

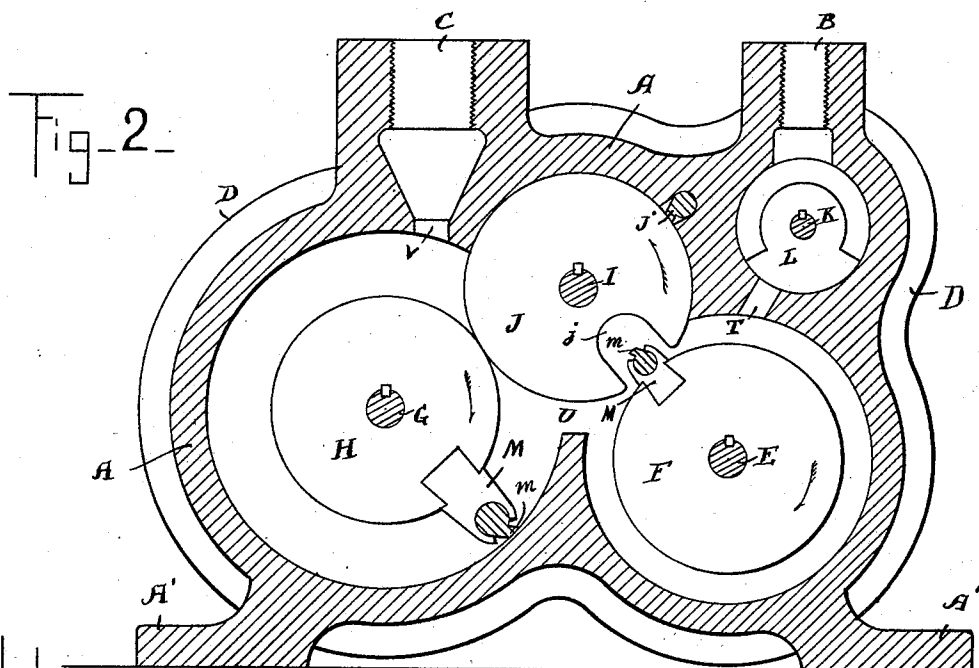
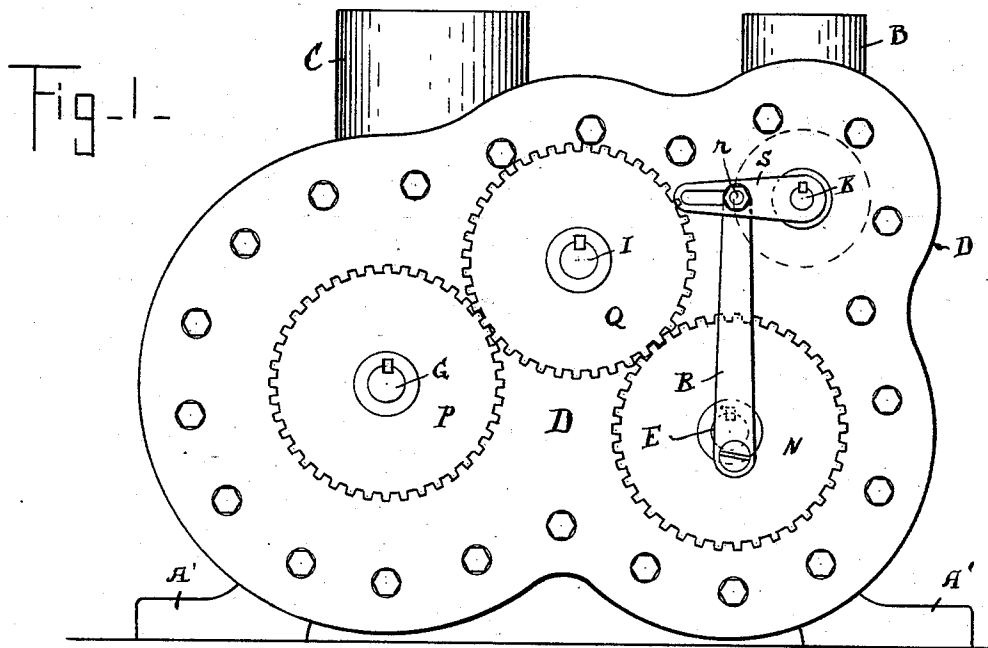
No. 655,198.

Patented Aug. 7, 1900.

G. CODE.
COMPOUND ROTARY ENGINE.

(Application filed Dec. 8, 1899.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE CODE, OF BOSTON, MASSACHUSETTS.

COMPOUND ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 655,198, dated August 7, 1900.

Application filed December 8, 1899. Serial No. 739,617. (No model.)

