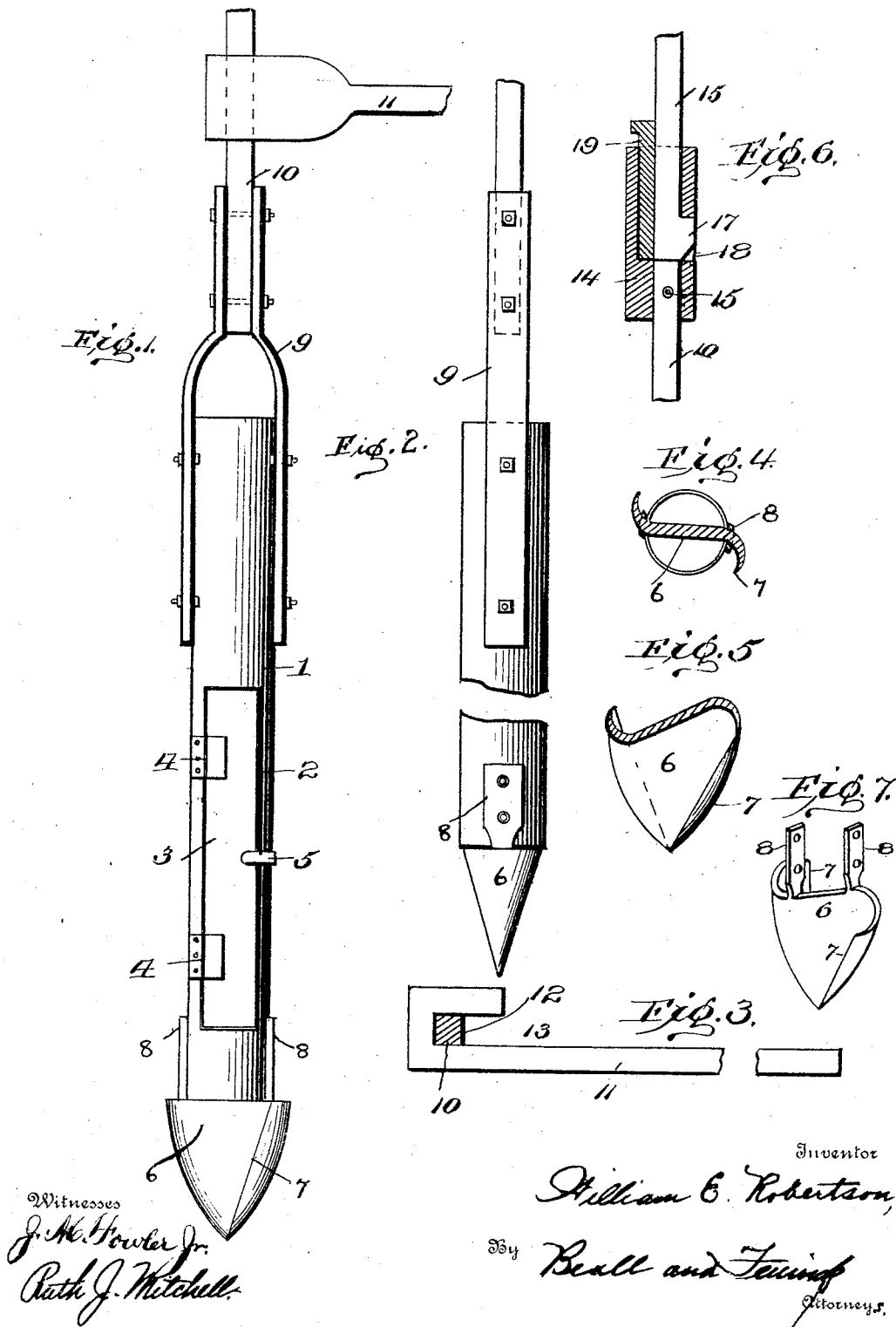


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PATENTED JAN. 10, 1905.

