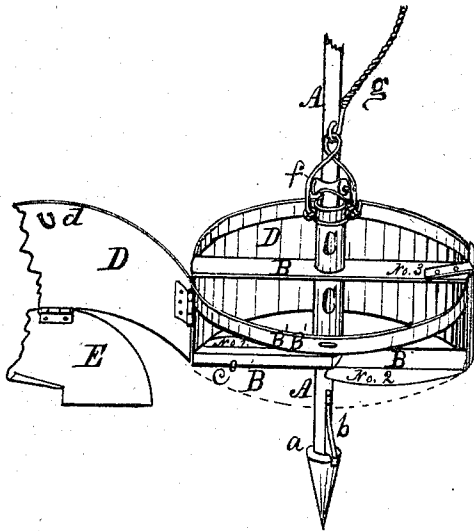


Earth-Augers.

No. 141,892.

Patented August 19, 1873.



Witnesses,
W. Tilley, Jr.
M. G. Mc Mahan

William Henry Salzer,
Inventor.
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UNITED STATES PATENT OFFICE.

WILLIAM H. SALYER, OF CORNING, IOWA, ASSIGNOR OF ONE-HALF HIS
RIGHT TO JAMES M. CAMPBELL.

IMPROVEMENT IN EARTH-AUGERS.

Specification forming part of Letters Patent No. 141,892, dated August 19, 1873; application filed
June 25, 1873.

To all whom it may concern:

Be it known that I, WILLIAM HENRY SALYER, of Corning, in the county of Adams and State of Iowa, have invented an Improved Well-Boring Apparatus, of which the following is a specification:

The object of my invention is to save time, labor, and money by furnishing improved means for boring wells. It consists in forming and combining an auger, a bucket, and a shaft in such a manner that a part of the auger will form part of the bucket, and that the bucket so formed may be readily attached and detached at the bottom of the shaft in the bottom of the well, and easily raised and lowered by sliding up and down on the shaft, all as hereinafter fully set forth.

My drawing is a perspective view, illustrating the construction and operation of my invention.

A A represent the lower section of the shaft. Any number of sections may be connected above by suitable joints or couplings. The point that enters the ground may be a pointed screw. *a* represents a shoulder or fixed collar that serves as a rest for the combined auger and bucket. *b* is a wedge-shaped spring, with heavy end down, that protrudes from a vertical recess in the side of the shaft A. B B is a skeleton frame, forming the basis of the combined auger and bucket. B' B' is a circular band attached to the top of the frame to brace and secure the hinged and movable bucket. C C is a tube that passes through the upper horizontal bar of the frame B B, and is permanently attached to the lower horizontal bar, which carries horizontal cutters.

Numbers 1 and 2 represent cutters or blades. They may vary in form. The skeleton-frame bar B, to which they are attached, is beveled off on the sides and in the directions in which the cutters project. No. 3 represents a cutter that stands in a vertical position, and outside of the circumference described by cutters Nos. 1 and 2. It serves to enlarge the bore, so that the bucket will not come in contact with the wall of the well in its upward and downward passages. A similar cutter may be attached to the opposite end of the same top bar of the

skeleton-frame. D D represents the half-sections of the bucket hinged to the skeleton frame B B in such a manner that they can be locked thereto and united therewith to form a bucket, or removed entirely, whenever desired.

I am aware that half-sections or half-cylinders have been attached to an auger having a fixed bottom; but I claim that my manner of forming a bucket with hinged sections carrying hinged bottom pieces is new and advantageous. E E represent bottom sections hinged to the sections D D in such a manner that when the sections D are freed from the band B' B' the hinged bottoms will drop and let the contents of the bucket escape. Corners are cut out of the bottom pieces E E and turned upward to allow the loose soil to pass the cutters Nos. 1 and 2, and to hold it off from the cutters after it has passed into the bucket. *c* represents projections or catches on the lower bar of the skeleton frame, which support the hinged sections forming the bottom of the bucket when properly adjusted to carry up loose soil. *d* represents a locking device, used to hold and lock the closed sections to the skeleton frame. Any suitable hook, clasp, or catch may be used for this purpose. *f* is a concave roller mounted in a loop that is connected by means of a swivel-joint with the top of the tube C. *g* is a rope or chain attached to the top of the loop. It passes upward, and is connected with a pulley, tackle, windlass, capstan, or any suitable lifting mechanism.

To operate my invention connect the shaft A with a suitable frame or gin, and gearing in such a manner that a rotary motion can be imparted to the shaft. Pass the shaft through the tube C and let it enter the ground. Let the combined tube auger and bucket drop down and rest on the shoulder *a*. Apply power and turn the shaft. When the spring *b* comes opposite a corresponding slot in the bore of the lower bar B it will enter the slot and lock the auger to the shaft. The auger can now be worked by means of the power applied at the top of the shaft. When the bucket is full it can be drawn up by means of the rope or chain *g*. The roller *f* will hold

the tube perpendicular and prevent it from binding and rubbing against the shaft, and will itself roll up on the shaft and aid in elevating the loaded bucket by diminishing friction. When the bucket is out of and above the well a cart or truck may be placed underneath and the fastenings *d* unloosened to let the sections open and their hinged bottoms drop down to empty the contents into the cart. When the cart is removed the bucket can be readjusted and again let down to the bottom of the well and filled.

In soil that will pack and stick together the hinged sections D D and E E may be laid aside; but in sandy, loose soil they will be indispensable.

My apparatus may vary in size to produce wells of various diameters.

I claim as my invention—

1. The shoulder *a* and spring *b* combined with the shaft A, substantially as described, and for the purposes specified.

2. The skeleton frame B B B' B', carrying cutters 1, 2, 3, the tube C, and hinged sections of a bucket, D D and E E, when combined and operated substantially as described, and for the purposes specified.

3. The roller *f*, when mounted in a loop and combined and operated with the rope or chain *g*, shaft A, and tube C, substantially as described, and for the purposes specified.

WILLIAM HENRY SALYER.

Witnesses:

JOHN A. CAMPBELL,
THOMAS MILL.