May 27, 1952 S. P. LAGANT 2,598,565

POSTHOLE DIGGER

Filed Aug. 5, 1948 2 SHEETS—SHEET 1

Fig. 1.

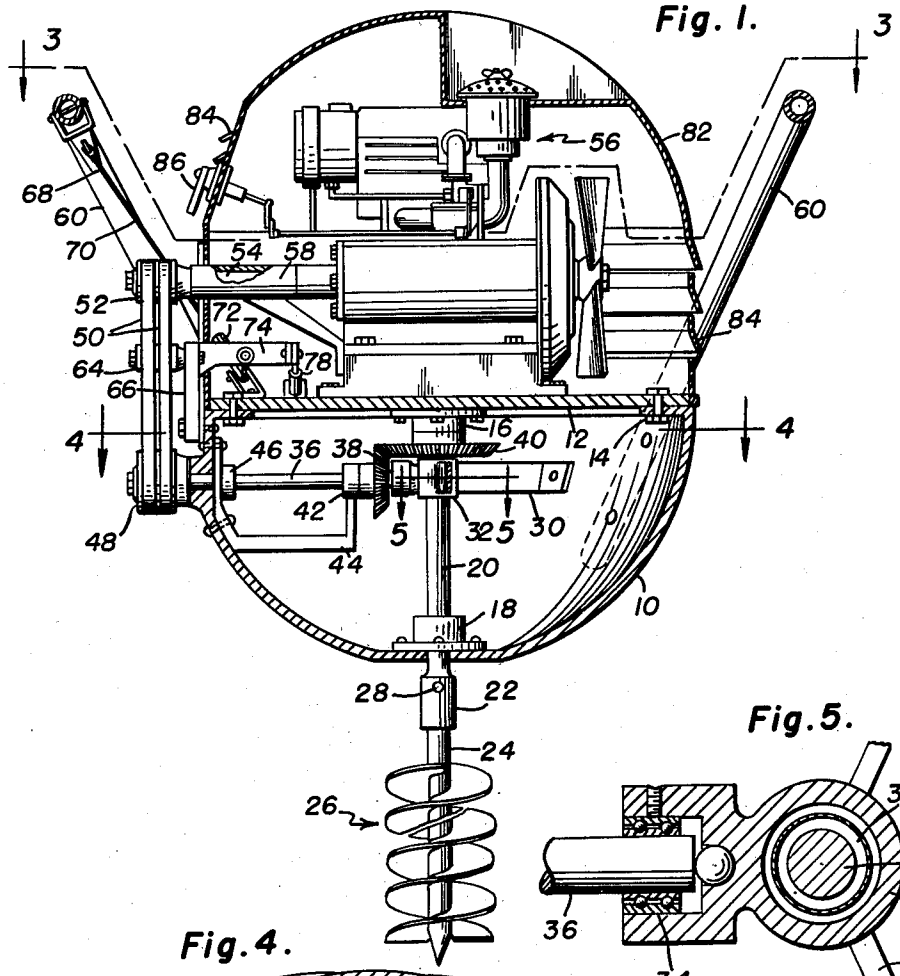
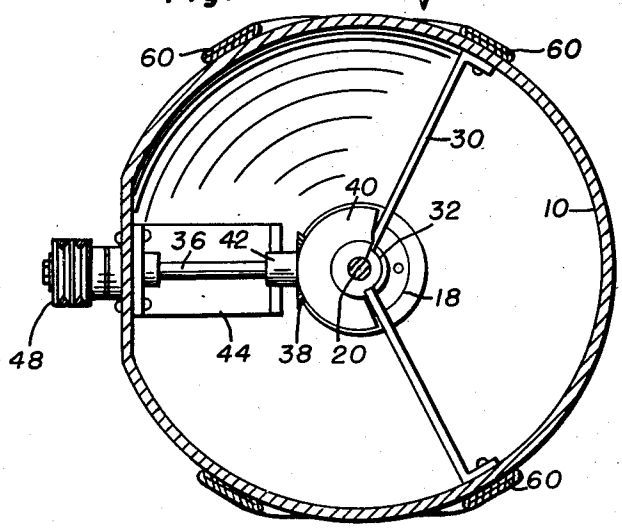


Fig. 5.

Fig. 4.



