

J. W. VANORDER & G. SAVAGE.

Rotary-Engine.

No. 167,808.

Patented Sept. 14, 1875.

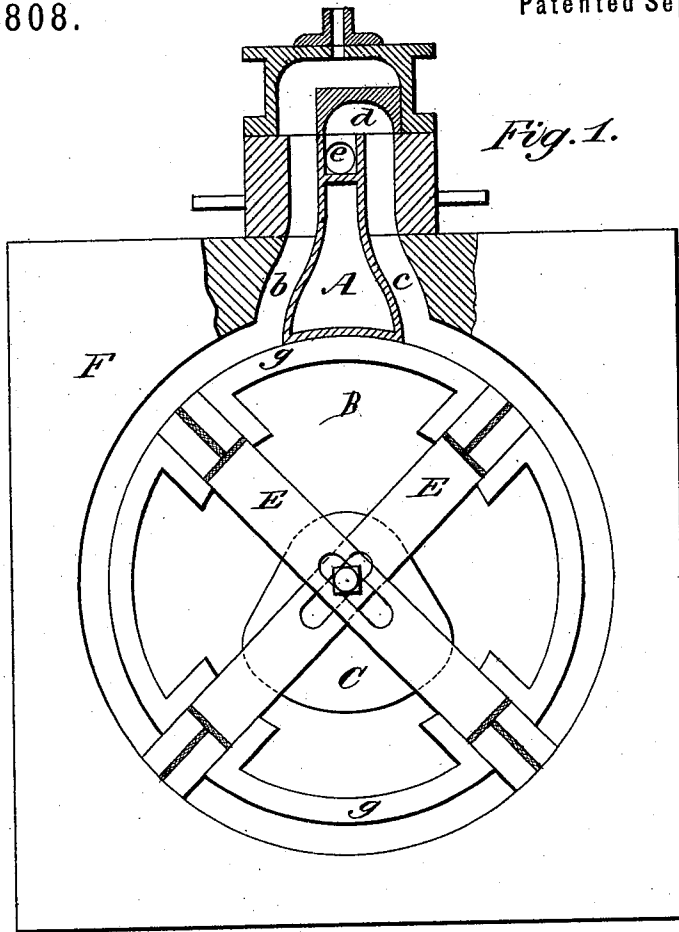


Fig. 1.

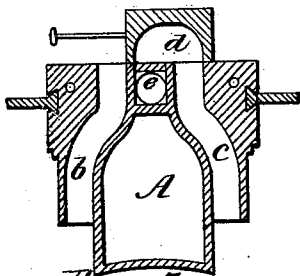


Fig. 5

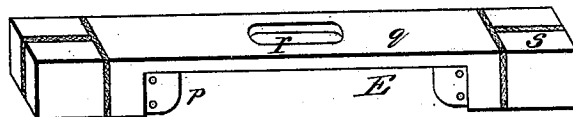


Fig. 4.

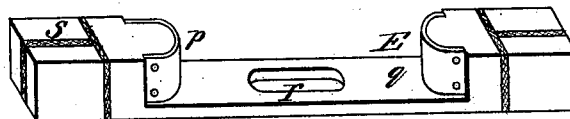
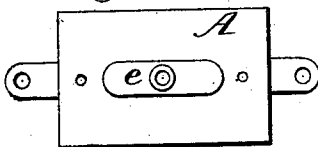
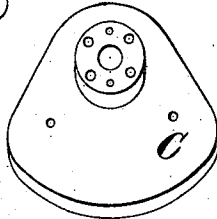


Fig. 6



Witnesses.
Cray L. Hughes,
Calvin Manning.



Inventors.
Jacob W. Vanorder,
George Savage.

