R. S. Foster,

Rotary Pump,

No. 45,596. Patented Dec. 27, 1864.

Fig. 3.

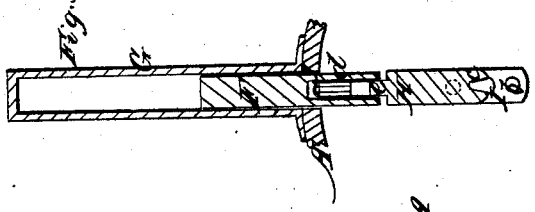


Fig. 2

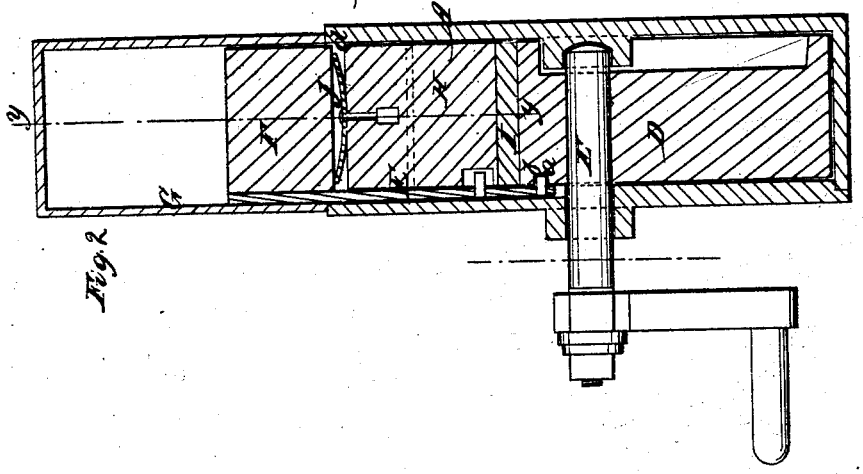
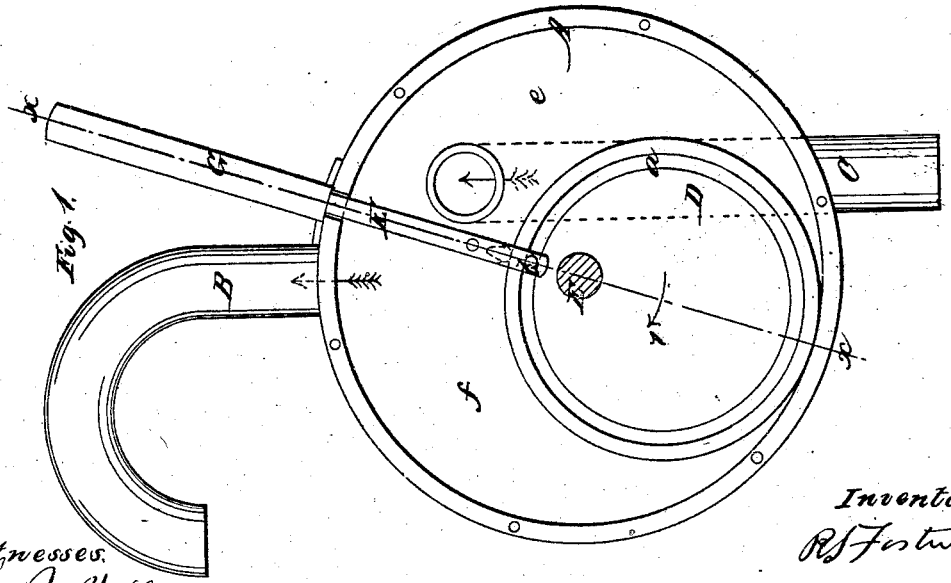


Fig. 1.



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RANDOLPH S. FOSTER, OF NEW YORK, N. Y.

IMPROVEMENT IN ROTARY PUMPS.

Specification forming part of Letters Patent No. **45,596**, dated December 27, 1864.

