

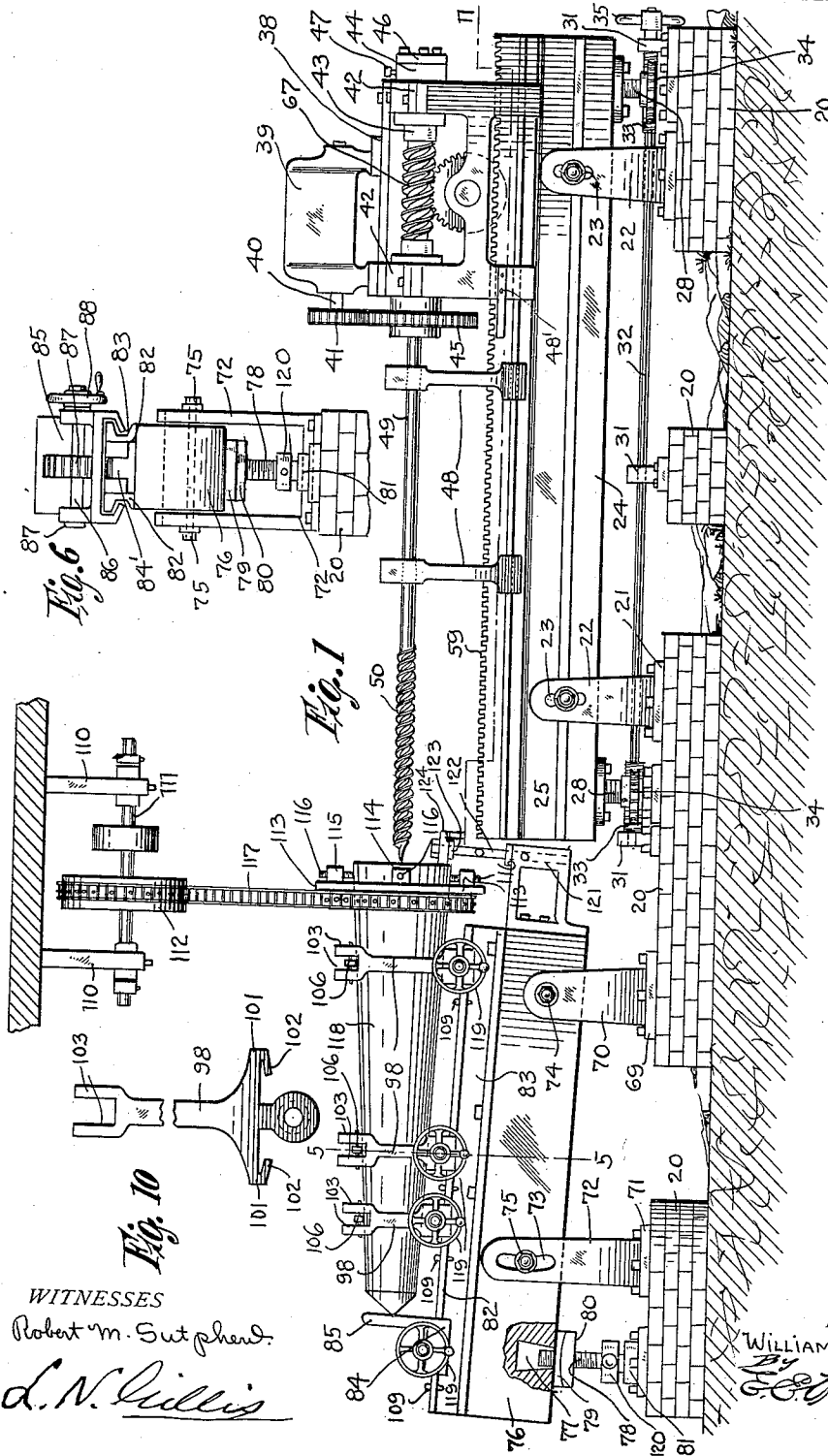
W. H. GARLOCK.
BORING MACHINE.

APPLICATION FILED MAY 15, 1912.

1,057,819.

Patented Apr. 1, 1913.

3 SHEETS-SHEET 1.



WITNESSES

Robert M. Sutphen.

