

J. Shoemaker.

Valve for Steam Engine.

N<sup>o</sup> 71542

Patented Nov. 26, 1867.

Fig. 1.

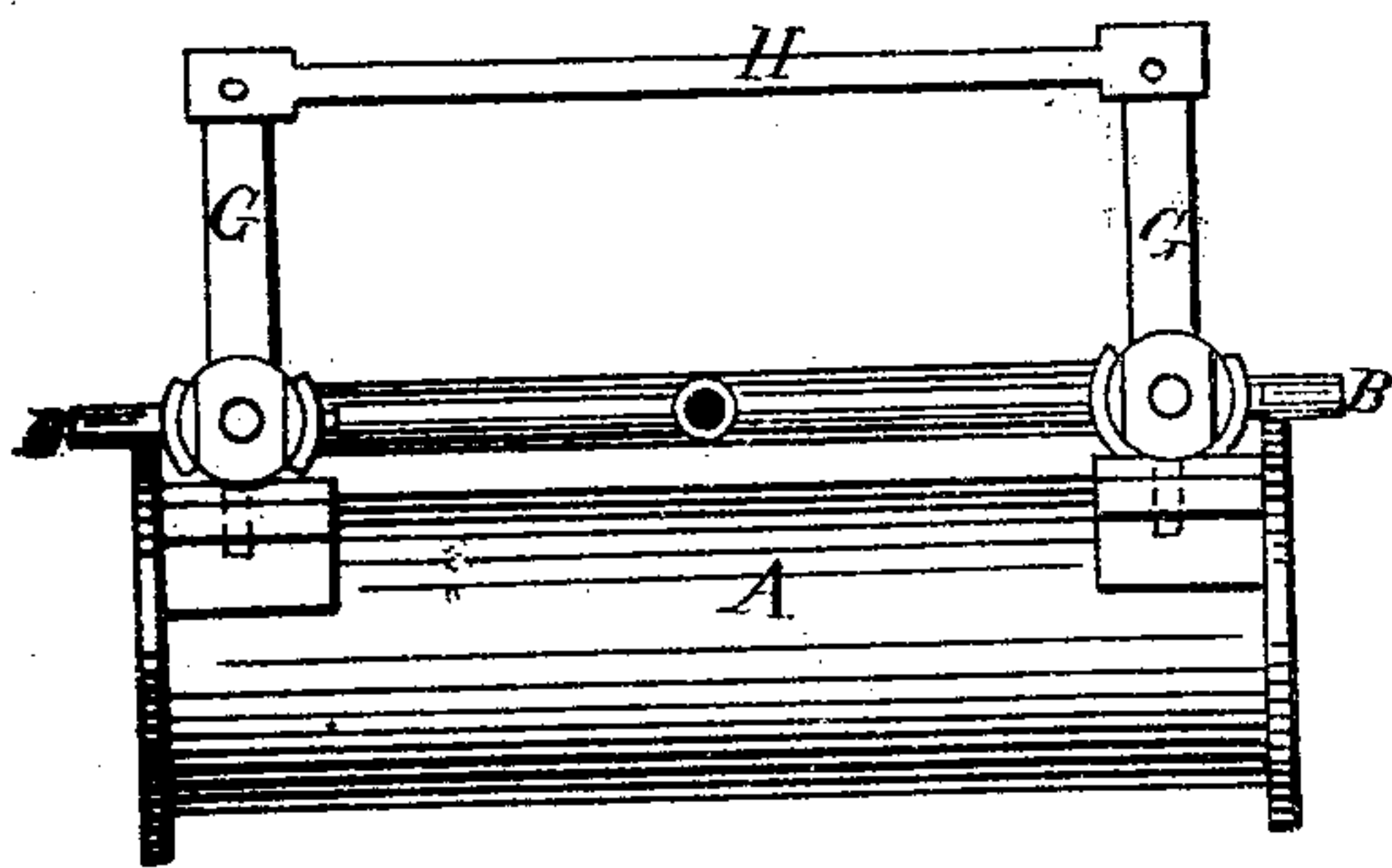


Fig. 2.