To all whom it may concern:

Be it known that I, GEORGE CODE, a subject of the Queen of Great Britain, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Compound Rotary Engines, of which the following is a specification.

The object of my invention is to produce a compound rotary engine in which the steam first acts upon one cylinder and then expands and acts upon another cylinder, thus utilizing the expansion of the steam; and the invention consists in certain details of construction, as hereinafter set forth, and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 represents a side view of a compound rotary engine embodying my invention. Fig. 2 is a vertical longitudinal section of same.

A represents a casing of a form to receive the cylinders, a resistance-head, and a reciprocating valve and having a bed-plate A' at its lower end and at its upper end an inlet B and an outlet C. Each side of this casing is fitted with a cover D, one of which is shown in Fig. 1, and one of which is formed with recesses to receive the ends of the shafts, or both may be formed with stuffing-boxes in which the shafts are mounted.

E is a shaft upon which is secured the high-pressure piston F.

G is a shaft upon which is mounted the low-pressure piston H.

I is a shaft upon which is mounted the resistance-head J, and K is a shaft upon which is mounted the reciprocating valve L.

Each of the pistons F H is fitted with a piston-head M, projecting therefrom, so that it is nearly in contact with the inner side of its cylinder, and at its end is fitted with a small packing-strip *m*, so that when the pistons are rotated the strips *m* will be in close contact with the sides of the cylinders. The cylinder containing the low-pressure piston is somewhat larger than the cylinder containing the high-pressure piston, so that there will be space for the steam to expand. The resistance-head J is formed with a recess *j*, into which the piston-heads M pass, said recess being arranged so as to accommodate first

one and then the other piston-head, and in the cylinder is arranged a contact-piece J' to prevent any steam from passing around said resistance-head.

On one end of the shaft E, but outside of the cover D, is mounted a cog-wheel N, and upon the shaft G is mounted a cog-wheel P, motion being transmitted from one to the other by an intermediate wheel Q, mounted upon the shaft I, carrying the resistance-head J. To the cog-wheel N, but eccentrically to its center, is secured one end of a bar R, the upper end of which is by a bolt *r* attached to a lever S, mounted upon the shaft K, carrying the reciprocating steam-valve L, the bolt *r* passing through a slot in the lever S, whereby the length of the stroke of the valve can be adjusted to allow the steam to pass through the port T.

In operation the position of the bar R is first adjusted to regulate the stroke of the valve L to admit the steam to or cut off the supply from the piston F. Steam is admitted through the inlet B, and the valve when open allows the steam to pass through the port T and impinges upon the piston-head of the piston F, causing it to rotate in the direction indicated by the arrow until the piston-head has passed the passage U between the two cylinders. Then the steam expands and impinges upon the piston-head of the piston H and causes said piston to rotate by the expanded steam until the piston passes the port V. Then the steam passes off by the outlet C. It will be seen that one of the pistons is rotated by the direct force of the steam admitted, and the other cylinder is rotated by said steam after it has been expanded, and as both of the cylinders are connected by gearing one assists the other and the full force of the steam is utilized. Of course a pulley will have to be mounted upon one of the shafts in order to transmit the power to the machine to be driven.

What I claim is—

1. A compound rotary engine, consisting of a casing adapted to receive two rotary pistons, a resistance-head, and an oscillating valve, and having an inlet, an outlet, and suitable ports, a cover on each side of said casing, adapted to carry shafts upon which are mounted rotary pistons, each having a pro-

jecting piston-head, a shaft carrying a resistance-head that works in close contact with the rotary pistons and having a recess in which the piston-heads pass as they rotate, each of said shafts having cog-gears outside the covers, whereby motion is imparted from one to the other, and a shaft upon which is mounted a reciprocating valve, operated from one of said cog-wheels in the manner set forth.

2. In a compound rotary engine, two rotary pistons having projecting piston-heads, in combination with a resistance-head having a recess into which the piston-heads pass, and means for rotating same; substantially as set forth.

3. In a compound rotary engine, two rotary pistons, each having a projecting piston-head rotating in cylinders and in contact with a resistance-head, having a recess to receive

the piston-heads as they rotate, the cylinder containing the low-pressure piston being of larger diameter than that containing the high-pressure piston, in combination with an oscillating valve arranged and operated, substantially as set forth.

4. In a compound rotary engine the combination of a high and low pressure cylinder, each containing a rotary piston provided with a projecting head, a resistance-head having a recess to receive the piston-heads, and an oscillating valve to supply steam to the high-pressure cylinder; substantially as set forth.

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

GEORGE CODE.

Witnesses:

CALEB H. SWAN,
EDWIN PLANTA.