

J. LUCAS.
Rotary Steam-Engines.

No. 138,334.

Patented April 29, 1873.

Fig. 1.

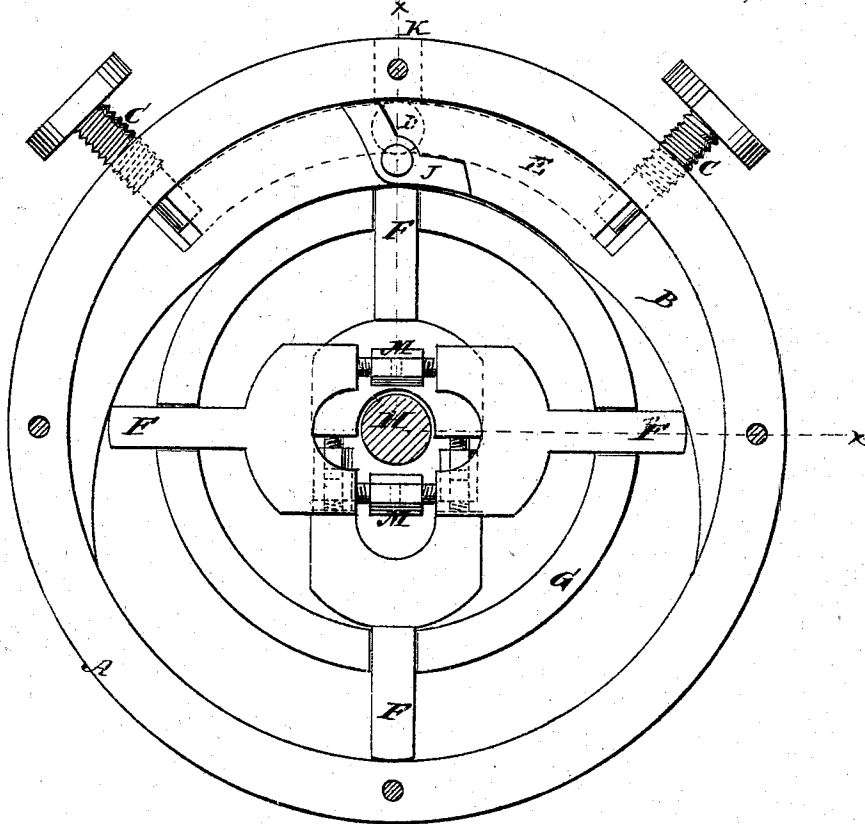
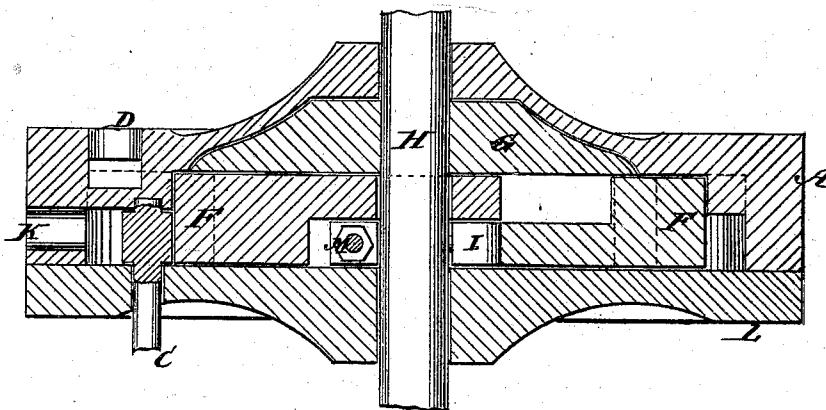


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN LUCAS, OF HASTINGS, MINNESOTA.

IMPROVEMENT IN ROTARY STEAM-ENGINES.

Specification forming part of Letters Patent No. **138,334**, dated April 29, 1873; application filed February 21, 1873.

To all whom it may concern:

Be it known that I, JOHN LUCAS, of Hastings, in the county of Dakota and State of Minnesota, have invented a new and useful Improvement in Rotary Steam-Engines, of which the following is a specification:

This invention relates to the class of steam-engines known as "rotary," where a crank is dispensed with; and it consists in the construction, arrangement, and combination of parts hereinafter described.

In the accompanying drawing, Figure 1 is a side view with the cylinder-cover off, showing the interior. Fig. 2 is a section of Fig. 1 taken on the line *x x*.

Similar letters of reference indicate corresponding parts.

A is the cylinder or case. B is a stationary cam within the cylinder which governs the action of the pistons. C C are induction-valves connected with the steam-pipe by means of the steam-channel E, seen in dotted lines in Fig. 1. The steam-pipe is attached at the orifice D, also seen in dotted lines in Fig. 1. F represents the pistons. G is the piston-wheel attached to the central driving-shaft H. The pistons slide in slots in the flange of the piston-wheel as that wheel revolves. The pistons move longitudinally in the wheel, being constructed with slots I through which the shaft passes, as seen in Fig. 1. Each piston is formed of two like-shaped and equal-sized parts, which are connected by two right and left hand screw-nuts, M. By turning these nuts the two parts of the piston can be adjusted to take up the wear and insure their working steam-tight

within the cylinder. L is the cover of the cylinder, and K the exhaust-port. J is a valve, having the form of a slightly-obtuse angle and pivoted at its apex equidistant between the induction-ports C C. The ends of each of its arms is made slightly convex to allow it to fit snugly against the inner periphery of the cylinder, and the outer side slightly concave, corresponding or concentric with the cylinder.

As shown in the drawing, the valve is in proper position to receive the impact of steam admitted by the left-hand port, which, acting on the piston projecting through the wheel G on that side, causes the latter to revolve from left to right. Shutting off steam at the left-hand port and admitting it at the other will cause the valve J to turn on its pivot and assume the opposite position, which will effect the reversal of the wheel.

It will be observed that in any case the valve forms a partition in the space between the wheel and cylinder, and that always between the exhaust-port and the induction-port at which the steam may be entering.

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

The combination and arrangement in a rotary engine of the case A, cam B, pistons F, induction-valves C C, piston-wheel G, reversible self-adjusting valve J, and port K, substantially as shown and described.

JOHN LUCAS.

Witnesses:

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