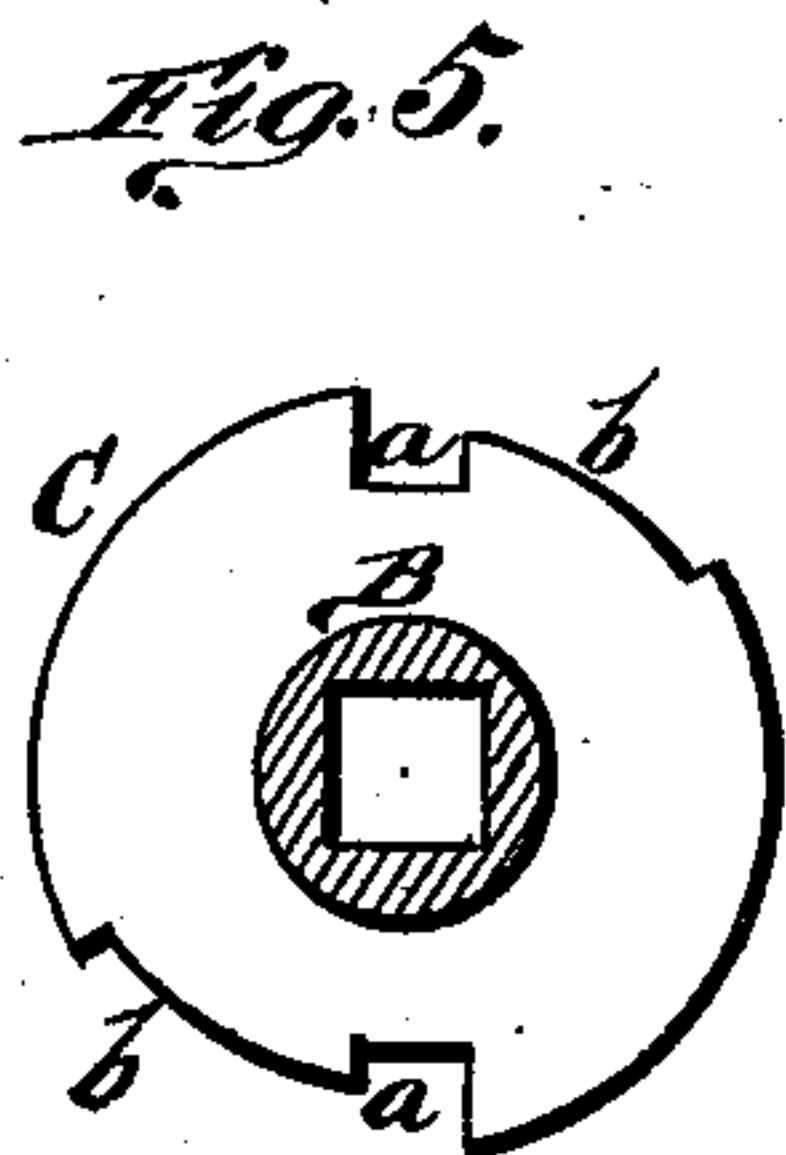
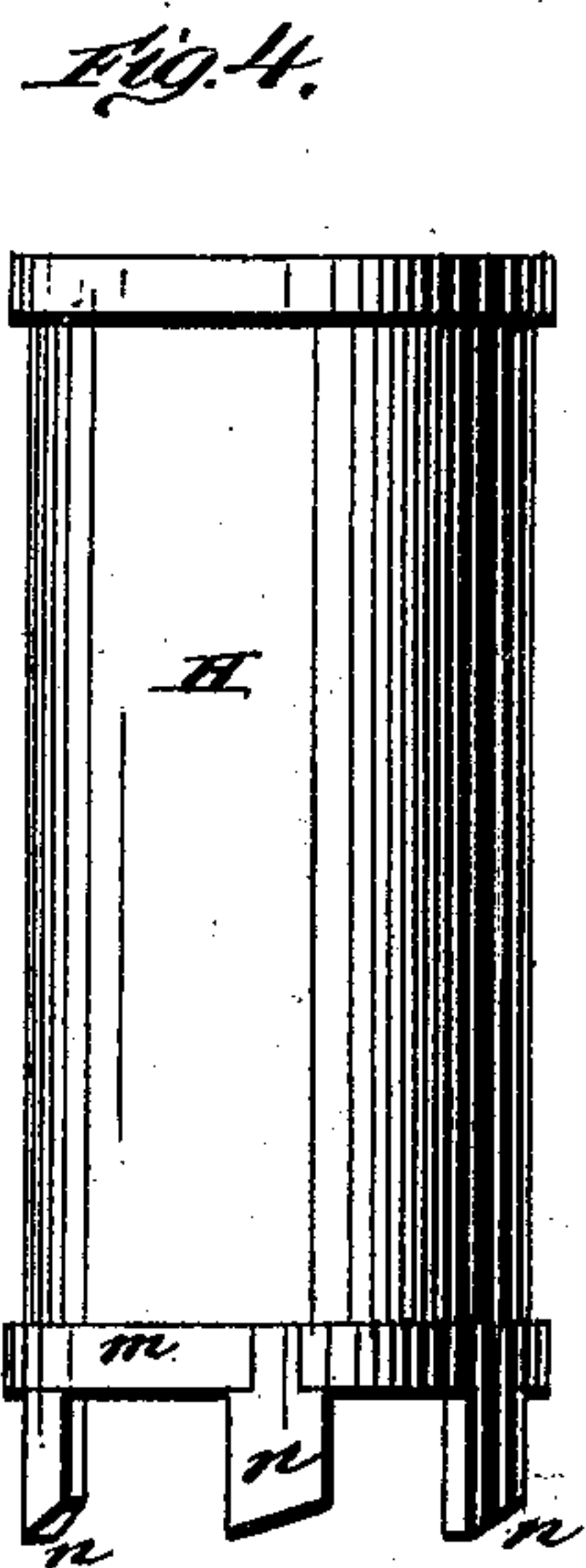
