June 24, 1924. 1,499,198

J. A. SWENSON

LOG SAW

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Fig. 1.

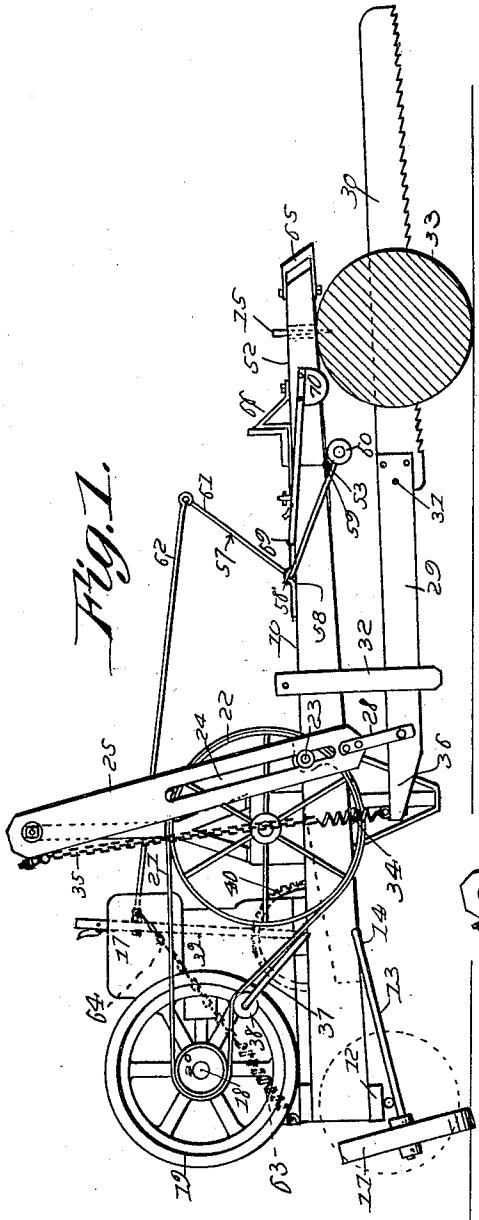
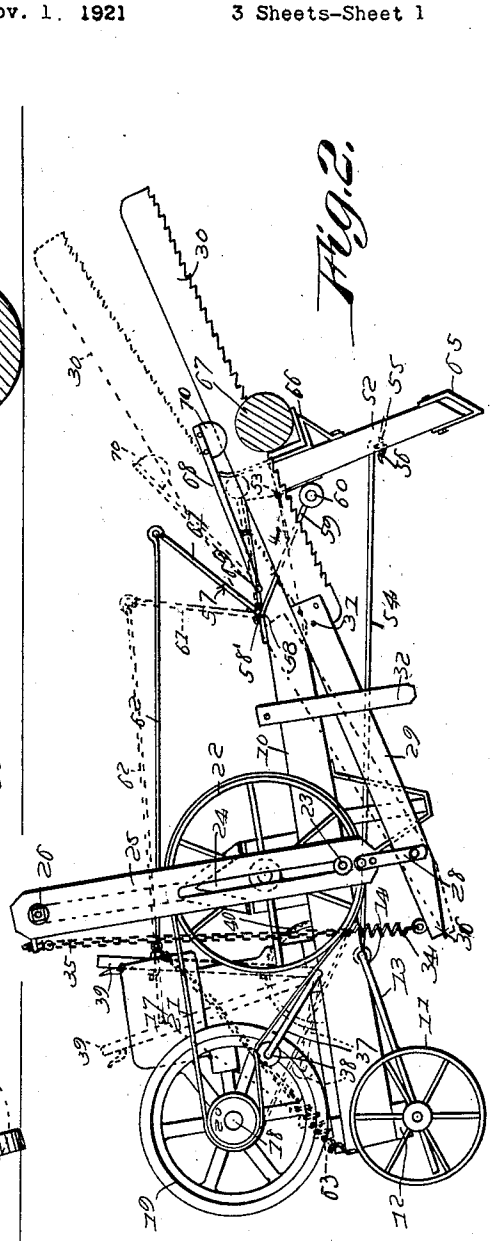


Fig. 2.



