June 19, 1923. 1,459,604

I. H. SANDAGE

RECIPROCATING SAW

Filed Feb. 27, 1922 2 Sheets-Sheet 1

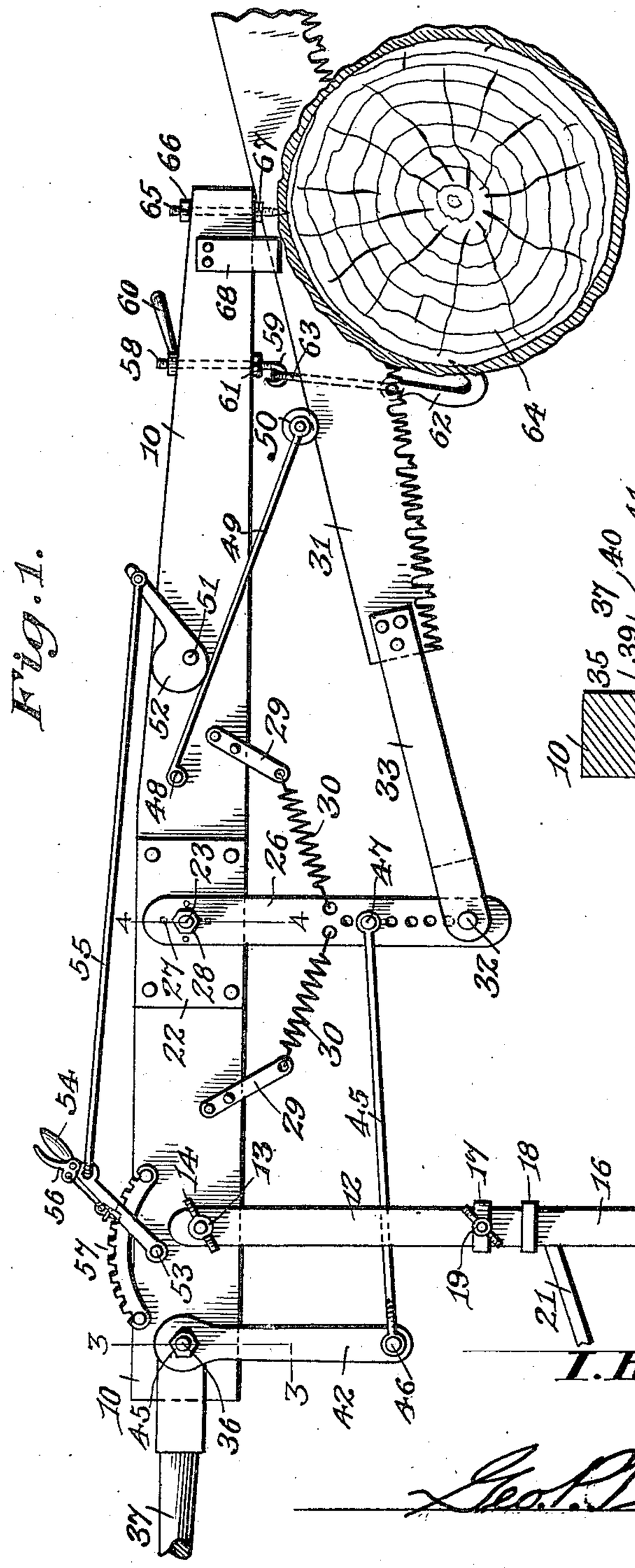

Fig. 1.

