

J. H. Murrill,

Oscillating Steam Engine.

N^o 62,874.

Patented Mar 12, 1867.

Fig. 3

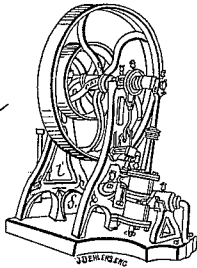


Fig. 1

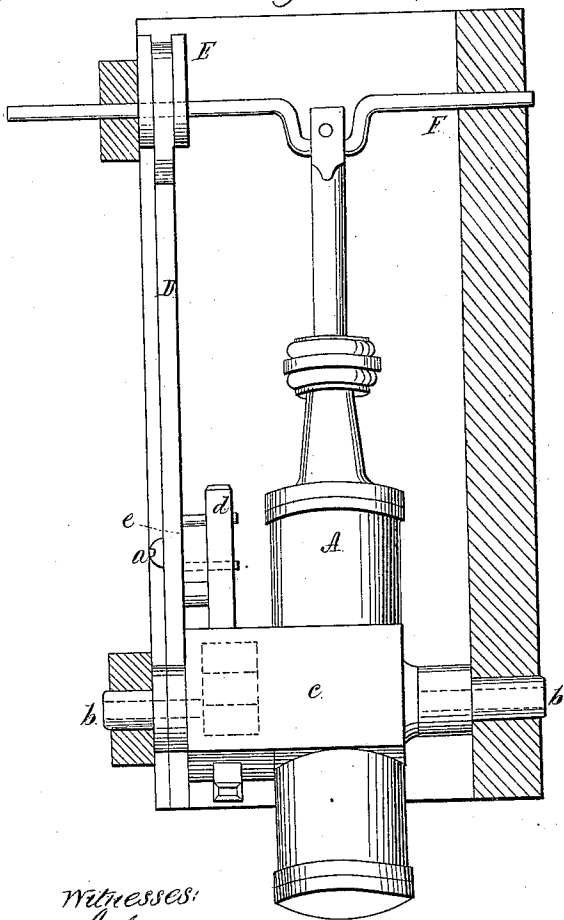
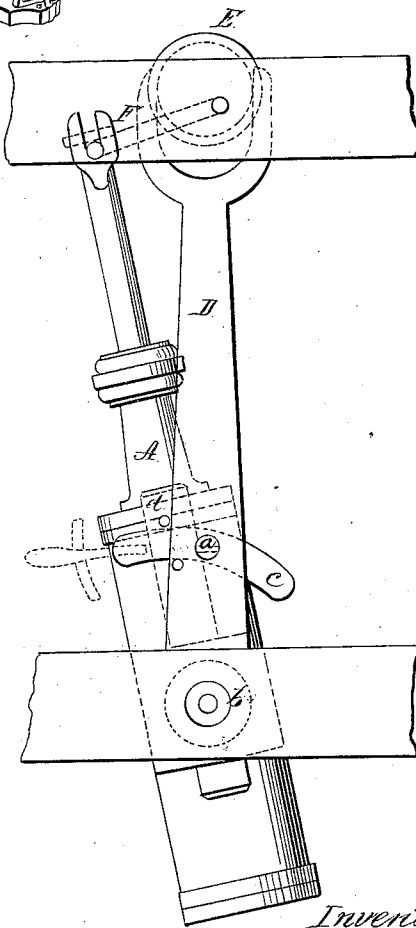


Fig. 2



Witnesses:

John F. Clark.

Lewis R. Keizer

Inventor:

Jas. H. Murrill
" C "

United States Patent Office.

JAMES H. MURRILL, OF BALTIMORE, MARYLAND.

Letters Patent No. 62,874, dated March 12, 1867.

IMPROVEMENT IN VALVE-GEAR FOR OSCILLATING ENGINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JAMES H. MURRILL, of the city and county of Baltimore, and State of Maryland, have invented certain new and useful improvements in Oscillating Steam Engines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, of which—

Figure 1 is an elevation.

Figure 2 is a sectional view.

Figure 3 is a modification.

My improvement consists in preserving the simplicity of the slide-valve arrangement of the stationary engine, and applying it to a steam engine, in which the cylinder is reciprocating. It further consists in giving the means for the advance or lead to the valve, and controls the admission of steam into the cylinder when the crank is at its dead-point or in line.

The first of these objects being accomplished by hanging the cylinder A on plain hollow trunnions, *b b*. Through one of them steam is passed into the steam chest *c*, placed on the side of the cylinder, between it and the trunnion, and through the other trunnion the exhaust steam is allowed to escape. The valve is of the ordinary slide character, and may be situated at the centre of the cylinder, or the valves may be double, and at each end of the same. In the first case, a single steam chest and valve is shown in the drawings, and in the second case a valve-rod connecting the two valves may be employed. *d* is the valve-rod. *e* is an arc or segment, which is secured on a vibrating lever, D, said lever having its centre of motion on one of the trunnions. E is an eccentric on the crank-shaft, F. The valve-rod *d* is provided with two studs, (or slide blocks,) embracing the arc *e* between them. The arc *e* partakes of the side movement of the vibrating lever D. It is secured on said lever at any desired position by set-screws or clamps, having a centre bolt, *a*, on which it may be moved. The arc *e* being movable, instead of fixed, will form a distinct application for Letters Patent. The other improvement is the use of the eccentric E, which, operating on and with the arc and lever D, is the means I employ in giving lead to the valve in advance of the movement effected by the crank. By it I open, in as slight a degree as may be desired, the valve, and admit steam behind the piston; for example, when the crank is up or down, or in line with the cylinder, the eccentric throws the lever either to the right or left of said line, and as it carries with it the arc the stud-pins of the valve-rod embracing the arc cause said rod to move slightly in advance of the movement effected by the crank, and thus open the valve for a gradual admission of steam, the full movement of the valve being accomplished by the crank causing the studs of the valve-rod in the oscillation of the cylinder to pass up and down on the arc or circular incline. Any degree or throw of the valve may be effected by the eccentricity the arc may be made to assume to the centre of its motion, viz, the trunnion.

Having described my improvement in steam engines, what I claim as my invention, and desire to secure by Letters Patent, is—

The arrangement of the arc *e*, lever D, valve-rod *d*, crank-shaft F, and oscillating cylinder A, substantially as described as and for the purposes set forth.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

JAS. H. MURRILL.

Witnesses:

JOHN F. CLARK,
LEWIS R. KEIZER.