July 7, 1925. 1,544,584

A. B. IRELAND ET AL

POWER SETTING MECHANISM FOR SAWMILLS

Filed March 27, 1923 3 Sheets-Sheet 1

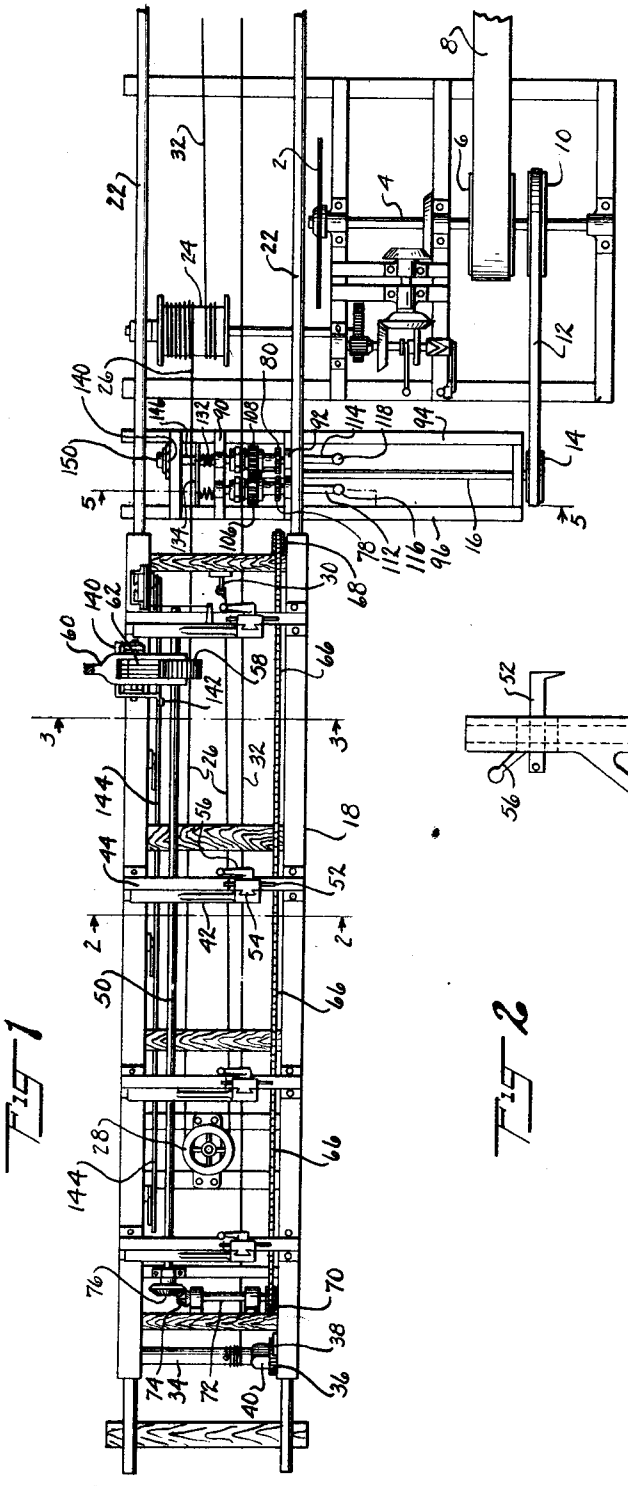


Fig 1

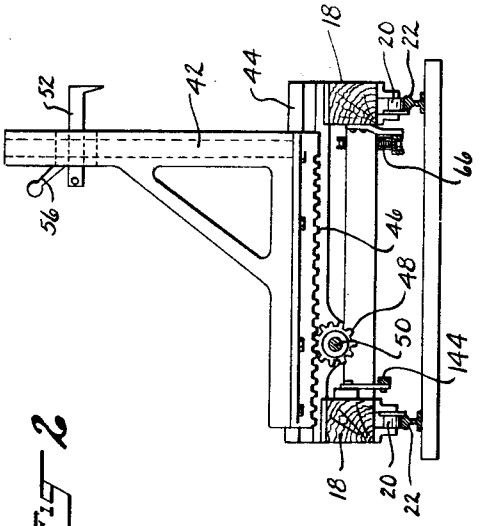


Fig 2

INVENTORS
A. Bertsell Ireland
Frank L. Ireland
BY Newell & Spencer
