Dec. 8, 1953 W. G. SAUNDERS 2,661,779

COMBINATION LOG-DOGGING AND TAPER-SETTING APPARATUS

Filed Nov. 7, 1952 2 Sheets-Sheet 1

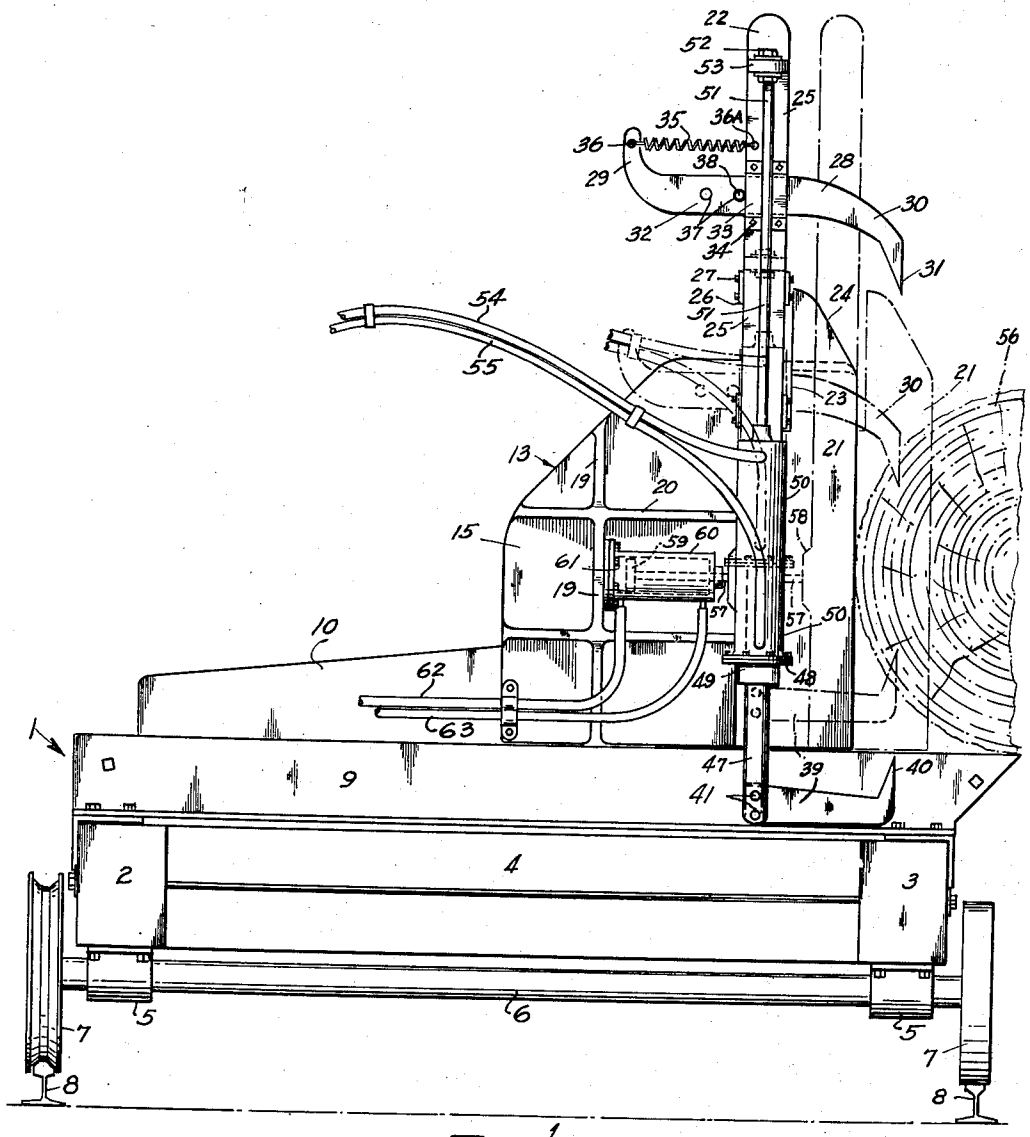


Fig. 1

WILLIAM G. SAUNDERS
INVENTOR.

