

Feb. 17, 1953

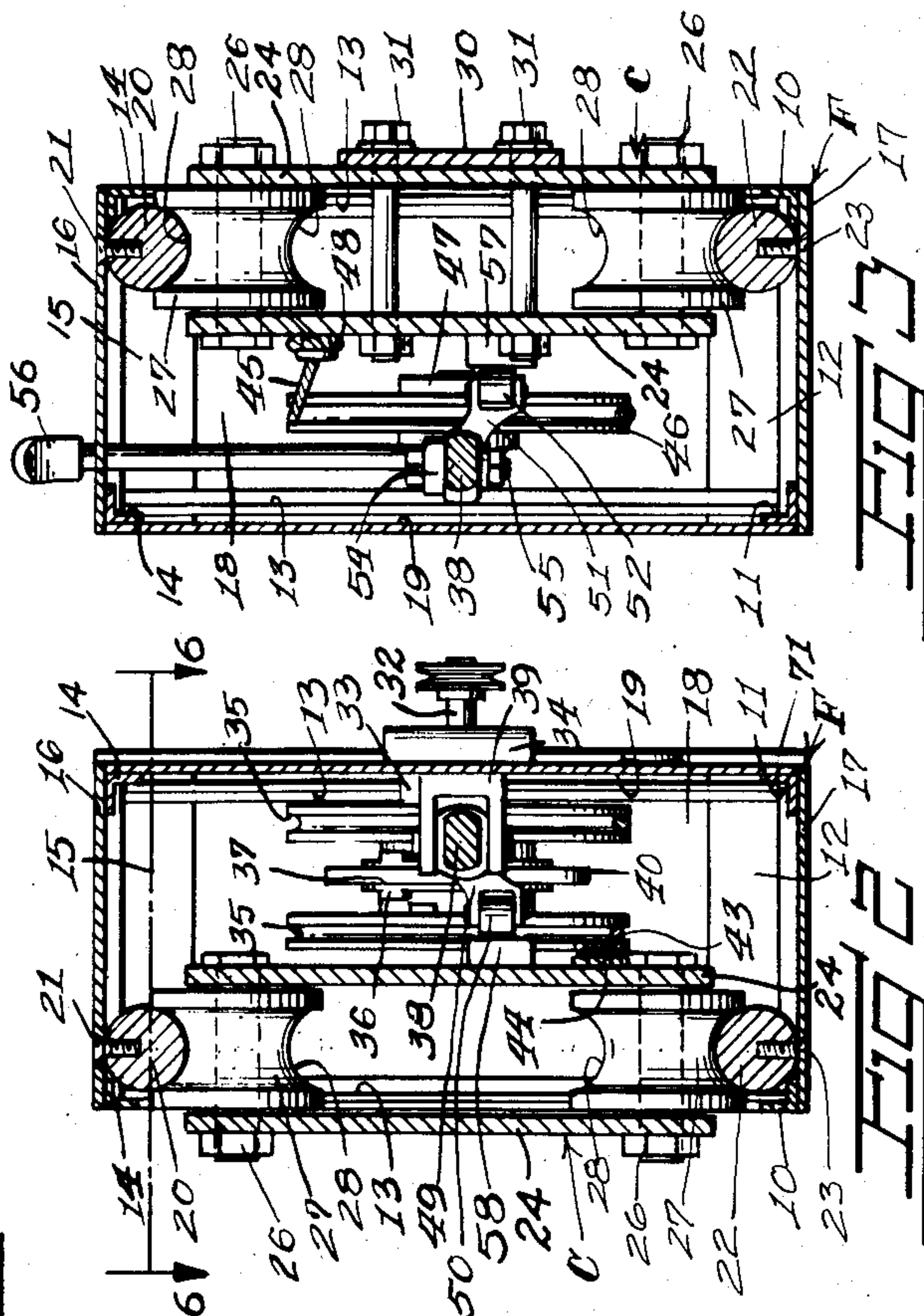
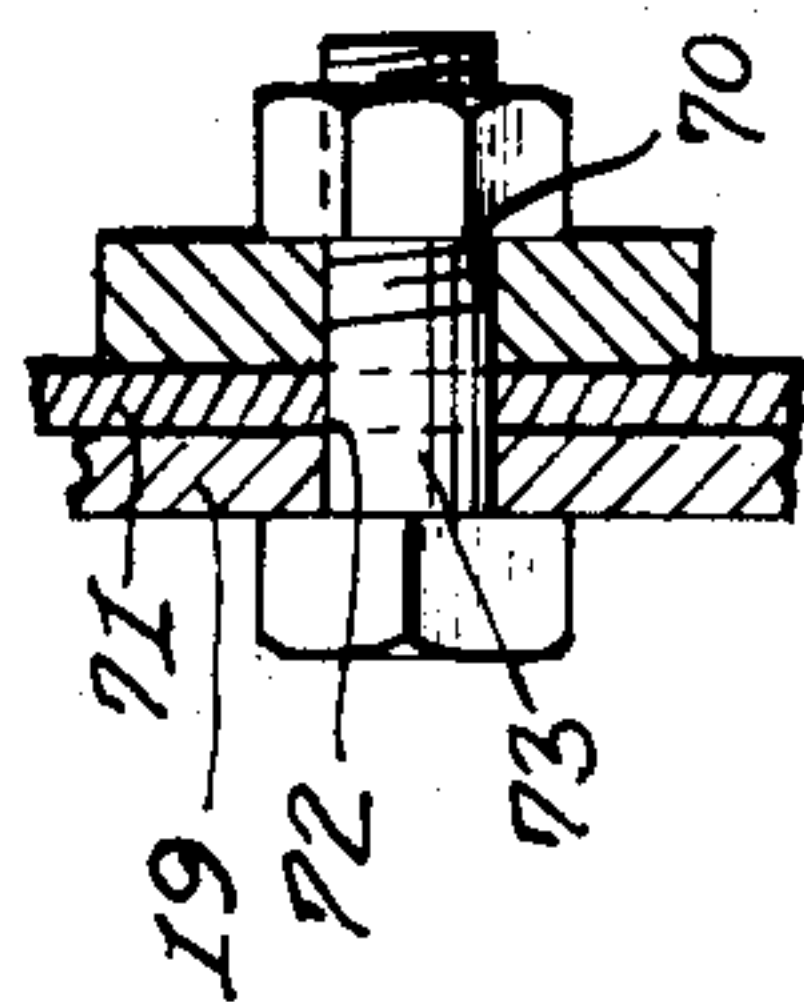
