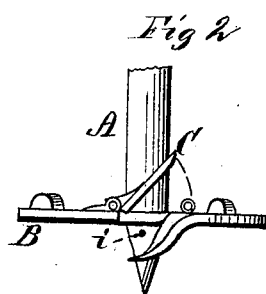
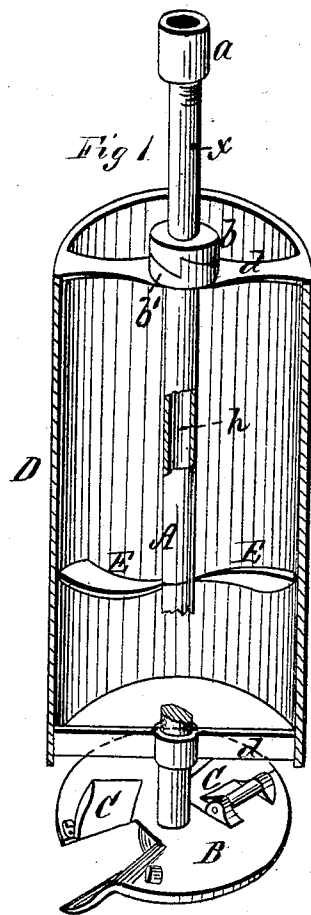


W. W. JILZ.
Earth-Augers.

No. 150,051.

Patented April 21, 1874.



WITNESSES.
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UNITED STATES PATENT OFFICE.

WILLIAM W. JILZ, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN EARTH-AUGERS.

Specification forming part of Letters Patent No. 150,051, dated April 21, 1874; application filed March 23, 1874.

To all whom it may concern:

Be it known that I, W. W. JILZ, of St. Louis, in the county of St. Louis and in the State of Missouri, have invented certain new and useful Improvements in Earth-Augers; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a well-auger, intended principally for boring in sand or other soil that will cave easily, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is an interior perspective view of the entire well-auger, and Fig. 2 is a side view of the lower end of the shaft.

A represents the auger-shaft provided with a coupling, *a*, at the top, and the lower end pointed and attached permanently to the bottom B, on which the valves C C are located. At a suitable point on the shaft A is secured a collar, *b*, which is notched or toothed on its under side, as shown in Fig. 1. D represents the cylinder, which is open at both ends, and about six inches, more or less, shorter than the distance between the bottom B and collar *b*, so that the cylinder can move up from the bottom as far as said collar. At each end of the cylinder D is a cross-bar or cross-arm, *d*, through the centers of which the shaft A passes, so as to keep the same exactly in the center of the cylinder. On the top bar, *d*, is a central hub, *b'*, through which the shaft A passes, and said hub is on its upper side provided with teeth or notches, to correspond with those on the collar *b* of the shaft. These devices *b* and *b'* form a clutch, which will be in gear while turning the shaft to the left, and be thrown out of gear while turning the shaft to the right.

It is well known that a constant light jar or tapping will sink almost anything into quicksand, and hence if this constant light jarring or tapping principle is applied to an auger the cylinder thereof can be sunk easily into the sand, and brought out full every time. This is effectually accomplished by means of the notched collar *b* and notched hub *b'*.

As the auger descends, the cylinder moves upward, so that the bottom projects about six inches below the end of the cylinder, and as the collar *b* is secured firmly on the shaft A it receives and places the weight of all the shafting above on the cylinder.

As the shaft is turned to the right, the cylinder is jarred or tapped upon twice during each revolution, thereby crowding or sinking the cylinder down into the ground.

In raising the shaft, the bottom B is brought up against the lower end of the cylinder, thereby forming a complete and tight bottom, and which shuts off all possible chance for the sand to get out, and it remains in this way until it is drawn out of the hole, when it is emptied by hoisting the cylinder up and down on the shaft until the sand all runs out.

Upon the inside of the cylinder, and fastened firmly to the shaft, are two wings, E E. These are placed at an angle to raise the sand inside the cylinder, and to keep the cylinder from clogging.

h represents an air-chamber running down the inside of the shaft, and opening below at *i*, for the same purpose that the usual air-tube is made in earth-augers.

By making the shaft hollow, thus carrying the air down through the same, there is no space taken up either on the inside or outside of the cylinder, and as the air-chamber opens at *x*, above the cylinder in the side of the shaft, it cannot become clogged or stopped up.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the shaft A, bottom B, attached on the shaft, the movable cylinder D, with arms *d d*, the toothed collar *b* on the shaft, and the toothed hub *b'* on the top cross bar *d*, all substantially as and for the purposes herein set forth.

2. The wings E E, secured on the shaft A within the movable cylinder D, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 7th day of February, 1874.

WILLIAM WHEETEN JILZ.

Witnesses:

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B. F. HOLCOMBE.