W. T. MARTIN.

POST HOLE DIGGING MACHINE.

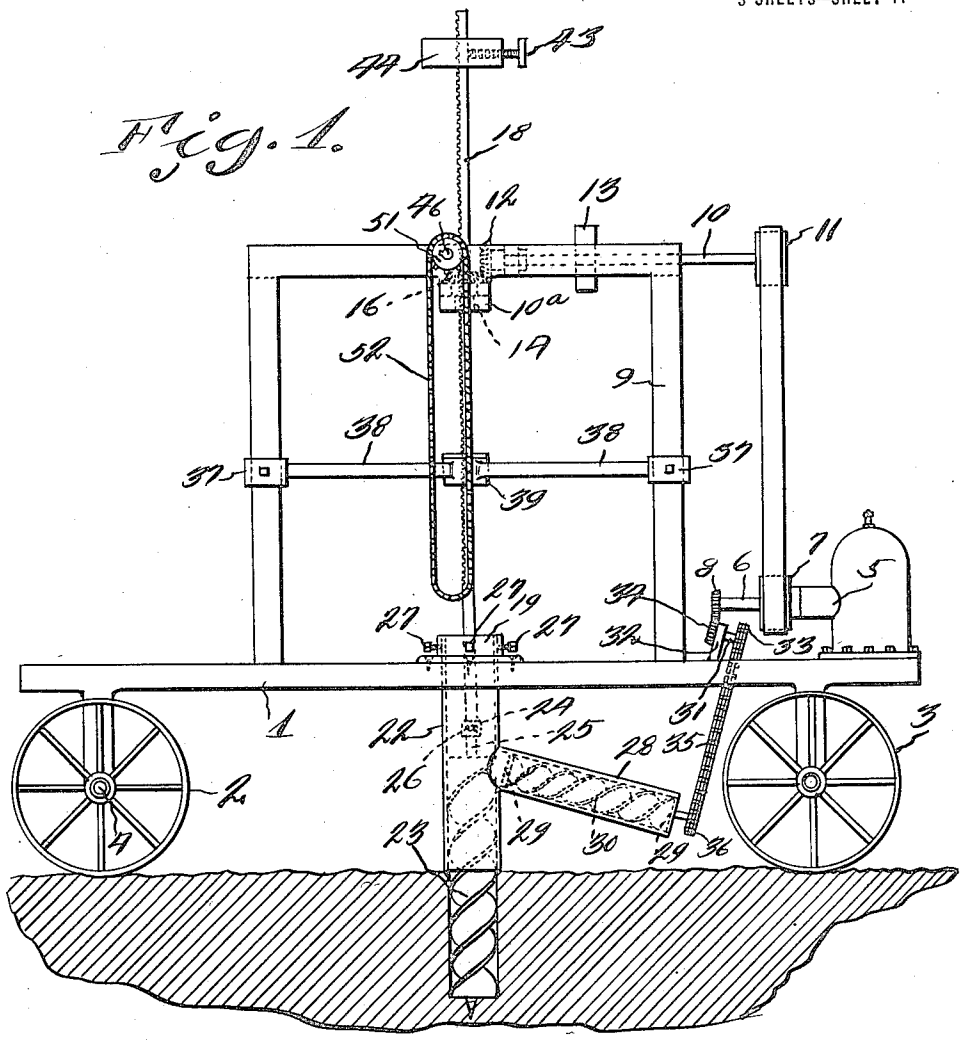
APPLICATION FILED NOV. 2, 1916.

1,220,527.

