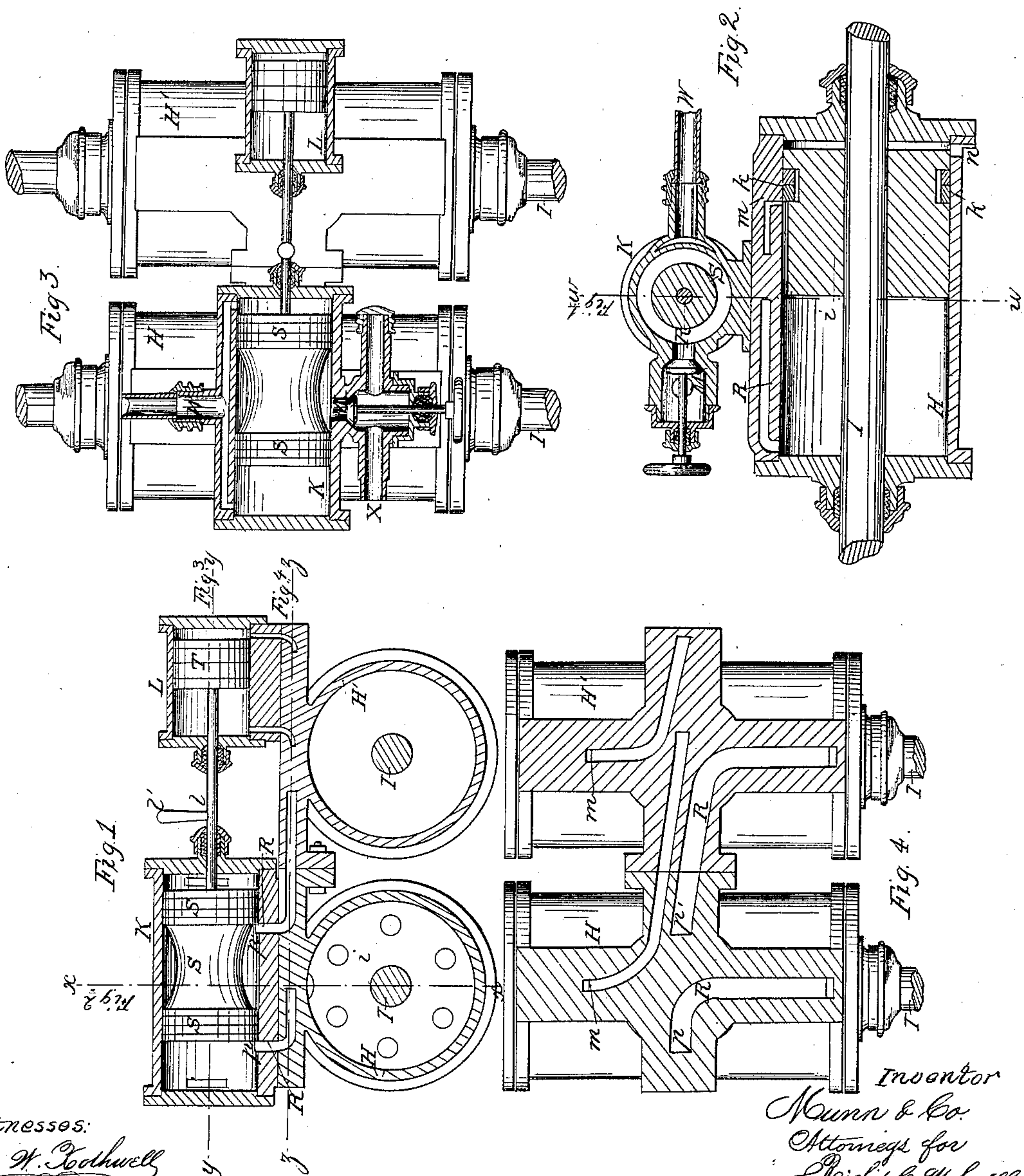


*R. C. M. Lovell,
Steam Slide Valve.*

N^o 67,324.

Patented July 30, 1867.



*Witnesses:
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RICHARD C. M. LOVELL, OF COVINGTON, KENTUCKY.

Letters Patent No. 67,324, dated July 30, 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, RICHARD C. M. LOVELL, of Covington, Kenton county, State of Kentucky, have invented new and useful improvements in Valve-Motion; and I do hereby declare the following to be a full, clear, and exact description of the same, sufficient to enable one skilled in the art to which it appertains to construct and use the same, reference being had to the accompanying drawings, which are made part of this specification, and in which the same letters indicate similar parts.

Figure 1 is a vertical section transversely to the cylinders and longitudinally of the valve-chamber and valve operation piston-chamber on the line *w w*, fig. 2.

Figure 2 is a vertical section on the line *x x*, fig. 1.

Figure 3 is a horizontal section on the line *y y*, fig. 1.

Figure 4 is a horizontal section on the line *z z*, fig. 1.

The valve arrangement is adapted to the use of two single-acting engines. It consists of a balanced valve operated by a double-acting piston in a cylinder, to which steam is admitted from the single-acting engine cylinders alternately.

In the drawings *H H'* are two cylinders, in each of which reciprocates a piston, *i*. In the form represented the engine is intended for working a pair of chisels for mining coal, quarrying, or tunnelling. The piston-rod *I* in this case passes through both cylinders. Heads and stuffing-boxes are provided with packing at these points. One end of each piston-rod is supposed in the present case to be furnished with a chisel, the other end being connected by cross-heads and pitmen to a working-beam, which secures this coincidence of motion. Each piston is single-acting, steam being admitted and exhausted through the passage *R*, which connects that end of the cylinder with the valve-chamber *K*, the connection of the cylinders *H H'* being made with chamber *K* at *p p* respectively. Live steam from the boilers is admitted to each end of the balance-valve *S*, while the space included between the valve-heads is occupied by exhaust steam, which finds its exit at the pipe *W*. Steam is supplied to the valve-chamber by pipe *X*, and the induction-opening is controlled by a rod to the valve *S*. The piston *i* has a packing-ring, *k*, and the upper edge has a groove, as seen in figs. 1 and 2.

As soon as the packing-ring *k* has passed the port *m* the live steam behind the piston passes along the groove and through the port *m* to the end of the chamber *L*, acting upon the piston *T* to move the valve *S*. The other side of the piston *T* is only exposed to the pressure of exhaust steam, which yields and escapes through port *m* to the other cylinder which is in communication with the exit pipe. The air enters and discharges to and from the front end of each cylinder by ports *n*.

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

The arrangement of the pistons *i i*, ports *m m*, and double-acting valve-moving piston *T*, substantially as described.

To the above specification of my improved valve-motion I have signed my hand this 7th day of February, 1867.

R. C. M. LOVELL.

Witnesses:

S. C. KEMON,

EDWARD H. KNIGHT.