

(No Model.)

J. H. GOULD.  
Earth Auger.

No. 238,888.

Patented March 15, 1881.

Fig: 1.

Fig: 2.

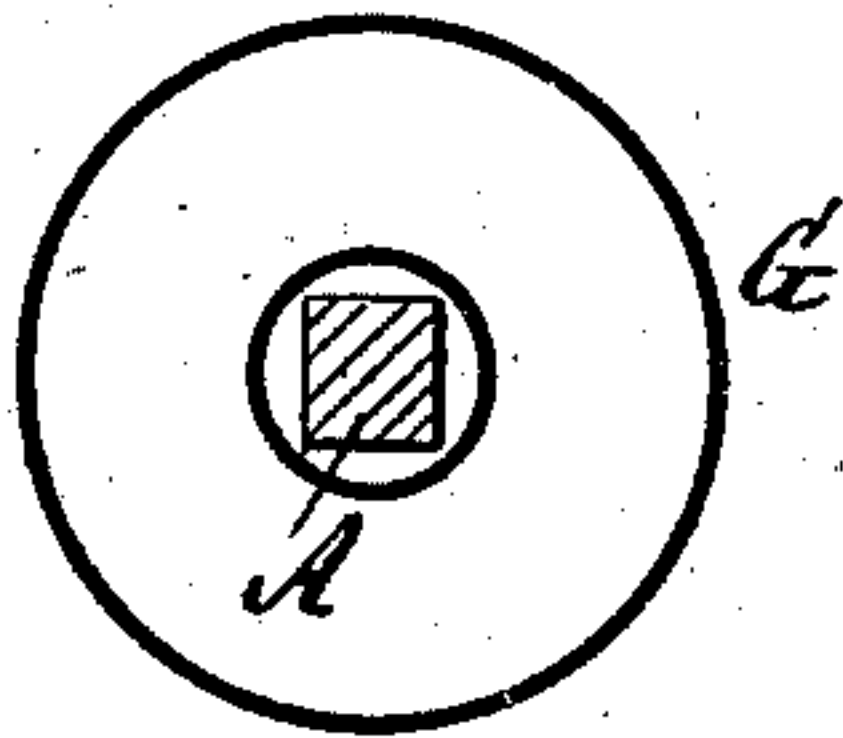


Fig: 3.

