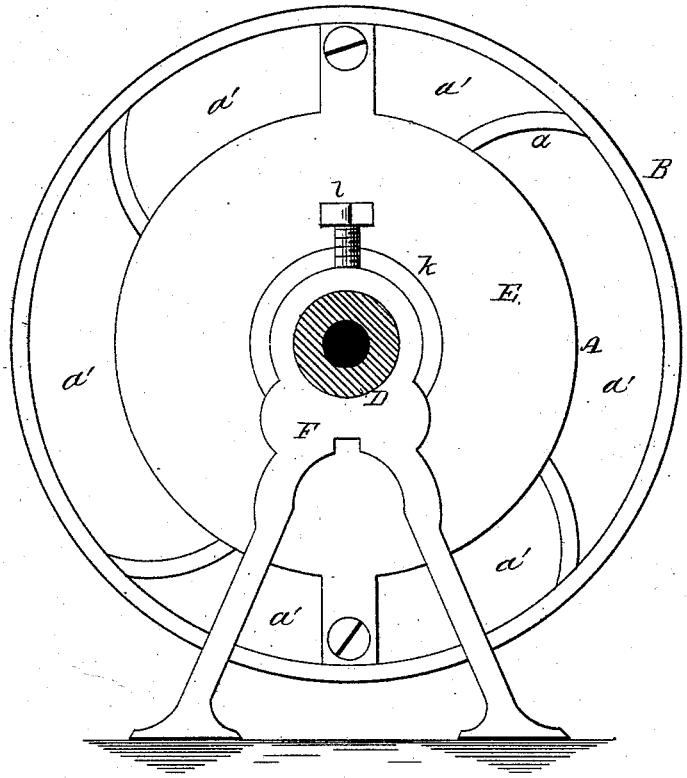
2 Sheets—Sheet 1.

# F. F. SCHOFIELD.

## ROTARY-ENGINE.

No. 182,291. Patented Sept. 19, 1876.

*Fig. 1*




WITNESSES

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2 Sheets—Sheet 2.

# F. F. SCHOFIELD.

## ROTARY-ENGINE.

No. 182,291. Patented Sept. 19, 1876.

Fig. 2.