Patented Mar. 27, 1917.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses

Philip Sewell

Williams G. Powell

Inventor

W. T. Martin

By Dewitt & Co

Attorneys

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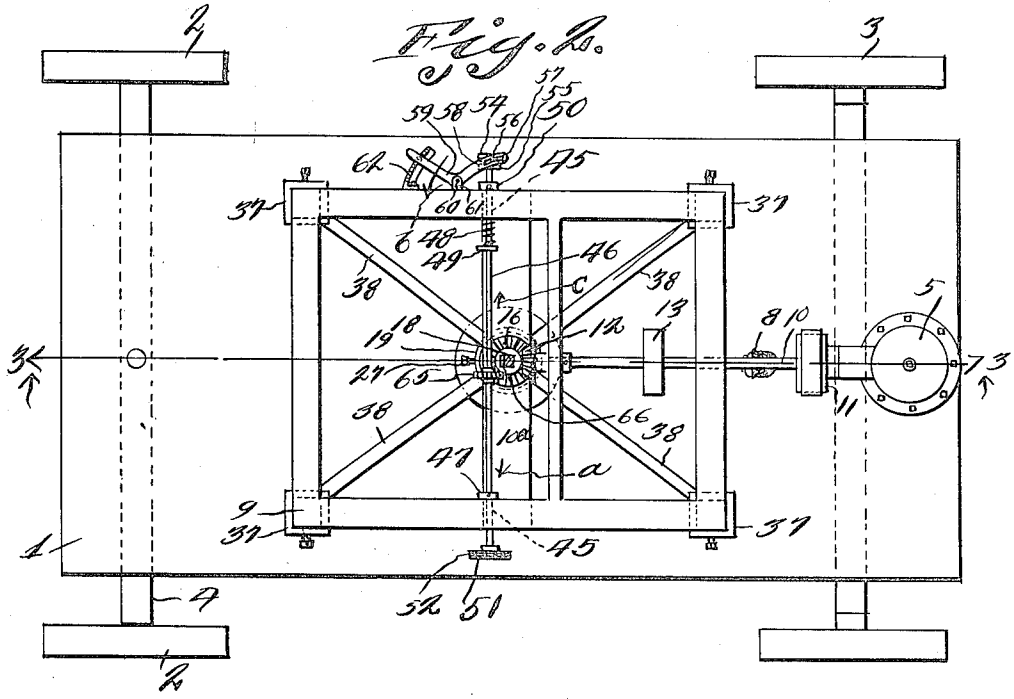


Fig. 2.

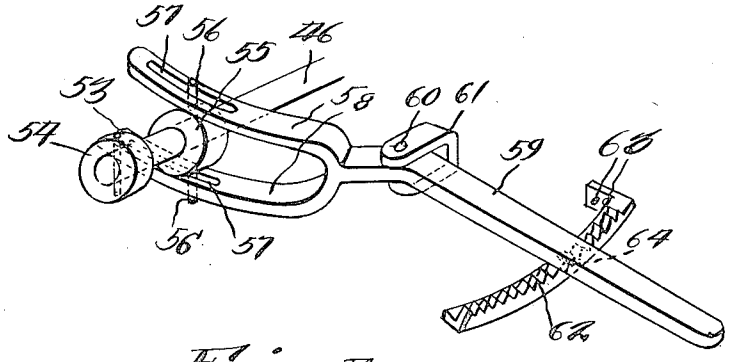


Fig. 4.

Witnesses

Philip Sarell

Frances G. Bowell

Inventor

W. T. Martin

By D. Swift & Co

Attorneys

W. T. MARTIN.

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3 SHEETS—SHEET 3.