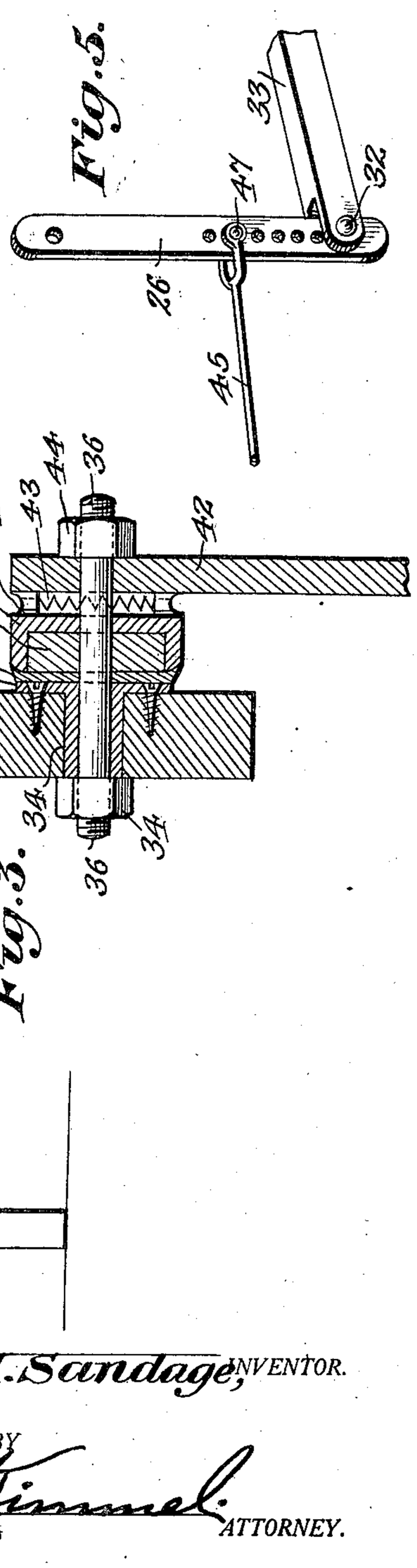

Fig. 2.

Fig. 3.

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Fig. 7.

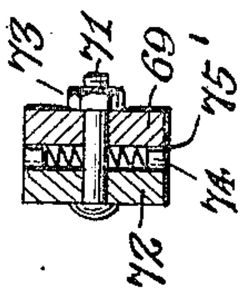


Fig. 4.

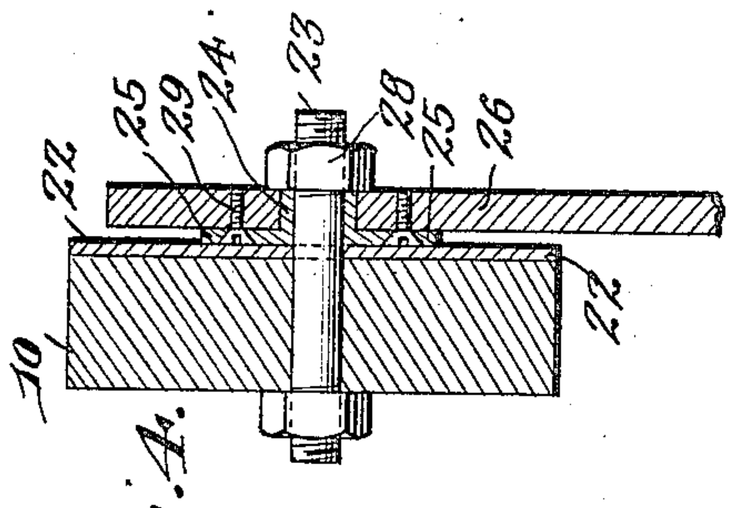


Fig. 6.

