E. WHITNEY.

Earth-Auger.

No. 160,632. Patented March 9, 1875.

Fig. 1.

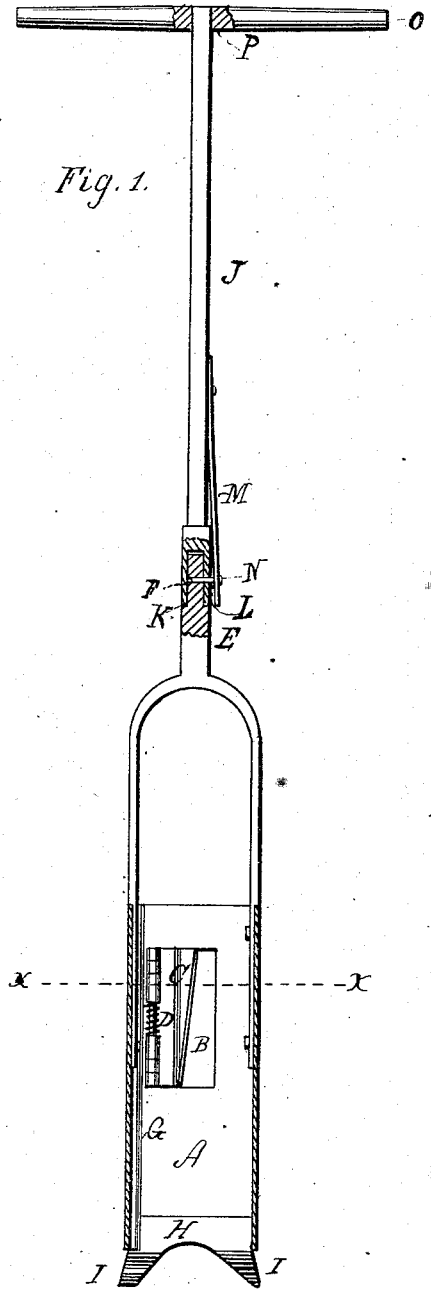


Fig. 2.

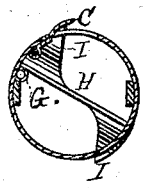
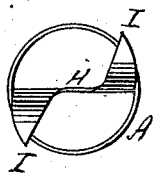


Fig. 3.



WITNESSES

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ELISHA WHITNEY, OF MARYSVILLE, CALIFORNIA.

IMPROVEMENT IN EARTH-AUGERS.

Specification forming part of Letters Patent No. **160,632**, dated March 9, 1875; application filed February 20, 1875.

To all whom it may concern:

Be it known that I, ELISHA WHITNEY, of Marysville, in the county of Yuba and State of California, have invented a new and useful Improvement in Earth-Augers; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a vertical sectional view of a device embodying my improvements. Fig. 2 is a transverse sectional view through the line *x x* in Fig. 1, showing that portion below the line *x x;* and Fig. 3 is a bottom view of Fig. 1.

This invention relates to an improvement in earth-augers for boring wells, &c.; and it consists in one part of an auger-bit constructed of a single flat piece of metal bifurcated, and having the bifurcations pointed and curved divergingly to form knives, secured within the interior lower end of a hollow metallic cylinder, and projecting below the same, for the purpose of penetrating and loosening the earth to be removed, and forcing the same within the hollow cylinder.

It further consists of a rimmer, composed of a quadrilateral section of a hollow cylinder, sharpened at one edge, and hinged at the other by a spring-hinge to the interior of the hollow metallic cylinder, its sharpened edge projecting through a rectangular opening in the hollow cylinder, the spring-hinge causing the rimmer to project through said rectangular opening while the auger is penetrating the earth, and permitting it to retract within the hollow cylinder when the auger is being withdrawn from the earth by inverse motion, the object being to enlarge the bore made by the point of the auger, to facilitate the withdrawal of the auger from the bore.

It further consists of a bit-stock having the socket for receiving the bit-shaft, combined with an external spring, provided with a key which traverses the socket through a hole in the same, and also traverses a hole in the inserted end of the bit-shaft, thereby retaining the bit-shaft within the socket.

In the accompanying drawing, the hollow metallic cylinder A has the rectangular opening B made in one side thereof near its top. The rimmer C consists of a quadrilateral section of a short hollow cylinder, wider at the top than at the bottom, sharpened at one edge, and hinged at the other by a spring-hinge, D, to the interior of the hollow cylinder A, and having its cutting-edge projecting through the rectangular opening B. A bit-shaft, E, provided with a hole, F, near its upper end, is bifurcated and secured to the top of the hollow cylinder A. An air-tube, G, traverses the interior of the hollow cylinder A from top to bottom. The auger-bit H is composed of a single flat piece of metal bifurcated, and having the bifurcations pointed and curved divergingly to form the knives I I, secured to the interior of the hollow cylinder A, near the bottom. The auger-bit H I I projects below the hollow cylinder A. The bit-stock J has the socket K provided with the hole L, which traverses it laterally. The lateral spring M, secured to the side of the bit stock J, is provided with a pin, N, which penetrates the hole L, and also the hole F in the bit-shaft E, when the latter is in the socket K, thereby retaining the bit-shaft in place. A cross head or lever, O, provided with a rectangular slot, P, slips upon the bit-stock J, and it is by said lever O that the earth-auger is manipulated.

The operation of the auger is obvious. The auger-bit H I I penetrates and loosens the earth, and forces it up into the hollow cylinder A. The rimmer C enlarges the bore made by the auger, and thus facilitates its withdrawal from the same. The spring-hinge D consists of an ordinary hinge, the pintle of which is provided with a spiral spring, a projecting end of which bears against the inside of the rimmer C, and forces it to project from the rectangular opening B, except when it is forced within the same by a reverse motion of the auger. The air-tube G admits air to the bottom of the auger, and thus facilitates its withdrawal from the bore. The lateral spring M needs simply to be drawn outwardly, to release the bit-shaft E from the bit-stock.

Having thus described my improvements, what I claim as new and useful, and desire to secure by Letters Patent, is—

1. The auger-bit composed of the single flat piece of metal H, bifurcated, and having the

bifurcations pointed and curved divergingly, to form the knives I I, in combination with the hollow cylinder A, as set forth.

2. The rimmer C, composed of a quadrilateral section of a hollow cylinder, sharpened at one edge, and hinged at the other by a spring-hinge, D, to the interior of the hollow cylinder A, and having its cutting-edge projecting from the rectangular opening B, substantially as and for the purposes hereinbefore set forth.

3. The bit-stock J, having its socket K provided with the hole L, in combination with the lateral spring M, provided with the pin N, substantially as set forth.

4. An earth-auger composed of the hollow cylinder A, having the rimmer C secured to the interior thereof by the spring-hinge D projecting from the rectangular opening B, the air-tube G, auger-bit H I I, and the bit-shaft E, constructed and operating as and for the purpose hereinbefore set forth.

In testimony that I claim the foregoing improvements, as above described, I have hereunto set my hand and seal.

ELISHA WHITNEY. [L. S.]

Witnesses:

WM. HAWLEY,
MCDONALD DIETDERIK,
B. W. HOWSER.