O. M. Pike, Steam Engine.

117108

PATENTED JUL 18 1871

Fig: 1.

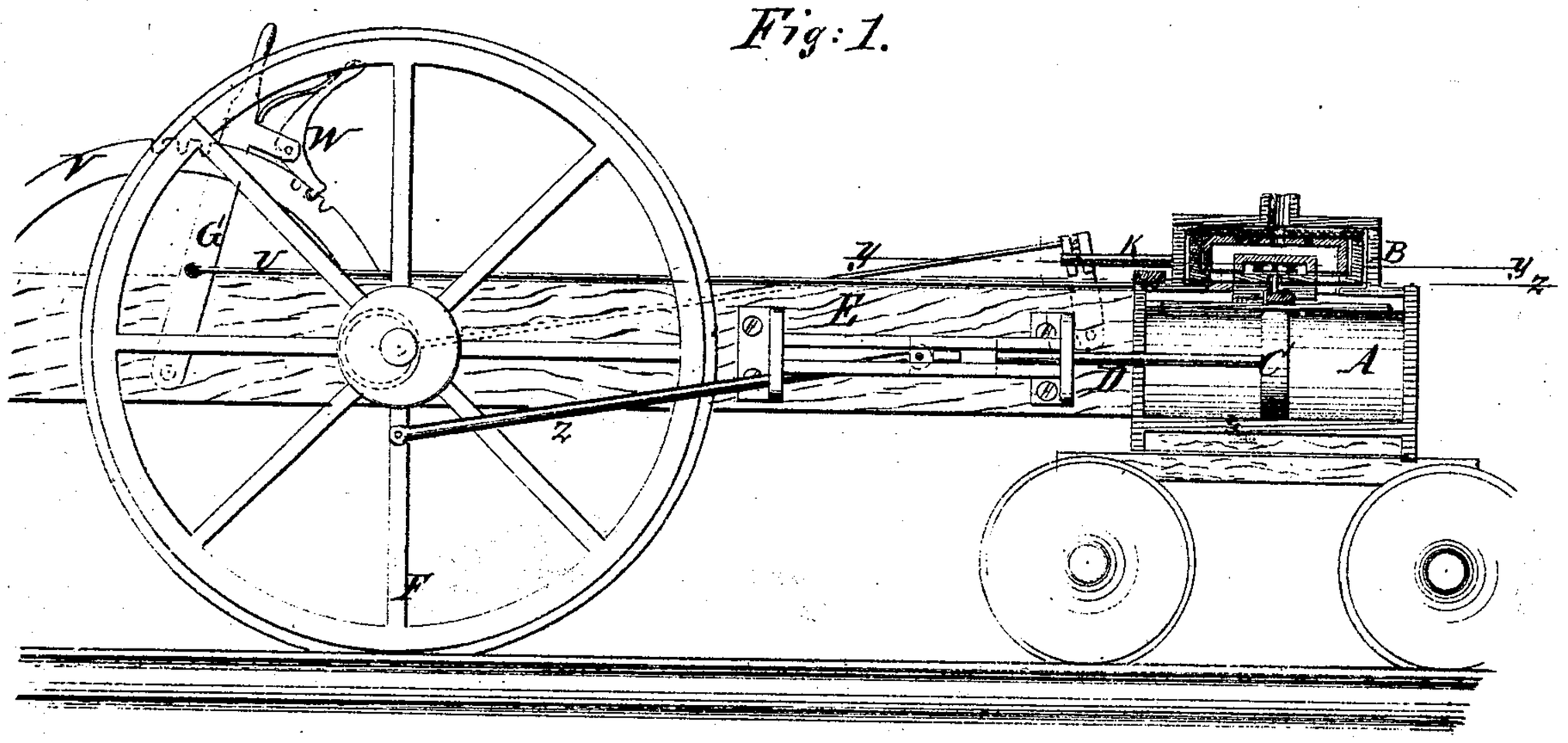


Fig: 2.