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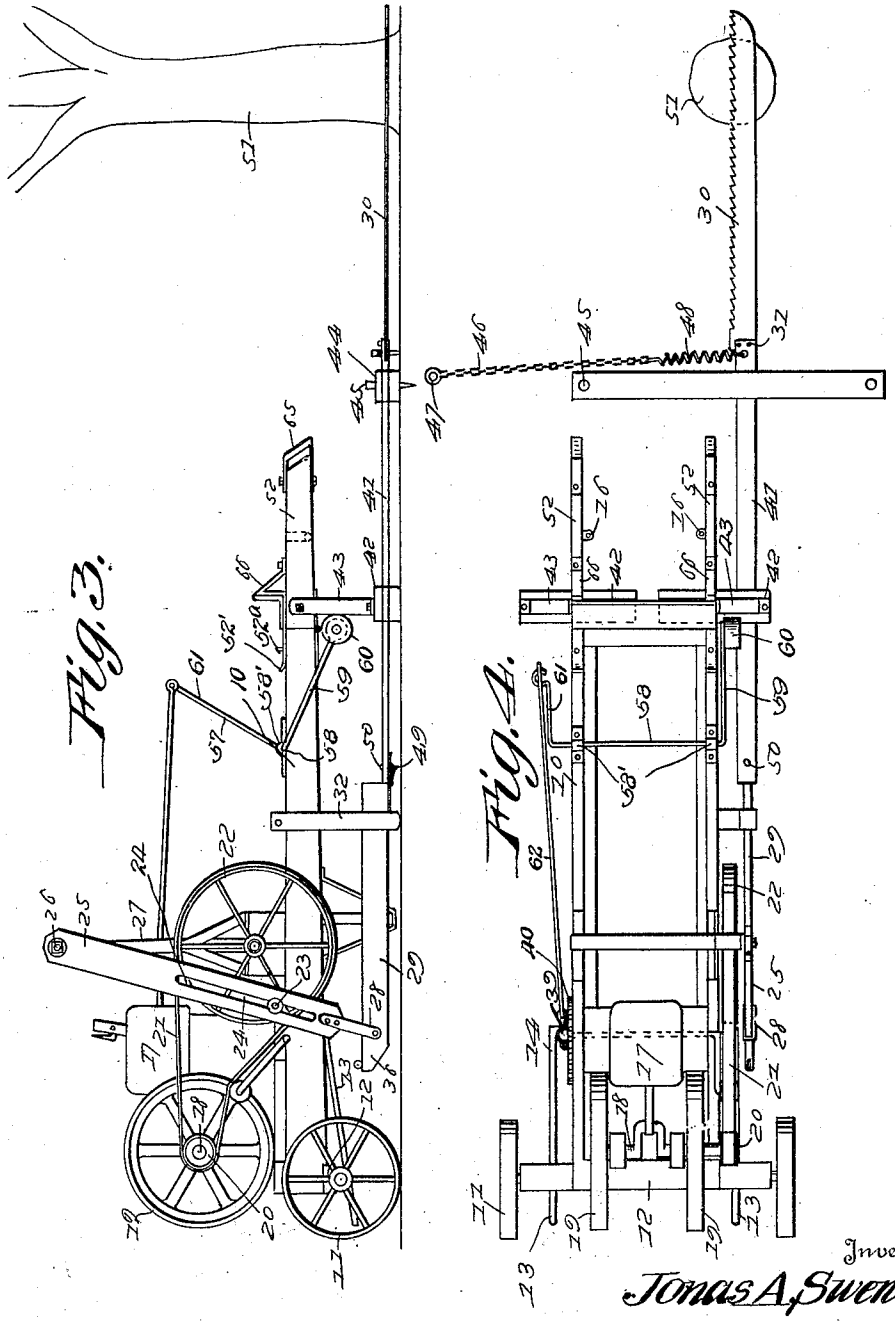


Fig. 3.

