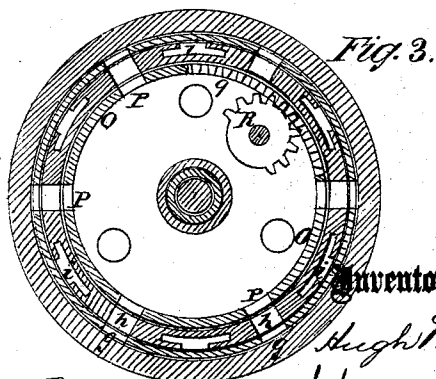
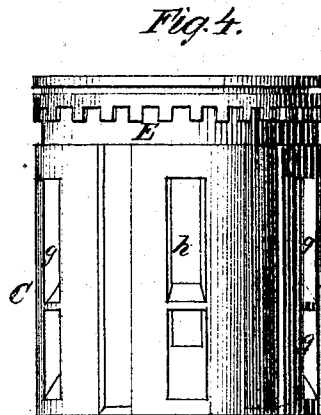
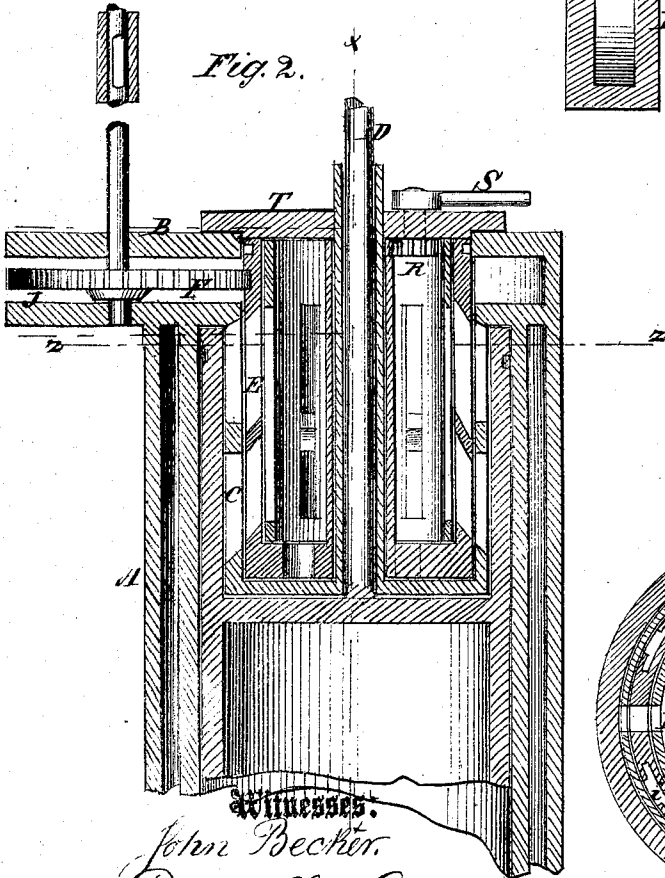
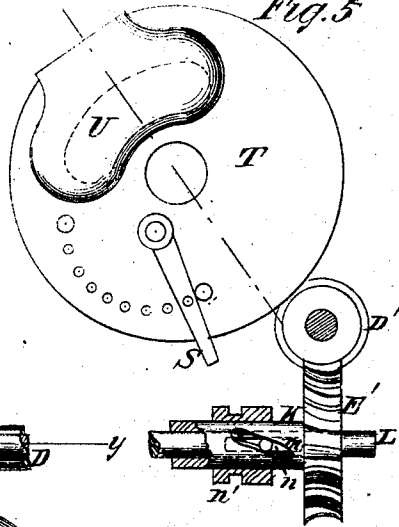
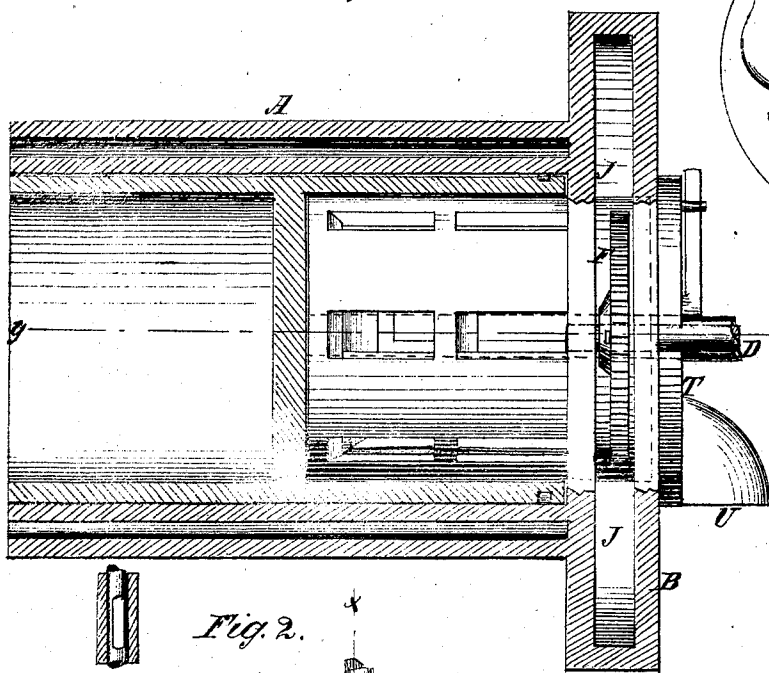
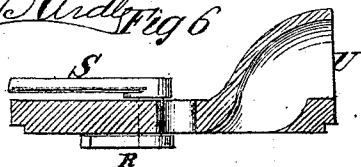


