Aug. 21, 1956 E. H. KLIEVER 2,759,501

TIMBER CUTTING CHAIN SAW

Filed Nov. 30, 1953 2 Sheets-Sheet 1

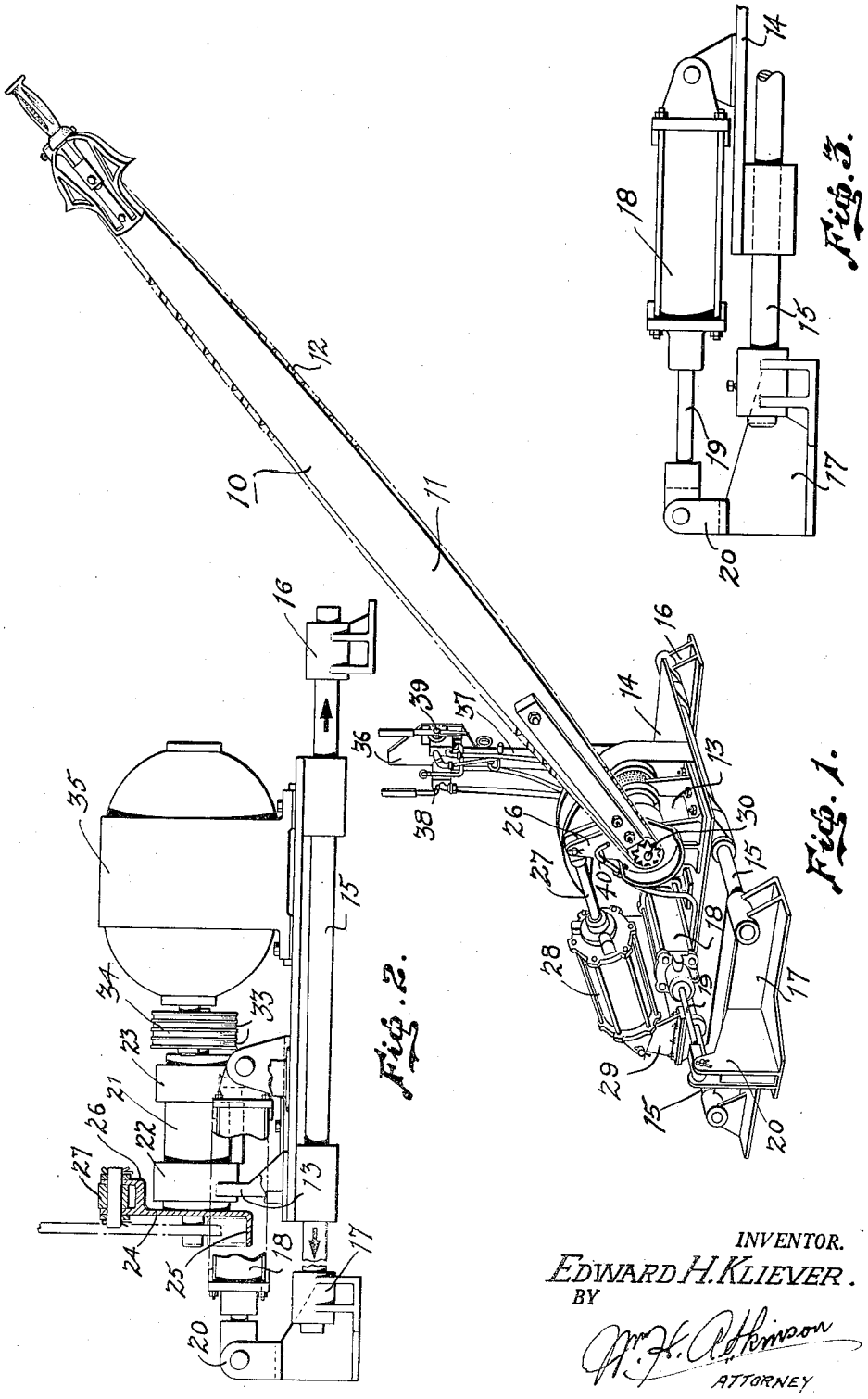


Fig. 1.

Fig. 2.

Fig. 3.

