

Jan. 20, 1925.

1,523,604

G. W. MILLER

BUCKET

Filed June 14, 1923

2 Sheets-Sheet 1

Fig. 1.

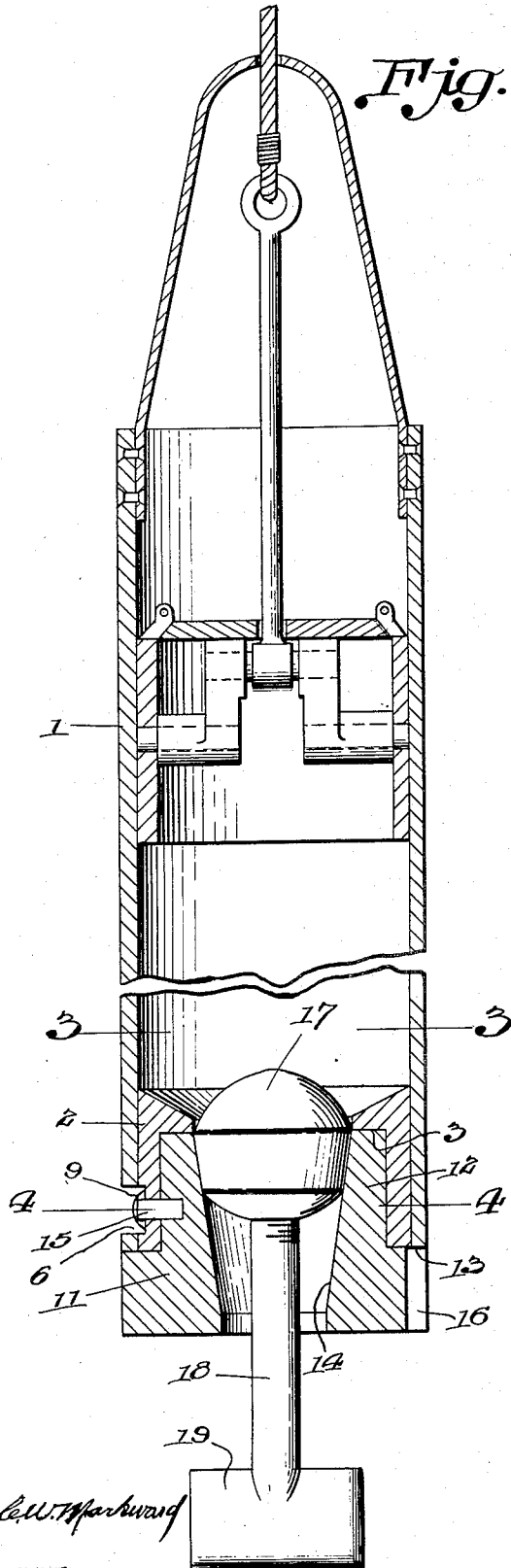


Fig. 2.

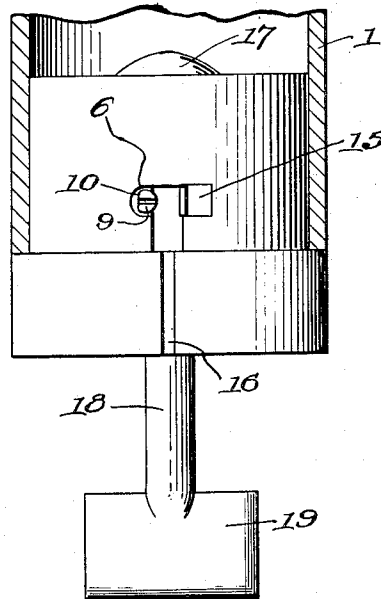
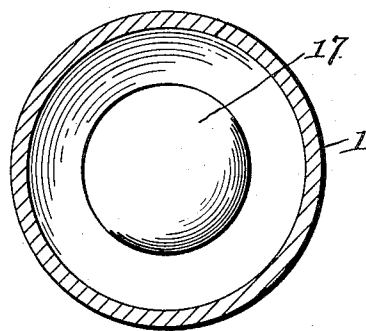


Fig. 3.



