

(No Model.)

C. RUMLEY.
PUMP.

No. 526,944.

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Fig: 1.

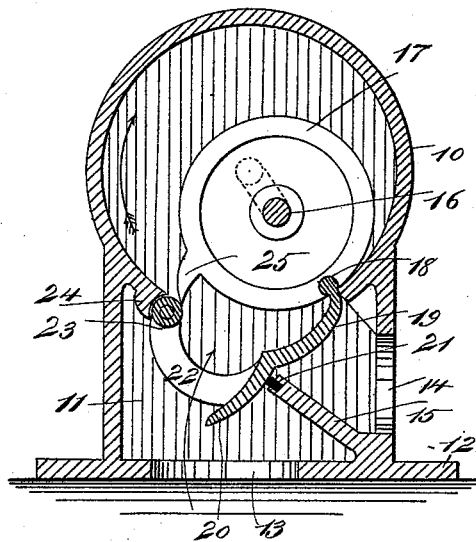


Fig: 2.

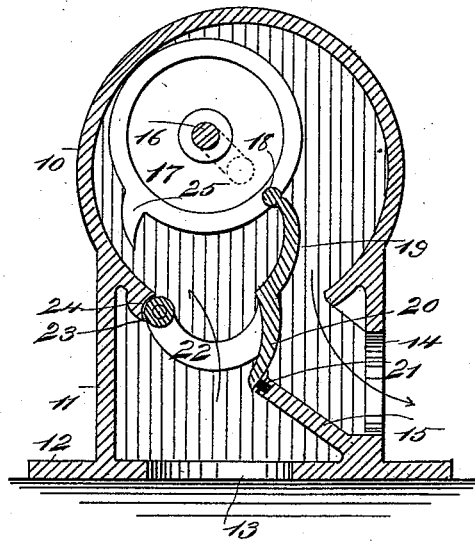


Fig: 3.

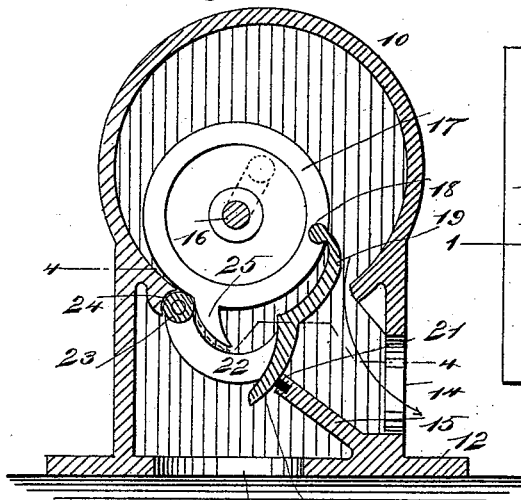
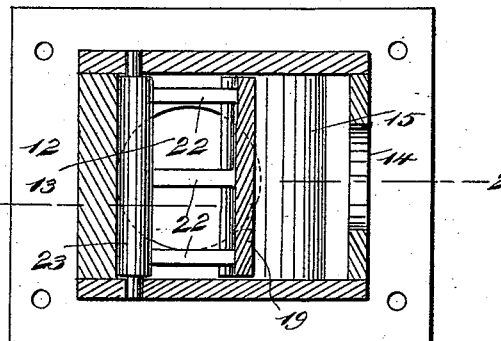


Fig: 4.



WITNESSES: 13 20

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SPECIFICATION forming part of Letters Patent No. 526,944, dated October 2, 1894.

Application filed February 17, 1894. Serial No. 500,507. (No model.)

To all whom it may concern:

Be it known that I, CHARLES RUMLEY, of Helena, in the county of Lewis and Clarke and State of Montana, have invented a new and Improved Pump, of which the following is a full, clear, and exact description:

My invention relates to improvements in pumps and particularly to improvements in the pump for which I have received Letters Patent No. 516,406.

The object of my invention is to produce a powerful pump of very simple construction, which works on the principle of the pump illustrated in my patent referred to, which, however, has certain improvements which provide a valve of less surface motion and a spur cut-off which, in connection with the valve, absolutely prevents leakage.

A further object of my invention is to construct the pump so that it may be worked in either direction, that is, so that its ports may be used alternately as suction or discharge ports, according to the direction of the movement of the pump piston.

