

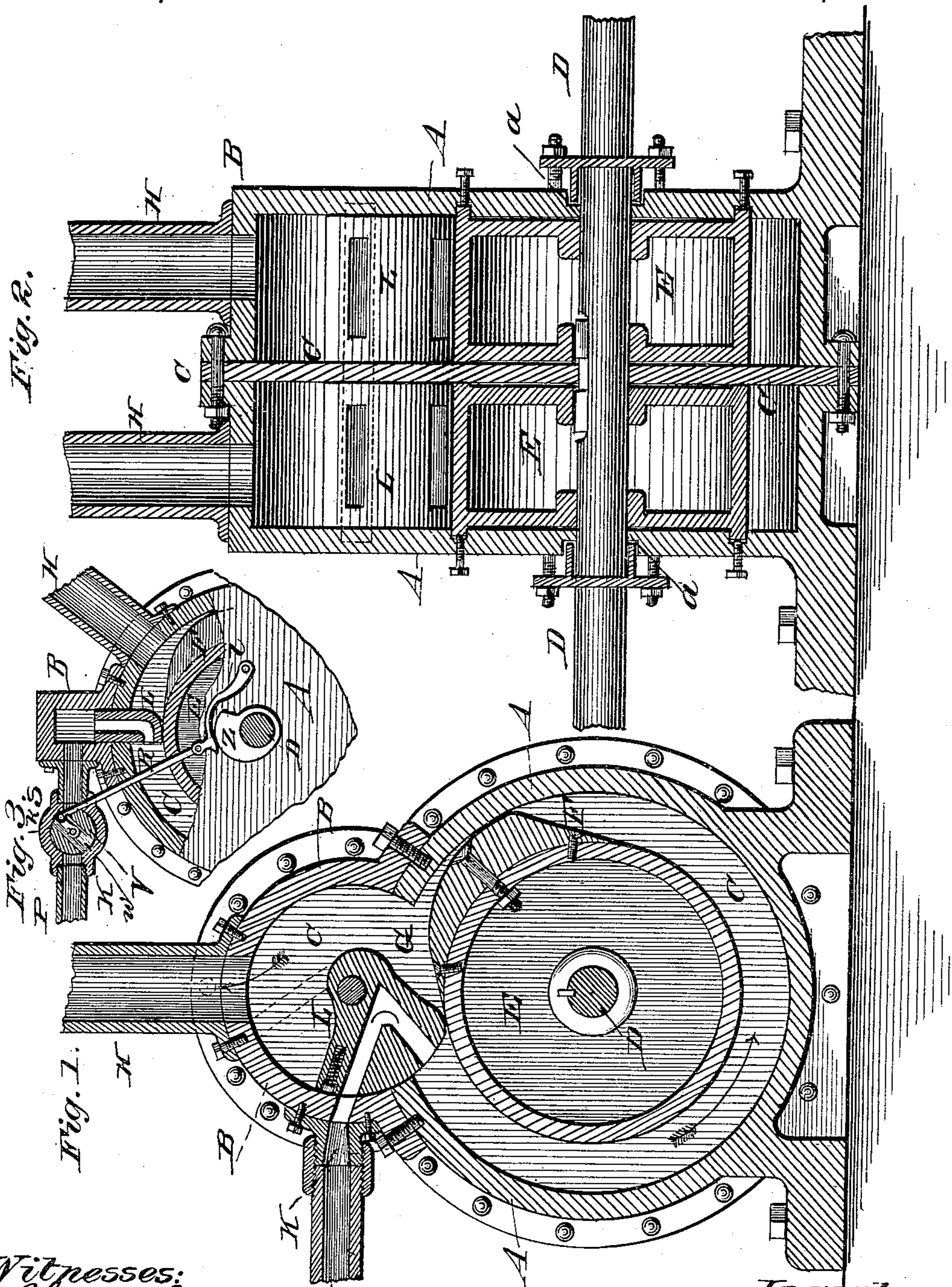
(No Model.)