ATTORNEYS

July 7, 1925. 1,544,584

A. B. IRELAND ET AL

POWER SETTING MECHANISM FOR SAWMILLS

Filed March 27, 1923 3 Sheets-Sheet 2

Fig 3

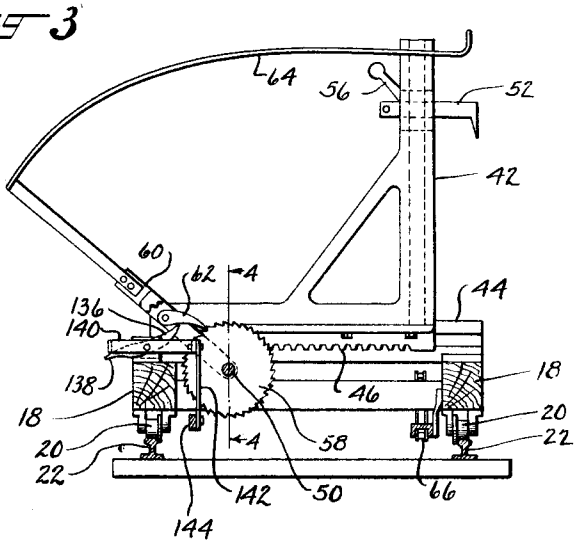


Fig 4

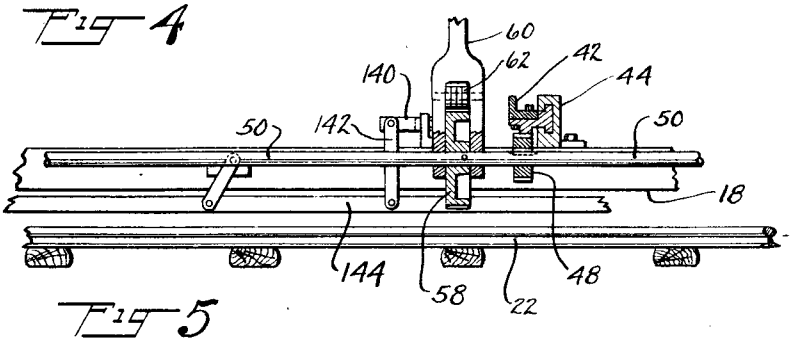
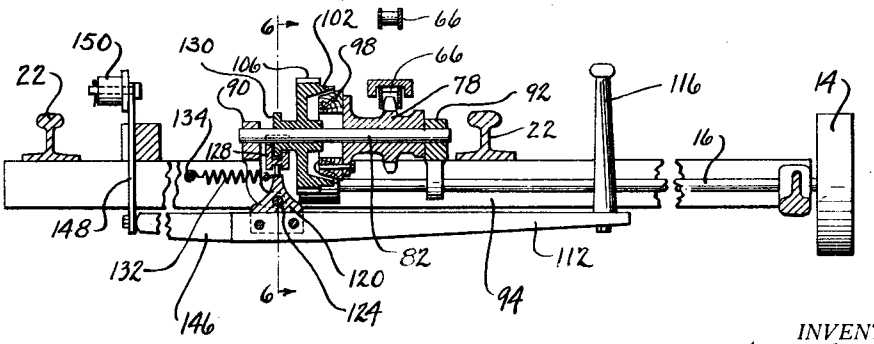


