

J. V. BEEKMAN.
Rotary Steam-Engines.

No. 142,982.

Patented September 23, 1873.

Fig 1

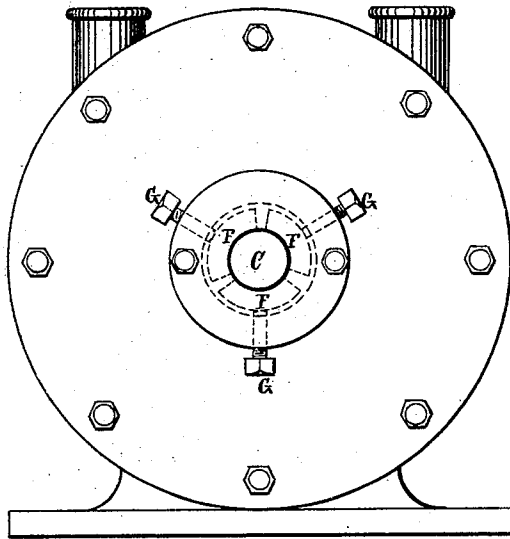
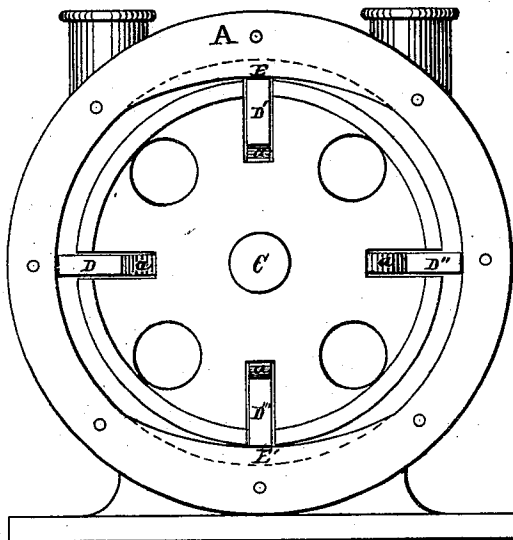


Fig 2



Witnesses.

A. J. Fitch.

J. P. Fitch

Inventor.

John V. Beekman

By J. P. Fitch
His Atty.

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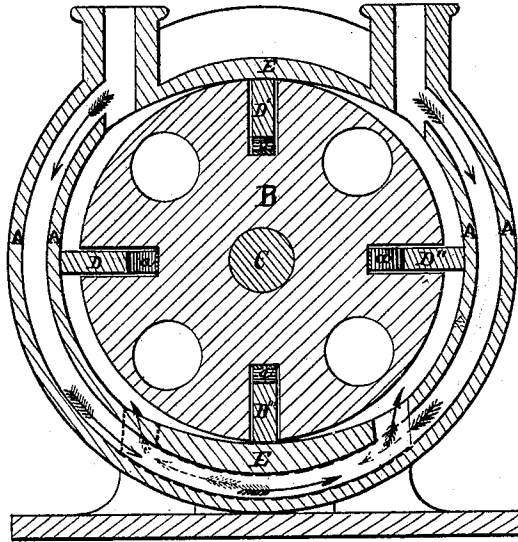
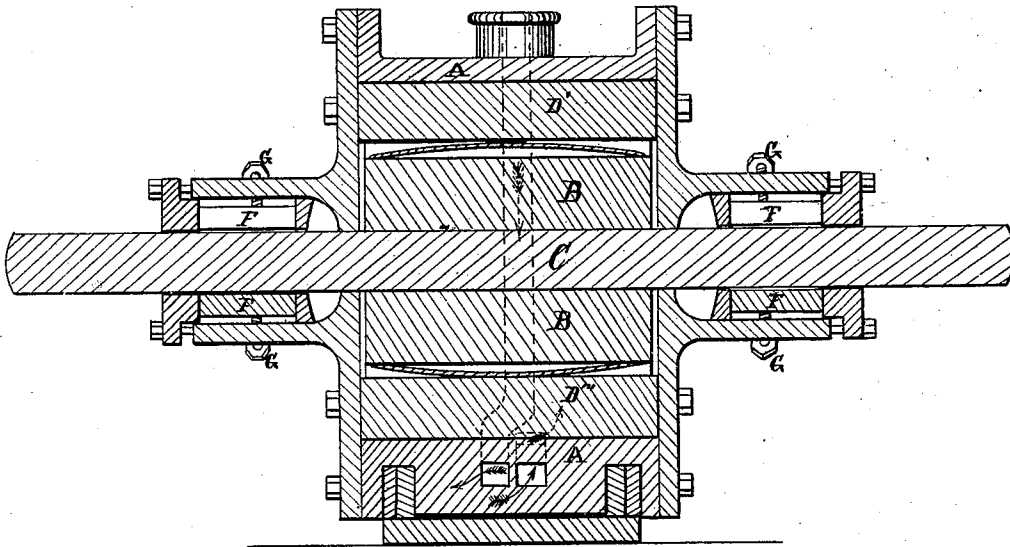


Fig 2.



