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W. J. PATZKE

DIGGING BUCKET

Filed April 9, 1921

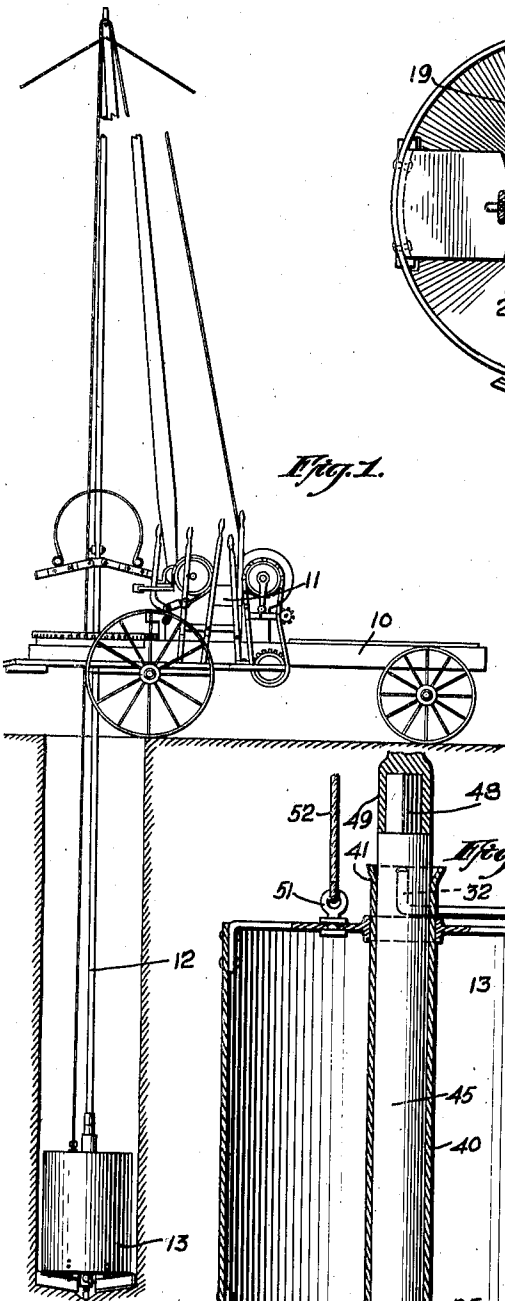


Fig. 1.

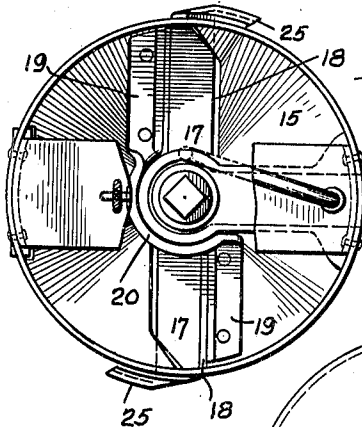


Fig. 2.

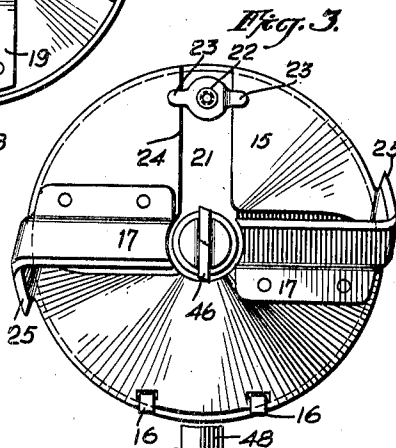


Fig. 3.

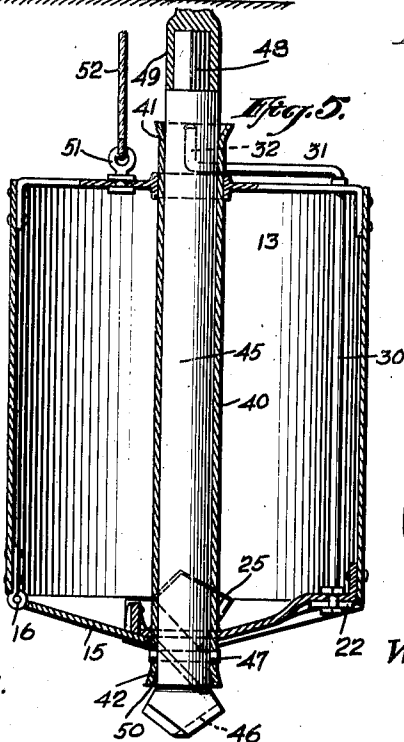


Fig. 4.

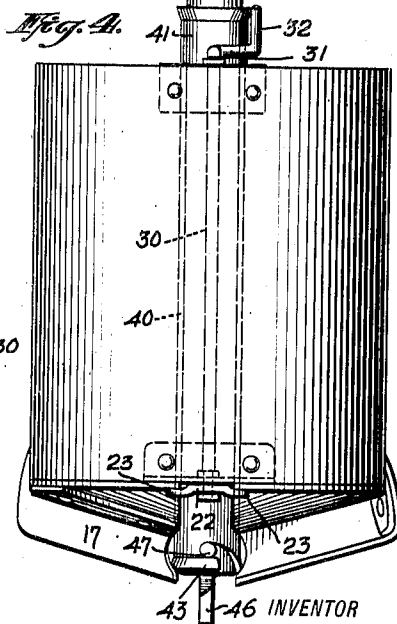


Fig. 5.

WITNESSES  
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# UNITED STATES PATENT OFFICE.

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## DIGGING BUCKET.

Application filed April 9, 1921. Serial No. 459,850.

