(No Model.)

J. W. EMERSON.

ROTARY ENGINE.

No. 334,854. Patented Jan. 26, 1886.

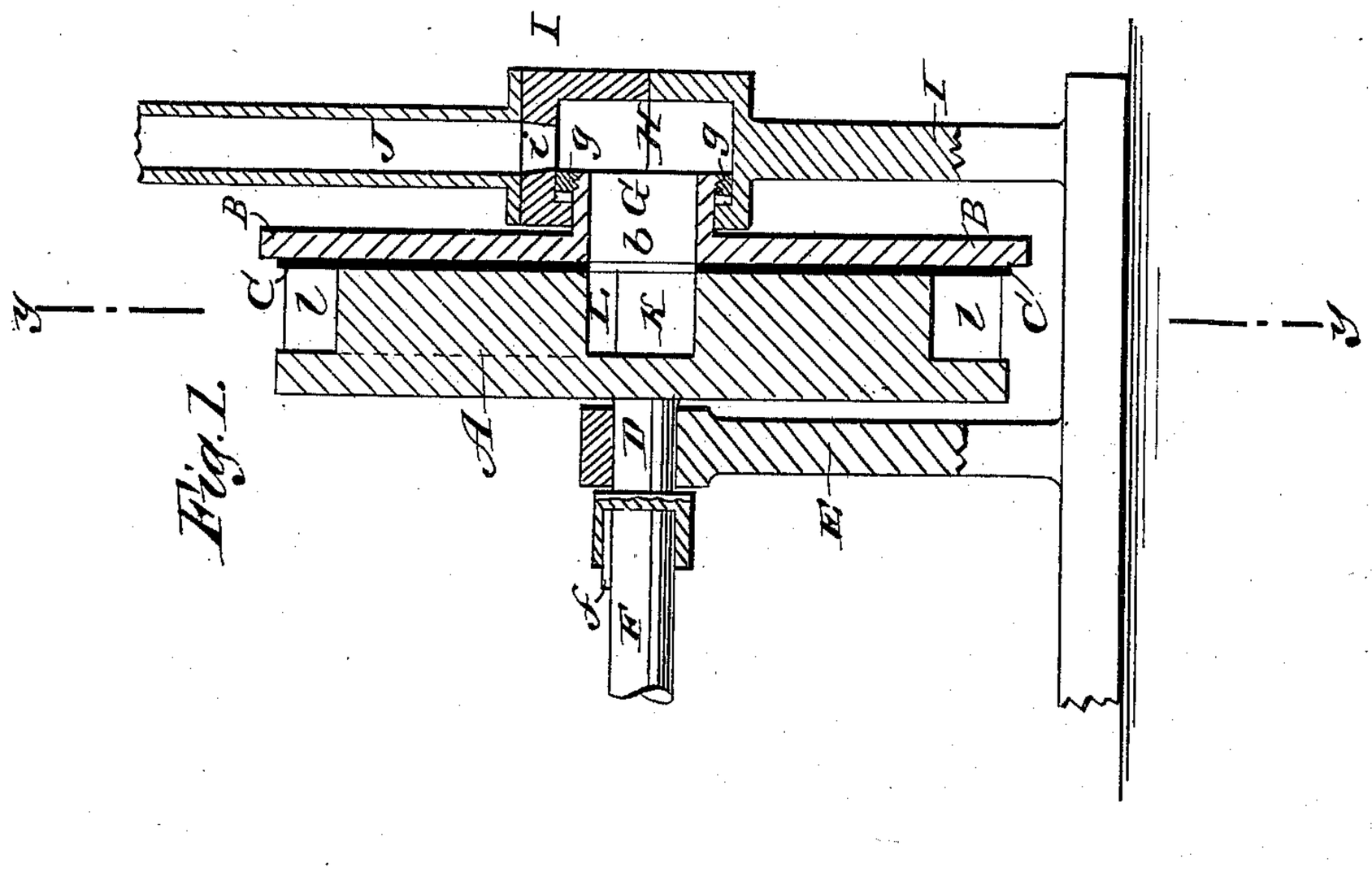

Fig. 1.

