W. H. King,

Oscillating Steam Engine.

No. 48,563. Patented July 4, 1865.

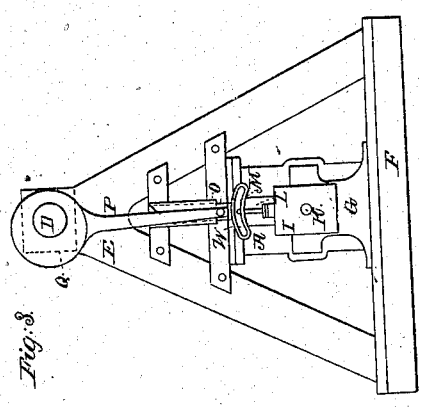

Fig. 8.

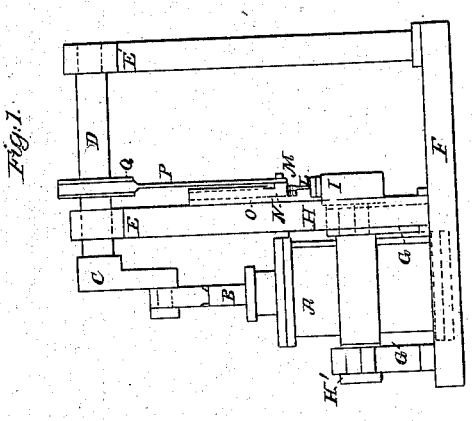

Fig. 1.

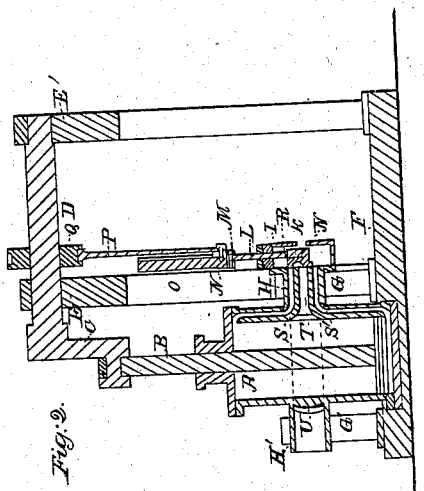

Fig. 9.

Witnesses:
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UNITED STATES PATENT OFFICE.

WM. H. KING, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN OSCILLATING ENGINES.

Specification forming part of Letters Patent No. **48,563**, dated July 4, 1865.

To all whom it may concern:

Be it known that I, WILLIAM H. KING, of the city of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in the Construction of Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the drawings annexed and making part of this specification and the letters of reference marked thereon.

The nature of my invention consists in a novel arrangement and construction of parts in the class of steam-engines known as "oscillating" or "vibrating" cylinder steam-engines, by means of which I am enabled to use a direct-acting valve-gear to operate the sliding valve without the adjustment of the valve being sensibly affected or impaired by the oscillating motion of the cylinder, and in doing this I am at the same time enabled to preserve a simplicity of parts cheaper to construct and easier to adjust, cleanse, and repair when worn than have been heretofore employed for the same purpose.

I will now proceed to describe particularly and exactly the construction and operation of my invention.

Figure 1 exhibits a side elevation of the engine; Fig. 2, a sectional elevation, and Fig. 3 an end elevation, of the same.

A is the cylinder, supported by and oscillating on the trunnions H and H′ in the bearings G and G′, secured to the bed-plate F.

B is the piston-rod, attached directly to the crank C upon the extremity of the revolving shaft D, which shaft is supported by the uprights or standards E and E′, secured to the bed-plate F. Upon the shaft D is fixed an eccentric, Q, which, by means of the rod P, imparts a reciprocating motion to the slide N, which is free to slide vertically in the guide O attached to the frame E. The lower portion of the slide N is formed with a curved slot, W, having such a radius that it is concentric with the axial line of the cylinder-trunnions when the slide N is in mid-travel. In this slot W is a roller, M, attached to the upper portion of the valve stem or rod L, which rod is secured to the valve R in the steam-chest I, and controls the admission and egress of steam through the channels S and S′ to and from the cylinder A, the escape or exhaust steam passing through the cavity V in the valve R, through the channel T, which leads around the cylinder A, to the opening U in the trunnion H′, whence it is discharged.

K is an opening in the lid of the steam-chest I, through which steam is admitted by a steam-pipe connected by any of the known forms of stuffing-boxes placed concentric with the axis of the cylinder-trunnions.

The peculiarity of this invention consists in passing the channels S, S′, and T through the trunnion H, and in the use of the direct-acting valve-gear constructed with the slotted slide N, roller M, and valve-stem L, in combination with a steam-chest located relatively to the trunnion H and cylinder A as described. In other respects the operation of the engine is similar to others in general use. It is apparent upon inspection that the steam-chest I, valve-stem L, and roller M are free to vibrate with the cylinder A, and at the same time the motion of the valve R imparted by the eccentric Q is unaffected by the vibratory motion of the cylinder.

What I claim as my invention, and desire to secure as such by Letters Patent, is—

1. The arrangement of the channels S, S′, and T through the trunnion H, substantially in the manner described and shown.

2. Arranging the steam-chest relatively to the trunnion H and cylinder A substantially as set forth.

3. The construction and arrangement of the valve-gear hereinbefore described, in combination with the steam-chest, substantially as herein set forth.

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Witnesses:

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