O. BURNETT.

Rotary Engine.

No. 163,572. Patented May 25, 1875.

Fig. 1.

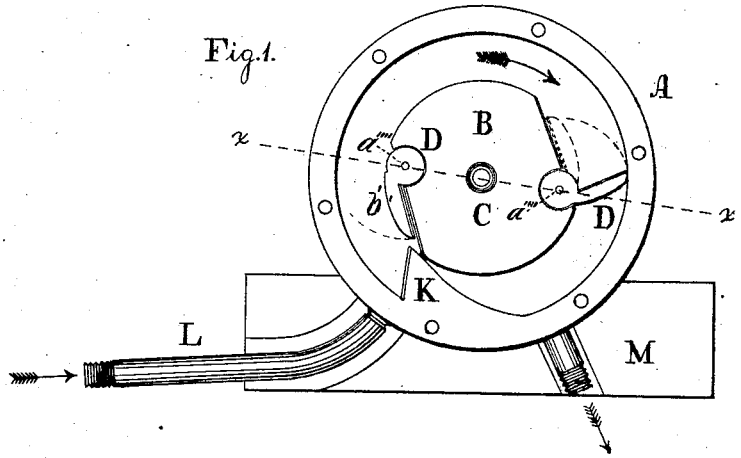


Fig. 2.

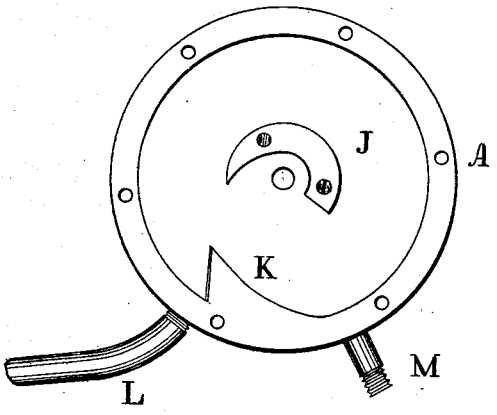


Fig. 3.

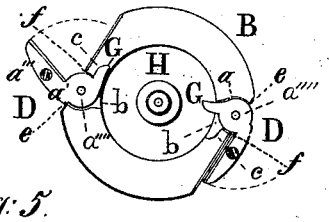


Fig. 5.

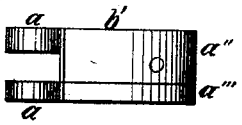
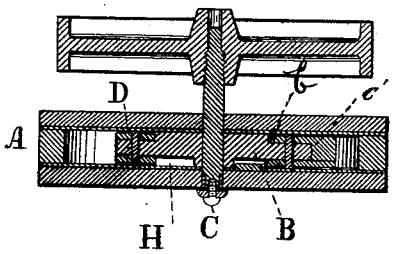


Fig. 6.

Fig. 4.



Witnesses

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Inventor

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UNITED STATES PATENT OFFICE.

OSWALD BURNETT, OF IRVINGTON, ASSIGNOR OF THREE-FOURTHS HIS RIGHT TO C. H. ALBERTSON AND BENJAMIN HALL, OF VIENNA, N. J.

IMPROVEMENT IN ROTARY ENGINES.

Specification forming part of Letters Patent No. **163,572**, dated May 25, 1875; application filed May 27, 1874.

To all whom it may concern:

Be it known that I, OSWALD BURNETT, of Irvington, in the county of Essex and the State of New Jersey, have invented a new and useful Improvement in Rotary Engines; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a side view of the interior of the device embodying my invention. Fig. 2 is an inside view of the cylinder or casing. Fig. 3 is a side view of a detached portion. Fig. 4 is a horizontal section in line *x x*, Fig. 1. Fig. 5 is a face view of the valve detached. Fig. 6 is an end view thereof.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in a rotary engine wherein the valves are constructed of two parts, so that the valves may be applied laterally in position in depressions in the sides of the rotary head or disk, and connected to the tongues therein.

Referring to the drawings, A represents the cylinder, and B a rotating disk placed therein, and having its bearing-shaft C pass through openings in the heads of the cylinder, and to which shaft may be attached a pulley or band-wheel for communicating power to the desired spot or machinery. To the surface of the disk B, at opposite points thereof, there are hinged valves D, whose heads *a* are of circular form, and enter correspondingly-shaped openings or depressions *b*, being at the sides of the disk near its circumference. The heads of the valves have formed with or secured to them toe-pieces G, which project inwardly, and occupy positions in a groove, H, formed in one face of the disk B. Each valve is made in two parts, a'' a''', of which one part, a'', has a head, *a*, and laterally-extending face b'. The other part, a''', has a head, *a*, and the toe-piece G. The part a''' is brought up against and screwed to the side face b', and this leaves a space for the reception of the tongue, c', formed by the side depressions *b* of the disk. The axial pin a'''' of the valve passes through the heads *a a* and tongue c'. In order that the valves may not project beyond the periphery of the disk, the axial pins a'''' are set back from the periphery of the disk, and as the spaces across the outer edges of the depressions *b*, as at *e* to *f*, are narrower than the diameters of the heads *a a*, the valves are applied laterally. As the tongues of the head or disk are in the middle of each set of depressions *b*, the valves are made in two parts in order to be pivoted to said tongues, and applied from opposite sides of the head, the application of the same from the periphery being prevented, owing to the spaces *e f* being narrower than the diameter of the heads *a a*. By these means, also, the sides of the valves will be flush with the sides of the head, and fit flush against the abutment K and inner face of the cylinder.

I do not claim a rotary engine consisting of a cylinder-head, cam, and abutment, with valves having toe-pieces, as I am aware that they are not new.

A cam-shaped piece, J, is secured to the inner face of one of the heads of the cylinder, and so located that when the disk B is in position the cam J is in the groove H of said disk. K represents an abutment which projects inwardly from the inner circumference of the cylinder A, and arranged in relation to the induction-pipe L and exhaust-pipe M. The sides of the disk B are flattened or cut away at opposite points, in order that when the valves are folded or closed against the disk the outer surfaces of the valves will continue the curve of the disk, thus maintaining the cylindrical form of the disk. When the parts are in position, Fig. 1, the steam from the pipe L presses against an open valve and rotates the disk B, thus imparting motion to the shaft C. When the open valve uncovers or clears the pipe M, the steam exhausts. The valve then reaches the abutment K, and is thereby folded or closed. Meanwhile, the other valve having previously cleared, the abutment K has its toe-piece G come in contact with point or beginning of the cam J, thus throwing out or opening the said valve, which then takes steam from pipe L, and continues the motion of the disk B. The first

named valve now clears the abutment K, and is opened by the action of the cam J on the toe-piece G, these operations causing continuous rotation of the shaft C. The cam J is of such length that it is cleared of the toe-pieces of the valves before the latter reach the abutment K. When the valves close, the toe-pieces thereof enter cavities *c*, formed in the adjacent portions of the disk B; but the closing of the valves throws out the toe-pieces, and places them in position for contact with the claw J.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination, with the cylinder A, having cam J and abutment K, of the grooved disk B, having side depressions *b e f* and tongues *c'*, and the valves D, pivoted to said tongues *c'*, and formed of two parts, one part consisting of the head *a* and laterally-extending face *b'*, and the other part of the head *a* and toe-piece G, all constructed, arranged, and operating substantially as and for the purpose set forth.

OSWALD BURNETT.

Witnesses:
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