W. E. ROBERTSON.
EARTH AUGER.

APPLICATION FILED JULY 18, 1904.



UNITED STATES PATENT OFFICE.

WILLIAM E. ROBERTSON, OF TUSCALOOSA, ALABAMA.

EARTH-AUGER.

SPECIFICATION forming part of Letters Patent No. 779,968, dated January 10, 1905.

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To all whom it may concern:

Be it known that I, WILLIAM E. ROBERTSON, a citizen of the United States, residing at Tuscaloosa, in the county of Tuscaloosa and State of Alabama, have invented new and useful Improvements in Earth-Augers, of which the following is a specification.

The present invention relates to improvements in boring apparatus, and particularly to that class of boring mechanism which is adapted for forming holes in the ground of various kinds.

The invention consists in an earth auger or drill comprising a hollow barrel open at its ends and having a lateral aperture formed therein, means for closing the aperture, and a penetrating-point carried by the end of the barrel for forcing an entrance into the ground and delivering the earth into the end of the barrel.

The invention also consists in an earth-auger comprising an elongated hollow barrel open at the ends, a penetrating-point carried by one end thereof, having a body portion extending across the end of the barrel, but not closing it, and cutting edges formed upon the opposite edges of the said body portion for forcing the earth upwardly into the hollow barrel.

The invention further consists in certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter more fully described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of an auger made in accordance with the present invention. Fig. 2 is a similar view taken of the auger from a position at right angles to the point of view in Fig. 1. Fig. 3 is a detail view showing an operating-lever for turning the auger, the shaft of the auger being shown in section. Fig. 4 is a transverse sectional view through the point of the auger looking toward the barrel thereof. Fig. 5 is a detail perspective view of the body portion of the point, the attaching part thereof being removed or broken away. Fig. 6 is a detail view, partially in detail and partially in section, showing the manner of connecting sections of the drill or auger rod; and Fig. 7 is a detail perspective view of the point.

The present invention has in view the production of an earth-auger which is capable of boring holes in the ground either for fence-posts, telegraph or telephone posts, or for shallow or deep wells or for any other kinds of work where it is necessary to penetrate the earth to greater or less depth.

I have shown in the drawings a practical embodiment of the invention, in which—

1 indicates a hollow barrel or casing which is open at its ends and which is provided with a lateral doorway or aperture 2. The said aperture is adapted to be normally closed by a door 3, which, as illustrated in Fig. 1, is preferably held movably in place by a pair of hinges 4. The door is secured in its closed position by any suitable latch or holding device, as 5.

The lower end of the barrel 1 carries a digging or penetrating point 6. The point 6 forms an important feature of the invention, being formed of a body portion having cutting edges 7 and an attaching portion comprising upwardly-extending straps or arms 8. The arms 8 are riveted or otherwise secured to the casing 1, as clearly shown in Figs. 1, 2, and 4. The point 6 is preferably made of a single piece of material, and the body portion thereof extends diametrically across the lower end of the shell or casing 1 and being comparatively thin does not materially obstruct the entrance to the said casing. The body portion of the point projects beyond the said shell at each edge, and the said edges are curved back in opposite directions with respect to each other, so as to give the point, except at its penetrating end, an approximately S shape in cross-section. The point also curves gradually toward the penetrating end, as illustrated in the drawings, and I term the same a "periwinkle," because of its peculiar shape.

The upper end of the hollow casing or drill 1 is provided with straps or bars 9, which are bolted or otherwise rigidly secured to the drill and project upwardly therefrom a suitable distance to engage the drill-rod or shaft of the auger. These bars or straps are rigidly secured to the lower end of the shaft or drill-rod 10, so that the said drill is supported a short distance below the lower end of the

