H. W. FORD.

SAWING MACHINE.

APPLICATION FILED JAN. 27, 1916.

1,287,947.

Patented Dec. 17, 1918

2 SHEETS—SHEET 1.

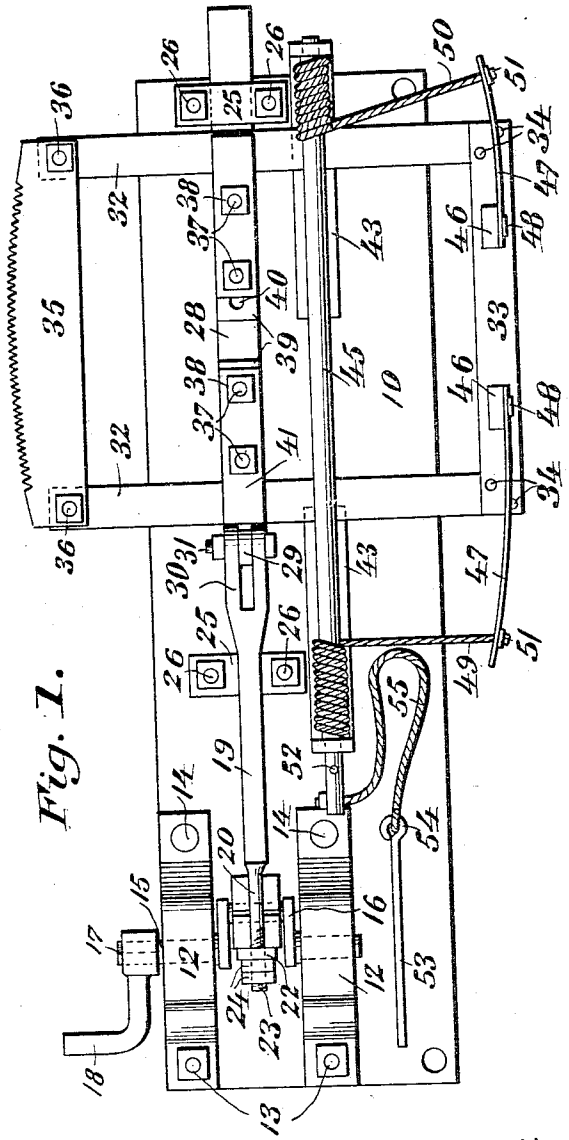


Fig. 1.

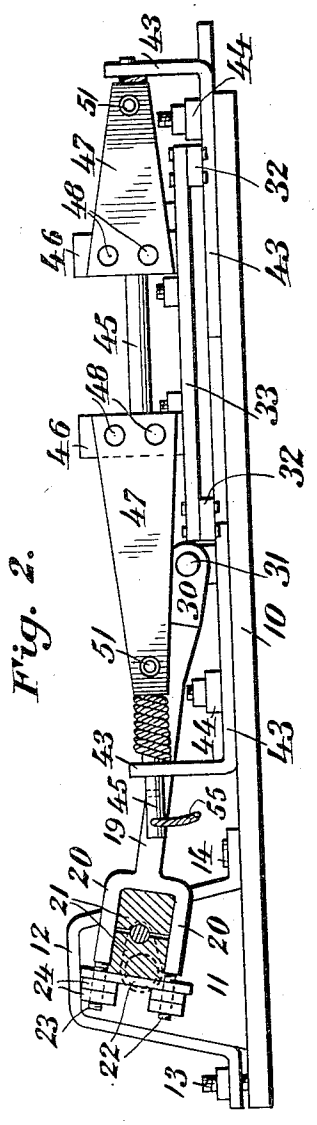


Fig. 2.

