T. Freeman Jr,

Rotary Pump

No. 23,764. Patented Apr. 26, 1859.

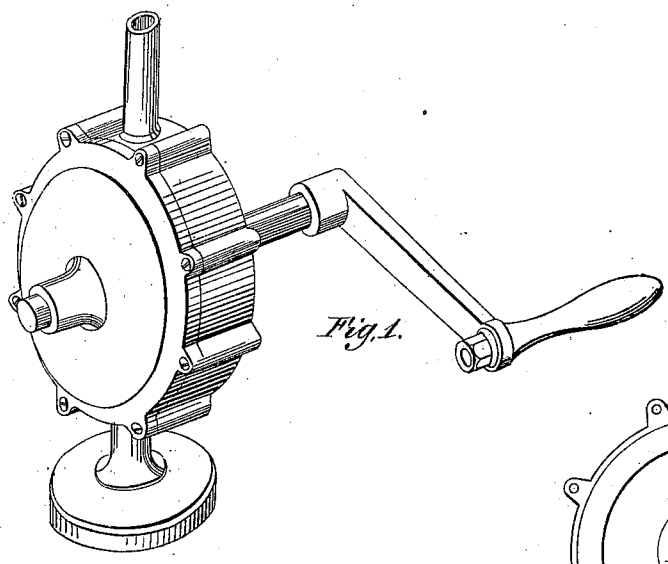

Fig. 1.

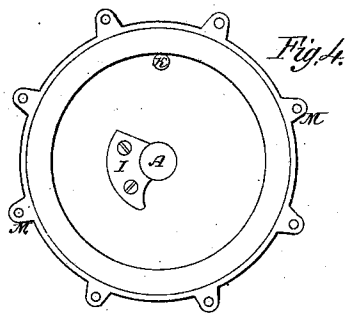

Fig. 4.

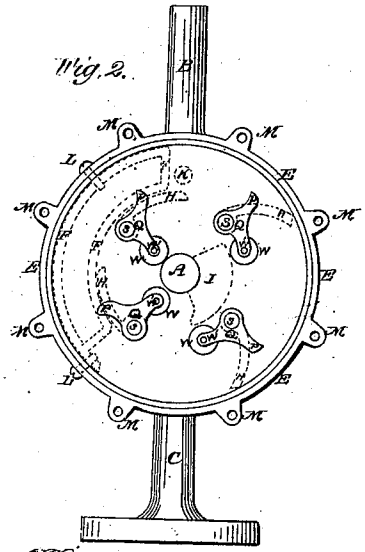

Fig. 2.

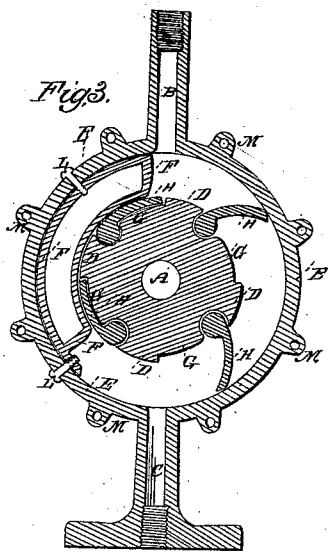

Fig. 3.

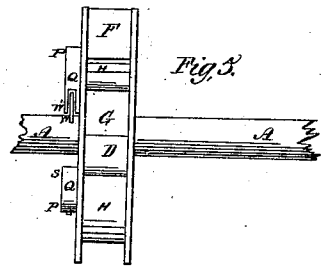

Fig. 5.

Witnesses.

Joseph L. Pittman.

Asahel A. Potter.

Inventor.

Truman Freeman Jr.

UNITED STATES PATENT OFFICE.

TRUMAN FREEMAN, JR., OF PROVIDENCE, RHODE ISLAND.

ROTARY PUMP.

Specification of Letters Patent No. 23,764, dated April 26, 1859.

To all whom it may concern:

Be it known that I, TRUMAN FREEMAN, Jr., of the city and county of Providence, in the State of Rhode Island and Providence Plantations, have invented an Improvement in Rotary Pumps; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the pump. Fig. 2 is a side elevation with one side of the case removed. Fig. 3 is a longitudinal central vertical section of the pump. Fig. 4 is a view of the interior of the side of the case, removed from Fig. 2, and Fig. 5 is an end view of the drum, and the parts attached to it.

The same part is indicated by the same letter in all the figures.