Fig 5



INVENTORS
A Bertsel Ireland
Frank L. Ireland
BY
Newell & Spencer
ATTORNEYS

July 7, 1925. 1,544,584

A. B. IRELAND ET AL

POWER SETTING MECHANISM FOR SAWMILLS

Filed March 27, 1923 3 Sheets-Sheet 3

Fig 6

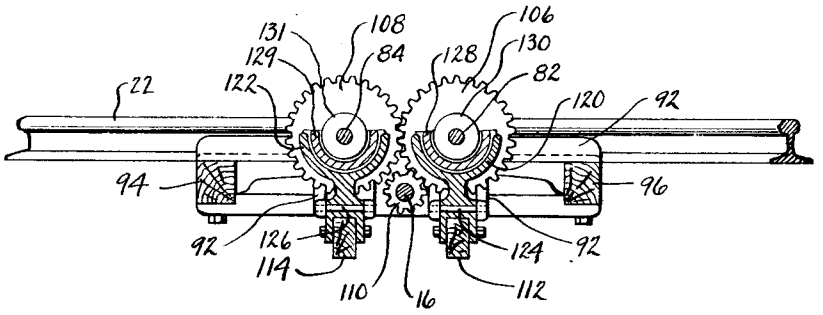
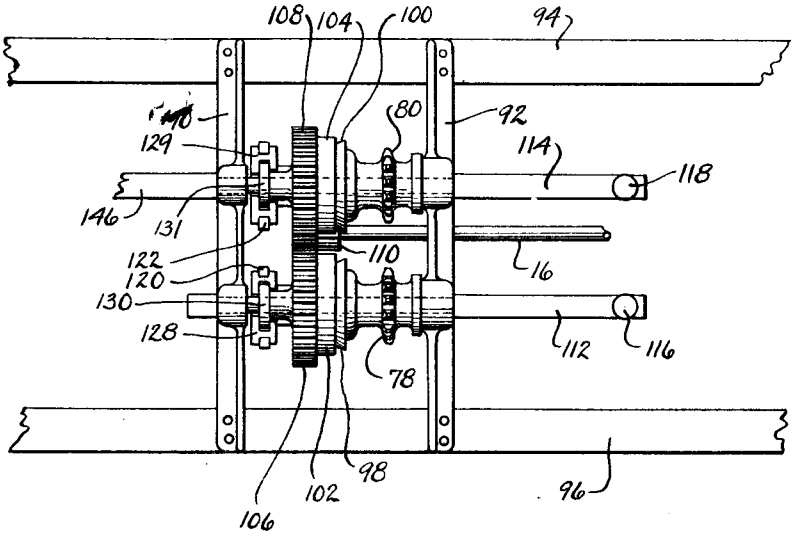


Fig 7



INVENTORS
A Bertsell Ireland
Frank L. Ireland
BY Newell & Spencer
ATTORNEYS

Patented July 7, 1925. 1,544,584

UNITED STATES PATENT OFFICE.

A. BERTSELL IRELAND AND FRANK L. IRELAND, OF NORWICH, NEW YORK.

POWER-SETTING MECHANISM FOR SAWMILLS.

Application filed March 27, 1923. Serial No. 628,022.

To all whom it may concern:

Be it known that we, A. BERTSELL IRELAND and FRANK L. IRELAND, citizens of the United States, residing at Norwich, New York, have invented a certain new and useful Improvement in Power-Setting Mechanism for Sawmills, of which the following is a clear, full, and exact description.

This invention relates to mechanism for effecting the adjustment or movement of the log upon the log carriage of a sawmill and particularly to mechanism adapted to be operated by power for effecting such adjustment or movement of the log.

The invention aims generally to provide power operated mechanism for effecting, as far as possible, those movements or adjustments of the log upon the log carriage of a sawmill which are necessary to position the log for cutting therefrom the desired lumber or for cutting up the log to the best advantage to produce therefrom the maximum amount of salable lumber.

The invention aims particularly to provide power setting mechanism for sawmills which will operate to effect by power the desired movements of the log upon the carriage at substantially any position of the carriage with respect to its path of travel, whether the carriage be moving or at rest.

The invention aims further to provide power setting mechanism particularly adapted for use with mills designed to saw the class of timber found chiefly in the East, which comprises many kinds of hard and soft woods which require to be cut to various dimensions according to specifications, and which it is desired so to cut as to secure economy in working up crooked, knotty or otherwise imperfect logs to the best advantage.

