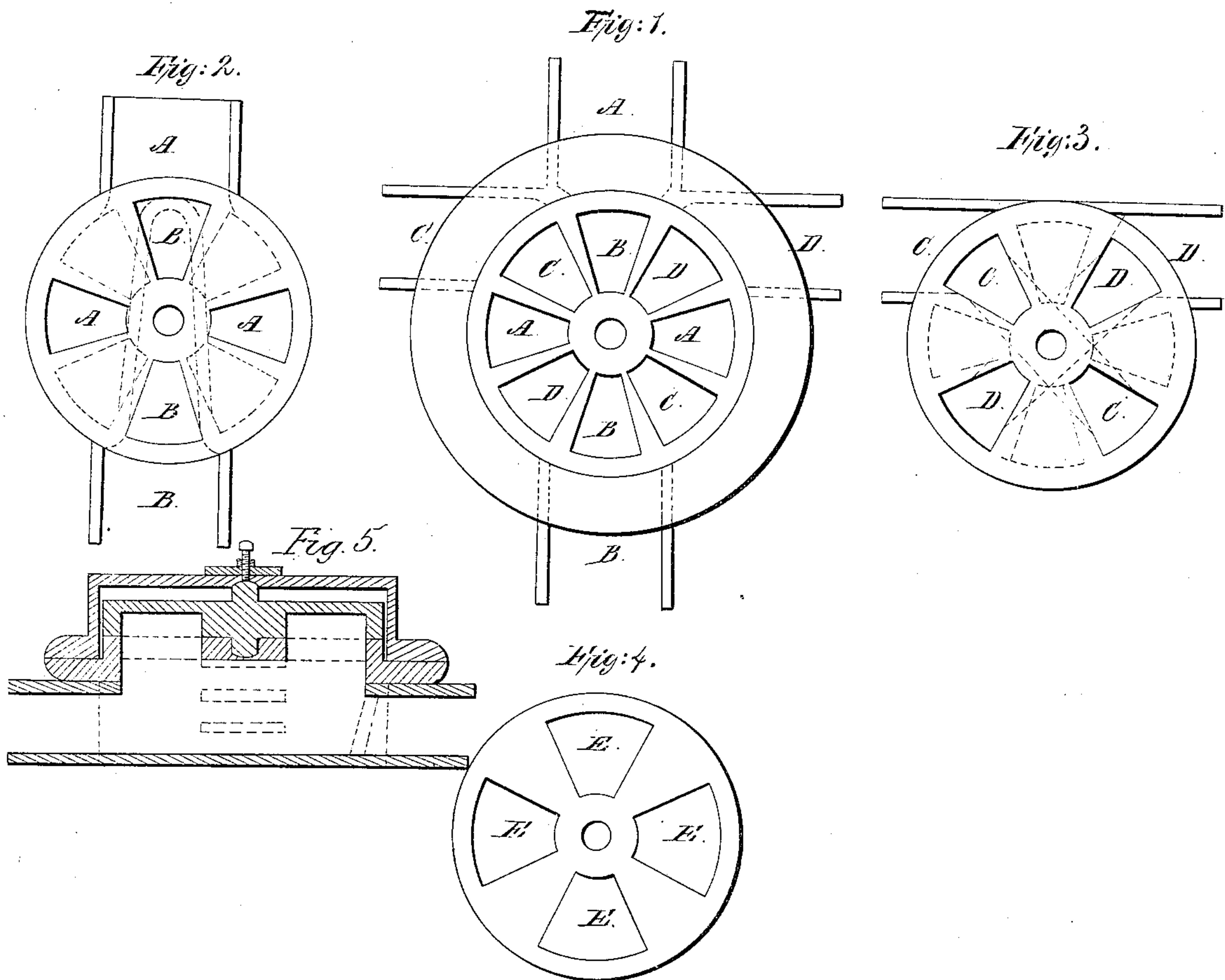


T. Richards,
Rotary Steam Valve.

N^o 19,443.

Patented Feb. 23, 1858.



UNITED STATES PATENT OFFICE.

THOMAS RICHARDS, OF PLATTSBURG, NEW YORK.

ROTARY VALVE.

Specification of Letters Patent No. 19,443, dated February 23, 1858.

To all whom it may concern:

Be it known that I, THOMAS RICHARDS, of Plattsburg, in the county of Clinton and State of New York, have invented a new and Improved Continuously-Rotating Valve for Steam-Engines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and the marks of reference thereon.

The nature of my invention consists in the arrangement of the steam and exhaust passages and those communicating with the cylinder, upon a circular face in such a manner that by the continuous revolution of the valve the alternate transmission of steam may be effected.

To enable others skilled in the art, to make and use my invention, I proceed to describe its construction and operation.

Figure 1, represents the valve seat (or disk) on which the valve is to revolve. A, A, A are the ports or passages communicating with one end of the cylinder. B, B, B are passages in connection with the other end of the cylinder. C, C, C steam pipe or port for conveying the steam from the boiler to the cylinder. D, D, D exhaust port which conducts the steam to the atmosphere or condenser. Fig. 2, is a section showing the connections with each end of the cylinder. Fig. 3, is a section showing the steam and exhaust ports which cross each other in the center. Fig. 4 represents the face of the valve plate with four cavities marked E, E, E, E, which conduct the steam alternately to each end of the cylinder, and also communicate alternately with the atmosphere or condenser. Fig. 5 is a section showing the valve plate and seat in their relative positions.

The valve being in its place we will suppose that the four surfaces between the chambers of the revolving valve plate are in such a position as to immediately cover the two steam and the two exhaust ports, that there will be no communication with either end of the cylinder, this is the po-

sition in which the valve would be when passing on to transfer the current of steam from one end of the cylinder to the other. Now if the valve plate be moved the steam will be admitted to one end of the cylinder and that which is in the other allowed to escape, by continuing the onward motion of the valve plate, alternate communications of the steam and exhaust passages will be effected with each end of the cylinder.

Again the valve plate being in the same position above supposed, the same results will be effected by moving it in a contrary direction admitting the steam to the other end of the cylinder which will be equivalent to reversing the engine.

Bearing in mind the fact that whenever the valve plate is in such a position as to admit the steam to one end of the cylinder, the other end will always have a communication with the exhaust passages it will also be seen that the valve plate may be used by merely moving it a certain distance from the position first assumed, to admit the steam and moving it to an equal distance on the other side of that position to allow the steam to escape, that is allowing it to vibrate in an arc of a circle instead of allowing it to revolve.

Having thus fully described the nature and object of my invention, what I claim therein as new and desire to secure by Letters Patent is,

In combination with a continuously rotating valve plate, having the four cavities E, and closed spaces between them, the ports or passages A, and B, which communicate respectively with opposite ends of the cylinder, and the steam and exhaust ports or passages C, D, crossing each other at the center of the valve, the whole arranged and operating substantially in the manner, and for the purpose set forth.

THOMAS RICHARDS.

Witnesses:

E. R. PIERCE,
MARTIN BIXBY.