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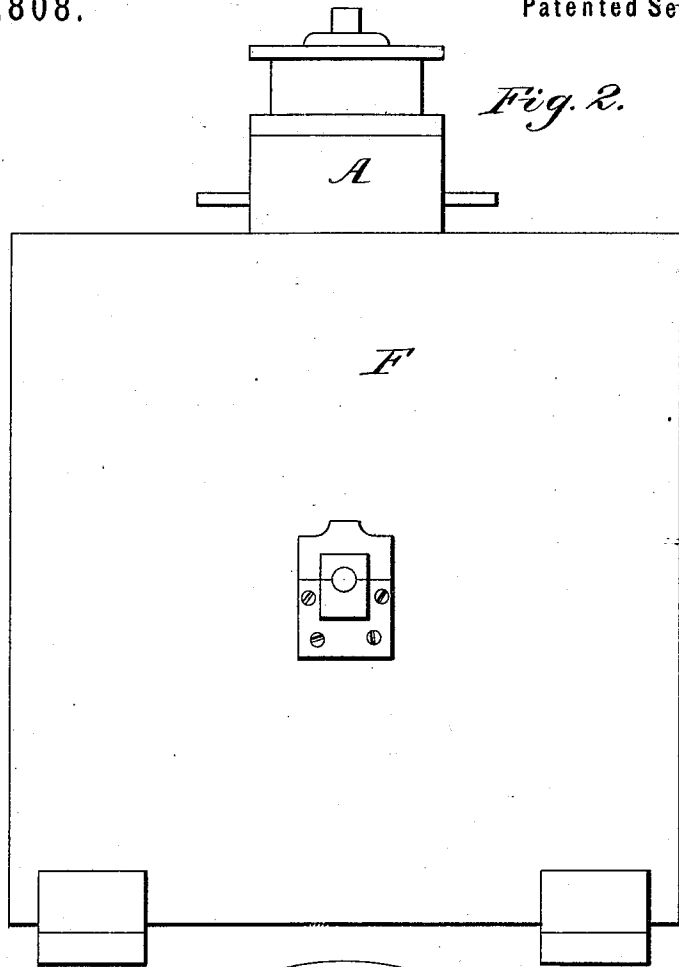
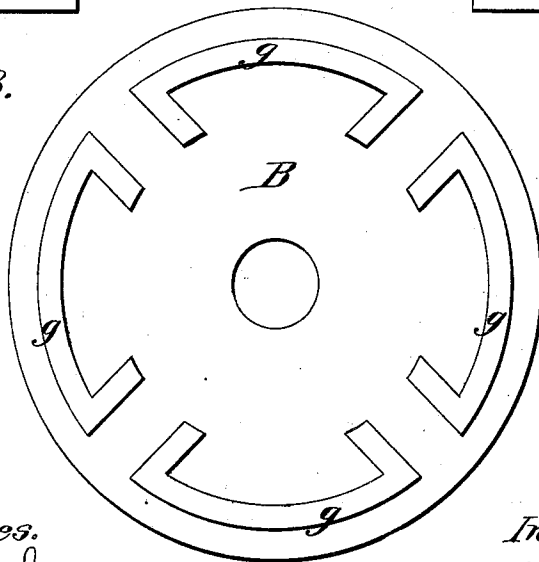


Fig. 2.

Fig. 3.



Witnesses.
Cray E. Hughes.
Calum Manning.

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George Savage.

UNITED STATES PATENT OFFICE.

JACOB W. VANORDER AND GEORGE SAVAGE, OF SLOAN, IOWA.

IMPROVEMENT IN ROTARY ENGINES.

Specification forming part of Letters Patent No. **167,808**, dated September 14, 1875; application filed April 7, 1873.

To all whom it may concern:

Be it known that we, JACOB W. VANORDER and GEORGE SAVAGE, of Sloan, in the county of Woodbury, State of Iowa, have invented a new and Improved Rotary Engine; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a partly-sectional elevation of the engine; Fig. 2 a side elevation of the same, and Fig. 3 an elevation of the wheel having a slotted rim; Fig. 4, a perspective view of the sliding pistons. Fig. 5 shows the steam-chest in top, plan, and vertical section. Fig. 6 represents the fixed cam or eccentric for reciprocating the pistons.

The invention is an improvement in the class of rotary engines whose pistons are caused to reciprocate as they rotate by means of a fixed cam; and it relates to a certain general construction and arrangement of parts hereinafter specified.

In the drawing the disk or wheel B, which rotates within the cylinder or case F of the engine, is provided with a laterally-projecting rim, *g*, having slots of a size suitable to receive the heads S of the pistons E. Said pistons are each provided with a lengthwise slot, *r*, at the middle, through which passes the axis of the engine. Each piston is also cut away in its middle portion, as shown, leaving shoulders or abutments *p q*. The distance between these shoulders is the largest diameter of the cam C, which is attached to the fixed axis of the wheel B, and therefore cannot rotate. The pistons are also cut away to the depth of the thickness, or thereabouts, of the cam, so that

the parts occupy the least space practicable. The rotation of wheel B carries the pistons E with it, and hence the shoulders or abutments *p q* work in frictional contact with the sides of cam C, whereby they are caused to reciprocate through the slotted rim of the wheel, being retracted to pass abutment A of the steam-chest, and protruded to take steam at the proper intervals, in a manner well understood, and hence requiring no further description. A deep groove is formed around each piston-head S, and lengthwise in two sides and the end thereof, to receive a packing consisting of narrow strips or pieces of india-rubber or other elastic material. These blocks or strips are secured by any preferred means, and may be readily substituted or renewed as occasion requires. This packing forms a steam-tight joint between the piston-heads and the edges of the rim of the wheel B, through which they work. A disk is, in practice, secured to the wheel B to cover or inclose the pistons.

Respecting the steam-chest A, it is only necessary to state it is constructed in the usual way, with live-steam ports *b c* and exhaust-port *e*, provided with the slide-valve *d*. The lower portion of the steam-chest forms an abutment within the cylinder.

What we claim is—

The pistons E, cut out and slotted in their middle portions, in combination with the fixed cam C and rotating slotted rim-wheel B, as shown and described, to operate as specified.

JACOB WM. VANORDER.
GEORGE SAVAGE.

Signed in presence of—
CRAIG L. WIGHT,
CALVIN MANNING.