INVENTOR.
EDWARD H. KLIEVER.
BY
J. F. Atkinson
ATTORNEY

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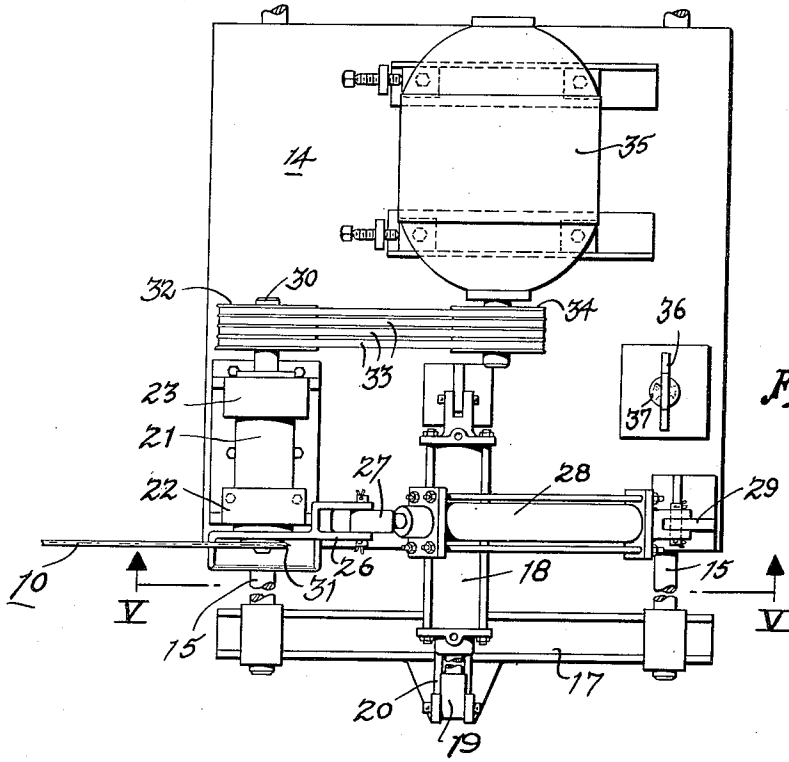


Fig. 4.

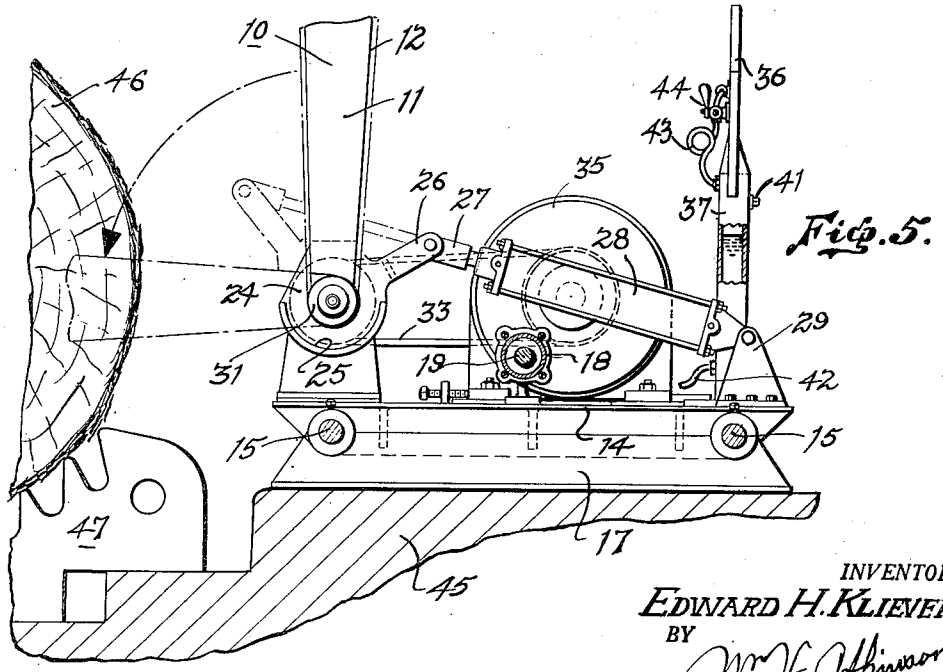


Fig. 5.

