Nov. 16, 1926. 1,607,513

C. W. CLINE

OIL WELL BAILER

Filed Feb. 26, 1926 2 Sheets-Sheet 1

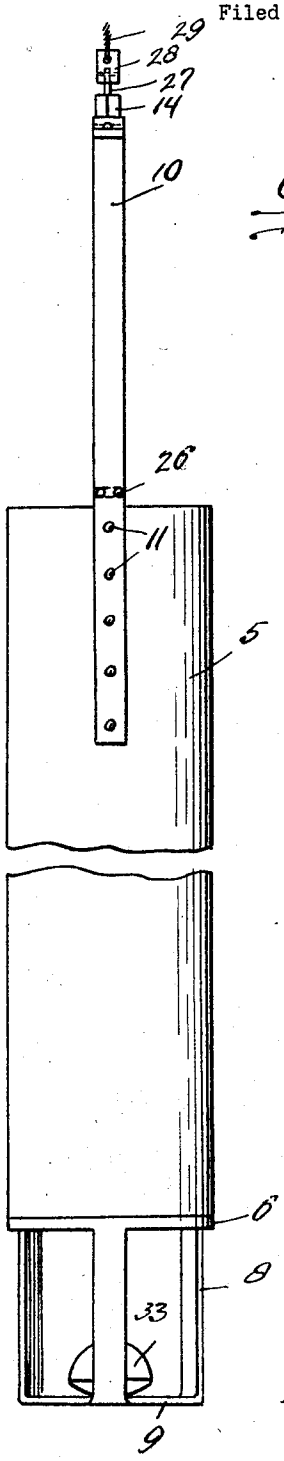


Fig. 1.

Fig. 6.

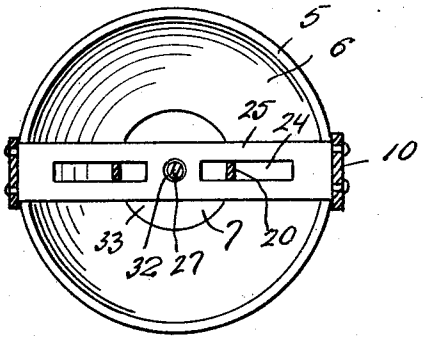
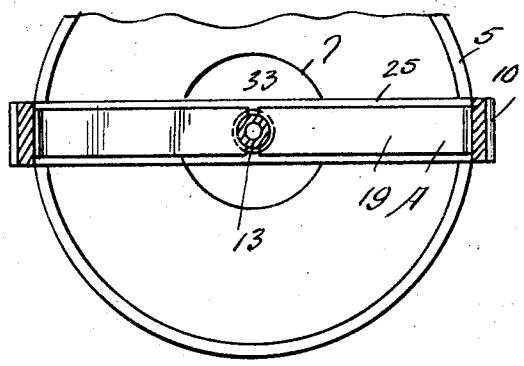


Fig. 7.



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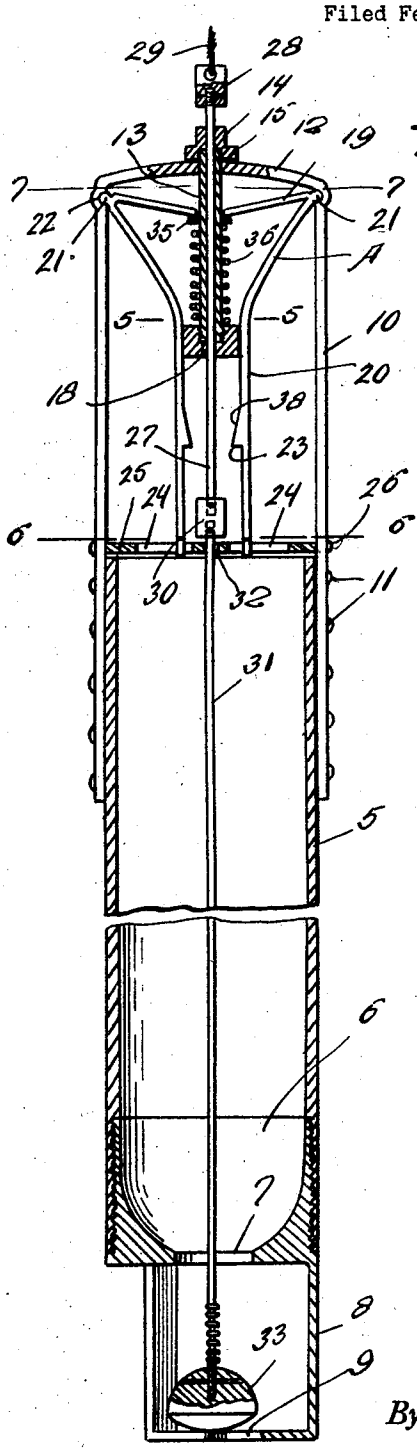


