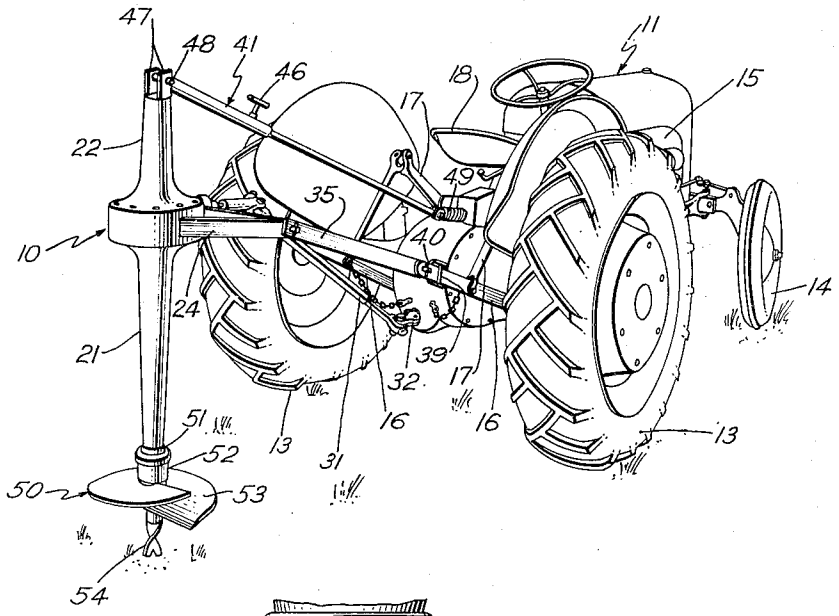
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POSTHOLE DIGGER

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Fig. 1.



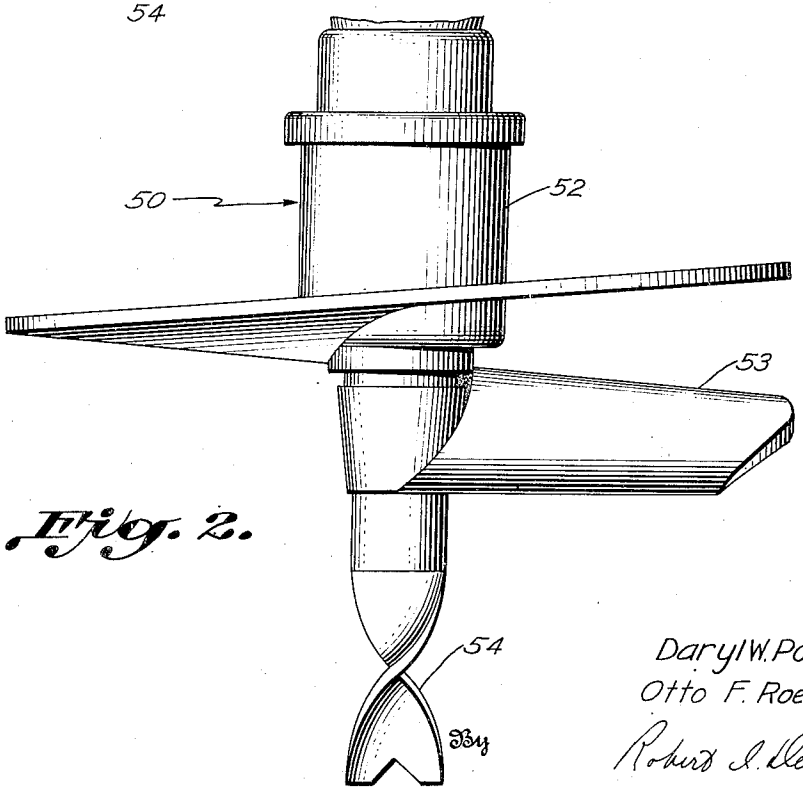




Fig. 2.

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Fig. 4.