INVENTOR.
EDWARD H. KLIEVER.
BY
ATTORNEY

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TIMBER CUTTING CHAIN SAW

Edward H. Kliever, Medford, Oreg.

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2 Claims. (Cl. 143—32)

My present invention relates to saw mill equipment and more particularly to a mobile mount for a chain saw such as is used in saw mills in cutting timber from the mill pond into board sawing lengths.

An object of the invention is to provide a means by which the cutting position of a chain saw may be accurately and conveniently adjusted longitudinally with respect to rough hewn timber as it enters a saw mill from the log pond.

A further object of the invention is to provide a mounting for a chain saw by which the swing of the saw and its position laterally with respect to a fixed point may be adjusted from a single control point in a simple and convenient manner.

In the process of converting rough hewn timber into lumber the rough hewn timber is more generally accumulated in a mill pond where the logs are sorted as to character, diameter and length and are then fed from this point into a cradle or slideway in the mill by chain or cable. Movement of the logs into this latter position generally requires a powerful wench equipment and with the larger timbers it is often difficult to stop the log in the slideway or cradle at the exact point where a saw cut is to be made. While resort may be had to the use of a log supporting cradle that is capable of being moved longitudinally to position the log in proper relation with a stationary saw, this arrangement requires considerable power. It is therefore a further object of my invention to provide a mounting by which a cross-cut chain saw may be mounted for movement longitudinally with respect to a log and also controlled in its log engaging and disengaging movements in a simple, efficient and convenient manner from a single control panel.

Other objects and advantages of my invention will be in part evident to those skilled in the art and in part pointed out in connection with the accompanying drawings, wherein there is shown by way of illustration and not of limitation a preferred embodiment of the invention.

In the drawings:

Figure 1 is a perspective view showing a chain saw mounting and control operating in accordance with a preferred embodiment of the invention,

Figure 2 is a fragmentary view taken at the back of the saw with parts omitted to reveal details of construction,

Figure 3 is a fragmentary view showing other details of construction,

Figure 4 is a plan view of the apparatus as shown in Fig. 2 of the drawings, and

Figure 5 is an end view of the apparatus taken along line V—V of Fig. 4 looking in the direction of the arrows and showing its location with respect to a log to be sawed.

For a consideration of what I believe to constitute the novel aspects of my present invention reference is now made to the drawings where in Figure 1 I have illustrated a complete assembly constructed and arranged in accordance with a preferred embodiment of the invention. As

will be seen from this showing I propose to employ a conventional chain saw **10** of the type having a flat blade **11** about which a sawtooth carrying chain **12** is driven in a manner well understood in the art. In this showing the chain saw **10** is disposed so as to swing over and in a vertical plane extending transverse to the axis of a log or other timber to be sawed. To permit and facilitate a positioning of the chain saw **10** longitudinally at any desired point with respect to a log I have shown the saw **10** as mounted upon a bearing pedestal **13** that is carried by a mobile base **14** which is mounted upon spaced rails **15** that extend between end frame members **16** and **17** so that the location of said bed plate or base **14** may be positioned at any desired point between the frame members **16** and **17** by a sliding movement along the rails **15**.

To effect the above sliding movement of the bed plate or base **14** along the rails **15**, I have shown a hydraulic cylinder **18** that is located substantially centrally between and slightly above the two spaced rails **15**. This hydraulic cylinder **18** has an operating piston rod **19** that is connected at its free end to a boss or clevis-like extension **20** formed upon the end frame member **17**. With this arrangement it will be seen that by energizing the hydraulic cylinder **18** for movement of its piston in one direction or other the position of the bed plate or base **14** between the end frame **16** or **17** may be determined.

As indicated in Figures 2 and 3 of the drawings the length of the spaced rails **15** may be of any desired length by merely providing for a different spacing between the end frame members **16** and **17** and this of course with a comparable increase in the length of operating travel of the piston rod **19** that is associated with the hydraulic cylinder **18**. Normally an overall movement of approximately 12" will be found sufficient, however where desired the limits of this lateral movement of the saw may be in any desired amount by merely providing a hydraulic cylinder **18** with a piston rod movement of the necessary length.

