No. 621,721. Patented Mar. 21, 1899.

J. SPENCE.

ROTARY ENGINE.

(Application filed Dec. 9, 1898.)

(No Model.)

Fig. 1.

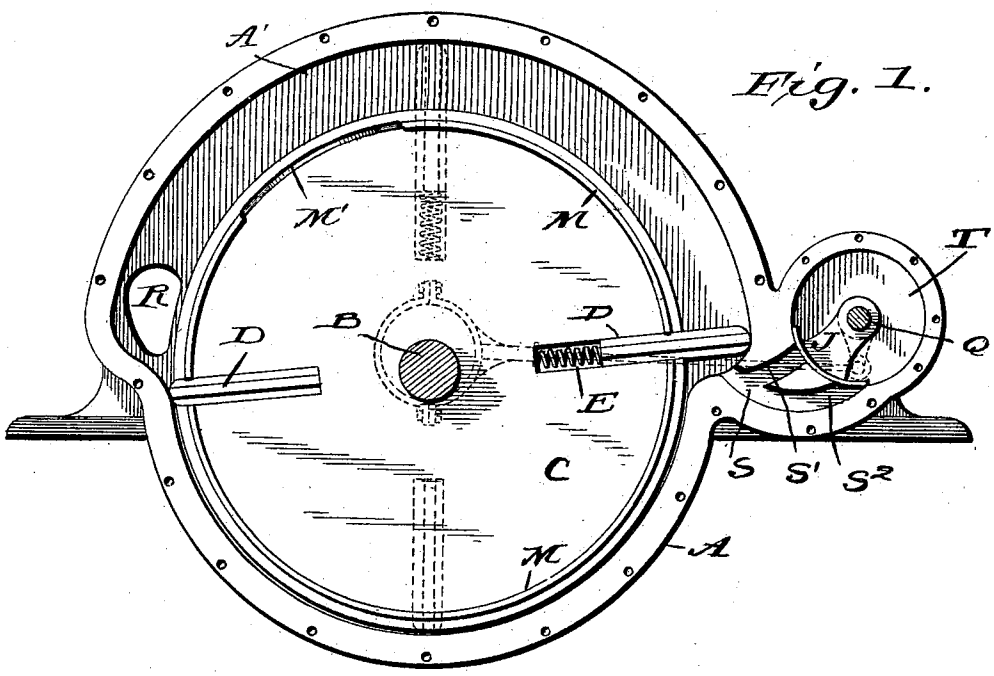


Fig. 2.

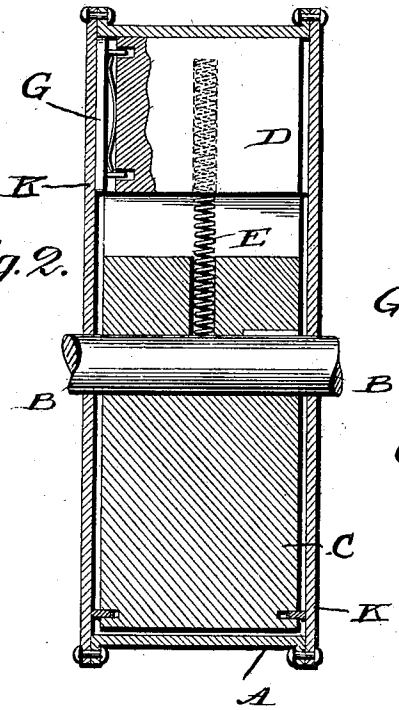
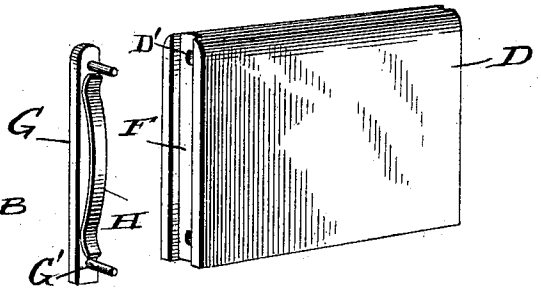


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN SPENCE, OF ERIE, PENNSYLVANIA.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 621,721, dated March 21, 1899.

