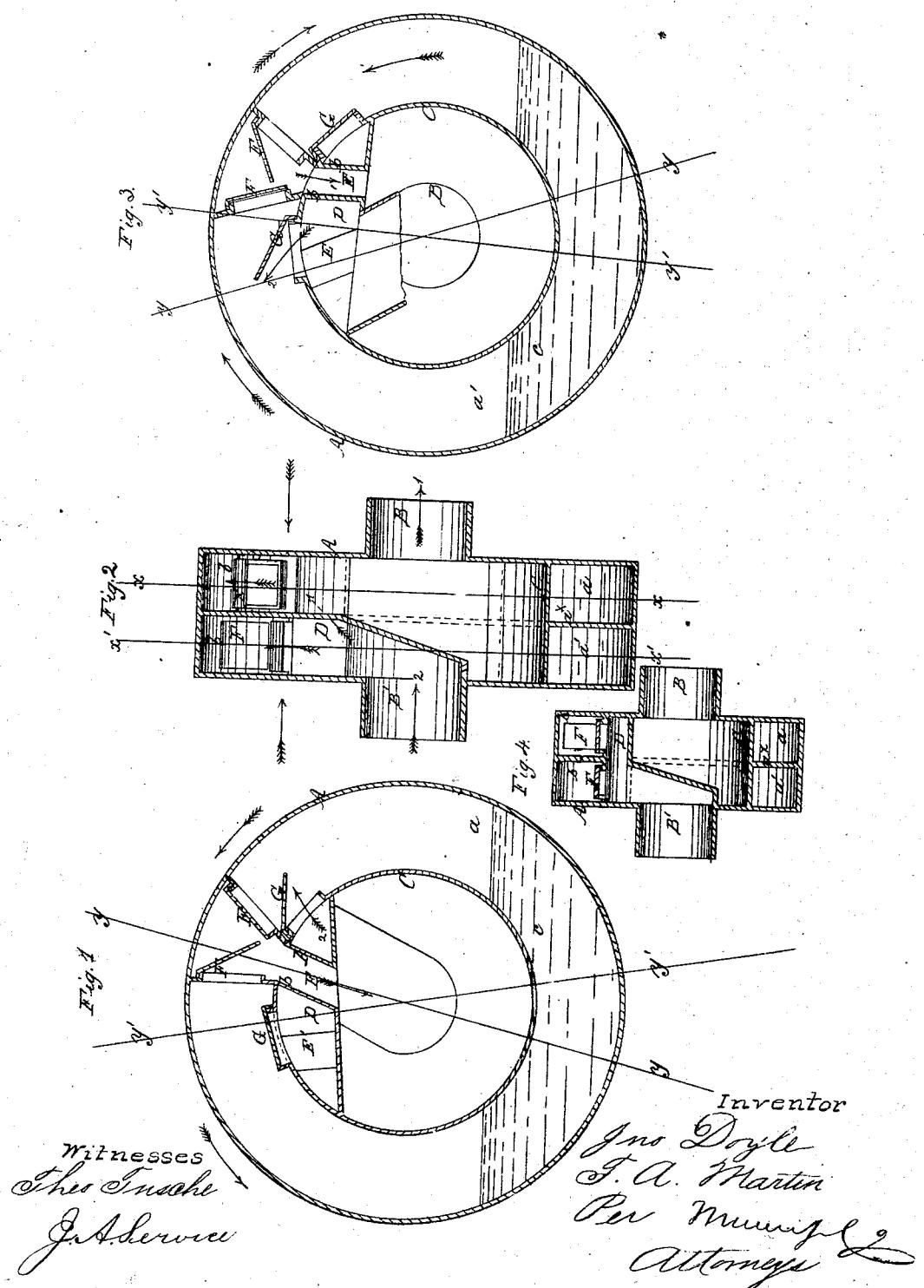


Doyle & Martin.

Rotary Pump.

No 72001

Patented Dec. 10, 1867.



# United States Patent Office.

JOHN DOYLE, OF HOBOKEN, NEW JERSEY, AND TIMOTHY A. MARTIN,  
OF NEW YORK, N. Y.

*Letters Patent No. 72,001, dated December 10, 1867.*

## IMPROVEMENT IN ROTARY PUMPS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, JOHN DOYLE, of Hoboken, Hudson county, New Jersey, and TIMOTHY A. MARTIN, of the city, county, and State of New York, have invented a new and improved Suction or Vacuum-Pump and Blower; and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein we have set forth the nature and principles of our said improvements, by which our invention may be distinguished from all others of a similar class, together with such parts as we claim, and desire to have secured to us by Letters Patent.

This invention consists in arranging valves and air-passages within a hollow cylinder or drum, having an oscillating movement, and provided with a chamber or chambers to receive water, mercury, or other fluid, as hereinafter fully shown and described, whereby an exceedingly simple and compact pump or blower is obtained, one not liable to get out of repair, or become deranged by use. In the accompanying sheet of drawings—

Figure 1 is a vertical section of our invention, taken in the line  $x\ x$ , fig. 2.

Figure 2, a vertical section of the same, taken in the line  $y\ y$ , figs. 1 and 3.

Figure 3, a vertical section of the same, taken in the line  $x'\ x'$ , fig. 2.

Figure 4, a vertical section of the same, taken in the line  $y'\ y'$ , figs. 1 and 3.

Similar letters of reference indicate like parts.

A represents a hollow cylinder or drum, which is hung or suspended on tubular journals B B', and has a smaller drum, C, placed concentrically within it, an annular space of requisite dimensions being allowed between the two drums, which is divided into two compartments  $a\ a'$  by a partition-plate,  $a\ \times$ , (see figs. 2 and 4.) In each space or compartment  $a\ a'$  there are two partition-plates  $b\ b$ , which extend down through a chamber, D, in the drum C, and form air-passages E E', said partition-plates  $a$  being provided each with a valve F, all opening into the passages E E', as shown in figs. 1 and 3. The spaces or compartments  $a\ a'$  are made to communicate with the chamber D at certain periods in the operation of the device, by means of valves G G, opening upward. The journal B communicates with the drum C, and the other journal B' communicates with the chamber D, (see figs. 2 and 4.) The compartments  $a\ a'$  are each provided with a certain quantity of water or other liquid, designated by  $c$ , (see figs. 1 and 3.) The drum A has an oscillating motion communicated to it by any proper means, and the water or other fluid,  $c$ , performs the function of a piston or plunger; and when the drum moves in the direction indicated by the red arrow, the air in  $a\ a'$ , above the water or other fluid,  $c$ , will be forced out through the valves F into the passages E E', into drum C, and out through the journal B, as indicated by the arrows 1, while a suction is produced at the opposite sides of the compartments  $a\ a'$ , and air is drawn inward, through the journal B', into chamber D, and thence into the compartments  $a\ a'$ , through the valves G, as indicated by the arrows 2. Thus it will be seen that a very simple and efficient vacuum-pump or blower is obtained, for the device will answer for either. A single chamber or compartment,  $a$  or  $a'$ , will operate, but two would be preferable.

We do not confine ourselves to any number of compartments.

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

The two drums A C, placed concentrically one within the other, the chamber D, air-passages E E', valves F G, and tubular journals B B', all arranged and combined to operate in connection with water or other liquid placed in the space or spaces between the two drums A C, substantially in the manner as and for the purpose specified.

JOHN DOYLE,  
TIMOTHY A. MARTIN.

Witnesses:

Wm. F. McNAMARA,  
ALEX. F. ROBERTS.