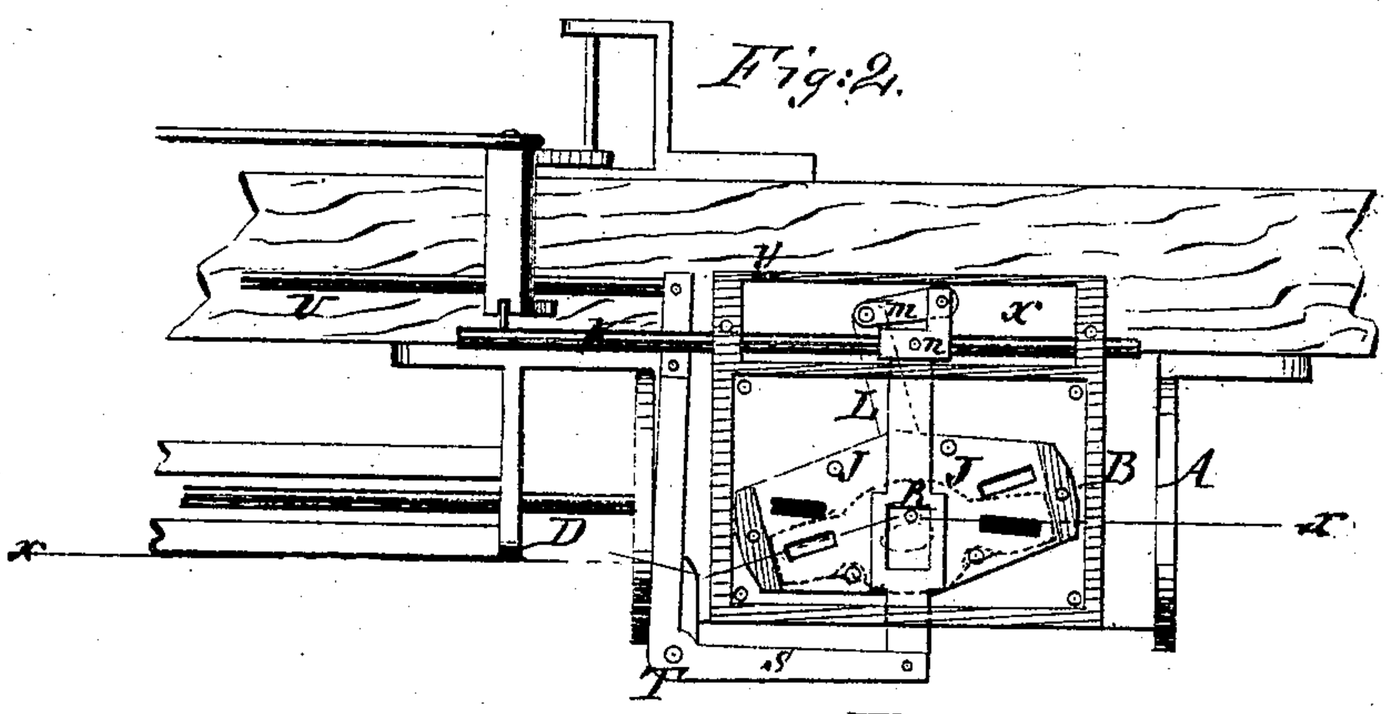


Fig: 4.

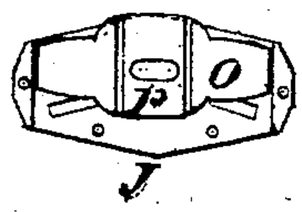
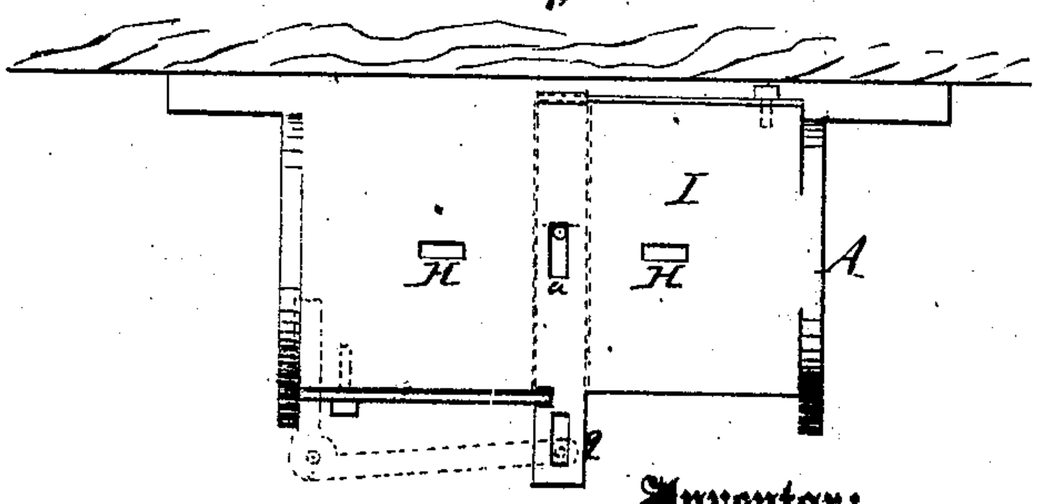