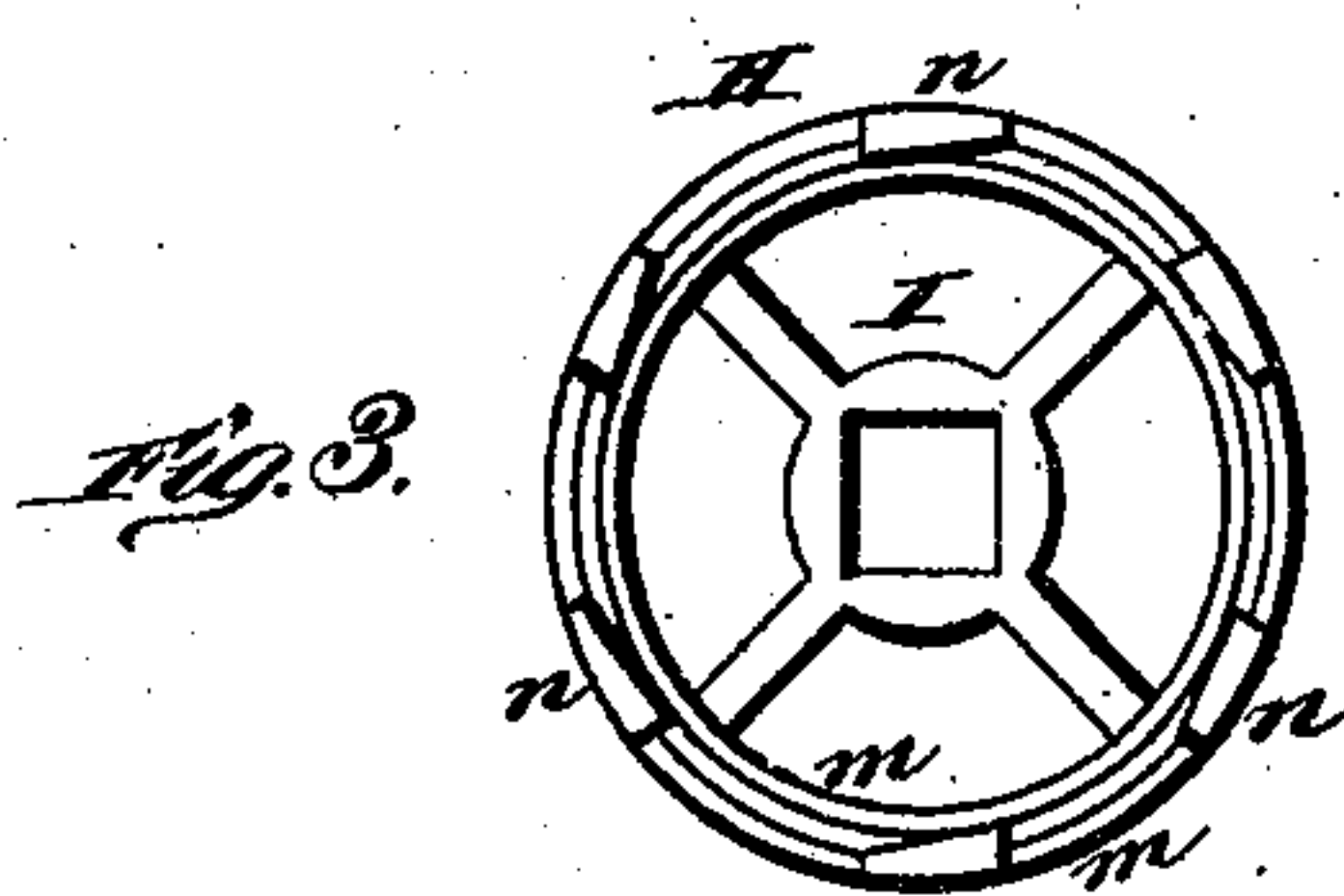