Other objects and important features of the invention will appear from the following description and claims when considered in connection with the accompanying drawings, in which—

Figure 1 is a plan view of a sawmill having the present invention incorporated therein;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a section on the line 3—3 of Fig. 1;

Fig. 4 is a section on the line 4—4 of Fig. 3;

Fig. 5 is a section on the line 5—5 of Fig. 1;

Fig. 6 is a section on the line 6—6 of Fig. 5; and

Fig. 7 is a detail plan of a part of the power setting means.

The sawmill herein shown is what is commonly designated a left hand sawmill in the operation of which the operator stands with the log carriage at his left when starting to saw, but, except for the present invention, it may be of ordinary construction, the illustrated mill comprising a saw 2 carried upon a saw arbor 4 having thereon a belt pulley 6 driven by a belt 8 from any suitable source of power, said arbor 4 also carrying a pulley 10 which serves through a belt 12 to drive a pulley 14 on a shaft 16 of the power setting mechanism. The log carriage 18 is provided with flanged wheels 20 which run upon the carriage track rails 22, the carriage being arranged to be moved to and fro past the saw 2 by power operated means comprising a drum 24 about which is wrapped a cable 26 passing around a pulley 28 mounted between the track rails 22 and connected to the carriage at 30 near its forward end, the cable 26 serving to draw back the carriage, and about which drum 24 is also wrapped another cable 32 extending about a pulley similar to the pulley 28, but not shown, near the other end of the carriage track and connected to the carriage at its rear end, being preferably wrapped about a cable adjusting shaft 34 provided with a ratchet wheel 36 engaging a pawl 38 on the carriage and having a square portion 40 for the application of a wrench. The cable 32 serves to advance the carriage past the saw. It will be noted that the cables are so wrapped around the drum 24 that as the drum winds up one cable it unwinds the other, thus providing the requisite slack for the movement of the carriage.

The carriage is provided with log positioning knees 42 sliding upon transverse guides 44 and provided on their under sides with racks 46 engaging pinions 48 on a shaft 50 extending lengthwise of the carriage, the illustrated carriage having four of these knees. Each knee is provided with a dog 52 provided with a dovetail portion 54 sliding in a correspondingly shaped vertical guideway in the knee 42 and adapted to be locked in any position of vertical adjustment by

locking mechanism not herein specifically shown but operated by the lever 56 carried by the dog.

The shaft 50 is shown as provided with the usual hand setting mechanism for setting the knees comprising a ratchet wheel 58 attached to the shaft 50. A lever 60 forked at its lower end to embrace the ratchet wheel 58 is arranged to turn freely on the shaft 50 and carries between the sides of its forked lower end a series of pawls 62 varying slightly in length to provide for fine adjustment. The lever 60 is provided at its upper end with a long flexible extension 64 which comes within convenient reach of the sawyer for operating the lever 60.

The power setting mechanism to which the present invention is particularly directed comprises, upon the log carriage, means extending substantially throughout the length of the carriage for establishing an operating connection between the knee advancing and receding mechanism and power driven means located in the path of movement of the carriage. The illustrated means comprises a sprocket chain 66 traveling over an idler sprocket 68 at the forward end of the carriage and serving to drive a second sprocket 70 attached to a cross shaft 72 carrying a bevelled pinion 74 meshing with a bevelled gear 76 on the rear end of the shaft 50, when said sprocket chain is connected to the power driven mechanism.

Located in the path of travel of the chain 66 with the carriage 18, are two sprocket wheels 78 and 80 adapted to engage the sprocket chain 66 in its lower run, the sprocket wheels 78 and 80 being mounted respectively upon short shafts 82 and 84 having their bearings in brackets 90 and 92 carried upon the longitudinal timbers 94 and 96 of the power setting attachment for the sawmill.

The sprockets 78 and 80 have attached thereto, respectively, the male members 98 and 100 of friction clutches, the female members 102 and 104 of which are repectively carried by gears 106 and 108 which mesh with each other, the gear 108 being herein shown as driven by a pinion 110 on the shaft 16 which carries the driving pulley 14.

