

Dec. 25, 1923.

1,478,427

R. O. DULANEY

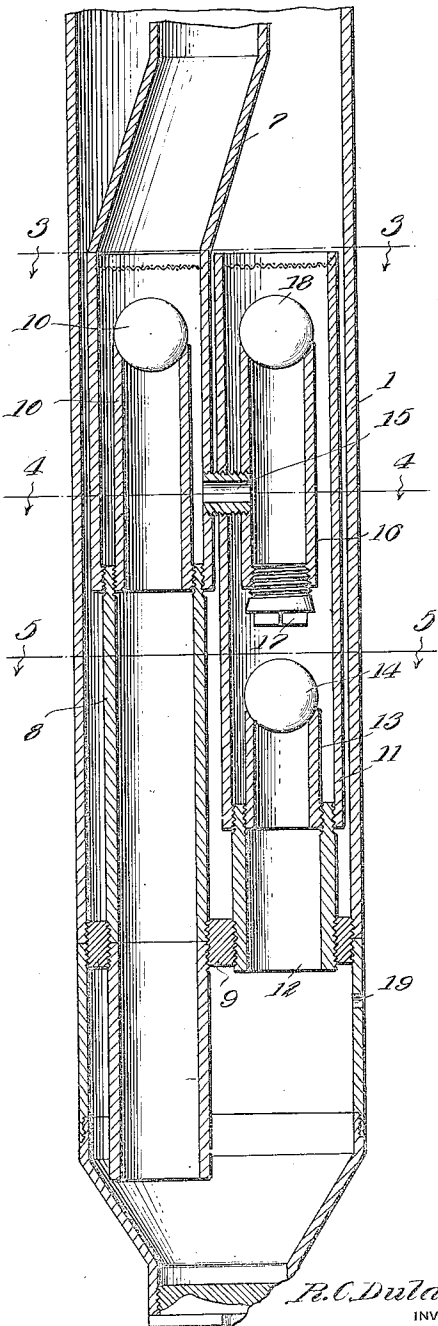
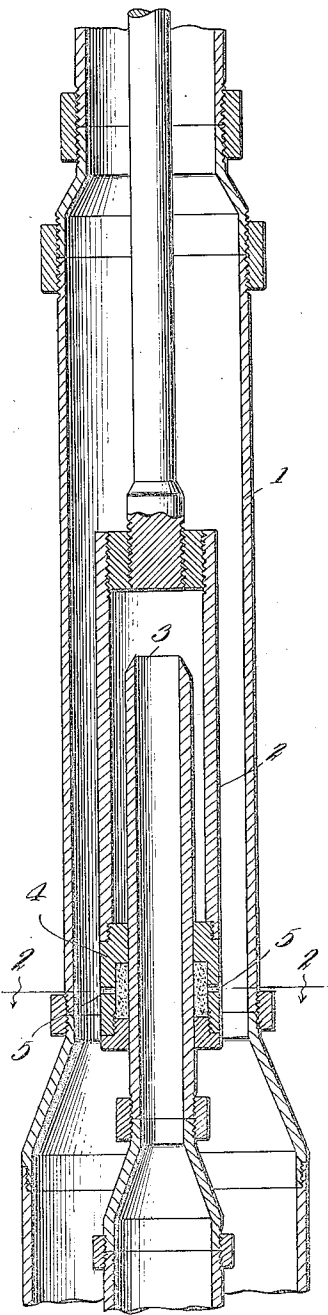
PUMP

Filed July 8, 1922

3 Sheets-Sheet 1

Fig. 1.

Fig. 1A.



J. M. Evans

WITNESS:

R. O. Dulaney
INVENTOR
BY *Victor J. Evans*
ATTORNEY

Dec. 25, 1923.

R. O. DULANEY

1,478,427

PUMP

Filed July 8, 1922

3 Sheets-Sheet 2

Fig. 2.

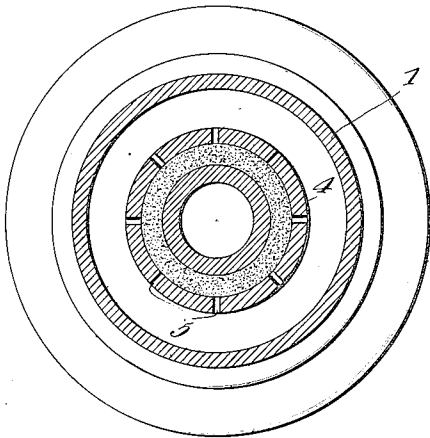


Fig. 3.

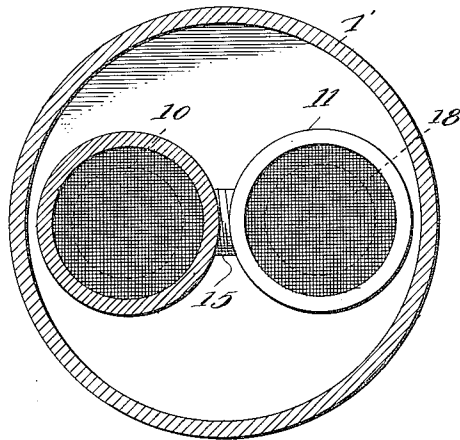


Fig. 4.