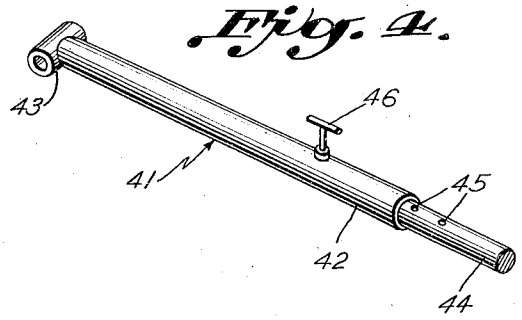






Fig. 3.

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2,493,261

## POSTHOLE DIGGER

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1 Claim. (Cl. 255—19)

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The present invention relates to earth boring apparatus and more particularly to a post hole digger which is adapted to be mounted on a tractor and operated through the power take-off of the tractor.

The post hole digger of the present invention is primarily designed to operate with a conventional Ford tractor equipped with a Ferguson hydraulic system, but with minor changes in the dimensions of the mounting bracket forming a part of the apparatus, can be used on any of the conventional tractors.

Accordingly, the primary object of the present invention is to provide an earth boring unit of simplified construction adapted to be mounted on a conventional tractor whereby it may be transported from place to place and set in operation by the power plant of the tractor.

A further object of the present invention is to provide a post hole digger which is easy to operate, inexpensive to manufacture and wherein the operating parts are protected from the earth being bored.

A still further object of the present invention is the provision of adjustable supporting means for the boring unit in order to adapt the unit for uneven ground.

Additional objects and advantages of the invention will be apparent from the following description taken in connection with the accompanying drawings in which:

Figure 1 is a perspective view of the earth boring unit mounted on a conventional Ford tractor.

Figure 2 is an enlarged elevational view of the auger.

Figure 3 is a rear perspective view of the boring unit with several of the parts broken away, and

Figure 4 is a perspective view of the telescopic top supporting link.

Referring to the drawings, Figure 1 discloses the manner in which the post hole digger, denoted by numeral 10, is mounted on a conventional Ford tractor indicated by numeral 11. The tractor is of conventional construction and comprises the rear wheels 13, front wheels 14, engine 15, draw bar 16, hydraulic members 17 and tractor seat 18. The power take-off member 32 is arranged to be driven in any convenient manner from the engine of the tractor. The tractor parts as shown, while they represent a well known form of light tractor, are merely illustrative of the applicability of the present earth boring unit to a conventional tractor, and it will be understood that the present invention is not limited to use with any particular make or design of tractor.

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The earth boring unit proper, comprises a housing 20 having a gear reduction unit completely housed therein. The gear reduction unit is not shown in detail since it forms no part of the present invention. It may consist of a rotating shaft having a ring gear at its upper end and means at its lower end for connecting the boring implement thereto. As seen in Figure 3, the casing 20 comprises a lower portion 21 for housing the gear reduction unit, and an upper section 22 forming part of the supporting structure. The upper section 22 is connected to the lower section 21 by means of a plurality of bolts 23; thus, ready access to the interior of the housing may be had by merely removing the bolts and lifting off the upper section.

The driving means for the vertical shaft within the housing is supported by means of a frame construction which also forms a supporting connection between the housing and the tractor. Referring to Figure 3, a frame member comprising a cross bar 25 carries rearwardly extending arms 24 rigidly mounted to the upper part of the lower casing member 21. The cross bar has an enlarged portion 26, formed centrally of the bar, said enlarged portion being rigidly fastened to the casing member 21. The enlarged portion 26 has a central opening for receiving a bearing member 27 through which one end of the power take-off shaft extends. The power take-off shaft comprises a shaft 28 having a bevel gear mounted at its outer end for cooperation with the ring gear within the housing. The other end of the shaft 28 is constructed to form a universal joint connection, generally indicated by numeral 29, with rod member 30. The rod member 30 is of square cross-section and is telescopically received with the square tubing 31 forming therewith a sleeve joint resulting in free longitudinal movement between rod 30 and tube 31. The tube 31, in turn is connected to the power take-off 32 of the tractor as seen in Figure 1.

