No. 642,552. Patented Jan. 30, 1900.

H. LANDIN.

POST HOLE BORER.

(Application filed June 15, 1899.)

(No Model.) 2 Sheets—Sheet 1.

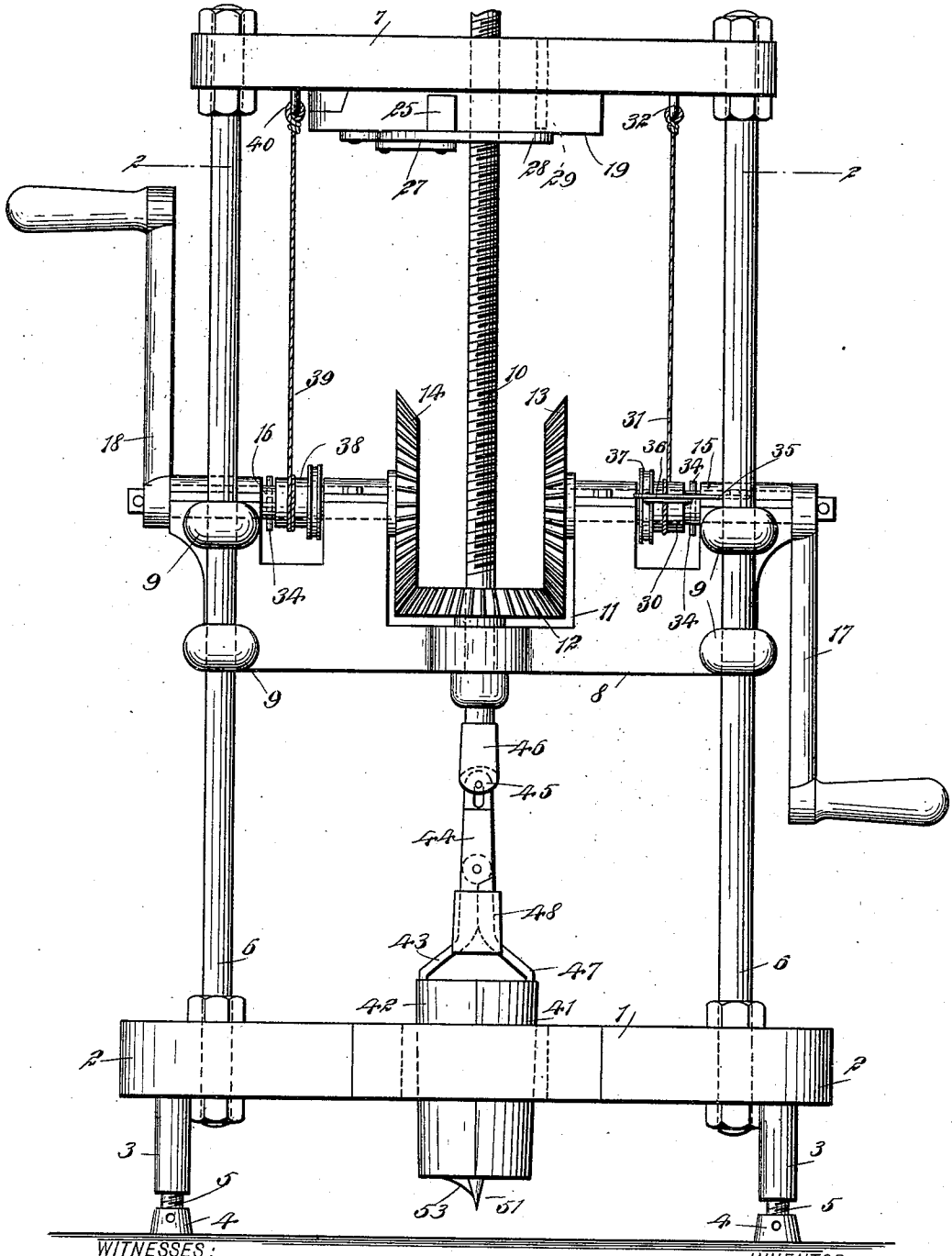


Fig. 1.

