A. C. LEWIS.
Rotary Engine.

No. 233,260. Patented Oct. 12, 1880.

Fig. 1.

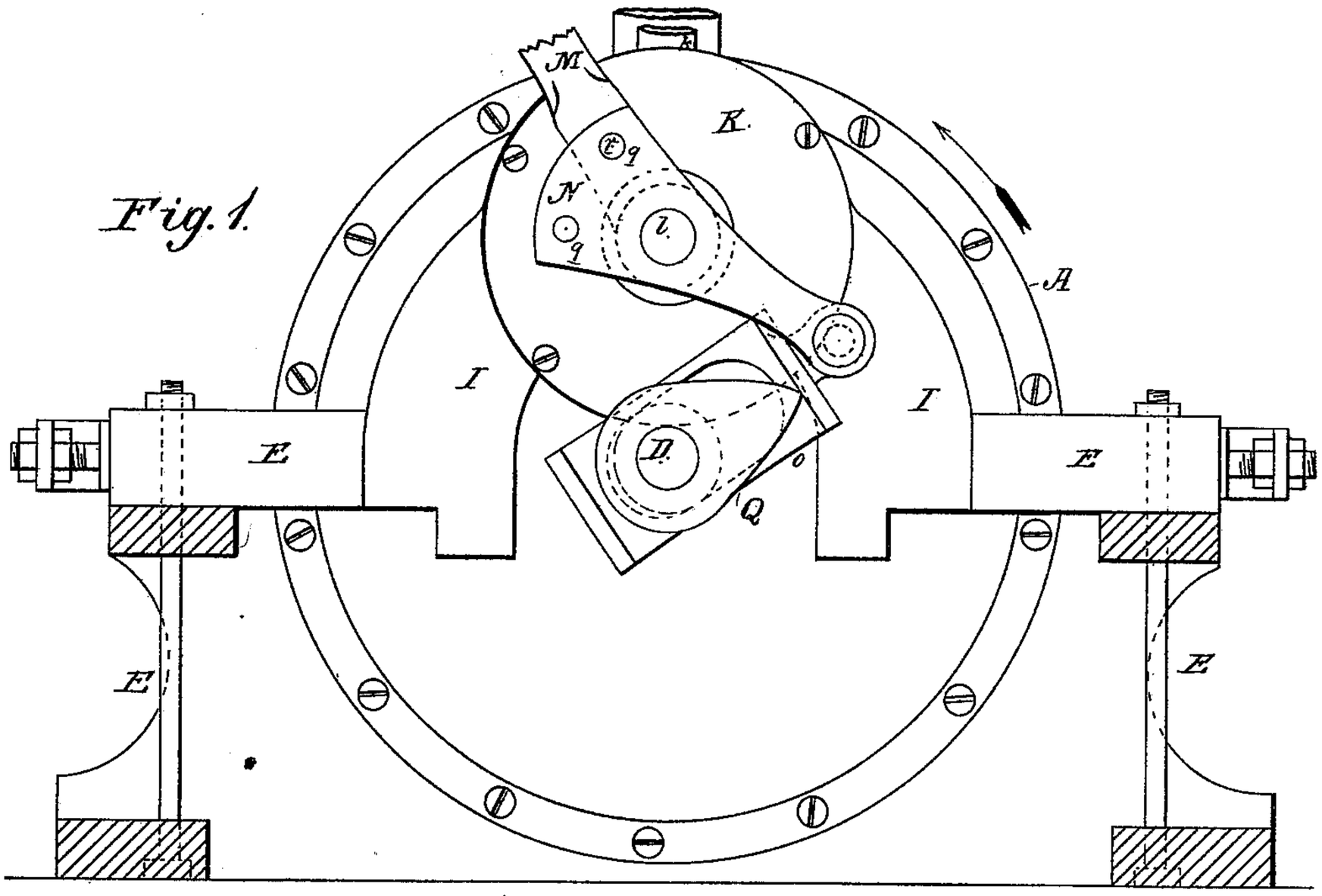


Fig. 2.

