

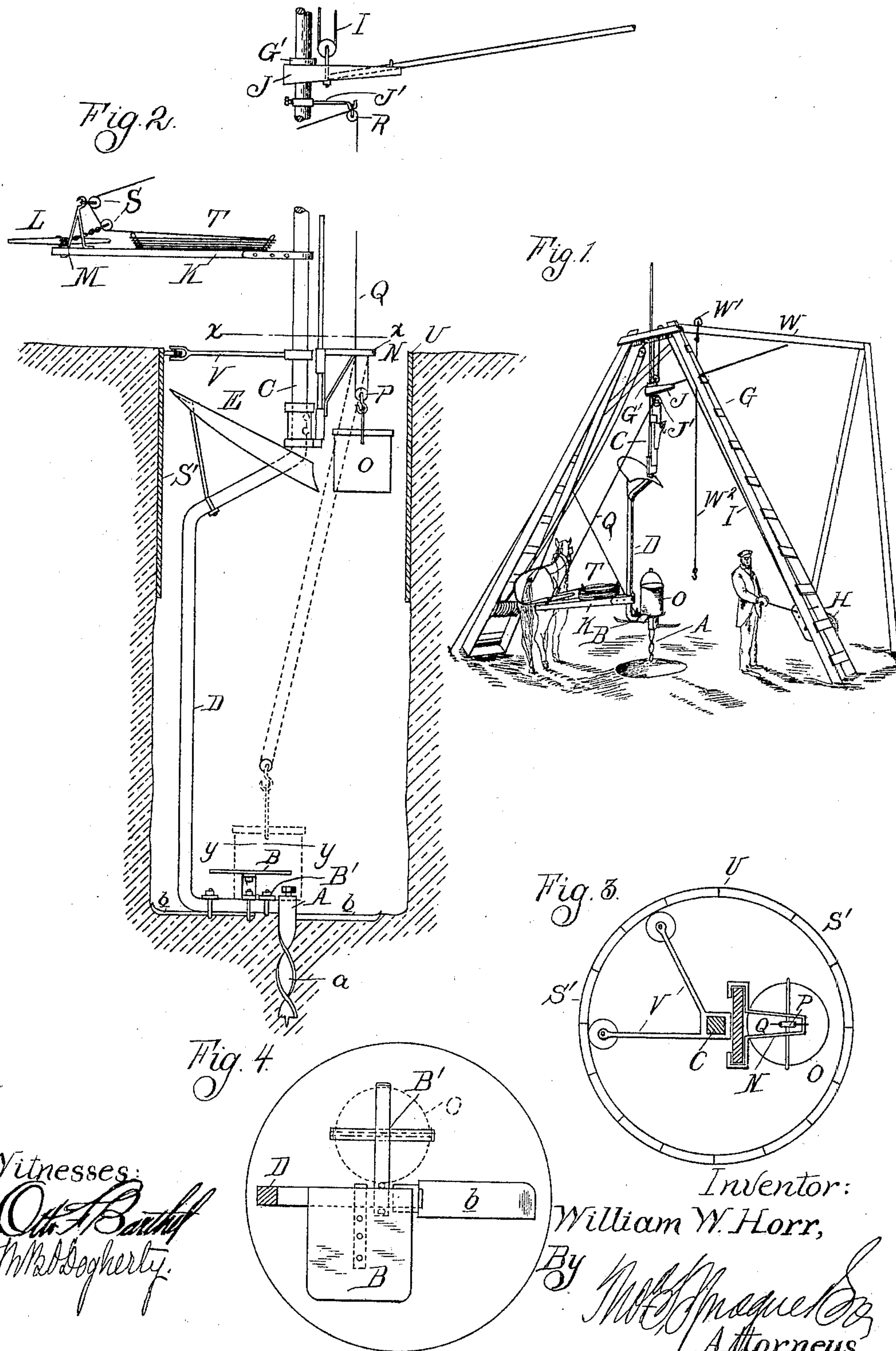
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W. W. HORR.
WELL BORING DEVICE.

(Application filed Jan. 20, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

WILLIAM WALLACE HERR, OF ST. THOMAS, CANADA.

WELL-BORING DEVICE.

SPECIFICATION forming part of Letters Patent No. 622,473, dated April 4, 1899.

Application filed January 20, 1898. Serial No. 667,255. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM WALLACE HERR, a citizen of the United States, residing at St. Thomas, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Well-Boring Devices, of which the following is a specification, reference being had therein to the accompanying drawings.

It is the object of my invention to obtain a well-boring device with which the work may be expedited by an arrangement which permits of a workman descending with the boring-tool and remaining in the well during the operation, where he may shovel the loosened earth into the hoisting-buckets, remove obstructing stones, &c., and otherwise facilitate the work.

The invention consists in the peculiar construction of an auger or boring-tool having a platform above the cutters on which the workman may stand during the operation of the tool; further, in the arrangement of a shield for said platform; further, in the construction of the shank for said auger, which is offset to provide space for the workman, and, further, in the peculiar construction, arrangement, and combination of parts, as more fully hereinafter described and claimed.

In the said drawings, Figure 1 is a perspective view of my device. Fig. 2 is an elevation of the device in a well. Fig. 3 is a cross-section on line *x x*, Fig. 2; and Fig. 4 is a cross-section on line *y y*.

A is an auger or boring-tool comprising the worm *a* and the laterally-extending cutters *b*. Above these cutters is arranged a platform B, on which the workman stands, and to provide additional room the shank C of the auger is offset, as shown at D.

E is a shield secured to the shank, preferably just above the offset portion.

G is a derrick having the windlass H. I is a rope or cable wound on said windlass and attached to an arm J, sleeved upon the shank of the auger beneath a bearing-collar G'.

