J. S. HEWITT.

Rotary Steam-Engines.

No. 199,709. Patented Jan. 29, 1878.

Fig: 1.

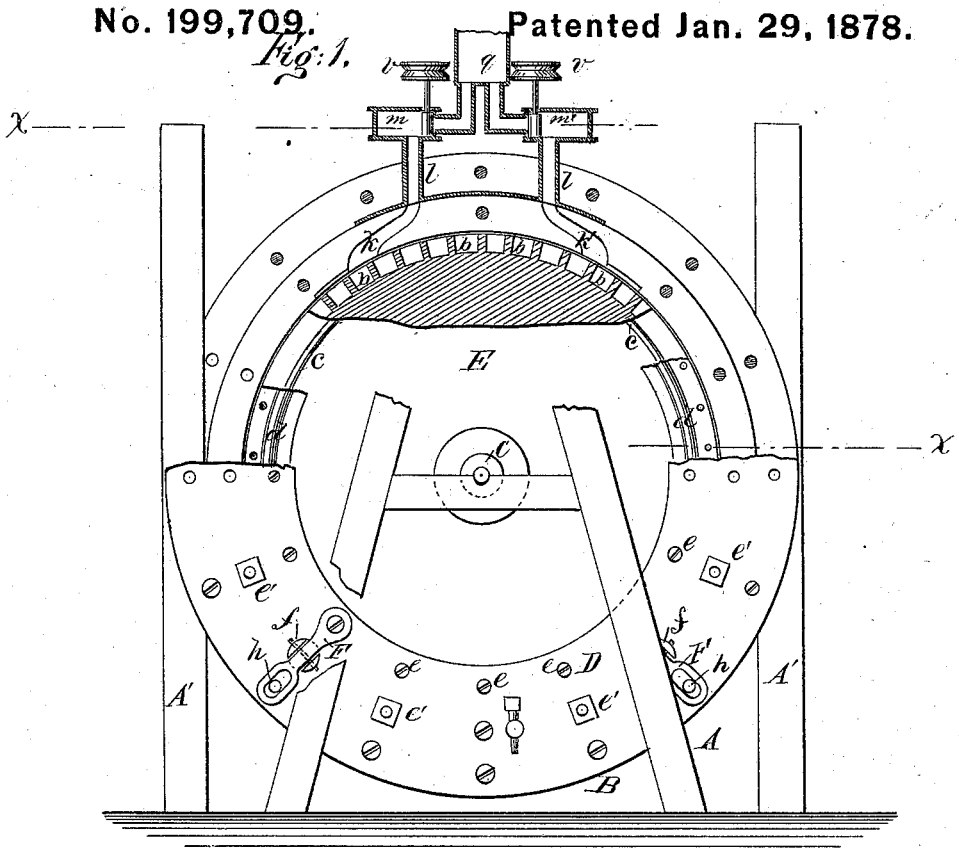
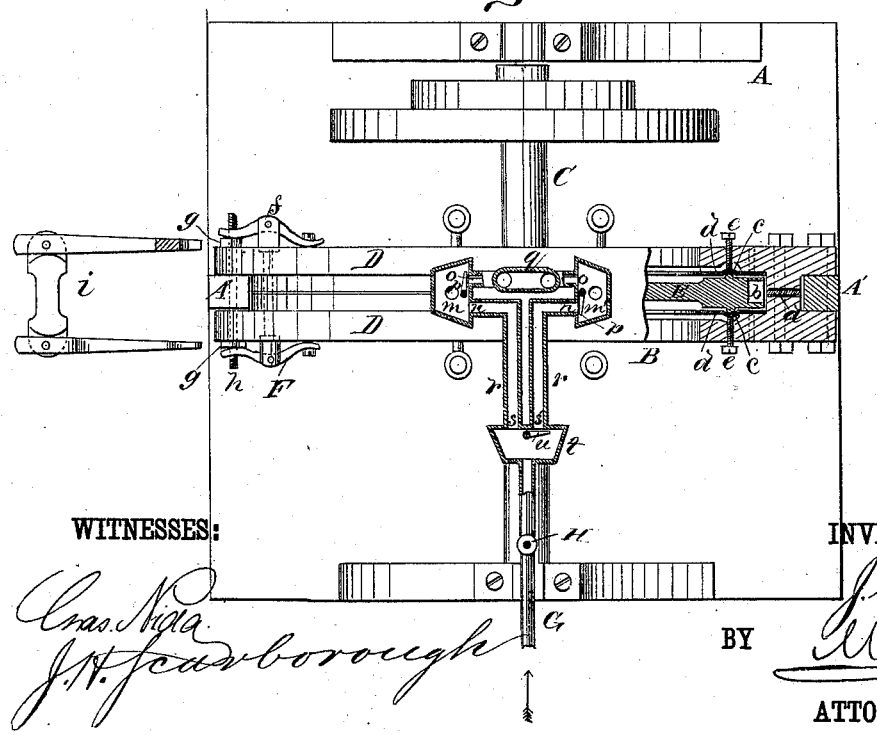


Fig: 2.