As seen in Figure 3, the cross bar terminates in a pair of short arms 33 having mounted thereon a pair of outwardly extending rods 34 on which bracket members 35 are pivotally mounted. Locking pins 36 are secured in rods 34 to retain the bracket members in locked position. The opposite ends of members 35 are provided with U brackets 37 and rods 38 for rigidly locking the bracket members 35 to the draw bars of the tractor. The legs of the U bracket are provided with openings to receive removable locking bolts 39 and rods 38 are provided with openings to receive locking pins 40. As seen in Figure 1, the forward

ends of the draw bars are provided with openings through which rods 38 pass when assembling the unit on the tractor. The bars 16 fit within the U bracket and when the locking bolts 39 and pins 40 are inserted in place, a rigid mounting is obtained.

Additional support of the unit is obtained by means of an adjustable supporting rod generally indicated by numeral 41 and shown in detail in Figure 4. The supporting rod comprises a tubular member 42 open at one end and terminating at its other end in a T portion 43. The open end of member 42 slidably receives a rod member 44. The supporting rod is made longitudinally adjustable to adapt the boring unit for uneven terrain. This is accomplished by providing a plurality of holes 45 in the rod member 44 and a retractable locking member 46 in member 42. The upper casing section 22 is provided with a pair of upstanding ears 47 between which T portion 43 may be positioned. The ears 47 are provided with aligned openings through which a locking bolt 48 may pass for locking the forward end of support rod 41 to the boring unit. The other end of the support rod is secured to a clevis 49 under the seat 18 of the tractor.

The boring implement, indicated by numeral 50 is mounted at the lower end of the rotating shaft which extends through the casing. A conventional oil seal 51 is formed at the lower end of the casing through which the shaft passes and seals off this portion of the casing. The boring implement comprises an auger shaft 52, auger 53, and screw bit 54.

The operation of the apparatus is as follows: With the boring unit in raised position, the tractor may be driven to the location where the first hole is to be bored. From the tractor seat, the operator moves the tractor into position and operates the mechanism for lowering the auger to the ground. Boring of the post hole then commences. The rotation of the auger is continuous as long as the tractor engine is running. The auger is raised and lowered by engaging and disengaging the hydraulic control to the draw bar. In moving short distances from a completed hole to the point where the next hole is to be bored, the boring unit may be left in upright position as seen in Figure 1.

From the foregoing description it is apparent that the earth boring apparatus is readily detachable from the tractor so that, when desired, the boring apparatus may be removed and the tractor employed for other uses. The boring apparatus may, therefore, be constructed as a separate attachment for general service tractors. It may be constructed as an attachment for a particular type of tractor as herein illustrated, or with minor changes of the attaching parts, may be used with any standard type of light tractor.

Thus it will be seen that the construction herein shown and described is well adapted to accomplish the objects of the invention. It will be understood, however, that the invention may be embodied otherwise than here shown and that in the form illustrated, certain minor changes may be made without departing from the spirit of the invention. Therefore, we do not wish to be limited to the construction herein shown except as may be required by the appended claim considered with reference to the prior art.

What we claim and desire to secure by Letters Patent is:

Earth boring apparatus comprising a vertical housing provided at its upper end with a pair of upstanding ears, a rotating shaft within the housing, an auger mounted at the lower end of the shaft, a frame member having one end mounted substantially midway of said housing and having its other end constructed for attachment to a tractor, an adjustable supporting rod, said supporting rod comprising a tubular member open at one end and having at its other end a T-shaped portion fitting between the ears on the housing and pivotally connected thereto, a rod member having one end constructed for attachment to a tractor and the other end slidably receivable within the open end of the tubular member, said rod member having a plurality of openings, means mounted on said tubular member adapted to extend into one of said openings for varying the length of said supporting rod, and means extending through the housing for operating said rotating shaft.

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