

J. C. MOSSHOLDER.
ROTARY STEAM ENGINE.

No. 112,066.

Patented Feb. 21, 1871.

Fig. 1.

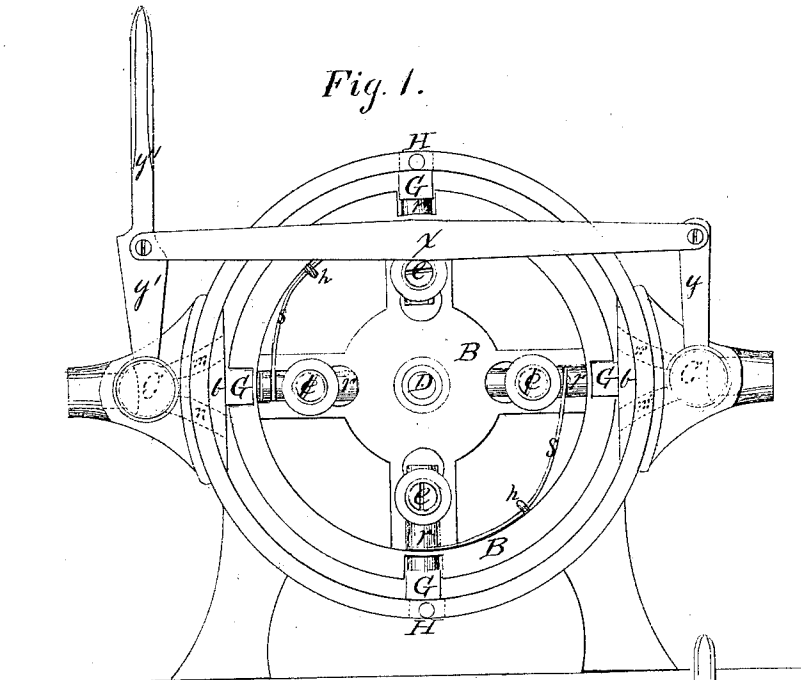
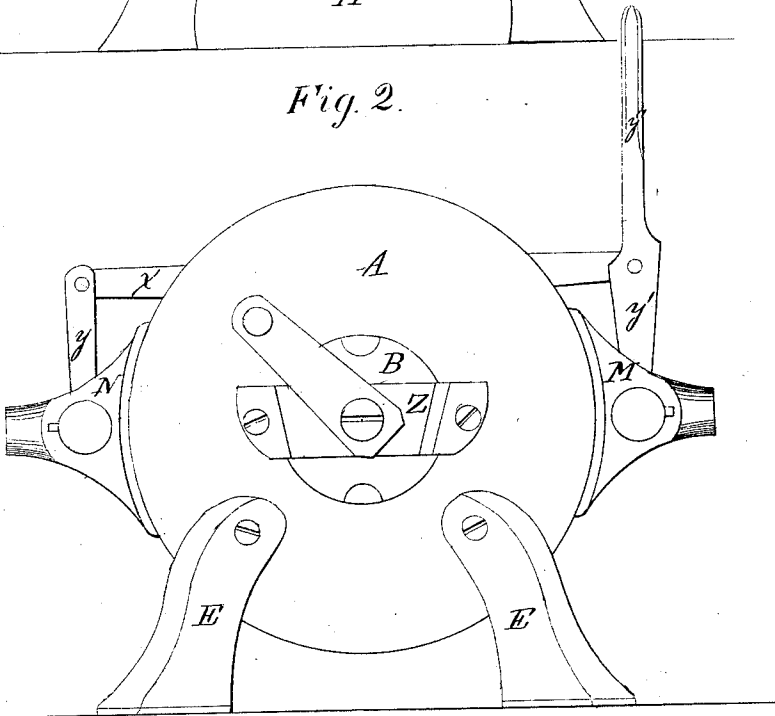


Fig. 2.



Witnesses
E. M. Audinmer
D. B. Kane

Inventor.
J. C. Mossholder
Chipman, Homer & Co
Attys.

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Fig. 4.

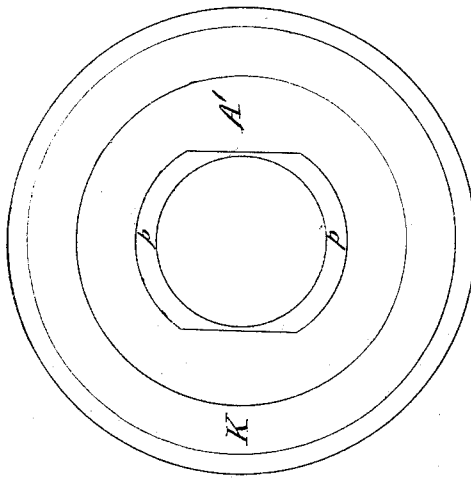
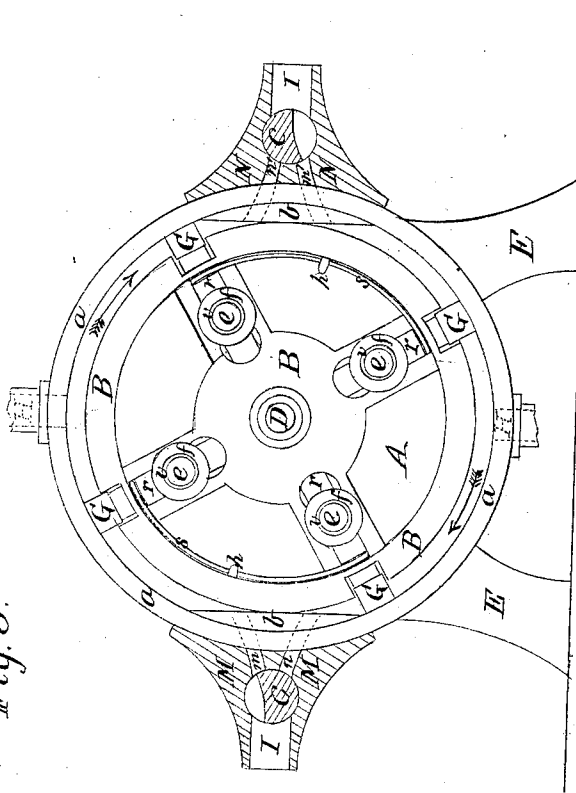


Fig. 3.



