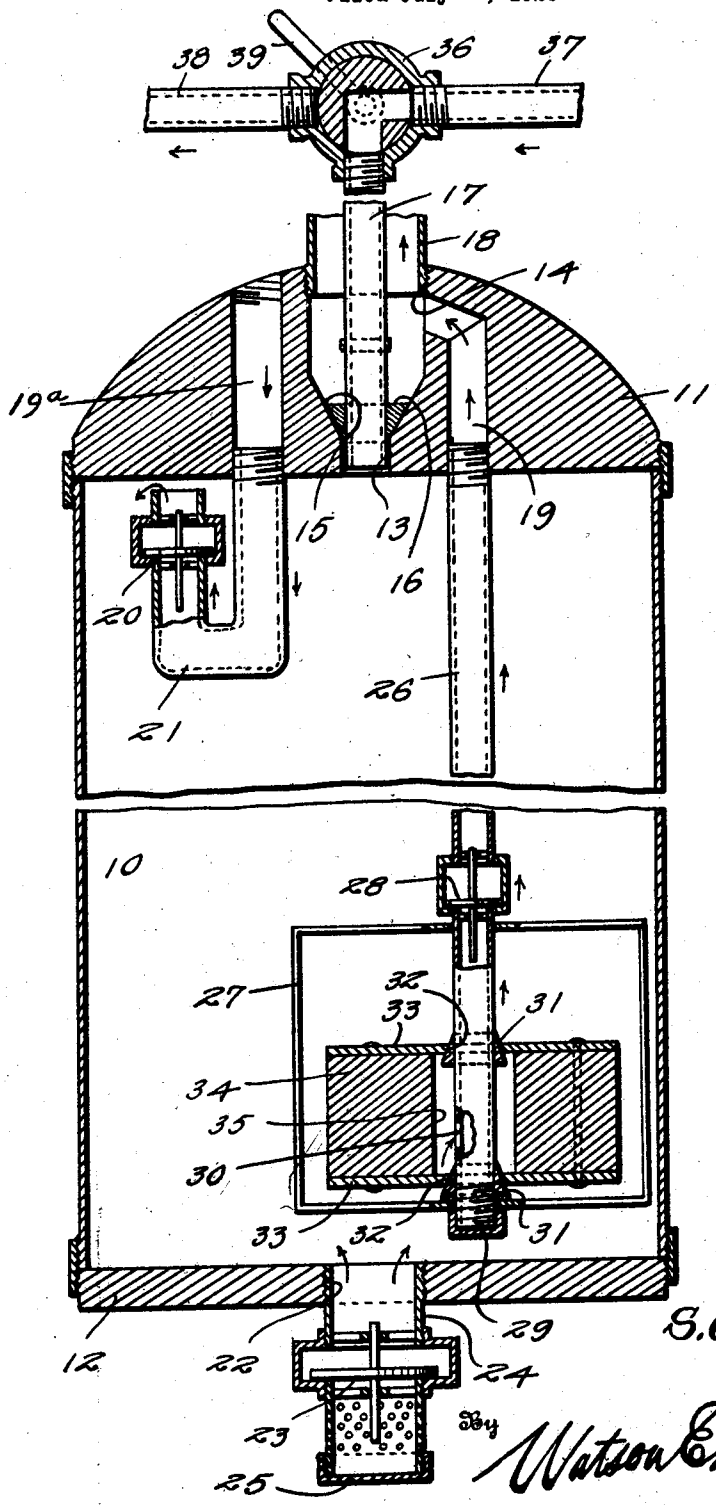
April 26, 1927. 1,626,072

S. C. BRADY

PUMP

Filed July 31, 1926



Inventor
S. C. Brady

By Watson E. Coleman
Attorney

Patented Apr. 26, 1927. 1,626,072

UNITED STATES PATENT OFFICE.

SANFORD C. BRADY, OF BARTLESVILLE, OKLAHOMA.

PUMP.

Application filed July 31, 1926. Serial No. 126,214.

This invention relates to pumps and more particularly to a fluid pressure lift for pumping wells or the like.

An important object of the invention is to provide in a construction of this character a barrel which may be lowered into the fluid within the well or tank and when connected with a means for intermittently connecting the interior of the barrel with a source of pressure and with the atmosphere will cause an intermittent discharge of the contents of the well through a suitable flow pipe.

A further object of the invention is to provide in a device of this character a control means such that "cutting" or intermingling of the fluid being pumped with the fluid employed to provide pressure is avoided.

A still further object of the invention is to provide means whereby the fluid pressure employed in pumping may be diverted to clean the tubing through which the fluid is pumped.

These and other objects I attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein:—

The figure is a vertical sectional view through a pump constructed in accordance with my invention.

Referring now more particularly to the drawings, the numeral 10 indicates a cylindrical barrel having removable upper and lower heads 11 and 12. The upper head 11 is provided with a bore 13, the upper end of which is enlarged, as at 14. At the junction of the enlarged portion of the bore with the normal portion thereof, a seat 15 is provided against which is seated a valve 16 formed upon the exterior of a tubing 17, the purpose of which is to introduce pressure to the barrel. The upper end of the enlarged bore is threaded to permit application thereto of discharge tubing 18 which surrounds the pressure tubing 17.