Fig. 4.

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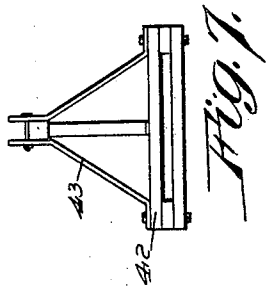


Fig. 7.

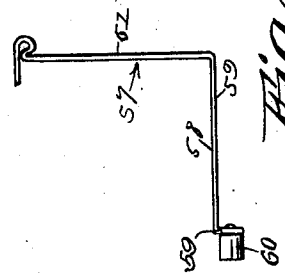


Fig. 8.

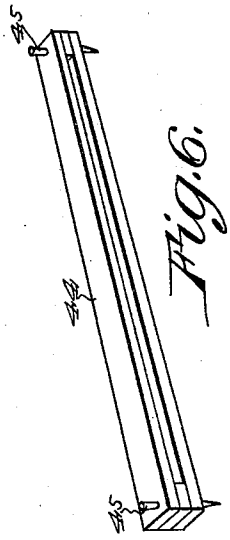


Fig. 6.

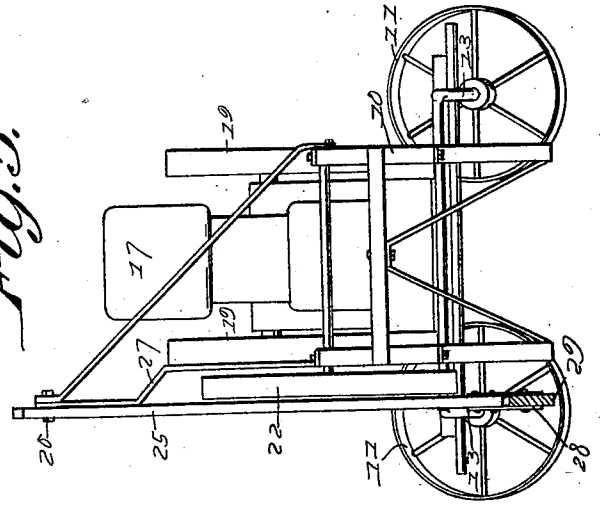


Fig. 5.

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Patented June 24, 1924. 1,499,198

UNITED STATES PATENT OFFICE.

JONAS A. SWENSON, OF SPRINGFIELD, SOUTH DAKOTA.

LOG SAW.

Application filed November 1, 1921. Serial No. 512,035.

To all whom it may concern:

Be it known that JONAS A. SWENSON, a citizen of the United States of America, residing at Springfield, in the county of Bonhomme and State of South Dakota, has invented new and useful Improvements in Log Saws, of which the following is a specification.

The object of the invention is to provide a relatively simple and efficient sawing machine especially designed for lumbering purposes and adapted for cutting down or felling timber and reducing the same to commercial or portable form; and with this object in view the invention consists in a construction and combination of parts of which a preferred embodiment is shown in the accompanying drawings, wherein:—

Figure 1 is a side view of a machine embodying the invention arranged for use in cutting up felled timber.

Figure 2 is a similar view showing the machine arranged for use in cutting relatively small logs into portable lengths.

Figure 3 is a similar view showing the parts arranged for felling timber.

Figure 4 is a plan view of the mechanism as shown in Figure 3.

Figure 5 is a front end view of the machine.

Figure 6 is a detail view in perspective of the independent saw guide used in felling timber.

Figure 7 is a view of one of the machine carried saw guides or hangers.

Figure 8 is a view of the retainer by which the jack section of the frame is held in its operative position.