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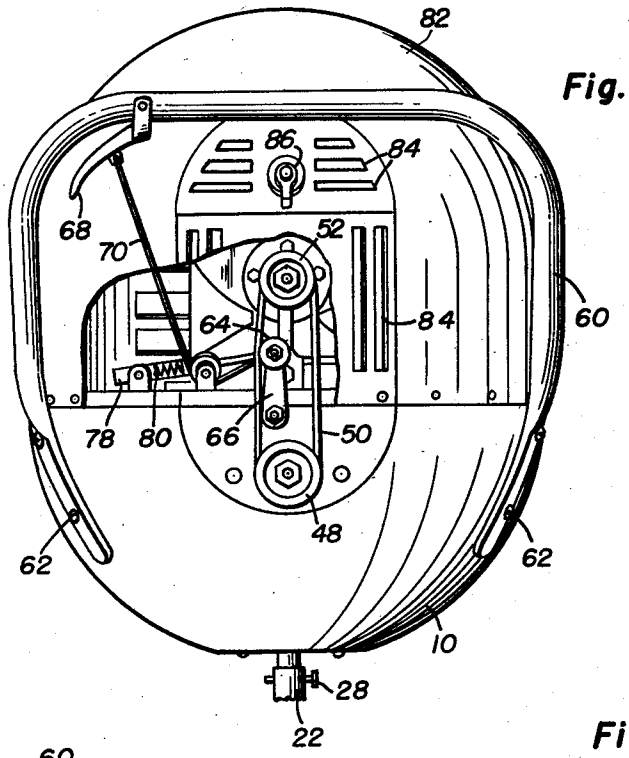


Fig.2.

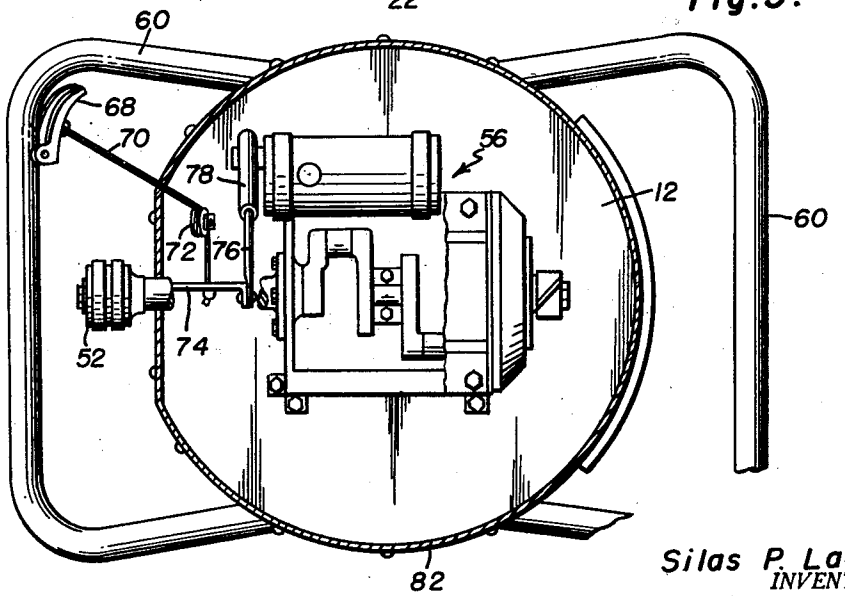


Fig.3.

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UNITED STATES PATENT OFFICE

2,598,565

POSTHOLE DIGGER

Silas P. Lagant, Pocahontas, Ill.

Application August 5, 1948, Serial No. 42,632

2 Claims. (Cl. 255—19)

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This invention relates generally to earth boring devices and more particularly to a post hole digger of portable character and comprising a motor driven earth auger.

The primary object of this invention is to provide a post hole digger which can be transported from place to place by hand, as during the construction of fences through territory which is relatively impassable to motor-driven vehicles.

Another object of this invention is to provide a post hole digger which is designed for easy replacement of the earth auger, and which is easily controlled and operated.

Still another object of this invention is to provide a portable post hole digger in which all the parts are relatively compactly assembled, yet easily accessible for repair when necessary.

And a last object to be mentioned specifically is to provide a post hole digger which is relatively inexpensive and practicable to manufacture, which is simple and convenient to operate, and which will give generally efficient and durable service.

With these objects definitely in view this invention resides in certain novel features of construction, combination and arrangement of elements and portions as will be hereinafter described in detail in the specification, particularly pointed out in the appended claims, and illustrated in the accompanying drawings which form a material part of this application, and in which:

Figure 1 is a vertical sectional view of the assembled machine, with certain parts including the earth auger shown in elevation;

Figure 2 is a side elevational view of the upper portion of the machine, a portion of the canopy housing the motor being broken away to disclose certain portions of a belt tightener assembly used as a clutch;

Figure 3 is a horizontal sectional view, taken substantially upon the line 3—3 in Figure 1;

Figure 4 is a similar horizontal sectional view, taken on the line 4—4 in Figure 1; and

Figure 5 is an enlarged fragmentary detail view of the bearing structure carried by a spider within the casing of the machine.

Similar characters of reference designate similar or identical elements and portions throughout the specification and throughout the different views in the drawings.