*To all whom it may concern:*

Be it known that I, WILLIAM J. PATZKE, a citizen of the United States, and a resident of Miller, in the county of Hand and State of South Dakota, have invented a new and Improved Digging Bucket, of which the following is a full, clear, and exact description.

The present invention relates to new and useful improvements in well-digging machinery, and it pertains more particularly to a bucket and its operating means.

Heretofore digging buckets have been used and it is the common practice to drive these digging buckets by means of driving rods operated by suitable machinery. The buckets are provided with digging knives and when the buckets have been filled they are withdrawn from the well in order that they may be dumped. It has been the common practice to remove the bucket-driving rods with the bucket, which is a dangerous operation since in digging deep wells rods of considerable length are necessary and these rods require special machinery for their handling.

It is the primary object of the present invention to so construct the bucket and its driving rods that the bucket may be removed from the well without necessitating a removal of the rods.

It is a further object of the invention to provide a coupling between the rods and the bucket of such a nature that the driving rods and bucket may be readily disconnected.

It is a still further object of the invention to so construct the coupling that the operative connection between the bucket and the rods is automatically arranged.

With the above and other objects in view, reference is had to the accompanying drawings, in which—

Figure 1 is a schematic view of the apparatus employed;

Fig. 2 is a top plan view of the bucket;

Fig. 3 is a bottom plan view thereof;

Fig. 4 is a side elevation of the bucket;

Fig. 5 is a longitudinal sectional view of said bucket.

Referring more particularly to the drawings, the reference character 10 designates a suitable portable device upon which is mounted any preferred form of well-digging machinery 11. The reference charac-

ter 12 designates the operating rod, and 13 designates the bucket secured to the lower end thereof. As the operating rod 12 is rotated through the medium of the driving mechanism 11, the bucket 13 will be rotated and the knives carried thereby operate to carry out the digging operation. In Fig. 5 is shown a sectional view of the bucket 13, and said bucket 13 has its bottom closed by a door 15, hinged as at 16, to the sides of the bucket in order that it may swing downwardly to open the bottom of the bucket and discharge the contents thereof.

Secured to the door 15 of the bucket in any desired manner, are oppositely disposed knives 17, and the door 15 is slotted, as indicated by the reference character 18, to permit the material dug by said knives passing inwardly of the bucket. Secured to the inner face of the door 15 of the bucket at the rear of that point to which the knives 17 are secured, is a brace or the like 19, and said brace 19 extends around the central portion of the door 15 as indicated at 20. The reference character 21 designates a brace extending from the side of the bucket to the central portion thereof, and mounted on said brace is a latch member 22 having oppositely disposed wings 23 adapted to engage the door 15 in order to retain the same closed, it being understood that the door 15 is slotted as indicated by the reference character 24, which slotted portion is closed by means of the brace 21 when the door is closed.

The reference character 25 designates side knives which project outwardly from the sides of the bucket in order that the sides of the hole dug may be properly trimmed and cut. These side knives 25 are extensions of the knives 17 heretofore mentioned, as more clearly shown in Fig. 3.

The latch 22 heretofore mentioned is carried by a rod 30, which extends longitudinally of the bucket 13, and said rod 30 has its upper end bent inwardly of the bucket as indicated by the reference character 31, the inner extremity of said bent portion 31 being bent at right angles as at 32 to form an operating handle. By this means the rod 30 is rotated in order that the wings 23 of the latch member 22 may be engaged with or disengaged from the door 15 in order that the door may be retained in its closed position or permitted to open.

The bucket 13 is preferably circular in form and extending through the central portion thereof is a tubular member 40, said tubular member 40 having an upper extension 41 at the upper end of the bucket and a lower extension 42 below the door 15. This lower extension 42 is provided with oppositely disposed bayonet slots 43, the purpose of which will be hereinafter described.

Mounted in the tubular portion 40, is a short length of rod 45, the lower end of which is provided with a digging tool 46. Extending radially through the rod 45 near its lower end is a pin 47, the ends of which are adapted to engage in the bayonet slots 43. The upper end of this short length of rod 45 is squared as indicated by 48, and is adapted to receive the socketed member 49 of the rod 12. The upper end of the extension 41 and the lower end of the extension 42 of the tubular member 40, are flared outwardly as indicated by the reference character 50 for a purpose to be hereinafter described. The reference character 51 designates a suitable attaching means such as an eye or the like, for the hoisting rope 52, said hoisting rope 52 being secured in said eye and suitably connected to the operating machinery 11.

The device operates in the following manner:

With the parts in the position shown in Fig. 1, assuming that the bucket 13 has been filled with earth and it is desired to lift the bucket in order that the contents thereof may be dumped: The driving rod 12 is given a turn in order that the ends of the pins 47 may pass out of their respective bayonet slots 43. After the pins 47 have been disengaged from the bayonet slots 43, the bucket 30 is free to slide vertically of the driving rod 12 and the same is hoisted by means of the hoisting rope 52. When the bucket has reached the top of the excavation, the same is dumped by rocking of the rod 30 to a point where the wings 23 of the latch member 22 will disengage the door 15 and permit the same to swing about its hinge 16 to discharge the contents of the bucket 13. After the bucket has been dumped the same is lowered again into the excavation and upon operation of the driving machinery the ends of the pin 47 will move automatically into the bayonet slots 43 in order that a driving connection between the driving rod and the bucket may be had.

I claim:

A device of the character described comprising a rod having a digging tool, a bucket slidably mounted on said rod, a pin carried by the rod and adapted to engage the sliding bucket to lock the bucket against sliding movement, a hinged bottom door for said bucket, a lever extending through the bucket and having a right-angular upper end, said lever serving to release the door and permit it to swing about its hinged point to discharge the contents of the bucket.

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