C. WHITMAN.

OSCILLATING VALVE.

No. 188,216. Patented March 6, 1877.

Figure 1,

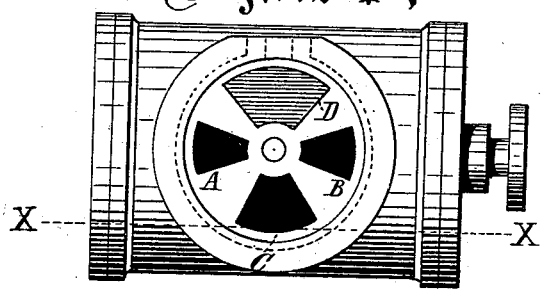


Figure 2,

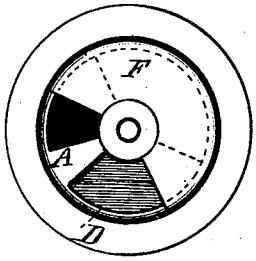


Figure 3,

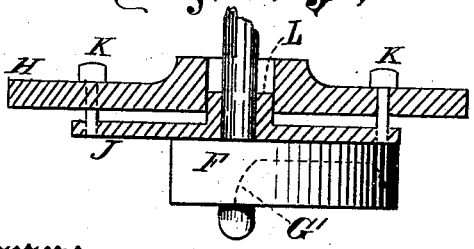
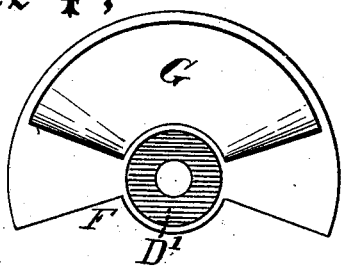


Figure 4,



Witnesses,
G. P. Stiker
Hugh Sangster

Inventor,
Charles Whitman,
By James Sangster
Atty.

UNITED STATES PATENT OFFICE.

CHARLES WHITMAN, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO ROBERT AND GEORGE H. DUNBAR, OF SAME PLACE.

IMPROVEMENT IN OSCILLATING VALVES.

Specification forming part of Letters Patent No. **188,216**, dated March 6, 1877; application filed November 20, 1876.

To all whom it may concern:

Be it known that I, CHARLES WHITMAN, of the city of Buffalo, in the county of Erie, and State of New York, have invented certain new and useful Improvements in Steam-Engine Valves, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings.

The object of this invention is to produce a strong, quick-acting engine; and it consists of a balanced sector-shaped flat valve having a depression at, or surrounding, the center, so as to distribute the wearing-surfaces more evenly, and provided with an adjustable disk for relieving it from steam-pressure, in combination with a valve-seat having a shallow depression for the purpose of equalizing the bearing-surfaces, and, consequently, the wearing of the same. The valve is also arranged so as to have twice the travel of an ordinary rolling-valve, so as to give steam quicker, and thereby impart a quicker motion to the engine, and so that the exhaust will be free.

In said drawings, Figure 1 represents a side elevation of a cylinder, showing the valve-seat and the arrangement of the steam-ports. Fig. 2 is a front view of the steam-chest, showing the valve in position, with one port open, the cover being left off. Fig. 3 represents a side elevation of the valve and the disk for relieving it from steam-pressure, also the cover or bonnet; and Fig. 4 is a face view of the valve, showing the exhaust-chamber and a shallow depression around the center.

In Fig. 1, A B represent the cylinder-ports, one of which is shown at A, Fig. 2. C is the exhaust-port. It is arranged so as to extend below the bore of the cylinder, as shown by dotted lines X X, Fig. 1. All of the ports may be so arranged, if required. D is a slight depression in the valve-seat for equalizing the wearing-surfaces; it also serves, to a certain extent, to retain the oil for lubricating the same. D′ represents a shallow depression in the face of the valve for the purpose of relieving the same at that point, and so that the wearing-surfaces will be just over the ports and not extend to the center. F represents the valve; G, a depression forming the exhaust-chamber. The exhaust-chamber is also shown by dotted lines G′ in Fig. 3. H is the cover for the steam-chest, Fig. 3. It is provided with a stuffing-box made in the ordinary way. J is the relief-plate; K, the adjusting-screws. The hub of the relief-plate passes into the center of the cover or bonnet, and forms the bottom of the stuffing-box, as shown at L. It should be made sufficiently strong to resist the pressure of steam without springing.

The operation of this invention is simple, the connection with the crank-shaft being made by means of eccentrics and a link in the usual way, so as to move like an ordinary rolling-valve, only the travel is greater. The relief-plate J is adjusted so as to allow the valve to move easily and prevent the steam from entering between them.

The flat faces on the lower side of the valve for alternately opening and closing the steam-ports in the cylinder are plainly shown in Fig. 4. The depression D′ distributes the pressure on the wearing-surfaces of the valve more evenly, and maintains a closer joint between the parts by relieving the center of the valve from pressure.

I claim as my invention—

A sector-shaped valve, F, provided with a depression or exhaust chamber, G, a depression, D′, and relief-plate J, provided with adjusting-screws K, and a projecting hollow hub, L, in combination with the cover H, as specified, and a valve-seat provided with ports A B, depression D, and exhaust-port C, substantially as described.

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Witnesses:

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