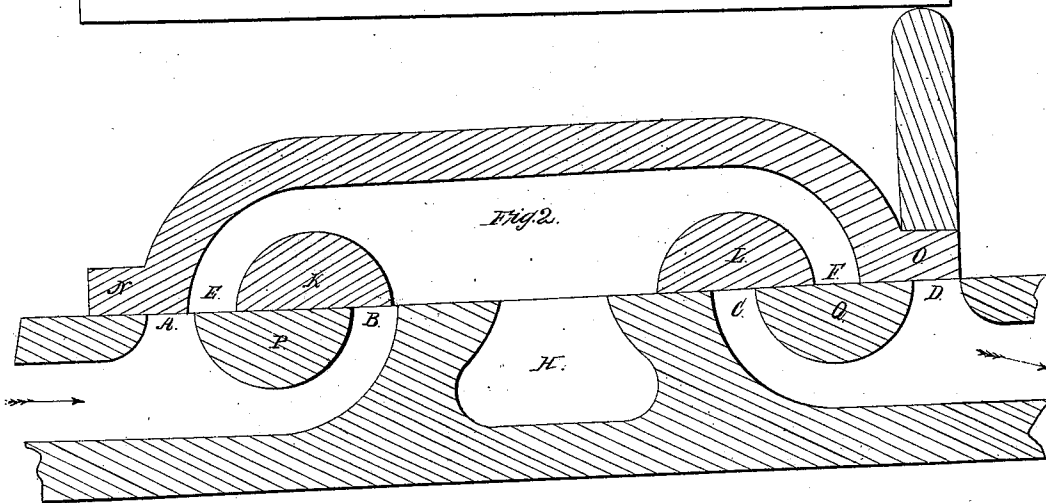
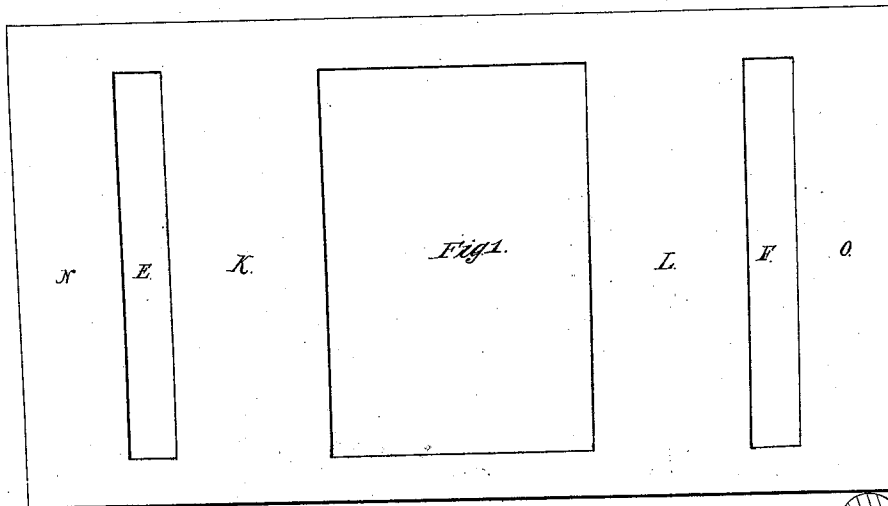


W. C. Hicks,

Steam Balanced Valve.

No 12,207.

Patented Jan. 9, 1855.



UNITED STATES PATENT OFFICE.

WILLIAM C. HICKS, OF HARTFORD, CONNECTICUT.

ARRANGEMENT OF SLIDE-VALVES AND EXHAUST-PASSAGES IN STEAM-ENGINES.

Specification of Letters Patent No. 12,207, dated January 9, 1855.

To all whom it may concern:

Be it known that I, WM. CLEVELAND HICKS, of Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement on Slide-Valves, called "Hick's Improved Slide-Valve," of which the following is a full and exact description, reference being had to the annexed drawing, the same making part of this specification.

As waste steam does not escape from the cylinder through the same area of opening with the same rapidity as that with which it enters the cylinder, in the form of live steam, various expedients have been resorted to to overcome this difficulty. In large engines separate valves with larger educting than inducing passages have been made use of for the purpose of accelerating exhaustion. But the new and independent idea which I claim to have originated is this, to contrive a mode of furnishing, in one slide valve, an area for exhaustion twice as great (or more) as the area of induction. The mechanism by which I accomplish this result is as follows: By one motion I open in one valve two or more ports for exhaustion of the steam from the cylinder, which has been introduced by one.

The invention has been practically tested and found very useful, and has been made the subject of a patent in England since it was originated by me.

Figure 1 is a view of the face of the valve. Fig. 2 is a section view of valve and valve seat made of the same materials as those in present use, the valve seat being cast on the

side of a cylinder and the valve moving on its face steam tight.

A, B, and C, D, are ports connecting with the ends of the cylinder. A and D for admitting A, B, C, and D for exhausting steam from the cylinder.

P and Q are bars solid with the cylinder.

H is an exhaust port connecting with the air heater or condenser.

N, K, L, O, is the valve with the bars K, L, cast across its face and solid with it.

E and F are flues for exhaust.

The action of the valve is as follows it being supposed to be moving toward the left, and the steam confined in a steam chest pressing upon it. The port D is about to open to admit steam upon the piston at the right end of the cylinder, and the ports A and B are opening to release the wastesteam from the left, making communication with port H. When the valve has moved far enough toward the left to open the port D wide, it commences to move toward the right and moves until the port A is open wide, the piston acting toward the right.

What I claim and desire to secure by Letters Patent is—

The producing (by one slide valve and valve seat) of "two or more exhaust passages from each end of the cylinder, for each induction or steam port," substantially as in the manner described.

WM. CLEVELAND HICKS.

Witnesses:

LUCIUS F. ROBINSON,
WILLIAM BENTON,