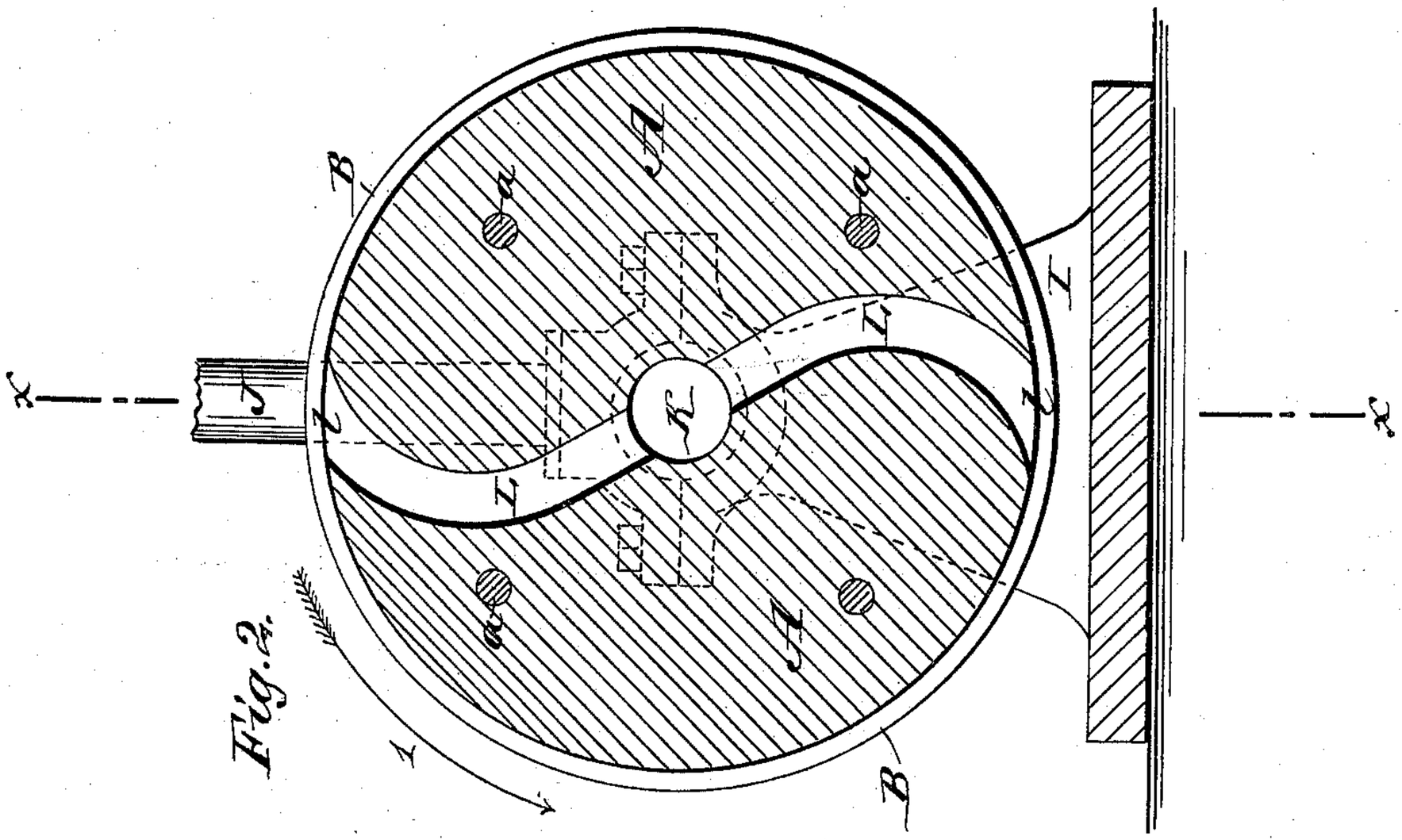

Fig. 2.

WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN WILLIAM EMERSON, OF OPOPKA, FLORIDA, ASSIGNOR TO HIMSELF AND COLUMBUS WELLINGTON MILLS, OF SAME PLACE.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 334,854, dated January 26, 1886.

Application filed July 8, 1885. Serial No. 170,958. (No model.)