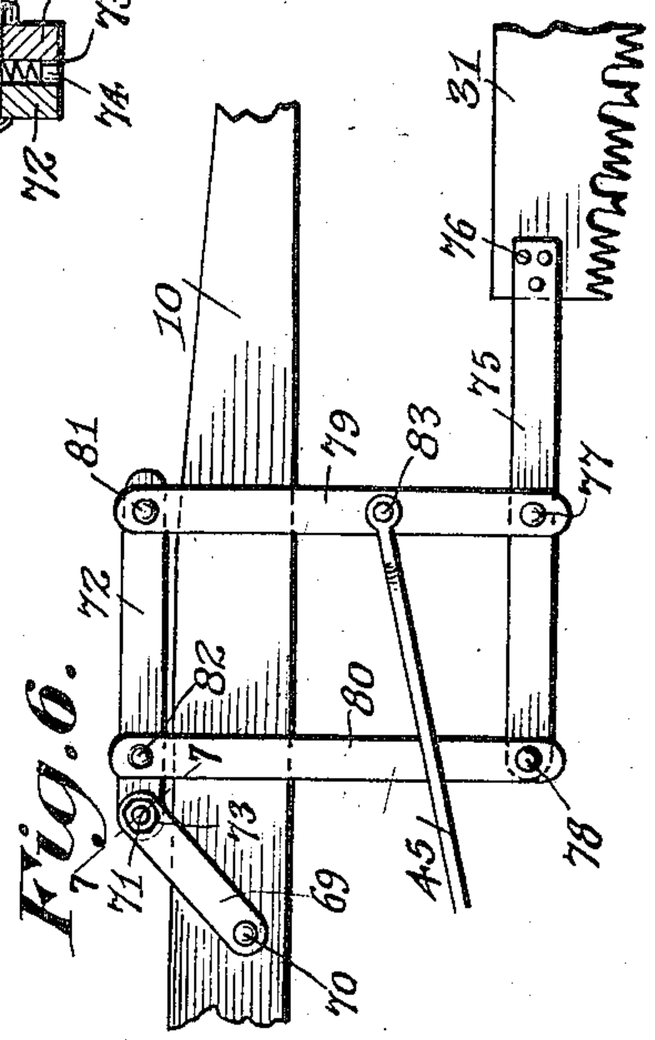
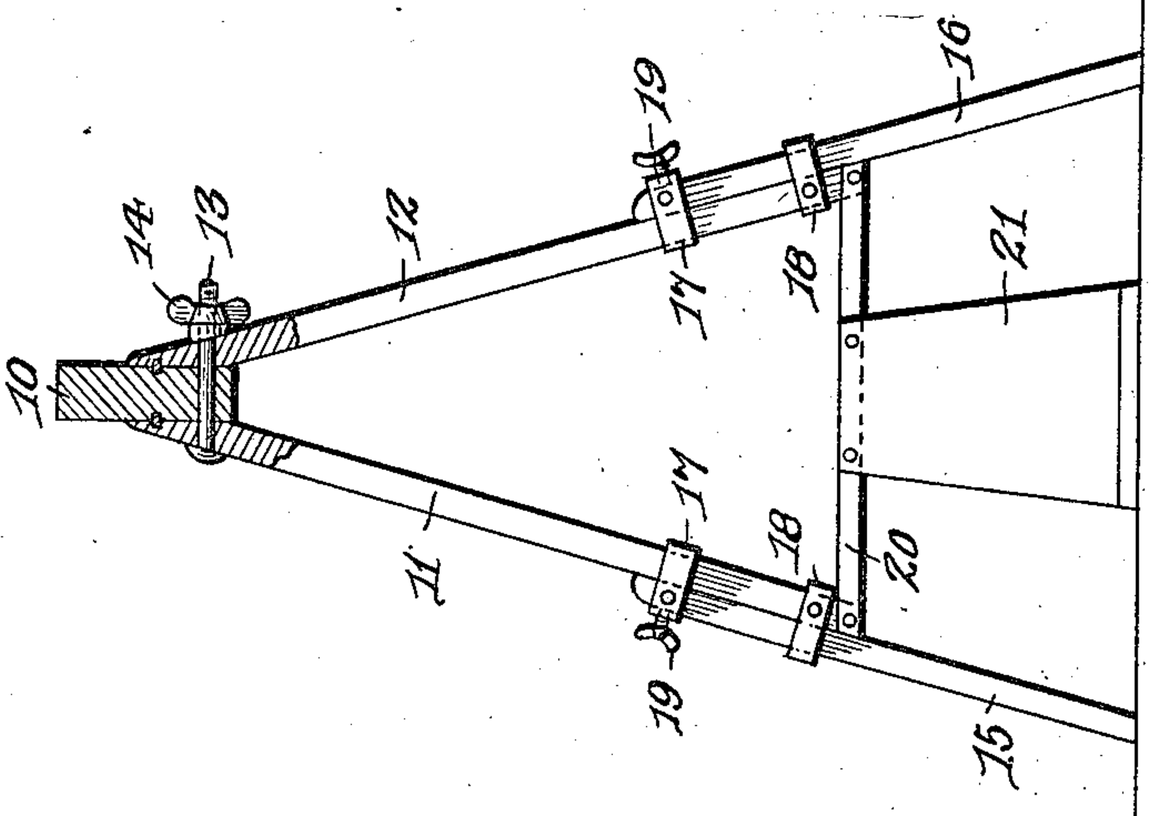


Fig. 2.