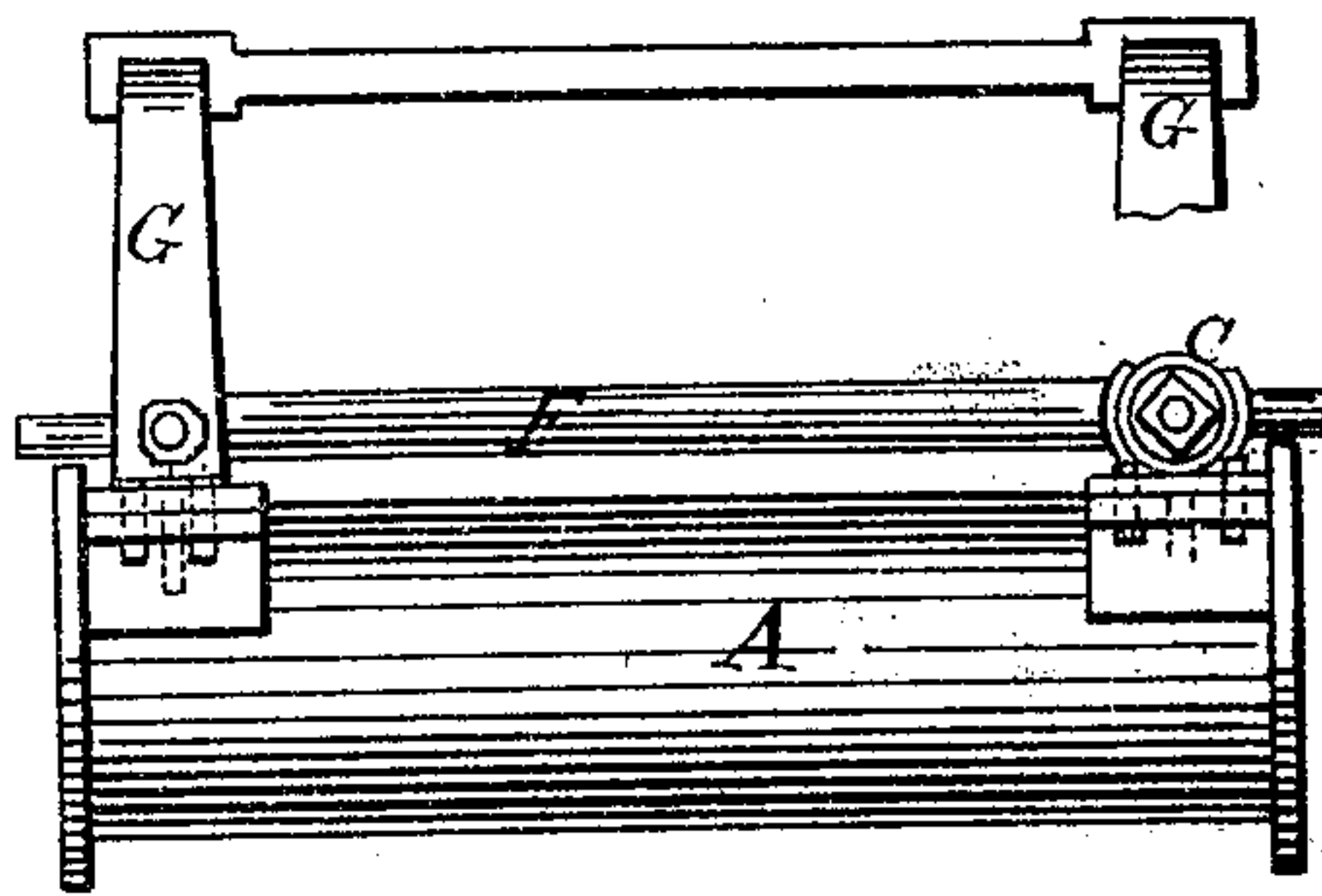


Fig. 3.

