R. C. BAKER.

DUMP BAILER.

APPLICATION FILED APR. 21, 1920.

1,406,329. Patented Feb. 14, 1922.

Fig. 1

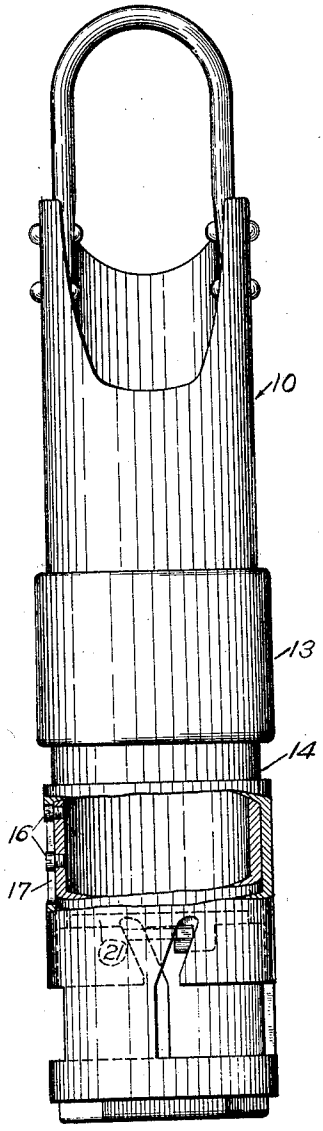


Fig. 2

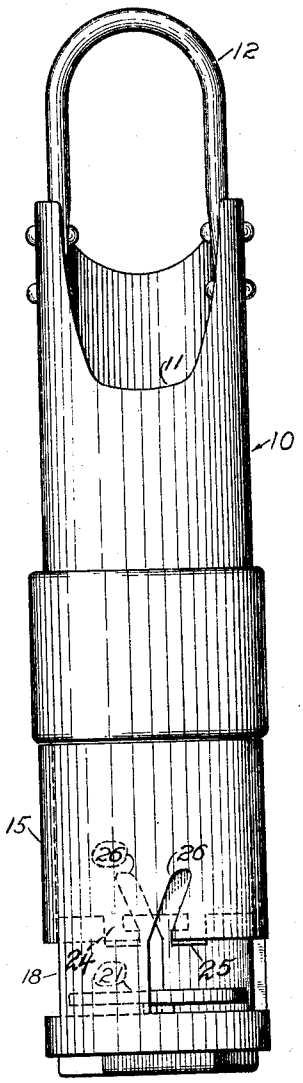
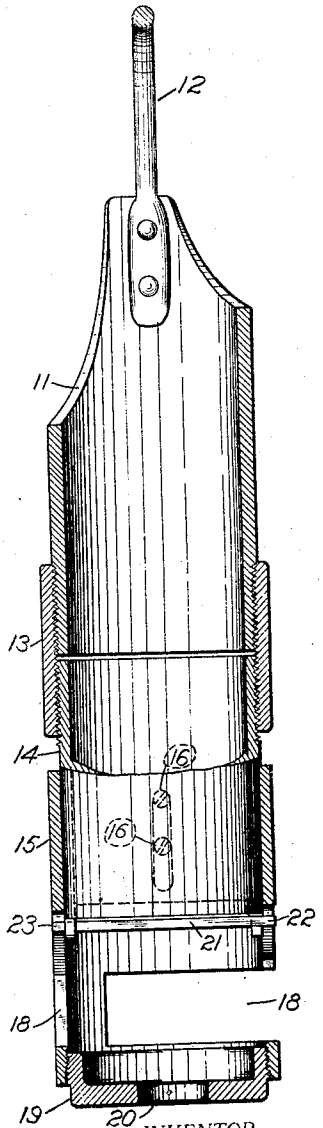


Fig. 3



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DUMP BAILER.

1,406,329. Specification of Letters Patent. **Patented Feb. 14, 1922.**

Application filed April 21, 1920. Serial No. 375,421.

To all whom it may concern:

Be it known that I, REUBEN C. BAKER, a citizen of the United States, residing at Coalinga, in the county of Fresno and State of California, have invented a new and useful Improvement in Dump Bailers, of which the following is a specification.

This invention relates to an appliance for deep wells and particularly pertains to a dump bailer.

