

No. 646,057.

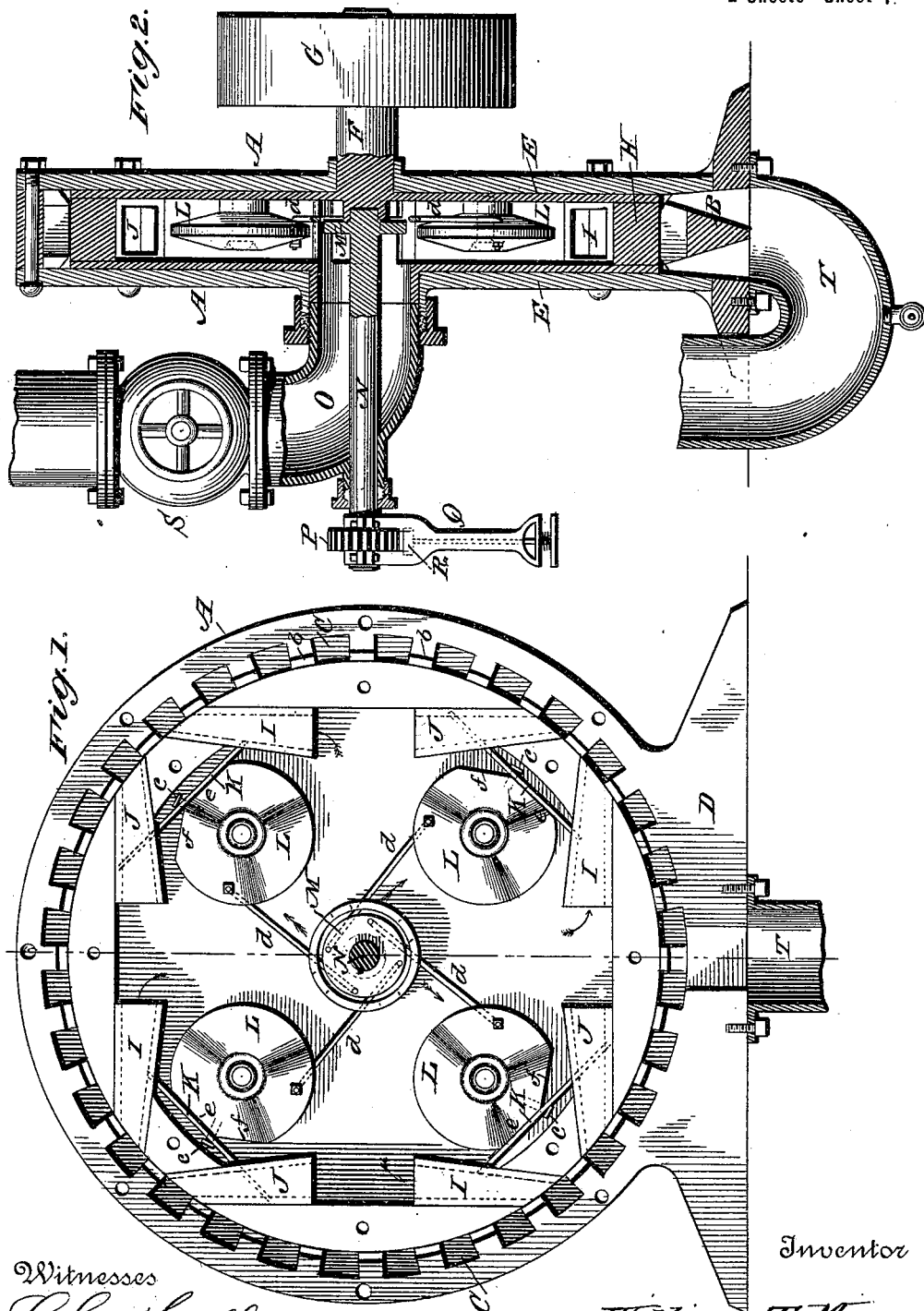
W. T. MOONEY.
ROTARY ENGINE.

Patented Mar. 27, 1900.