G. W. Miller

INVENTOR

BY *Victor J. Evans*

ATTORNEY

C. W. Hayward

WITNESS:

Jan. 20, 1925.

1,523,604

G. W. MILLER

BUCKET

Filed June 14, 1923

2 Sheets-Sheet 2

Fig. 5.

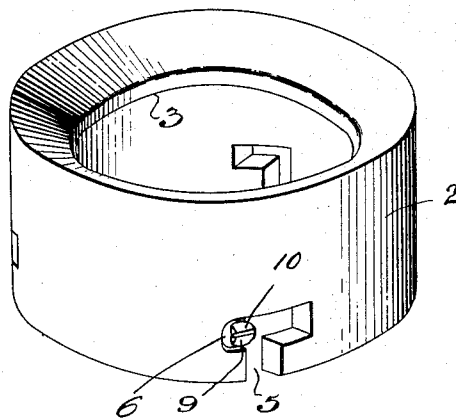


Fig. 6.

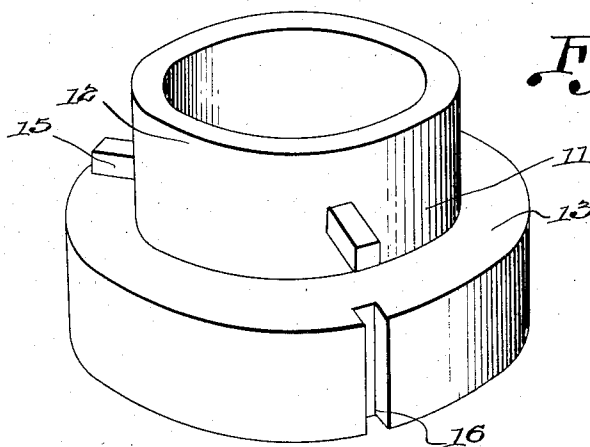
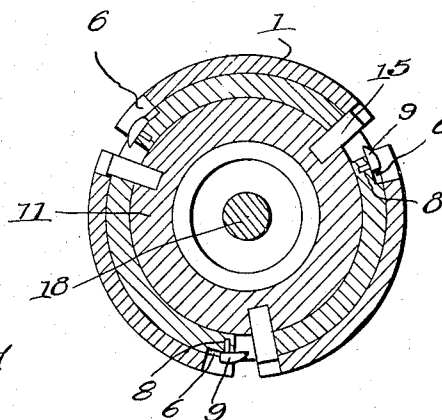


Fig. 4.



W. Markward

WITNESS:

G. W. Miller

INVENTOR

BY *Victor J. Evans*

ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE W. MILLER, OF MANSFIELD, MISSOURI.

BUCKET.

Application filed June 14, 1923. Serial No. 645,454.

To all whom it may concern:

Be it known that I, GEORGE W. MILLER, a citizen of the United States, residing at Mansfield, in the county of Wright and State of Missouri, have invented new and useful Improvements in Buckets, of which the following is a specification.

My present invention has reference to a bucket designed for removing mud and gravel from wells and has for its primary object to reinforce and strengthen the lower open end of the bucket in a manner whereby the removable bottom that provides the lower valve seat will be protected from injury by contact with the head on the outer end of the stem of the valve as well as by contact with the wall or casing of the well, and likewise be prevented from inflicting injury to the bucket proper, while at the same time affording a perfect seat for the valve and preventing the flow of water through the valve seat and bucket, while also effectively locking the valve seat on the bucket in a manner which will permit of the ready removal of the seated valve when it is desired that the contents of the bucket find an outlet through the bottom thereof.

The present invention may also be considered in the nature of an improvement on the bucket on which I received United States Letters-Patent No. 1,370,340, granted me March 1, 1921.

The drawings which accompany and form part of this specification, illustrate a satisfactory embodiment of the improvement reduced to practice.

In the drawings:—

Figure 1 is a sectional view of a well bucket constructed in accordance with my Patent No. 1,370,340, and illustrating the improvement.

Figure 2 is a greatly enlarged side elevation of the lower end of the bucket.

Figure 3 is a sectional view on the line 3—3 of Figure 2.

Figure 4 is a sectional view on the line 4—4 of Figure 2.

Figure 5 is a perspective view of the reinforcement.

