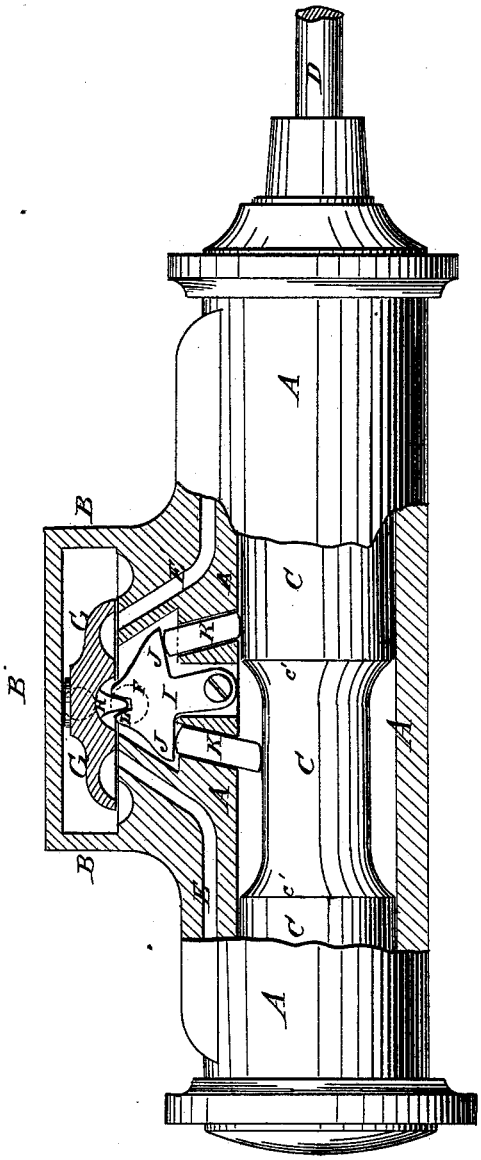
T. J. MURPHY.

Sliding-Valve for Rock-Drill.

No. 215,152. Patented May 6, 1879.



WITNESSES:

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THOMAS J. MURPHY, OF NEW YORK, N. Y.

IMPROVEMENT IN SLIDING VALVES FOR ROCK-DRILLS.

Specification forming part of Letters Patent No. **215,152**, dated May 6, 1879; application filed March 10, 1879.

To all whom it may concern:

Be it known that I, THOMAS JAMES MURPHY, of the city, county, and State of New York, have invented a new and useful Improvement in Sliding Valves for Rock-Drills, of which the following is a specification.

The figure is a side view of a cylinder, piston, valve-chest, and valve to which my improvement has been applied, partly in section, to show the construction.

The object of this invention is to furnish rock-drills which shall be so constructed that the valve will be shifted by the piston before it has completed its stroke, to shut off steam in its rear and admit it in front, so that the said piston will be cushioned upon live steam and its return movement will be a continuation of its rebound.

The invention consists in the combination of the projection, the pivoted block, provided with the notch and the shoulders, and the inclined sliding pistons, with the sliding valve and the main piston, provided with the inclined or rounded shoulders, as hereinafter fully described.

A represents the steam-cylinder; B, the valve-chest; C, the piston, and D the piston-rod.

The piston C is a solid cylinder, and has its middle part turned down or made smaller, forming inclined, beveled, or rounded shoulders *c'* between the smaller part and the larger parts or heads of the said piston.

E E' are the inlet-ports, leading from the valve-chest B to the end of the cavity of the cylinder A; and F is the outlet or exhaust port.

To the lower side of the middle part of the valve G is attached, or upon it is formed, a V-shaped projection, H, which enters a V-shaped notch, L, in the apex or upper end of the block I, placed in a cavity in the base of the valve-chest B.

The block I is pivoted at the lower end in a recess of the shell of the cylinder A, and upon its front and rear sides are formed shoulders J, against which rest the outer ends of the sliding pistons K. The pistons K slide out and in in holes leading from the cavity in which the block I is placed to the cavity of the cylinder A. The inner or lower ends of the pistons K are inclined from each other or toward the ends of the pistons C, as shown in the drawing.

With this construction, as the piston C approaches the end of its stroke, its shoulder *c'* strikes the lower end of one of the pistons K, pushes it outward against the shoulder of the pivoted block I, turns the said block I upon its pivot, and shifts the valve G, admitting steam in front of the piston C before it has completed its stroke, so that the piston C at the end of its stroke will be cushioned upon the live steam that is to drive it upon its return stroke, which return stroke will thus be a continuation of its rebound.

The inclination of the sliding pistons K brings them into the best position to be operated upon by the shoulders *c'* of the piston C, and prevents them from binding in their cavities.

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

The combination of the projection H, the pivoted block I, provided with the notch L and the shoulders J, and the inclined sliding pistons K, with the sliding valve G and the piston C, provided with the inclined or rounded shoulders *c'*, substantially as herein shown and described.

THOMAS JAMES MURPHY.

Witnesses:
AUGUSTUS MILLER,
JOHN MCDONALD.