L. N. Willis

INVENTOR

WILLIAM H. GARLOCK

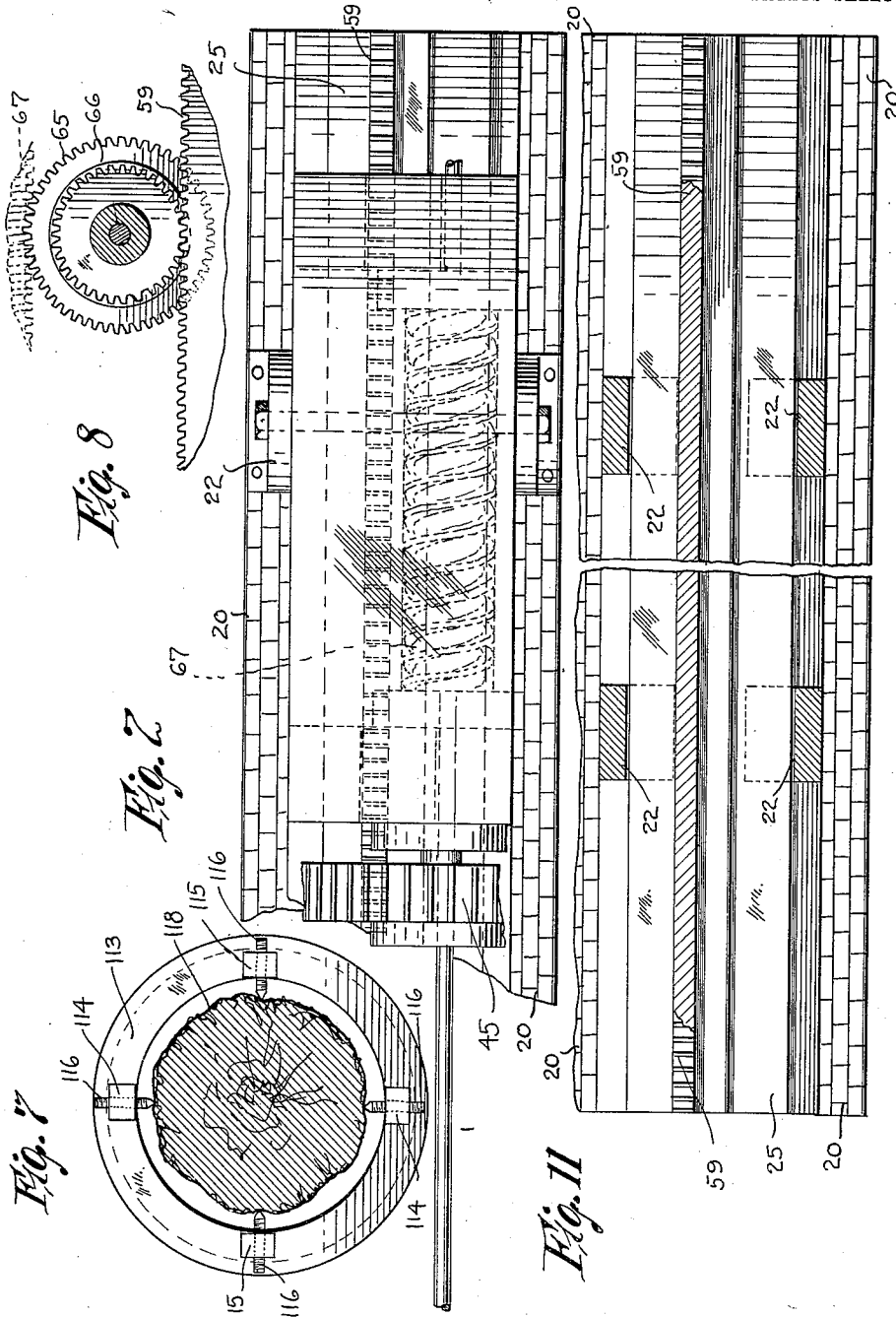
E. C. Thoman
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3 SHEETS-SHEET 2.



WITNESSES

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3 SHEETS—SHEET 3.