J' is an arm below the arm J, fixedly secured to the shank.

K is a crank-arm for rotating the auger, which has a socket at its inner end slidingly secured on the shank of the auger, the latter being preferably square.

L is a draft connection detachably secured to the outer end of the crank-arm, preferably by a hook M.

N is an arm or head slidingly secured to the shank of the auger above the offset portion thereof.

O is a bucket having on its handle a sheave or pulley P, hung on a loop in the rope or cable Q, one end of which is attached to the arm N, and the other end, after passing over sheaves or pulleys R and S on the arm J' and the draft connection L, respectively, is attached to the crank-arm K.

T is a slack-holder on the arm K, on which the slack of the cable Q is wound.

In practice the operation of the device is as follows: Motion being imparted to the crank K by a horse or other suitable power, the auger will rotate, the worm *a* entering the ground and drawing down the cutting-blades *b*, which scoop out the soil, the machine being lowered by the windlass and rope as the boring progresses. A workman having taken his position on the platform B, the earth loosened by the cutters may be shoveled by him and thrown out of the well. As soon as the platform has sunk too far for the workman to throw the earth directly out of the well he may use the bucket O, normally resting on the shelf or bracket B', secured to the shank, which bucket when filled is drawn up by unhooking the draft connection from the crank-arm K and driving the horse forward, thus drawing on the cable Q and lifting the bucket. When sufficient depth has been reached for the offset portion to be wholly in the well, the bucket in being raised will first be drawn up to the arm or head N and then will slide up with said arm at double speed, for the reason that the two lengths of rope between the sheave and the arm end are taken up and the arm, together with the bucket, is raised directly by the single rope, the arm holding it from striking the side of the well. This hoisting apparatus not only serves the purpose of removing the dirt, but the rapid movement of the bucket in and out of the well causes an agitation of the air within the well which keeps a constant supply of fresh air for the workman. To facilitate the disposal of the dirt, I preferably arrange an inclined tramway W, extending from the top of the derrick to a suitable dump-

ing-point, with a carriage W' thereon and a hooked arm or cable W² depending therefrom and extending down to a point where the bucket may be hooked thereon when raised
 5 by the hoist. This serves to carry away the buckets to the dumping place, and while the bucket is being emptied another may be filled in the well.

I preferably place a curbing U around the
 10 upper part of the well, which is composed of a series of staves S', separately placed in position.

V is a steady-rest or roller-bearing slidingly secured upon the shank and bearing against
 15 the curbing to lessen the draft strain on the shank.

The shield E forms a protection for the workman, which prevents the falling upon him of earth or brick in the well, as it will be understood that he is enabled to do the bricking, as well as the excavating, from his position on
 20 the platform. Thus the work may be quickly performed and with perfect safety to the workman.

When the well is to be made very deep, the shank C may be made in sections, and additional sections may be joined on when necessary, so that any desired depth may be obtained.

30 What I claim as my invention is—

1. A well-boring apparatus, comprising a cutter, a platform above the cutter on which a workman can stand, an operating-rod for the
 35 rod and cutter located laterally to one side of said platform whereby an unobstructed space is left for a workman on said platform.

2. A well-boring apparatus comprising a bit, an operating-rod above substantially in
 40 line with said bit, a platform on which a workman can stand between the operating-rod and the bit, a portion connecting the bit and rod and located out of alinement with the rod and bit whereby an unobstructed space is left for
 45 an operator on said platform.

3. A well-boring auger comprising a bit, an operating-shank therefor having an offset portion, a platform on which a workman can stand secured to the shank above the bit, and
 50 a shield secured to the shank above the platform, for the purpose set forth.

4. A well-boring apparatus comprising a screw or worm section, a laterally-extending
 55 cutter at the upper end thereof, a platform above said cutter on which a workman can stand, an operating-rod, and an offset shank

connecting said operating-rod and worm-section.

5. A well-boring apparatus comprising a screw or worm section, a laterally-extending
 6 cutter, a platform above said cutter on which a workman can stand, an operating-rod, an offset shank connecting said operating-rod and worm-section, and a shield secured to said shank above said platform.

6. The combination with a well-boring
 7 auger, of a hoist comprising an arm or head slidingly secured on the shank of the auger, a hoisting rope or cable extending from above said arm connected at one end to said arm and
 7 hanging in a loop whereby the receptacle is lifted to the arm and the arm and receptacle are then lifted together therefrom, and a receptacle suspended from said loop, substantially as and for the purpose set forth.

7. The combination with a well-boring
 8 auger having a shank offset to admit of a workman standing in the well above the cutters, of an arm or head slidingly secured to said shank above the offset portion, a hoisting
 8 rope or cable extending from above and secured at one end to said arm or head and hanging therefrom in the form of a loop and a bucket suspended from the depending loop in
 8 said rope or cable.

8. The combination with a well-boring
 9 auger having an arm or sweep vertically slidingly secured to the shank thereof, of a draft connection for a draft-animal detachably secured to said arm or sweep, a hoisting rope
 9 or cable secured to said draft connection and adapted therewith to be detachably engaged with the sweep and extending down in the well and a bucket attached to said rope or
 9 cable.

9. The combination with a well-boring
 10 auger having an arm vertically slidingly secured to the shank thereof, of draft connections detachably secured to said arm, a hoisting rope or cable extending down into the
 10 well, having a bucket at its lower end and detachably secured at its upper end to said crank-arm, a sheave or pulley on said draft connection around which said rope or cable
 10 passes and a slack-holder on said arm on
 10 which the slack of the rope is wound.

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

WILLIAM WALLACE HERR.

Witnesses:

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 ANNIE LOCKHEAD.