HUGH WRIGHT.
 Improvement in Rotary Steam Valves and Cut-Off,
 No. 120,360.
 Patented Oct. 24, 1871.



Witnesses:
 John Becker.
 Francis Mc Ard



Inventor:
 Hugh Wright
 PER Munn & Co
 Attorneys.

UNITED STATES PATENT OFFICE.

HUGH WRIGHT, OF WARREN, OHIO.

IMPROVEMENT IN ROTARY STEAM-VALVES AND CUT-OFFS.

Specification forming part of Letters Patent No. 120,360, dated October 24, 1871.

To all whom it may concern:

Be it known that I, HUGH WRIGHT, of Warren, in the county of Trumbull and State of Ohio, have invented a new and useful Improvement in Rotary Steam-Valve and Variable Cut-Off; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

The object of this invention is to furnish a simple and convenient valve movement for steam-engines, with a cut-off, which shall vary the quantity of steam admitted to the cylinder, according to the amount of work which the engine has to do; and it consists in connecting the valve apparatus and steam-chamber with the head of the cylinder and operating the valves, substantially as hereinafter set forth and described.

In the accompanying drawing, Figure 1 represents a vertical section of Fig. 2 taken on the line *xx*. Fig. 2 is a vertical section of Fig. 1 taken on the line *yy*. Fig. 3 is a horizontal section of Fig. 2 on the line *zz*. Fig. 4 is a view of the rotating and cut-off valves attached. Fig. 5 is a top view of the steam-chamber. Fig. 6 is a vertical section of the induction-port, with the mechanism for varying the cut-off valve, taken on the line *z'z'* of Fig. 5.

Similar letters of reference indicate corresponding parts.

A represents the cylinder of the engine, which is provided with a jacket, as seen in the drawing, Fig. 1, which is in communication with the boiler, so that it may be filled with live steam to prevent condensation. B is the cylinder-head, to which the steam-chamber C is attached. D is the piston-rod, which passes through the steam-chamber. E is a valve, which is rotated within the steam-chamber by means of a worm-gear, D' E', and spur-wheel F, working in cogs upon or in the circumference of the valve, as seen in Fig. 4. The steam-chamber is provided with six,

more or less, ports, *g*, which communicate with the cylinder. The rotating valve E has a corresponding number of ports, *h*, and also a corresponding number of grooves, *i*, which communicate with the exhaust-opening J. The ports in the chamber and valve are arranged with reference to the speed with which the piston travels. In the present instance the piston makes six strokes while the valve makes one revolution. The valve is set in its connection with its driving worm-gear by means of the sleeve K, connected with the worm-gear E'. The valve-stem L has a longitudinal slot, *m*, and the sleeve has an oblique slot, *n*. The two are connected by a screw through the thimble *n'*, and the valve is raised in position by means of the oblique slot and fastened by the screw in any desired position. O is the cut-off valve, which is placed within the rotating valve E. It is a cylinder, open at each end, with opening P to correspond with the opening in the valve E. This cut-off valve is varied in position by means of a cog, *q*, on its upper end, and the pinion R, which hangs on a short shaft from the arm S. (See Fig. 2.) This arm S may be connected with the governor of the engine, so as to govern the position of the cut-off by the velocity of the engine. The cut-off valve may be held in any desired and fixed position by confining the arm S by a pin in the top of the cap T, as seen in Fig. 5. T is the top of the valve-chamber. U is the steam-pipe connection.

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

1. The steam-chamber C, valve E, and cylinder-head B, combined and arranged substantially as and for the purpose described.

2. In combination with the valve E, the variable cut-off O, arranged and operating as described, for the purposes set forth.

HUGH WRIGHT.

Witnesses:

W. H. HALL,
H. C. REID.

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