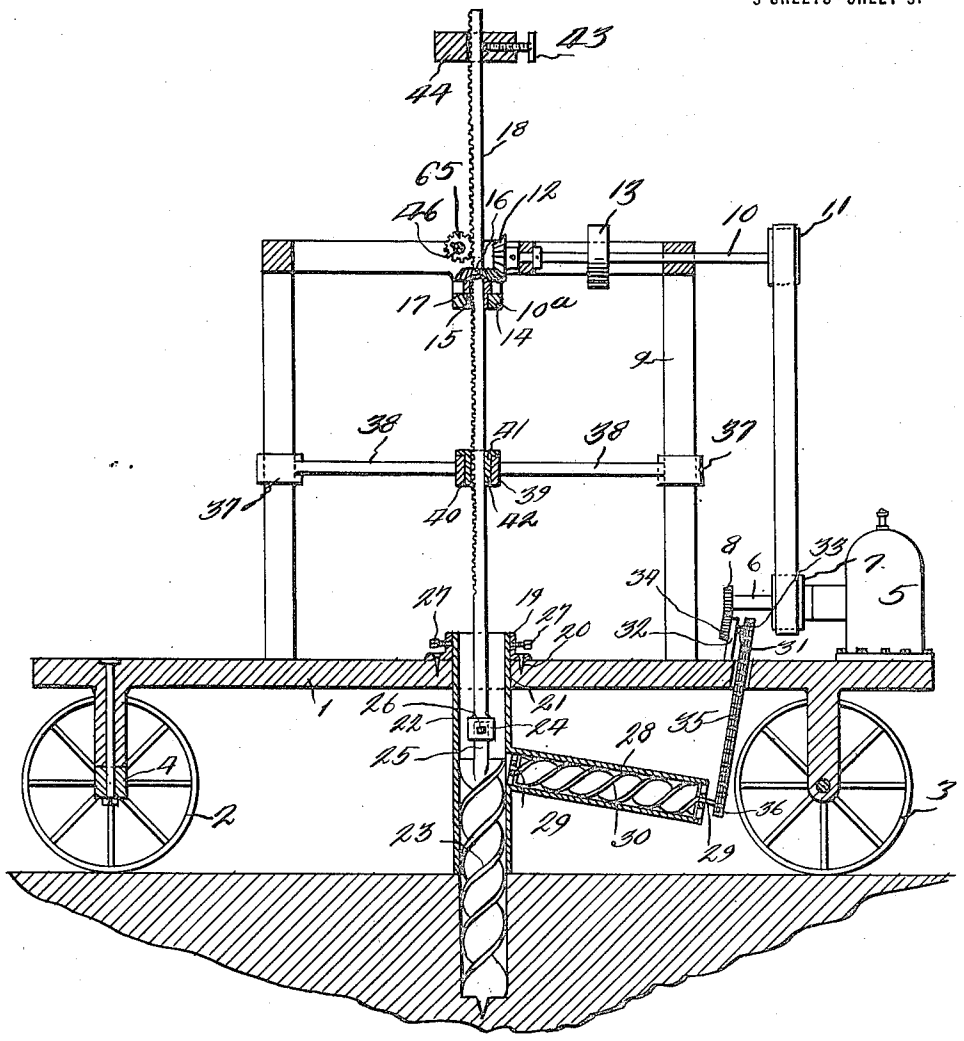


Fig. 3.

Inventor

W. T. Martin

Witness

Phil. H. Lee

By A. Swift & Co

Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM T. MARTIN, OF ROCKVILLE, MARYLAND.

POST-HOLE-DIGGING MACHINE.

1,220,527. Specification of Letters Patent. Patented Mar. 27, 1917.

Application filed November 2, 1916. Serial No. 129,152.

To all whom it may concern:

Be it known that I, WILLIAM T. MARTIN, a citizen of the United States, residing at Rockville, in the county of Montgomery, State of Maryland, have invented a new and useful Post-Hole-Digging Machine; 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 an improved post hole digging machine, and an object of the same is to provide a machine of this kind comprising a frame mounted upon a wheel supported platform and provided with a power driven post hole digger member for excavating a post hole.

A further object of the invention is to provide a post hole digger member having means for forcing the same by gravitation into the ground.

A further object of the invention is the provision of means for rotating said digger member, as it lowers by gravitation into the post hole.

A further object of the invention is the provision of means for elevating and removing the dirt from the hole.

In practical fields, the details of construction may necessitate alterations falling within the scope of what is claimed.

The invention comprises further features and combination of parts, as hereinafter set forth, shown in the drawings, and claimed.

In the drawings:—

Figure 1 is a view in side elevation of the improved post hole digging machine constructed in accordance with the invention.

Fig. 2 is a plan view.

Fig. 3 is a vertical sectional view on line 3—3 of Fig. 2.

Fig. 4 is a detail view of a device for reciprocating a transverse movable shaft against the action of a spring, whereby a gear may be thrown in mesh with the rack shank of the digger member, so that the digger member may be withdrawn from the post hole.

Referring more especially to the drawings, 1 designates a platform, which is mounted upon suitable forward and rear supporting wheels 2 and 3, the front axle 4 of said front supporting wheels may be turned, whereby the machine may be guided. Mounted upon the platform at one end thereof is a suitable motor 5 having a driving shaft 6, which is provided with a pulley 7 and a beveled gear 8. Rising from the platform is a rectangular frame 9, and mounted in bearings in the upper part of the frame is a shaft 10 having on one end a pulley 11, and on its other end a beveled gear 12, and near its central portion a suitable fly wheel 13. Extending transversely of the upper part of said frame is a bar 10^a, in a cylindrical bearing 14 of which the sleeve 15 of a beveled gear 16 is mounted. This sleeve is provided with a shoulder 17, which engages the upper part of the bar 10, to support the gear 16 a trifle above the said bar. Extending through a rectangular opening of said gear 16 and its sleeve is a toothed rack 18 rectangular in cross section, so as to fit said opening, and this beveled gear 16 is in mesh with the beveled gear 12, so that when the shaft 10 is rotating, power will be transmitted to the rack bar 18, to rotate the same. A collar 19 annular in cross section is secured by screws 20 on the platform 1, so as to be concentric with the opening 21 of the platform. Arranged in the opening 21 is a tube 22, in which the post hole digging auger 23 is guided. The lower end of the rack 18 has a socket 24 for the reception of the shank 25 of said post hole digging auger, which shank 25 is secured in said socket by the set bolt 26. The upper end of the tubular guide 22 is adjustably secured in the collar 19 by the set bolts 27, and by loosening these bolts the tubular guide may be adjusted vertically, so as not to engage the ground when the auger is not used, or when the auger is raised. The tubular guide 22 is provided with a laterally extending tubular trough 28, in bearings 29 of which a screw conveyer 30 is mounted. As the post hole digger auger elevates the dirt and the like, it is transferred to the tubular trough 28, and by means of the conveyer 30, the dirt is dumped on the ground. A stub shaft 31