To all whom it may concern:

Be it known that I, RANDOLPH S. FOSTER, of 191 West Eighteenth street, in the city, county, and State of New York, have invented a new and Improved Rotary Pump; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of my invention, the side of the case nearest the eye being removed in order to show the working parts; Fig. 2, a section of the same, taken in the line *x x*, Fig. 1; Fig. 3, a section of a portion of the same, taken in the line *y y*, Fig. 2.

Similar letters of reference indicate like parts.

This invention consists in the employment or use of a cylindrical case provided with a suction and discharge pipe, and having within it an eccentric cylinder connected with a sliding abutment or cut-off, all being arranged in such a manner as to form a very simple and efficient rotary pump.

A represents a cylinder, which may be of cast metal and of any suitable dimensions. This cylinder has a pipe, B, at its upper part; and C is a pipe which communicates with the cylinder A at one side of it. The cylinder D is of such diameter that its periphery will work in contact with the inner side of the periphery of the cylinder A, (See Fig. 1,) the cylinder D being equal in width to the interior of cylinder A, as shown in Fig. 2.

The cylinder D has a circular groove, *a*, made in it all around near its periphery, and in this groove a pin, *b*, on a bar, E, is fitted, the latter being permanently attached to one side of a plate, F, which is fitted in a case, G, secured to the exterior of the cylinder A, and in radial position therewith, as shown in Fig. 1.

Within the case G, and below the plate F, there is fitted a plate, H, in the lower end of which there is a recess, *c*, to receive packing I, of leather or other suitable material, and this packing is kept in contact with the periphery of the eccentric cylinder D by means of a spring, J, which is secured to the upper end of the plate H and bears against the upper edge of a recess, *d*, in the plate F. This spring J may be of semi-elliptic or other proper form. The upper part of the plate H is diminished in thickness to form what may be termed a "tenon," *e*, which is fitted and works in the recess *d*, as shown clearly in Fig. 2.

By referring to Fig. 1 it will be seen that the plates F H are between the pipes B C, and form an abutment or cut-off between them when the cylinder D is not in contact with the inner periphery of the case A between the two pipes.

The eccentric cylinder D and plates F H divide the cylinder A into two compartments, *e f*, the suction-pipe C communicating with *e*, and the pipe B, which is the eduction or discharge pipe, communicating with the compartment *f*. (See Fig. 1.)

The cylinder D is rotated in the direction indicated by the arrow 1, and the compartment *e* fills with water through pipe C, a suction being produced in *e* by cylinder D, and at the same time the water in compartment *f* is forced out through the pipe B. When the periphery of the cylinder D touches the inner periphery of the cylinder A at a point between the pipes B C, the two chambers *e f* may be said to be united, and both are filled with water, but the orifice of the pipe C is closed by the cylinder D, so as to prevent any reaction or downward pressure of the water in C, the latter being cut off by D just previous to the uniting of the two chambers.

The plates F H work in and out of the case G as the cylinder D rotates the packing I and spring J, insuring a water-tight contact between the plate H and the cylinder D at all points in the path of rotation of the latter.

I would remark that the eduction or force pipe B may, instead of communicating directly with the case A, be connected with an air-vessel, the latter being placed on the exterior of the case A and over the case G.

This invention forms a very efficient and simple rotary pump, one which will not be affected by wear, and it may at the same time be construeted at a very moderate expense.

I claim as new and desire to secure by Letters Patent—

1. The eccentric cylinder D, placed within the cylinder A and in relation with the pipes B C, as shown, in connection with the sliding abutment or cut-off working in a case, G, con-

nected to the cylinder A, all being arranged to operate in the manner substantially as and for the purpose set forth.

2. The construction of the sliding abutment of two plates, F H, one of which H has an independent sliding or adjustable movement, and provided with a packing, I, and spring J, arranged to operate in the manner substantially as and for the purpose specified.

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