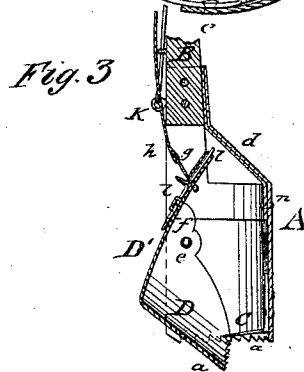
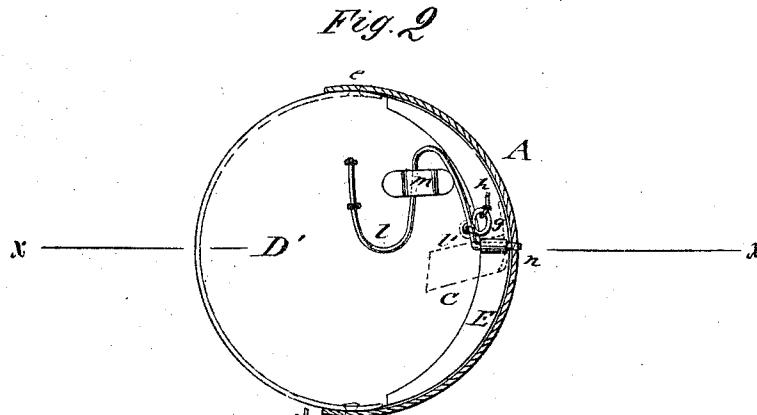
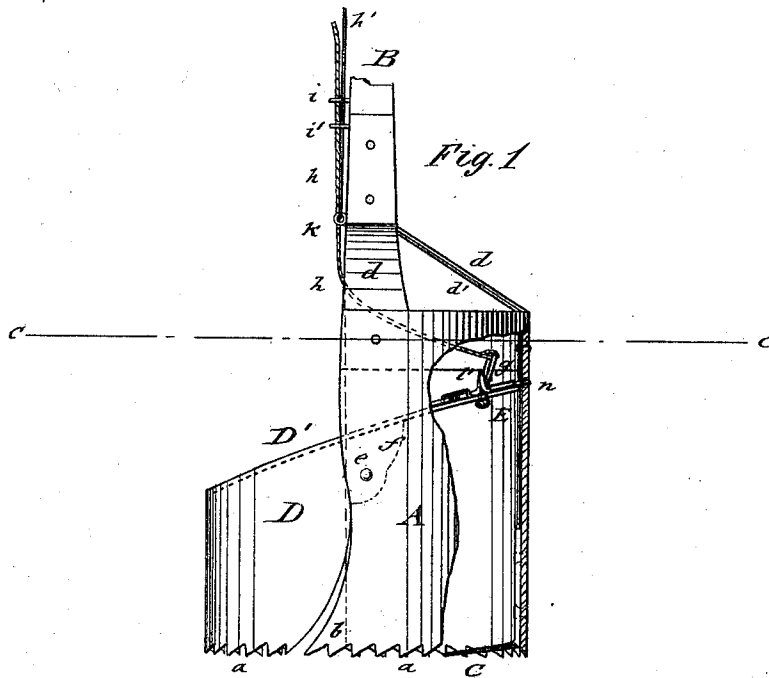


A. SORG & S. C. BOLLMAN.
Earth-Augers,

No. 140,226.

Patented June 24, 1873.



Witnesses:
A. W. Almqvist
J. Goethals

Inventor:
A. Sorg
S. C. Bollman
Per *Munn & Co.*
Attorneys.

UNITED STATES PATENT OFFICE.

ANDREW SORG AND SAMUEL C. BOLLMAN, OF DECATUR, INDIANA.

IMPROVEMENT IN EARTH-AUGERS.

Specification forming part of Letters Patent No. 140,226, dated June 24, 1873; application filed May 10, 1873.

To all whom it may concern:

Be it known that we, ANDREW SORG and SAMUEL C. BOLLMAN, of Decatur, in the county of Adams and State of Indiana, have invented a new and Improved Earth-Borer, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation of our improved earth-borer; Fig. 2, a horizontal transverse section of the same on the line *c c*, Fig. 1; and Fig. 3 a vertical section on line *x x*, Fig. 2, showing the borer when filled with earth ready to be hoisted up.

Similar letters of reference indicate corresponding parts.

The object of our invention is to construct an earth-borer which serves at the same time as receptacle for carrying up the ground from the bore-hole. Our invention consists in a cylindrical body or receptacle, with cutting-teeth at the lower end, which is applied to the end of the bore-shaft, and composed of two parts, the smaller of which is pivoted to the larger in such a manner that by suitable rope connection the pivoted part acts against the main part, embracing the earth between them, to be lifted out.

In the drawing, A represents the main part of the earth-borer, being a section of the superficies of a cylinder, provided with cutting-teeth *a* at its lower edge, and at one side a forward-curved side extension, *b*. The upper part of body A is connected by conically-inclined ears or bands *d* to shaft B of the borer, and rigidly applied thereto by suitable bolts or screws. The ears or bands *d* are formed as extensions of main part A, made of steel or iron plate, like part A, and strengthened by a second inner plate, *d'*, extending around the upper circumference of part A, being suitably riveted thereto. A cutter-blade, C, is bolted or screwed to the main part A near its cutting-edge, and projects toward the center, being slightly inclined, to enter more readily into the earth. It may be detached when the borer is penetrating through hard rock, and a plunger used to break the rock. The part D, of the same material as part A, forms, with it, the full cylindrical shape of the borer, being the complement of part A. It is similarly provided with teeth *a*, and pivoted at *e* by its ears *f* to main part A. The inclined cap or top

part D' of part D extends fully to main part A, being also strengthened along its edge toward part A by the segmental plate E. An oscillating link or eye, *g*, is applied to the top part D', and connected by rope *h* and staples *i* of shaft B to the end of the same, to be controlled at will from above. A second rope, *h'*, is attached to a strong eye or ring, *k*, passing up through staples *i'*, and serves for the purpose of lifting out the shaft with the borer. A strong spring, *l*, is secured to the upper side of top D', guided by staple *m*, and provided with a shoulder, *l'*, which rests against link *g*. It extends then in a groove between top D' and plate E, or, otherwise, over the edge of top part D' into a perforation, *n*, of part A, locking thereby the pivoted part D to main part A.

When the rope *h* is operated from above link *g* is forced toward shoulder *l'*, so that the projecting part of spring *l* is withdrawn from hole *n*. Part D swings then on pivots *e*, and presses with its lower part wedge-like, against main part A, holding a body of earth firmly within them. The shaft and borer are then lifted up by means of rope *h'* to the surface to discharge, and be lowered again for further operation.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The earth-borer, consisting of main part A and pivoted part D, of cylindrical shape, applied to shaft B, substantially as and for the purpose described.

2. The main part A, having ears or bands *d*, perforation *n*, teeth *a*, curved side extension *b*, and cutter C, as described.

3. The pivoted part D, having inclined top D' strengthened by plate E, ears *f*, and teeth *a*, as set forth.

4. The top part D', having spring *l* with shoulder *l'*, staple *m*, link *g*, in connection with rope *h* to disconnect spring *l* from hole *n*, and operate part D to lift earth, substantially as described.

ANDREW SORG.
SAMUEL C. BOLLMAN.

Witnesses:

DAVID KING,
JOHN J. CHUBB.