Referring now to the drawings in detail, the machine includes a hemispherical casing 10 having a flat top plate 12 removably mounted thereon by means of bolts 14. This top plate 12 carries a bearing 16 and the casing 10 carries a somewhat

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similar bearing 18 to support the auger drive shaft 20, the lower end of which extends beneath the casing 10 and has incorporated therewith a socket 22 to receive the upper end of the shank 24 of an earth auger indicated by the numeral 26. Since the auger must be replaced repeatedly in use, simple means of attachment must be provided, the socket 22 and shank 24 being apertured for removably securing a transverse pin 28 therethrough.

A spider 30 is rigidly secured interiorly of the casing 10 and carries a bearing 32, including a ball bearing assembly 33 for supporting the auger drive shaft at a point near the upper end thereof, and a thrust bearing 34 for the inner end of a horizontally disposed jack shaft 36 is also carried on the spider 30. Bevel gears 38 and 40 are pinned to the jack shaft 36 and to the auger drive shaft 20, the gear 38 being disposed between a thrust bearing 34 and a bearing 42 on a bracket 44 secured to the casing and employed to further support the jack shaft. The jack shaft 36 has still another bearing 46 on the end of the bracket 44 secured to the casing 10, and the jack shaft projects outside the casing for connection to a pulley 48 shown as of double type in the drawings. A pair of belts 50 are entrained over the double pulley 48 and a double pulley 52 on the motor drive shaft 54 of the motor indicated generally at 56, the extending portion of the drive shaft being supported in a sleeve bearing 58.

Generally U-shaped handles 60 are secured as at 62 to the exterior of the casing 10, and these handles diverge upwardly.

A belt tightener assembly operating as a clutch is incorporated with the post hole digger and includes a belt tightener pulley 64 carried by a rocker arm 66 pivoted on the casing 10. A hand lever 68 is pivoted on one of the handles 60 and a flexible cable 70 is led from the lever 68, over a pulley 72 supplied on the top plate 12 of the casing, the outer end of the cable being secured to an offset portion 74 of the rocker arm 66. The belt tightener pulley 64 is biased in one direction by a rod 76 having one end slidably mounted within a cylinder 78 and biased in one direction by a spring 80 indicated in Figure 2.

A canopy 82 of generally hemispherical form encloses the motor 56, and the skirt edge of the canopy is secured to the top plate 12. The canopy has louvers 84 to allow entrance of cooling air to the motor 56, and a throttle control 86 may be mounted on the canopy, preferably adjacent the handle 60 carrying the control lever 68.

The operation of this invention will be clearly understood from a consideration of the foregoing description of the mechanical details thereof, taken in connection with the drawings and with the above recitation of the objects sought to be achieved by this invention. Further description would, therefore, seem to be unnecessary.

Obviously, many minor variations may be made in the details of construction and proportionment of the various elements of this invention without departure from the spirit thereof, and the scope of this invention should be determined only as limited by a proper interpretation of the terms used in the subjoined claims.

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

1. A post hole digger comprising a cup-shaped casing having an open top and a flat top plate marginally secured to and closing said open top, a vertical auger drive shaft rotatively mounted in the casing, a bearing member secured interiorly of said casing for supporting said auger shaft adjacent the upper end thereof, a horizontal jack shaft mounted in said casing to operate said auger drive shaft and having one end extending outside said casing, the inner end of said jack shaft being journaled in the side of said bearing member, bevel gear means operatively connecting said jack shaft to said auger drive shaft, a motor mounted on the top plate and having a motor drive shaft parallel to said jack shaft, pulleys on said one end of the jack shaft and on said motor drive shaft and a belt entrained over said pulleys, a belt tightener clutch operatively associated with said belt, handles on said casing, manual control means for said clutch on one of said handles, said auger drive shaft extending beneath said casing and having means for the removable attachment of an earth auger, an inverted cup-shaped canopy for said motor peripherally and removably secured to said casing, said canopy having louvers to allow a circulation of air within the canopy, and said motor having manual controls mounted on said canopy.

2. A post hole digger comprising a casing having an open top and a flat top plate marginally secured to and closing said top, a vertical auger drive shaft rotatively mounted in the casing, a horizontal jack shaft mounted in said casing to operate said auger drive shaft and having one end extending outside said casing, a motor mounted on the top plate and having a motor drive shaft parallel to said jack shaft, pulleys on said one end of the jack shaft and on said motor drive shaft and a belt entrained over said pulleys, a belt tightener clutch operatively associated with said belt, handles on said casing, manual control means for said clutch on one of said handles, said auger drive shaft extending beneath said casing and having means for the removable attachment of an earth auger, an inverted cup-shaped canopy for said motor peripherally and removably secured to said casing, said top plate having a bearing to receive the upper end of said auger drive shaft, coacting bevel gears on said auger drive shaft and said jack shaft, a spider on said casing having a bearing for an intermediate portion of said auger drive shaft near the upper end thereof and a thrust bearing on the side of the second-mentioned bearing for the inner end of said jack shaft, said canopy having louvers to allow a circulation of air within the canopy, and said motor having manual controls mounted on said canopy.

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