L. DALLAIRE.

EARTH AUGER.

No. 182,107. Patented Sept. 12, 1876.

Fig 1.

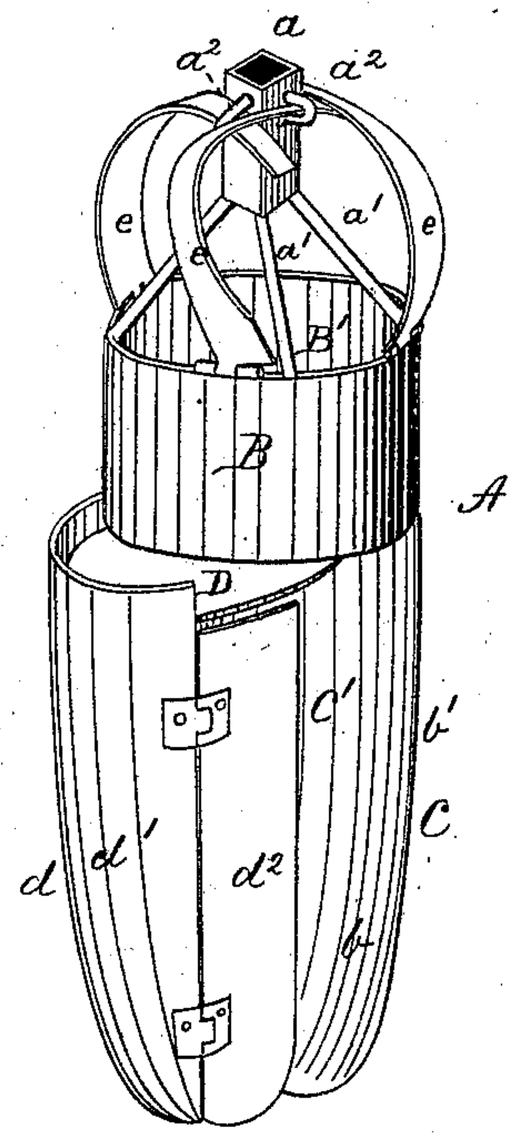
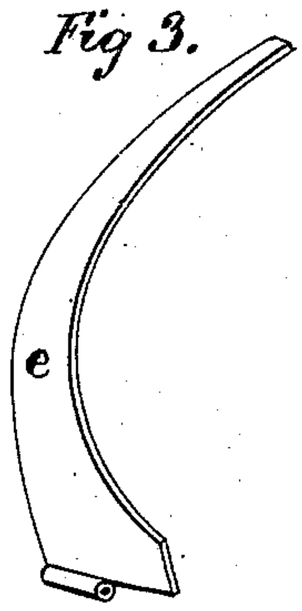


Fig 2.

Fig 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

LOUIS DALLAIRE, OF AUSTIN, MINNESOTA.

IMPROVEMENT IN EARTH-AUGERS.

Specification forming part of Letters Patent No. **182,107**, dated September 12, 1876; application filed August 18, 1876.

To all whom it may concern:

Be it known that I, LOUIS DALLAIRE, a resident of Austin, in the county of Mower and State of Minnesota, have invented certain new and useful Improvements in Earth or Well Augers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in earth or well augers. It consists in an adjustable reaming-knife or series of reaming-knives hinged to the upper edge of the main body of the auger, and having its upper end secured to the shaft or socket in which the shaft rests, with capability of adjustment for different diameters; and it consists, further, in making the auger with two compartments or chambers—an upper and a lower—separated by a removable partition-shelf, which is secured to and turns with the hinged portion or door of the lower chamber, all of which will be hereinafter fully explained.

In the drawing, Figure 1 is a perspective view. Fig. 2 is a vertical section, and Fig. 3 a part of a well-auger constructed according to my invention.