WITNESSES:

Chas. Nigda.

J. H. Scarborough

INVENTOR:

J. S. Hewitt.

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN S. HEWITT, OF WHEATLAND, MISSOURI.

IMPROVEMENT IN ROTARY STEAM-ENGINES.

Specification forming part of Letters Patent No. **199,709**, dated January 29, 1878; application filed August 11, 1877.

To all whom it may concern:

Be it known that I, JOHN S. HEWITT, of Wheatland, in the county of Hickory and State of Missouri, have invented a new and Improved Rotary Engine, of which the following is a specification:

Figure 1 is a side elevation, partly in section. Fig. 2 is a plan view in section on line *x x* in Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of my invention is to construct a rotary engine, which shall be compact, powerful, and economical in the use of steam.

In the drawing, A is a frame, which supports the engine-cylinder B, and in which the shaft C is journaled. The cylinder consists of two annular plates, D, that are secured to the posts A′ of the frame A, and are recessed or chambered out to receive the piston-disk E. A steam-joint is made between the two plates by means of a soft metallic packing-ring, *a*.

The piston-disk E is secured to the shaft C, and in its periphery small chambers or cells *b* are made, and inside of these cells, on each side of the disk, a bead or rib, *c*, is formed, to which is fitted a packing-ring, *d*, which also fits an annular channel in the plates D. Screws *e* pass through the plates D, and bear upon the packing-rings.

The annular plates are secured together by bolts *e′*, and their inner edges are prevented from being forced outward by the pressure of steam by yokes or levers F that are arranged in pairs, and are pivoted in opposite ends of the bolts *f* that extend through the cylinder. These levers are arranged radially on the cylinder, and their inner ends rest upon the plates D, near their inner edges, and their outer ends rest upon nuts *g*, placed on bolts *h*, having right and left threads on opposite ends.

A double wrench, *i*, is provided for operating the nuts on both ends of the bolts simultaneously. By turning the nuts *g*, the outer ends of the levers F are forced outward laterally, causing their inner ends to bear upon the surface of the annular plate D, near its inner edge.

Ports *k k′* are formed in the upper portion of the cylinder, and are connected by short pipes, *l*, with valve-chests *m m′*, which contain the ports *n o* and valves *p*.

The ports *o* are connected with the exhaust-receiver *q*, and the ports *n* are connected, by pipes *r*, with the ports *s s′* of the valve-chest *t*, in which chest there is a valve, *u*, which is capable of covering either of the ports *s s′*. The valves *p* may in like manner cover either of the ports *n o*.

A supply-steam pipe, G, in which there is a throttle-valve, H, is connected with the steam-chest *t*.

Upon the stem of the valve *u* there is a double pulley, and upon the stem of each valve *p* there is a pulley, *v*, that is connected with the double pulley on the valve-stem *u* by a belt, so that by turning the stem of the valve *u* the valves *p* are also turned.

Steam is admitted to the valve-chest *t* through the pipe G, and passes to one of the chests *m m′* through the connecting-pipe *r*. In the drawing the valve *u* covers the port *s′*, and steam passes through the port *s*, pipe *r*, and port *n*, to the chest *m*, whence it passes through the pipe *l* and port *k* to the chambers or buckets *b*, and propels the wheel forward, a small leakage of steam being permitted to allow steam to pass from one bucket to another. The steam is carried around by the buckets and is discharged through the port *k′*, pipe *l*, chest *m′*, and port *o*, into the exhaust-receiver *q*.

The engine is reversed by turning the valve *u*, so that it covers the port *s*. The valves *p* are turned by means of their connection with the valve *u*, the valve in the chest *m* being turned so as to cover the port *n* and open the port *o*, the valve in the chest *m′* being turned so as to close the port *o* and open the port *n*. When the valves are so arranged steam is admitted to the cylinders through the port *k′*, and exhausted through the port *k*.

Having thus described my invention, I claim

as new and desire to secure by Letters Patent—

1. The annular plates D, having the ports *k k'*, the piston-disk E, having buckets *b*, and ribs *c*, and the packing *d*, in combination, substantially as shown and described.

2. The levers F, bolts *f*, bolts *h*, having nuts *g*, and the annular plates D, in combination, substantially as shown and described.

3. The steam-chests *m m' t*, valves *u p*, pipes *r*, and exhaust-receiver *q*, in combination with the casing D and wheel E, substantially as shown and described.

JOHN S. HEWITT.

Witnesses:
M. HENRY MOORE,
PHILIP L. HARGISS.