Fig: 3.



Witnesses:

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117,108

UNITED STATES PATENT OFFICE.

OZI M. PIKE, OF CHICOPEE, MASSACHUSETTS.

IMPROVEMENT IN STEAM-ENGINES.

Specification forming part of Letters Patent No. 117,108, dated July 18, 1871.

To all whom it may concern:

Be it known that I, OZI M. PIKE, of Chicopee, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

My invention consists in the improvement of reversing mechanism for steam-engines, as hereinafter fully described and subsequently pointed out in the claim.

In the accompanying drawing, Figure 1 represents a vertical longitudinal section of the cylinder and valve-movement taken on the line *x x* of Fig. 2, an elevation of the frame and fly-wheel with the reversing-lever being shown in the same figure. Fig. 2 is a horizontal section of Fig. 1 taken on the line *y y*. Fig. 3 is a horizontal sec- of Fig. 1 taken on the line *z z*. Fig. 4 is a detail, showing the valve detached.

Similar letters of reference indicate corresponding parts.

A is the engine-cylinder. B is the valve-chest. C is the piston. D is the piston-rod. E is the frame; F the fly-wheel. G is the reversing-lever. H H, Fig. 3, are the induction-ports. I is the face of the cylinder. J is the valve, with four openings, which is made to oscillate on a movable center. The movable center is on a bar, *a*, which slides laterally beneath the face of the cylinder, as indicated in dotted lines in Fig. 3. The center or pivot projects through a slot, as seen in the face of the cylinder, and is moved so as to change the position of the valve laterally when the motion of the engine is reversed. K is the valve-rod. L is an arm attached to the middle of the valve. This arm is connected with the valve-rod by the link *m* and angular plate *n*. The valve-rod receives a reciprocating motion from an eccentric on the main shaft, and the valve, being confined on a central pivot, is oscillated by that motion, its openings being carried over the ports H H for admitting and exhausting steam to and from the cylinder. The steam is admitted to the valve through the valve-block O, which rests on top of the valve, covering the port-openings thereof and oscillating with it. *q* is a plate which covers the block O, having transverse ribs which enter transverse grooves in the top of the block, by means of which the block is guided when moved laterally, the plate *q* being attached to the valve. This block O has a central opening, *p*, with branch openings which terminate on the under side of each end, through which branch openings the steam is discharged to the valve-opening. This block is made to slide sidewise on the valve so as to change the induction to exhaust opening, and vice versa, reversing the motion of the engine. The position of the block O is governed by the cross-plate R, which is made to slide over the top of the valve or between the valve and the block. The plate is connected with the angular bar or bell-crank S, which latter is pivoted at the point T and connected with the reversing-lever G by the rod *u*. The position of the reversing-lever, by means of this mechanism, governs the position of the valve-block O and the direction the engine runs. *v* is an arc of a circle with two sets of notches. W is a spring-catch attached to the reversing-lever, which, when moved from one set of notches to the other, reverses the motion of the engine. The block O is so adjusted on the valve that, while the live steam is conducted directly through it to the induction-valve openings from a pipe attached to the cap of the valve-chest, the exhaust steam escapes through openings into the chamber X and through the exhaust-orifice *y*. The piston-rod of the engine is connected with a crank-pin on the fly-wheel by the rod Z.

By my improvement a locomotive-engine may be reversed and adjusted as readily and as perfectly as when the link-motion is employed, the mechanism being more compact and less expensive.

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

The valve-block O, having central hole *p* with branches therefrom, the apertured-valve J, and the sliding plate R arranged between them, all combined to operate in a steam-engine, as and for the purpose specified.

OZI M. PIKE.

Witnesses:

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