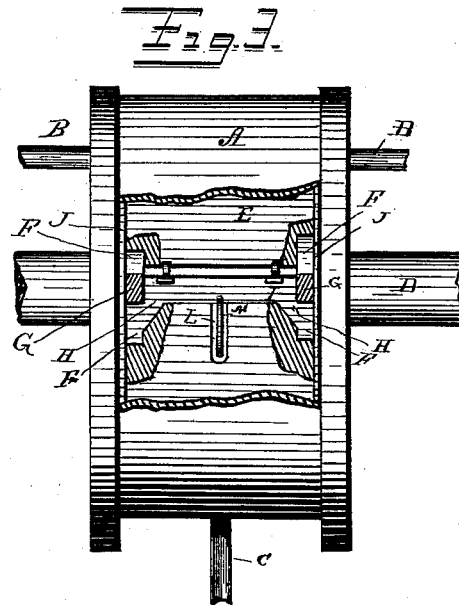
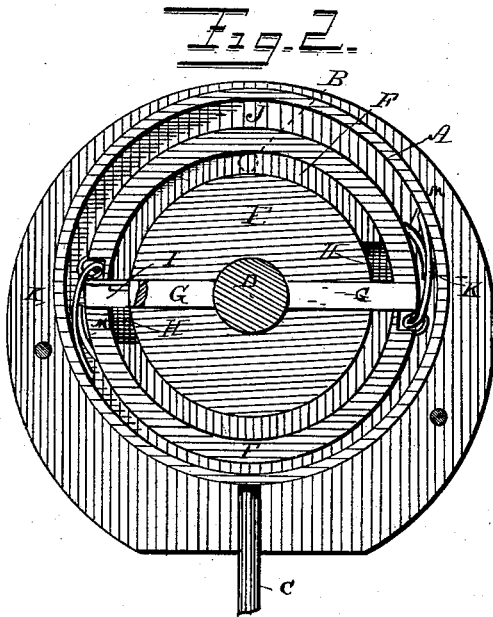
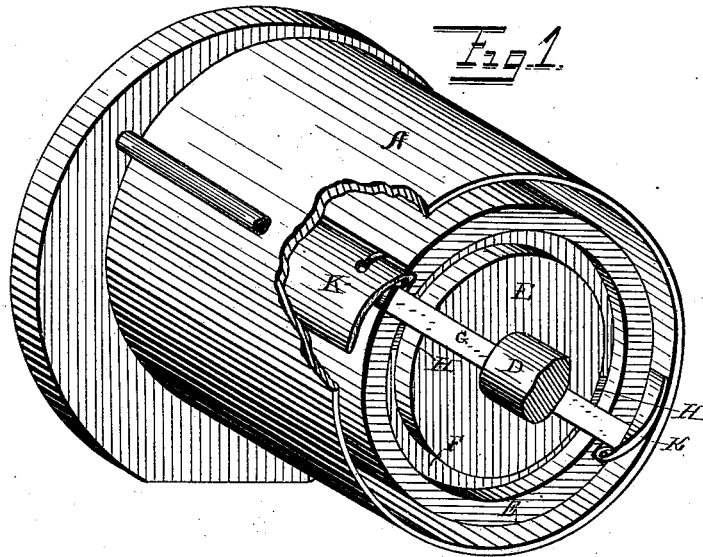


(No Model.)

J. HILLS.  
ROTARY STEAM ENGINE.

No. 347,242.

Patented Aug. 10, 1886.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

JUSTIN HILLS, OF ISCHUA, ASSIGNOR OF ONE-HALF TO FRANKLIN FITCH,  
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## ROTARY STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 347,242, dated August 10, 1886.

Application filed April 6, 1886. Serial No. 193,000. (No model.)

*To all whom it may concern:*

Be it known that I, JUSTIN HILLS, a citizen of the United States, and a resident of Ischua, in the county of Cattaraugus and State of New York, have invented certain new and useful Improvements in Rotary Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of the engine with one of the ends or heads of the cylinder broken away. Fig. 2 is a side view of the same; and Fig. 3 is a partially-sectioned side view of the same, the piston exposed by the sectioning being removed.

Similar letters of reference indicate corresponding parts in all the figures.

My invention relates to that class of rotary steam-engines in which the piston-wheel is arranged eccentrically in the cylinder; and it consists in the improved construction and combination of parts of the same, which will be hereinafter more fully described and claimed.

In the drawings, A denotes the cylinder of my engine, which is provided at its ends with live-steam ports B and at its lower side with the exhaust-port C. Journaled eccentrically in the ends or heads of said cylinder is the shaft D, which carries the piston-wheel E. This piston-wheel is provided on each of its ends with semicircular grooves or channels F, which are separated by strips G, secured in radial recesses in the ends of said wheel. Channels I are formed in the periphery of said wheel, and extend from the end of one strip, G, on one end of the wheel across to the end of the corresponding strip on the other end of said wheel. The semicircular channels are connected in pairs with the transverse channels I through ports H. The inner face of each head or end of the cylinder may be provided with a packing-plate, J, to confine the steam to the annular grooves in the faces of the piston-wheel. Hinged at the forward side of each channel or recess I are pistons K, and in the circumfer-

ence of piston-wheel E are shallow recesses L, and to the wheel in these recesses are secured springs M, which bear upon the inner sides of said pistons, keeping them always in contact with the inner face of the cylinder.

The steam may be introduced at one or both ports B at a time, and, if desired, there may be two piston-wheels placed upon the same shaft—one to run in an opposite direction from the other—in which case of course the cylinder must be double the size and divided by a central partition or diaphragm in two separate compartments, each with its appropriate piston-wheel, so that the engine may be reversed by cutting the steam from one compartment and introducing it to the other.

The peculiar advantage of this engine is that the steam can be introduced into the circular channels at any part of the revolution of the wheel with a perfect effect.

From the foregoing description, taken in connection with the drawings, the operation of my engine will be readily understood.

When the steam is introduced into the induction-ports, it passes into the circular grooves or channels in the faces of the wheel, thence into the transverse channel in the circumference of the wheel, then spreading back of the pistons, and on account of the relative position of the induction-port with the eccentric position of the wheel in the cylinder the said wheel is caused to revolve as the steam fills the recess back of the pistons, and as each piston passes the exhaust-port, which is diametrically opposite the induction-port, the steam from behind it is exhausted, and at this moment a fresh supply is introduced to the recess on the opposite side of the wheel.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

In a rotary steam-engine, the combination of the cylinder having an inlet at each end and an exhaust in its lower side, the piston-wheel arranged eccentrically in said cylinder and having two semicircular channels in each end and the transverse channels in the circumference, each of which connects a pair of the channels in the opposite faces of the wheel, the pis-

tons hinged upon the wheel at the edges of the  
transverse channels, the springs bearing with  
their free ends against the inner side of the pis-  
tons, and the packing plates bearing against op-  
5 posite faces of the piston-wheel, substantially  
as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my

own I have hereunto affixed my signature in  
presence of two witnesses.

JUSTIN HILLS.

Witnesses:

GEORGE E. SPRING,  
ALFRED SPRING.