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UNITED STATES PATENT OFFICE.

ISAAC H. SANDAGE, OF SANDPOINT, IDAHO.

RECIPROCATING SAW.

Application filed February 27, 1922. Serial No. 539,662.

To all whom it may concern:

Be it known that I, ISAAC H. SANDAGE, a citizen of the United States, residing at Sandpoint, in the county of Bonner and State of Idaho, have invented certain new and useful Improvements in Reciprocating Saws, of which the following is a specification.

This invention relates to sawing machines of the class of hand operated drag saws, and has for one of its objects to provide a device of this character of improved construction and increased efficiency.

Another object of the invention is to provide a device of this character having means whereby the device may be readily adapted to logs of varying sizes without material structural change.

Another object of the invention is to provide a device of this character having improved means for producing the requisite tension and for holding the saw to its work and causing it to "follow up" the cutting.

With these and other objects in view the invention consists in certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claim, and in the drawings illustrative of the preferred embodiment of the invention:—

Figure 1, is a side elevation of the improved apparatus.

Figure 2, is an elevation of the adjustable support for the beam of the improved apparatus, partly in sections.

Figure 3, is an enlarged sectional detail on the line 3—3 of Fig. 1.

Figure 4, is an enlarged sectional detail on the line 4—4 of Fig. 1.

Figure 5, is a perspective detail of a portion of the operating mechanism.

Figure 6, is a detail illustrating a modification in the construction to enable the device to be employed on relatively large logs.

Figure 7, is a section on the line 7—7 of Figure 6.

The improved apparatus comprises a main supporting beam 10, and a supporting "horse" or stand, near one end, the latter comprising main side members or legs 11 and 12 bolted or otherwise secured to the beam, as shown, by a bolt 13 having a wing nut 14, so that the beam and legs may be easily separated when required.

The legs 11 and 12 are provided with extensions 15 and 16 adjustably coupled to the legs 11 and 12 by sleeves 17 and 18 and set screw 19.

At their lower ends the legs 11 and 12 are connected by a tie member 20, and coupled to the tie member is a foot rest 21 to enable the operator to apply his weight to hold the "horse" or stand and the beam attached thereto in position.

Attached to the beam 10 is a wear plate 22, and extending through the beam and the plate, is a relatively large pivot bolt 23, and mounted for rotation on the pivot bolt is a sleeve 24 having a flange 25, and mounted on the sleeve is an arm 26, the flange 25 being secured to the arm by screws 27 or other suitable fastening devices. A clamp nut 28 bears against the outer end of the sleeve 24 and the adjacent portion of the arm 26. By this means the arm 26 is mounted to swing upon the pivot bolt, and the friction and wear is borne by the portions 22 and 25, which may be easily renewed when worn.

Attached to the beam 10 at each side of the plate 22 and spaced therefrom are hangers 29, and connected to the hangers and to the arm 26 are springs 30, the latter operating to hold the arm 26 yieldably and normally in vertical position, and to return it to normal position when released, as hereafter explained.

A drag saw is shown conventionally at 31, and is coupled at 32 to the lower end of the arm 26 by a connecting member 33, the arm having a plurality of spaced apertures to receive the member 32 to enable the member 33 and the saw attached thereto to be adjusted to control the "throw" of the saw.

Extending through the beam 10 near one end is a wear sleeve 34 having a lateral flange 35, the latter to receive fastening screws or the like.

Extending through the sleeve 34 and its flange 35, is a pivot bolt 36, and mounted for rotation on the pivot bolt is an operating handle or lever 37. Disposed around the bolt 36 and bearing against the flange 35 is a wear plate 39, and surrounding the bolt externally of the member 39 and bearing over adjacent portions of the latter, is a shell member 40, the shell having serrations or teeth 41 in its outer face.

Swinging upon the bolt 36 externally of the shell member 40 is an operating member

or link 42 having teeth 43 corresponding to and co-acting with the teeth 41 as represented in Figure 3.

