# N. H. LINDLEY.

# EARTH AUGER.

117180

PATENTED JUL 18 1871

Fig. 1.

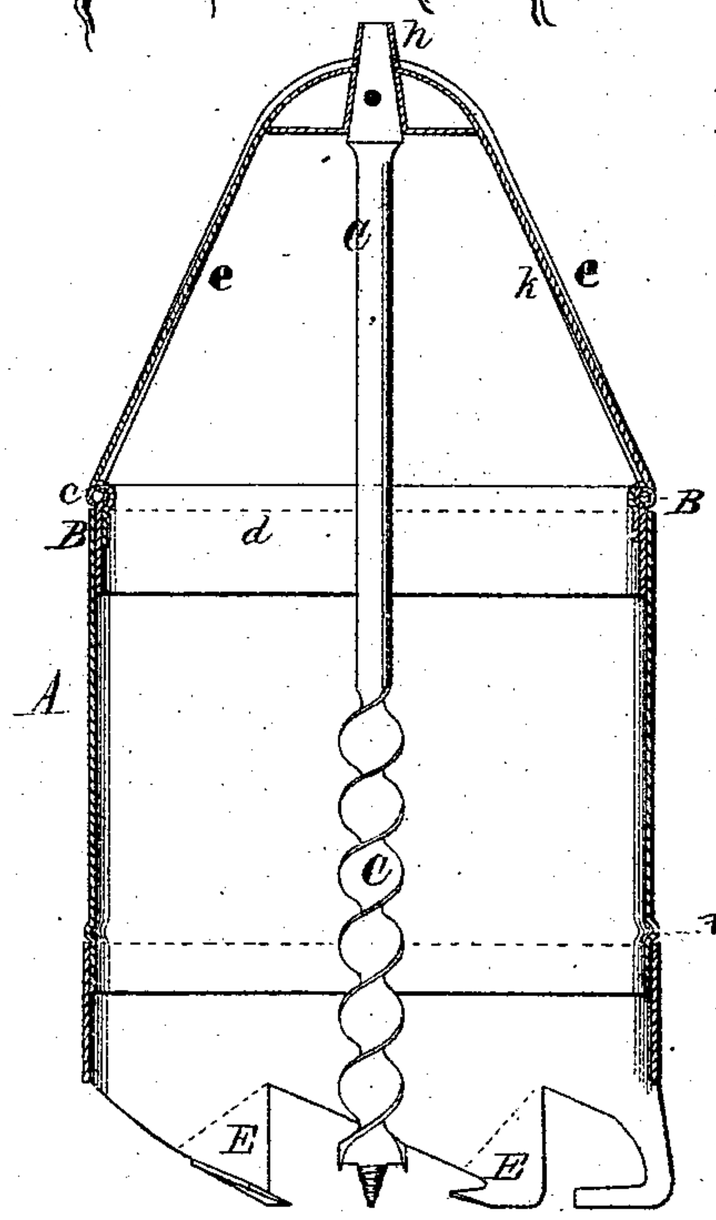



Fig. 4.

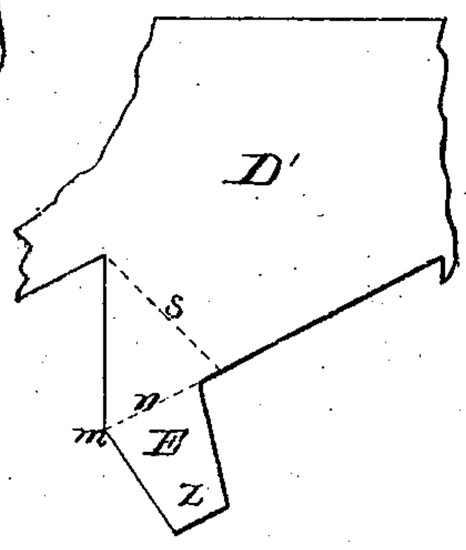



Fig. 2.

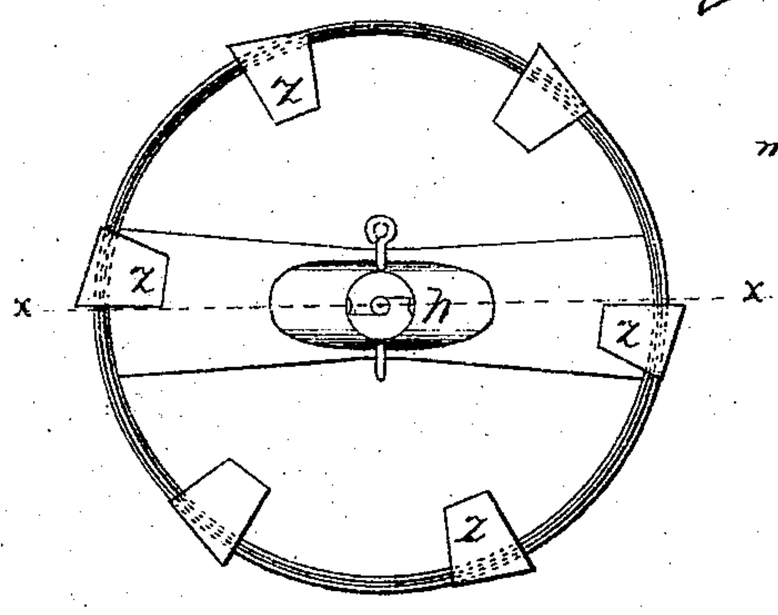
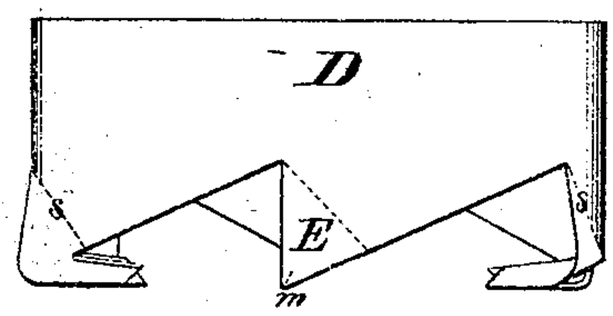