To these ends my invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a central vertical section on the line 1—2 of Fig. 4, of the pump embodying my invention, showing the discharge port closed and the suction port open to receive water. Fig. 2 is a similar view, but showing the piston in a more advanced position so as to open the discharge port to permit water to be ejected therefrom. Fig. 3 is a similar section, but showing the piston moved farther so as to make the cut-off cover the joint of the valve; and Fig. 4 is a sectional plan on the line 4—4 of Fig. 3.

The pump is provided with a cylinder or case 10 which is provided with a suitable hollow base 11 having preferably a base flange 12 to enable it to be substantially mounted on a support, and the cylinder has an open bottom connecting with the hollow base. In the base are inlet and discharge ports 13 and 14 which are separated by an inclined wall

or partition 15, but either port may be used as an inlet or discharge port, this depending on the direction of rotation of the piston, as will appear from the description to follow. The cylinder has centrally in it a crank 16, like that shown in my former invention, and on this shaft is hung a piston 17 which extends longitudinally through the cylinder and is adapted to revolve therein, being carried by the crank, and journaled in one side of the piston, as shown at 18, is an oscillating valve 19 which is solid at one end and is adapted to close the discharge port 14 and it has also a solid slide 20 formed integral with the valve and adapted to slide on the inner edge of the partition 15 which is provided with a suitable packing at this point, as shown at 21, to guard against leakage.

The valve is provided with parallel curved arms 22, which extend from its solid portion to the shaft 23, this extending longitudinally through the pump at one edge 24 of the cylinder, and this arrangement provides openings between the arms through which water may pass, while the curvature of the arms forms a recess to provide for the movement of the cut-off 25 on the piston. The cut-off 25 is in the form of a spur, which curves outward from the face of the piston 17, and this is adapted to shut down over the joint at the junction of the edge of the cylinder and the shaft 23 and completely cut off the inlet, as shown in Figs. 1 and 3. The bearings of the pump may be provided with any suitable means of lubrication, as illustrated in my other application.

The operation of the pump is as follows:— If the port 13 is to be used as a suction port and the port 14 as a discharge port, the pump starts with the piston in the position shown in Fig. 1, although of course it may be in almost any position, but when in this position the discharge is closed and the suction opened to the cut-off and shaft 23. As the piston moves it follows the wall of the cylinder 10, being carried by the crank shaft 16, and the cut-off leaves the wall of the cylinder while the water is drawn in between the arms 22 and into the cylinder. As the cylinder continues to travel the valve 19 swings away from over the port 14, so that the water, which has been brought in by a previous revolution of the

piston, is forced outward in front of the piston, and as the piston finishes its revolution, the cut-off is carried downward over the joint of the valve and into the recess above the arms 22, thus cutting off the inlet.

It will be seen that by reversing the direction of the piston, the port 14 may be used as a suction port and the port 13 as a discharge port. During the movement of the piston, as described, the valve 19 oscillates and the slide 20 thereon moves over the wall 15, completely separating the suction and discharge ports, and there is no leakage. It will also be seen that there is no intricate mechanism in the pump to become clogged, and consequently it may be safely used to pump water which is filled with mud, sand or refuse.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A pump, comprising a cylinder having adjacent inlet and discharge ports separated by a partition, an eccentrically rotating piston held in the cylinder, and a valve pivoted to the piston and to the cylinder at the edge of one of the ports, the valve having an extended solid portion which rests on and slides over the partition, and openings therein near the end which is pivoted to the cylinder, substantially as described.

2. In a rotary pump, the combination, with a casing, or cylinder, having inlet and discharge ports and a rigid inwardly-projecting

partition arranged between said ports, the piston, and a crank for propelling it in a circle, of the valve herein described, which is pivoted at one end to the piston and has lateral arms which are pivoted to the cylinder at their free or outer ends, said valve having an imperforate downward extension that slides on the aforesaid partition and thus serves as a cut off, as shown and described.

3. The combination, with the pump cylinder having the inlet and discharge ports therein, of the eccentrically rotating piston, the valve pivoted to the piston and to the cylinder so as to oscillate opposite the ports, and the cut-off on the piston adapted to move opposite one end of the valve, substantially as described.

4. A pump, comprising a cylinder mounted on a hollow base and opening into the same, inlet and discharge ports separated by a partition in the base, an eccentrically rotating piston in the cylinder, a valve pivoted to the cylinder at the edge of one port and connected to the piston at its other end, the valve being solid at one end and comprising a series of arms at the other end, and a cut-off on the piston adapted to move opposite the arms and cover the joint of the valve, substantially as described.

CHARLES RUMLEY.

Witnesses:

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CLARA B RUMLEY.