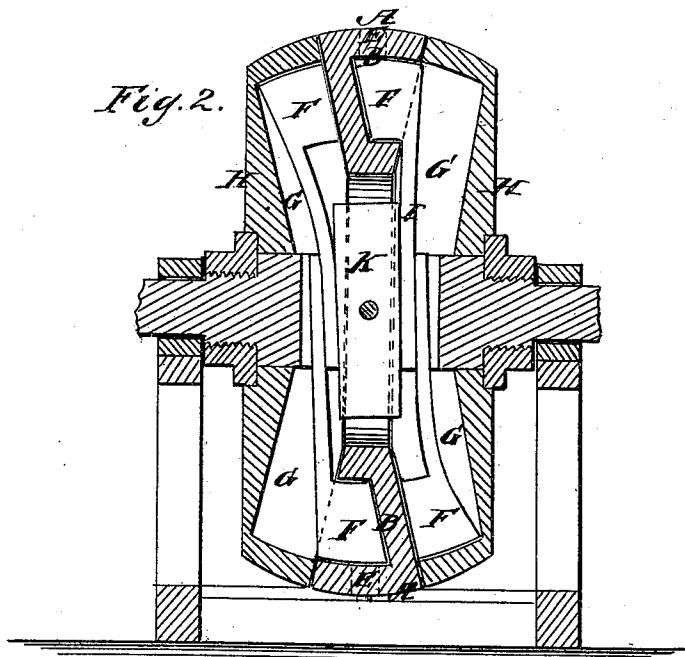
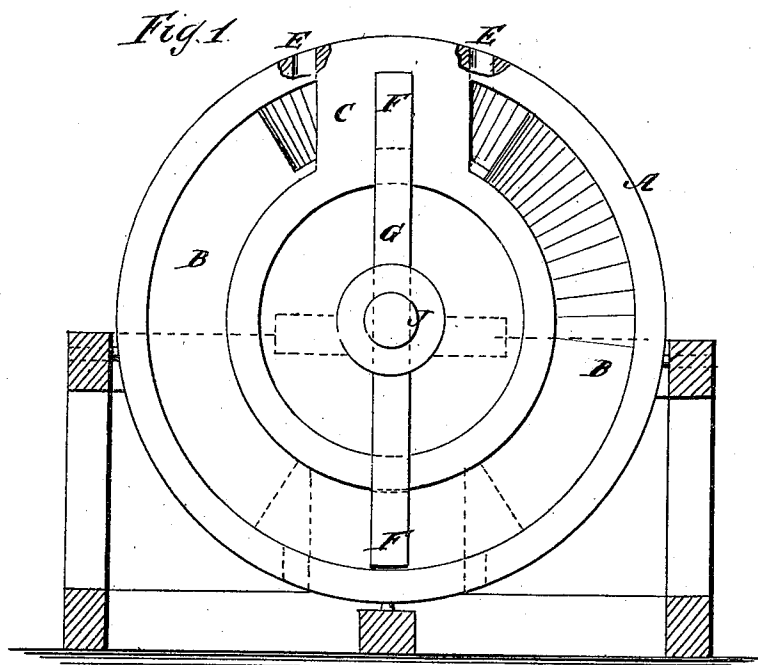


T. SWINBURN.
ROTARY-ENGINE.

No. 171,704.

Patented Jan. 4, 1876.



WITNESSES:

E. Wolff.
A. F. Terry

INVENTOR:

Thos Swinburn
BY

ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS SWINBURN, OF CHARLESTON, WEST VIRGINIA.

IMPROVEMENT IN ROTARY ENGINES.

Specification forming part of Letters Patent No. **171,704**, dated January 4, 1876; application filed June 12, 1875.

To all whom it may concern:

Be it known that I, THOMAS SWINBURN, of Charleston, in the county of Kanawha and State of West Virginia, have invented a new and Improved Rotary Steam-Engine, of which the following is a specification:

The invention will first be described in connection with drawing, and then pointed out in the claim.

Figure 1 is a side elevation of my improved engine with one of the heads removed, and Fig. 2 is a sectional elevation in the line of the axis.

Similar letters of reference indicate corresponding parts.

A is the stationary disk, in which are two steam-ways, B, one on each side, the bottoms being ecliptical to the faces of the disk, so that at one point, C, the ways vanish in the surface to break the continuity for cutting off the steam. The ports E are at the extremities of the cut-offs C. F represents the pistons, which are arranged in the slots G of the heads H, to swing into and out of the grooves as they revolve with the heads, which fit steam-tight against the sides of the disk. They are connected by an arm, I, with the shaft J, the arm extending along the slot G to the shaft, and being pivoted to the shaft for a center to

swing on, although they may be pivoted to the disk, and they may be arranged without a pivot, being controlled entirely by the slots. In this case they all have a spring-arm, by which they are connected to a vibrating center-block, K, pivoted in a slot, L, in the shaft, the spring-arms being to swing them into the steam-ways; but they may be forced in by steam admitted to the slots behind them.

Instead of having the slot in the shaft the pistons of one side of the shaft may be independent of those on the other side, and they may also be independent of each other or connected together, as may be desired, and various other modifications may be made without departing from the spirit of the invention.

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

A rotary engine whose cylinder is provided with a concentric groove arranged obliquely in its end, and a piston, working from a fixed center concentric with said groove, as shown and described.

THOMAS SWINBURN.

Witnesses:

S. S. MOORE,
S. L. WEBB.