

(No Model.)

C. RUMLEY.
BLOWER OR PUMP.

No. 532,707.

Patented Jan. 15, 1895.

Fig: 1.

Fig: 2.

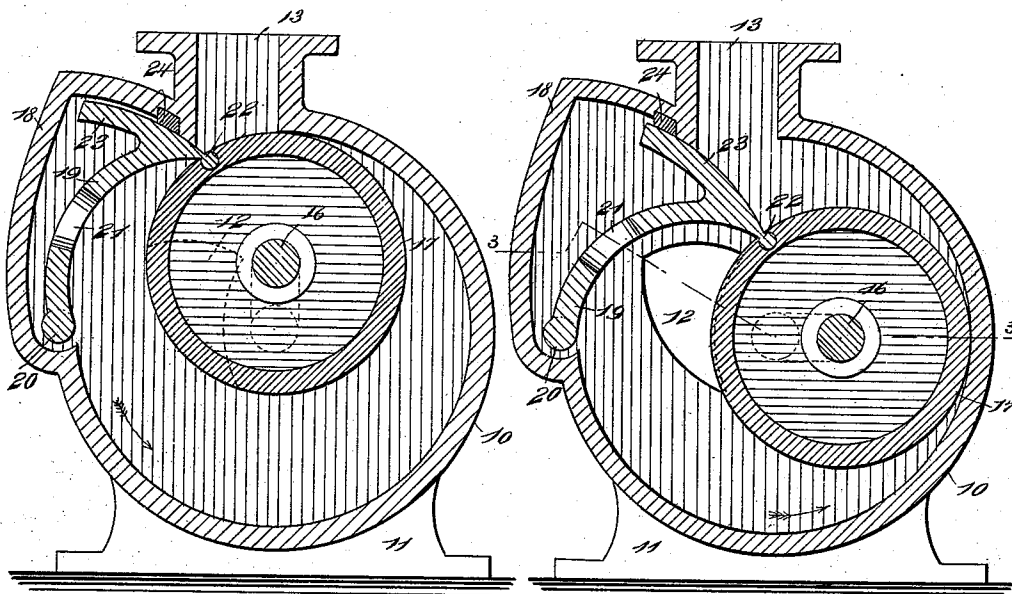
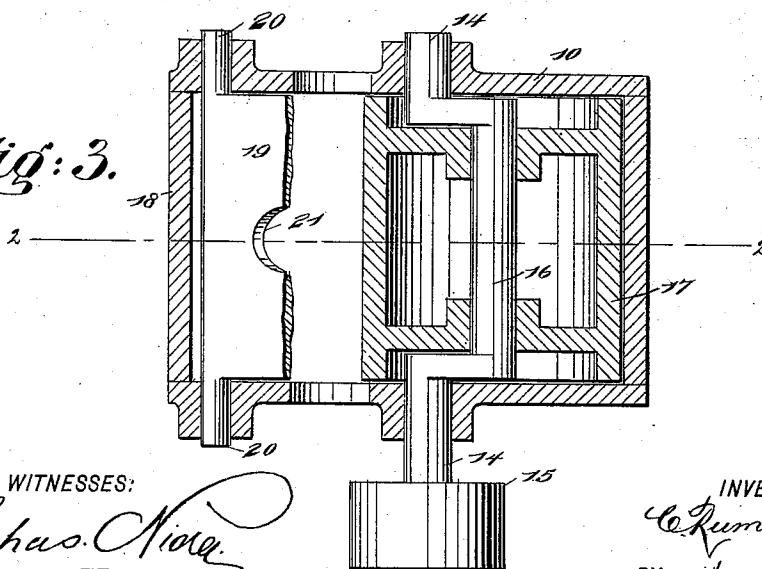


Fig: 3.



WITNESSES:

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CHARLES RUMLEY, OF HELENA, MONTANA.

BLOWER OR PUMP.

SPECIFICATION forming part of Letters Patent No. 532,707, dated January 15, 1895.

Application filed October 23, 1894. Serial No. 526,744. (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 Blower or Pump, of which the following is a full, clear, and exact description.

My invention relates to improvements in that class of devices which may be used for either blowers or pumps, and is an improvement on the blower for which I obtained Letters Patent of the United States, No. 523,548, dated July 24, 1894.

