

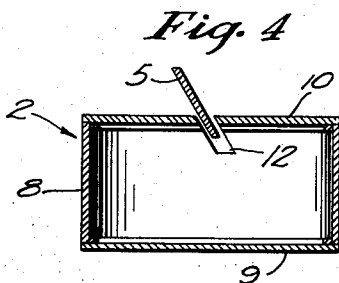
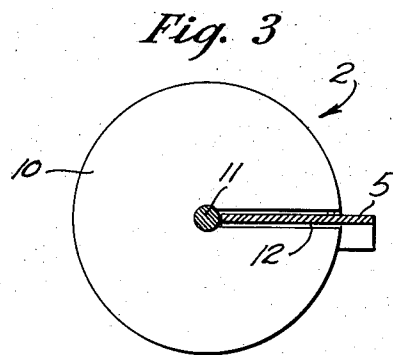
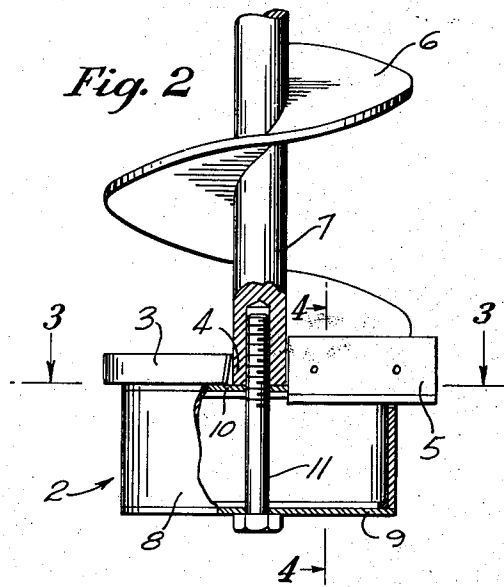
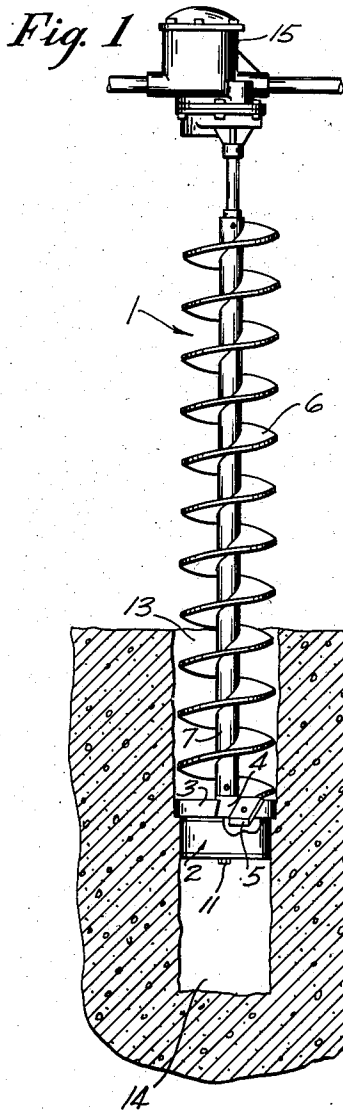
Aug. 30, 1949.

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2,480,372

REAMER FOR EARTH DRILLING

Filed April 27, 1945



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UNITED STATES PATENT OFFICE

2,480,372

REAMER FOR EARTH DRILLING

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Application April 27, 1945, Serial No. 590,622

2 Claims. (Cl. 255—69)

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This invention relates to a reamer for earth drilling and is particularly applicable to the drilling of holes with drills of the type set forth in U. S. Patent No. 2,320,612, and the co-pending application, Serial No. 504,343 filed September 30, 1943, for Earth drill, now Patent No. 2,401,250, by the present inventor.

Portable drills of the auger type with a cutting head have proven to be very successful so long as the bite is not excessive. When drilling holes in excess of twelve to fourteen inches in diameter it becomes necessary to extract the drill from the hole frequently to remove the spoil. This, together with the fact that large diameter drills are heavy, makes for considerable work and loss in time.

