacent the assembly of the tubular guides 37. By manipulating the hand levers 41 an operator may readily and accurately set the edging saw units to the desired relative positions, which positions control the width of the boards being edged by said units.

In order to facilitate setting of the edging saw units, a vertical scale or gauge 44 is fixed to one of said units and extends upwardly alongside the others; said other units each including a pointer 45 reading on said gauge. By this arrangement the operator of the hand levers 41 can readily determine exactly the spacing between the edging saw units.

To assure of easy adjustment of the edging saw units up or down relative to each other the same are counterbalanced in the following manner:

A flexible cable 46 is attached to an ear 47 at the rear end of each fork shank 35 and thence extends upwardly over direction-changing pulleys 48 on the top beam 8 at the front of the frame 5. From the pulleys 48 the cables 46 extend rearwardly and pass in depending relation over other pulleys 49. From the pulleys 49 the cables 46 extend downwardly to connection, as at 50, with separate flat-sided, adjacent counterweights 51 disposed in side by side relation within the frame 5. The counterweights 51 each include a supporting shank 52, and said shanks extend forwardly to pivotal connection with the front beam 10 on a common axis, as at 53. When the operator manipulates one of the hand levers 41 the corresponding counterweight 51 moves upwardly or downwardly in counterbalancing relation to the corresponding edging saw unit.

When the above described mill structure is in operation, a log carried on a log carriage (not shown) shuttles back and forth in front of the base 1, the rip saw 3 cutting boards from the log, while the edging saw units, including saws 30, cut such boards to width; the depth of cut of the saws 30 having been pre-adjusted by means of the hand lever 13.

If it is desired to use the edging saws 30 independently of the rip saw 3, the frame 5 may be advanced sufficiently to permit of use of said edging saws on work passing outwardly of the rip saw 3 on the carriage.

When it is desired to remove the edging saws 30 for sharpening or replacement, it is only necessary to detach the frame bracket 28 from the frame 5, and the cables 46 from the forks 34, whereupon the tubular guides 37 with the corresponding edging saw units may be successively removed upwardly from the structure and clear of the drive shaft 22.

From the foregoing description it will be readily seen that there has been produced such a sawmill as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the sawmill, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described the invention, the following is claimed as new and useful and upon which Letters Patent is desired:

1. An edging saw assembly for sawmills comprising a frame, a driven vertical shaft on the frame, a plurality of vertically spaced, circular edging saws surrounding the shaft, collars on which the saws are secured, said collars being slidably splined to the shaft and having peripheral channels therein, a horizontal shifting fork engaged in each channel, vertical guide means for said forks, and means releasably latching said forks for manual vertical adjustment; said guide means comprising telescopically arranged tubular guides, the forks being fixed to corresponding ones of said guides at the lower end thereof, and a vertical guide rod over which the innermost guide slidably engages.

2. An edging saw assembly as in claim 1 including a projecting frame portion including a bearing for the upper end portion of the shaft, and a guide neck through which the outermost tubular guide slidably extends; said frame portion being removable.

3. An edging saw assembly for sawmills, comprising a frame, a driven shaft upstanding from the frame, a guide rod upstanding from the frame in spaced but parallel relation to the shaft, a plurality of telescopically arranged tubular guides surrounding and guided by the rod, a shifting member fixed on and projecting from the lower end of each tubular guide, said shifting members being vertically spaced, a circular saw supported by each member and surrounding the shaft in vertically slidable, driven relation, and normally latched but releasable, manually actuated means to vertically adjust said members separately and selectively.

4. An edging saw assembly for sawmills, com-

prising a frame, a driven shaft upstanding from the frame, a guide rod upstanding from the frame in spaced but parallel relation to the shaft, a plurality of telescopically arranged tubular guides surrounding and guided by the rod, a shifting member fixed on and projecting from the lower end of each tubular guide, said shifting members being vertically spaced, a circular saw supported by each member and surrounding the shaft in vertically slidable, driven relation, a hand lever rigidly secured to and projecting from the unit of each shifting member and corresponding tubular guide, and means releasably latching each hand lever against vertical movement.

5. An edging saw assembly for sawmills, comprising a frame, a driven shaft upstanding from the frame, a guide rod upstanding from the frame in spaced but parallel relation to the shaft, a plurality of telescopically arranged tubular guides surrounding and guided by the rod, a shifting member fixed on and projecting from the lower end of each tubular guide, said shifting members being vertically spaced, a circular saw supported by each member and surrounding the shaft in vertically slidable, driven relation, and normally latched but releasable, manually actuated means to vertically adjust said members separately and selectively; there being a counterweight corresponding to each saw movably mounted on the frame, and means connecting each counterweight in counterbalancing relation to the corresponding shifting member and tubular guide unit.

6. An edging saw assembly for sawmills, comprising a frame, a driven shaft upstanding from the frame, a guide rod upstanding from the frame in spaced but parallel relation to the shaft, a plurality of telescopically arranged tubular guides surrounding and guided by the rod, a shifting member fixed on and projecting from the lower end of each tubular guide, said shifting members being vertically spaced, a circular saw supported by each member and surrounding the shaft in vertically slidable, driven relation, and normally latched but releasable, manually actuated means to vertically adjust said members separately and selectively; each shifting member including a hub surrounding and fixed to the corresponding tubular guide, and counterbalancing means for the shifting member and tubular guide units, said counterbalancing means including upwardly extending cables connected to the members adjacent said hubs.

7. An edging saw assembly for sawmills comprising a rigid frame which includes a pair of beams spaced apart vertically, a vertically disposed shaft journaled at its upper and lower ends in the top and bottom beams, respectively, means to drive the shaft, a plurality of saws mounted in driven relation on the shaft and slidable along the length thereof, a rigid guide post fixed to the lower beam and projecting vertically upward therefrom in spaced relation to the shaft, a plurality of tubular guides telescopically mounted one upon the other for relative sliding movement, the lowermost of said guides being telescopically slidable over said guide post, means on each guide for supporting a saw in operative position on the shaft, and means for vertically adjusting each guide independently of the others.

8. An edging saw assembly for sawmills comprising a rigid frame which includes a pair of beams spaced apart vertically, the upper beam including a removable bracket as a part thereof, a vertically disposed bearing and a vertically disposed collar arranged on said bracket in spaced apart relation, a vertical shaft journaled in the lower beam and in the bearing in the bracket, means to drive the shaft, a plurality of saws mounted in driven relation on the shaft and being slidable along the length thereof, a rigid post fixed to the bottom beam and projecting vertically in axial alinement with the collar on the bracket, the cross sectional diameter of the post being less than the cross sectional interior diameter of the collar, a plurality of tubular guides telescopically mounted one upon the other for relative sliding movement, the lowermost of said guides being slidably mounted over the post and the uppermost one of said guides having a sliding fit through said collar, means on each guide for supporting a saw in operative position on the shaft, and means for vertically adjusting each guide independently of the others.

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