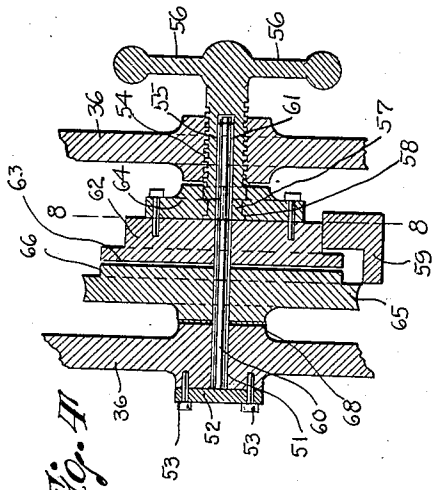


Fig. 1

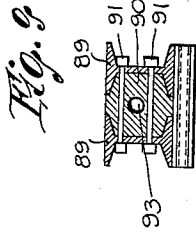


Fig. 2

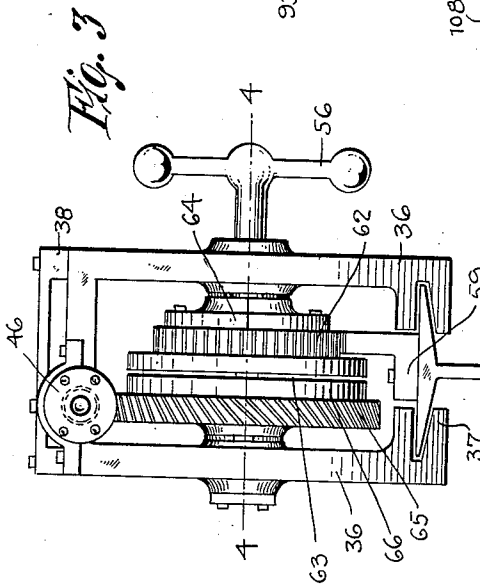


Fig. 3

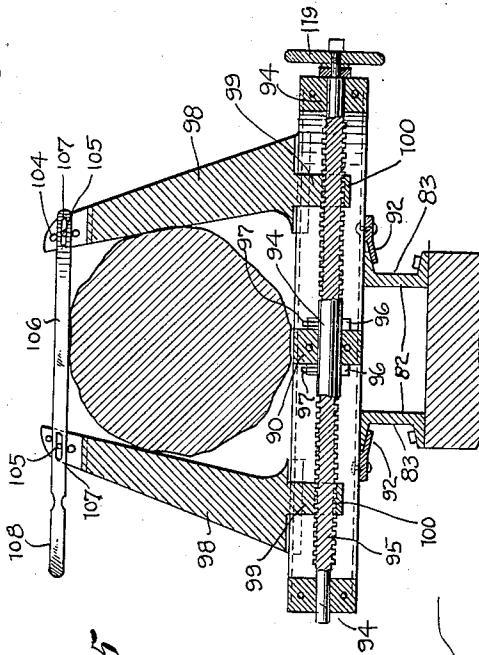


Fig. 4

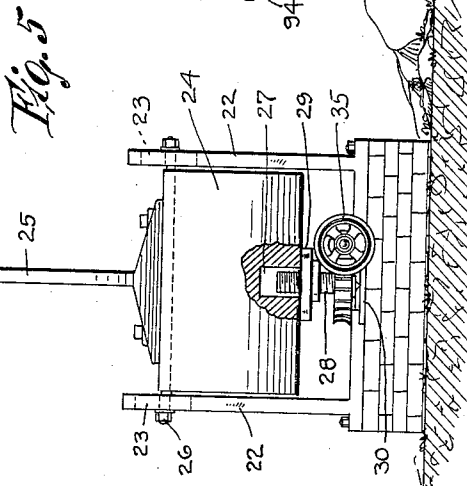


Fig. 5

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UNITED STATES PATENT OFFICE.

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BORING-MACHINE.

1,057,819.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Application filed May 15, 1912. Serial No. 697,508.

To all whom it may concern:

Be it known that I, WILLIAM H. GARLOCK, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Boring-Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to boring machines of a type especially adapted for the boring of timber such as that used for piles, when it is desired to impregnate the timber with a suitable preservative.

15 The principal object of the invention is to provide an improved cooperative mechanism which will insure the boring of a hole centrally of the pile, and this without danger of the drill used running off to one side or the other.

It is a well-known fact that in boring timber it is difficult to bore a straight hole for any great depth through the heart of the timber on account of knots, shakes, wind checks, and the like. Furthermore, owing to the various diameters and taper of different logs it is also difficult to adjust a boring auger to meet these varying conditions.

20 A second object of the invention is to provide an improved apparatus especially adapted to overcome all of these objections.