The illustrated driving connection is that used for the illustrated left hand mill. For a right hand mill, the pinion would be arranged to mesh with the gear 106.

As hereinabove stated, the sprockets 78 and 80 are maintained in alinement with the path of travel of the chain 66 and, therefore, to effect the clutching of either sprocket to its associated gear, the gears are preferably arranged to slide along the shaft to bring their associated clutch members into engagement with the corresponding clutch members of the sprockets. The illustrated means for effecting such movement of either of the gears to effect the clutching to the associated sprocket comprise foot operated levers 112 and 114 having pedal portions 116 and 118 extending into convenient reach of the operator, these levers, as shown in Fig. 5 of the drawings, being fulcrumed in supports depending from the bracket 90, the levers 112 and 114 being respectively provided with bellcrank arms 120 and 122 extending upwardly therefrom and provided with bearings for the fulcrum pins 124 and 126 carried by the bracket 90 as shown in Fig. 6 of the drawings. As also shown in Fig. 6 of the drawings, the upper ends of the bellcrank arms 120 and 122 are forked and rounded to move freely in the side grooves of shifter collars 128 and 129 embracing flanges 130 and 131 on the hubs of the respective gears 106 and 108. Springs 132 connected to the respective bellcrank arms 120 and 122 and to a cross rod 134 tend to rock the levers into the position shown in Fig. 5 of the drawing in which the clutches are disengaged.

From the foregoing description it will be seen that when either of the gears 106 and 108 is moved into clutching engagement with the associated sprocket wheel, that one of the sprocket wheels thus clutched to the power driven gear will serve to drive the sprocket chain 64 carried by the carriage 18 and thus, through the mechanism hereinabove described, effect the movement of the knees 42 in either the log advancing or the log withdrawing direction, depending upon which one of the sprockets is thus clutched, the gears being intermeshed and, of course, rotating in opposite directions.

So far as the advancing movement of the knees is concerned, under the action of the power operated setting mechanism, there will be no interference from the hand setting mechanism. It will be obvious, however, from an inspection of Fig. 4 of the drawings, that if the power operated mechanism be so connected to the sprocket chain 64 as to tend to rotate the shaft 50 in the reverse direction, that is, in the direction to withdraw the knees 42 from their advanced position, the pawls 62 on the lever 60 would tend to prevent such rotation. Provision is therefore made for automatically throwing the pawls 62 out of engagement with the teeth of the ratchet wheel 58 when it is desired to operate the power setting mechanism to cause the knees to recede from their advanced position. The illustrated means for throwing the pawls 62 into inoperative position comprises a pawl tripping lever 136 fulcrumed upon the carriage adjacent the ratchet wheel 58 and having its forward end extending beneath the pawls 62 in position to lift these pawls when said lever 136 is rocked upon its fulcrum, the

lever 136 having a tail 138 located beneath a laterally extending arm on a second lever 140 fulcrumed on the carriage, the lever 140 at its forward end being connected by a link 142 to a bar 144 extending lengthwise of the carriage and so supported on parallel links that when engaged at any point throughout its length and lifted, the lifting movement will be the same throughout the extent of the bar.

To effect a lifting of the bar and a corresponding depression of the rear end 138 of the lever 136 and the resulting disengagement of the pawls 62 from the ratchet wheel 58, the foot lever 114, which serves to effect the clutching of the gear 108 to the sprocket 80 for effecting the receding movement of the knees, is provided with an extension 146 behind the bellcrank and at its end this extension carries a vertical slide 148 having at its upper end a roll 150 adapted when raised by the depression of the forward end of the lever 114 to engage the under side of the bar 144 and through the link 142 and lever 140 effect the rocking of the lever 136 to disengage the pawls 62.

