

Witnesses  
*J. J. Gordon*  
*L. N. Gillis*

Inventor  
*Grover T. Stott*  
*Charles Charles*  
 Attorney's

993,903.

G. T. STOTT.  
EARTH AUGER.  
APPLICATION FILED JAN. 4, 1910.

Patented May 30, 1911.

3 SHEETS—SHEET 2.

FIG. 2

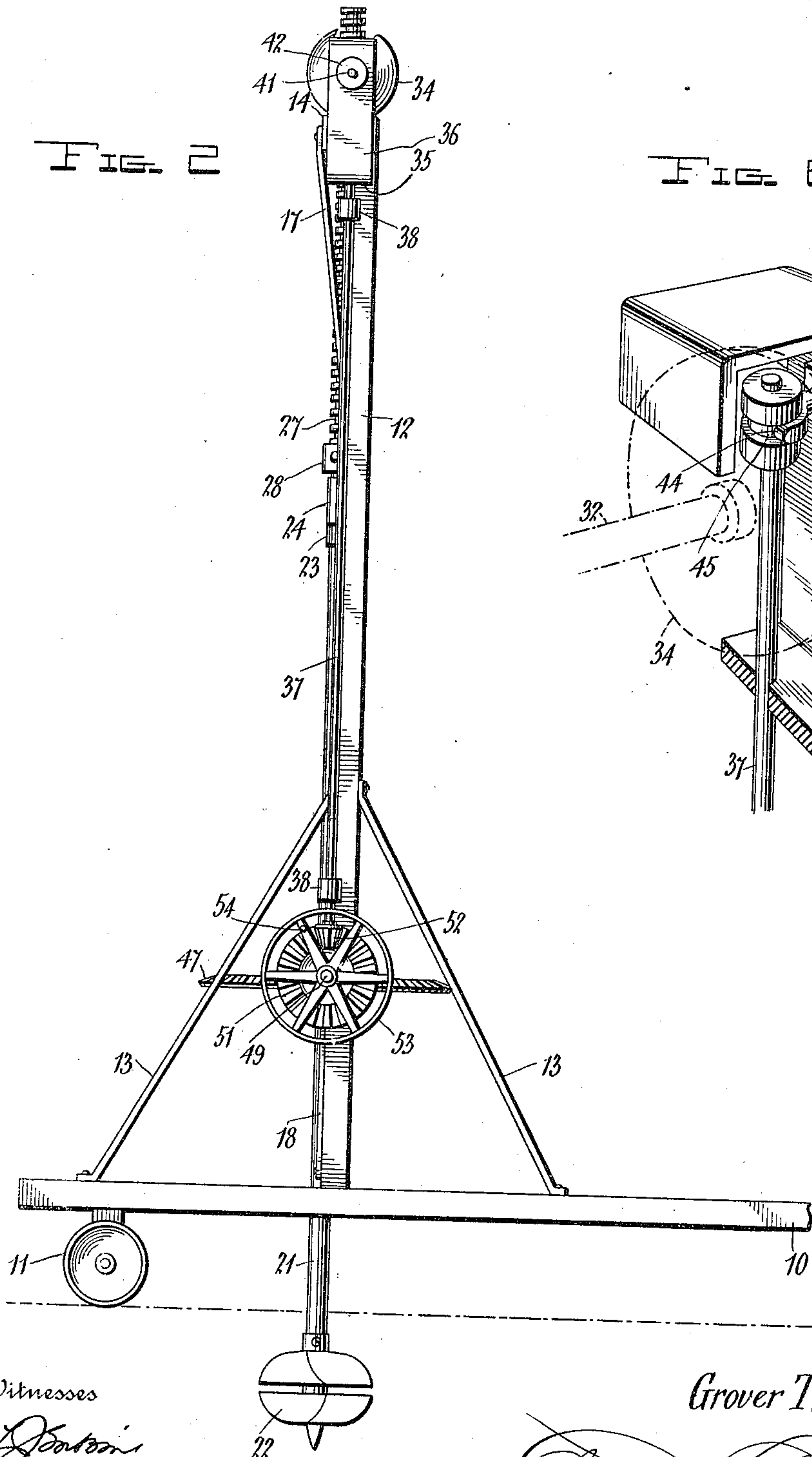
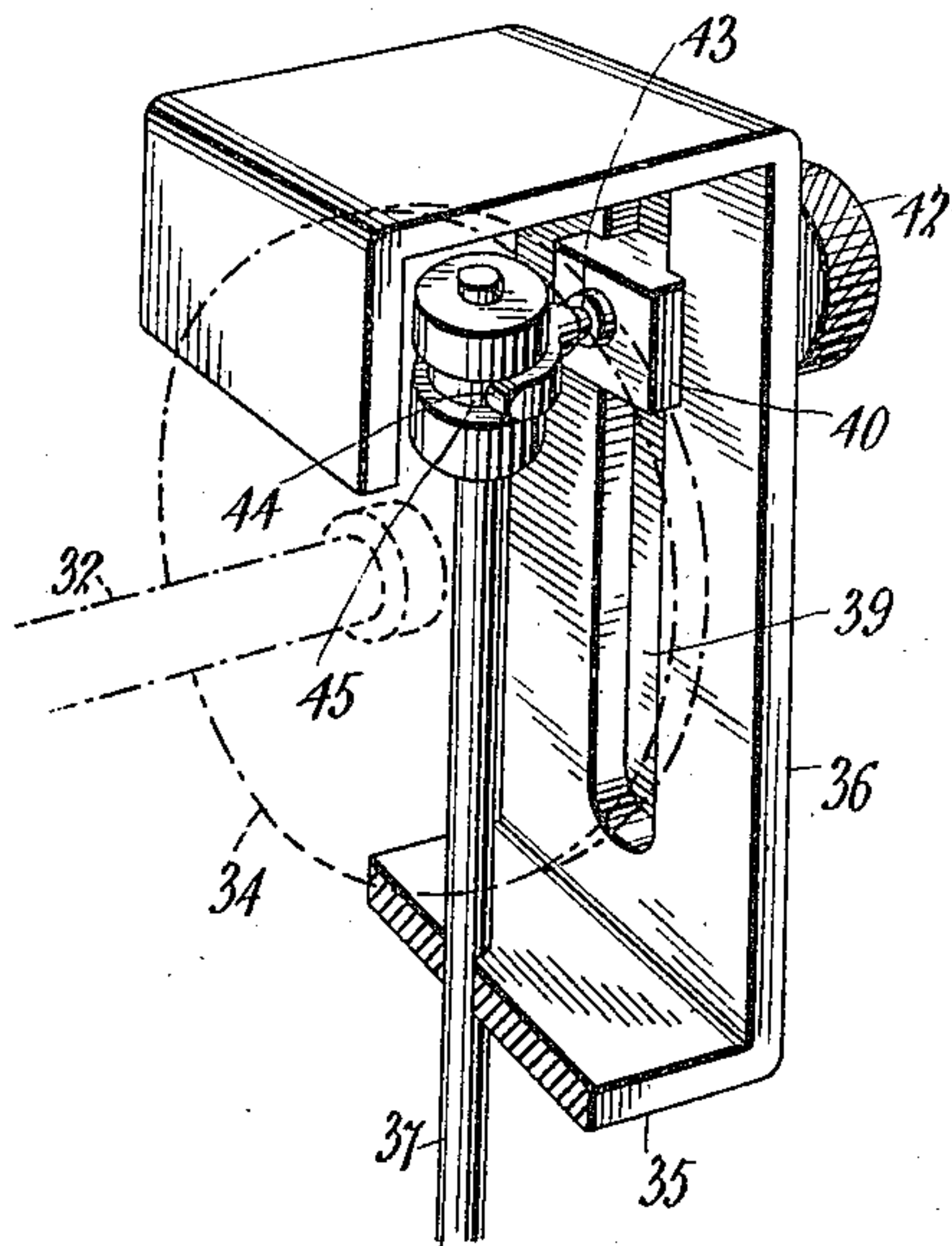


FIG. 6



Witnesses  
*J. D. Barton*  
*L. V. Gilles*

Inventor  
*Grover T. Stott*  
By *Charles Charles*  
Attorneys

993,903.

