

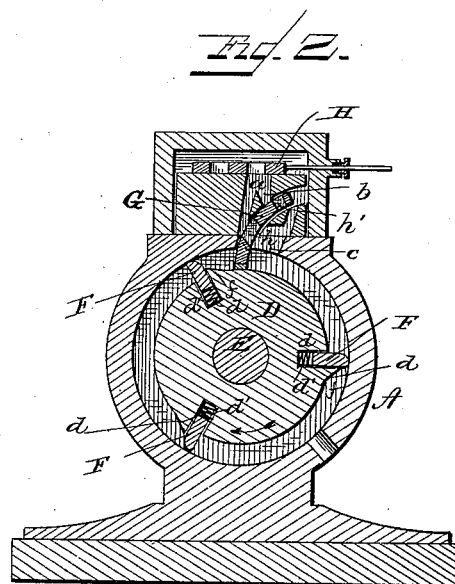
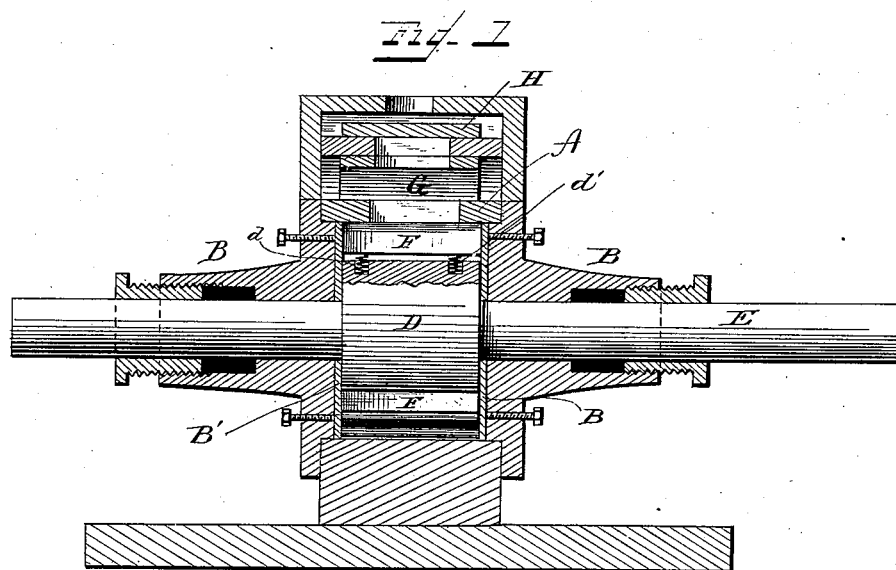
(No Model.)

C. P. COVERT & C. H. ZEIS.

ROTARY ENGINE.

No. 304,298.

Patented Sept. 2, 1884.



WITNESSES
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UNITED STATES PATENT OFFICE.

COMMODORE P. COVERT AND CHARLES H. ZEIS, OF CROMER'S, OHIO.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 304,298, dated September 2, 1884.

Application filed March 27, 1884. (No model.)

To all whom it may concern:

Be it known that we, COMMODORE P. COVERT and CHARLES H. ZEIS, citizens of the United States of America, residing at Cromer's, in the county of Seneca and State of Ohio, have invented certain new and useful Improvements in Rotary Engines; and we do hereby 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 letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in rotary steam-engines, its object being to provide an engine of this class with means for taking up the wear at the side of the wheel, and with a valve which automatically regulates the admission of the steam from the chest to the cylinder-case; and to these ends it consists in the construction and combination of the parts, as will be hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal sectional view, and Fig. 2 a transverse section.

A represents the cylinder, which is mounted upon a suitable bed, and is provided at one side of its periphery with an induction-opening, while the induction-ports are located at the top of the cylinder, the upper portion at its exterior being flat and provided with a transverse slot, a portion of which slot is cut away, so as to provide a wider opening near the central portion. The sides of the cylinder are flanged and provided with bolt-holes for the attachment of the cylinder-heads B B, which have side extended portions which form shaft-bearings. The rotary wheel D may be integral with the shaft E, and is substantially circular in cross-section, and is recessed laterally for the reception of the pistons F. Near the ends of the slots or recesses *d* are provided cavities *d'* for the reception of suitable springs, which bear upon the inner edge of the pistons and force the same against the inner periphery of the case, thus forming a tight joint and taking up the wear. The outer ends of the pistons are curved, as shown. Adjacent the

recesses or slots in the wheel D are formed raised segments *f f*, which operate the cut-off valve G. The upper portion of the cylinder is provided at one side of the center with passages *a b*, which unite with each other at the seat of the reciprocating valve, and terminate in a segmental opening, in which slides the curved valve G, which has formed therein two slots, *h h'*, which correspond in size with the steam-passages *a b*, and on the under side of this segmental opening is a passage, *c*, which connects with the transverse slot formed in the upper part of the casing. The cut-off valve H is operated by an eccentric, which is adjustable, so as to "cut off" at any desired point. This valve-operating mechanism is connected with the shaft E, and, as the same forms no part of our invention, we will not describe nor illustrate the same. The valve H operates within the steam-chest, which is provided with an induction-pipe. On the inner side of one or both of the cylinder-heads B B are placed circular plates B', and the heads are provided with set-screws, which bear against the same. These plates are for the purpose of taking up the lateral wear of the wheel and pistons, and can be adjusted from the exterior by turning the set-screws.

The operation of our engine is as follows: 80 When steam is admitted into the steam-chest and the valve G resting upon the wheel D, as shown in Fig. 2, it will pass through the openings *a b* and the curved valve G and slot *c*, so as to exert a pressure upon the piston, and thus cause a partial rotation of the wheel D. 85 When the piston has about reached the induction-opening, this valve G is raised by the segment *f*, which cuts off the steam from the cylinder, and at the same time the steam is cut off by the slide-valve H and is not let on until the curved valve G is raised. The slide-valve H is for the purpose of regulating the amount of steam and to thus regulate the speed of the engine, and, being provided with suitable shifting-gear, may be employed to start and stop the engine. It will be seen that the valve G operates entirely by gravity, and, as the slide-valve has two openings, it operates three times to let on and cut off steam at each revolution of the engine. 90 100

What we claim is—

1. In a rotary engine, a reciprocating slide-valve having two direct openings and passages, forming a steamway to a curved valve, which is operated by gravity in one direction and by the wheel in another direction, substantially as shown.

2. The combination, in a rotary engine, with a wheel provided with pistons and raised segments, of the curved valve H, having ports which open and close passages from the steam-chest, substantially as shown.

3. In a rotary engine, the casing provided with a steam-chest, having a reciprocating valve, G, steam-passages *a b c*, the valve H,

with ports corresponding with the passages *a* and *b*, wheel D, having raised segments *f f*, and pistons F, and an eduction-opening, the parts being combined and organized substantially as shown and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

COMMODORE P. COVERT.
CHARLES H. ZEIS.

Witnesses:

JNO. F. SHAULT,
GEO. T. ZEIS.