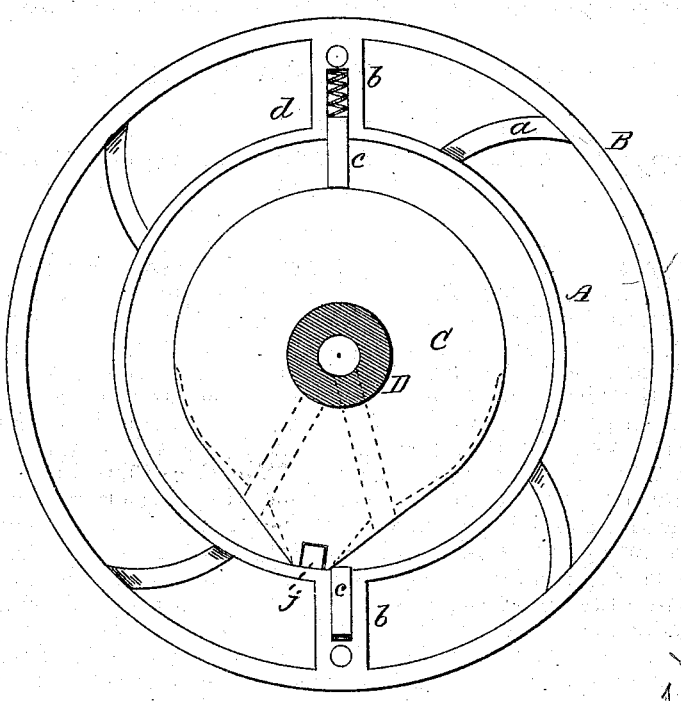



Fig. 3

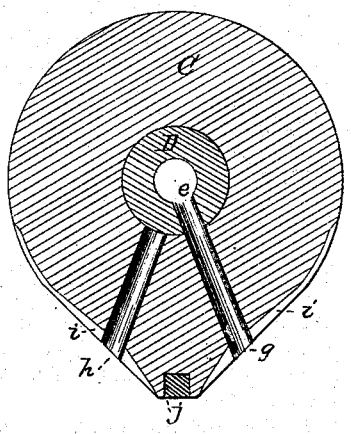
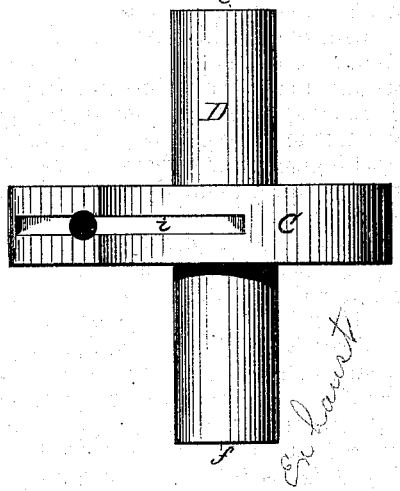



Fig. 4

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# UNITED STATES PATENT OFFICE.

FREDERICK F. SCHOFIELD, OF OSCODA, MICHIGAN.

## IMPROVEMENT IN ROTARY ENGINES.

Specification forming part of Letters Patent No. **182,291**, dated September 19, 1876; application filed July 15, 1876.

*To all whom it may concern:*

Be it known that I, FREDERICK F. SCHOFIELD, of Oscoda, in the county of Iosco and State of Michigan, have invented a new and valuable Improvement in Rotary Engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a side elevation of my invention. Fig. 2 is a view showing the interior of the casing. Fig. 3 is a longitudinal sectional view of the hub, taken on line *x x* of Fig. 4; and Fig. 4 is a detached view of the hub and hollow shaft.

This invention has relation to certain improvements in rotary engines; and its object and purpose is to construct a machine of the character mentioned, which will be simple in its parts, and at the same time effective in its operation; also, capable of running with but comparatively little friction in any position in which it may be placed, the combination and arrangement of the several parts being hereinafter described, and subsequently pointed out in the claim.

In the accompanying drawings, A represents a cylindrical casing, into which the steam or water is introduced for the rotation of the same. This casing A is cast or otherwise formed with an external rim, B, strengthened by webs or arms *a*, so that open spaces *a'* are formed to allow the free circulation of the cold air through the same, which keeps the rim B cool, and thereby prevents the belt over which it is placed from becoming dry and hard from the heat, which would cause it to slip. The rim B may also serve as a fly-wheel. Two small chambers, *b*, connect the rim B with the casing, and are arranged on a line opposite each other to receive the abutments *c*, which are kept pressed against the outer periphery or rim of a stationary hub, C, by springs *d*. The hub C is rigidly connected to, or forms a part of, a hollow shaft, D, provided with a supply-port, *e*, and an exhaust-port, *f*, the two being divided or separated by a partition, so that they may each connect with passages *g h* formed in the hub C, which communicates with the interior of the casing A. The hub C has grooves *i* formed near its pointed end to allow the steam or water to act upon both abutments *c*, so as to obtain increased power, and insure it striking the abutments immediately at that point where it starts down the incline, and thereby avoiding any back pressure by allowing sufficient time for the steam or water to escape. The hub C is hung eccentrically with the axis of the hollow shaft D, and has a packing, *j*, which is kept pressed against the interior of the casing A by a suitable spring. This packing, with the assistance of the abutments *c*, divides the interior of the casing A into two chambers for the introduction and escape of the steam or water, the packing *j* also keeping the steam or water from passing through to the exhaust-chamber.

The casing A is formed with interior screw-threads for securely attaching suitable caps E, said caps having screw-threaded flanges for the reception of packing-rings *k*, thereby making a perfectly water-tight chamber.

The ends of the hollow shaft D are supported in standards F, and securely held therein by set-screws *l*.

By my invention the parts are few and simple in construction, and consequently not easily gotten out of order, while its action is uniform with comparatively little friction, and can be readily placed in any position without in the least affecting its operation and power.

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

The rotary casing A, formed with rim B, webs or arms *a*, and air-spaces *a'*, and abutments *c*, in combination with the stationary hub C, formed with passages *g h* and grooves *i*, and the hollow shaft D, having supply and exhaust ports *e f*, the whole constructed and arranged to operate as set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

FREDERICK F. SCHOFIELD.

Witnesses:

GEO. P. WARNER,

J. H. MCCLENNAN.