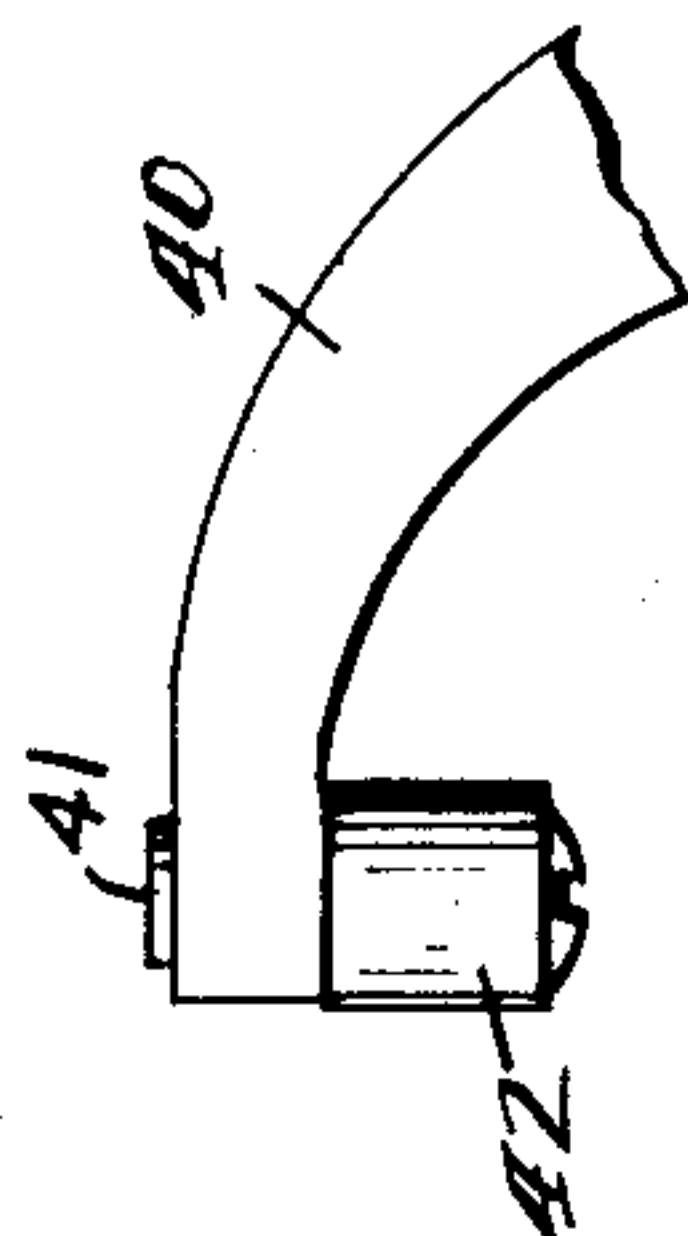
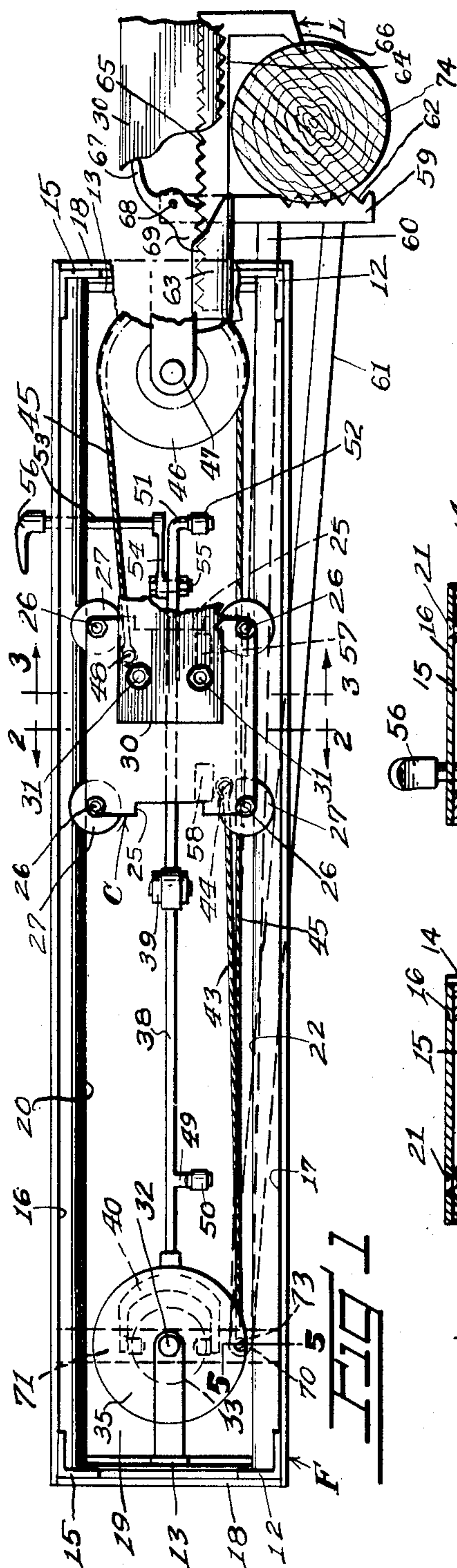
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2,628,645