The object of my present invention is to improve the construction shown in my former patent and arrange the parts so that there will be no possible leakage, and chiefly to construct the valve, its carrying arm and the piston, in such a way that the back pressure will be largely removed from the piston, thus enabling the latter to work with greater ease and with less wear.

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 sectional elevation of my improved blower and pump, showing the piston in position to close both inlet and discharge ports. Fig. 2 is a similar section on the line 2—2 of Fig. 3 and showing the inlet and discharge ports open; and Fig. 3 is a sectional plan on the line 3—3 of Fig. 2.

The device may be used as either a pump or blower and it is provided with a nearly cylindrical case 10, which is provided with a suitable base 11 and with inlet ports 12 at the ends and an outlet port 13 at the top. The case has also extending longitudinally through it and journaled in its ends a crank shaft 14, which has a suitable driving pulley 15 or equivalent driving apparatus, and has also a crank 16 which carries a piston 17, this extending the full length of the case, as shown clearly in Fig. 3, and when the crank shaft is turned the piston is carried around the inner wall of the case, being moved preferably in the direction indicated by the arrows in Figs. 1 and 2.

The above construction is practically the same as that illustrated in my former patent referred to above and is not claimed in this application.

On one side of the case, in the top, is an offset 18 which is adapted to receive water when the apparatus is used for a pump, but which is made preferably to provide for the movement of the valve arm 19 and the valve which it carries. This arm 19 is curved so that the piston 17, in its rotation, may close snugly against the inner side of the arm, and the arm has at its ends and near the bottom, trunnions 20 which are journaled in the ends of the case 10 and the valve arm is open in the center, as shown at 21, and has a space left below its pivot, so that the water in the case may flow freely around the valve arm, while the opening in the arm permits it to move without too much resistance through the water. The valve arm 19 is at its upper end pivoted, as shown at 22, to the piston 17 and the valve arm has at its upper end an outward extension 23 which extends the full length of the case and serves as a slide valve, this valve being wide enough to extend from one side of the port 13 to the piston 17 when the latter is on the opposite side of the case from the valve arm 19, as shown clearly in Fig. 2, and thus the water which is being forced out in front of the piston is guided through the discharge port 13 and cannot get back into the case. To insure a water-tight joint, a packing strip 24 is placed in the upper wall of the offset 18 and the valve 23 slides against this packing strip.

In my former patent above referred to, the valve arm 19 serves also the purpose of a valve, and the back pressure of water on the valve when constructed in this way, causes the valve to bear so heavily on the piston as to retard the piston and increase its wear; but by having the valve 23 projected behind the valve arm, as already described, it will be seen that the back pressure on the valve, even when the piston 17 is on the opposite side of the case, as in Fig. 2, presses chiefly in a longitudinal direction on the arm 19 and on the pivot of the arm, and thus the piston is in a great measure relieved of strain.

In operation, when the piston is in the position shown in Fig. 2, the water, if the device

is used as a pump, flows in through the ports 12 and as the piston travels around it comes to the position shown in Fig. 1, so that it entirely closes the port 13 and also the ports 12, and as it continues to move it travels around the case back to the position shown in Fig. 2, thus forcing out the water in front of it, while the valve 23 prevents the water from running back into the case and thus, at every rotation of the piston, the case is filled and its contents driven out.

If the device is used as a blower to force foul air from a mine or other place, or to supply air under pressure, the operation is exactly as specified, except that the case is filled and emptied of air instead of water.

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

1. The combination, with the case having the inlet and discharge ports and the side offset, of the piston rotating in the case, the valve arm journaled in the offset and pivoted to the piston, and the valvular extension on the arm extending into the offset and to one

side of the discharge port, substantially as described.

2. The combination, with the case having the end ports, the top discharge port and the offset at one side of the discharge port, of the piston rotatable in the case, and the slide valve pivoted to the piston and extending into the offset and separating the upper part of the case from the lower part, substantially as described.

3. The combination, with the case having the end inlet ports, the top discharge port and the offset at one side of the inlet and discharge ports, of the rotatable piston in the case, the valve arm journaled in the offset and pivoted to the piston, the arm being arranged to permit a flow of water around it, and the valvular extension on the upper part of the arm, the said extension extending into the offset adjacent to the discharge port, substantially as described.

CHARLES RUMLEY.

Witnesses:

HARRY H. DAVIS,
HARRY L. LUKE.