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Fig. 2

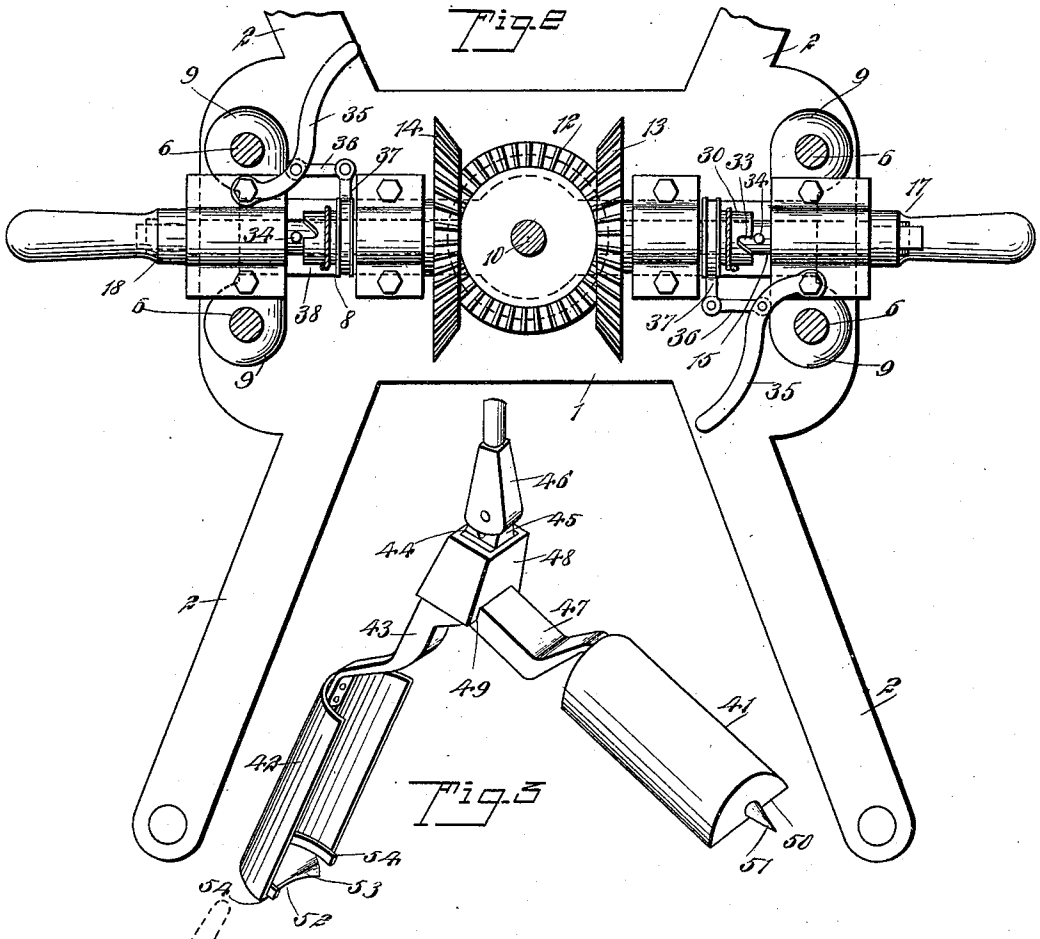


Fig. 3

Fig. 4

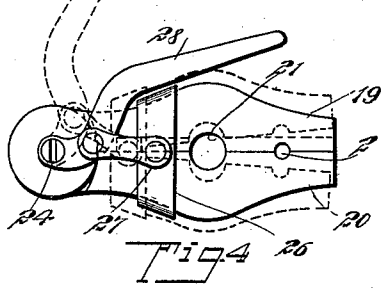


Fig. 5

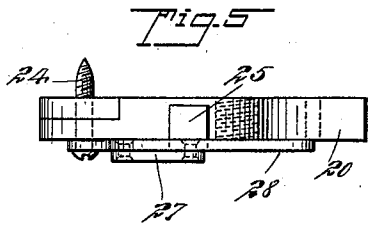
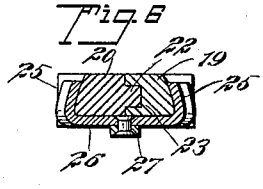


Fig. 6



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UNITED STATES PATENT OFFICE.