RECIPROCATING LOG SAW WITH CABLE DRIVEN CARRIAGE

Filed March 29, 1948

2 SHEETS—SHEET 1



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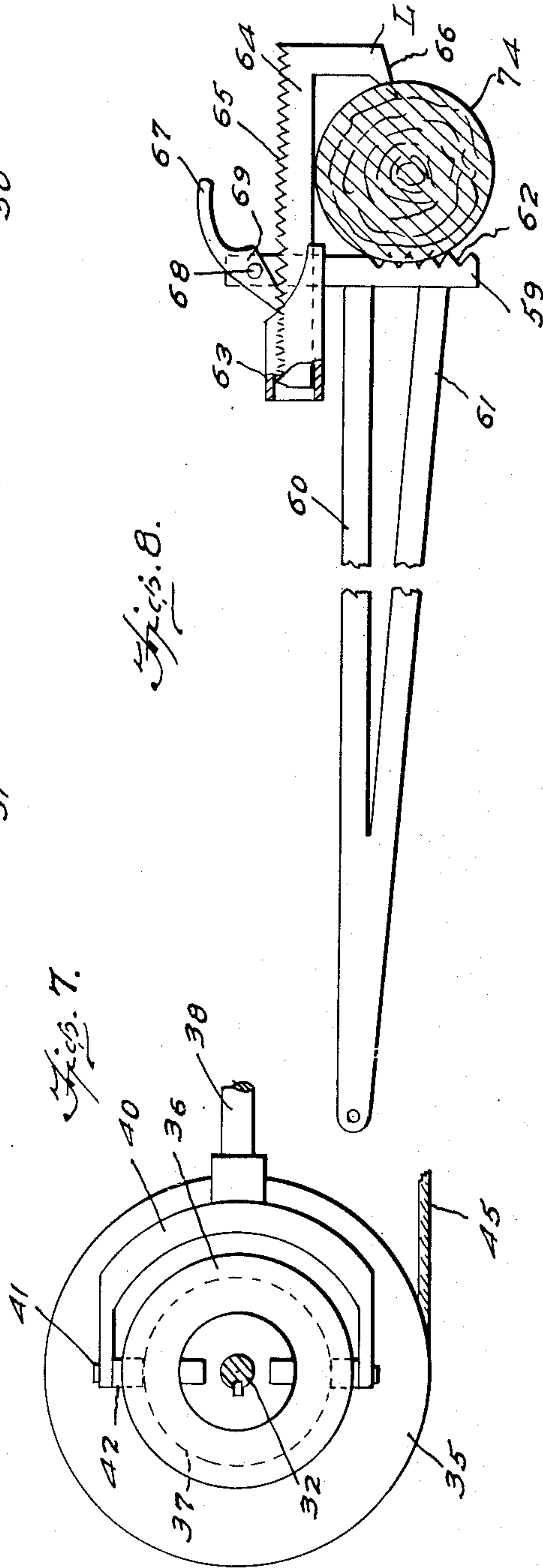
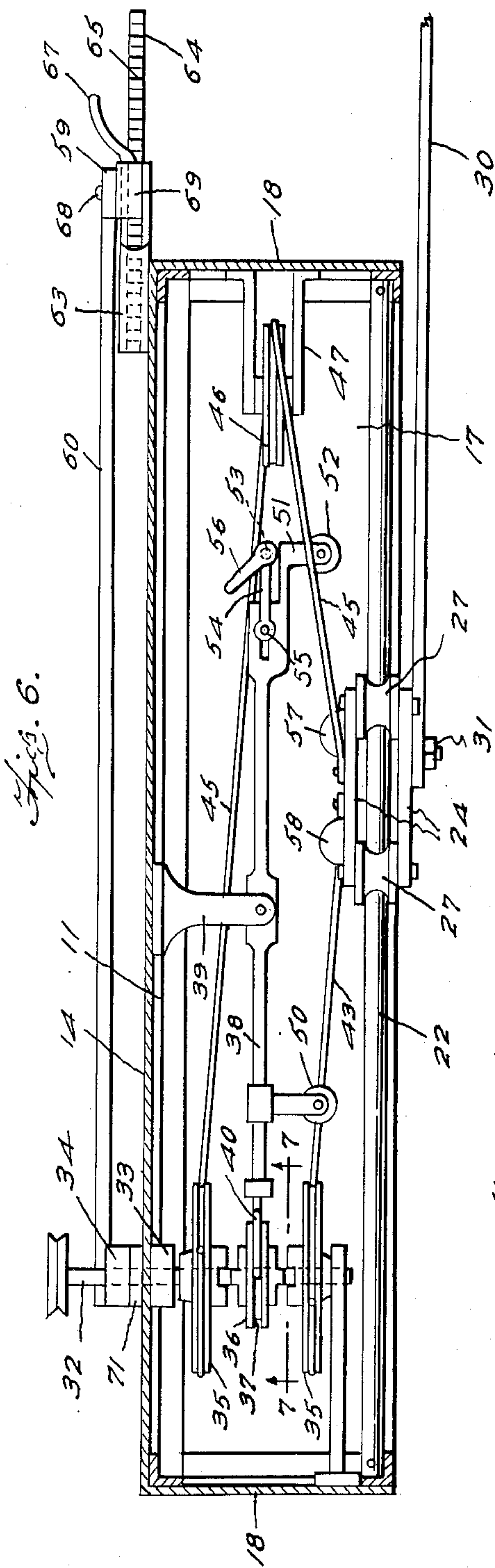
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RECIPROCATING LOG SAW WITH CABLE DRIVEN CARRIAGE