(Application filed Aug. 10, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
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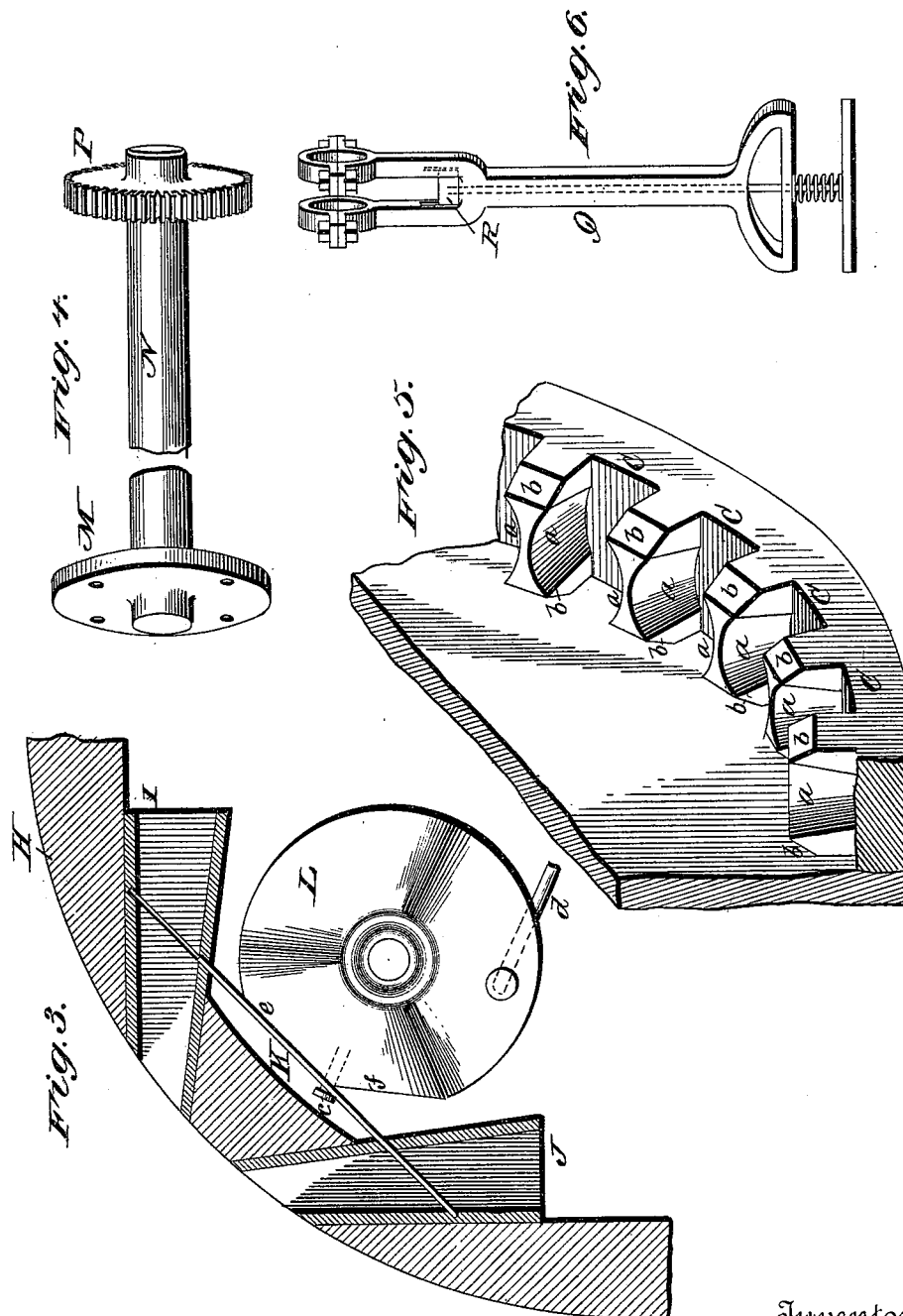
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UNITED STATES PATENT OFFICE.

WILLIAM T. MOONEY, OF CONICVILLE, VIRGINIA.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 646,057, dated March 27, 1900.

Application filed August 10, 1899. Serial No. 726,808. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. MOONEY, a citizen of the United States, residing at Conicville, in the county of Shenandoah and State of Virginia, have invented certain new and useful Improvements in Rotary Engines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

The present invention has relation to that class of rotary steam engines or motors in which a wheel is mounted within an inclosed casing and is operated by a pressure of steam, or, if desired, either water or air, the same being admitted to the center of the wheel and discharged against buckets located in the inner periphery of the casing.

The invention consists of an engine or motor of the above character constructed substantially as shown in the drawings and hereinafter described and claimed.

Figure 1 of the drawings is a side elevation of an engine or motor constructed in accordance with my invention, one of the disks thereof being removed; Fig. 2, a central sectional elevation taken on line *xx* of Fig. 1; Fig. 3, a detail sectional view through two of the nozzles and on an enlarged scale, the valve and operating-disk being shown in elevation; Fig. 4, a detail perspective view of the reversing-shaft; Fig. 5, a perspective view in detail, showing the form of the buckets; Fig. 6, a perspective view of the reversing-lever.