Fig. 2.

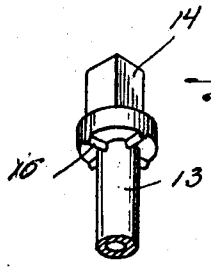


Fig. 3.

Fig. 4.

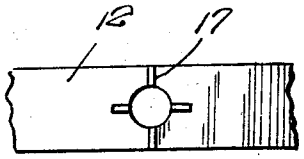
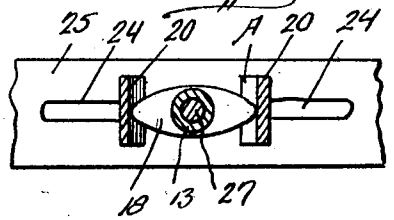


Fig. 5.



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UNITED STATES PATENT OFFICE.

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OIL-WELL BAILER.

Application filed February 26, 1926. Serial No. 90,835.

The present invention relates to a bailing device for use in connection with oil wells and provides a structure wherein it is possible to bail water from the well or place water in desired quantities in the well.

A very important object of the invention is the provision of a bailing device of this nature which is exceedingly simple in its construction, strong, durable, convenient, and well adapted to the purpose for which it is designed.

Another very important object of the invention is to provide a device of this nature which is handy and convenient to operate and which, in operation, will prove thoroughly reliable and efficient.

A still further important object of the invention is to provide a bailing device of this nature having a bucket with an open bottom and a valve associated with the bottom, and means whereby the valve may be held against closing when it is desired to place the water in the well, said last mentioned means being operable so that the valve may be allowed to close when it is desired to bail water from the well.

With the above and numerous other objects in view as will appear as the description proceeds, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawings:—

Figure 1 is a side elevation of the bailing device embodying the features of my invention,

Figure 2 is a vertical longitudinal section therethrough,

Figure 3 is a fragmentary perspective view of the guide tube and the nut on the upper end thereof.

Figure 4 is a plan view of the intermediate upper portion of the handle,

Figure 5 is an enlarged detail section taken substantially upon the line 5—5 of Figure 2,

Figure 6 is an enlarged transverse section taken on the line 6—6 of Figure 2 looking downwardly, and

Figure 7 is a transverse section taken substantially on the line 7—7 of Figure 2 looking downwardly.

Referring to the drawing in detail, it will be seen that the numeral 5 denotes a cylinder having a cup-shaped bottom C threadedly mounted in the lower end thereof and provided with the opening 7. Legs 8 extend downwardly from the cup shaped bottom 6 and are connected by cross members 9 or in any other suitable manner. The legs 8 and members 9 form a cage. A U-shaped handle 10 has its extremities riveted or otherwise fastened to the cylinder 5 as at 11 so that the intermediate portion of the handle which is indicated specifically by the numeral 12 is disposed above the upper end of the cylinder in spaced relation thereto and transversely thereof.