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2 SHEETS—SHEET 2



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UNITED STATES PATENT OFFICE

2,628,645

RECIPROCATING LOG SAW WITH CABLE
DRIVEN CARRIAGE

Daly P. Andrews, Mountain Grove, Mo.

Application March 29, 1948, Serial No. 17,730

3 Claims. (Cl. 143—61)

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My invention relates to log or tree saws and more particularly to power driven log saws.

The object of my invention is to provide a log saw having a saw blade secured with its butt end to a saw carriage reciprocally mounted in a frame.

Another object of my invention is to provide a log saw of the character indicated above, the carriage of which is movably mounted on a track provided in the frame.

A further object of my invention is to provide a log saw of the character indicated above provided with a power driven shaft extending transversely of the frame and supporting two spaced apart cable drums mounted rotatably but not slidable on said shaft and having a double clutch mounted slidably but not rotatably on said shaft between the two cable drums.

A still further object of my invention is to provide a log saw of the character indicated above equipped with means for slidably moving the double clutch alternately into engagement with the cable drums, said means being actuated by the saw carriage.

Another object of my invention is to provide a log saw of the character indicated above adapted to be equipped with an adjustable log clamp to secure and hold a log in position to be cut by the saw blade.

Other objects of my invention not specifically mentioned may appear in the following specification describing my invention with reference to the accompanying drawing illustrating a preferred embodiment of my invention. It is, however, to be understood that my invention is not to be limited or restricted to the exact construction and combination of parts described in the specification and shown in the drawing, but that such changes and modifications may be made which fall within the scope of the claims appended hereto.

In order that my invention may be better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a view in side elevation with portions broken away of a log or tree saw constructed in accordance with an embodiment of the invention.

Figure 2 is an enlarged sectional view taken substantially on the line 2—2 of Figure 1.

Figure 3 is an enlarged sectional view taken substantially on the line 3—3 of Figure 1.

Figure 4 is a fragmentary elevational view on an enlarged scale of one extremity of the clutch shifting fork; and

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Figure 5 is an enlarged detail sectional view taken substantially on the line 5—5 of Figure 1.

Figure 6 is a longitudinal section taken in a horizontal plane substantially on the line 6—6 of Figure 2 below the top track rail.

Figure 7 is a sectional view in a vertical plane taken substantially on the line 7—7 of Figure 6.

Figure 8 is a view in elevation of the log clamping unit per se, with portions broken away.

The log saw embodied herein comprises a frame F preferably constructed from angle irons and consisting of a front longitudinal bottom member 10, a rear longitudinal bottom member 11, two transverse bottom end members 12, connecting the ends of the longitudinal members, four vertical corner members 13 secured to the abutting end portions of the longitudinal and the transverse bottom members, two longitudinal top frame members 14 and two transverse top end frame members 15. The top frame members are secured to the top end portions of the vertical corner members. The top, the bottom, the two ends and the back of the frame are closed by means of light steel plates 16, 17, 18 and 19 respectively secured to the corresponding frame members to form a housing, which has an open longitudinal front side.

A longitudinal track member 20 preferably made from round steel rod is secured by means of screws 21 to the top transverse end members 15 of the frame F, and a similar track member 22 is fastened to the transverse bottom end frame members 12 by means of screws 23. The two track members are arranged adjacent the open front side of the housing so that their longitudinal axes are located in the same vertical plane.

