H. W. PULSE.

EARTH-AUGER.

No. 181,983. Patented Sept. 5, 1876.

Fig. 1

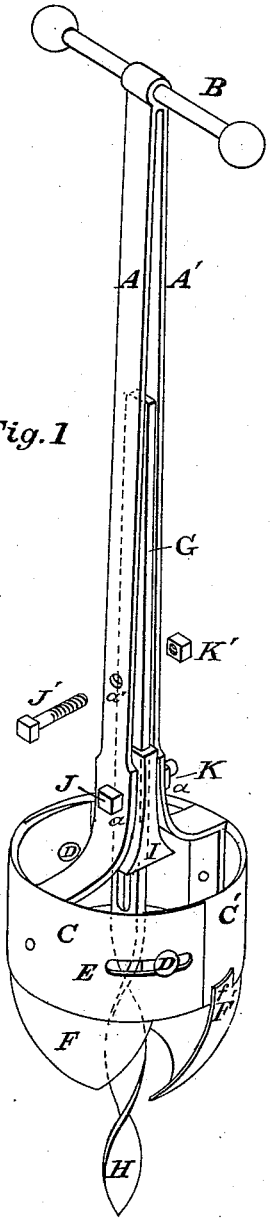
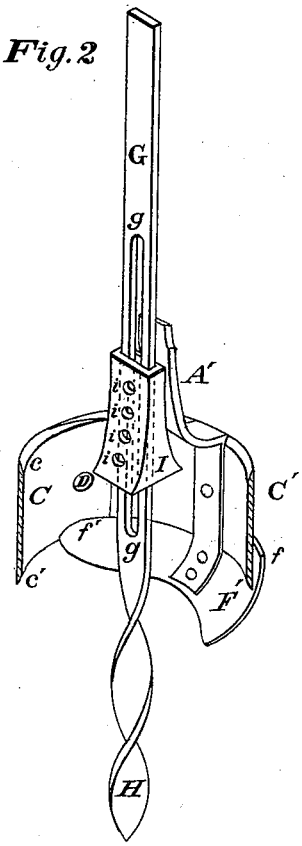


Fig. 2



Attest.
Chas. J. Cooch
Le Blond Burdett

H. W. Pulse
by Knight Bros.
Attys.

UNITED STATES PATENT OFFICE.

HIRAM W. PULSE, OF WALDRON, INDIANA.

IMPROVEMENT IN EARTH-AUGERS.

Specification forming part of Letters Patent No. **181,983**, dated September 5, 1876; application filed March 27, 1876.

To all whom it may concern:

Be it known that I, HIRAM W. PULSE, of Waldron, Shelby county, Indiana, have invented a new and useful Post-Hole Auger, of which the following is a specification:

My invention relates to improvements in those implements for boring holes in the ground which comprise a gimlet-point, a series of spiral blades, and a cylindrical retainer, all attached to a suitable stem or handle for operating the same; and my improvements consist in means for securing a greater or less protrusion of the gimlet-point, in means for securing a greater or less diameter of the retainer, and in a peculiar form of the retainer and of the cutting-blades in relation thereto.

In the accompanying drawing, Figure 1 represents, by perspective view, a post-hole auger embodying my improvements. Fig. 2 is a detached view of the gimlet-point and sliding expander, together with one-half of the retaining-cylinder, and one of the cutting or entering blades.

The stem or shaft consists of a pair of bars, A A′, united at top to a cross-bar or handle, B, and at bottom to two blades, C C′, which, collectively, constitute my cylindrical retainer. The blades C C′ overlap, as shown, and their overlapping surfaces are feathered, as indicated, a pin, D, on the inner lap, occupying a slot, E, in the outer lap, so that, while prevented from separation in the radial direction, the two members C C′ are yet capable of being forced apart in direction of their slots. The said receiver is chamfered on the inner portions of its upper and lower margins, as at *c* and *c′*, so as to easily cut its way both downward and upward in the ground. Attached either to the bars A A′, as shown, or to the members C C′, or both, are two spiral cutting or entering blades, F F′, whose upper edges extend partly outside of the receiver, as at *f*, and partly inside thereof, as at *f′*, and whose lower edges converge in the manner indicated. Interposed between the bars A A′ is the long, flat, and slotted shank G *g* of my gimlet H. Fitted to slide upon shank G, so as, if desired, to be forced up between the bars A A′, is my wedge-formed expander I, having the series of holes *i* for the reception of a bolt, J, which is passed through holes *a* in the bars A A′, and through the slot *g* of shank G. This bolt, being made to occupy any desired hole in the expander, operates to retain the blades C C′ to the proper diameter for the hole to be dug. Still another bolt, J′, traverses holes *a′*, and the said slot *g* serves to maintain the gimlet in the proper axial position. Nuts K K′ secure the bolts in their places, and bind the members A A′, G, and also the member I, (when the latter is used,) firmly together.

I have described the preferred form of my borer; but it is evident that the protrudable gimlet may be used in conjunction with a non-expansible retainer, or an expansible retainer with a fixed gimlet.

I claim as new and of my invention—

1. The combination of split stem A A′, duplex receiver C C′, and attached spiral blades F F′ with the slidable expander I *i*, upon the stem of the gimlet H.

2. The gimlet H, having the slotted shank G *g*, and capable of being fixed at any desired protrusion by means of the bolts J J′.

3. The cylindrical retainer C C′, having upper and lower cutting-edges *c c′*, for the purpose set forth.

4. The spiral entering-blades F F′, whose upper portions are partly within and partly without the retainer, and whose lower edges converge in the manner represented.

In testimony of which invention I hereunto set my hand.

HIRAM W. PULSE.

Witnesses:

GEO. H. KNIGHT,

JOHN C. HEALY.