shaft. The shaft 10 may be cylindrical, rectangular, or any other desired shape in cross-section; but I have shown the same as square in the accompanying drawings. This facilitates the rotation of the said shaft or rod, which is engaged by a lever 11, formed with a recess or rod-engaging socket 12. The socket 12 is preferably formed by turning or folding the end of the lever back upon itself a short distance, as clearly illustrated in Fig. 3. The socket thus formed fits snugly upon the shaft or drill-rod 10, one side of the said socket only being open, as at 13. By having the socket thus open the lever 12 can be quickly disengaged from the rod and placed thereon, so that the lever can be moved continuously for rotating the rod or can be moved part way around and then disengaged from the shaft 10 and again brought into engagement therewith for continuing the rotation of the shaft. The engagement of the lever 12 with the drill-rod or shaft 10 also makes it possible for the said rod or shaft to descend with respect to the lever in the operation of the auger without interfering with the grip of the lever upon said rod.

The rod 10 may be lengthened in boring deep into the earth by adding other rod-sections to the upper end thereof. To facilitate such lengthening of the rod, I employ a suitable coupling means, such as that illustrated in Fig. 6. The coupling means usually consists of splicing-casing 14, which is formed with an interior passage for receiving the adjacent ends of the rod-sections. The splicing-casing 14 is preferably secured to the upper end of the lower rod-section by passing a pin or bolt through the parts, as shown in Fig. 6, while the lower end of the upper rod-section 16 is removably held in position in the said splicing-casing. To facilitate the coupling of the sections, the added section is provided with a laterally-projecting lug 17, which fits in a lateral aperture 18, formed in the said walls of the splicing-casing. The passage-way extending through the splicing-casing 14 is made of greater width than the added bar at the upper end of the casing, so that the thickened end of the said bar produced by the lateral projection or lug 17 can be inserted in the said casing. In assembling the parts of the rod 16 are placed in the upper end of the splicing-casing, and the lug or projection 17 is inserted in the lateral aperture 18. A locking wedge or key 19 is then inserted between the end of the rod-section 16 and the wall of the splice-casing, as clearly show in Fig. 6. The end of the added rod-section is thus securely held in position and prevented from withdrawal from the said splice-casing until the key 19 is removed.

In the operation of the auger the rotation thereof causes the penetrating-point 6 to cut its way into the ground, and the excavated

material is forced upwardly through the lower end of the drill-casing into the interior thereof. When the drill or casing becomes filled with earth, the auger is removed from the bore, and the door 3 may then be open for removing the contents of the drill or casing. When the auger has been cleared of the excavated material, it may then be placed in the bore of the hole or well, as the case may be, and the boring operation continued until the proper depth is attained. In the event of the rod-section not being sufficiently long added rod-sections can be secured to the upper end thereby by means of the coupling device. (Shown in Fig. 6.)

The construction of the auger is simple, and the point, which is made of a single piece of material, is not likely to get out of order. The point while because of its shape being capable of excavating the earth easily is yet not of such a shape as to interfere with the forcing of the earth into the end of the casing or drill 1. The surface of the digging-point may be made smooth, if desired, or may be corrugated or otherwise formed, as may be found most desirable.

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

1. An earth-auger comprising a hollow barrel open at its ends, a point entirely outside, and carried by the lower end of the barrel and formed with a flat body portion having one edge extending across the open end of the barrel-attaching projections for securing the point to the barrel, and curved cutting edges formed upon the opposite edges of the body portion for delivering excavated materials into the interior of the barrel.

2. An earth-auger comprising a hollow closure or barrel open at the ends and a digging-point entirely outside of and immovably secured upon one end of the barrel.

3. An earth-auger comprising a hollow closure or barrel open at the ends, and a digging-point entirely outside of the barrel and immovably secured to one end thereof the point extending transversely of said end and having integral oppositely-curved portions provided with cutting edges.

4. An earth-auger comprising a hollow closure or barrel open at its ends and having an opening in one side, a closure for said opening, a digging-point entirely outside and extending across one end of the barrel and immovably secured thereto, said point having oppositely-curved integral portions provided with cutting edges.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM E. ROBERTSON.

Witnesses:

E. P. PETERSON,
R. T. NABORS.