A saw carriage C comprises two substantially square steel plates 24 and each plate is provided in its front and rear edge portion with a rectangular cut-out 25. The two plates are connected with each other by means of axle bolts 26 extending through said plates adjacent the corners thereof. On each axle bolt 26, a roller 27 is rotatably mounted between the plates and is provided with a circumferential groove 28 adapted to ride on the track members 20 and 22. The butt end of a saw 30 of any desired suitable kind is secured by means of bolts 31 to the front carriage plate 24, so that the saw extends beyond the right hand or forward end plate 18, when the carriage C is located in the right hand end portion of the housing looking at it from the open side thereof.

Adjacent the left hand, or rear, end of the frame F, a transversely extending shaft 32 is rotatably supported by bearings 33 secured to the

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frame inside the housing in any preferred conventional manner.

The transverse shaft 32 extends beyond the sides of the housing and may be equipped with a gear transmission 34, a pulley, a sprocket gear or the like adapted to be driven by a motor or the like (not shown). Adjacent the back side of the housing, two cable drums 35 are mounted rotatably but not slidably on the shaft 32 and between these two cable drums a double clutch 36 is mounted slidably but not rotatably on said shaft. The clutch is provided with a circumferential groove 37 arranged centrally in the circumferential surface of said clutch. A clutch shifting rod 38 is pivotally supported intermediate its ends by a bracket 39 secured to the housing frame F so that said shifting rod extends normally along the inner side of the saw carriage C. The shifting rod is connected with the bracket so that the former is adapted to pivot horizontally. On the left hand end of the shifting rod 38, a vertical shifting fork 40 is formed or rigidly mounted. The prongs of this fork surround the forward half of the clutch 36. The end portion 41 of each prong is directed inwardly to extend slidably into the circumferential groove 37 in the clutch 36. If desired, each prong end portion may be equipped with a hardened anti-friction ring 42.

A cable 43 is secured to and partly wound onto one of the cable drums 35 and extends toward the right in the housing. The forward end of this cable 43 is secured to the left hand portion of the inner plate 24 of the saw carriage C as at 44. A second cable 45 is secured to and partly wound onto the other cable drum 35 and extends also to the right in the housing. A grooved pulley 46 is rotatably mounted inside the housing on a bracket 47 secured to the right hand end portion of the frame F in any conventional manner. The second cable 45 is arranged in the groove of said pulley 46 so that the end of this cable extends to the left in the housing. This end of the second cable is secured to the right hand edge portion of the inner plate 24 of the saw carriage C as at 48.

An arm 49 is rigidly connected to or formed on the shifting rod 38 at a comparatively short distance in front of the shifting fork 40. The arm 49 extends to the left and laterally from the shifting rod 38 and a roller 50 is rotatably mounted on the end portion of the arm 49. The shifting rod 38 extends toward the right beyond the saw carriage C, when the latter is arranged at its farthest position toward the right in the housing and a leftwardly and laterally extending arm 51 is formed or secured to the right hand end portion of said shifting rod. On the end portion of the right hand shifting arm 51, a roller 52 is rotatably mounted. A vertical adjusting rod 53 is rotatably supported on the frame F in any conventional manner, so that its lower end is located adjacent to the right hand end portion of the shifting rod 38. An adjusting lever 54 is rigidly secured to the lower end portion of the adjusting rod and extends normally parallel to and over the shifting rod, to which its left hand end portion is pivotally and slidably connected as at 55. The upper portion of the adjusting rod 53 extends above the frame F, and a hand lever 56 is firmly mounted thereon. By rotating the adjusting rod 53 by means of the hand lever 56 in clockwise or counter-clockwise direction, the shifting rod 38 may be pivoted on its pivot bracket 39 so that the shifting fork 40

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shifts the clutch 36 selectively in neutral position, or into driving contact with either one of the two cable drums 35.

When the shaft 32 is set in motion and the shifting rod 38 is pivoted so that the clutch 36 is shifted into driving contact with the cable drum 35 on which the cable 43 is secured, this cable is wound up on said drum pulling the saw carriage toward the left on the track members 20 and 22 and simultaneously unwinding the cable 45. When the saw carriage C arrives at the left hand or rear end portion of the housing, a lug 58, provided on the left hand edge portion of the rear carriage plate 24 engages the roller 50 on the left hand shifting arm 49 urging the shifting rod 38 to shift the clutch 36 into engagement with the other cable drum 35. Now the cable 45 is wound up so that the saw carriage is moved to the right on its track members and the cable 43 is unwound. When the carriage arrives at its farthest position to the right or forward end of the housing, a lug 57 provided on the right hand edge portion of the rear carriage plate 24 engages the roller 52 and urges the shifting rod to shift the clutch into engagement with the unwinding cable drum, whereby the movement of the saw carriage is reversed. By means of the hand lever 56, the clutch may be set in neutral position, stopping the movement of the saw carriage.