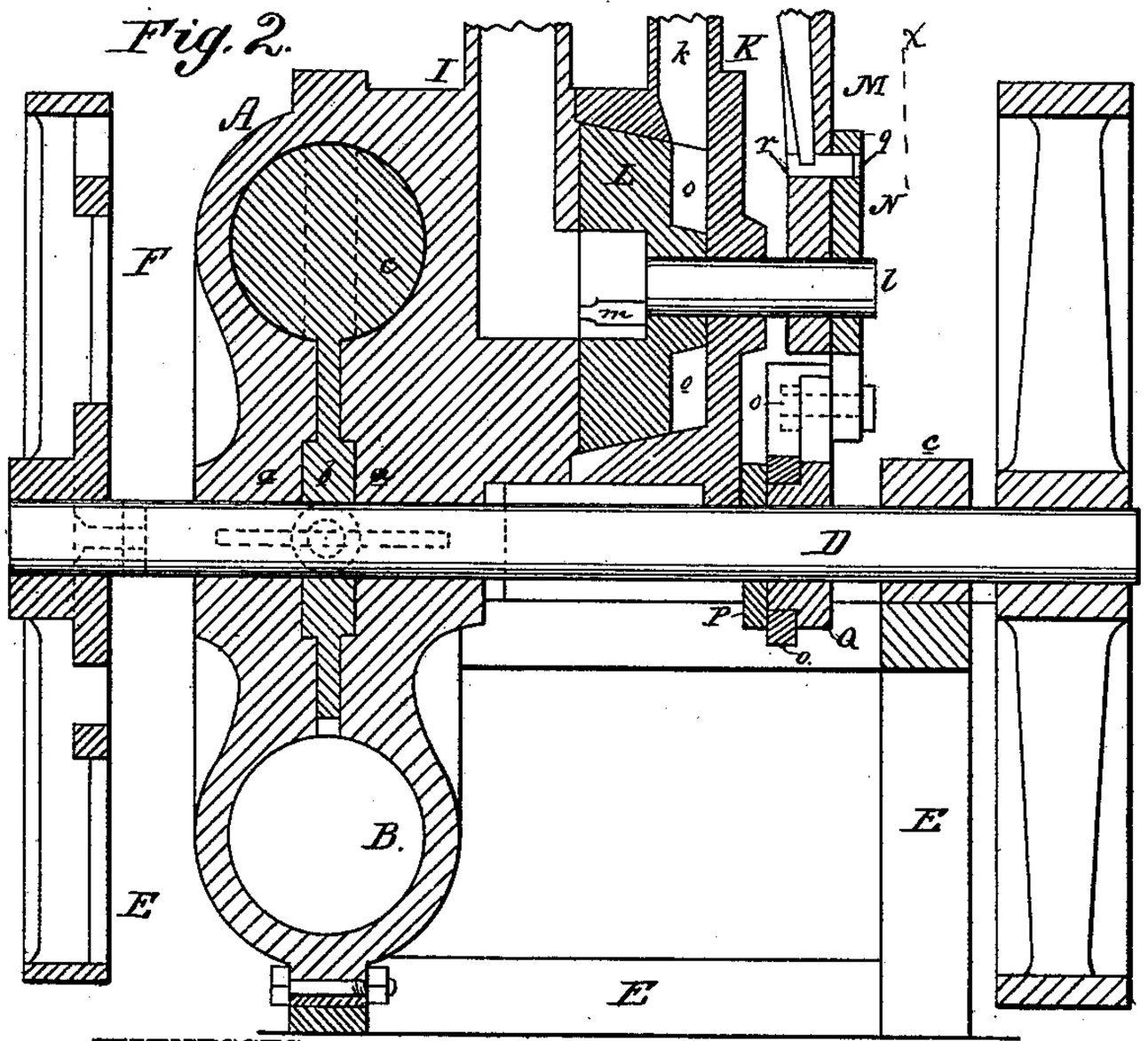
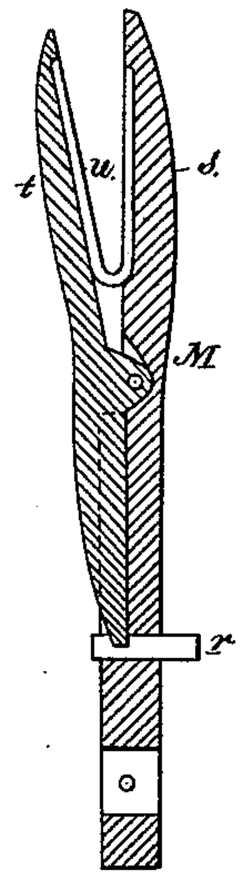


Fig. 3.



WITNESSES:
W. W. Hollingsworth
Solon C. Kemon

INVENTOR:
A. C. Lewis
BY Munn & Co
ATTORNEYS.