The frame 10 of the machine which consists essentially of substantially parallel side beams is supported at its rear end by ground wheels 11 normally mounted upon the spindle portions of a transverse axle 12 but adapted for selective mounting upon alternative spindles 13 carried by a yoke 14 when, as shown in Figure 1 in full lines the machine is adapted for use in cutting logs of large diameter which are resting on the ground, as a means of minimizing the longitudinal vibration of the frame of which the forward end in that use of the device is supported by the log to which it may be anchored by spikes 15 driven through suitable eyes 16.

The frame adjacent to its rear end and therefore above the support afforded by the ground wheels carries a motor 17 of the explosive or other preferred type for actuating a drive shaft 18 illustrated as of the cranked type and carrying fly wheels 19 and a belt pulley 20 traversed by a belt 21 which also extends around a drive pulley 22 having a crank pin 23 operating in the slot 24 of an oscillatory saw actuating arm 25. This saw actuating arm is pivoted as at 26 upon a suitable upright frame 27 supported by the main frame of the machine and is connected at its lower end, for example by a clip 28 or its equivalent with a saw carrier 29 adapted for reciprocatory movement to give a corresponding motion to the saw blade 30. In the construction and arrangement of the parts illustrated in Figure 1, the saw blade is rigidly attached by means of bolts 31 to the saw carrier which operates in a guide hanger 32 depending from the main frame, and the necessary downward pressure to induce an effective feeding of the saw through the log indicated at 33 is supplied by a tensioned feeding device consisting for example of a spring 34 and chain 35 connecting the heel 36 of the saw carrier with the upper end of the saw actuating arm 25. Obviously any desired tension may be applied to the spring to effect the desired feeding pressure. In connection with the belt 21 there is arranged a tightener 37 consisting of an arm carrying a roller 38 and movable by means of a hand lever 39 operating in relation to a toothed segment 40.

When as illustrated in Figures 3 and 4 the machine is to be used as a means for cutting down or felling standing timber the saw blade 30 is turned to operate in a horizontal instead of a vertical plane and is connected with the carrier by means of an extension bar 41 designed to dispose the blade beyond the front end of the frame, and in this position of the parts the extension bar is carried through a guide 42 forming a part of a hanger 43 depending from the main frame of the machine and also through a supplemental guide 44 which is adapted to be anchored by means of stakes or pins 45 to the ground in advance of the machine frame, while feeding movement is imparted to the saw by means of a chain 46 anchored to the ground by a stake 47 or its equivalent and a spring 48 connected with the forward end of the extension bar 41 as shown clearly in Figure 4. The guide 42 and hanger 43 are removed when the machine is not en-

gaged in felling timber. A plate 49 is employed as the connection between the rear end of the extension bar and the carrier, and said extension bar is further pivoted as at 50 to said plate to permit of lateral or horizontal swinging movement as the saw is fed through the stock or trunk of the standing timber as indicated at 51.

In order that the machine may also be adapted for use in cutting up lighter timber such as the limbs of trees which cannot be operated upon conveniently while lying upon the ground, the side beams of the main frame of the machine are provided with a jack extension 52 shown in Figures 1, 3 and 4 in normal position in alignment with the body portions of said beams hinged thereto as indicated at 53 to adapt them to be swung to an upright or supporting position as indicated in Figure 2. In the adjusted position the jack extension is held by a brace rod 54 provided at its extremity with a hook 55 for engaging a transverse rod or pin 56.

In order that the saw blade when the machine is used for sawing comparatively light logs or branches may be held in the elevated position in the intervals between the arrangement of the logs in position for cutting there is employed a retainer or lifter 57 consisting of a rocker mounted as at 58 on the main frame and provided with an arm 59 carrying a roller 60 of rubber or other yielding material for engagement by the toothed edge of the saw blade and permanently arranged in the path thereof. The rocker is of bell-crank form with the upper or operating arm 61 connected by a rod 62 to the hand lever 39 which as hereinbefore described operates in connection with the segment 40, having a suitable latch for engaging the toothed periphery thereof, and carrying the belt tightener 37 by which the operation of the saw or the starting and stopping of the saw operating means are effected. Obviously when the lever 39 is moved to the rear to loosen the drive belt 21 the pulley by which motion is communicated thereto and which is actuated by the motor will turn loosely therein, whereas upon moving the lever forward and locking it in position with the belt under tension, motion will be communicated to the saw blade carrier.