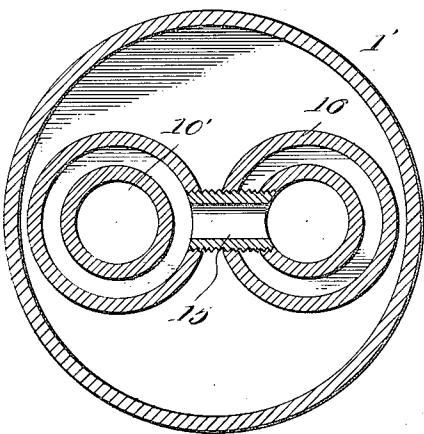
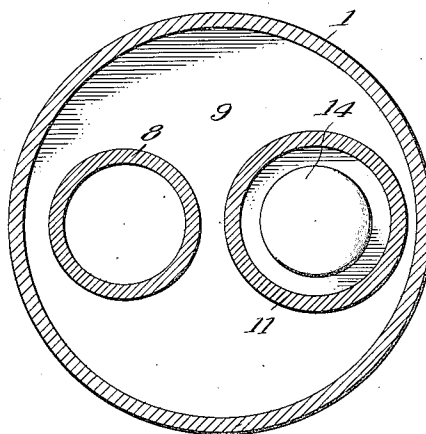


Fig. 5.



J. M. Evans

WITNESS:

R. O. Dulaney
INVENTOR

BY *Vieta J. Evans*
ATTORNEY

Dec. 25, 1923.

1,478,427

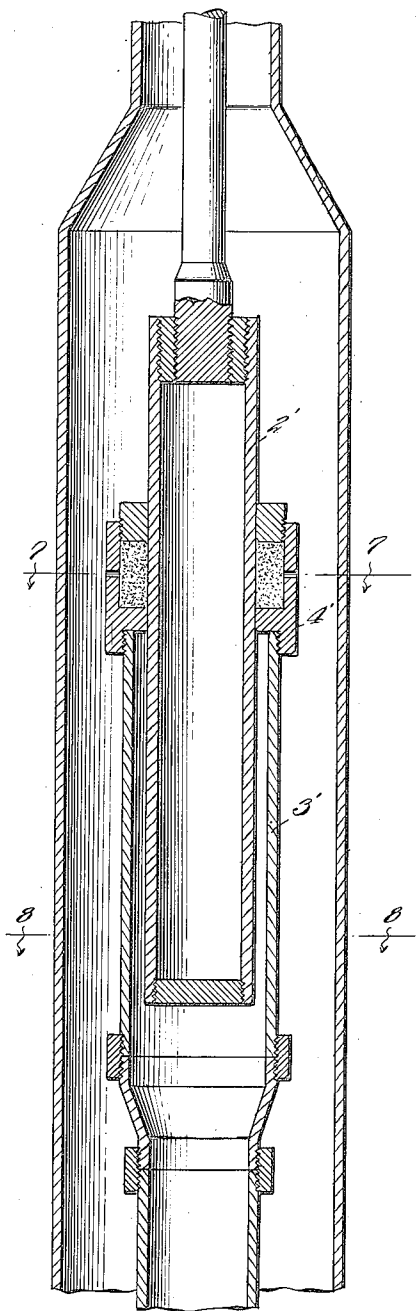
R. O. DULANEY

PUMP

Filed July 8, 1922

3 Sheets-Sheet 3

Fig. 6.



J. M. Evans

WITNESS:

Fig. 7.

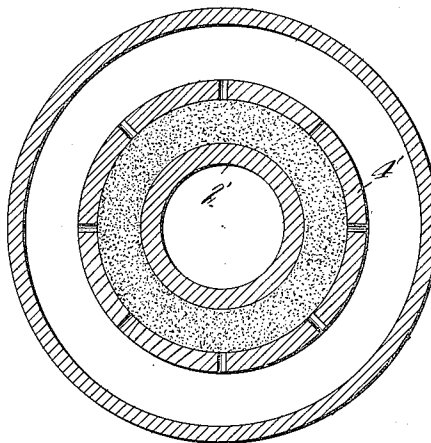
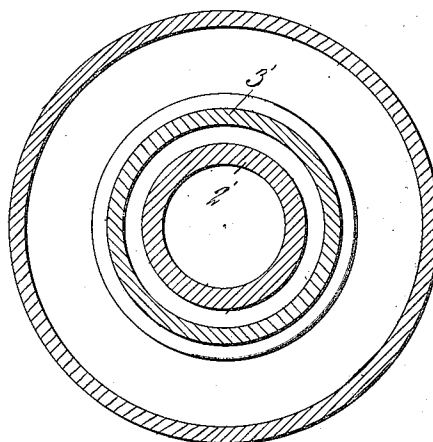


Fig. 8.