BY James D. Givnan
ATTY

Dec. 8, 1953 W. G. SAUNDERS 2,661,779

COMBINATION LOG-DOGGING AND TAPER-SETTING APPARATUS

Filed Nov. 7, 1952

2 Sheets-Sheet 2

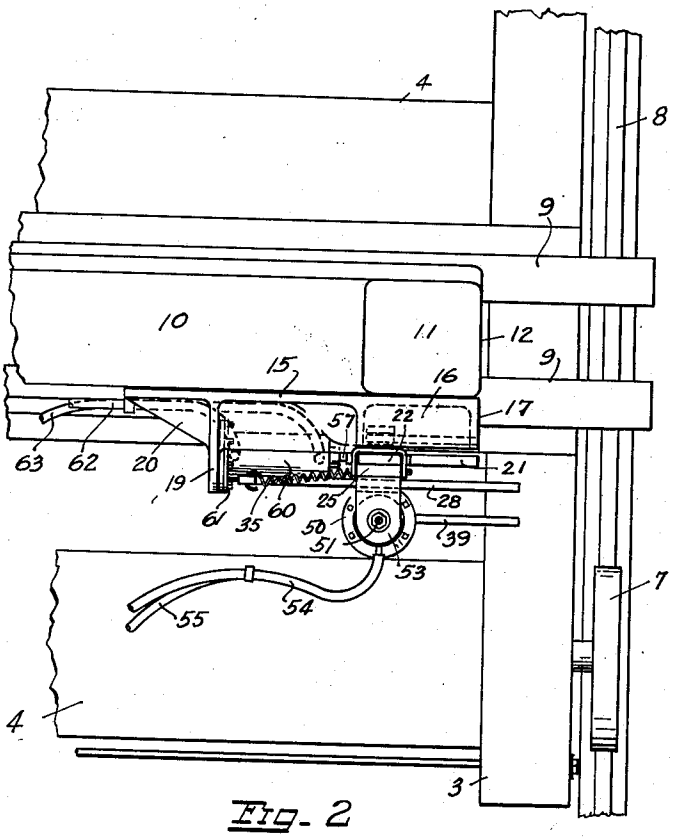


Fig. 2

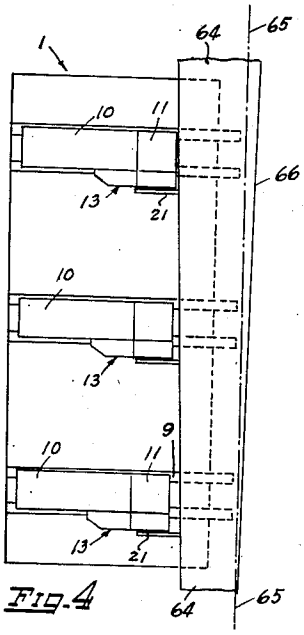


Fig. 4

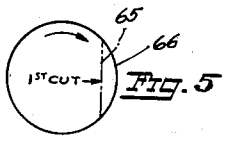


Fig. 5

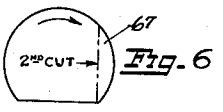


Fig. 6

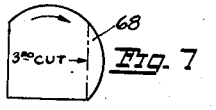


Fig. 7

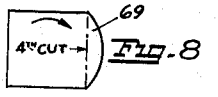


Fig. 8

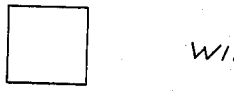


Fig. 9

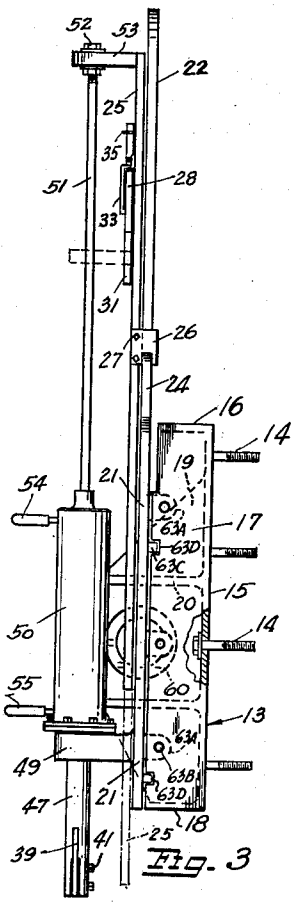


Fig. 3

INVENTOR.
WILLIAM G. SAUNDERS
BY
James A. Givnan
ATT'Y

Patented Dec. 8, 1953

2,661,779

UNITED STATES PATENT OFFICE

2,661,779

COMBINATION LOG-DOGGING AND TAPER-SETTING APPARATUS

William G. Saunders, Eugene, Oreg.