As is illustrated in Figures 2, 4 and 5 of the drawings, the chain saw blade is mounted in a radially extending position upon a cylindrical mounting member **21** that is journalled in spaced bearings **22** and **23** carried by the pedestal **13**. At its outer end the cylinder mounting member **21** has a flanged end **24** upon which the blade **11** of the saw is secured. The member **21** has a flange or guard **25** that extends around the end of the chain saw and also an upwardly and radially extending arm **26** to which a piston rod **27** of a second hydraulic cylinder **28** is connected. This second hydraulic cylinder **28**, as is more clearly shown in Figures 1 and 5 of the drawings, is mounted at its stationary end upon a support **29** carried by the bed plate or base **14** and it extends angularly upward for movement of its piston rod in a line substantially tangent to the axis about which the cylindrical saw mounting member **21** turns. In this manner the second hydraulic cylinder **28** will operate to control the saw **10** in its swinging movements in a vertical plane relative to the timber to be cut. Extending centrally through and journalled within the cylindrical mounting member **21** there is a driving shaft **30** which carries a saw driving sprocket **31** at one end and at its other end this shaft carries a V-belt pulley **32** about which a series of belts **33** pass to form a driving connection with a similar pulley **34** driven by an electric motor **35**. The electric motor **35** like the saw **10** is mounted upon and carried by the bed plate or base **14** so that the entire assembly, including the hereinbefore described hydraulic cylinders **18** and **28**, will move as a unit along the spaced rails **15** which, as shown, are mounted in an elevated position over the supporting foundation or floor of the mill by the end frame members **16** and **17**. A control panel **36** carried by a hollow pedestal **37** is also here shown as mounted upon

the bed plate or base **14** so as to also move therewith, however it will be understood that by providing suitable flexible connections the control panel **36** may be mounted in a fixed position remote from the movable supporting bed plate or base **14**.

By now referring back to Figure 1 of the drawings it will be noted that the control panel **36** provides a mount for two hydraulic valves **38** and **39** which are adapted and arranged to control operating fluid connections for the hydraulic cylinders **18** and **28**. In the preferred arrangement the valve **38** will be connected to control the hydraulic cylinder **18** and the valve **39** will be connected in the hydraulic fluid supply system so as to control the hydraulic cylinder **28**. It is also contemplated that a suitable push button control for the electric motor **35** may also be mounted upon the panel **36**.

In addition to providing a support for the control panel **36** the hollow tubular support **37** as indicated in Figure 5 of the drawings may also be used as a reservoir for lubricating oil which is directed through a nozzle **40** to the sawtooth carrying chain **12**. As shown in this latter figure of the drawing the nozzle **40** is mounted upon the guard **25** carried by the cylindrical mounting member **21**. The tubular column **37** has a removable filling plug **41** at its upper end and at its lower end there is a delivery pipe **42** through which oil may be directed to the nozzle **40**. Communicating with the interior of the tubular support **37** there is also a pipe connection **43** through which fluid under pressure may be introduced to force the lubricating oil at any desired rate of flow through the nozzle **40**.

While I have illustrated and described the preferred embodiment of my invention as employing two hydraulic cylinders as a means for raising and lowering the chain saw **10** and for moving the chain saw supporting base longitudinally with respect to the timber to be sawed, it is to be understood that I may employ the pneumatic cylinders operating from a source of compressed air. In its preferred environment my invention contemplates an installation of the chain saw mounting and control arrangement above described at the point of entry of raw timber to a mill where the raw timber frequently requires trimming at its ends to remove splintered or damaged portions of a log and to also cut the log into proper board sawing lengths before they are fed into the mill proper for further processing.