R. O. Dulaney

INVENTOR

BY *Victor J. Evans*

ATTORNEY

Patented Dec. 25, 1923.

1,478,427

UNITED STATES PATENT OFFICE.

RICHARD O. DULANEY, OF FORT WORTH, TEXAS.

PUMP.

Application filed July 8, 1922. Serial No. 573,522.

To all whom it may concern:

Be it known that I, RICHARD O. DULANEY, a citizen of the United States, residing at Fort Worth, in the county of Tarrant and State of Texas, have invented new and useful Improvements in Pumps, of which the following is a specification.

This invention relates to pumps for oil wells and the like, the general object of the invention being to so form the parts that mud and sand are prevented from reaching the cups and stuffing box and injuring the same and also to prevent the mud or sand from interfering with the operation of the valves.

Another object of the invention is to provide means whereby the well can flow without passing through the valves of the pump and interfering with the pump action.

A further object of the invention is to provide means whereby the pressure in the pump can act on the stuffing material to hold the same against the barrel.

The invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figures 1 and 1^a are sectional views of a pump constructed in accordance with this invention.

Figure 2 is a section on line 2—2 of Figure 1.

Figure 3 is a section on line 3—3 of Figure 1^a.

Figure 4 is a section on line 4—4 of Figure 1^a.

Figure 5 is a section on line 5—5 of Figure 1^a.

Figure 6 is a sectional view showing a modification.

Figure 7 is a section on line 7—7 of Figure 6.

Figure 8 is a section on line 8—8 of Figure 6.

In these views, 1 indicates the pump casing, the lower part of which is enlarged as shown at #1'. The piston 2 fits over the upper end of the working barrel 3 and has

a packing box 4 at its lower end which is provided with the holes 5 so that the pressure within the pump can act on the packing material in the box to press the same against the polish barrel. The piston rod is shown at 6. The barrel is provided with a curved extension 7 which is threaded to a gas anchor 8, which passes through the partition 9. A valve tube 10' extends into the lower straight part of the extension 7, the upper end of the tube forming a seat for a ball valve 10. A pipe 11 has its lower end threaded to a short pipe 12 which is threaded in a hole in the partition. A valve tube 13 is carried by the pipe 12 and extends into the pipe 11, the upper end of this tube forming a seat for a ball valve 14. A nipple 15 connects the lower end of the extension 7 with a valve tube 16 which is located in the upper part of the pipe 11, the nipple passing through a hole in said pipe 11. The lower end of the tube 16 is closed by a screw plug 17 and its upper end forms a seat for a valve 18. The casing is provided with an inlet 19 below the partition, this inlet being above the bottom of the anchor.

From the above it will be seen that the suction created by the moving piston in the barrel will cause the oil in the casing to pass up the anchor, into the valve tube and by the valve thereon into the extension. As the barrel and piston form gas pockets the oil cannot enter these parts and thus the cups and packing are prevented from being injured by mud and sand which might be brought to them by the oil. The oil in the extension is forced around the valve tube, through the nipple 15 into the tube 16 and by the valve thereon into the casing. A flow of oil and gas into the casing is taken care of without interfering with the action of the pump, as this flow will pass into the pipe 11 by way of the tube 13 and after passing around the tube 16 will pass into the casing. As the oil passes from tube 16 it has the effect of a jet in drawing gas or oil through tube 13. As the fluid is forced back around valve 10 it acts to clean the valve. The gas anchor will prevent the gas from interfering with the pump and has a tendency to force the gas through the valve 14. The arrangement of parts permits the barrel to be pulled with the rods so that the stuffing box can be repacked.

In Figure 6, the piston 2' passes into the barrel 3' and the stuffing box 4' is carried

by the top of the barrel and surrounds the piston. This box is provided with the perforations, as before described, to permit the packing therein to be acted upon by the pressure of the pump. This form of the invention has a much larger capacity than the first form.

It is thought from the foregoing description that the advantages and novel features of my invention will be readily apparent.

I desire it to be understood that I may make changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

Having thus described my invention what I claim is:—

1. A pump of the class described comprising a casing, a barrel therein, a piston associated with the barrel for forming a suction therein, a gas anchor connected with the barrel, a ball valve controlling communication between the anchor and the barrel, said barrel having an outlet therein ar-

ranged below the valve seat and means for forming a gas pocket in the upper part of the barrel for preventing the oil entering this part and for forcing the oil through the outlet and around the top of the valve to clean the same.

2. A pump of the class described comprising a casing, having an inlet at its lower part, a partition above the inlet, a gas anchor passing through the partition and extending below the inlet, a barrel connected with the anchor, a ball valve controlling the passage between the anchor and barrel, a pipe carried by the partition and in communication with the space below the partition, a raised valve seat in the pipe, a valve on said seat, a tube in the upper part of the pipe and connected with the barrel below the valve seat of the valve therein, a valve at the top of the tube and a plug closing the lower end of the tube.

In testimony whereof I affix my signature.

RICHARD O. DULANEY.