Application filed December 9, 1898. Serial No. 698,744. (No model.)

To all whom it may concern:

Be it known that I, JOHN SPENCE, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Rotary Engines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in steam-engines, and especially to a rotary eccentric piston type, in which a steam-chest is provided with a rocking valve designed to open and close alternately two ports which merge into one duct immediately before the interior of the steam-cylinder is reached, whereby steam may be fed at the proper moment to the two diametrically opposite wings carried by the rotary disk.

The invention relates, further, to the provision of suitable packing-rings, which are spring-actuated and designed to bear against the faces of the rotary disk, said disk being provided with spring-actuated wings, at the edges of which wings are strips for producing steam-tight contact between the wings and the cylinder-heads.

To these ends and to such others as the invention may pertain the same consists, further, in the novel construction, combination, and adaptation of parts, as will be hereinafter more fully described and then specifically defined in the appended claim.

My invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this application, and in which—

Figure 1 is a side elevation of my engine, showing one of the cylinder-heads removed. Fig. 2 is a sectional view through one of the wings carried by the rotary disk. Fig. 3 is a detail view of one of the wings, showing the spring-actuated strip at the end to take up wear and make a steam-tight contact with the cylinder-head.

Reference now being had to the details of the drawings by letter, A designates the casing or cylinder, in which is journaled the shaft B, carrying the rotary disk C. Mounted in recesses in said disk are the wings D, which are spring-actuated, the springs E being provided to force the wings outward to receive the impact of the steam, which is fed from the steam-chest. Each end of the wings is grooved, as at F, to receive a packing-strip G, and each packing-strip has pins G′, designed to be seated in holes D′ in the wing, and a spring H is provided to throw the strip out from the wing toward the cylinder-head K. Seated in the faces of the disk are the semicircular rings M, and a spring or springs M′ are provided, which are seated in the grooves channeled to receive said semicircular rings. These sectional rings are designed to be thrown out against the cylinder-heads to form a steam-tight contact with the same.

The portion of the chamber surrounding the rotary disk is enlarged, as at A′, in which enlarged portion the wings are disposed when receiving the impact of the steam, and at one end of this space is an exhaust-port R, while at its opposite end is a duct S, having branching ducts S′ and S^2, which latter ducts lead into the steam-chest T. Mounted in this chest is a shaft Q, to which is fastened the rocking shoe or cut-off valve J. This cut-off valve conforms to the curved surface of the steam-chest and is of sufficieut length to close both of the ducts S′ and S^2, but when rocked to alternately open and close said ducts. The valve is rocked by means of eccentric connection with the main shaft, as shown.

In operation it will be observed that by the arrangement of the ducts leading away from the steam-chest and opening at one end of the enlarged space in the steam-cylinder the steam is allowed to force one of the wings throughout the length of the enlarged space in the cylinder from steam coming from one duct S′ or S^2, and by the time the second wing comes adjacent to the outlet of the duct S the cut-off valve will have rocked back, so as to open a steam-duct and allow steam to propel the second wing.

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

In a rotary concentric engine, the combination with the casing, the shaft mounted therein and disk carried by said shaft, the spring-

actuated pistons D having their ends slotted as at E, the spring-actuated packing-strips G having lugs designed to be seated in holes in the said recesses, the semicircular packing-rings M and springs M′ disposed about the outer faces of said disk adjacent to its circumference, the steam-chest having a rocking cut-off valve, from which steam-chest the branching ducts S′ and S^2 lead, and merge into a single duct S before entering the steam-cylinder, all as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN SPENCE.

Witnesses:
MARTIN J. DELANEY,
JOHN S. TURNBULL.