With the above and other objects in view, this invention consists in general of certain novel constructions, combinations and arrangements of parts, as will be hereinafter fully described, illustrated in the accompanying drawings, and specifically claimed.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and Figure 1 is a side elevation of an apparatus constructed in accordance with this invention. Fig. 2 is an enlarged detail plan view of the driving end of the machine. Fig. 3 is a rear elevation of a portion of the machine certain parts being omitted in order to bring out the remainder more clearly. Fig. 4 is a section on the line 4—4, Fig. 3. Fig. 5 is a section on the line 5—5, Fig. 1. Fig. 6 is an end view of the log tilting device used herewith. Fig. 7 is a detail section of the log showing the driving ring used herewith. Fig. 8 is a detail sectional view on the line 8—8, Fig. 4, certain of the parts being omitted. Fig. 9 is a view of a certain bearing used having a right and left hand screw in connection

with a clamping device herewith. Fig. 10 is a view of a certain clamping arm used in connection with said clamping device. Fig. 11 is a section on the line 11—11, Fig. 1 certain of the parts being omitted.

In carrying out the objects of this invention there is provided a series of foundation piers 20 whereon the mechanism is erected. Mounted upon two of the piers 20 in spaced relation are certain standards each comprising a base 21 and a pair of spaced arms 22, each of which is provided with a vertically disposed slot 23. Between the arms 22 extends a base member 24 whereto is secured an I-beam 25. Extending beneath this I-beam and passing through the slots 23 are bolts 26 which serve to hold the member 24 in position while at the same time permitting vertical adjustment thereof. Beneath each end of the member 24 is formed a recess 27 wherein is mounted one end of an adjusting screw 28 which passes through a nut 29 suitably secured beneath the respective end of the member 24. The lower end of this adjusting screw is pointed and rests on a hardened steel bearing plate 30 so that by rotating the screw the member 24 may be raised or lowered. In order to rotate these two screws simultaneously the piers 20 which lie beneath the member 24 are provided with bearings 31 wherethrough passes a shaft 32 having mounted thereon worms 33 which mesh with respective worm wheels 34 secured to the respective screws so that as the shaft is rotated by means of a suitable operating handle 35 both ends of the member 24 will be simultaneously raised or lowered.

Slidably mounted on the upper flanges of the I-beam 25 is a skeleton frame 36 which is provided with jaws 37 which engage over the edges of the I-beam. On top of this skeleton frame is a platform 38 and on this platform is carried a suitable motor 39 provided with a shaft 40 whereon is a pinion 41. On the frame 36 are bearings 42 wherethrough extends a sleeve 43. This sleeve 43 is provided at each end with journal collars 44 which are engaged in the bearing and on the forward end of the forward journal collar is a gear 45 which meshes with the pinion 41. The rear end of the sleeve 43 abuts against a plate 46 secured to the rear journal collar and through the sleeve and collar passes a set screw 47. Guides 48 are also slidably mounted on

the I-beam 25 and through these guides passes a cylindrical shank 49 of a drill having an auger head 50. This drill slips into the sleeve 43 and abuts against the plate 46 being held from rotation in the sleeve by means of engagement by the set screw 47.

At one side of the frame 36 there is provided an opening 51 which is closed by a suitable plate 52 positioned on the outside of the frame and secured thereto by screws or bolts 53. Opposite the opening 51 there is provided a second opening in the frame, as indicated at 54 and this opening is threaded as can clearly be seen by reference to Fig. 4. Into this opening 54 is screwed an adjusting screw 55 provided with adjusting arms 56. The inner end of this screw 55 is reduced and grooved as at 57 and at its extremity is provided with a flange 58 of slightly smaller diameter than the body of the screw so that the flange can pass through the threaded opening 54.

Mounted on the I-beam 25 is a rack bar 59, and carried on a shaft 60 which has one end held in the opening 51 and the other end held in an opening 61 formed in the screw 55 is a gear 62 which meshes with a rack bar 59. This gear is furthermore provided with a flat face 63 to constitute a friction plate, as will be hereinafter described. Secured to the gear 62 are a pair of semi-circular members 64 which serve to engage in the reduced portion 57 of the screw 55 and thereby permit the rotation of the screw relative to the gear while at the same time causing the gear and screw to move in and out together.

Mounted on the shaft 60 is a worm wheel 65 which is provided with a projecting portion 66 having a flat face arranged to cooperate with the face 63 of the gear 62. This worm wheel 65 meshes with a worm 67 formed on the sleeve 43 so that as the latter is rotated by the motor in like manner will the worm wheel be rotated. Between this worm wheel and the frame 36 is a washer 68 of anti-friction metal of some sort provided with lubricating holes. On this movable head is also a projecting striker 48' of such length as to engage against the bottom of the nearest guide 48. As the head moves along it pushes the guide before it until the guide contacts with the remaining guide when both are carried along.

