

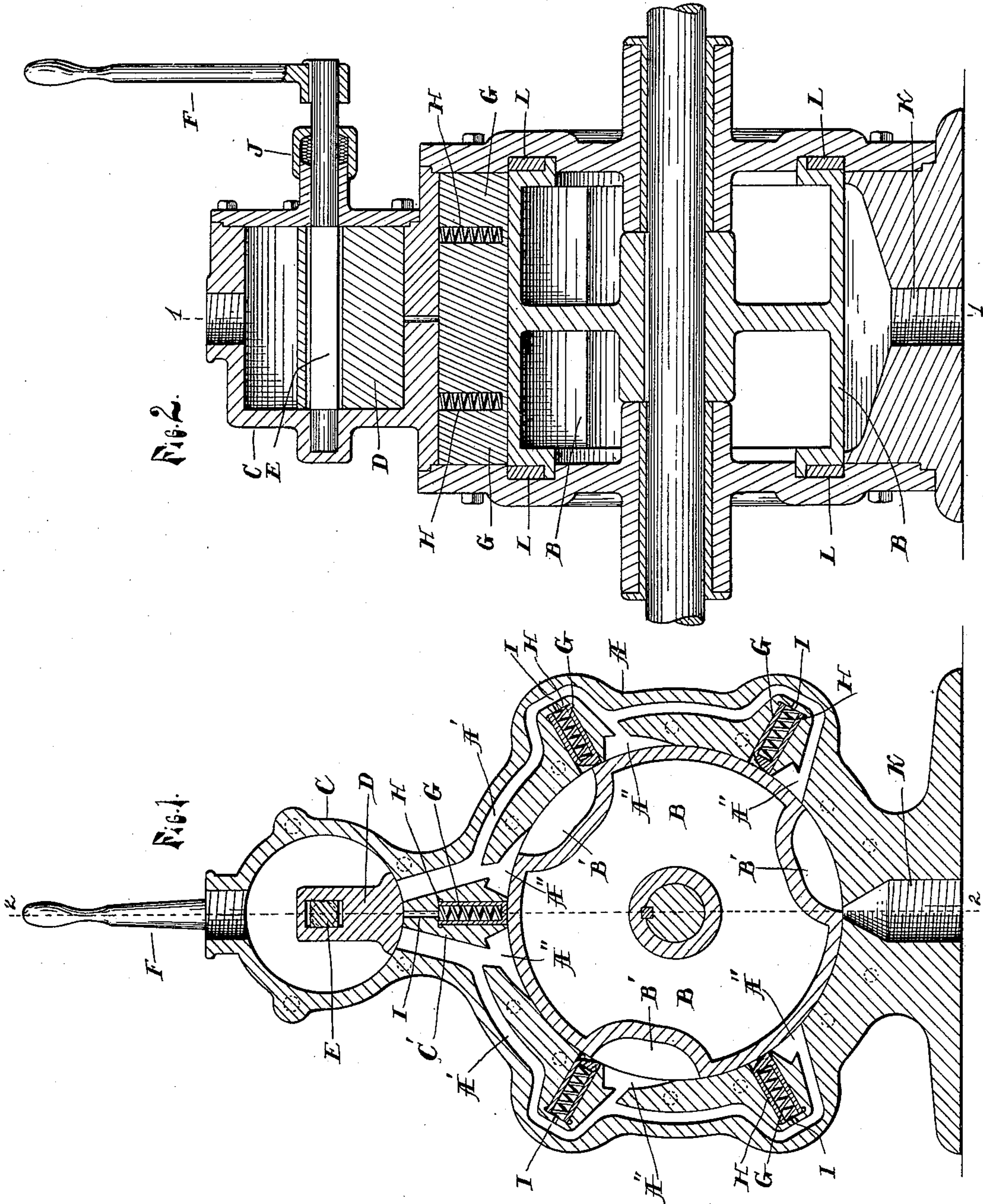
No. 631,815.

Patented Aug. 29, 1899.

C. W. PRATT.
REVERSIBLE ROTARY ENGINE.

(Application filed Dec. 27, 1898.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES W. PRATT, OF GRAND RAPIDS, MICHIGAN.

REVERSIBLE ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 631,815, dated August 29, 1899.

Application filed December 27, 1898. Serial No. 700,366. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. PRATT, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Reversible Rotary Engines; and I 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.

My invention relates to improvements in reversible rotary engines; and its object is to provide the same with certain new and useful features hereinafter more fully described, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a transverse vertical section on the line 1 1 of Fig. 2, and Fig. 2 a vertical section of the same on the line 2 2 of Fig. 1.

Like letters refer to like parts in both figures.

A represents the casing, having a cylindrical chamber for the rotary piston B and oppositely-diverging ports A' A', extending from adjacent points in the bottom of a steam-chest C, which steam-chest is integral with the cylinder A and above the same and provided with a rotary valve D, having a face wide enough to cover both of the steam-ports in the bottom of the chest C and moved by a shaft E, having a square middle portion engaging a square opening in the valve D and journaled in the end of the steam-chest at its rear end and in a stuffing-box J at its forward end, and projecting through the same is provided with a lever F on its outer end. At the bottom of the cylinder A is the exhaust-port K, and the ports A' extend around the cylinder each way from the steam-chest C to points near this exhaust-port and are provided with branch ports A'' at intervals opening into the cylinder A. The rotary piston B is provided with suitable packing-rings L and also with steam-chambers B' at intervals and between these chambers fits closely within the cylinder to prevent the passage of steam around the same. Between the diverging ports A' A' and extending from the steam-

chest C to the cylinder A is the bridge C', in which is a sliding abutment G, which traverses the chambers B', descending into each in turn as they pass, and thus preventing the passage of steam in either direction. Adjacent to each of the branch ports and at the side toward the steam-chest C is a similar sliding abutment G to prevent steam from passing back toward the steam-chest around the piston. Each of these abutments G is pressed inward by one or more springs H, and as a further precaution in case a spring should fail a minute opening I, back of each abutment, admits a small amount of steam to force the abutment inward.

From the foregoing description the operation of my device is obvious. When steam is admitted to either side by turning the valve D to uncover the port A' on that side, the steam will pass through said port A' and the branch ports A'' and engaging the chambers B' in the piston B turn the piston in that direction, the steam finally escaping through the exhaust-port K. By moving the valve D over both ports to mid-position the steam is wholly cut off and the motion stops. By opening the other port A' the motion of the engine is of course reversed.

Having thus fully described my invention, what I claim, and wish to secure by Letters Patent, is—

1. The combination of a cylinder having a steam-chest and oppositely-extended ports having branch ports opening into the cylinder at intervals, a sliding abutment between the oppositely-extended ports, a valve to alternately open said ports and to close both of the same, sliding abutments adjacent to each branch port, and a rotary piston in the cylinder having steam-chambers at intervals, substantially as described.

2. The combination of an integral steam chest and cylinder, diverging ports extending from the steam-chest partially around the cylinder in opposite directions and having branch ports at intervals, an exhaust-port opposite the steam-chest, a sliding abutment in the bridge between the diverging ports, sliding abutments adjacent to each of the branch ports and between the same and the

steam-chest, springs in said abutments to
force the same inward and minute steam-
openings behind each abutment, a rotary
valve to alternately open the diverging ports
5 and to close both of the same when in mid-
position, a shaft having a square portion en-
gaging a square opening in said valve and ex-
tending through a stuffing-box, and a lever

on the end of said shaft to shift the valve,
substantially as described. 10

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

CHARLES W. PRATT.

Witnesses:

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