A guide tube 13 pierces an opening in the center of the intermediate portion 12 and has a nut 14 threaded on the upper end thereof above the portion 12. Thus nut 14 is provided at its lower end with a flange 15 having radial ribs 16 formed on the bottom face thereof for engaging in radial grooves 17 provided in the upper surface of the intermediate portion 12 and radiating from the opening therein as is shown more clearly in Figure 4. A substantially elliptical shaped cam 18 is threaded on the lower end of the guide tube 13. A pair of bell crank levers are indicated generally by the letters A, and each includes a short arm 19 and a long arm 20. The joint 21 between the arms 19 and 20 is in the form of a fulcrum to be received in a suitable groove or recess 22 provided in the handle 10 at the juncture of the intermediate portion 12 with the sides. The arms 19 extend inwardly and terminate adjacent the guide tube 13. Catch projections 23 extend inwardly from the longer arms 20 intermediate their ends. The free ends of the arms 20 move in slots 24 provided in a bar 25 extending transversely across the upper end of the cylinder 5, said bar being preferably attached to the sides of the handle 10 in any suitable manner as is indicated at 26. A rod 27 is slidable through the guide tube 13 and at its upper end is provided with a suitable clevis 28 in order that a cable or the like 29 may be attached thereto. A coupling 30 is provided on the lower end of the rod 27 in order that a rod 31 may be attached thereto. The rod 31 is slidable through a central opening 32 in the bar 25. This rod 31 also extends through the opening 7 and has a valve 33 at its lower end for seating in and closing the opening 7.

A washer 35 is slidable on the tube 13. A spring 36 is coiled about the tube 13 and impinges against the washer 35 and the elliptical cam 18 so that said washer 35 is impinged against the ends of the short arms 19 to maintain the long arms 20 in engagement with the cam 18. By turning the nut 14 with a wrench, the tube 13 and the cam 18 may be likewise turned. By positioning the cam 18 long wise between the long arm 20, the catch projection 23 may be spaced sufficiently apart so as not to be engaged by the coupling 30. However, by positioning the cam short ways, the catch projections 23 will be positioned sufficiently close together to be engaged by said coupling 30.

When it is desired to bail water from the well, the cam 18 is positioned longwise of the arm 20 as shown in Figure 2. When the bailing device is suspended from the cable 29 to be let down in the well it will be seen that the cylinder 5 and parts attached thereto will gravitate downwardly so that the valve 33 closes in respect to the opening 7. When the device reaches the bottom of the well it will rest on the cage 8, 9. And thus by further letting down of the cable 29, the rods 27 and 31 which form the valve rod will gravitate downwardly, thereby opening the valve 33 in respect to the opening 7 and the water may flow into the bucket formed by the cylinder 5, and the bottom 6 through the opening 7, and of course, if the water is sufficiently deep, also over the upper edge of said bucket. When the cable 29 is pulled upwardly, the valve rod 27, 31 is pulled upwardly and the bucket remains stationary until the valve 33 closes against the opening 7, and then the bucket will continue up with the valve rod.

When it is desired to place the water in the well, the device is held by means of the valve rods 27, 31, thereby closing the valve 33 in respect to the opening 7 by the gravitation of the bucket downwardly. A wrench is then engaged with the nut 14 for turning the cam 18 shortwise of the arm 20 and thus the spring 26 will expand and rock the bell cranks A to bring the catch projections 23 close together, and it should be noted that the coupling 30 which forms the projection on the valve rod is disposed above the catch projections 23, that is above the inclined surfaces 38 thereof. Thus, the bucket may be filled with water and lowered in the well. When the bucket reaches the bottom of the well, the cage 8 engages therewith and the valve rod and valve may gravitate downwardly to open the valve from the opening 7 so that the water may flow from the bucket. When the bucket is to be lifted from the well, the rod 27, 31, will move upwardly a short distance until the projection or coupling 30 engages the catch projection 23, but at this time the valve 33 will be spaced from the opening 7, and thus the bucket may be moved from the well without taking up any water therefrom.

It is thought that the construction, utility, and operation of this bailing device will be clearly understood by those skilled in this art without a more detailed description. In the present embodiment of the invention, it has been disclosed merely in detail by way of example, since in actual practice it attains the features of advantage enumerated as desirable in the statement of the invention and the above description.