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3 SHEETS—SHEET 3.

FIG. 3

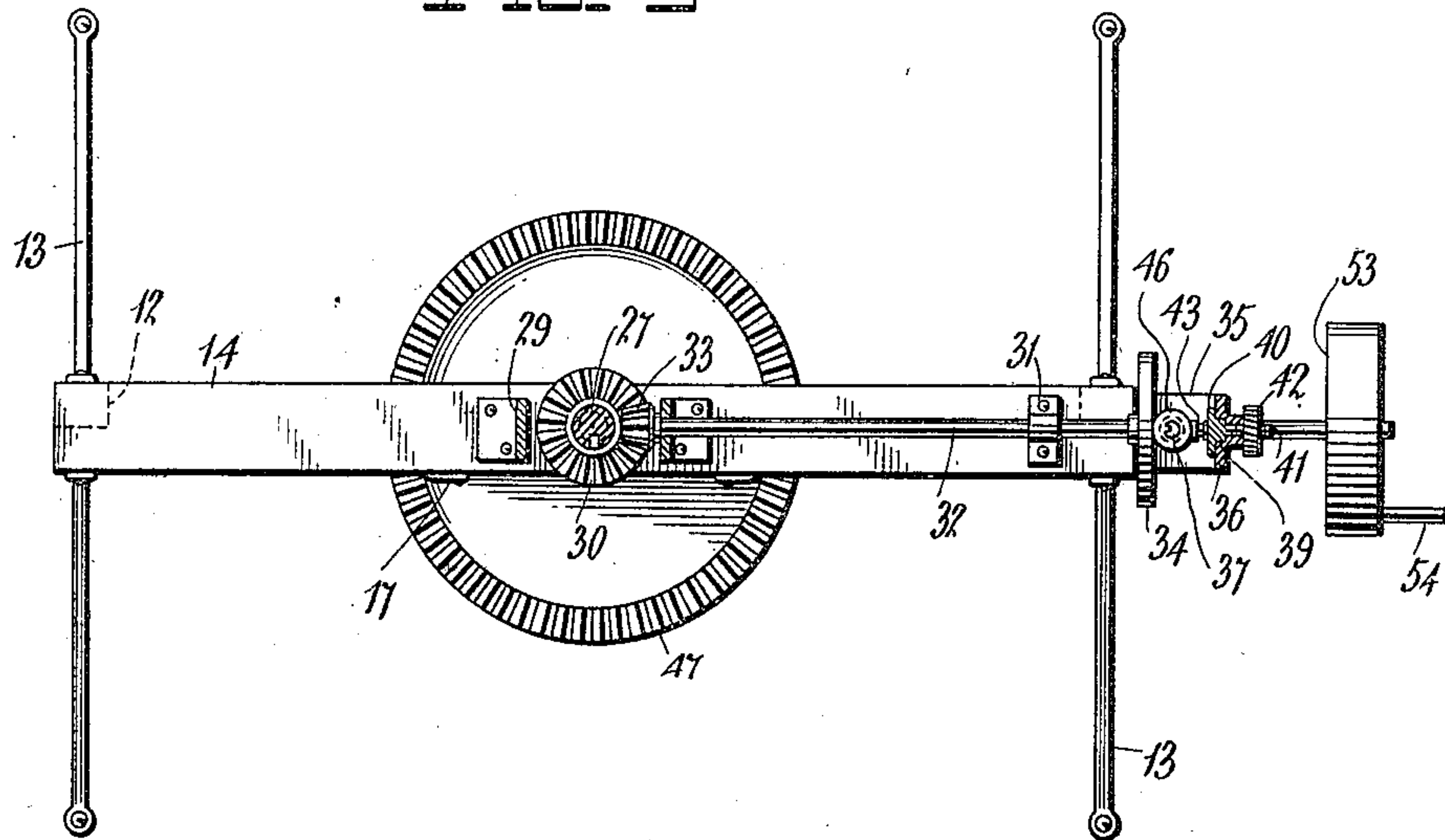