As shown in Figure 5 of the drawing, the bed plate **17** described above is preferably mounted upon a foundation **45** that extends along one side of the path or slideway over which rough timber, here designated by the numeral **46**, is drawn into the mill from a mill pond or log pile. In this arrangement the timber **46** is shown as held in a cradle or slideway by oppositely disposed adjustable log engaging jaws or dogs **47** that are adjustable to accommodate logs **46** of different diameters. Several of these jaws or dogs **47** are provided in longitudinally spaced relation and operate to support the log or timber **46** at an elevation that will take in the normal vertical swing of the chain saw **10**. When the apparatus is assembled and arranged as described it will be seen that after a heavy timber has been drawn from the mill pond and into the mill at its point of entry, the chain saw **10** can be lowered by simply operating the valve **39** which will energize the hydraulic cylinder **28** and thus bring the saw **10** into cutting arrangement with the log. At this point it will be of course understood that the chain saw **10** is being driven in the conventional manner by the electric motor **35**. Now, should it happen that the log has not been drawn into the mill to a point where the cutting thereof is desired, the chain saw **10** can be easily and conveniently adjusted to the proper point of cutting within the limits of the base supporting rails **15** by an operation of the hydraulic valve **39** which will energize the hydraulic cylinder **18** in one direction or the other so as to move the supporting base **14** longitudinally along the timber to the point where the cutting of the log is

desired or required. Once the saw has been thus positioned upon the timber the hydraulic cylinder **28** can then be further brought into operation to exert a gradual downward pressure upon the chain saw **10**. This can be determined by a proper setting of the hydraulic fluid controlling valve **38**. During these operations a valve **44** upon the control panel **36** may also be set to maintain a flow of lubricating oil from the hollow panel supporting column **37** through the pipe connection **42** and to the nozzle **40** as a lubricating medium for the cutting chain **12** of the chain saw **10**.

While I have, for the sake of clearness and in order to disclose the invention so that the same can be readily understood, described and illustrated a specific form and arrangement, I desire to have it understood that this invention is not limited to the specific form disclosed, but may be embodied in other ways that will suggest themselves to persons skilled in the art. It is believed that this invention is new and all such changes as come within the scope of the appended claims are to be considered as part of this invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a position controlling mount for a timber cutting chain saw, the combination of a stationary support having spaced horizontally extending parallel rails, a base plate movably mounted upon the rails of said stationary support, a bearing pedestal mounted upon said base plate, a chain saw supporting cylinder journalled in said bearing pedestal, said chain saw supporting cylinder having a saw blade mounting flange and an arm extending radially therefrom, a fluid pressure operated means connected between said arm and a point upon said base plate for rotating said supporting cylinder, a shaft extending centrally through said supporting cylinder having a sprocket at its end in driving connection with the teeth of said chain saw, motive power means carried by said base plate having a driving connection at the other end of said shaft, a second fluid pressure operated means connected between said stationary support and said movable base plate for moving said base plate along the rails of said stationary support, a source of fluid under pressure, and valve means for selectively controlling the admission of fluid under pressure to said fluid pressure operated means, whereby the operating position of said chain saw may be changed both laterally and vertically with respect to timber to be cut without affecting its driving connection with said motive power means.

2. In a mount for a timber cutting chain saw, the combination of a bed plate upon which a chain saw may be mounted, a bearing pedestal carried by said bed plate, a horizontally disposed chain saw supporting member journalled upon said pedestal for rotary movement, said chain saw supporting member having a radially extending arm, a chain saw blade secured to said supporting member and extending radially outward at an angle to said arm, a driving shaft journalled centrally within said chain saw supporting member having a sprocket at one end in driving connection with the teeth of the chain saw, a driving means also carried by said bed plate having a driving connection with the other end of said drive shaft, fluid pressure means carried by said bed plate operatively connected to the radially extending arm of said saw supporting member, whereby the said chain saw may be raised and lowered with respect to a timber without interrupting the operation of said driving means, an upwardly extending hollow pedestal also carried by said bed plate forming a reservoir for lubricating oil and also a support for a control panel, a flexible oil conducting conduit extending from the base of said pedestal having a nozzle at its end secured upon said blade supporting member and disposed to project lubricating oil upon the teeth of said chain saw adjacent said sprocket, a control panel mounted upon said hollow pedestal, valve means mounted upon said panel for controlling the operation of said fluid pressure operated means, and additional valve

means upon said panel for controlling the admission of fluid under pressure to said reservoir and thereby feed lubricating oil to said chain saw in any of its operating positions.

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