HENRY LANDIN, OF ALGER, OHIO.

POST-HOLE BORER.

SPECIFICATION forming part of Letters Patent No. 642,552, dated January 30, 1900.

Application filed June 15, 1899. Serial No. 720,663. (No model.)

To all whom it may concern:

Be it known that I, HENRY LANDIN, of Alger, in the county of Hardin and State of Ohio, have invented a new and Improved Post-Hole Borer, of which the following is a full, clear, and exact description.

This invention relates to machines for boring fence-post holes; and the object is to provide a machine of this character by means of which a hole may be quickly bored and the dirt removed with the pod when drawn from the ground and dumped at one side of the hole.

I will describe a post-hole borer embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is an elevation of a post-hole borer embodying my invention. Fig. 2 is a plan view, partly in section, on the line 2 2 of Fig. 1. Fig. 3 is a perspective view of the pod, showing it open when discharging dirt. Fig. 4 is a bottom view of a two-part feeding-nut employed. Fig. 5 is a side view thereof, and Fig. 6 is a cross-section thereof.

Referring to the drawings, 1 designates the base of the machine, having a vertical opening through it through which the pod is designed to pass, as will be hereinafter described. From the base 1 arms 2 extend outward, and on the ends of these arms are legs 3, which on their lower ends are provided with leveling devices, here shown as blocks 4, having interior screw-threads to engage with threaded portions 5 of the legs. By turning these blocks 4 the machine may be readily leveled up.

Extended upward from the base 1 are standard-rods 6, two standard-rods being on each side, and these standard-rods are connected at the upper ends and rigidly held in position by means of a cross-piece 7. A cross-head 8 is movable vertically on the standard-rods, and said cross-head has at its ends outwardly-extended arms 9, provided with openings through which the standard-rods pass.

Mounted to rotate in the cross-head 8, but secured from longitudinal movement relatively to the cross-head, is a screw-driving shaft 10, which at a portion arranged within a recess 11, formed in the cross-head, has a bevel-gear 12 mounted on it. This bevel-gear 12 meshes with bevel-gears 13 14, mounted, respectively, on shafts 15 16, having bearings in the upper portion of the cross-head 8, and to the outer ends of these shafts 15 16 are attached cranks 17 18. The screw-shaft 10 passes loosely through an opening in the cross-piece 7, and as a means to cause it to feed downward I employ a feeding-nut, here shown as consisting of two longitudinally-separated sections 19 and 20. Each section has a semi-circular notch 21 formed in it, and when the sections are moved together these two notches will form a complete circle provided with threads to engage the threads of the screw-rod 10. Forward and rearward of the opening 21 one section is provided with a tongue 22 for engaging in a groove 23, formed in the other section, so that the strain on the two sections will be equal. The two sections are overlapped at one end, and a pivot 24 passes through holes in these overlapped portions and into the cross-piece 7. From a point forward of the pivotal point the outer sides of the sections are inclined upward and forward to form cam-surfaces to be engaged with upwardly-extended fingers 25 of a sliding clamping-plate 26. From the clamping-plate 26 a link 27 extends to a connection with a shifting lever 28, mounted to swing on the pivot 24. Obviously by swinging the lever 28 forward, as indicated in full lines in Fig. 4, the two sections of the feeding-nut will be moved and held tightly together, so as to engage with the screw-rod, and by moving the lever 28 in the opposite direction, as indicated by dotted lines in Fig. 4, the sections may be separated so as to allow a free upward movement of the rod 10, as will be hereinafter described. A pin 29, extended from the cross-piece 7, is adapted to be engaged by the inner sides of the sections 19 20 and form a stop to hold the feeding-nut in proper position.