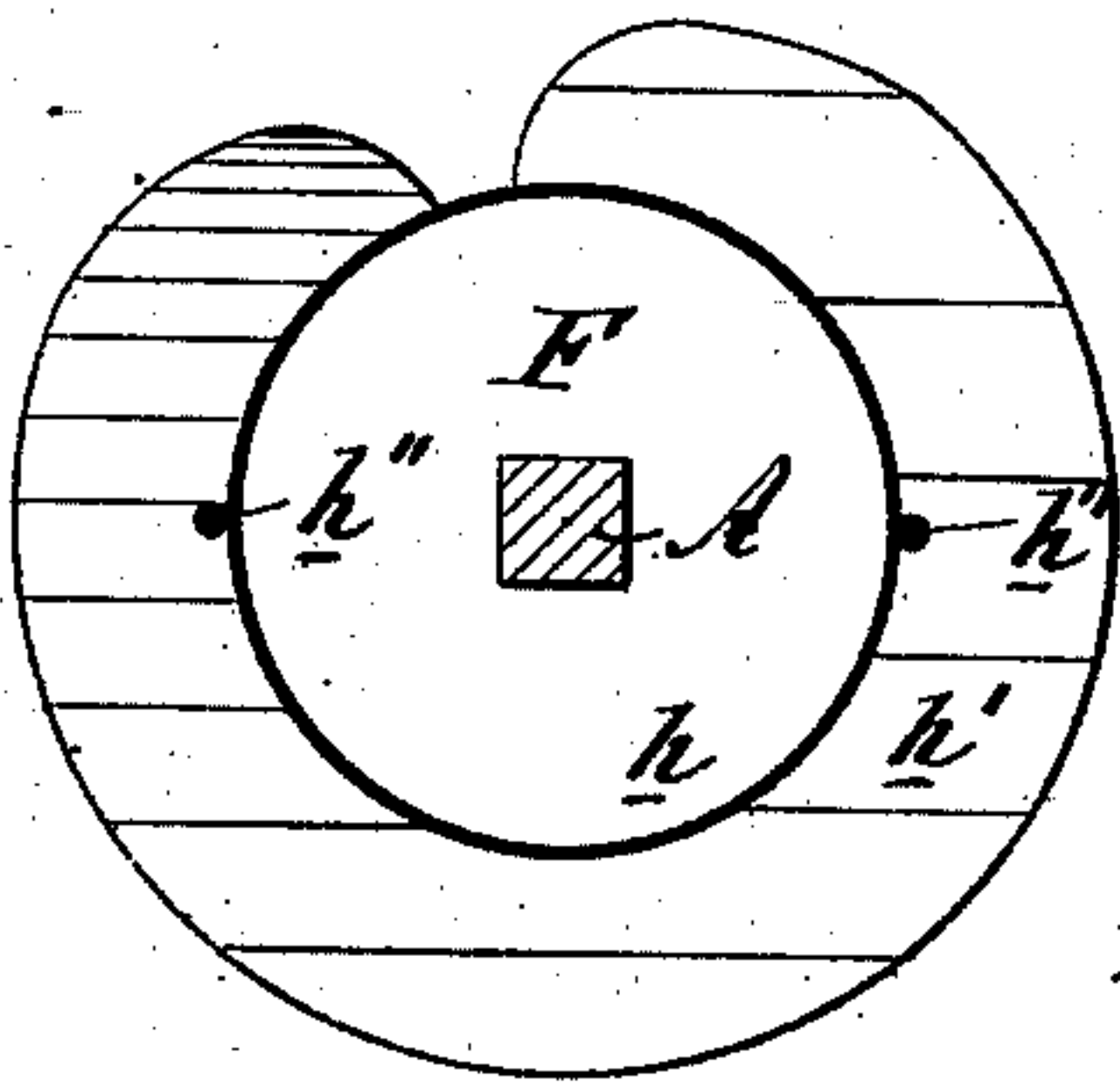


Fig: 4.

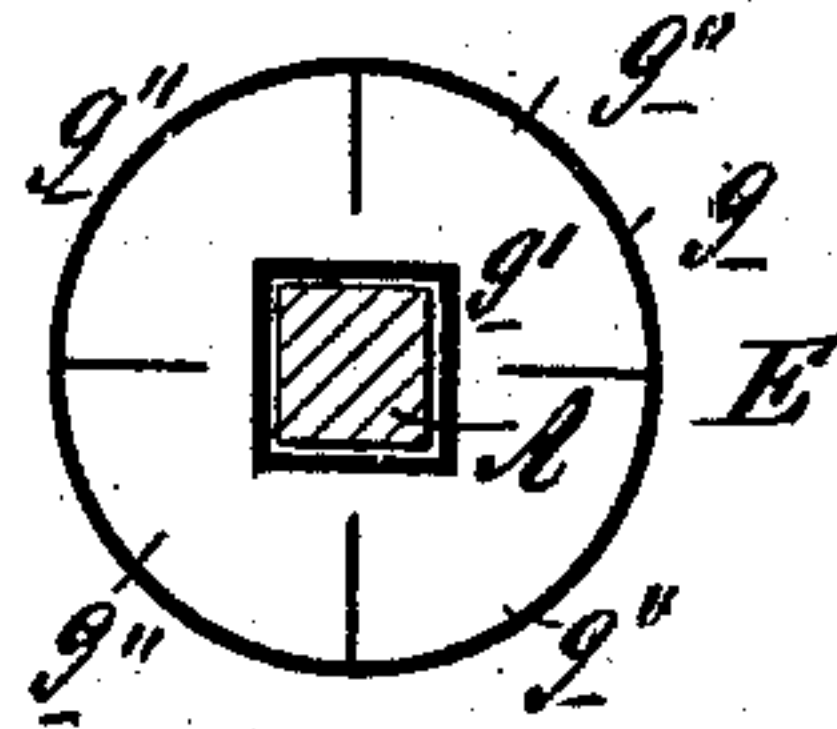


Fig: 5.