In the operation of the device as so far described it will be plain that the drill is set in motion by the action of the motor and that simultaneously therewith the worm wheel will be actuated. If it be desired to advance the drill along the rack bar it is merely necessary to tighten the screw 55 by proper manipulation of the handles 56 whereupon the gear 62 and worm wheel 65

will be brought into frictional engagement so that the worm wheel will cause the gear to rotate, thus advancing the carriage and drill along the I-beam. It will also be obvious that if any extra hard surface is struck during this movement by the point of the drill, say a knot, or the like, the friction device will permit of sufficient slipping to prevent breaking the drill.

Mounted on one of the piers 20 adjacent the forward end of the I-beam 25 is a standard comprising a base 69 and a pair of spaced arms 70. In spaced relation to the standard just mentioned there is provided a standard comprising a base 71 and a pair of spaced arms 72, and these latter arms are each provided with an arcuate slot 73 the center line whereof is concentric with the axis of a bolt 74 passing through the arms 70. Through these slots 73 also passes a bolt 75 and supported on these bolts is a base member 76 which is thus, at its forward end, pivoted for vertical movement while being freely adjustable at its rear end.

At the rear end of the member 76 there is provided a tapering recess 77 wherein is adapted to move the upper end of a screw 78. Beneath the recess 77 there is positioned a washer 79 having a transversely disposed segmental cylindrical surface. On the screw 78 is carried a nut 80 having an upper surface adapted to fit the undersurface of the washer so that the washer is held from rotation with reference to the screw while at the same time permits a tilting movement with reference thereto, it being understood that the opening in the washer is of sufficient size to permit such movement. On the pier 20 is mounted a base block 81 having a recess therein to receive the rounded end of the screw 78, the recess being correspondingly shaped so as to make a ball and socket joint for the lower end of this screw.

On the member 76 and extending longitudinally thereof are guides 82, each provided with an undercut guide groove 83 and on these guides slide an abutment casting 84 carrying an upstanding abutment 85. Between the guides 82 is a rack bar 84' wherewith meshes a gear 85' carried on a shaft 86 mounted in suitable bearings 87 on the abutment casting. This shaft is furthermore provided with the usual hand wheel 88 for adjusting the position of the abutment 85. Slidable on the guides 82 are certain bolsters, each comprising a pair of I-beams 89 held in spaced relation by spacers 90 and secured together by bolts 91. The bolsters extend transversely across the guides 82 and are held in position thereon by clips 92 engaging in the grooves 83 of the guides. The spacers 90 are provided with aligned openings 93 which constitute bearings wherein are received the journals 130

94 of right and left handed screws 95. On the center journal bearing 94 at each side of the center spacer 90 is provided a collar 96 secured to the journal by a set screw 97.

5 Mounted on each of the bolsters constructed as above set forth is a pair of oppositely disposed upwardly and inwardly inclined arms 98, each having a downwardly projecting portion 99 provided with a threaded opening 100 for the reception of the opposite ends of the screw 95, it being, of course, obvious that one of these openings is threaded right handed while the other is threaded left handed. These arms are provided with laterally disposed guide extensions 101 having lugs 102 which engage beneath the upper flange of a respective I-beam of said bolster. The upper end of each of the arms is forked as at 103 and is provided with a series of spaced openings 104, in a selected one whereof is adapted to be placed a pin 105. Extending from one of the pins 105 to another is a lever or bar 106 having a slot 107 adjacent each end having one end provided with an operating handle 108. The guides 82 are provided at intervals with suitable stop pins 109 to limit the movement of the various bolsters and abutment plate.

30 For the purpose of rotating the log there is provided above the forward end of the device a plurality of hangers 110 wherein is supported a shaft 111 driven by any suitable means. On this shaft is a sprocket wheel 112. At 113 is disclosed a flanged sprocket wheel having lugs 114 positioned around the same and each of these lugs is provided with a radially threaded opening 115 wherein fits a pointed screw 116. A chain 117 is arranged to engage the two sprockets just described.

Secured to the member 76 is a bracket 121 having a squared socket therein for the reception of the squared end of a shaft 122, the upper end whereof is provided with a collar 123 above which the shaft is rounded. On this rounded upper end is secured a roller 124 against which the larger end of a timber butts when the same is being bored.

