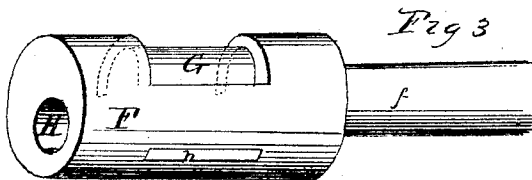
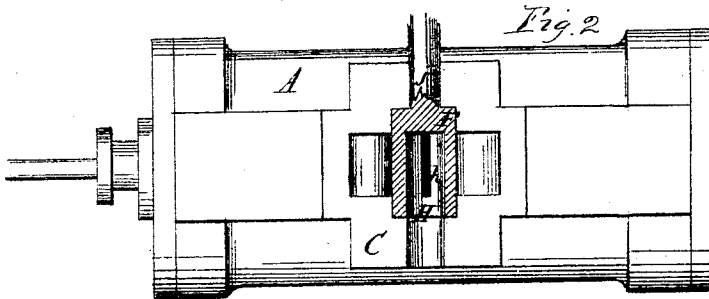
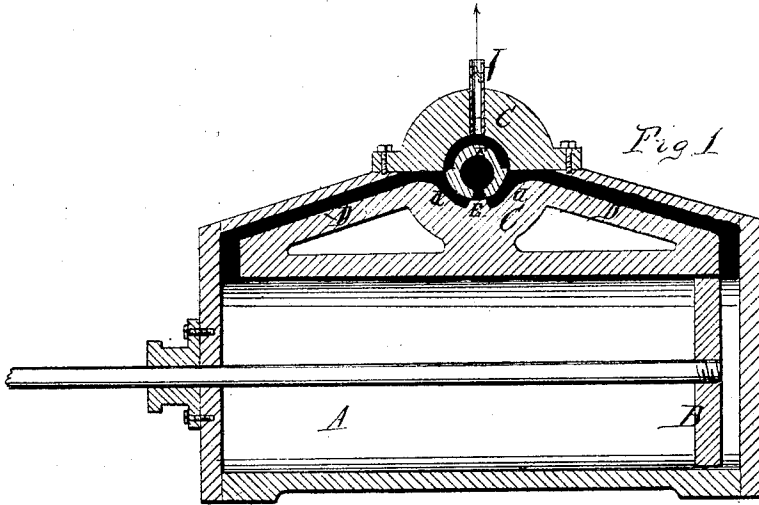


M. C. RERDELL.

Improvement in Steam Valves.

No. 118,817.

Patented Sep. 12, 1871.



Witnesses
F. B. Curtis,
J. M. Hyne.

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UNITED STATES PATENT OFFICE

MONT C. RERDELL, OF CLINTON, ARKANSAS.

IMPROVEMENT IN STEAM-VALVES.

Specification forming part of Letters Patent No. 118,817, dated September 12, 1871.

To all whom it may concern:

Be it known that I, MONT C. RERDELL, of Clinton, in the county of Van Buren and State of Arkansas, have invented a new and valuable Improvement in Steam-Valves; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a vertical section of my invention. Fig. 2 is a plan view, part of valve-chest being detached. Fig. 3 is a perspective view of valve.

This invention has relation to oscillating balance-valves for steam-engines; and it consists in the novel construction and arrangement of the eccentric cylinder-valve and its connection with the supply and exhaust-ports and the passages from the piston-chamber. The object of the invention is to obviate abrupt angles in the steam-passages, and with equal weight of metal to secure less friction and greater capacity in the steam-chamber and exhaust-way than has heretofore been accomplished in this class of valves, whereby they are especially adapted for use in short-stroke engines.

In the drawing, A denotes the piston-cylinder; B, the piston; C, the valve-chest; D, the steam-passages from the piston-chamber to the valve-chest. These passages are raised from the body of the piston-cylinder and upper portion of the valve over the steam-chamber. The form of the floor of this passage in the valve is arched or convexed, but not abruptly, and the depth or capacity of the passage is determined by the size of the steam-chamber and the diameter of the valve. The floor of the passage is concentric with the wall of the steam-chamber. Steam enters the steam-chamber through an aperture in one end of the valve-chest and passes thence to the steam-passage D through a longitudinal slot, *h*, located midway between the shoulders of the exhaust-way G, and in the thinnest portion of the wall of the steam-chamber;

hence the steam in passing through this opening is but little deflected. At the same time the steam is being exhausted from the opposite end of the piston-chamber through the opposite passage D and the exhaust-ways G and I, and are designed to open into the cylindrical valve-chest C at about its middle portion on each side. The interior of the valve-chest is cylindrical in its general form. Its lower half is provided with the recesses *d d* on each side of the central rib E, which are continuations of the steam-passages D D. F designates the cylinder-valve secured to a shaft, *f*, which extends outside the valve-chest, and is connected with suitable operating mechanism. This valve is designed to fit neatly the valve-chest C, within which it oscillates. H represents the steam-chamber in the valve. This chamber or bore is cylindrical in form and is eccentrically situated in the valve, its axis being parallel with and below the axis of the outer surface of the valve. G represents the exhaust-way or recessed passage formed in the upper surface of the cylinder-valve.

By this arrangement the size and weight of a valve may be diminished while its steam-chamber and exhaust-way may be increased. Its frictional or bearing-surface is very small. Below it the floor of the chest is partially removed, and above it is recessed so that it only touches the valve-chest at the ends.

The walls of the steam-chamber are equalized in thickness as nearly as practicable, while the weight of the valve is evenly distributed.

I claim as my invention—

The oscillating balance-valve herein described, consisting of the cylinder F having the eccentric steam-chamber H, steam-port *n*, central rib E, and the exhaust-way G, concentric with the wall of the steam-chamber, arranged substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

Witnesses: MONT C. RERDELL.
D. B. GRANGER,
D. McELVAIN.