J. C. WANDS.

ROTARY ENGINE.

No. 271,555.

Patented Jan. 30, 1883.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOHN C. WANDS, OF ST. LOUIS, MISSOURI.

## ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 271,555, dated January 30, 1883.

Application filed December 9, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN C. WANDS, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain  
5 new and useful Improvements in Rotary Engines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the  
10 same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation  
15 of a vertical sectional view of my engine. Fig. 2 is a cross-sectional view of the same, and Fig. 3 is a detail view.

This invention has relation to rotary engines; and it consists in the construction and  
20 novel arrangement of parts, as will be hereinafter fully described and specifically claimed.

The object of this invention is to provide a rotary engine of great power, wherein the steam will be worked by expansion, speed being  
25 obtained by gearing up from the main shaft.

In the accompanying drawings, the letters A A designate twin cylinders, usually cast with open inner ends and bolted to the center partition, C. The cylindrical valve-seats B  
30 are independently cast and bolted to the main cylinders A, in which the piston-head rotates.

D represents the main shaft, extending through bearings *a* in the cylinder-walls and center plate. To this shaft are keyed the hollow cylinder piston-heads E, each of which is  
35 provided with an eccentric bulge or piston-block, F, which is usually bolted to the wall of the cylinder-head. In position the pistons or steam-bearings F are balanced, being diametrically opposite to each other on the two  
40 piston-heads. The cylindrical valve-seats B are open at the bottom, and when bolted to the tops of the piston-cylinders A form offsets thereof, communicating therewith through the  
45 openings G.

In the upper portion of each valve-chamber B is provided the exhaust-passage H, and in

the lateral cylindrical wall of the chamber B, near the opening G, is formed the steam-passage K.

L L indicate the steam-valves, which are seated in the steam-chambers. Each valve has a rectilinear or curved reciprocating motion, and is formed with an angular or V-shaped steam-passage through it. In the construction illustrated the valve is sector-shaped and pivoted to the heads of the valve-chamber, at the centers thereof. The valve is a gravitating valve, and when in its lowest position rests on the cylindrical surface of the piston-head  
50 E, its steamway then communicating with the supply at the port K in the steam-chamber and with the chamber of the piston-cylinder, into which the steam is directed, forcing the piston-head to revolve. When the piston-offset  
55 F, in the revolution of the piston-head, engages the valve, the latter, acting as an abutment, is lifted by the inclined front end of said piston-offset and closes entirely into the valve-chamber, cutting off the live steam for a moment, until the piston has passed by and the exhaust has operated.

In connection with the steam-supply is provided in the pipe P a cylinder-shaped valve-seat, S, in which is located a vibratory cylinder-valve, V, having a diametric steamway,  
60 *w*. By means of an external crank-arm, *k*, and a rod, R, the cut-off valve is connected to a spring-arm, *l*, which is attached to the external wall of the piston-cylinder near the main  
65 shaft, and is curved to engage a cam, Z, on the main shaft. This cut-off valve is in this manner easily operated by the spring and cam as the main shaft revolves. While the piston in one cylinder is under full head of steam that  
70 in the opposite cylinder passes under the abutment-valve, so that a dead-center is avoided.

The valves should be provided with packing-springs on the front and at each side to insure steam-tight joints. The piston heads  
75 or drums should be provided with packing-rings on the sides, the same being usually set in recesses in the cylinder-walls, as indicated in the drawings.

Having described this invention, what I claim and desire to secure by Letters Patent, is—

5 A rotary steam-engine having twin piston-cylinders, pistons, and valve-chambers offset from said piston-cylinders, the vibratory gravitating abutment-valves carrying angular steamways, and the cylinder cut-off valve, its crank connecting-rod, spring, and the cam on

the main shaft, acting, in connection with said spring, to operate the cut-off valve, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN CLARK WANDS.

Witnesses:

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