A is the auger, which is attached to the lower end of an ordinary driving-shaft. The lower end of shaft is secured, by preference, in a socket, *a*, which is attached to the main body of the auger by the arms a^1, and has on its sides a loop or series of loops, a^2, for holding the upper or free ends of the reaming-knives, hereinafter described.

The main body of the auger is composed of the two parts B and C, which are riveted or otherwise properly secured together, and provide the upper and lower chambers B′ C′, which are separated by the partition-shelf D, which may be removed at pleasure for the purpose of discharging the earth from upper chamber B′. The upper chamber B′, inclosed by the section B, is a straight cylinder of uniform diameter throughout its entire length, so that when the partition-shelf D is withdrawn the earth will readily drop therefrom.

The lower section C is the bit or perforating portion of the auger. It is made slightly tapering, and has its point closed and so formed that it will readily penetrate the earth, and it is made in two parts, *b* and *d*. The part *b*, which is half of the section C, is rigidly secured to the section B, and is provided with the cutting-blade *b′*, extending from the point to section B. The part *d* is composed of the two portions d^1 d^2, which are hinged together, and to the part *b*, so that they may be thrown back and open the chamber C for the discharge of the earth therefrom. The portion d^1 laps up on the lower end of the cylinder B, to which it is secured by any suitable means. The portion d^2 is shortened at its upper end, so that it will turn inward below the partition shelf D, and its free edge extends slightly within the chamber C′ and under the cutting-edge *b′*, so that when the chamber is crowded full of earth by the action of the auger it will be forced outward against and stop the cutting of the earth by the blade *b′*, and thus indicate when the auger should be raised to the surface to be emptied. *e e* are a series of reaming-knives, made of spring-steel, or other elastic metal. They are hinged to the upper edge of the section B. Their upper ends are made narrow, and are bent over and thrust through loops a^2, which are set at an incline so as to hold the ends, and, at the same time, permit of the ready adjustment of the knives to any desired diameter. Their lower ends are widened, as shown, to facilitate the deposit of the earth into the chamber B′.

I do not confine myself to the use of any particular number of reaming-knives. One will perform the desired work, but, by preference, I use four, distributed at equal distances around the auger.

It will be readily seen that by drawing the ends out of the loops the reamers bend outward, so that the bore or well may be enlarged to any desired size beyond the diameter of the bore made by the auger.

The partition-shelf D may be employed as a separate piece, sliding into the auger through a suitable opening, and on suitable guides or bearings. I prefer to attach it to the portion d^1 of the section C in such position

that, when the said portion d^1 is closed, it will pass immediately below and close the lower end of the cylinder B. By this arrangement with the opening of the side d^1 d^2 to discharge the earth from chamber C′, the chamber B′ is also thrown open, so that the earth from both chambers is discharged simultaneously. The chamber B′ receives and holds the earth cut by the reamers *e e*, so that the action of the auger-blade *b′* is never interfered with by the earth which falls in at the top.

It will be seen that with an auger constructed as hereinbefore described double the quantity of earth can be cut at a single descent of the auger that can be cut by augers of ordinary construction in wells which are enlarged beyond the diameter of the main body.

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

1. The combination, with a well-auger, of the reaming-knife *e*, hinged to the upper edge of the main body of the auger, and having its opposite end secured adjustably to the shaft, substantially as set forth.

2. A well-auger composed of the upper and lower compartments B′ C′, separated by a removable partition-shelf, D, as shown, and for the purpose specified.

3. The combination, with the upper section B and portion d^1, hinged to the part *d* of the lower section C, of the partition-shelf D, substantially as described.

4. The combination, with a well-auger, A, divided into compartments B′ C′ by the partition-shelf D, supported by the portion d^1 of the lower section C, of a series of reaming-knives, *e e*, hinged to the upper edge of the cylinder or section B, and connected adjustably to the operating shaft or socket *a*, and the part d^2 hinged to the part d^1, substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

LOUIS DALLAIRE.

Witnesses:
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