Loosely mounted on the shaft 15, but adapted to have a locking engagement therewith, so as to rotate with the shaft, is a drum 30, from which a cable 31 extends upward to a connection with an eye 32, attached to the cross-piece 7. At one end the drum 30 has clutch-teeth 33, adapted for engagement with

clutch-pins 34, extended from the shaft 15. As a means for moving the drum into its clutch connection I employ a lever 35, which is pivoted to the cross-head 8 and from which a link 36 extends to a connection with a band 37, engaging in an annular channel formed in the drum. On the shaft 16 is a similar drum 38, having a cable connection 39 with an eye 40 on the cross-piece 7. This drum 38 is moved into clutch connection with the shaft 16 by means the same as that employed for the drum 30.

The boring-pod comprises two semicylindrical sections 41 42, which when together form a receptacle for dirt to be removed after the boring operation. From the section 42 an arm 43 extends upward and inward, and it has an upward extension 44, and this upward extension 44 has swinging connection 45 with a block 46, secured to the lower end of the screw-rod 10. From the section 41 of the pod an arm 47 extends upward and inward and has pivotal connection with the part 44. When the sections 41 and 42 are placed together for operation, they are locked in such position, and as a means for so locking the sections together I employ a sleeve 48, mounted to slide on the arms 43 47 and also to slide on the portion 44. When the sleeve 48 is moved downward, as indicated in Fig. 1, it will engage with the arms 43 and 47 and prevent them from swinging one relatively to the other, and to prevent any lateral strain of the arms the lower end of the sleeve 48 is provided with downward projections 49 to engage the sides or edges of the arms.

The lower end of the section 41 of the pod has a closure 50, from which a centering-point 51 extends downward, and the section 42 is provided with a closure 52, on the inner end of which is formed a cutting-bit 53. At the lower end of the section 42 there are projections 54 for engaging against the inner side of the section 41, so as to prevent said sections from being separated by torsional strain.

In operation after the machine is placed in position and leveled up the feeding-nut sections are to be placed in engagement with the screw-rod 10 and locked. Then by one man operating the shaft 15 and another man operating the shaft 16, the two shafts rotating in opposite directions, rotary motion will be imparted to the screw-shaft 10 by means of the gear-wheels, so that during the downward movement of the screw-shaft the pod will be caused to bore into the ground. After having bored a sufficient depth the drums 30 and 38 are to be moved into their clutch connection with the shafts. Then by a reverse rotation of the shafts the cables 31 and 39 will be wound upon the drums and the pod will be raised from the ground. It is to be understood that before this lifting operation the sections of the feeding-nut are to be moved out of connection with the screw-shaft. During the boring the loosened dirt will pass into the pod, so that when said pod is raised above the base 1 it may be swung laterally, and then by releasing its locking mechanism the two sections of the pod will swing apart, allowing the dirt to fall out.

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

1. In a boring-machine, a screw-rod, a boring-pod carried by the screw-rod, means for rotating the screw-rod, a feeding-nut for engagement with the screw-rod, the said feeding-nut consisting of two sections mounted to swing relatively to each other, each section having a threaded semicircular opening in its inner side, a clamping-plate, fingers on said clamping-plate for engaging the inclined outer surfaces of the nut-sections, a lever pivoted on the pivot of the nut-sections, and a link connecting the lever with said clamping-plate, substantially as specified.

2. In a boring-machine, a feeding-nut for a screw-rod consisting of two sections mounted to swing relatively to each other, one section having a rib on its inner edge for engaging in a channel in the other section, each section having a threaded semicircular opening in its inner side, a clamping-plate movable longitudinally on the nut-sections, fingers on said clamping-plate for engaging the longitudinally-inclined outer surfaces of the nut-sections, a lever pivoted on the pivot of the nut-sections, and a link connecting the lever with the clamping-plate, substantially as specified.

3. In a boring-machine, a base, standards on said base, a cross-head mounted to slide vertically on said standards, a screw-rod having rotative connection with the cross-head, a feeding-nut made in two sections and adapted for engagement with the screw-rod, two shafts having bearings in the cross-head, gear connections between said shafts and the screw-rod, drums mounted on said shafts, clutch connections between the shafts and drums, ropes extended from the drums to a cross-piece on the standards, a boring-pod consisting of two sections, one mounted to swing relatively to the other, said boring-pod having its shank pivotally connected to the screw-rod, and a sleeve movable on said shank for locking the sections together, substantially as specified.

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Witnesses:
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