FIG. 4

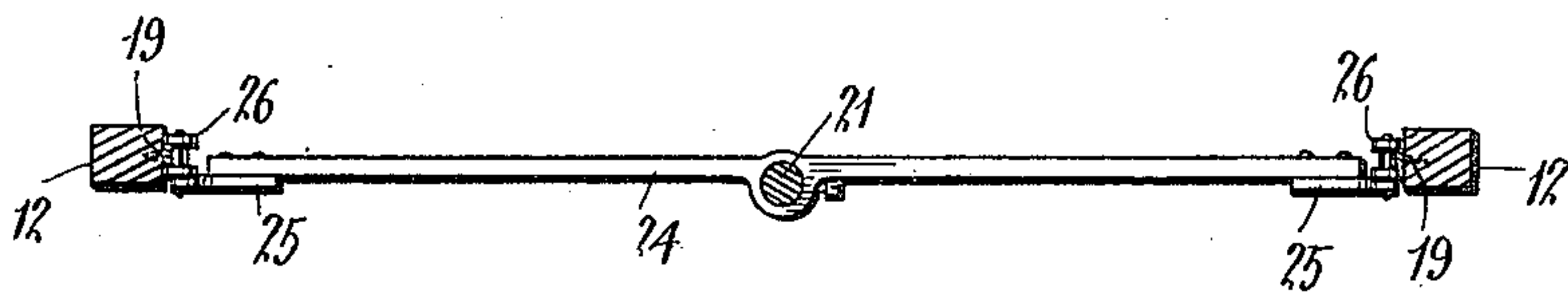
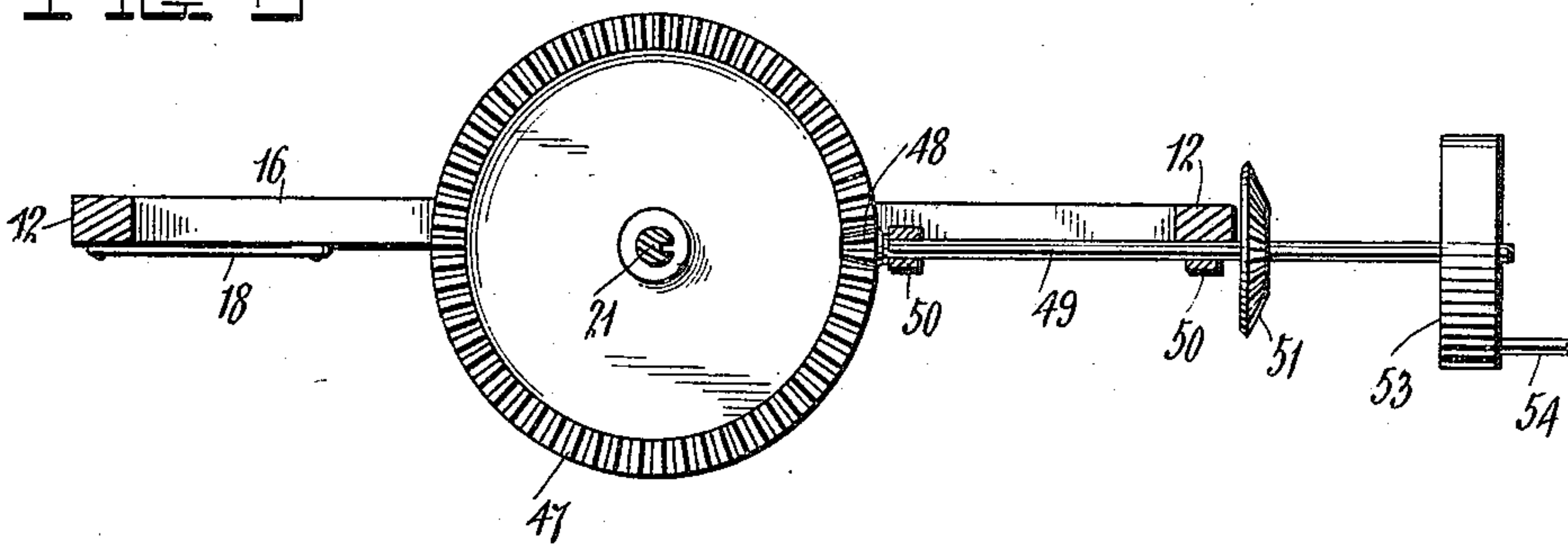