Fig. 3.




Witnesses.

Villette Anderson

Frank B Curtis

Inventor.

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Attys

117,180

# UNITED STATES PATENT OFFICE.

NOAH H. LINDLEY, OF BRIDGEPORT, CONNECTICUT.

## IMPROVEMENT IN EARTH-AUGERS.

Specification forming part of Letters Patent No. 117,180, dated July 18, 1871.

*To all whom it may concern:*

Be it known that I, NOAH H. LINDLEY, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and valuable Improvement in Earth-Auger; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a central vertical section of my invention. Fig. 2 is a top view of the same. Fig. 3 is a view of the annular cutter-ring. Fig. 4 is a detached view.

My invention has relation to earth-boring augers; and it consists in the construction and novel arrangement of the cap, cylinder, and cutting-lip, whereby these portions are made readily separable from each other, for the purposes hereinafter indicated.

In the accompanying drawing, A represents the cylindrical wall of the bucket. This cylinder is formed without flanches, and is arranged to receive at the top the flanch of the cap which passes within it. To the bottom of the cylinder the annular cutter-bearer is attached, passing over the lower end of the cylinder, which is provided with an external rib, *b*, to prevent the cutter from being forced up too far over the cylinder. B represents the cap, consisting of the annular top *c*, flanch *d*, and bail *e*. The bail *e* is rigidly attached to the cap, forming a part of it. At the upper end of the bail is provided an enlargement or swell, *h*, in which a square aperture or seat is formed for the reception of the tang of the auger. From each side of the enlargement *h* the bail extends downward and outward in a straight line to the outer edge of the cap. These inclined sides of the bail are lettered *k*, and their arrangement and inclined position give the necessary strength to withstand the strain. C represents the auger, which is keyed in the tapering socket of the swell *h* of the bail. D represents the annular piece which carries the cutters. The whole may be made entire, as indicated in the drawing, or the cutters may be formed separately and bolted or riveted to the annular bearer. E E represent the cutters or teeth. When they are made entire with the bearer, which is the preferable mode, the metal is stamped in the form indicated in Fig. 3 of the drawing. The entire lower edge of the piece D is serrated in such a manner that the forward or cutting-edge of each tooth shall extend down vertically to the point *m*, whence this edge extends downward in an inclined direction, the angle of inclination being such that when the projecting portion *z* of the tooth is bent upward and inward along the line *n* the forward edge of the portion *z* will extend inward toward a point a little in advance of the center of the circle in which they are arranged. The rear edge of the tooth is inclined and extends forward to meet the cutting-edge at the point *m* or foot of the perpendicular. The bend *n* is a prolongation of the rear edge of the serration, and the breadth of the inwardly-projecting cutter *z* varies according to the number of teeth, character of soil, and other circumstances. It is designed to provide with each auger a number of cutters, D′, in which the number and size of the teeth will be different and suited to different soils. For ordinary use, the six-toothed bit, as shown in the drawing, is found preferable.

It should be observed that the lower and forward portion of each serration is bent slightly outward along the dotted line *s*, for the purpose of loosening up the soil a little beyond the prolongation of the cylinder. Therefore, while a side view of the forward edge of this portion of the tooth is vertical, a front view of it would show a slight downward and outward inclination. In the drawing the annular cutting part is shown as embracing the lower edge of the cylinder, and an external rib is provided as a stop to prevent it from slipping too far up over the cylinder. Sometimes I prefer to pass the cylinder down over the cutter, arranging the stop in a suitable manner.

I claim as my invention—

1. The cap B provided with the bail *e*, in combination with the cylinder A and the annular serrated cutter D, substantially as specified.

2. The annular serrated cutter D, provided with the inwardly-projecting points *z z*, substantially as specified.

3. In an earth-auger, the boring-case, formed in three separate parts, the cylinder A, cap B, and cutter D, all constructed substantially as shown and described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

N. H. LINDLEY.

Witnesses:

MORGAN SEELYE,

EZRA N. SEELYE.