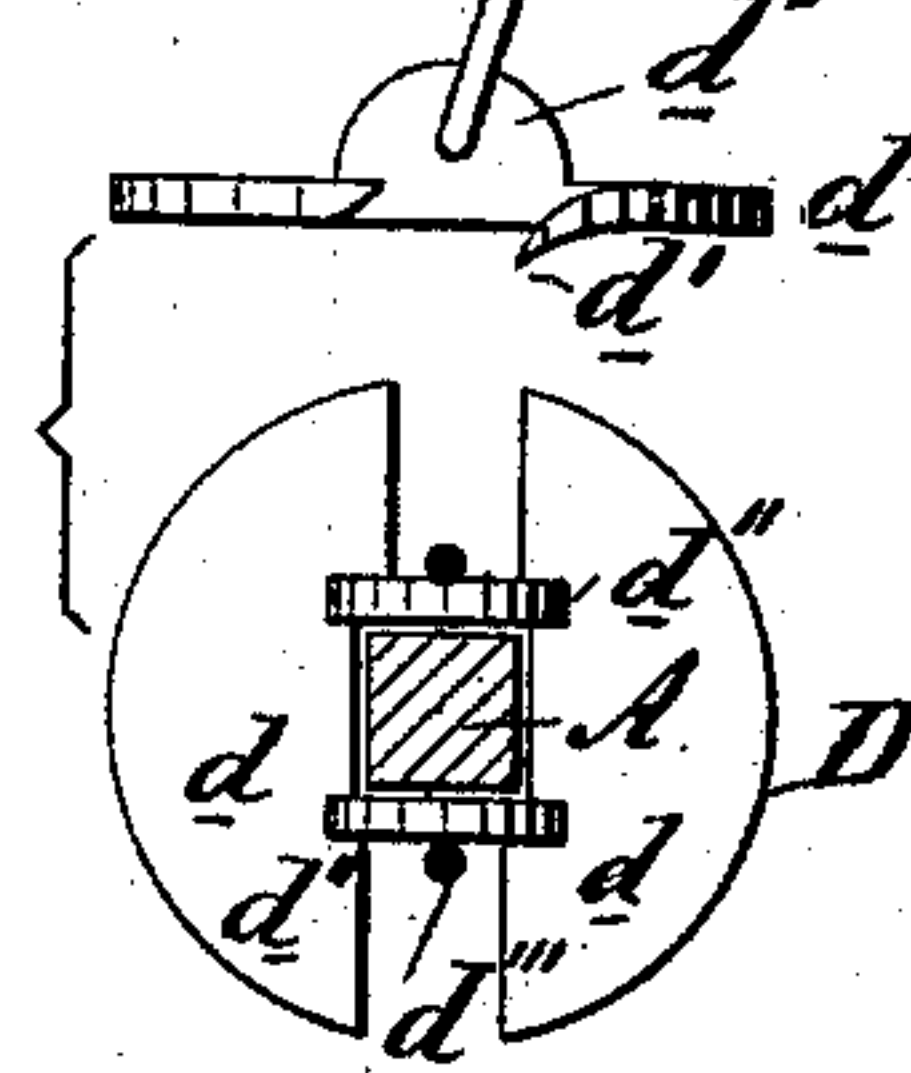
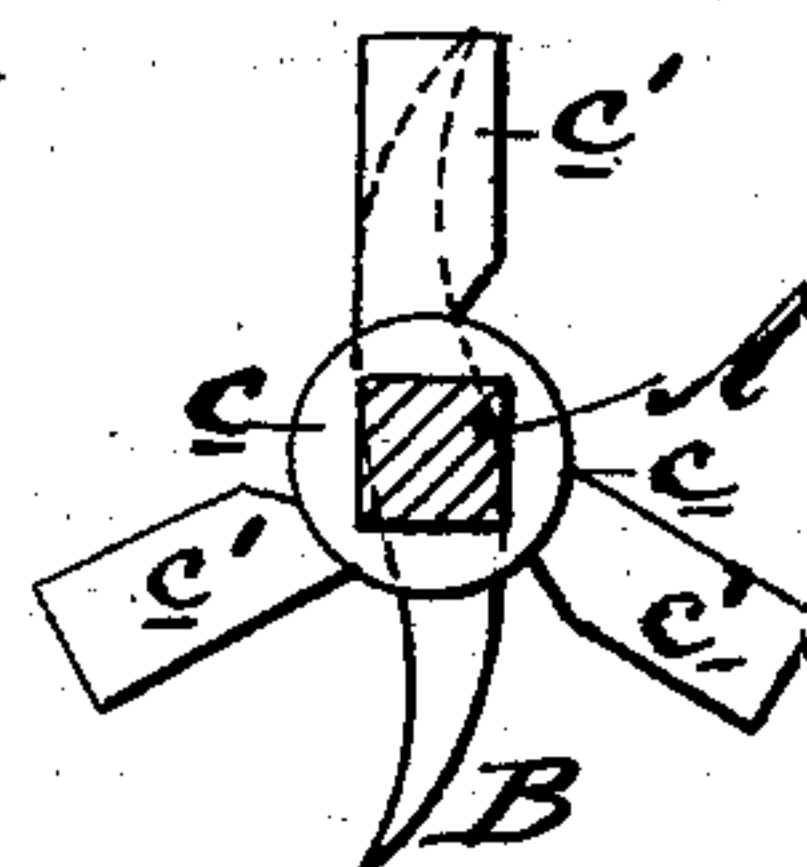


