G. W. VAN DEREN.

OSCILLATING VALVE.

No. 183,875. Patented Oct. 31, 1876.

Fig. 1.

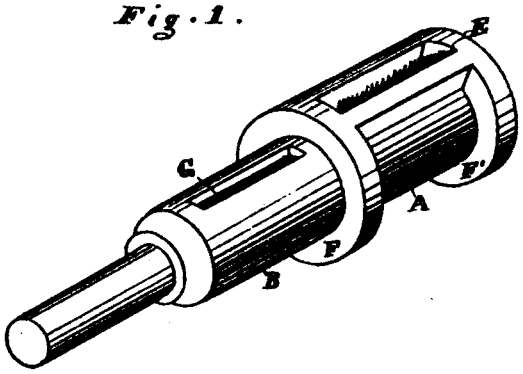


Fig. 2

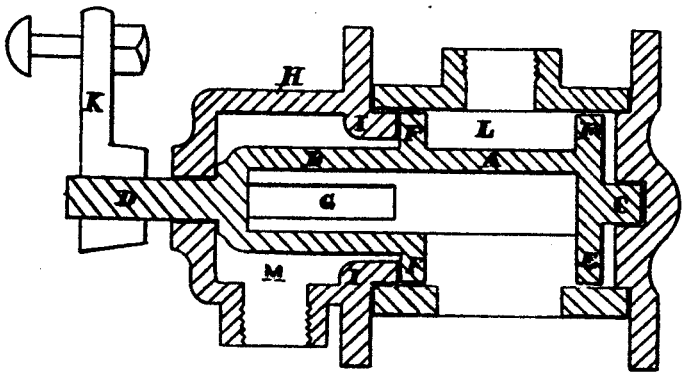


Fig. 3.

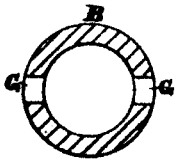
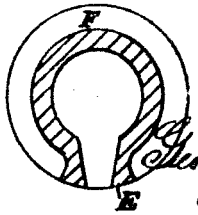


Fig. 4



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE W. VAN DEREN, OF SAN BERNARDINO, CALIFORNIA.

IMPROVEMENT IN OSCILLATING VALVES.

Specification forming part of Letters Patent No. **183,875**, dated October 31, 1876; application filed September 19, 1876.

To all whom it may concern:

Be it known that I, G. W. VAN DEREN, of the town and county of San Bernardino, and State of California, have invented an Improved Valve for Steam-Engines; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing.

The object of my invention is to provide certain improvements in valves, such as are employed for steam-engines, and it is based more especially upon a device for which Letters Patent were granted to me October 9, 1860, No. 30,365.

My former patent consisted of a hollow cylinder, which had a projection at one side, said projection having a curved face, which oscillated against the inside of a chamber surrounding the valve. A port in this face served to admit the exhaust steam alternately from each end of the cylinder to the interior of the valve, whence it escaped through the end to the open air. This construction necessitated a stuffing-box. The valve was difficult to center, and the projection or valve-face could not be properly turned up and fitted without using a wooden lagging upon the remainder of the valve to bring it up to a uniform size.

In my present invention, Figure 1 is a perspective view of my valve. Fig. 2 is a longitudinal section of the valve and chamber and the exhaust-chamber. Fig. 3 is a transverse section of chamber B. Fig. 4 is a transverse section of chamber A.

A is the body of my valve, which is hollow, cylindrical in form, and has an extension, B, at one end, as shown, which is also hollow, and connected with the part A, so as to receive the exhaust steam. Both ends are closed up, and have journals C D, upon which the valve may be very easily centered and turned up. The projection E at one side of the body of the valve has a curved face of the same arc as the interior of the valve-chamber within which it fits.

In order to use the calipers, and properly fit my former valve, it was necessary to put a lagging of wood around it to bring its size up to the level of the valve-face; but in the present one I have made a flange, F, at each of the valve proper, and these flanges serve to obtain a proper fit, as well as other purposes hereinafter to be described.

The extension B is slotted or perforated upon its sides at G, so as to permit the escape of steam into the chamber which surrounds this extension, and serves as an exhaust chamber.

The case H is cast in one piece, having a diaphragm, I, which separates the exhaust-chamber from the steam-chamber. This diaphragm is faced up, and the flange F is also faced to fit against it, and thus prevent any leakage of steam from the steam to the exhaust chambers. A space is left between the flange F′ and the head J of the steam-chamber, and as the flanges do not make a tight fit in the chamber steam enough will enter this space to hold the flange F closely against its seat on the diaphragm I, and prevent leakage. The outer end of the extension B also fits against the end of the case or exhaust-chamber, so that there is little or no chance of leakage about the journal D, which is the only one that passes out of the case.

A crank-arm or rock-shaft, K, is secured to the end of the shaft D, and this is so connected with the working parts of the engine as to give an oscillating motion to the valve.

The operation will be then as follows: Steam is admitted to the chamber L, and surrounds the valve on each side of the projecting face E, when oscillated. This projection exposes the ports, which lead to the ends of the cylinder alternately, and also admits the exhaust steam from each end alternately to the interior of the valve, whence it escapes through the slot G to the exhaust-chamber, M, and is discharged to the open air or condenser through a suitable opening in this chamber.

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

1. The valve A and projection E, to form the valve-face, said valve being provided

with the slotted extension B, the journals C D, and the flanges F F′, substantially as and for the purpose herein described.

2. The valve A, having the projecting curved face E, flanges F, and extension B, in combination with the chambers L and M, and the diaphragm I, the whole constructed substantially as and for the purpose herein described.

GEORGE W. VAN DEREN.

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