Figure 6 is a similar view of the bucket bottom or valve seat.

In drilling with cable tools, use is made of what is called the dart bailer which constitutes a valve seat in the bottom of the

bucket for a valve that has a stem projecting downwardly through its seat, the outer end of the stem being headed. When the headed end of the dart hits the bottom of the well, the valve is raised from its seat and the weight of the bucket presses the rock, gravel and mud into the bottom of the bucket. When the bucket is elevated, the dart seats itself and holds the heavy material in the bucket when the latter is raised. When fully elevated, the bucket is set on the floor to dump, the head of the valve contacting the floor raises the same, so that the slush passes out of the bottom of the bucket. If, however, the material in the bucket is of such character that it cannot pass between the dart or valve and seat, it is necessary that the bucket be turned upside down to remove such material. In United States Letters-Patent No. 1,370,340, I make use of a removable seat for the lower valve, in order that both the valve and seat may be removed from the bucket to permit the discharge of heavy material through the bottom of the bucket. The construction disclosed by my said patent, and other constructions for a similar purpose which are known to me, do not effectively answer the purpose for which they are devised. The bottom of the bucket, incident to the rough usage to which it is subjected should be reinforced, and I have found from practice that a particular and peculiar manner of reinforcing the bucket may serve as a means for also reinforcing and protecting the bottom or lower valve seat for the bucket in a manner which will prevent injury to either the bucket or the bottom thereof. I have also found that I can readily attach and securely lock the bucket bottom or valve seat to the reinforcement, and at the same time permit of the removal of the valve seat or bottom and the valve carried thereby when the contents of the bucket are to be delivered from the bottom thereof, the reinforcement serving as a guide means for properly directing the material therethrough. In addition to this, I have found that my reinforcing means serve to more effectively seat the valve and will prevent a leakage of water between the same and the bucket.

Referring now to the drawings in detail, the bucket is indicated by the numeral 1. The bucket is open at both of its ends and preferably has arranged therein for slidable

movement a hollow plunger that has its top closed by hinged doors or valves and in which the bucket operating means influence the valves to open position when the plunger descends in the bucket or on the slacking of the operating means whereby heavy material entering the bottom of the bucket will be disposed above the valves, the impelling means for the valves serving as rests for the said valves when the bucket is being elevated, and when so elevated the water will drain through the valves on to a lower self-inwardly opening valve in the bottom of the bucket. It frequently happens that gravel gets between the last mentioned valve and its seat, and consequently it is essential that the valve and the seat therefore be removable. In my said patent, the bottom of the bucket is provided with spaced key-hole slots and the valve seat is provided with pins which are received in the key-hole slots.

In carrying out my present invention, I weld in the bottom of the bucket 1 a reinforcement in the nature of a tubular member or sleeve 2. The sleeve, at its upper end is flanged inwardly, the lower wall of the flange providing a straight shoulder 3. The sleeve has its outer end in a line with the outer end of the tubular bucket, and from its said outer end the sleeve is provided with equi-distantly spaced bayonet slots, and the bucket is likewise provided with similar aligning bayonet slots. In a line with the longitudinal passage of the bayonet slots 5, the sleeve has its outer face formed with notches 6 which communicate with the outer walls of the vertical passages of the said bayonet slots 5. In each notch 6 there is pivotally supported a shank 8 that has its outer end formed with a laterally extending head 9, and each head is kerfed, as at 10. The heads 9, when turned to one position will be fully received in the depressions that form pockets therefor, and when turned to another position will be arranged transversely of the vertical passages of the bayonet slots 5.

The bottom or valve seat for the bucket is broadly indicated by the numeral 11. The member 11 is round in cross section and is formed, at its upper end with a reduced extension in the nature of a neck 12. The neck is of a size to be snugly received in the bore of the sleeve 2, and the distance between the shoulder 13 of the bottom or valve seat proper and the outer end of the neck 12 corresponds to the distance between the lower straight wall 3 of the flange and the outer end of the sleeve 2. Thus the upper end of the neck will rest upon the straight wall 3 of the flange and the shoulder 13 will be in contact with the outer end of the sleeve and bucket when the bottom or valve seat 11 is arranged in the bucket. The shoulder 13 is of a thickness equalling the combined thickness of the sleeve 2 and the bucket 1,

so that when in position the outer surface of the valve seat will be in alignment with the outer surface of the bucket. The width of the bore of the bucket is, however, of a less width than the distance between the two opposed sides of the flange of the sleeve, so that the portion of the valve seat projecting inwardly from the shoulder 3 of the sleeve provides the valve seat proper, and its seat is preferably flared outwardly, as indicated by the numeral 14.

