C. J. VAN DEPOELE.

Oscillating Steam-Valve.

No. 207,463. Patented Aug. 27, 1878.

Fig. 1.

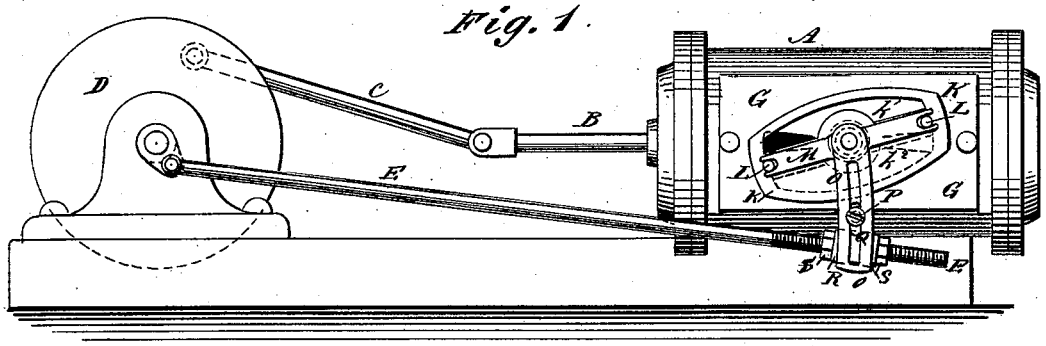


Fig. 2.

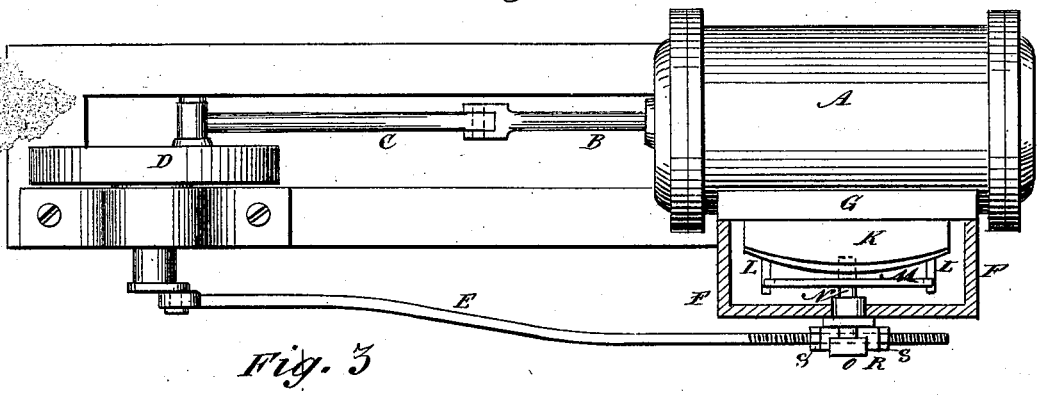


Fig. 3.

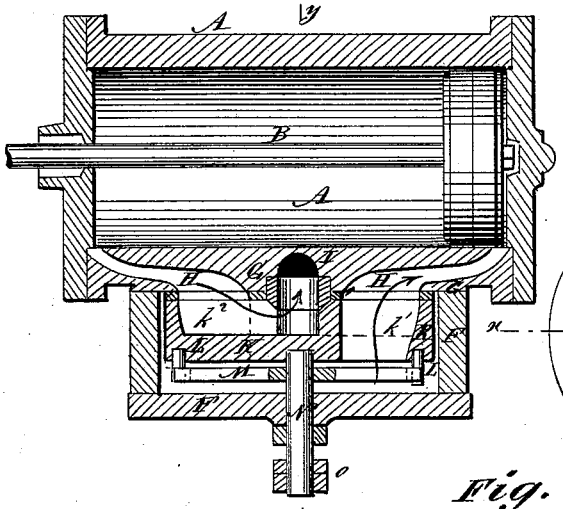


Fig. 4.

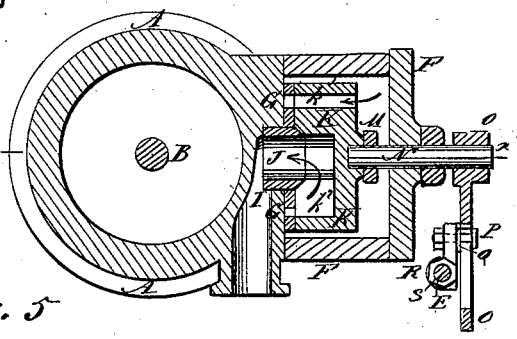
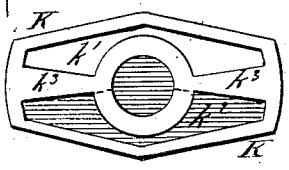


Fig. 5.