FIG. 5



Witnesses

*R. N. Gillis*

Inventor

Grover T. Stott

By

*Charles Chanals*

Attorneys



# UNITED STATES PATENT OFFICE.

GROVER T. STOTT, OF NEW CARLISLE, OHIO.

EARTH-AUGER.

993,903.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed January 4, 1910. Serial No. 536,373.

*To all whom it may concern:*

Be it known that I, GROVER T. STOTT, a citizen of the United States, residing at New Carlisle, in the county of Clark, State of Ohio, have invented certain new and useful Improvements in Earth-Augers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that class of tools known as earth augers or post hole diggers.

One object of the invention is to improve and simplify the general construction of devices of this character so that they may be used in various kinds of earth and fed into the earth mechanically at varying speeds, depending on the quality of the earth.

Another object of the invention is the provision of a means whereby the mechanical feed may be reversed so that the auger may be removed from the hole which it has dug, the speed of removal being as high as may be desired.

With the above and other objects in view, the invention consists in general of a frame whereon is mounted an improved boring and feeding mechanism.

The invention further consists in certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings, and specifically set forth in the claim.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and:—Figure 1 is a front elevation of an earth auger constructed in accordance with this invention. Fig. 2 is a side elevation of this earth auger. 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. 1. Fig. 5 is a section on the line 5—5 of Fig. 1. Fig. 6 is a detail perspective view of a portion of the change feed gear.

The numeral 10 indicates the base or floor of the framework and this base or floor is mounted on suitable wheels 11 which enable it to be readily moved from place to place as occasion may require. Extending upward from the base 10 are standards 12 which are securely braced to the base by brace irons 13. Across the top of these standards extends a frame member 14 and adjacent the bottoms thereof are spaced

frame members 15 and 16. The frame members 14 and 16 are also braced as indicated respectively at 17 and 18. Between the frame members 14 and 15 guides 19 are secured to the inner sides of the frame members 12.

At 20 are indicated boxings through which passes a boring bar 21 having a suitable boring head 22 on the lower end thereof. On the upper end of this boring bar is located a collar 23 and on this collar is supported a cross head 24 at each end of which is a T-arm 25, the heads of the T's carrying grooved rollers 26 which are mounted in parallelism on said T-arms and the grooves of which engage over the guides 19. Passing through the frame member 14 is a feed screw 27 the lower end of which is swiveled to the boring bar 21 as indicated at 28. This feed screw is provided with a splineway 27'. On top of the member 14 is a bracket 29 wherethrough the feed screw passes and resting on the member 14 is a bevel gear 30 provided with a suitable centrally disposed threaded opening to engage the feed screw 27. Fitting in the splineway of the screw and in the opening in the bracket 29 is a spline the head of which is indicated at 29'.