By attaching the saw blade lifter consisting as above described of the rocker and blade supporting roller 60 to the starting lever 39 it will be obvious that when the lever is moved to start the machine by applying tension to the drive belt the blade supporting roller 60 will be lowered as indicated in Figure 2 and thereby removed from contact with the toothed edge of the saw although arranged in the path thereof, whereas when the starting lever is moved in the opposite direction to stop the saw the rocker will be actuated to raise the roller 60 and thereby lift the saw to the dotted line position indicated in Figure 2. The lower end of the jack member is preferably provided with a suitable metallic shoe 65 and a log rest 66 is arranged near the upper end thereof for supporting logs as indicated at 67 in position for cutting by the saw when lowered from the dotted line position indicated in Figure 2 through the starting movement of the lever 39. When the saw blade has passed through the log it will be caught by the roller 60 and hence prevented from coming in contact with the ground or other objects which might injure the cutting edge thereof during the interval between the severance of the log and the stopping of the saw by the reverse operation of the starting lever 39. When the latch of the lever 39 is disengaged from the segment to relieve the tension on the drive belt the spring 63 which is supplemented by the chain 64 to form a connection with the lever 39 serves to yieldingly hold the latter into position to support the saw in the dotted line position indicated in Figure 2. Since it is necessary only in the sawing of small timber, such as that illustrated at 67, to catch the saw blade after it has completed a cut and raise it to a position to begin a new cut, the roller 63 functions only on the sawing of small timber. At other times it is moved laterally out of the way of the saw and such lateral movement is made possible by the provision of bearing straps 58′ in which the rocker 58 is mounted and in which the rocker may be moved longitudinally, the bearing straps 58′ being secured to the frame 10 on the top thereof.

When the jack extension 52 is arranged in alignment with the frame, as in Figure 1, it is designed to be held in such position by spring latch plates 52′ adapted for engagement with pins 52ª mounted on the side bars of the frame.

Moreover in starting the saw both on logs supported by the jack member as shown in Figure 2 or upon the ground as indicated in Figure 1, a movable saw guide 68 may be employed, the same consisting of a suitable arm pivoted at 69 and carrying a kerfed or grooved head or block 70 to straddle the rear edge or back of the saw as shown in Figure 2. This guide prevents chattering of the saw blade as the cutting is started, but after the saw has penetrated the log to any considerable extent it will be guided thereby independently of the block 70 which may then drop free as indicated in Figure 1.

From the foregoing description it will be obvious that but slight changes in the matter of rearrangement, and limited essentially to the positioning of the saw blade, the machine as constructed is adapted for selective use in cutting down standing timber and in cutting up or reducing to portable lengths the

down timber both heavy and light, and of being operated and set in position with the minimum of effort and loss of time on the part of the operators.

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

1. A sawing machine having a motor carrying frame provided with rear supporting wheels and having its forward end provided with a jack member adapted for angular position with reference to the frame to support the latter at the forward end or extension into the same plane as the frame to support the frame when the jack member is rested on top of a felled log, a saw carrier mounted for reciprocating movement in longitudinal relation with the frame, and means for communicating motion to the carrier.

2. A sawing machine having a motor carrying frame provided with rear supporting wheels and having its forward end provided with a jack member adapted for angular position with reference to the frame to support the latter at the forward end or extension into the same plane as the frame to support the frame when the jack member is rested on top of a felled log, a saw carrier mounted for reciprocating movement in longitudinal relation with the frame, means for communicating motion to the carrier, the jack member consisting of a hinge extension of the frame, and means for securing the jack member either in angular relation or in aligned relation with the frame.