WITNESSES:

C. Neveux

C. Sedgwick

INVENTOR:

C. J. Van Depoele

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES J. VAN DEPOELE, OF DETROIT, MICHIGAN.

IMPROVEMENT IN OSCILLATING STEAM-VALVES.

Specification forming part of Letters Patent No. **207,463**, dated August 27, 1878; application filed July 18, 1878.

To all whom it may concern:

Be it known that I, CHARLES JOSEPH VAN DEPOELE, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Oscillating Steam-Valves, of which the following is a specification:

Figure 1 is a plan view of my improved valve, shown as applied to a steam-cylinder, the casing of the valve-chest being removed. Fig. 2 is a side view of the same, the valve-chest being shown in section. Fig. 3 is a longitudinal section of the cylinder, valve, and valve-chest, taken through the line *x x*, Fig. 4. Fig. 4 is a cross-section of the cylinder, valve, and valve-chest, taken through the line *y y*, Fig. 3. Fig. 5 is a face view of the valve detached.

Similar letters of reference indicate corresponding parts.

The invention will first be described in connection with the drawing, and then pointed out in the claim.

A represents a steam-cylinder. B is the piston-rod. C is the crank-rod. D is the crank or crank-wheel, and E is the eccentric or crank rod that operates the valve. F is the valve-chest, the bottom of which serves as a valve-seat, and has ports H formed through it, leading into the cylinder A at its ends. In the center of the valve-seat G is formed the exhaust-port I. In the exhaust-port I is secured a ring, J, the outer end of which projects above the seat G and serves as a pivot to the valve K.

If desired, the ring J may be made in the form of a solid pivot, in which case the exhaust-ports should be formed at its sides.

The valve K is made with one of its side ports, k^1, open, to allow steam to pass into the ports H. The other side, k^2, is made solid, and is recessed upon its lower side, said recess extending through the hub of the said valve for connecting the ports H alternately with the exhaust-port I.

The lower edge or face of the partition k^3, between the open port k^1 of the valve and the recess k^2 of its solid side, is made of such a size and shape as to exactly cover and close the ports H when brought over them, the edges of partitions having the necessary lap. With this construction, also, the ports will be opened gradually, and but a small portion of steam will be at first admitted.

To the end piece of the valve K are rigidly attached pins L, which pass through holes or notches in the ends of a cross-bar, M. The cross-bar M is attached at its center to the spindle N, the inner end of which works in a socket in the center of the valve K. The spindle N passes out through a stuffing-box in the case of the valve-chest H, and to its outer end is rigidly attached the end of a lever, O, which is slotted longitudinally to receive the bolt P. The bolt P passes through the washer Q, placed upon the side of the lever O, and which is provided with a toe or rib to enter the slot of the lever O, and to prevent it from being turned. The bolt E′ also passes through a lug of the socket R, through which passes the end of the eccentric-rod E. The hole through the socket R is made larger than the rod E, so that the said rod may have the necessary play. The rod E is secured in place in the socket R by two bolts, S, screwed upon it, one upon each side of the said socket R, so that the rod may be readily adjusted by adjusting the said nuts S. By loosening the nut of the bolt P the coupling may be moved nearer to or farther from the spindle N, so as to give a less or greater movement to the valve K, as may be desired.

The valve K may be made oblong, as shown in the drawings, or circular, or of other form, as may be desired, and may be applied to throttle-valves, and in other places wherever the use of such a valve is required. With this construction, the valve, being oscillated upon its center, will be easily moved, so that there will be little wear to the valve or to the mechanism that operates it, thus economizing in the use of fuel, steam, and repairs.

By simply making the stem or spindle the size of the exhaust-port, the opening is perfectly balanced; but instead of making the stem or spindle of this size, which would be rather clumsy, I attach a disk of the size required to the said stem or spindle, which engages in the socket of the valve made of the size required. As soon as steam is turned on, the said disk would be pressed down upon the valve in the socket; but to prevent this a collar is turned on or attached to the stem or

spindle, which collar carries the pressure upon the said disk minus the area of the said spindle, diminishing considerably the friction of the valve.

Instead of a disk, a solid piece of the shape and size required can be attached to the said stem or spindle, thus taking from the valve as much pressure as may be desired.

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

The combination of the valve K, provided with ports k^1 k^2 and exhaust-port I, the valve-seat G, the hollow ring J, and the spindle N, all constructed and arranged as shown and described, for the purpose specified.

CHARLES JOSEPH VAN DEPOELE.

Witnesses:
ALFRED WOOD,
DANIEL BISHOP BROWN.