A log clamp L comprises a relatively stationary substantially triangular bracket consisting of a vertical clamp jaw 59, a top arm 60 extending toward the left from said clamp jaw at a substantially right angle and secured to or formed on the clamp at a distance below the upper end of said clamp jaw, and a brace strut 61 extending toward the right and downwardly from the left hand end of the top bracket arm 60 to the lower portion of the vertical clamp jaw 59. On the lower portion of the front edge of this clamp jaw, a plurality of clamping teeth 62 are formed, and a flattened guide sleeve 63 is secured at one end to the back of the vertical clamp jaw above the top bracket arm 60, so that the sleeve extends toward the left from the vertical member 59. A rack bar 64 is located slidably in the flattened sleeve and is provided on its upper edge with a plurality of rack teeth 65. On the right or forward end portion of the rack bar 64, a downwardly and leftwardly extending pointed hook 66 is provided. A hand lever 67 is formed on a toothed head 68 rotatably secured to the upper end portion of the clamp jaw 59, so that the teeth 69 of said head engage the rack teeth of the rack bar 64. At the junction of the top bracket arm 60 and the strut 61, an eye 70 is formed for the following purpose. A vertical flat bar 71 is secured to the longitudinal bottom and top frame members and a hole 72 is provided in this vertical bar. The log clamp L is removably secured to the housing by means of a bolt 73 extending through the eye 70 in the clamp bracket and the hole 72 and the flat bar 71 so that the vertical clamp member is located to the right of the right hand end of the housing. A log 74 is placed against the vertical clamp jaw 59 so that the rack bar 64 extends across the log and then the hand lever 67 is manipulated to rotate the toothed head 68 so that the hook 66 is forced against and into the log, which is held securely between said hook and the clamping teeth 62 of the vertical clamping jaw 59.

The above description shows clearly how the

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saw, according to my invention, may be secured to a log or a tree and how the blade of my saw is driven reciprocatingly by means of any desired and available driving power.

I claim:

1. A power driven logging saw comprising an elongated rectangular housing having an open side, parallel rails mounted within said housing adjacent to and at opposite sides of the open side thereof, a carriage mounted for reciprocating movements along said rails, one side of said carriage projecting through said open side and slightly beyond the housing a saw blade secured to the projecting side of the carriage and extending longitudinally of and parallel to the outer side of said housing, a shaft journaled transversely of said housing adjacent the rear end thereof, a pair of spaced drums mounted for free rotation on said shaft, a clutch element interposed between said drums and slidably splined on said shaft, other clutch elements carried on the opposite faces of said drums for cooperation with the interposed clutch element to affect alternate rotation of the drums, a second shaft bracketed transversely within the opposite end of said housing, a pulley rotatably mounted on said second shaft, a cable having one end secured to one of said drums and its other end to the near side of said carriage, a second cable secured at one end to the other of said drums and trained about said pulley with its other end secured to the opposite side of said carriage, means for applying power to the first named shaft, and means for automatically shifting said clutch element at the end of each directional movement of said carriage.

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2. The invention as defined in claim 1, with the said carriage comprised in a pair of spaced plates, bolts passing through said plates at the corners thereof, said saw blade having its butt end secured to the outer of said plates, and rail engaging rollers rotatably mounted on said bolts between said plates.

3. The invention as defined in claim 1, with said automatic clutch element shifting means comprised in an elongated rod extending lengthwise within said housing and having a forked end engaged with said clutch element, means pivotally supporting said rod intermediate its ends, means connected with said rod at opposite sides of its point of pivotal support, and other means mounted on the opposite side of said carriage for cooperation with the last named means to actuate said rod to affect the reversed directional shift of said clutch element.

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