The head is further provided with an inlet port 19ª and an outlet port 19, the latter communicating at its upper end with the enlarged portion of the bore and accordingly with the discharge tubing 18 about the tubing 17. The inlet port 19ª is suitably check-valved at 20 to prevent reverse flow therethrough, this check valve being at present shown as located in a short section of pipe 21 extending into the interior of the barrel. The lower head 12 is likewise provided with an inlet port 22 which is likewise suitably check-valved at 23. This check valve is shown as arranged exteriorly of the barrel and is mounted in a conduit 24 provided with a suitable inlet screen 25. The inlet port 19ª may likewise be provided with an inlet screen, if so desired. This inlet only serves to admit fluid to the casing where the level of the fluid within the well extends above the level of the upper end of the casing. Under such conditions, fluid will be admitted to the casing through both the upper and lower inlets.

The exhaust port 19 has communicating therewith the upper end of a conduit 26, the lower end of which is suitably supported from the walls of the casing by a guide 27. Within this conduit above the lower end thereof is arranged a downwardly seating check valve 28 preventing reverse flow. The lower end of the conduit is sealed at 29 and a short distance above this lower end an opening 30 is formed in the side wall of the conduit. Above and below this opening, the exterior wall of the conduit is formed with valves 31 which face upwardly and are designed for coaction with valve seats 32 formed upon plates 33 carried by the upper and lower faces of a float 34. The float has a bore 35 receiving the conduit 26 and the edges of the plates project inwardly of the edges of this bore and are there provided with the seats 32. The lower seat 32, since it operates between the valves 31, provides a means for limiting movement of the float, this seat engaging against the under surface of the upper valve when the float has elevated a predetermined distance.

In the use of the device, the tubing 17 is connected with a suitable three-way valve 36 having an inlet 37 communicating with a source of fluid under pressure and an outlet 38 communicating with the atmosphere. Any suitable means, such as a handle 39, may be provided for shifting the valve to alternately connect the tubing 17 with the inlet 37 and the outlet 38. The discharge tubing 18 is, of course, connected with a suitable receptacle. In operation, while the tubing 17 is in communication with the outlet 38, fluid may flow into the barrel 10 through the inlet ports 19ª and 22 to fill the same. When the tubing 17 is connected with the inlet 37, the entrance of fluid under pressure will cause the check valves 20 and 23 to be

seated and the fluid to be forced from the barrel through the opening 30, through the conduit 26 to the conduit 18. The check valve 28 will prevent return flow through this conduit. In event it is desired that the discharge tubing 18 be cleared of fluid, this may be accomplished by lifting the tubing 17 sufficiently to unseat the sealed valve 16. When this is done and pressure is introduced through the tubing 17, if the float is lowered sufficiently to engage the valves 31 with their seats, the only avenue of escape for pressure is about the valve 16 and upwardly through the tubing 18. It will be obvious that this will result in the fluid being forced from the upper end of the tubing. If the float is not seated, pressure admitted at this time will serve to drive fluid from the casing until the float does seat. It is pointed out that air cannot enter the tubing 18 as long as the valve 16 remains seated, due to the fact that when the fluid lowers to a predetermined extent within the barrel, the valve seats 32 engage the valves 31, cutting off the opening 30 and preventing further discharge of either the fluid being pumped or the fluid providing the pumping pressure.

Since the construction hereinbefore set forth is capable of a certain range of change and modification without materially departing from the spirit of the invention, I do not limit myself to such specific structure except as hereinafter claimed.

I claim:—

1. In a fluid pressure pump, a barrel having check-valved inlets, an outlet for the barrel, a conduit within the barrel communicating with the outlet and having its lower end sealed, the side wall of the conduit having an opening, the conduit being provided above and below the opening with valves, a float surrounding the conduit and having valve seats for coaction with said valves to thereby seal the opening when the float is lowered to a predetermined degree and means for alternately connecting the interior of the barrel with a source of fluid under pressure and with the atmosphere.

2. In a fluid pressure pump, a barrel having check-valved inlets, a head for the barrel having a bore enlarged at its outer end, a discharge casing connected with the enlarged end of the bore, the junction of the enlarged and smaller portion of the bore providing a valve seat, a tubing engaging the smaller portion of the bore and having a valve for coaction with said seat, means for alternately introducing fluid pressure through said tubing and connecting the tubing with the atmosphere and an outlet port for the barrel communicating with the enlarged portion of said bore.

3. In a fluid pressure pump, a barrel having check-valved inlets, a head for the barrel having a bore enlarged at its outer end, a discharge casing connected with the enlarged end of the bore, the junction of the enlarged and smaller portion of the bore providing a valve seat, a tubing engaging the smaller portion of the bore and having a valve for coaction with said seat, means for alternately introducing fluid pressure through said tubing and connecting the tubing with the atmosphere, an outlet port for the barrel communicating with the enlarged portion of said bore, the conduit communicating with said outlet port extending adjacent the bottom of the tubing, float means for controlling the introduction of fluid to said conduit and a check valve within the conduit preventing return flow of fluid therein.

4. In a fluid pressure pump, a barrel having check-valved inlets, an outlet for the barrel, a conduit within the barrel communicating with the outlet and having its lower end sealed, the side wall of the conduit having an opening adjacent its lower end, a float surrounding the conduit, coacting means upon the float and conduit for sealing the opening of the conduit when the float is lowered to a predetermined degree and means for alternately connecting the interior of the barrel with a source of fluid under pressure and with the atmosphere.

In testimony whereof I hereunto affix my signature.

SANFORD C. BRADY.