A clamp nut 44 engages the bolt 36 and operates to hold the teeth or serrations 41 and 43 in locked position to enable the operating member 42 to be adjusted and held at any desired angle relative to the handle 37.

A connecting rod 45 is pivotally connected at its ends as shown at 46 and 47 to the members 26 and 42.

Pivoted at 48 to the beam 10 is a rod 49 having a grooved bearing roller 50 at the free end in constant engagement with the back edge of the saw 31.

Pivoted at 51 to the beam 10 is a cam device 52 operating to engage the rod 49 and thus control the position of the rod.

Pivoted at 53 to the beam 10 is an operating lever 54, the latter coupled to the cam device 52 by a rod 55. The lever 54 is provided with a pawl device 56 coacting with a notched segment 57 as shown in Figure 1. By this means the position of the cam device 52 can be controlled and the latter in turn can control the action of the roller 50 upon the saw and enable the operator to "follow up" the cutting action, and maintain the saw in operative or cutting position.

Extending through the beam 10 is a rod 58 having a hook 59 at the lower end and a lever nut 60 at the upper end whereby the rod may be adjusted to control the position of the hooked terminal 59. A lock nut 61 is applied to the rod 58 to hold it in adjusted position.

A relatively large grab hook 62 is coupled to the hook 59 of the rod 58 by a link device 63, the grab hook being designed to engage the log which is to be sawed at one point, the log being represented conventionally at 64.

Disposed through the beam 10 at the end nearest the log 64 is a pointed stud 65 held in position by clamp nuts 66 and 67, with its lower pointed end adapted to be driven into the log and coacting with the hook 62 to hold the log from rolling during the reciprocatory action of the saw.

A notched saw guide block 68 is attached to the beam 10 to receive the upper edge of the saw and retain it in position relative to the beam during the movement of the saw.

In actuating the improved device the operator after adjusting the saw to the log by coupling the holding devices 62 and 65 in position, stands upon the foot board 21, or at least applies sufficient weight thereto to hold the "horse" or stand in position, and operates the handle 37 vertically and thus causes the saw to reciprocate and cut through the log, and as the cutting proceeds, the operator manipulates the lever 54 and thus causes the feed device 49—50 to keep the saw in operative position, as will be obvious.

In Figures 6 and 7 a modification is shown which enables the improved device to be adopted to cut larger logs. In the modified structure a link 69 is pivoted at 70 to the beam 10, and pivoted at 71 to the outer end of the link is an arm 72, the latter held in position upon the link by a clamp nut 73. The members 69 and 72 are provided with coacting serrations 74 and 75′ in their confronting faces to enable them to be locked in adjusted position.

A bar 75, corresponding to the bar 33, is attached at 76 to the saw 31 and coupled pivotally at 77 and 78 to radius bars 79 and 80, the latter in turn coupled at 81 and 82 to the bar 72.

The coupling rod 45 is pivoted at 83 to the bar 79.

By this arrangement if a larger log is to be sawed, the clamp nut 73, is loosened to release the teeth 73 and 74 and the link 69 turned upon its pivot 70 to enable the saw to be elevated to correspond to the larger log, and the nut 73 then retightened to hold the saw in its new position.

The cutting operation is the same in both arrangements shown.

The improved device is simple in construction, can be inexpensively manufactured and of any required size, and operates effectually for the purposes described.

The preferred embodiment of the invention is disclosed in the drawings and set forth in the specification, but it will be understood that modifications within the scope of the claimed invention may be made in the construction without departing from the principle of the invention or sacrificing any of its advantages.

Having thus described the invention, what is claimed as new is:—

In an apparatus of the class described, a supporting beam, a link pivoted at one end to said beam, an arm pivoted at one end to said link for swinging the same, means for adjustably locking the link to the arm, coacting radius bars swinging at one end from said beam in spaced relation, another bar pivotally coupled to the free ends of said radius bars and adapted to be coupled to a saw, and means attached to the other end of said link and to said radius bars for swinging the same, whereby the saw may be actuated at varying heights.

In testimony whereof I affix my signature hereto.

ISAAC H. SANDAGE.