Fig: 6.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JACOB H. GOULD, OF ATWATER, OHIO.

## EARTH-AUGER.

SPECIFICATION forming part of Letters Patent No. 238,888, dated March 15, 1881.

Application filed July 30, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB H. GOULD, of Atwater, in the county of Portage and State of Ohio, have invented a new and Improved Earth-Auger, of which the following is a specification.

The object of this invention is to construct an auger adapted to bore in any kind of soil or mineral, and to combine with it devices for removing the soil or mineral from the opening made by the auger without raising the shaft thereof.

The invention consists of an auger provided with a series of bits of novel design, and of dirt-lifters or buckets combined therewith.

Figure 1 is a vertical elevation of the device. Fig. 2 is a cross-section on line *x x*, Fig. 1. Fig. 3 is a cross-section on line *y y*, Fig. 1. Fig. 4 is a cross-section on line *z z*, Fig. 1. Fig. 5 represents a side elevation of a loose dirt-lifter and a cross-section on line *w w*, Fig. 1, showing a plan of said dirt-lifter. Fig. 6 is a cross-section on line *v v*, Fig. 1.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents the shaft of the auger, of square cross-section, which may be made in two sections united at *a*. On the lower end of said shaft A a drill-bit, B, is secured, which in this case is nearly triangular, with scrolled or opposite curved edges, and is attached to the shaft A by pin *b*.

Immediately above the drill-bit B an earth-bit, C, consisting of a collar, *c*, having three radial inclined cutters, *c'*, is set about the shaft A, and prevented from excessive upward movement by the pin *f*, that is passed transversely through said shaft A. This bit C is designed to pulverize the earth, so that the dirt-lifters will take it up more readily in the downward movement of the auger.

A combined dirt-lifter and earth-bit, D, designed for raising compact cake or stiff mud, is set about the shaft A and rests on the pin *f*, and is prevented from moving up too readily by the twist given to the lower part of the shaft A, as shown at *f'*. This combined lifter and bit D consists of two crescent-shaped plates, *d d*, having their diagonally-opposite ends beveled and turned downward, to serve as cutters, as shown at *d' d'*, said plates *d d*

being connected with each other so as to form a circle by the lugs *d'' d''*, that project upward on opposite sides of the shaft A, and have a hook, *d'''*, engaged in them, to which hook *d'''* is attached a rope or wire, D', that extends upward along the shaft A, and is designed to be within reach of the operator, who, by means of it, can draw said lifter and bit D up with a load of earth upon it to the top of the opening in the ground.