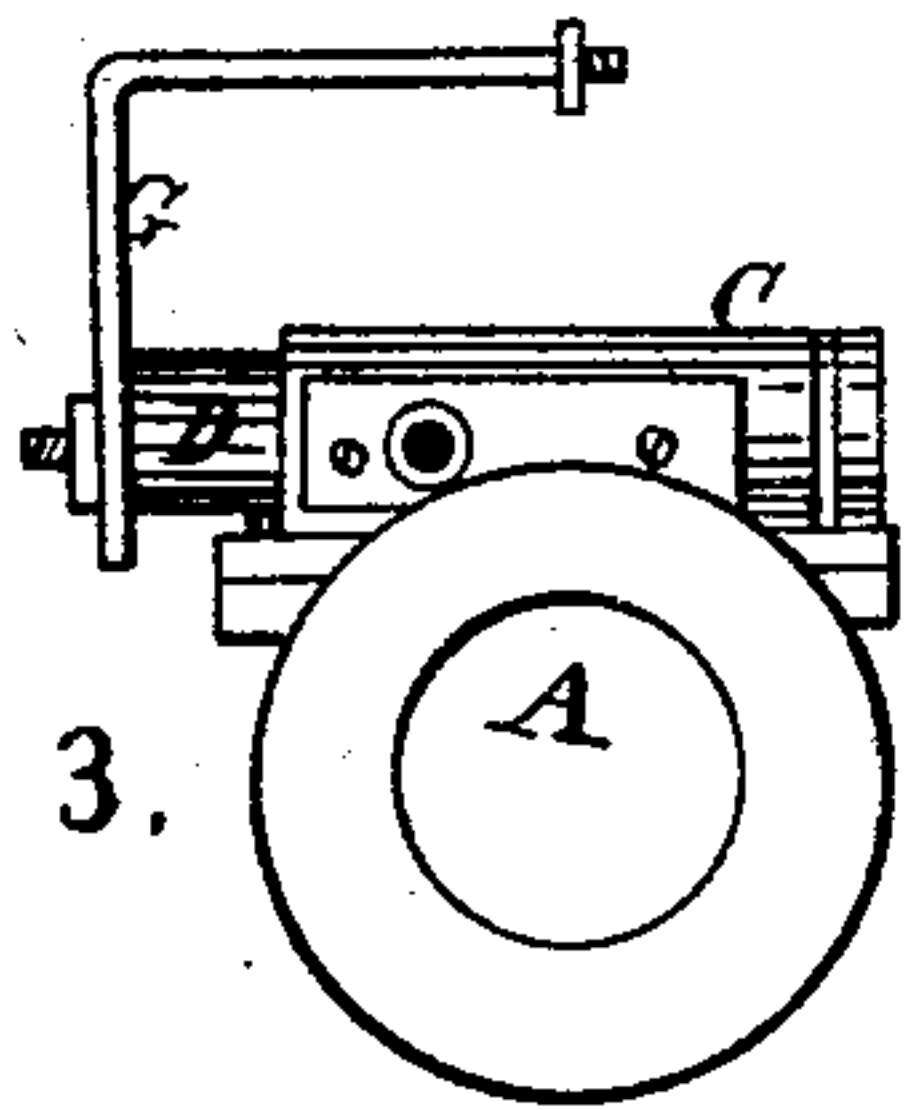


Fig. 4.



Fig. 5.