In drilling oil, gas and water wells, it often becomes necessary to deposit cementitious material at the bottom of the well shaft. This material is delivered to the point of deposit in a liquid form and in view of the fact that the shaft may be of considerable depth it is necessary to accurately handle the material and directly apply it at the point desired. It is the object of the present invention, therefore, to provide simple and convenient means whereby quantities of liquid cementitious material may be delivered to the bottom of a well shaft and there automatically released without being previously affected by the liquid or gas within the shaft.

The present invention contemplates the use of a cylindrical main body carrying a lower sliding sleeve, the bottom of said body being normally closed by a valve member and adapted to be opened by upward movement of the sliding sleeve when it encounters an obstruction at the bottom of the shaft, said sleeve being further designed to vent liquids or gases within the well in a manner to prevent the operation of the valve until the time desired.

The invention is illustrated by way of example in the accompanying drawings, in which:

Figure 1 is a view in elevation showing the invention with parts broken away to more clearly disclose the assembly thereof.

Fig. 2 is a view in elevation showing the bailer after the valve has been actuated.

Fig. 3 is a view in central vertical section and elevation illustrating the details of construction.

In the drawings, 10 indicates a cylindrical main body preferably formed of a piece of pipe, said pipe being cut away along one of its sides and near its top to form a filling opening 11. This body member is equipped with a bail 12 by which the device may be suspended from a cable or other similar member. The lower end of the portion 10 is exteriorly threaded to receive a coupling collar 13. This collar secures a second body member 14 in position directly beneath the member 10, it being understood that these two body members are of substantially the same bore, thus providing a continuous container within which cementitious material may be carried and which may be elongated by insertion of a third portion of any desired length between members 10 and 14. Slidably mounted around the lower body member 14 is a sleeve 15. This sleeve is held against rotation and limited in its longitudinal movement by screws 16. The screws as shown in Fig. 1 extend through a longitudinally extending slot 17. The lower end of the sleeve is cut away as indicated at 18, thus providing outlet openings through which the cementitious material may be released. The bottom of the sleeve is closed by a head 19 here shown as exteriorly threaded and extending into the bore of the sleeve. A central vent opening 20 is formed through the head for a purpose to be hereinafter set forth.

The lower end of the body member 14 is normally closed and may be automatically operated and opened by movement of the sleeve 15. This closing action is produced by a valve disk 21 which is held over the bottom mouth of the body member 14. This disk is formed with lugs 22 and 23 which extend from the circumference of the disk upon diametrically opposite sides thereof, it being understood that the diameter of the disk substantially agrees with the outside diameter of a recess cut into the bottom of the body member 14. The lugs 22 and 23 rest upon lock fingers 24 and 25, respectively. These fingers are in the shape of hooks formed as extensions of the lower wall of the body member 14. The open throats of these hooks oppose each other and make it possible for the valve to be rotated in a horizontal plane to position its lugs in engagement with the lock fingers. These lugs 22 and 23 are of sufficient length to extend through angular slots 26 in the opposite sides of the sleeve. These slots terminate in the openings 18 cut around the sleeve and extend at angles to the longitudinal axis of the sleeve thereabove. It will be evident

by referring to Fig. 1 that upward movement of the sleeve will act to force the lugs out of engagement with the lock fingers 24 and 25 and thereby rotate the valve disk in a manner to release the lug members from the fingers and to permit the disk to drop. Complete release will take place when the upper marginal edges of the openings 18 have moved to a position in register with the lower edge of the body member 14 at which time the disk will fall across the opening 18 to be supported by the head 19 at the bottom of the sleeve thus permitting an unrestricted flow of the cementitious material from the container and through the openings 18 in the sleeve. In the event that the fluid or liquid well pressures are excessive, there would be a tendency for these pressures to move the sleeve upwardly and thus prematurely release the valve member. For that reason the opening 20 is formed in the head 19, thus permitting the fluids and liquids to pass through this opening and out through the passageway 18 without influencing the valve.