In the accompanying drawings, A represents the two heads comprising the casing and between which is located the annulus B, the inner periphery thereof being provided with a plurality of buckets C. These buckets are recessed, having their faces *a* concave in form and beveled at their outer corners, as shown at *b*, for the purpose hereinafter described, the casing being provided with a suitable base D for securing it to the usual bed or support. The wheel consists of the disks E, which are supported to rotate between the heads A, one of said disks being secured to the shaft F, upon which is the fly-wheel or pulley G, the same being open at its center to admit the motive fluid, either steam, air, or water, as the case may be. Between the disks E is an annulus

H, provided with ports or short nozzles I J, arranged in sets or pairs and disposed at an angle to the wheel, and one set or pair I J being arranged at right angles to each other, thereby turning the wheel according to which set of nozzles are admitting the steam. Each set of nozzles are provided with a gate or valve K, which are connected together and so proportioned with relation to their length as to close only one nozzle or port, while the other is left open. These valves are operated simultaneously by means of the plates L, which act substantially as levers and which are connected loosely to the valves by bolts or pins *c* or by any other means found best adapted to the purpose. These levers K are connected by rods *d* to a central disk M at or near the end of the reversing-shaft N and in line with the main shaft, and the steam-pipe O, through which the reversing-shaft extends, is provided with the usual stuffing-box to prevent the escape of steam or other motive fluid used.

Secured to the end of the reversing-shaft N is a ratchet-wheel P, and mounted loosely on this shaft is the bifurcated reversing-lever Q, which is provided with a suitable spring-actuated latch R. This latch is kept out of contact with the teeth of the wheel P, and as the reversing-shaft N rotates with the wheel the lever Q hangs in a vertical position.

The plates N have the two faces *ef* at an angle to each other, one of which faces bear on the valve K or their connecting-stems to hold them in the position in which they are set.

The steam-pipe O is screwed into the head A of the casing and is provided with the usual stop-valve S, the usual exhaust-port of the engine being shown at T in whichever direction the wheel may be running.

In the operation of the engine or motor the steam or other motive fluid is admitted to the inside thereof. It will pass through the four nozzles or ports whose valves are open, and striking the concave faces of the buckets it will be directed to the center of the same, by which a greater reaction on the wheel is obtained than if the buckets had a plain face. After the nozzle has passed the bucket the steam or other fluid will escape past the beveled edges of the buckets to the exhaust-port.

To reverse the engine or motor, the lever is grasped by the hand and rotated a short distance after causing the latch at the same time to engage with the ratchet-wheel. This movement will cause one set of valves to close while the other set are opened, thereby causing the steam to act in an opposite angle to change the direction of the wheel.

In the construction of the engine or motor there may be many changes or modifications made without departing from the principle of the invention, and any such changes or modifications may be resorted to as would come within ordinary mechanical skill without in any manner effecting the essential features of the invention.

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

1. In a rotary engine or motor, the combination of a stationary casing provided with buckets on its inner periphery, with a wheel provided with an enlarged central steam or other motive-fluid space, and short nozzles leading from said space to the periphery of the wheel, substantially as and for the purpose set forth.

2. In a rotary engine or motor, the combination of a stationary casing provided with buckets on its inner periphery having concave faces, with a wheel provided with an enlarged central steam or other fluid space, and short nozzles leading from said space to the periphery of the wheel, substantially as and for the purpose described.

3. In a rotary engine or motor, the combination of a stationary casing provided with buckets on its inner periphery, with a wheel provided with a central steam or other fluid space and two sets of nozzles provided with valves extending into the same and leading from said space, substantially as and for the purpose specified.

4. In a rotary engine or motor, the combination of a stationary casing provided with

buckets on its inner periphery, with a wheel having a central steam or other fluid space, two sets of nozzles leading from said space to the periphery of the wheel, valves in each of the nozzles, and means for simultaneously opening one set of valves and closing the other set, substantially as and for the purpose set forth.

5. In a rotary engine or motor, the combination of a stationary casing provided with buckets on its inner periphery, with a wheel having a central steam or other fluid space, and two sets of ports or nozzles leading from said space to the periphery of the wheel, valves in the ports or nozzles, means for moving them simultaneously, and means for locking them in position, substantially as and for the purpose described.

6. In a rotary engine or motor, the combination of a stationary casing provided with buckets on its inner periphery, with a wheel having a central steam or other fluid space, two sets of ports or nozzles leading from said space to the periphery of the wheel, valves in the ports or nozzles, plates having two faces for locking the same and connected to the valves, and means for operating them, substantially as and for the purpose specified.

7. In a rotary engine or motor, the combination of a wheel provided with a central steam or other fluid space, ports leading therefrom to the periphery of the wheel, with valves in the ports or nozzles, plates connected to the valves, rods connecting the plates to a disk or the reversing-shaft, a ratchet-wheel and a detachable lever for reversing the valves, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

WILLIAM T. MOONEY.

Witnesses:

WM. F. DOYLE,

WM. H. DE LACY.