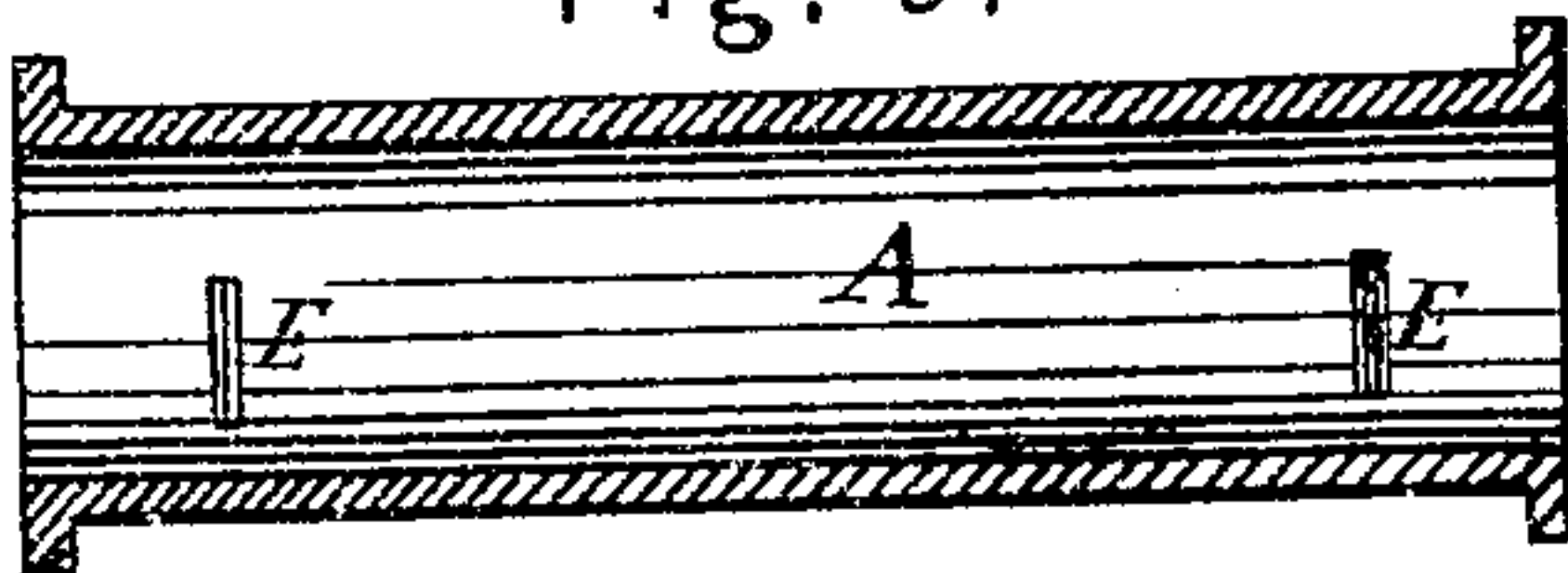
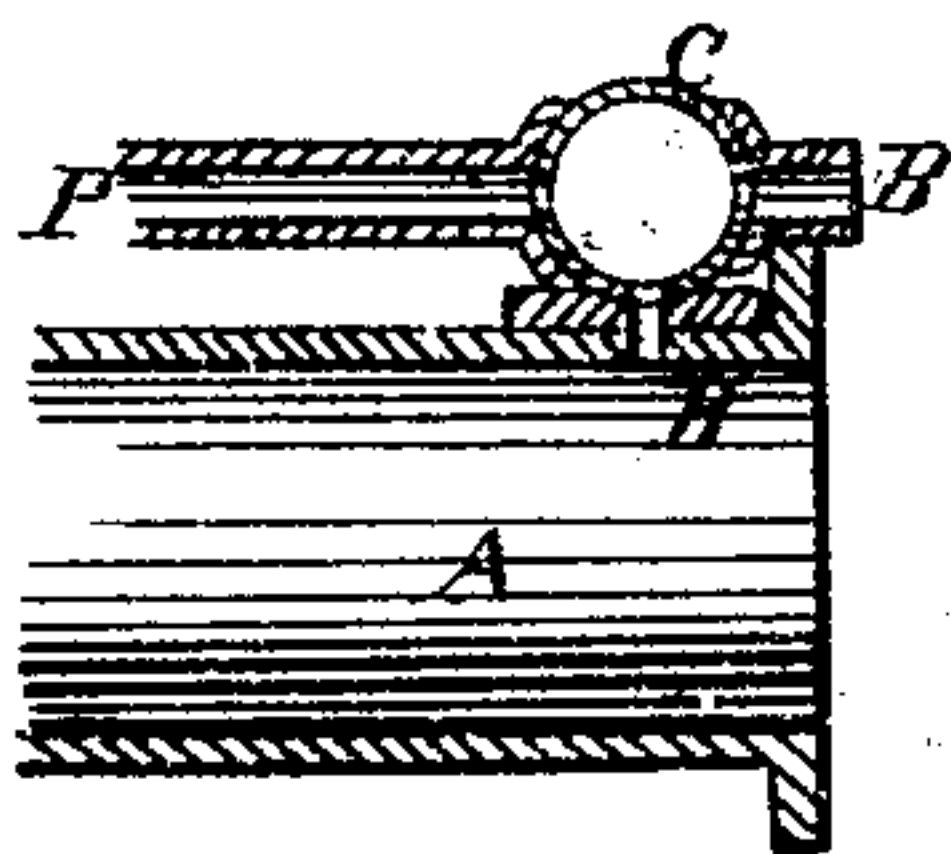