In operation of the present invention the valve disk 21 is set with its lugs in engagement with the lock fingers 24 and 25. After this has been done the container formed by the body members 10 and 14 are filled with cementitious material through the top and the side opening 11. A suitable cable is secured to the bail and the device lowered into the well. After water and gas under pressure are encountered these fluids will vent through the opening 20 as previously described permitting the uninterrupted movement of the bailer to the bottom of the well. When the head 19 of the sleeve 15 strikes the bottom of the well shaft it will, of course, remain stationary while permitting the body member of the bailer to move downwardly and thus forcing the lugs 21 and 22 along the slots 26 of the sleeve. This action will displace the lugs from engagement with their locking fingers and will permit the valve disk to fall under the influence of the cementitious material thereupon. This displacement of the valve disk will cause it to rest upon the head 19 and will permit the cementitious material to flow out through the openings 18 filling the bottom of the well shaft as the bailer is gradually elevated.

It will thus be seen that by the device here disclosed quantities of cementitious material may be accurately placed in the bottom of a well shaft and released by a single and positive actuating mechanism.

While I have shown the preferred form of my invention as now known to me, it will be understood that various changes in the construction, combination and arrangement of parts may be made by those skilled in the art without departing from the spirit of the invention as claimed.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

1. A dump bailer of the character described, comprising a cylindrical container for cementitious material, a false bottom in said container, and means actuated by the weight of said container when the bottom of the well shaft is encountered for dropping said false bottom and thereby discharging the cementitious material.

2. A dump bailer, of the character described, comprising a cylindrical body for cementitious material, having a recess in the side wall thereof adjacent its lower end, a false bottom, means for holding said bottom above the recess, and means actuated by the weight of the cylindrical body when encountering the well bottom for releasing said false bottom and thus permitting said bottom to drop below the recess in the cylindrical body and the cementitious material to discharge.

3. A dump bailer of the character described, comprising a cylindrical body for cementitious material, a disk closure for the lower end of said body, having lugs extending from its periphery, a seat formed on the lower end of said cylindrical body for each of said lugs, a sleeve about the lower end of the cylindrical body adapted for upward and downward sliding movement, said sleeve having an opening in its side wall and adjacent its lower end and also having slots extending upwardly from the last named opening and adapted to receive the lugs formed on the disk and said slots being disposed in such a manner that upward movement of the sleeve will rotate the disk and unseat its lugs and thus permit the same to drop and discharge the cementitious material.

4. A dump bailer comprising a cylindrical container, a false bottom therefor and a movable member at the bottom of said container adapted to lock the valve in a closed position so long as the dump bailer is suspended by the bail and to release the false bottom from the container when the said movable member has encountered the bottom of the well shaft.

5. A dump bailer comprising a cylindrical container, a bail secured to the top thereof, a disk forming a bottom for said container, a movable sleeve on said container and means operated by relative movement of the sleeve and container whereby the disk will be held in closed position or will be released to open the bottom of the container.

6. A dump bailer comprising a cylindrical and tubular body portion, a bail at the top thereof, a valve disk disposed across the bottom of said body portion to complete the formation of a container therein, means for detachably securing said disk in its closing position by a cylindrical sleeve slidably mount-

ed upon the lower end of said body portion and means whereby relative movement of the sleeve with the body portion will permit the release of the disk.

7. A dump bailer comprising a cylindrical and tubular body portion, a bail at the top thereof, a valve disk disposed across the bottom of said body portion to complete the formation of a container therein, means for detachably securing said disk in its closing position by a cylindrical sleeve slidably mounted upon the lower end of said body portion and means whereby relative movement of the sleeve with the body portion will permit the release of the disk, means for permitting the contents of the body portion to flow from the sleeve and means for preventing relative movement of the sleeve and body portion due to fluid pressures.

8. A dump bailer comprising cylindrical top and bottom members adapted to be used with a third member of substantially the same bore for the purpose of elongation, a bail attached to the top member thereof, a valve disc disposed across the bottom member to complete the formation of a container therein, a cylindrical sleeve slidably mounted upon the lower end of said bottom member by which the valve disc is locked in the closed position and means whereby the relative movement of the sleeve with the bottom member will cause the release of the valve disc thereby permitting the contents of the dump bailer to flow therefrom, means for permitting the contents of the dump bailer to flow through the sleeve after the valve disc has been released from its locked position and means for preventing relative movement of the sleeve and the bottom member due to external fluid pressure.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

REUBEN C. BAKER.

Witnesses:
T. K. DAHLE, Jr.,
JNO. JOHNSTONE.