It is to be noted that the location of the cross head 24 is such that as the boring bar 21 is forced down by the rotation of the gear 30 the cross head will support the swivel joint and prevent any lateral movement and consequent injury thereto.

Running through the bracket 29 and having its opposite end held in a bearing 31 is a shaft 32 which is provided with a bevel gear 33 which meshes with the gear 30. On the end of this shaft 32 is a friction disk 34. At 35 is a bracket which is secured to the frame and which is provided with a portion 36 parallel to a shaft 37 which is held in bearings 38 and extends vertically beside one of the frame members 12. The portion 36 of the bracket is slotted as indicated at 39 and in this slotted portion is a T-shaped clamping member 40 provided with a threaded stem 41 whereon is held a clamp nut 42 adapted to lock the member 40 in adjusted position relative to the slot 39. Projecting from the member 40 in the direction of the disk 34 is an arm 43 having a fork 44 on its extremity and this fork is arranged to engage in a groove 45 formed in a friction roller 46 which is splined to the upper end of the shaft 37 and which bears firmly



against the disk 34 so that as the shaft 37 is rotated the disk 34 will also be rotated.

Now, it will be obvious that if the shaft 37 be continuously rotated in one direction and the roller 46 shifted to engage the disk 34 above or below its axis the direction of rotation of this disk and consequently of the shaft 32 will be changed. By this means the direction of rotation of the nut gear 30 may also be changed and the boring bar be fed down or up as may be desired. Furthermore, it will also be obvious that if uniform rotation be imparted to the shaft 37 and the friction roller 46 moved in from the periphery of the disk 34 toward the center the said disk will be rotated more rapidly as the roller approaches the center. By this means the feed may be regulated as to speed and direction, it being merely necessary to loosen the nut 42 and adjust it as desired.

Splined upon the boring bar 21 between the members 15 and 16 is a bevel gear 47 and meshing with this bevel gear is a pinion 48 carried on a shaft 49 mounted in bearings 50 on the frame. The shaft 49 has also mounted thereon a gear 51 which meshes with a pinion 52 on the shaft 37 so that as the shaft 49 is rotated the shaft 37 will also be rotated and the feed mechanism thereby actuated. In order to drive the shaft 49 suitable means are provided such as is indicated by the belt pulley 53 which may also have a crank handle 54 secured thereto in order to operate the device by hand.

In the operation of this device the machine is drawn to the point where it is desired to bore a post hole and the roller 46 moved to give the feed screw 27 a rapid downward feed. The shaft 49 is then rotated in any preferred manner until the boring head 22 engages with the ground. When this is done the feed mechanism is so positioned as to meet the requirements of the occasion, it being understood that the harder the ground the slower the feed will naturally be, and the boring operation proceeded with. When

the hole has been bored to the required depth the feed is reversed and set for high speed and the shaft 49, continuing to rotate, will cause the boring head to be withdrawn from the hole just bored. The machine may then be moved to a new location and the operation repeated.

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

It is obvious that minor changes may be made in the form and construction of this invention without departing from the material principles thereof. It is not therefore desired 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 of the appended claim.

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

In an earth auger, a frame, a boring bar slidably and rotatably mounted therein, a feed screw swiveled to the boring bar, a bevel gear having a threaded opening there- through engaged on said feed screw, means to drive the boring bar, and an operative connection between said means and said bevel gear comprising a shaft operated by said means, a bracket on said frame provided with a portion parallel to the shaft and having a slot longitudinally thereof, a friction roller splined on the shaft and provided with a circumferential groove, a clamp mounted on the slotted portion of the bracket, an arm projecting from the clamp and provided with a forked end engaging said groove, a second shaft, a second bevel gear on the second shaft meshing with the first bevel gear, and a friction disk carried on the second shaft and against which said roller bears.

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

GROVER T. STOTT.

Witnesses:

FREDERICK JENKINS,  
JOHN HARTMAN.