is mounted in a bearing 32 of the platform, and one end has a sprocket wheel 33, and its other end a beveled gear 34, with which the beveled gear 8 meshes, thereby imparting motion to the sprocket chain 35, which engages the sprocket 33, and also engages the sprocket 36 on one end of the conveyer 30. In this manner motion is transferred to the conveyer. Suitable straps or collars 37 are mounted upon the four corner standards of the frame 9, there being intersecting or cross beams 38 connecting said diagonally opposite collars, thereby bracing or reinforcing the frame. The crossing beams 38 at their intersecting points are connected by the collars 39, in a cylindrical bearing 40 of which a sleeve 41 is mounted. This sleeve 41 has an opening 42 rectangular in cross section to receive and guide the rack 18. The upper end of the rack has adjustably secured thereon by means of a set screw 43 a weight 44, which causes the auger to descend into the ground as it is rotated. Mounted slidably in bearings 45 of the opposite sides of the upper portion of said frame is a rod or shaft 46, which is provided with a collar 47 near one end portion of the shaft to engage one side of the frame to prevent further movement of the shaft axially in the direction of the arrow *a*. A spring 48 surrounds said rod or shaft 46 and is interposed between one side of the frame and a collar 49 which is secured upon said shaft or rod. By virtue of the spring coöperating against the collar 49, the collar 47 is held against one side of the frame. A third collar 50 is secured upon the shaft or rod 46 serving the same purpose as the collar 47. On one end of the shaft 46 is a sprocket 51, which is engaged by a sprocket chain 52. Secured on the opposite extremity of the shaft 46 by means of the pin 53 is a collar 54, and slidable on said shaft 46 to abut the collar 54 is another collar 55, in which the shaft 46 will rotate. This collar 55 is provided with diametrically opposite pins 56, which engage the slots 57 of the forks 58 of the lever 59, which is pivoted at 60 in the bracket 61, which is carried by the frame. A segment rack 62 is secured by the screws or bolts 63 to said frame, there being a lug 64 on the handle end of said lever, to coöperate with the teeth of the rack, to hold the lever in different adjusted positions. When the lever is moved in the direction of the arrow *b*, the rod or shaft 46 may be shifted axially in the direction of the arrow *c*, so that the gear 65 on said shaft 46 will mesh with the teeth 66 of the rack 18, after which, by pulling upon the left hand side of the chain 52, the rack 18 may be raised, thereby elevating the auger 23.

It will be seen that as the auger 23 penetrates the ground, the distance between the auger and the point where rotary motion is transmitted to it will increase. With this increasing distance the torsional strain of turning the auger will increase and tend to bend the rod 18. Provision is made to offset the bending tendency to which the rod 18 is liable by making the frame (composed of the collars 37 and intersecting cross-pieces 38) adjustable vertically, it being possible to set this frame at any point where the torsional strain on the rod 18 will have the effect of throwing it out of alinement.

The invention having been set forth, what is claimed as new and useful is:—

1. In a post hole digging machine, the combination of a wheel-supported platform and a frame rising therefrom, of a tubular guide adjustably mounted upon the platform, a digging auger movable vertically in the guide, a rack bar connected to the auger, means for rotating the rack bar and with it the auger, means for elevating the rack bar and the auger, gravitational means for forcing the auger into the ground, a screw conveyer for removing the excavated dirt, a tubular member in surrounding relation to the conveyer, connected to the tubular guide and having bearings for the support of the conveyer, and an intermediate bearing for the rack bar carried on the frame of the machine.

2. In a post hole digging machine, the combination of a wheel-supported platform and a frame rising therefrom, of a tubular guide adjustably mounted on the platform, a digging auger movable vertically in the guide, a rack bar connected to the auger, means for rotating the rack bar and with it the auger, means for elevating the rack bar and the auger, gravitational means for forcing the auger into the ground, a screw conveyer for removing the excavated dirt, a tubular member in surrounding relation to the conveyer, connected to the tubular guide and having bearings for the support of the conveyer, and an intermediate bearing for the rack bar carried on the frame of the machine and adjustable vertically with respect to the frame.

3. In a post hole digging machine, the combination of a wheel-supported platform and a frame rising therefrom, of a tubular guide adjustably mounted on the platform, a digging auger movable vertically in the guide, a rack bar connected to the auger, means for rotating the rack bar and with it the auger, means for elevating the rack bar and the auger, gravitational means for forcing the auger into the ground, a screw conveyer for removing the excavated dirt, a tubular member in surrounding relation to the conveyer, connected to the tubular guide and having bearings for the support of the conveyer, and an adjustable intermediate

bearing for the rack bar comprising collars movable vertically on the frame, intersecting cross-bars connected with the collars and having a bearing at their point of intersection and a sleeve rotatably supported in said bearing and being in surrounding relation to said rack bar.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM T. MARTIN.

Witnesses:

GEORGE C. REED,

JEROME B. REED.