3. A sawing machine having a motor carrying frame provided with supporting wheels at its rear end, a jack member supporting the frame at the forward end, a saw carrier mounted for reciprocatory movement in longitudinal relation with the frame, means for communicating motion to the carrier, the jack member having means for supporting a log to be cut, a bell crank retainer mounted on the main frame and provided with a yielding roller for disposition below the cutting edge of a saw mounted in the carrier, and means for actuating said retainer.

4. A sawing machine having a motor carrying frame provided with supporting wheels at its rear end, a jack member supporting the frame at the forward end, a saw carrier mounted for reciprocatory movement in longitudinal relation with the frame, means for communicating motion to the carrier, the jack member having means for supporting a log to be cut, a bell crank retainer mounted on the main frame and provided with a yielding roller for disposition below the cutting edge of a saw mounted in the carrier, and means for actuating said retainer, said retainer being laterally movable out of obstructing relation with the saw.

5. A sawing machine having a motor carrying frame provided at its front end with a jack member having a log rest, a saw carrier mounted for reciprocatory movement in longitudinal relation with the frame and carrying a saw blade for movement in a path transverse to the log supporting means for communicating reciprocatory movement to the saw carrier including driving and driven pulleys and a belt connecting the same, a starting lever carrying a belt tightener for applying tension to the belt, and a saw blade lifter having a rocker provided with a saw support arranged in the path of the cutting edge of the saw blade and operatively connected with said starting lever.

6. A sawing machine having a motor carrying frame provided at its front end with a jack member having a logrest, a saw carrier mounted for reciprocatory movement in longitudinal relation with the frame and carrying a saw blade for movement in a path transverse to the log supporting means for communicating reciprocatory movement to the saw carrier including driving and driven pulleys and a belt connecting the same, a starting lever carrying a belt tightener for applying tension to the belt, and a saw blade lifter having a rocker provided with a saw support arranged in the path of the cutting edge of the saw blade and operatively connected with said starting lever, the saw blade being yieldingly fed in the direction of its cutting movement.

7. A sawing machine having a motor carrying frame provided at its front end with a jack member having a log rest, a saw carrier mounted for reciprocatory movement in longitudinal relation with the frame and carrying a saw blade for movement in a path transverse to the log supporting means for communicating reciprocatory movement to the saw carrier including driving and driven pulleys and a belt connecting the same, a starting lever carrying a belt tightener for applying tension to the belt, and a saw blade lifter having a rocker provided with a saw support arranged in the path of the cutting edge of the saw blade and operatively connected with said starting lever, the saw blade being yieldingly fed in the direction of its cutting movement, and the starting lever having a spring connection for moving the same in the belt loosening direction.

8. A sawing machine having a motor carrying frame provided at its front end with a jack member having a log rest, a saw carrier mounted for reciprocatory movement in longitudinal relation with the frame and carrying a saw blade for movement in a path transverse to the log supporting means for communicating reciprocatory movement to the saw carrier including driving and driven pulleys and a belt connecting the

same, a starting lever carrying a belt tightener for applying tension to the belt, and a saw blade lifter having a rocker provided with a saw support arranged in the path of the cutting edge of the saw blade and operatively connected with said starting lever, the saw blade being yieldingly fed in the direction of its cutting movement, and the starting lever having a spring connection for moving the same in the belt loosening direction, the tension of the last named connection being in excess of that of the saw feeding means.

9. A sawing machine having a motor carrying frame provided at its front end with a jack member having a log rest, a saw carrier mounted for reciprocatory movement in longitudinal relation with the frame and carrying a saw blade for movement in a path transverse to the log supporting means for communicating reciprocatory movement to the saw carrier including driving and driven pulleys and a belt connecting the same, a starting lever carrying a belt tightener for applying tension to the belt, and a saw blade lifter having a rocker provided with a saw support arranged in the path of the cutting edge of the saw blade and operatively connected with said starting lever, the saw support consisting of a soft surfaced roller.

In testimony whereof he affixes his signature.

JONAS A. SWENSON.