For raising sand or thin mud the combined dirt-lifter and earth-bit E is used in lieu of the lifter and bit D. Said lifter and bit E is composed of a cylinder, *g*, provided with a central square box-socket, *g'*, which fits over the shaft A, while the bottom of said cylinder *g* is divided into four segmental cutters, *g''*, each of which has a corner turned down, as shown in Fig. 1. A bail or loop, *g'''*, is secured in the top of the box-socket *g'*, and has attached to it a rope or wire, E', that extends upward parallel with the shaft A, and is made fast to the cross-handle H.

The screw-flanged ring is composed of a ring, *h*, of the same diameter as the broader part of the drill-bit B, and is provided on its outside with a flange-screw, *h'*, and is connected with its handle F'' by two parallel side rods, *h''*, that extend upward parallel with the shaft A. The handle F'' has an open center, and is fitted loosely over the shaft A at right angles thereto and near its top, as shown in Fig. 1, and said handle F'' rests on a washer and pin, *h''' h'''*, the latter of which is passed transversely through the shaft A. By screwing this screw-flanged ring F into the opening made in the earth by the auger near the surface of the ground, the point of the drill-bit B will be pressed more firmly upon the bottom of the said opening or bore; or if the shaft A is too heavy, and the drill inclined to sink faster than the dirt-lifters can take up the earth, then the washer and pin *h''' h'''* should be placed above the handle F'', when, on turning the ring F, some of the weight of the shaft A will be supported thereon, and the pressure of the drill-bit B be thereby regulated, as desired.

G is a cylindrical block, set loosely about the upper part of the shaft A, and held in position by the rope or chain A', that connects it with



the handle F''. Said block G may be lowered or raised on the shaft A within the opening or bore in the earth, and by contact with the sides of said bore prevent the shaft A from  
 5 swaying about when operating. As many of these supporting-blocks G may be used as may be necessary, according to the length of shaft to be supported.

Fixed on the top of the shaft A is a cross-  
 10 handle, H, by means of which the said shaft A may be rotated, or by power applied in some other well-known way, said handle H being held in place by a set-screw, H'. The top of said shaft A terminates in a screw, k, to which  
 15 another section of shaft may be attached.

In operating with this device it is not necessary to remove it from the opening or bore made by it in order to remove the earth, &c., therefrom, as the combined lifters and bits D  
 20 or E will receive the excavated earth and stones, &c., and can readily be pulled up and emptied when desired, and be restored to place again. Hence the apparatus need be drawn out of its place only when a new bit is  
 25 required. The openings in these combined lifters and bits D E are of sufficient size to admit stones of various sizes.

Either lifter D E may be removed from the shaft A and replaced by the other at any time  
 30 by first taking off the screw-flanged supporting-ring F and the steadying-block G.

I do not confine myself to the precise construction and arrangement of parts as herein shown, as it is obvious that they may be modified somewhat without departing from my in- 35  
 vention.

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

1. An earth-auger constructed substantially 40  
 as herein shown and described, containing the following elements—*i. e.*, a drill-bit, an earth-bit, a combined dirt-lifter and bit, a screw-flanged supporting-ring, and a steadying-  
 45 block, as set forth.

2. In earth-augers, the crescent-shaped plates *d d'*, having their diagonally-opposite ends beveled and turned down at *d'*, and provided with lugs *d''*, having hook *d'''*, in combination with shaft A, having a twist just above said plates, 50  
 as and for the purpose specified.

3. In an auger, the combination, with the shaft A, of the screw-flanged supporting-ring F, provided with rods *h''*, and handle F'', substantially as herein shown, and for the purpose 55  
 described.

JACOB HENRY GOULD.

Witnesses:

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