The principal object of the present invention is to provide for first drilling the hole with a lighter weight drill of smaller diameter and subsequently reaming the hole with the larger diameter drill.

Another object of the invention is to provide an apparatus for reaming earth holes.

Another object is to provide an attachment for an earth drill to center the same in a hole for reaming.

Another object is to prevent falling of spoil into the drilled hole during reaming, and to more effectively remove the spoil from the hole.

The invention is illustrated in the accompanying drawing in which:

Figure 1 is a vertical section through a hole in the ground and the apparatus showing a reaming operation partially completed;

Fig. 2 is an enlarged side elevation of the pilot and lower end of the drill with parts broken away and sectioned;

Fig. 3 is a transverse horizontal section taken on a line 3—3 between the pilot and the cutter head; and

Fig. 4 is a vertical section taken across the cutting blade on line 4—4 of Fig. 2.

The apparatus comprises the usual drill 1 and a pilot 2 secured to the bottom beneath the cutting head.

The drill may comprise a flat horizontal circular head 3 with an open sector 4 having a cutting blade 5 extending downwardly and forwardly at the rear edge of the sector, and a spiral flight 6 for lifting spoil as it passes upwardly and over the blade. The central vertical shaft 7 serves to

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hold the flight 6 which is suitably welded thereto. The head 3 is removably secured to the lower end of shaft 7.

The flight 6 and shaft 7 may be made up in suitable sections attachable end to end to provide for the drilling of holes to different depths.

The pilot 2 comprises a cylindrical casing 8 held in place by a bottom end plate 9 and a top end plate 10. A bolt 11 extends vertically upward through the center of plates 9 and 10 and threads into the lower end of shaft 7 in the place normally provided for the attachment of a lead screw. The top plate 10 and upper end of cylinder 8 have a substantially radial slot 12 for receiving the blade 5 of the cutting head.

The diameter of the head 3 and flight 6 is that normally required for the drilling of a hole 13 of the size desired. The diameter of the pilot 2 is less than that of the head 3 and is substantially that of the hole 14 to be reamed. Usually the head 3 and its blade 5 overhangs the pilot 2 on about a two inch radius, providing for a two inch cut at the circumference of the hole during reaming. Cuts as large as four and five inches may be employed.

The pilot 2 enters hole 14 ahead of the drill 1 and centers the latter so that the reamed hole 13 will be substantially concentric to the original hole 14. The length of pilot 2 should be sufficient, having regard for its fit in hole 14, to prevent falling of spoil into the hole during reaming. Shaft 7 is rotated by the motor 15 which is detachably secured to the upper end thereof.

The pilot 2 can be readily assembled and attached to the drill 1 in place of the usual lead screw, and when the reaming is complete the pilot may be removed, releasing the drill for drilling operations.

Various embodiments of the invention may be employed within the scope of the accompanying claims.

I claim:

1. In combination with a drill for earth boring having a substantially horizontal head with an open segment therein having a transverse cutting blade extending downwardly at a cutting angle at the rear edge of said open segment, a cylindrical pilot detachably secured beneath the drill and adapted to fit into a previously drilled hole of smaller diameter than the drill to center the

drill for reaming operations and prevent falling of spoil into the hole during reaming, said pilot comprising a cylindrical casing, a bottom closure plate, a top closure plate disposed to substantially close said open segment in said head, and a central vertical attaching bolt securing the pilot axially to the drill, and said top plate and casing having a slot therein to accommodate the cutting blade of the drill.

2. In combination with a drill for earth boring having a substantially horizontal head with an open segment therein having a transverse cutting blade extending downwardly at a cutting angle at the rear edge of said open segment, a cylindrical pilot detachably secured beneath the drill and adapted to fit into a previously drilled hole of smaller diameter than the drill to center the drill for reaming operations and prevent falling of spoil into the hole during reaming, said pilot comprising a cylindrical casing secured up against the bottom of the drill head, a transverse member

substantially closing the casing and preventing dropping of spoil through said open segment into said previously drilled hole, and a central vertical attaching bolt securing the pilot axially to the drill, and said casing having a slot therein to accommodate the cutting blade of the drill.

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