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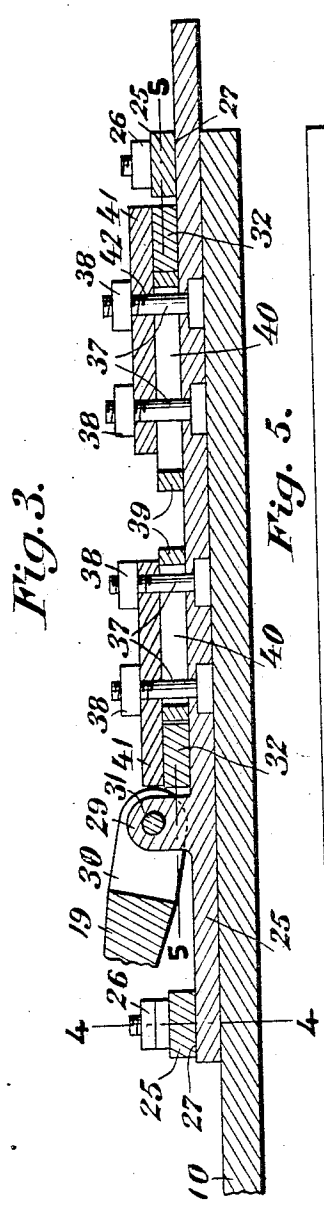


Fig. 3.

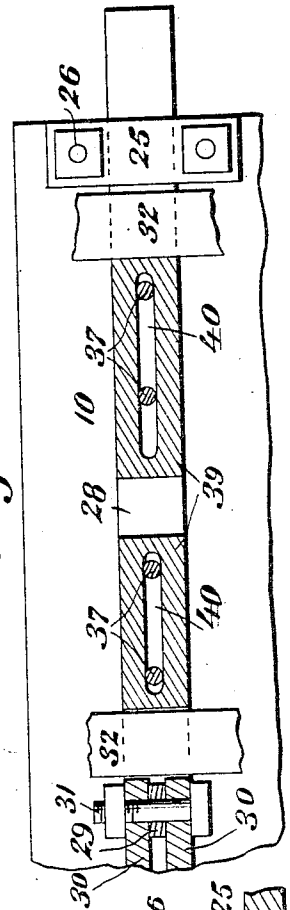


Fig. 5.

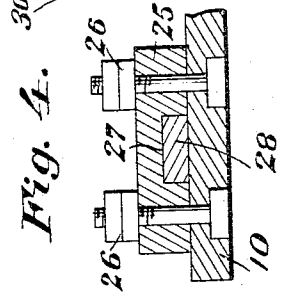


Fig. 4.

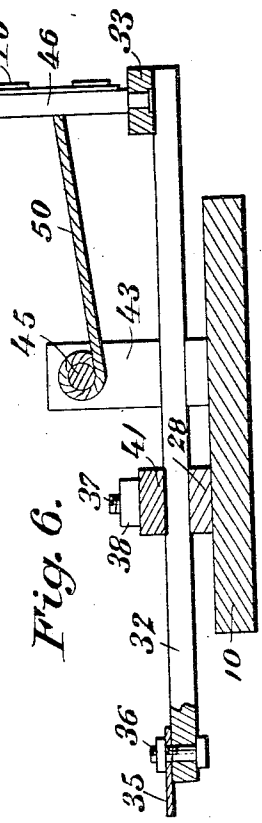


Fig. 6.

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HAMPTON W. FORD, OF LYNCHBURG, MISSOURI.

SAWING-MACHINE.

1,287,947. Specification of Letters Patent. Patented Dec. 17, 1918.

Application filed January 27, 1916. Serial No. 74,668.

To all whom it may concern:

Be it known that I, HAMPTON W. FORD, a citizen of the United States, residing at Lynchburg, in the county of Laclede and State of Missouri, have invented certain new and useful Improvements in Sawing-Machines, of which the following is a specification.

My present invention has relation to certain new and useful improvements in sawing machines; and as its general object it contemplates the provision of a novel device of this nature that is particularly designed to be used for sawing standing trees and timbers, by reason of its particular construction, will saw the trees, stumps or other standing timbers approximately even with the surface of the ground.

A further object of my invention is to provide a device of the type in question that is extremely simple in construction, strong and durable, and highly practical from both the standpoint of the manufacturer and the standpoint of the user; and which, it is believed may be manufactured at a comparatively low cost.

Various other objects and advantages will become apparent during the continuance of the following description.

