

O. RUST.
EARTH-AUGER.

No. 175,303.

Patented March 28, 1876.

Fig. 1.

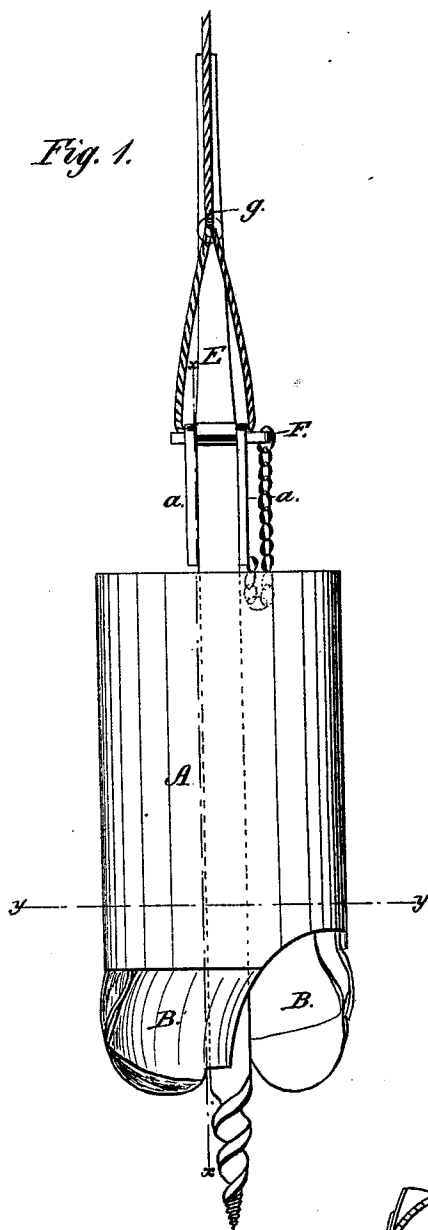


Fig. 4.

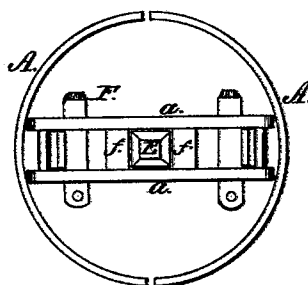


Fig. 2.

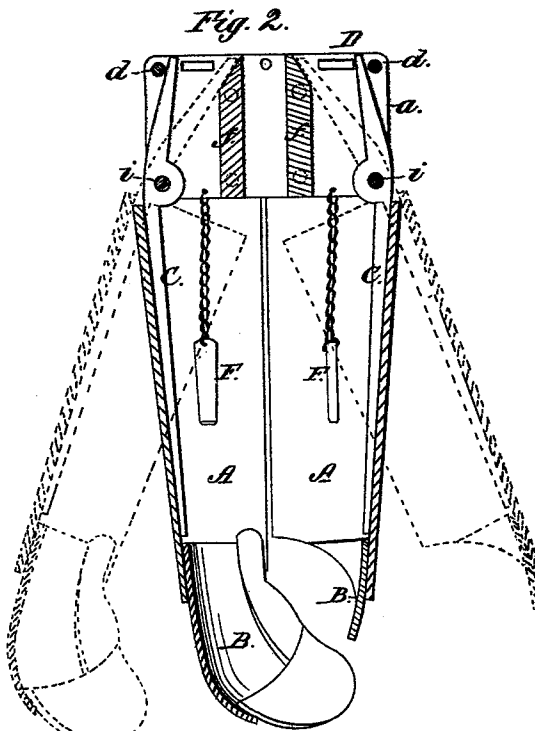
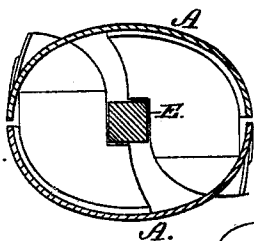


Fig. 3.



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OSCAR RUST, OF MACON, MISSOURI.

IMPROVEMENT IN EARTH-AUGERS.

