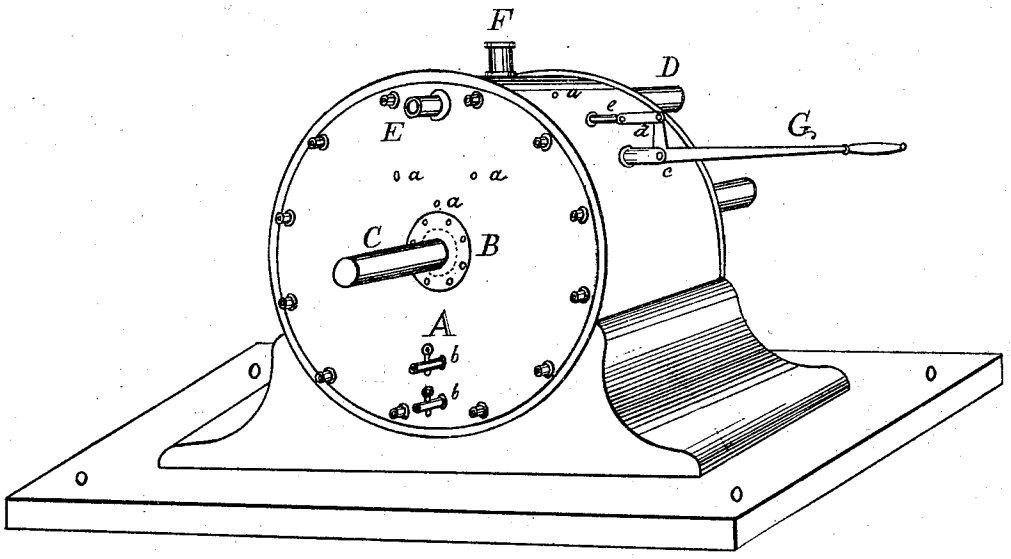
2 Sheets—Sheet 1.

I. VAN KERSEN.

ROTARY-ENGINE.

No. 169,603. Patented Nov. 2, 1875.

Fig. 1



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2 Sheets—Sheet 2.

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Fig. 2

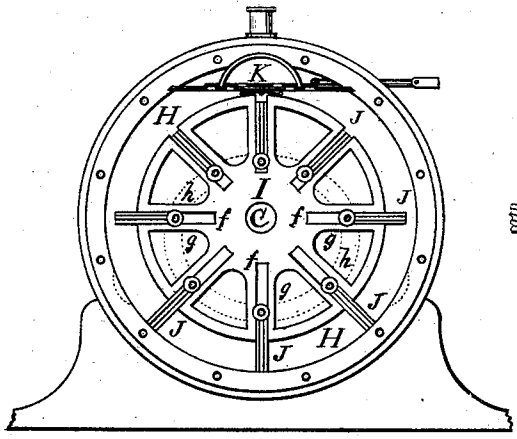


Fig. 3

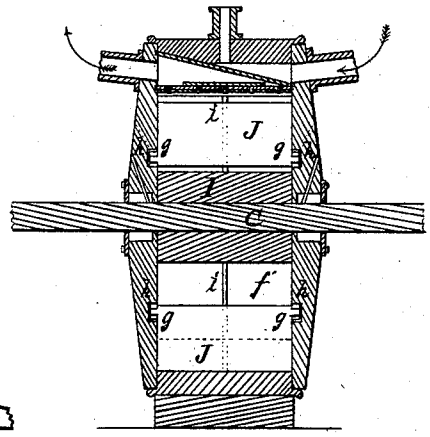


Fig. 4

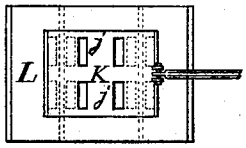
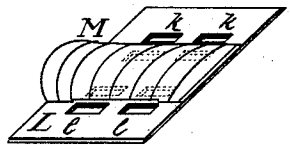


Fig. 5



Witnesses
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UNITED STATES PATENT OFFICE.

IZAAK VAN KERSEN, OF KALAMAZOO, MICHIGAN.

IMPROVEMENT IN ROTARY ENGINES.

Specification forming part of Letters Patent No. **169,603**, dated November 2, 1875; application filed January 16, 1875.

To all whom it may concern:

Be it known that I, IZAAK VAN KERSEN, of Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented certain Improvements in Revolving Engines, to operate right and left, of which the following is a specification:

My invention relates to that class of engines commonly known as revolving engines; and the nature thereof consists in certain improvements in the construction of the same, and novel combinations of the parts thereof, hereafter shown and described.

In the accompanying drawings, forming part of the specification, Figure 1 is a perspective view. Fig. 2 illustrates the interior. Fig. 3 is a transverse center section. Fig. 4 shows the operation-valve on the surface, in combination with the valve-floor. Fig. 5 is a perspective view of the valve-floor and the cover-partition.

A, Fig. 1, designates the front surface of the engine, provided on the center with boxes B; C, the center shaft; *a*, the oiling-holes; and *b*, stop-cocks to discharge the water or steam. D indicates the pipe of admission, and E the pipe of discharge. F shows the pedestal for the regulator or safety valve. G designates a lever, connected by a joint, *c*, on the cylinder, and by a link, *d*, to the valve-rod *e*, to stop and also to operate the engine right or left. H, Fig. 2, designates the channel between the outside cylinder and the inside cylinder I, which is attached to the center shaft C, and provided with several grooves, *f*, and slides J. These slides are fitted into the grooves *f*, and are each provided with two small rollers, *g*, which work in the oval grooves *h* on the inside of the covers of the engine. (Shown by dotted lines.) I, Fig. 3, designates the inside cylinder, with the slides J. One of said slides is above the center and down in its groove, while the slide below the center is out of its groove, and in contact with the inside of the cylinder, closing the channel H between the cut-away portions. (Shown by dotted lines, Fig. 2.) *i* designates small grooves on the inside of the slide-grooves *f*, by which steam is admitted to press the valves downward. K, Fig. 4, indicates the surface of the operating-valve, provided with discharge-openings *j*, and also the valve-seat L, provided with admission and discharge openings. (Designated by dotted lines.) M, Fig. 5, indicates the diagonal cover or partition between the admission and discharge openings. *k* and *l* show the admission-openings to operate right or left. The discharge-openings are shown on the interior of the cover-partition. (Designated by dotted lines.)

By raising the operating-lever G, steam is admitted to the right-hand side of the engine. The slides J, being moved out by the cam-grooves, will receive the full power on the surface, and the engine will operate toward the right, and by pressing down the operating-lever below its horizontal position, the ports are opened on the left hand to admit steam, and the ports on the right of the interior of the cover-partition are opened to discharge the steam, the engine will operate toward the left. By raising up the operating-lever again to its horizontal position, the ports will be closed and the engine stopped.

Having thus described the construction and operation of my invention, I claim—

The combination of the diagonal wall M, the valve K, having ports *j j*, the valve-seat and abutment, having ports *k*, and the cylinder I, having slides J, substantially as set forth.

IZAAK VAN KERSEN.

Witnesses:

AMOS D. ALLEN,

WM. A. GLOVER.