These objects are accomplished by such means as are shown in their preferred form in the accompanying drawings, described in the following specification and then more specifically pointed out in the appended claims.

In the drawings wherein like characters designate like parts throughout the several views:—

Figure 1 is a view in top plan showing my invention as in its preferred embodiment.

Fig. 2 is a view in side elevation showing part of the device in cross section.

Fig. 3 is a view in longitudinal section having part of the structure broken away.

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3.

Fig. 5 is a horizontal sectional view taken on line 5—5 of Fig. 3.

Fig. 6 is a view in detail of the saw frame showing more specifically the means for properly forcing the same during the sawing operation.

In reducing my invention to practice, I first provide a suitable base or carrying portion 10 that may be constructed of any desirable material, and which is provided at a suitable point with spaced bearing blocks 11. The base 10 is preferably in the form of a flat elongated plate of plain and rigid construction. In order to rigidly secure the bearing blocks in place and at the same time greatly add to the efficiency of the device as a whole, the same may be strapped or otherwise affixed to the base 10 through the instrumentality of metal strips 12, the latter having their ends substantially connected with the base as at 13 and 14. A shaft 15 has its end portions journaled through the respective bearing blocks 11 as clearly shown in Fig. 1, its intermediate portion being formed into a crank 16, as also shown in that figure, while one end is squared or similarly formed as at 17 for the reception of a handle portion 18.

A connecting rod 19 has one end branched as at 20, for the reception of bearing blocks 21 to engage with the crank portion 16 of the shaft 15, as shown in Fig. 1, one of the said bearing blocks 21 being adjustably mounted through the instrumentality of a movable plate 22. The ends of the branch portion 20 of the connecting rod are formed into spaced guiding members 23 for reception in suitable apertures in the plate 22 whereby after the positioning of the plate in place, as shown in Fig. 2, fastening members such as shown at 24 may be arranged on the guiding members 23 in order to securely retain the plate in engagement with the respective bearing blocks.

Spaced bearings 25 are also adjustably mounted on the base 10 as at 26, the former being provided with suitable cutouts 27 for the reception of a carrying bar 28. Adjacent one end, the carrying bar is provided with an upstanding lug 29 above which the bifurcated end 30 of the piston rod 19 may be received. Consequently a pintle or other member such as shown at 31 may be positioned through the braces of the bifurcated portion of the piston rod and the lug 29 so as to retain the connecting rod in pivotal relation with the carrying bar. From the foregoing it will be noted that upon rotation of the shaft 15 through the handle 18 a reciprocatory movement will be imparted to the rod 19 such as will cause a like movement of the carrying bar 28.

The saw frame shown in the present embodiment consists generally of a pair of carrying arms 32 whose rear ends are connected by a cross bar 33 as at 34 while their

free ends are provided with suitable means whereby a saw blade such as shown at 35 will be secured thereto as at 36. The frame is preferably arranged to move on the carrying bar 28, as clearly shown in Fig. 3. However, as will hereinafter appear, means is provided to retain the same in certain rigid positions with respect to the carrying bar and reception of the same longitudinally with respect to the carrying bar.

In accomplishing the aforesaid result, I provide the carrying bar with a series of upstanding bolts or pins 37 which carry adjustable fastening members 38 adjacent their upper ends. Abutment blocks 39 are slotted longitudinally as at 40 to receive pairs of the said bolts or pins 37, while the securing blocks 41 may be provided with suitable apertures 42 for receiving the said bolts or pins respectively, as clearly shown in Fig. 3. In other words it will be noted that the abutment blocks 39 are readily adjustable longitudinally with respect to the carrying bar 28 for increasing and decreasing the tension of the saw while on the other hand the securing blocks 41 are only adjustable vertically with respect to the saw frame. When in their normal position, the abutment blocks 39 bear against the inner faces of the arms 32 of the saw frame so as to retain the same against movement longitudinally with respect to the carrying bar 28, while the securing blocks 41 may be frictionally engaged with the upper faces of the arms 32 by tightening the fastening members 38 that are nearest the frame elements 32.