Application November 7, 1952, Serial No. 319,212

2 Claims. (Cl. 143—122)

1

This invention relates to improvements in sawmill machinery and more particularly to a device readily adaptable for attachment to any sawmill carriage for dogging a log and adjusting and setting abutments by means of which the taper of the log can be set and maintained throughout its length of travel with respect to the saw.

Another object of the invention is the provision of a device of this character which is of simple, efficient, durable, and rugged construction whose operation can be controlled within precision limits by a single operator to save lumber heretofore wasted and to increase the rate of production of finished timbers.

A further object is the provision of apparatus of this kind which may be conveniently and safely operated by manually actuated valves remotely disposed from the apparatus.

These and other objects will appear as my invention is more fully hereinafter described in the following specification, illustrated in the accompanying drawings and finally pointed out in the appended claims.

In the drawings:

Figure 1 is an end view of a sawmill carriage showing in side elevation my invention operatively applied thereto.

Figure 2 is a top plan view of the invention and a fragmentary view of the carriage.

Figure 3 is an end view of the invention removed from the carriage.

Figure 4 is a diagrammatic top plan view of a carriage equipped with my invention and showing a log mounted on the carriage and adjusted and held by the invention in position to be fed to a saw by movement of the carriage along its tracks.

Figures 5, 6, 7, 8 and 9 are diagrammatic end views of a log illustrating the manner in which the log is rotated and progressively cut throughout its length to eliminate the taper in four operations instead of one as heretofore.

Referring now more particularly to the drawings:

In Figure 1, reference numeral 1 indicates generally a conventional sawmill carriage having a frame or chassis made up of longitudinal side members 2 and 3 interconnected at their ends and at intermediate points by cross-members 4. The chassis is mounted by means of bearings 5 to axle 6 provided with supporting wheels 7 by means of which the entire carriage is movable forwardly or rearwardly along tracks 8, in a path of travel in fixed spaced relation to a saw (not shown) which does not constitute a part of the

2

invention. Ordinarily a sawmill carriage is provided with three spaced apart transverse sets of rails 9 upon each set of which is slidably mounted a head-block 10 formed at one of its ends with a knee 11 having a vertical end wall 12. Ordinarily each of these head-blocks must be operated individually by an attendant to advance or retract the head-block and the log to which it is engaged toward and away from the saw to set the taper at which the log is to be cut.

With my invention the three head blocks may remain in a fixed position and the moving of the log into various positions with respect to the saw is accomplished by a single operator, instead of several as heretofore, through the medium of two conventional control valve mechanisms (not shown) thus greatly reducing the labor cost and at the same time enabling the operator to quickly and accurately set the taper as aforesaid. These advantages are obtained by providing an auxiliary head-block 13 secured to one side of each of the main head-blocks and knees by any approved means such for instance as bolts 14, which extend through the back wall 15 of the auxiliary head-block. Said back wall 15 is cast integral with a top wall 16, vertical front wall 17, bottom wall 18, and intersecting vertical and horizontal reinforcing gussets 19 and 20, respectively. As shown in Figure 2 the front wall 17 of the auxiliary head-block is at all times flush with the front wall 12 of the main head-block.