To all whom it may concern:

Be it known that I, JOHN WILLIAM EMERSON, of Opopka, in the county of Orange and State of Florida, have invented a new and Improved Rotary Engine, of which the following is a full, clear, and exact description.

The object of my invention is to provide a simple, inexpensive, efficient, and durable rotary engine.

The invention consists in a rotary engine constructed with a driving-wheel provided with a central passage and curved passages radiating therefrom to and through the periphery of the wheel, to receive and discharge the steam or other driving fluid admitted under pressure through a hollow shaft of the wheel from a supply-pipe, and provided with a driving-shaft to which the machinery to be driven is connected, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional elevation of my improved rotary engine, the section taken parallel to the driving-shaft or on the line *x x*, Fig. 2; and Fig. 2 is a transverse vertical sectional elevation taken on the line *y y*, Fig. 1.

The letter A indicates the main body of the steam or driving wheel of the engine, and B is a side or cap plate, which is fixed to part A by screws *a*, a suitable packing, C, being interposed between the parts; or they may be fitted closely together by a ground joint and the packing be dispensed with. To the body part A a short shaft, D, is fixed, which shaft is journaled in a pillow-block or standard, E, rising from the bed-plate of the engine, and to the shaft D is keyed at *f* the driving-shaft F, which may be geared with any kind of machinery for operating it by the engine. The cap-plate B has a central opening, *b*, around which is formed the short tubular shaft G, on which is screwed the packing *g*, which, when the steam-wheel rotates, makes a close joint with the annular wall of a steam-chamber, H, formed in the pillow-block or standard I, which has an opening at *i* in its cap, through which steam enters from a pipe, J, fixed to the pillow-block. The steam-wheel A B thus has support in the pillow-block E I, which I prefer to make with removable caps or half-boxes, to allow the driving-wheel to readily be set up and to be removed at any time for inspection or repairs.

In the center of the part A of the steam-wheel I make in its side facing the cap B the recess K, which coincides with the bore of shaft G, and branching from the recess K, which serves as a steam-port, I form in the wheel one or more curved steam-passages, L, which open at the periphery of the steam-wheel, as at *l*.

It is evident that as steam is admitted through any suitable valve in pipe J, through passage *i* to the chamber H, it will pass through shaft G and into port K, and thence to the passages L, and the action or pressure of the steam against the curved back walls of these passages will cause the engine rapidly to revolve in the direction of the arrow 1, Fig. 2, as the steam exhausts from the wheel A B at the ends *l* of the passages L.

I show the engine made with two steam passages L, but it may have three or more of such passages radiating from the port K.

A governor of any approved construction may be geared with the shaft F and connected to the valve controlling the steam-supply, so as to admit more or less steam to the engine to maintain a uniform speed of rotation with heavier or lighter loads on the driving-shaft.

Among the advantages of my engine may be named the following: It is very light in construction, allowing it to be cheaply built, transported, and set up, and it runs at high speed, allowing the driving-shaft to be directly connected with the machinery to be driven without the interposition of pulleys, belts, or other gearing, and any machinery requiring a slower speed may be connected to the driving-shaft by speed-reducing gearing. Furthermore, the motion imparted to the driving-shaft is steady or constant and much more regular than motion imparted by cranks, which have to pass dead-centers in their revolution, as in ordinary reciprocating engines, and the friction of working is reduced to a minimum.

My improved engine may be operated by

steam, water, or other fluid under pressure, as will readily be understood.

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

1. The combination, in a rotary engine, of the wheel A B, having shaft D and hollow shaft G, and provided with passages *b* K and curved passages L, for the steam or other driving-fluid, the pillow-block or standard E, the pillow-block I, having a steam-chamber, H, and aperture *i*, and the steam-supply pipe J, substantially as and for the purpose set forth.

2. The combination, in a rotary engine, of the wheels A B, having shaft D and hollow shaft G, and provided with passages *b* K and curved passages L, for the steam or other driving fluid, the pillow-block or standard E, the pillow-block I, having a steam-chamber, H, and apertured at *i*, the steam-supply pipe J, and the packing *g*, substantially as herein set forth.

JOHN W. EMERSON.

Witnesses:
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