The type of saw frame shown in the present embodiment, is designed to be used in conjunction with conventional forms of saw blades and is constructed in a manner whereby the saw blades may be quickly and easily attached or detached to or from the same with but little exertion on the part of the operator.

Other spaced bearings 43 are positioned on the base 10 as at 44, while an adjusting shaft 45 has its end portions journaled therethrough as clearly shown in Fig. 1. The cross bar 33 of the saw frame may now be provided with suitable abutments 46, the same in turn carrying oppositely projecting leaf springs 47 one end of each of the said springs being fixed thereto as at 48. The free ends of the springs 47 are connected with cables 49 and 50 as at 51, while the other end of the cables is connected with the adjusting shaft 45 in any desired manner. Consequently it will be noted that upon rotation of the shaft 45, the cables 49 and 50 will be wound thereon and thereby flex the springs 47 and thus tend to force the saw frame laterally of the carrying bar 28. In other words, during the operation of the saw, the operator may adjust the shaft 45 so as to tension the cables 49 and 50 and thus effect the resilient forcing of the saw frame and the saw blade 35 into engagement with the work.

In order that the operator may conveniently manipulate the adjusting shaft 45, I may provide the same, adjacent one end, with a receiving aperture 52 to receive one end of an operating lever 53. The operating lever may be in turn provided with an eye 54 at one end and further connected with the shaft by means of a flexible element 55 whereby all danger of the same becoming accidentally displaced from the machine is obviated. By placing the free end of the lever 53 in the receiving aperture 52, the operator may conveniently turn the shaft 45 in any desired direction such as will cause either the tensioning or loosening of the respective cables 49 and 50.

The operation of my device is substantially as follows:—

The saw frame is first adjusted either longitudinally or laterally with respect to the carrying bar 28, whereby it will be in a convenient position to engage with the work, after which the operator may impart rotation to shaft 15 by way of the handle 18. Upon the rotation of the shaft 15, a reciprocatory movement will be imparted to the piston rod 19 such as will cause a like movement of the carrying bar 28 and the saw frame, whereby the proper sawing of the tree will be effected. As the saw blade 35 bites into the tree, the operator may adjust the shaft 45 accordingly, thereby winding the cables 49 and 50 thereon and thus yieldingly retaining the saw blade in a pressing engagement with the work at all times. By reason of the adjustability of the blocks 39 it will be noted that the tension on the saw blade may be adequately regulated at all times in accordance with the density of the work that is being sawed.

From the foregoing it is believed that the advantages and novel features of my invention will be readily understood and therefore further detailed description is deemed unnecessary.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a sawing machine, the combination of a support, a reciprocating saw, leaf springs having connection at their inner ends with the saw and projecting outwardly in opposite directions, a shaft mounted on the support, and flexible connections attached at one end to the respective springs and having the other end connected with the shaft and adapted to wind thereon.

2. In a device of the character described, a base, a saw frame, carrying means for said saw frame, means to impart a reciprocatory movement to said carrying means and said

saw frame, means to adjust said saw frame longitudinally with respect to said carrying means, a saw blade to be detachably associated with said saw frame, abutment blocks on said saw frame, springs carried by said abutment blocks, and adjusting means associated with said springs whereby said saw blade may be retained in yielding engagement with the work acted upon at all times, as and for the purpose specified.

3. In a device of the character described, the combination of a base, spaced bearings on said base, a carrying bar slidably mounted through said bearings, a saw frame to lie upon said carrying bar and movable laterally with respect thereto, means including adjustable abutment blocks to retain said saw frame against longitudinal movement with respect to said carrying bar, a saw blade carried by said saw frame, means to reciprocate said carrying bar and said saw frame, blocks on said saw frame, springs each having one end affixed to one of said blocks, spaced journal bearings on said base, a shaft journaled through said journal bearings, flexible elements connecting said shaft and said springs whereby upon rotation of said shaft, said flexible elements operate to draw said saw-frame laterally of said carrying bar in the direction for causing said saw blade to be held in yielding engagement with the work, as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

HAMPTON W. FORD.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."