Specification forming part of Letters Patent No. **175,303**, dated March 28, 1876; application filed March 9, 1876.

To all whom it may concern:

Be it known that I, OSCAR RUST, of the city and county of Macon and State of Missouri, have invented a new and Improved Earth-Auger; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improved form of auger for boring in the earth where the strata are sufficiently soft and loose, and is, more particularly, an improvement upon the auger for which Letters Patent of the United States were granted to me August 3, 1875.

The improvement relates, first, to the form or cross-section of the body of the auger, whereby the draft or force required to operate it is reduced; and, secondly, to the construction of the head of the auger, and parts connected therewith, whereby it is adapted to slide up and down on the boring-shaft, so that it may be removed from the well or hole without raising the shaft, and whereby also certain other advantages are attained in practical operation of the auger, as hereinafter set forth.

In the accompanying drawing, forming part of this specification, Figure 1 is a side elevation of my improved auger. Fig. 2 is a vertical section on line *x x* of Fig. 1; Fig. 3, a cross-section on line *y y* of Fig. 1, and Fig. 4 a top plan view.

The body of the auger is formed of two parts or pods, *A A*, provided with jaws or boring-lips *B B*, and is made cylindrical in cross-section at its upper end and elliptical at its lower end, the greater axis of the ellipse not being greater than the diameter of the cylindrical portion. In this respect the auger differs from that described in my aforesaid Letters Patent, the latter being elliptical in cross-section both at its upper and lower end. The change of form obviously lessens the cubical capacity of the auger at its lower end, and consequently avoids to some extent the packing or wedging of the loosened earth taken into the auger against and between the sides thereof, since the capacity of the auger increases gradually from the bottom upward. It further avoids the sharp angle formed at the point where the curved jaws are united to the ver-

tical sides of the pods *A*, so that the loosened earth meets with less obstruction, and is forced or carried up within the auger with less friction than in my former invention.

C C are arms attached to the pods *A A* on the inside, and pivoted to the lower corner of head *D*. The head is formed of two rectangular pieces of plate-iron, separated far enough to allow the auger-shaft *E* to pass through its center, and held rigidly together by bolts or rivets. The square orifice through the head *D* for the passage of the shaft is formed by securely bolting or riveting two square blocks of metal, *f f*, to and between the plates *a a*. The pods *A A* of the auger are not intended to close entirely together, a small crevice being left to insert a scraper or other implement used in cleaning the auger to pry the two pods apart when desired to open the auger.

The pods and bits are held in proper position for work by keys *F* passing through coincident slots formed in plates *a a*, and hold the upper ends of the arms *C* firmly against the outer bolts or rivets *d*. The head *D* is free to move up and down on the shaft *E*, the couplings required at intervals, or between the several sections thereof, being to that end made of less diameter than the orifice in the head *D*. The lower portion of the shaft is, however, enlarged sufficiently to fill, or nearly fill, the said orifice, so that by turning the shaft rotary motion will be readily communicated to the auger proper. When the auger has become filled with earth it is raised to the surface by means of a rope or chain, *g*, attached to the head *D*. The keys are then withdrawn and the pods *A A* separated to allow discharge of the contents. The pods may be held open, as shown in dotted lines, Fig. 2, by re-inserting the keys in the slots on the outer side of the bent ends of arms *C*, in which position adhering earth may be conveniently scraped off the inner sides of the pods.

What I claim is—

1. The body of the auger, made cylindrical in cross-section at its upper end and elliptical at its lower end, the greater axis of the ellipse not exceeding the diameter of the cylindrical portions, as shown and described.

2. In combination with the head D, formed of the plates *a a*, the arms C C of the pods A A, extending above their pivots *i*, and the locking-keys F, as shown and described, for the purpose specified.

3. The combination, with the squared boring-shaft, of the auger-head D, composed of plates *a a* and the interposed pieces *f f*, ar-

ranged, as shown, to form a rectangular orifice, through which the shaft passes, and by which the auger is guided while being drawn out of or lowered into the well, as set forth.

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Witnesses:

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