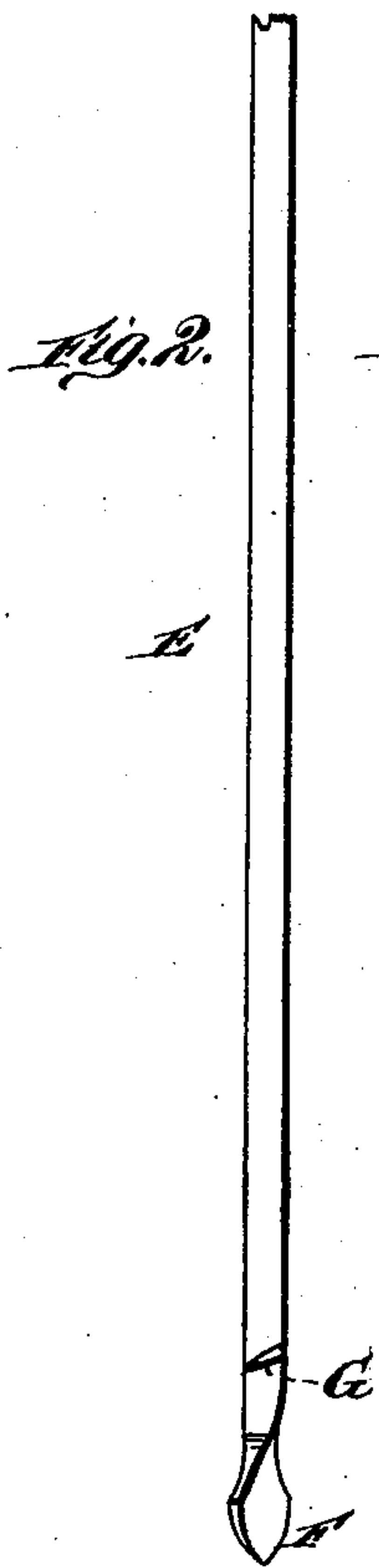
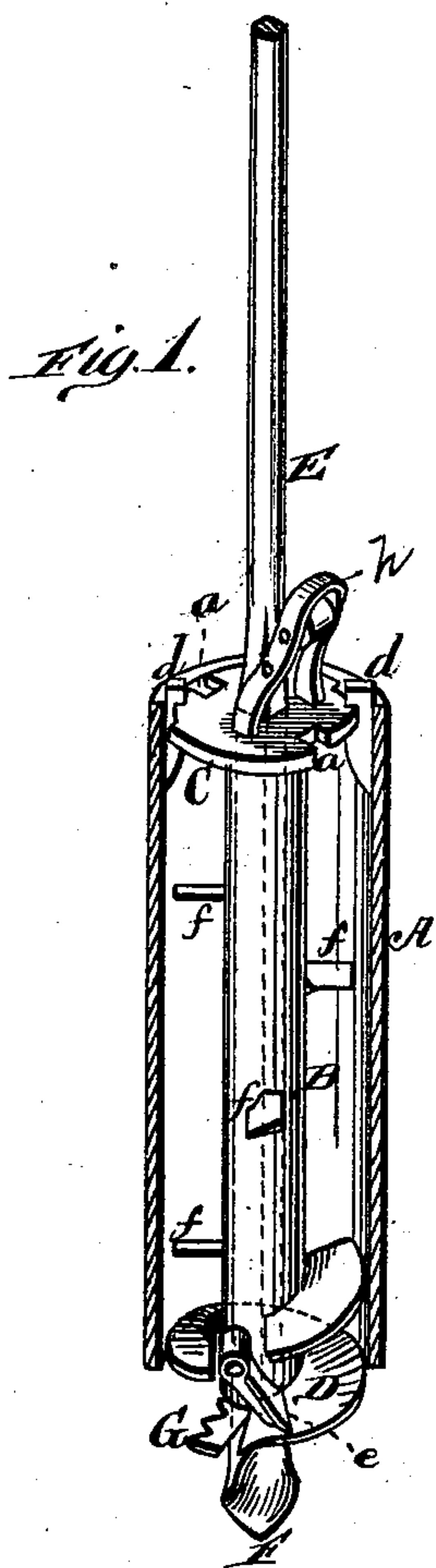