The taper-setting element of the invention comprises a vertical plate 21 formed with an elongated vertical extension 22 and is slotted downwardly as at 23 from its top edge. The top forward corner of the plate 21 tapers upwardly and rearwardly as at 24 to deflect any logs being lowered onto the carriage away from the top front corner of the plate. The vertical extension 22 of the plate 21 serves as a supporting column for a fluid pressure dog-actuating mechanism comprising an elongated frame bar 25 equal in width to that of the supporting column. The bar 25 is slidably attached to the column 22 for vertical up and down movement by means of shackles or U-shaped brackets 26 which embrace the supporting column and whose leg portions are bolted as at 27 to the sides of the bar 25. Although I have shown only one dog 28 operatively attached to the bar 25 it is to be understood that two or more may be carried by the bar if desired and since they would all be identical a description of one will suffice for all. The dog 28 as best illustrated in Figure 1 is made of flat bar stock turned upwardly at its inner end as at 29, and downwardly as at 30 terminating

in a pointed outer end 31. The straight horizontal portion 32 of the dog is slidably mounted to the bar 25 for forward and rearward movement with respect thereto by means of a bracket 33 secured as at 34 to the bar. The dog is normally maintained in its advanced position as shown by means of a tension spring 35 whose one end is secured as at 36 to the upturned end 29 of the dog and whose opposite end is secured as at 36A to the bar 25. The horizontal portion of the dog is provided with spaced apart apertures 37 into which a pin 30 is selectively inserted to determine the spacing of the pointed end 31 of the dog from the front vertical edge of the plate 21.

Cooperating with the horizontally adjustable upper dog or dogs 28 is a bottom dog 39 pointed as at 40 at its outer end and secured as at 41 at its inner end to the bottom end of a vertical shaft 47 secured to or formed integral with a cylinder head 48. The shaft 47 is slidably mounted for vertical movement in a bearing 49 secured to or cast integral with the plate 21. The cylinder head 48 is secured to and closes one end of a vertically disposed cylinder 50 having a reciprocating piston (not shown) therein secured to one end of a vertical connecting rod 51 whose opposite or top end is secured as at 52 to a bracket 53 which is secured to or formed integral with the top end of the vertically movable bar 25. The interior of the cylinder 50 is in open communication with fluid pressure lines 54 and 55 connected through manually actuated valves (not shown) to a source of fluid pressure such as steam, air, or the like. The dogs as shown in full lines in Figure 1 are in an inoperative position or in other words separated a maximum distance to allow the placement of a log 56, shown in broken lines, on the transverse skids or rails 9 of the carriage. The dogs are moved into these inoperative positions by manipulating the control valve to supply fluid pressure through line 55 to the interior of the bottom end of the cylinder 50 beneath the piston disposed therein. This pressure will maintain the cylinder seated upon the top of the bearing 49 and the dog 39 in its lowermost position while the piston, connecting rod 51, and bar 25, secured to the connecting rod as aforesaid, will move into their uppermost positions. For reversing the movement of the parts just described to force the pointed ends of the dogs into engagement with the log to maintain it on the carriage, pressure to the interior of the cylinder is reversed by manipulating the control valve to direct pressure through line 54 above the now elevated piston to force it, the connecting rod and bar 25 downwardly. When the pointed end of the dog 28 contacts the log the resistance set up thereby to further downward movement of the piston will cross the cylinder 50 to be lifted by the expansion of the pressure between the top surface of the piston and the underside of the closed top end of the cylinder. This upper movement of the cylinder will of course, through the medium of its depending shaft 47, pull the pointed end 40 of the dog 39 up into secure engagement with the underside of the log. The depth of penetration of the dogs into the log is of course determined by the amount of pressure applied to the interior of the cylinder 50.

The taper-setting plate 21 and its related parts above described are movable outwardly from the full line position to the broken line position in Figure 1 and to any desired positions therebetween by means of a connecting rod 57 connected

at its outer end to the rear edge of the plate 21 by being threaded into a projection or enlargement 58 formed on said inner edge. The opposite or inner end of the connecting rod 57 is connected to a reciprocating piston 59 movable within a horizontally disposed cylinder 60 secured as at 61 to one of the vertical gussets 19, and in open communication with fluid pressure supply lines 62 and 63 connected through a manually actuated control valve (not shown) to a source of supply such as steam, air, or the like. For forcing the plate 21 outwardly to any desired distance within its limit of travel, pressure is applied through line 62 to the interior of the cylinder back of or to the left hand side of the piston 59 as viewed in Figure 1. For reversing the movement of the plate 21 to retract it to its starting position shown in full lines, the pressure previously supplied through line 62 is released. The control valve is again manipulated to direct pressure through line 63 to the interior of the cylinder 60, on the opposite side of the piston to force it and its related parts back to their starting positions.

