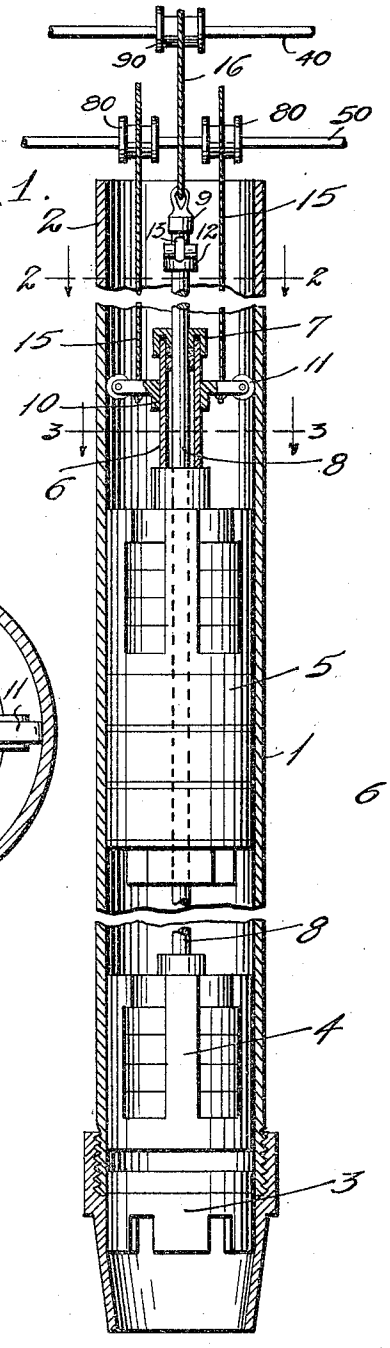
J. J. SCHILDER.

RODLESS DOUBLE ACTING PUMP.

APPLICATION FILED FEB. 12, 1917.

1,244,784. Patented Oct. 30, 1917.

Fig. 1.



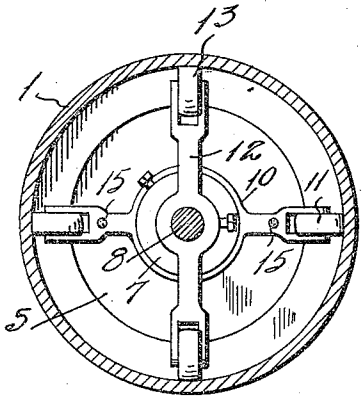


Fig. 2.

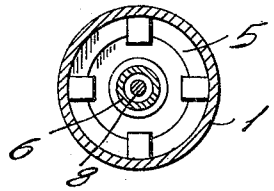


Fig. 3.

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RODLESS DOUBLE-ACTING PUMP.

1,244,784. Specification of Letters Patent. Patented Oct. 30, 1917.

Application filed February 12, 1917. Serial No. 148,007.

To all whom it may concern:

Be it known that I, JOHN J. SCHILDER, citizen of the United States, residing at Fort Worth, in the county of Tarrant and State of Texas, have invented certain new and useful Improvements in Rodless Double-Acting Pumps, of which the following is a specification.

This invention pertains particularly to rodless double acting pumps.

I propose to eliminate the pump rods and substitute flexible connections. These connections, which may be cables or other elements, depend into the casing and working barrel and one is connected with one of the valves and other connection is connected with the other valve. For operating the valves and reciprocating the flexible connection I propose to employ the apparatus covered by the Letters Patent issued to me January 9th, 1917, and numbered 1,211,764.

In carrying out the invention a cross-head is fastened to the rod of one of the valves and a second cross-head is secured to the rod of the other valve, said rods telescoping. A stuffing box is employed at the upper end of the outer rod, but no stuffing box is used at the top of the casing; thus the water elevated can flow over the top edge of the casing. Rollers or drums have cables depending into the casing and attached to the inner rod and the cross-head of the outer rod. In operation one rod will be lowered as the other is raised. The cross-heads hold the rods on center and small rollers carried by the heads bear against the wall of the barrel.

The invention will be more readily understood from a perusal of the following specification and by reference to the accompanying drawing in which an example of the invention is shown, and wherein:

Figure 1 is a view illustrating a vertical section through a well casing and working barrel and showing the invention incorporated in cables and cross-heads connected with the valves,

Fig. 2 is a horizontal cross-sectional view taken on the line 2—2 of Fig. 1, and

Fig. 3 is a horizontal cross-sectional view taken on the line 3—3 of Fig. 1.

In the drawings the numeral 1 designates the working barrel and 2, the casing of a well. In the lower end of barrel is mounted the usual check valve 3; while the usual lower valve 4 and upper valve 5 are mounted in the barrel. The outer tubular rod 6 of the upper valve extends up from the upper valve as is usual, but terminates a short distance above said valve, in a stuffing box 7. The usual telescoping rod 8 passes up from the lower valve 4 through the valve 5 and rod 6 and terminates above the stuffing box in an eye 9.

A cross-head 10 is fastened on the tubular rod 6 and extends diametrically of the barrel, carrying anti-friction rollers 11 at its ends bearing against and conforming to the contour of the inner surface of the barrel, whereby a free movement is had. A second cross-head 12 of similar construction and provided with rollers 13 is fastened on the rod 8 above the stuffing box and preferably at right angles to the first head as is shown in Fig. 2. By this arrangement the rods and valves are held in the center of the barrel.

Above the top of the casing 2 the apparatus referred to in the Letters Patent #1,211,764 granted January 9th, 1917, is mounted, the shafts 40 and 50 and the drums 80 and 90 thereof being shown, but the remainder being omitted. From the lower drums 80 a pair of cables 15 depend into the casing and barrel and have their lower ends attached to the lower cross-head 10 on each side thereof; while a central cable 16 depends from the upper drum 90 and has its lower end attached to the eye 9 of the inner rod. As stated in the Letters Patent aforesaid the single cable 16 is reciprocated in opposite relation to the reciprocation of the cables 15 and thus when the inner rod 8 of the lower valve 4 is being lowered, the rod 6 of the upper valve 5 will be elevated and vice-versa. The valves while operated in the usual manner will have longer strokes owing to the operating apparatus which is used.

It is obvious that if either valve needs attention or repairs, it is quite a simple matter to wind up its cable and pull the valves out of the well. This may be accomplished in a few minutes. The expense as well as the labor incidental to the use of the rods is saved.

What I claim, is:

In a double acting pump, upper and lower

valves, a rod extending up from the upper valve, a second rod extending up from the lower valve and projecting through the first rod, a cross-head secured to the first rod and having rollers for engaging the working barrel of a well, a second cross-head secured to the second rod and also provided with rollers, a flexible connection having its lower end attached to the first cross-head, and a second flexible connection having its lower end attached to the second rod, said connections being reciprocated in opposite directions.

In testimony whereof I affix my signature.

JOHN J. SCHILDER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."