This invention relates to equipment for drilling into earth, and more particularly, has reference to an earth drilling bit which is provided with means that provides suction for penetration of the bit, through the medium of a worm screw construction.

By way of background, it may be noted that in the use of earth drilling bits, quite commonly the driller finds that the bit is not penetrating the earth with the desired rapidity, and obviously, a general slowing up of the drilling operation results.

The present invention, accordingly, is intended to provide a construction for an earth drilling bit wherein these deficiencies or annoyances will not exist, the bit being so designed as to cause continuous penetration of the earth, regardless of the depth of the drill or the solidity of the earth being drilled.

Another important object is to provide a construction for earth penetrating means, that will be attachable to earth drilling bits as presently constructed.

Still another important object is to provide an earth drilling bit construction which will be inexpensive, durable, and which will not detract in any way from the efficiency of the drilling bit edges.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claim, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

Referring to the drawings:

Figure 1 is a side elevational view of an earth drilling bit formed in accordance with the present invention.

Fig. 2 is another side elevation taken from the left of Fig. 1.

Fig. 3 is a section on line 3-3 of Fig. 1.

Fig. 4 is a section on line 4-4 of Fig. 3.

Referring to the drawings in detail, in accordance with the present invention I provide a drill rod 4 of suitable length, this being formed at its lower end with the end recess or socket 2, as readily seen from Fig. 4. Rigidly formed upon the rod 4 is an earth auger 3, of the double worm type which terminates at the lower end of the rod, as readily seen from Figs. 1 and 2. This auger is of wide formation, and is spiraled gradually, that is, at only a slight angle relative to a line perpendicular to the rod axis.

In accordance with the present invention, I provide a pilot rod 4, the lower end of which is tapered and pointed, as readily seen from Figs. 1 and 2, the upper end of the pilot rod being received in the recess 2 as readily seen from Fig. 4. The pilot rod 4 is provided, intermediate its ends but near the upper end thereof, with a pair of diametrically opposed radial blades 5, having the sharpened lower bit edges 6, said bit edges extending downwardly towards the outer ends thereof.

Additionally, and as best seen from Fig. 2, the blades 5 are oppositely pitched relative to the axis of the rod, so that on rotation of the drill, both of the bits 5 will bite into and scrape earth from the bottom of the drill hole.

The upper portions of the blades 5 project above the lowermost portion of the drill rod 4, this being permitted by inwardly notching the blades 5 at their inner ends as at 7.

The upper portions of the blades 5 are bent backwardly into the angle of the worm 3, and are formed with openings 8 receiving fastening means 9 whereby the lower end of the worm or auger 3 can be secured to said rearwardly bent portions 7. In the double worm auger 3 illustrated in the present example, both of the blades 5 are secured to the lower end of the auger, of course.

Formed upon the lower end portion of the pointed pilot rod 4 is a pilot worm or auger 10 of narrow width, this having at its lower end a sharpened edge 11 disposed slightly above the pointed lower end of the pilot rod. The outer edge of the pilot auger 10 continues into the bit edge 6 of that blade 5 that is nonconnected to the auger 3.

It has been found that in operation, the point of the pilot rod will engage in the earth at the bottom of the drill hole, after which the pilot auger bit edge 11 bites into the earth at the bottom of the drill hole, so that by a suction effect the pilot rod is drawn further into the earth until the bit or blade edges 6 engage the earth and scrape the bottom of the drill hole, dislodging the earth. The dislodged earth is forced up upon the earth auger 3 which removes the earth.

The operation, of course, is continuous and it has been found that a desirable penetration means is provided for the ordinary earth auger. It will be understood that although the invention has been shown as applied to a double worm auger, it could as well be used on an auger of the single worm type.
Having thus described the invention, what is claimed is:

In an earth auger an elongated drill rod having a recess opening through one end thereof, helical blades carried by the drill rod and extending laterally therefrom in longitudinally spaced convolutions which terminate in transverse diametrically disposed radially extending edges adjacent the end of the drill rod having the recess therein, a pilot rod seated in the recess in said drill rod and extending longitudinally from said drill rod in axial alignment therewith, a relatively narrow helical blade carried by the pilot shaft and extending laterally therefrom in longitudinally spaced convolutions, radial blades carried by the pilot shaft and detachably connected to the wide helical blades adjacent the radial edges thereof for retaining the pilot shaft in the recess, and said radial blades lying at an acute angle to the axis of the pilot shaft.

CARL M. HARBERT.

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