For maintaining the plate 21 and its related parts in a vertical position and in proper working relation to the auxiliary head-block 13, I provide the rear face of the plate with apertured lugs 63A by means of which the plate is slidably mounted upon rods 63B secured at their inner ends to certain of said vertical gussets 19 and at their outer ends to the front wall 17 of the auxiliary head-block. To further stabilize said plate 21 and to prevent the lugs 63A from binding in their travel along the rods I provide the rear face of the plate 21 with horizontal bars 63C slidable in notches 63D formed in said front wall 17 and also in certain of said vertical gussets 19.

The operation of my invention is as follows:

When all of the taper-setting plates are in their retracted positions as shown in full lines in Figure 1, one side of a log 64 rolled upon the carriage (see Fig. 4) will come into contact throughout its length with the aligned surfaces or front walls 17 of the auxiliary head-blocks and the corresponding front walls 12 of the main head-blocks, then by manipulation of the dogs 28 and 39 as aforesaid the log will be securely held on the carriage and against said main and auxiliary head-blocks. If the outside of the log were cut while held in this position a great waste of the tapered portion of the log would result. However, with a log in this initial position the single operator of my invention through manipulation of the control valves as aforesaid selectively or progressively advances the taper-setting plates sufficiently to force the log into a position where its longitudinal axis becomes parallel to the longitudinal edge of the carriage and to the line of the cut that the saw will make, such for instance, as indicated at 65, to remove the tapered portion 66 of the log. Following this the dogs are released and the log is rotated through 90 degrees so that it will rest upon the carriage along the flat portion created by the saw cut 65 as shown in Figure 6. The dogs are again engaged with the log and the sawing and rotating operations are repeated as shown in Figures 6, 7, and 8, until the remaining tapered portions 67, 68, and 69 are removed which results in a timber of square formation in cross-section as illustrated in Figure 9.

While I have shown a particular form of embodiment of my invention, I am aware that many minor changes therein will readily suggest themselves to others skilled in the art without

departing from the spirit and scope of the invention. Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. Apparatus of the class described comprising in combination an auxiliary head-block adapted to be secured to a main head-block on a sawmill carriage, said auxiliary head-block comprising a vertical frame, a vertical taper-setting plate slidably attached to said frame, at least one dog slidably attached to said plate and adapted for vertical and horizontal movement, pressure-actuated means carried by said plate and adapted at one of its ends to move said dog upwardly or downwardly in a vertical plane, a second dog secured to the opposite end of said pressure-actuated means, a second pressure-actuated means carried by the frame and connected to said plate for moving the same outwardly and inwardly with respect to said frame, whereby said dogs will be pulled into and forced out of engagement with a log upon actuation of said first mentioned pressure-actuated means and whereby said plate will shift said log outwardly or inwardly with respect to said frame upon actuation of said second pressure-actuated means.

2. Apparatus of the character described comprising an auxiliary head-block adapted to be secured to a main head-block of a sawmill carriage and comprising a vertically disposed frame,

a taper-setting element in the form of a vertical plate slidably attached to said frame for outward and inward movement with respect thereto, said plate having a vertical extension, a bar slidably attached to said extension for vertical up and down movement, at least one dog slidably and yieldingly attached to said bar for movement in a horizontal plane, pressure-actuated means slidably mounted at one of its ends to said plate and connected at its opposite end to said bar, a second dog secured to said one end of said pressure-actuated means, a second pressure-actuated means secured to said frame operable independently of said first mentioned pressure-actuated means and connected at one of its ends to said taper-setting plate whereby said dogs will be forced into engagement with a log and said taper-setting plate will be moved outwardly with respect to said frame for arranging the longitudinal axis of a log in parallel relation to a saw.

WILLIAM G. SAUNDERS.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,340,042	Gilmour	May 11, 1920
1,772,052	Martin	Aug. 5, 1930
1,846,621	Tanner	Feb. 23, 1932