J. T. GLASS.
Well-Auger.

No. 204,025.

Patented May 21, 1878.



WITNESSES.
Robert Smith.
James J. Sherry.

INVENTOR:
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ATTORNEYS.

UNITED STATES PATENT OFFICE.

JAMES T. GLASS, OF AUSTIN, TEXAS.

IMPROVEMENT IN WELL-AUGERS.

Specification forming part of Letters Patent No. 204,025, dated May 21, 1878; application filed March 2, 1878.

To all whom it may concern:

Be it known that I, JAMES T. GLASS, of Austin, in the county of Travis and State of Texas, have invented a new and valuable Improvement in Well-Augers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of perspective view of my well-auger, partly in section. Fig. 2 is a view of the shaft. Fig. 3 is a detail view of the bottom edge of the cylinder. Fig. 4 is a view of the cylinder, and Fig. 5 a detail view of the disk for securing the cylinder to the interior sleeve.

The nature of my invention consists in the construction and arrangement of a well-auger, as will be hereinafter more fully set forth.

The annexed drawing, to which reference is made, fully illustrates my invention.

A represents the exterior cylinder or casing of the well-auger, through the center of which passes the hollow sleeve B. This sleeve is at its upper end provided with a disk, C, which fits within the upper end of the casing. This disk has two slots, *a a*, in its edges diametrically opposite each other, and a portion of the edge of the disk is cut away from each slot, as shown at *b b*. This is for fastening the sleeve and disk in the casing by means of two notched ribs, *d d*, secured opposite each other on the inside of the casing at the upper end. The slots *a a* pass over the upper ends of said ribs until the notches in the ribs are reached, when the disk is turned part of a revolution to allow the cut-away portions *b b* to enter said notches, when the disk becomes locked in the casing.

On the lower end of the sleeve B is secured a worm, D, fitting within the lower end of the casing. The worm is provided with a hinged drop-valve, *e*, to allow sand, earth, &c., to pass upward into the casing, but prevent the same from escaping downward again.

Between the worm and the disk the sleeve B is provided with a number of radial blades, *f f*, set inclined and in screw form to cause the

sand, earth, &c., to work upward in the casing as it is drawn in by the worm.

E represents the auger-shaft, formed or provided at its lower end with a twisted bit, F, and above the same is an auxiliary steel knife, G, with saw-teeth, as shown in Fig. 1, which cuts the earth in advance of the worm. The lower portion of the shaft E is made square and slightly tapering, so that the sleeve B will fit thereon and rotate with it.

When the cylinder A becomes full of sand or earth it is raised up to and above the top of the well, the valve *e* preventing the earth from coming out. The cylinder is raised by a rope or chain from a windlass above, said rope or chain being connected to a bail, *h*, secured to the disk C, as shown.

The auger-shaft E remains in the well while the cylinder is being raised and emptied. As soon as it reaches the surface the sleeve B, with the disk and worm, is released from the cylinder and wholly or partially drawn out to allow the sand or earth to pass out of the cylinder, when the sleeve is fastened in place again and the cylinder lowered again on the shaft E. This shaft is, of course, to be made in sections, and the sections coupled together by any of the known and usual ways.

When striking rock the cylinder A is removed, and a drum-cutter or rock-auger placed in lieu thereof on the shaft. This rock-auger consists of a hollow drum or cylinder, H, provided at its upper end with an interior spider, I, having a central square hole, to fit over the square portion of the shaft E. The lower end of the drum H is provided with bands *m m*, one on the outside and one on the inside. From this lower end of the drum projects a series of steel cutters, *n n*, which are dovetailed in alternately on the outside and inside of the drum.

I am fully aware that well-augers have been made with a screw or worm at the lower end, and a retaining-valve arranged in the worm; and hence I do not claim such broadly as my invention. Neither do I claim broadly the idea of conveying the earth or sand upward by means of a worm into a casing or cylinder, to be afterward raised and emptied, as I am aware that such is not new.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a well-auger, the combination, with the cylinder A, of the interior central shaft E, having attached thereto the sleeve B, worm D, and cutters *f*, with the valve *e* upon the lower end of said sleeve and a fastening device at the top thereof, forming a union between the cylinder and shaft, as described.

2. The combination of the cylinder A, sleeve B, worm D, with valve *e*, cutters or wings *f*,

disk C, with slots *a a* and cut-out portions *b*, and the notched ribs *d d*, secured to the inside of the cylinder, substantially as and for the purposes set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JAMES T. GLASS.

Witnesses:

J. A. WILLIAMSON,
N. TONGUET.