From the foregoing description, the operation of the device will readily be understood. When the log has been located upon the carriage and held in position by engagement of the dogs 52 therewith, the knees 42 being in their rearward position, the sawyer, by depressing the pedal 116 on the lever 112 slightly, may cause the log to be advanced the proper distance for the first slab. He may, of course, if he desires, effect part of the setting by power and a part by hand. The first slab having been cut, if the sawyer desires to turn the log to bring its flat face against the knees, he may depress the other pedal 118 on the lever 114 to cause the knees to move backward on the carriage with the dogs still in engagement with the log, which will result in the log being partly rolled over on the carriage before the dogs disengage. The sawyer may then complete the turning of the log by hand and then by pressure on the pedal 116 again advance the log into position to saw the next slab. After cutting the second slab, the log may be rolled to its first flat side by simply depressing the pedal 118 while the dogs are still in engagement with the log, after which the sawing may be continued until the heart of the tree has been sawed away, when the log is usually rolled half over for final sawing.

After the tail sawyer has pulled the last board or plank from the carriage and the carriage is returning, the sawyer, by simply depressing the pedal 118, may cause the knees to recede sufficiently to receive the next log as soon as the carriage is brought to rest.

From the foregoing description it will be seen that the machine is designed not only to supplement a hand lever in setting, but alone to do the coarser setting for planks, timbers, rails, etc., operating for this purpose much faster and more easily than such setting can be done by hand. Moreover, as above shown, the device is useful in helping the sawyer to roll the logs on the carriage, and is particularly useful in effecting the receding movement of the knees, without loss of time, while the carriage is returning to position to receive the new log.

An important advantage of this device over devices of the prior art is its capability of use for aligning the logs and setting them for the sawing of lumber while the carriage is at rest. Such setting can only properly be done when the carriage is at rest.

The possibility of using both the hand setting device and the power setting device is also important in that, for example, when sawing boards of uniform thickness, for example, boards of one inch thickness or near that dimension, it is customary, after first slabbing the log to square it, to provide a stop for the hand lever at the appropriate dimension, which permits the use of the hand lever for effecting such setting while the carriage is returning, this short setting movement being most easily and accurately effected by hand.

What we claim is:

1. In power setting mechanism for sawmills, the combination with the log carriage, the knees thereon, and the mechanism on said carriage for effecting the advancing and receding movements of said knees, of power driven means not normally connected to or carried by said carriage, and means under the control of the operator for effecting a connection between said power driven means and the knee operating mechanism on said carriage, said connections comprising normally stationary friction clutch members located at points in the path of movement of said carriage and arranged to operatively engage the carriage mechanism as it passes thereover, and interconnected oppositely driven friction clutch members selectively engageable respectively with said first mentioned clutch members whereby the advancing or receding movements of said knees may be effected, at the will of the operator, by power.

2. In power setting mechanism for sawmills, the combination with a log carriage, the knees thereon and mechanism for effecting the advancing and receding movements of said knees, of a sprocket chain extending lengthwise of said carriage and arranged to drive said mechanism, two sprocket wheels located at points in the path of movement of said carriage and adapted to engage said chain, oppositely rotating power driven means arranged to be frictionally connected

to the respective sprocket wheels to cause one or the other of said wheels to drive said chain in one or the other direction, and means under the control of the operator for selectively effecting such connection.

3. In power setting mechanism for sawmills, the combination with a log carriage, the knees thereon and means carried by said carriage for effecting the movement of said knees comprising pawl and ratchet mechanism and a lever for moving the pawls, of power driven means not normally connected to the carriage and means under control of the operator for connecting said power driven means to the knee operating mechanism of the carriage to operate said mechanism by power, comprising means for simultaneously disengaging said pawls from said ratchet.

4. In power setting mechanism for sawmills, the combination with the log carriage, the knees thereon and mechanism on said carriage for effecting the advancing and receding movements of said knees, of power driven means not normally connected to or carried by said carriage, means under the control of the operator for selectively effecting a connection between said power driven means and said mechanism to effect by power the advancing or the receding movement of said knees, and means for effecting such movements manually, said means being arranged to be simultaneously disengaged when one of said power connections is effected.

Signed at Norwich, N. Y., this 21st day of March 1923.

A. BERTSELL IRELAND.
FRANK L. IRELAND.