Fig. 6.



Witnesses.

*P. Blauvelt*  
*L. Murphy*

Inventor.

*Jacob Shoemaker*  
by *D. P. Holloway*  
his atty -

# United States Patent Office.

JACOB SHOEMAKER, OF OAKLAND, PENNSYLVANIA.

*Letters Patent No. 71,542, dated November 26, 1867.*

## IMPROVEMENT IN VALVES FOR STEAM-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, JACOB SHOEMAKER, of Oakland, in the county of Armstrong, and State of Pennsylvania, have invented a new and useful Improvement in Steam-Engine Valves; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a side elevation.

Figure 2, a similar elevation of the opposite side.

Figure 3, an end elevation.

Figure 4, a side elevation and section of the valve.

Figure 5, a longitudinal section of the cylinder, and

Figure 6 a similar section of the cylinder, and transverse section of the valve.

The same letters are employed in all the figures in the indication of parts which are identical.

My improvements relate to the arrangement of the valve-gear and pipes of an oscillating steam-valve.

A is the cylinder of a high-pressure engine, into which the steam is inducted by the pipes B B, which lead into the tubular valve-seats C C, placed at each end of the cylinder. The cylindrical valves D are placed within the tubular valve-seats. They are formed with sections of their sides cut away at D<sup>1</sup> above and below, said parts-being connected by a hole, D<sup>2</sup>, passing through the valve. The steam, entering the valve-seats through the pipes B, gains admission to the cylinders through the ports E. The exhaust-pipe F leads from the valve-seat C on the side opposite to the induction-pipe, and is formed by a single pipe connecting the valve-seats, and the steam, passing out through it, is discharged through a branch-pipe. The steam issuing from the ports reaches the eduction-pipe by passing through the hole D<sup>2</sup>. An oscillating motion is communicated to the valves, forming alternately a communication from the induction-pipe to the port, and from the port to the eduction-pipe, by levers G, actuated by the eccentric-rod H.

Instead of the lever H, the valve-stems may have pinions on their ends, operated by a ratchet-gear on the eccentric-rod, which receives a reciprocating motion, in the usual manner, from an eccentric on the main shaft.

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

The arrangement of the induction-pipe B and the eduction-pipe F with reference to the valve-seat C, valve D, and ports E, when constructed substantially in the manner set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

JACOB SHOEMAKER.

Witnesses:

J. C. GRAY,

PETER GRINDER.