50 In the operation of the device the timber to be bored is first sawed off square at the larger end and pointed at the smaller end, being here shown at 118. The piece of timber is laid upon the bolsters, the various hand wheels 119 which are attached to the screws 95 being properly manipulated to open the arms 98, it being of course understood that the pins 105 adjacent the handles 108 have been withdrawn and the bars 106 thrown back out of the way. When the log is on the bolsters the arms are then screwed up until they form proper guides for the log while at the same time sufficient play is left so that the log can freely rotate between these guides. The hand wheel 120 of the

guides 78 is now manipulated to raise or lower the smaller end of the log 118 so that the center line of the log will lie horizontally. The abutment block is then pushed up into position so that the abutment 85 engages the pointed end of the log. The collar sprocket 113 is next applied and adjusted to the log by the pointed screws 116 so that as the log revolves the sprocket will revolve concentrically or as near concentrically as possible in all positions of the log. The sprocket chain 117 is then used to connect the two sprockets being, of course, adjusted in length by the removal or addition of one or more links, as may be necessary. The log being now in position, the same is rotated to see that the parts are all properly adjusted. After the log is rotated in this manner the handle 35 is manipulated to raise or lower the bed 24 and when the auger 50 has had its point positioned centrally of the log the motor 39 is started while at the same time the log 118 is also started to revolve. From time to time, the operator, accordingly as he desires to feed or stop the feed, manipulates the handle 56 of the screw 55. By the constant revolution of the log 118 any tendency of the point of the drill or auger 50 to move to one side or the other will be counteracted, it being, of course, obvious that the revolution of the log will be in a direction opposite to that of the drill. The hole drilled therefore will be practically straight throughout its entire extent and breakage of the drill will be obviated as will also the danger of drilling out through the side or to one side so that when the preservative fluid is applied under pressure the same will not burst out or feed more to one side of the log than the other.

There has thus been provided a simple and efficient device of the kind described, and for the purpose specified.

It is obvious that many minor changes may be made in the form and construction thereof without departing from the material principles thereof, and it is therefore not wished to confine the invention to the exact form herein shown and described but it is wished to include all such as properly come within the scope claimed.

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

1. In combination, a log-supporting carriage, a pivot extending transversely of the carriage at its forward end, standards at the rear end of said carriage constituting guides therefor, an elevating screw beneath the rear end of said carriage, guides mounted on said carriage, log-carrying bolsters mounted on said guides and extending transversely thereof, arms simultaneously movable in opposite directions carried by said bolsters to center a log placed thereon, an abutment against which the rear end of said log bears,

a boring device, means to drive said boring device, means to move said boring device to and from said carriage and means of controlling the action of the last mentioned means from the boring device.

2. In combination, a log-supporting carriage, a pivot extending transversely of the carriage at its forward end, standards at the rear end of said carriage constituting guides therefor, an elevating screw beneath the rear end of said carriage, guides mounted on said carriage, log-carrying bolsters mounted on said guides and extending transversely thereof, arms simultaneously movable in opposite directions carried by said bolsters to center a log placed thereon, an abutment against which the rear end of said log bears, a boring device, means to drive said boring device, means to regulate the elevation of said boring device, means to move said boring device to and from said carriage, and means to rotate the log on the carriage.

3. In combination, a log supporting carriage, means to vary the position of said carriage from the horizontal, means to retain a log on said carriage, a base member, means to simultaneously change the elevation of both ends of said base member, a guide mounted on said base member, a frame slidably mounted on said guide, a motor supported on said frame, a sleeve journaled in said

frame, gearing connecting said sleeve and motor, a boring tool mounted in said sleeve and rotating therewith, a rack bar carried by said guide, a gear engaging said rack bar, a worm carried by said sleeve, a worm gear meshing with said worm, and means to frictionally lock the rack-engaging gear and the worm gear together.

4. In combination, a log supporting carriage, means to vary the position of said carriage from the horizontal, means to retain a log on said carriage, a base member, means to simultaneously change the elevation of both ends of said base member, a guide mounted on said base member, a frame slidably mounted on said guide, a motor supported on said frame, a sleeve journaled in said frame, gearing connecting said sleeve and motor, a boring tool mounted in said sleeve and rotating therewith, a rack bar carried by said guide, a gear engaging said rack bar, a worm carried by said sleeve, a worm gear meshing with said worm, means to frictionally lock the rack-engaging gear and the worm gear together, and means to rotate a log held on said carriage.

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

WILLIAM HENRY GARLOCK.

Witnesses:

W. A. OWEN,
E. LEONHARDT.

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