J. JENKS.

ROTARY VALVE.

No. 187,638. Patented Feb. 20, 1877.

Fig. 1.

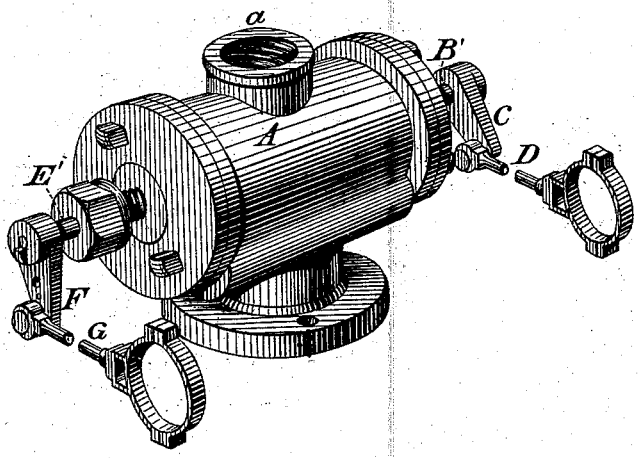


Fig. 2.

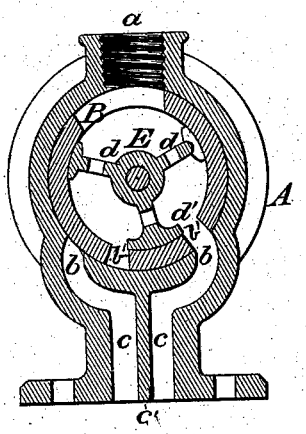
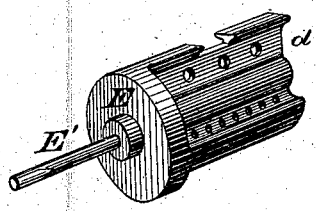


Fig. 3.



Attest:
R. F. Dyer.
L. H. Seley

Inventor:
James Jenks
by Geo. W. Dyer & Co.
Attys.

UNITED STATES PATENT OFFICE.

JAMES JENKS, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF HIS RIGHT TO GEORGE A. JENKS, OF SAME PLACE.

IMPROVEMENT IN ROTARY VALVES.

Specification forming part of Letters Patent No. **187,638**, dated February 20, 1877; application filed October 31, 1876.

To all whom it may concern:

Be it known that I, JAMES JENKS, of Detroit, in the county of Wayne and State of Michigan, have invented an Improvement in Steam-Engines, of which the following is a specification:

The nature of my invention relates to an improvement in that class of rotary steam-valves which are provided with a hollow rotary balance-valve and an internal cut-off valve; and it consists in the combination, construction, and arrangement of the several parts, as fully hereinafter explained.

Figure 1 is a perspective view of a steam-chest provided with my improved cut-off valve, which is shown as to be operated by an eccentric on the main shaft. Fig. 2 is a cross-section at *x x*. Fig. 3 is a perspective view of the cut-off valve.

In the drawing, A represents a circular valve-case, having a steam-inlet, *a*, at the top, into which a steam-pipe from the generator is tapped, or otherwise connected. In the bottom two steam-ports, *b b*, are cut, leading into a passage, *c*, communicating with the cylinder.

If the engine is fitted with but one valve and valve-case, the passage *c* is divided by a partition, as at *c'*, Fig. 2; but where there is a valve at each end, as there should be if economy in the use of steam be considered, then the passage *c* should be open to both ports *b*.

B is the main valve, in the form of a hollow cylinder, closed at one end, and axially mounted on a stem, B', passing through a stuffing-box in the adjacent head of the case, with an arm, C, at the extremity, connected by a rod, D, with an eccentric on the main shaft, by which the said valve is oscillated on its axis. The valve has a large opening cut in its top, longitudinally, through which steam may always pass into the interior thereof. At the bottom are two longitudinal ports, *b' b'*, which alternately disclose and cover the ports *b*.

Within the main valve a spider-shaped valve, E, is sleeved, having three radial ribs, *d d d'*, the last of which is an extended segment, which forms a valve, which, in its oscillation, may partially or entirely close the ports *b'* of the main valve. The wings of this valve are perforated, so that steam may pass through to the ports of the main valve. The pressure being equal upon all parts of the two valves, they are practically balanced.

The cut-off valve is provided with a head or disk at one end, and is axially mounted on a spindle, E', passing through a stuffing-box in the adjacent head of the valve-case, and is fitted with an arm, F, at its outer end, which may be connected with an eccentric on the main shaft by a rod, G, in case it is intended to be used as a fixed cut-off, or with a governor, if the said valve E is designed to be used for regulating the speed of the engine. But what I prefer to do is to place a valve-case and valves at each end of the steam-cylinder, use each valve B to admit steam to its end of the cylinder, and, by the combination of the eccentric and a governor, in any convenient way, to operate the valve E, so that it will serve as a cut-off to permit of expansion in the cylinder, and as a speed-regulator, thus making it what is commonly known as an "automatic" cut-off.

What I claim as my invention is—

In an oscillating valve, the combination, with the case A, having the passages *a*, *b*, and *c*, of the hollow valve B, provided with a large opening at its top, and the ports *b'* in the bottom thereof, and the spider-shaped valve E, having the perforated ribs or wings *d d d'*, constructed and arranged substantially as described and shown.

JAMES JENKS.

Witnesses:
H. F. EBERTS,
WM. P. SPALDING.