Witnesses
E. M. Anderson,
D. D. Kane

Inventor:
J. C. Mossholder
Chipman, Hosmer & Co.,
Attys.

United States Patent Office.

JOSEPH C. MOSSHOLDER, OF LEBANON, OREGON.

Letters Patent No. 112,066, dated February 21, 1871.

IMPROVEMENT IN ROTARY STEAM-ENGINES.

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

To all whom it may concern.

Be it known that I, JOSEPH C. MOSSHOLDER, of Lebanon, in the county of Linn and State of Oregon, have invented a new and valuable Improvement in Rotary Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a side view of my invention with one cylinder-head removed, showing steam cut off.

Figure 2 is a view of the reverse side with cylinder-head.

Figure 3 is a side view, showing steam thrown on.

Figure 4 is a view of the inner side of the removed cylinder-head and steel packing-ring.

My invention relates to rotary steam-engines, and consists in a novel arrangement of devices whereby pistons arranged in the periphery of a wheel are moved in a circular direction.

The letter A of the drawing designates a cylinder-head with a central circular opening, across which is fastened a bar, Z, forming a bearing for the journal of a shaft, D.

The other cylinder-head, removed in the drawing, is similar, and has a like bar for sustaining a journal of the shaft D.

These heads are fitted to a short cylinder, *a*, on the inner surface of which are cast, one on each side, two segments, *b b*, through which open the steam-ports *m n m' n'*, which pass through the cylinder into the valve-casings M N, attached by screws to the outer circumference of the cylinder *a*.

A butterfly-valve, O, is fitted in the cylindrical valve-seat, and has its journals revolving in journal-beds formed in the sides of the valve-casing.

To the axis of the valve, which extends without the casing, is attached a short bar, *y*.

Pivoted to the bars *y y'* is a connecting-rod, *x*, whereby the movements of the butterfly-valves are made to correspond.

The bar *y'* is lengthened somewhat to form a handle, whereby the butterfly-valves are governed, so as, at will, to turn on steam in forward motion, backward motion, or to shut off steam entirely.

Ninety degrees distant from the centers of the segments *b b* are the exhaust-ports H H.

Keyed to the shaft D is a piston-carrying wheel, in each of the four spokes of which is a slot, in which slides a piston-rod, *r*, in the direction of a radius of the wheel.

The slot is widened or grooved along the middle of each side, and, being adjusted closely to the piston-rod *r*, prevents it from lateral movement.

In slots cut in the necks of the piston-rods play the ends of two springs, *s s*, rigidly attached opposite to each other and to the inside of the rim of the wheel B by the staples *h h*.

These springs *s s* serve, in connection with the rollers *v v*, to push out the pistons G G, and to keep them closely pressed to the inner surface of the cylinder *a*.

e e are pins fixed rigidly in the piston-rods, and having on them anti-friction rollers *v v*, with flanches *f f*.

On the inner side of the cylinder-head A', removed in the drawing, is cast a flanch-cam, *p*, about the circular opening, which cam is of circular form, with the exception of two segmental depressions in its outer perimenter, formed on opposite sides to correspond with the segments cast on the cylinder *a*.

On the outer edge of this molding the rollers *v v* have a bearing, and thus assist the springs *s s* in governing the movement of the pistons G G.

Steel packing-rings, K K, are used between the piston-carrying wheel and the cylinder-heads.

An engine constructed in this manner will admit of being placed in a vertical or a horizontal position, as may be desired, and the same is operated in the following manner:

Let us suppose, as indicated in fig. 3, that it is desired to throw on forward motion.

The lever *y'* is moved to the right, turning the butterfly-valves so as to cut off steam at the ports *n n'* and admit steam into the ports *m m'*, and thus into the piston-chamber, driving forward the piston-heads G G in the direction of the arrows. At the same time steam is exhausted between the piston-heads through the ports H H.

The segments *b b* serve to divide those portions of the piston-chamber from which the steam is exhausted from those portions into which steam is admitted.

Where forward motion is communicated by moving the lever *y'* to the right, backward motion will be thrown on by reversing the lever, and steam will be cut off entirely by carrying the lever to an upright position, as in figs. 1 and 2.

In the perimeter of the piston-carrying wheel B are rectangular depressions, formed to receive the piston-heads G G when pressed back by the action of the segments *b b*.

What I claim as my invention, and desire to secure by Letters Patent, is—

A rotary engine, having a cylinder, *a*, with segments *b b*, heads A A', valves O O, levers *y y'*, with coupling-arm *x*, rotary piston-carrying wheel B, with springs *s s*, pistons G G, piston-rods *r r*, rollers *v v*, and cam *p*, ports *m n m' n'*, exhaust-ports H H, and shaft D, all constructed and arranged as set forth.

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

JOSEPH C. MOSSHOLDER.

Witnesses:

J. J. WHITNEY,
E. F. RUSSELL.