

W. SANDLIN.
Earth-Augers.

No. 152,522.

Patented June 30, 1874.

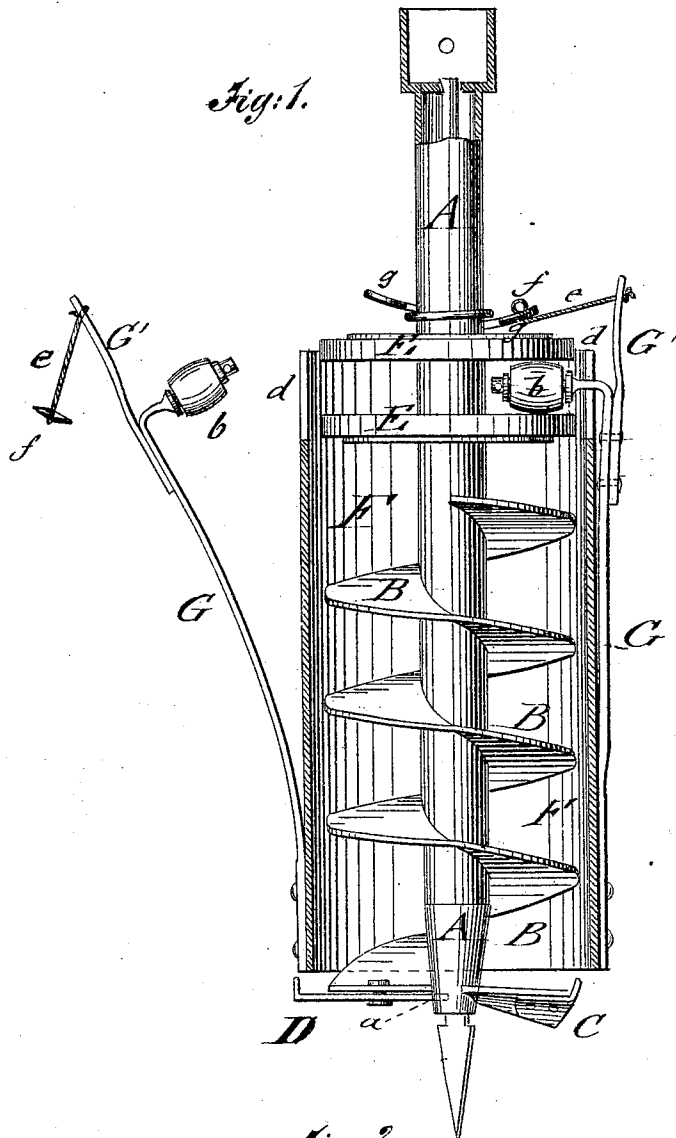
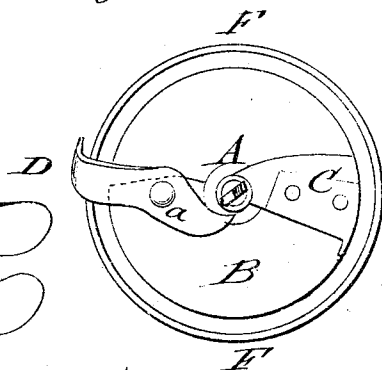


Fig: 2.



WITNESSES:

Anas. Nida.
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UNITED STATES PATENT OFFICE.

WILLIAM SANDLIN, OF MINDEN, LOUISIANA.

IMPROVEMENT IN EARTH-AUGERS.

Specification forming part of Letters Patent No. **152,522**, dated June 30, 1874; application filed May 16, 1874.

To all whom it may concern:

Be it known that I, WILLIAM SANDLIN, of Minden, in the parish of Webster and State of Louisiana, have invented a new and Improved Well-Auger, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical central section of my improved well-auger; and Fig. 2, a bottom view of the same, showing the pivoted auger-bit.

Similar letters of reference indicate corresponding parts.