A, marks the position of the shaft; B, the eduction pipe; C, the induction pipe; D, the rim of the drum; E, the outer circumference of the cylindrical case; F, the abutment; G, the cavities in the rim of the drum to receive the pistons; H, the pistons; I, the cam which operates the dogs; K, the pin on which the outer arms of the dogs strike to throw the pistons down; L, screws confining the abutment in place; M, sockets for the screws which hold the sides of the case together; P, the outer arms of the dogs; Q, the dogs which operate the pistons; S, the pins upon which the dogs turn; W, the wheels on the inner arms of the dogs; *w'*, the pins on which wheels W turn.

The nature of my invention consists in the method of operating the pistons of rotary pumps, hereinafter more particularly described and shown.

Within a cylindrical case E, is placed a drum with flanges fitting closely the inner circumference of the case, the rim of the drum, the flanges, and the inner circumference of the case forming a water tight box or trough. Within this box, on the farther side of the eduction pipe B, is placed a fixed abutment F, extending from the case to the drum, secured by screws L passing through the case, and occupying the space in the box nearly to the induction pipe C. The induction and eduction pipes, furnished with the usual valves are placed diametrically opposite each other. The drum axle passes through the sides of the case. The abutment F, is so placed that it presents a barrier at the point just beyond the opening into the eduction pipe B, to the water forced through the trough. Four flaps or pistons H, are placed equidistant from each other around the drum hinged upon its rim by shafts or pins S, which pass through both sides of the drum. The rim D, of the drum has cavities G, to receive these flaps or pistons when they are thrown down, so that they can pass under the abutment, as the drum revolves upon its axle. The flaps H, when acting as pistons, fit, water tight, the flanges of the drum, and the inner circumference of the case, lifting the water and bearing it through the box to the eduction pipe.

In the interior of the case, upon one of its inner faces, is placed by the side of the aperture within which the axle A revolves, a cam I, circular in form, extending about a quarter of a circle. This cam is raised sufficiently to touch the side of the drum when the case is closed. Near the outer edge of this inner face of the cylindrical case, is placed a pin K, inclosed in a roller to lessen the friction, so adjusted that when the case is closed, it shall be near the circumference of the flanges of the drum, and opposite a point just beyond the eduction pipe B, so that it may throw down the pistons H, before they strike the abutment F, thus preventing the wear upon the pistons. Dogs or levers, Q, are placed upon that part of the shaft or pin S, which forms the hinge of the flap or piston, projecting beyond the rim of the drum toward the inner face of the side of the case. They are so constructed that one arm P, plays against the pin K, inclosed in the roller before described, and the other arm provided with a wheel W, plays over the circumference of the quadricircular cam I, before described.

The operation of the pump is as follows: Turn the drum by the crank on the drum axle so that one piston shall be near the opening in the case to the eduction pipe B; the second piston is a little more than half way between this piston and the induction pipe C. Each piston is raised and kept up by the wheel W, on the inner arm of the dog Q, which is fastened to its hinge playing over the cam I. The third piston has passed under the abutment, and is approaching the induction pipe C; the fourth piston is passing under the abutment, having fallen into the cavity G, in the rim of the drum. The water which has been raised by the first piston, meeting the abutment, and being un-

able to pass by or under it, has been forced out of the eduction pipe B. As the drum axle continues its revolution, carrying the drum with it, the first piston passes by the eduction pipe, and before it reaches the abutment, the outer arm P, of the dog Q, placed on the shaft of the piston, strikes against the pin K, placed upon the inner face of the side of the case, and the piston H is thrown back, and down into the cavity G, in the rim of the drum, so that it passes under the abutment. While this action is being produced upon the first piston, the third piston passes by the induction pipe, and as the drum revolves, the wheel W, on the inner arm of the dog, strikes the cam I, elevating the piston in the box or trough so that a new bucket is formed; and so on with the second and fourth pistons, the third and first, and the fourth and second in succession.

The pins or shafts S, forming the hinges of the pistons, are packed in stuffing boxes, where they pass through the sides of the drum, or at each extremity of the pin or shaft. The drum axle is also packed in stuffing boxes where it passes through the sides of the case.

I do not claim the cylindrical case, the drum moving on the axle, the fixed abutment, the flaps or pistons hinged to the rim of the drum and passing under the abutment, nor the raising of water by a rotary pump.

What I claim and desire to secure by Letters Patent is—

The combination of the pistons H, with the dogs Q, constructed as described, and arranged for conjoint operation with the cam I, and pin K, substantially in the manner specified.

Providence, February 28, 1859.

TRUMAN FREEMAN, Jr.

Witnesses:
Jno. E. Martin,
Joseph L. Pitman.