Witnesses.

A. J. Fitch
J. P. Hunt

Inventor.

John V. Beekman
By J. P. Hunt
Att'y.

UNITED STATES PATENT OFFICE.

JOHN V. BEEKMAN, OF BROOKLYN, NEW YORK, ASSIGNOR TO HIMSELF
AND JOHN A. LIGHTHALL, OF SAME PLACE.

IMPROVEMENT IN ROTARY STEAM-ENGINES.

Specification forming part of Letters Patent No. **142,982**, dated September 23, 1873; application filed March 19, 1873.

To all whom it may concern:

Be it known that I, JOHN V. BEEKMAN, of Brooklyn, in the county of Kings, State of New York, have invented a new and useful Improvement in Rotary Steam-Engines, of which the following is a specification, reference being had to the accompanying drawings forming part thereof.

Figure 1, Sheet 1, is an end elevation of a rotary engine embodying my invention. Fig. 2, Sheet 1, is a view of the same with the head of the cylinder removed, exposing the interior mechanism. Fig. 1, Sheet 2, is a central cross-section of the same. Fig. 2, Sheet 2, is a central longitudinal section of the same.

This invention relates to the adjustability of the interior rotating cylinder, carrying sliding pistons, to the outer cylinder, whereby steam-tight joints may be maintained between the former and the concave abutments on the inner surface of the outer cylinder, which, in conjunction, divide the space between the inner and outer cylinders into two compartments.

A is the outer cylinder. B is the interior cylinder, made fast upon the shaft C. D D' D'' D''' are the pistons working in recesses in the face of the cylinder B, being kept pressed out against the outer cylinder by leaf-springs *a*. E E are curved abutments on opposite sides of the interior of the cylinder A, contracting the space between their central points to the diameter of the inner cylinder. F F F are segments, forming the journal-bearings for the shaft C, held in position upon and about the shaft, and regulated or shifted in position relative to each other, by the set-screws G G G.

The concavity of the inner surfaces of the abutments E E being on a somewhat larger circle than the cylinder B, the abutments will each touch that cylinder on single lines; but it is evident that when they thus touch the cylinder the latter cannot be moved laterally, as it could be if the abutments were planes or were convex. It is evident, also, that when either the abutments or cylinder become worn,

so that the contact between the abutments and cylinder is broken, and thereby they cease to form a steam-tight joint, by shifting the cylinder a little laterally to either side the contact is restored and the joints tightened. The abutments continuing to wear on the line of contact, by again shifting the cylinder laterally, tight joints may be maintained. When shifted to one side as far as it is deemed advisable to carry it, the cylinder may then be carried to the opposite side gradually, as the abutments wear on that side, until the latter are worn out. Thus, by combining a laterally-adjustable cylinder with the curved abutments, as described, steam-tight joints are easily and conveniently maintained, and a considerable breadth of surface of the abutments may be brought into use before the latter are worn out, and have to be replaced by new ones.

It is well known that in a rotary engine of this description the abutments E E become worn away by the constant friction of the inner cylinder B against them, thus causing a leakage at the joint formed by the contact of the inner cylinder with the abutments, which joint, for the successful running of the engine, must be kept steam-tight. I obviate this, and keep this joint steam-tight, by means of the adjustable journal-bearings of the shaft C, composed of the movable segments F and the set-screws G, for by loosening the set-screws, and thus moving the segments attached thereto upon one side of the shaft, and tightening the set-screw, and thus closing up upon the shaft the other segment, I readjust laterally the center of the shaft, and consequently of the inner cylinder B, which is fast upon the shaft, thus throwing the periphery of the inner cylinder, in its revolution against the surface of the abutments, to one side, and off from that portion worn away by the friction, and thus forming a new and steam-tight joint. When this joint thus formed becomes leaky in consequence of friction, I readjust the center again by means of the segments and set-screws, and thus cause the periphery of the inner cylinder to form a

new joint with a fresh surface upon the abutments.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, in a rotary steam-engine, of the laterally-adjustable cylinder B and pistons D D' D'' D''' with the concave

abutments E E, as and for the purpose specified.

JOHN V. BEEKMAN.

Witnesses:

J. P. FITCH,
A. LIVINGSTON MILLS.