It will be apparent that numerous changes in the details of construction, and in the combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as hereinafter claimed or sacrificing any of its advantages.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:—

1. A device of the class described including, in combination, a bucket having its bottom provided with an opening, a cage projecting downwardly from the bottom, a valve in the cage closable over the opening, a rod extending from the valve through the opening and through the bucket, a handle on the bucket, a guide sleeve rotatable in the handle and receiving the rod, means for turning the guide sleeve, a cam on the guide sleeve, a pair of bell cranks pivoted in the handle, a spring on the guide tube between the cam and one end of the bell cranks for normally holding the other ends of the bell cranks toward each other, catch projections on the other ends of said bell cranks, a projection on the rod for engagement with the first mentioned projection for preventing the closing of the valve when said cam is in one position, said cam adapted to be rotated to another position for forcing the other ends of the bell cranks apart so that the catches thereon will be free from engagement with the projection on the valve rod.

2. A device of the class described, including, in combination, a bucket having its bottom provided with an opening, a cage projecting downwardly from the bottom, a valve in the cage closable over the opening, a rod extending from the valve through the opening and through the bucket, a handle on the bucket, a guide sleeve rotatable in the handle and receiving the rod, means for turning the guide sleeve, a cam on the guide sleeves, a pair of bell cranks pivoted in the handle, a spring on the guide tube between the cam and one end of the bell cranks for normally holding the other ends of the bell cranks toward each other, catch projections on the other ends of said bell cranks, a projection on the rod for engagement with the first mentioned projection for preventing

the closing of the valve when said cam is in one position, said cam adapted to be rotated to another position for forcing the other ends of the bell cranks apart so that the catches thereon will be free from engagement with the projection on the valve rod, a bar extended transversely across the upper end of the bucket through which said rod is slidable, said bar being provided with a pair of slots for receiving and guiding the free terminals of the other ends of said bell cranks.

3. A device of the class described including a bucket having its bottom provided with an opening, a cage projecting from the bottom downwardly exteriorly of the bucket, a valve in said cage closable over said opening, a rod projecting from said valve through said opening, and through the bucket, a U-shaped handle on said bucket, the ends of said handle being attached to the sides of said bucket and the intermediate portion thereof being disposed above the upper end of the bucket and transversely thereof, a bar fixed to the sides of said handle to extend transversely of the upper end of said bucket and provided with a central opening for receiving said rod and provided with a pair of slots, one on each side of the opening, the intermediate portion of said handle being provided with a central opening, a guide tube rotatable in said opening, the upper surface of said intermediate portion of the handle being provided with a plurality of grooves radiating from the opening therein, a nut engaged on the upper end of the guide tube and provided with ribs engageable with said grooves, a cam on the lower end of the tube, a second rod slidable through the tube, through the cam and through the nut, a coupling between the second and first rods between the cam and the bar, a pair of bell cranks pivotally mounted in the handle, each bell crank including a short arm terminating in close proximity to the tube and a long arm extending alongside of the second rod and terminating in the slots of the bar to be guided thereby, catch projections extending inwardly from the intermediate portions of the longer arms, the upper edges of said projections being inclined downwardly and inwardly from said longer arms and the lower edges being disposed perpendicularly to said longer arms for being engaged by said coupling, a washer on said guide tube, a spring between said washer and said cam so that washer is forced against the ends of the short arms so as to normally project the longer arms toward each other when the cam is disposed in one position so that the coupling will engage the projections, said cam being operable through the nut and tube to another position for separating the longer arms and thereby tensioning the spring whereby the coupling may pass freely between the projections, all in the manner and for the purpose specified.

4. A device of the class described including, in combination, a bucket having a valve seat, a valve associated with the valve seat, a rod extending from the valve through the bucket, a handle on the bucket, a guide sleeve rotatable in the handle and receiving the rod, means for turning the guide sleeve, a cam on the guide sleeve, a pair of bell cranks pivoted in the handle, a spring on the guide tube between the cam and one hand of the bell cranks for normally holding the other end of the bell cranks toward each other, catch projections on the other ends of said bell cranks, a projection on the rod for engagement with the first mentioned projection for preventing the closing of the valve when said cam is in one position, said cam adapted to be rotated to another position for forcing the other ends of the bell cranks apart so that the catches thereon will be free from engagement with the projection on the valve rod.

In testimony whereof I affix my signature.

CHARLES W. CLINE.