The neck portion 12 of the bottom 11 has arranged thereon equi-distantly spaced outwardly extending lugs 15 and these lugs are designed to be received first through the vertical passages of the key-hole slots 5 and after the bottom is turned in the bucket to be received in the horizontal passages of the said slots. When in such position the locking elements which constitute the headed bridge members 9 are turned so that the said heads bridge the vertical passages of the key-hole slots and are in the path of contact with the lugs, preventing the same moving out of the horizontal passages of the key-hole slots. The bottom 11 is provided with a longitudinal depression or slot 16 for the reception of the jaw of a spanner wrench or for any other suitable tool to assist in turning the bottom to bring the lugs thereof into the horizontal passages of the key-hole slots or to turn the said bottom to bring the lugs in a line with the vertical passages of the slots when the locking or retaining means 9 are moved in their pockets out of bridging engagement with respect to the vertical passages of the said slots.

The valve includes a ball head 17 which is designed to be snugly received on the seat 14. In the head there is screwed a stem 18, the outer end of the stem projecting a suitable distance through the bottom 11 and being formed with a lateral extension in the nature of a head 19.

It is thought that the foregoing description, when taken in connection with the drawings, will fully set forth the construction, and advantages of the improvement to those skilled in the art to which such inventions relate, and therefore further detailed description will not be required.

Having described the invention, I claim:—

1. A bucket for the purpose set forth having open ends, a reinforcing sleeve secured in the lower end of the bucket and said sleeve having at its inner end an inwardly directed annular flange, a tubular valve seat providing a bottom for the bucket, having a neck extension received in the sleeve and in contacting engagement with the flange and the shoulder between the neck and bottom in contacting engagement with the outer end of the bucket and sleeve, means removably securing the bottom in the bucket, and a ball valve finding a seat on

the inner end of the neck and having a stem extending through the neck and bottom and the outer end of the stem headed.

2. A bucket for the purpose set forth
- 5 having open ends, a reinforcing sleeve secured in the lower end of the bucket, said sleeve having an inturned annular flange at its upper end which is dished inwardly on its outer face, the sleeve and the lower end
- 10 of the bucket having aligning key-hole slots and having notches in line with the horizontal passages of the slots, members pivoted in the notches in the sleeve and provided with lateral heads designed, when
- 15 moved in one direction to enter and straddle the vertical passages of the key-hole slots, a tubular bottom for the bucket having a reduced neck extension which enters the sleeve and which contacts with the inner
- 20 face of the flange when the shoulder between the bottom and neck is in contacting engagement with the outer edge of the bucket and sleeve, spaced pins on the neck to be received in the key-hole slots, the upper
- 25 end of the neck being flared inwardly to provide a seat, and a ball valve on said seat having a projecting stem passing through the bottom and having its outer end headed.

3. A bucket for the purpose set forth

having open ends, a reinforcing sleeve secured in the lower end of the bucket, said sleeve having an inturned annular flange at its upper end which is dished inwardly on its outer face, the sleeve and the lower end of the bucket having aligning key-hole slots and having notches in line with the horizontal passages of the slots, members pivoted in the notches in the sleeve and provided with lateral heads designed, when moved in one direction to enter and straddle the vertical passages of the key-hole slots, a tubular bottom for the bucket having a reduced neck extension which enters the sleeve and which contacts with the inner face of the flange when the shoulder between the bottom and neck is in contacting engagement with the outer edge of the bucket and sleeve, spaced pins on the neck to be received in the key-hole slots, the upper end of the neck being flared inwardly to provide a seat, and a ball valve on said seat having a projecting stem passing through the bottom and having its outer end headed, and said bottom, below the neck thereof having a longitudinal slot.

In testimony whereof I affix my signature.

GEORGE W. MILLER.