The object of my invention is to furnish an improved auger for boring wells through quicksand, so as to facilitate and expedite the construction of the same until water in sufficient quantity is obtained. My invention consists of a spirally-flanged auger of the usual construction, provided with a pivoted and exchangeable bit for producing wells of different diameters, and connected with a cylindrical casing or sand-box, having band-springs applied at the outer side for retaining the box stationary in the well. Small rollers at the upper curved ends of the band-springs are carried through slots of the box between two disk-shaped collars of the auger-shaft, on which the collars turn, while also raising and lowering the box with the auger. The ends of the band-springs are attached by ropes or chains to the auger-shaft to prevent the catching on projecting parts of the well during the raising of the auger and sand-box.

In the drawing, A represents the auger-shaft, provided with a spirally-flanged borer, B, of some approved construction. A stationary cutter or bit, C, is attached to the auger-shaft below the borer, and a pivoted movable bit, D, diametrically opposite thereto to the lowermost flange of the borer, as shown in Fig. 2. The pivoted bit D may be attached by screw-pivot *a* in such a manner that different sizes of the same may be used for the purpose of obtaining wells of smaller or larger diameter. The inner end of bit D is curved in the shape of a hook, so as to fit around the lower end of shaft A. When the auger is lowered, bit D is folded within the auger, being forced in outward direction by the turning of the shaft for cutting into the ground.

For raising the auger, the shaft is turned in opposite direction, which carries the bit back under the spiral flange of the borer. Two disk-shaped collars, E, are firmly attached to shaft A above the auger B, and serve for guiding the borer in the surrounding casing or box F, of slightly larger diameter than the collars and borer. Box F is made of suitable metal, and extends from the upper collar E down to the cutter-bits C D. To the outer side and lower part of box F are applied strong band-springs G, which extend in upward direction, and are curved toward the shaft at the height of the collars, carrying between suitable washers, and fastening the friction-rollers *b*, of a diameter nearly equal to the distance of the collars E. Recesses or slots *d* at the upper end of box F admit the rollers *b* between the collars, when the springs G are pressed against the box F by the walls of the well. The pressure of the springs G against the well retains the box in position thereon without turning, while the auger cuts into the sand and carries the same up till the space up to the lower collar is entirely filled thereby. The outer box F performs thereby the functions of a sand-box, and follows, by means of the action of the collars on the rollers of the springs, the downward motion of the auger-shaft cutting through the loose sand until the solid stratum below is reached. In similar manner the auger-shaft raises the box by means of the rollers, when the auger is taken out of the well. When the auger and box are raised above the ground the rollers are carried by the springs to the outside of the box, so that the same may be detached, and the sand thereby instantly dropped. To secure the retention of the rollers in the collars E during boring, and also prevent the ends of the springs from coming in contact with the walls of the well, the springs are provided with extension-rods G', which are connected by ropes or chains *e*, with hooks or latch-pieces *f*, to rings *g* of the auger-shaft above the collars. The hoisting out of the loaded box or cylinder from the well is thereby not obstructed, and also the position of the box retained on the auger, after leaving the well, until ready for being discharged by detaching the box. The auger

and box work inside of the curbing, which is let into the well for forming the wall of the same through the stratum of sand.

The box attachment is very effective, and accelerates the boring of wells through sand in a considerable degree.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. As an improvement in well-borers, the auger-shaft A and borer B, in combination with a cutter-bit, D, of varying size, pivoted to the lowermost flange of the borer, and retained in cutting position by its hook-shaped end, substantially as set forth.

2. The improved well-auger for boring

through quicksand, composed of auger A B, with disk-shaped collars E, and a surrounding cylinder or box, F, with band-springs G, carrying friction-rollers *b*, which enter between the collars, and are detachably applied therein for being retained and separated, substantially for the purpose described.

3. The surrounding cylinder or sand-box G, having recesses or slots *d* at its upper end for admitting the rollers to the collars, as described.

WILLIAM SANDLIN.

Witnesses:

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J. R. ARLEDGE.