UNITED STATES PATENT OFFICE.

ALEXANDER C. LEWIS, OF FAYETTEVILLE, ARKANSAS.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 233,260, dated October 12, 1880.

Application filed December 3, 1879.

To all whom it may concern:

Be it known that I, ALEXANDER C. LEWIS, of Fayetteville, in the county of Washington and State of Arkansas, have invented a new and Improved Rotary Engine, of which the following is a specification.

Figure 1 is a rear end elevation of the engine, portions of the frame being in section. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a longitudinal section of the adjusting-lever.

The object of the invention is to provide an improved rotary engine of the class in which a rotary valve is employed.

The novelty consists in the construction and combination of parts, as hereinafter described and claimed.

In the drawings, A represents the cylinder composed of two parts having annular grooves of such shape that when the said parts are bolted together the grooves form a cylindrical annular steam-space, B, in which the piston and the abutments work, and into which the steam and exhaust ports open. The centers or hubs *a* of the said two parts of the cylinder A have their faces slightly cut away and socketed to accommodate the arm *b* of the disk-shaped piston C.

The shaft D of the engine passes horizontally through the centers or hubs *a*, and through the arm *b* of the piston C. One end of the said shaft D is journaled in box *c* on the engine-frame E, and the other end extending through the cylinder A, and carrying an eccentric, F, keyed upon it.

Circular abutments slide loosely in grooves that intersect the annular space B at right angles. These abutments are connected to rods that are bent around the frame E, and engage in the eccentric F, so that as the latter moves with the shaft D the abutments are moved alternately in and out of the annular space B.

Attached to the opposite head of the cylinder A is a steam-chamber, I, within which are formed the steam and exhaust ports of the engine, and set against the face of this chamber I is the valve-chest K, provided with a pipe, *k*, for the admission of steam. Fitting closely in this valve-chest K is the valve L, whose stem *l* projects rearward through the chest K, over and parallel with the shaft D. Two posts, *m*, (one of which is shown,) extend entirely through this valve L, and admit steam into the cylinder of the engine, while three other posts (not shown) extend but partly through the valve and connect at the center thereof and with the exhaust-port *o*.

In the valve seat or face of the box I are four ports, through which the steam may enter into or exhaust from the engine, and through this valve-seat I is the exhaust-port *o*, which bends upward at a right angle, as shown. These ports extend into the annular space B, one above and one below the abutment-grooves on each side of the cylinder.

On the stem of the valve L is fixed an adjustable hand-lever, M, by which the said valve is adjusted, and a lever, N, which is provided with holes *q* in its broad top, in either of which holes *q* the pin *r* of the lever M may be set to hold the said lever, and thereby the valve L, at whatever point of adjustment it may be set for reversing the engine or for cutting off the steam. The lower end of this lever N is pivoted to the upper end of an open rectangular sliding plate, O, that is set between two collars, P P, which are fixed on the shaft D, and on said shaft D is keyed a cam, Q, that engages in the plate O, and in revolving imparts through it the proper reciprocating rocking motion to the valve L.

The valve L may be made to close all the ports in the valve-seat I at one time, or by a reciprocating movement of one-fifth of a circle it will alternately open and close an exhaust and a supply port, this motion being caused by the action of the cam Q, and, by shifting the lever M from one hole, *q*, to the other, which will move the valve L another fifth of a circle, the motion of the engine will be reversed.

The hand-lever M is constructed in two parts. The standard or main part *s* of the lever is set on the stem of the valve L, as shown, and pivoted to this part *s* is a parallel piece, *t*, which carries on one end the pin *r*. A spring, *u*, fixed between the two parts of the lever serves to keep the pin *r* thrust out through the standard *s* and into a hole, *q*, in the head of the lever N, while a pressure that will bring the two parts of the lever together causes the withdrawal of the pin *r* from one hole, *q*, so that it may be adjusted in the other.

What I claim as new is—

1. The combination of the lever N and adjusting-arm attached to it with the slotted movable plate O, cam Q, engine-shaft D, and the rotary valve L, all arranged as shown and described, to operate as specified.

2. The combination, with the movable plate O, cam Q, shaft D, and lever N, which is pivoted on the valve-stem and provided with holes *q* in one end, of the hand-lever M, having a spring-arm, *t*, with pin *r*, substantially as shown and described.

ALEXANDER CURRY LEWIS.

Witnesses:

G. R. MURDOCK,

A. S. GREGG.