P. Doyle. Steam Pumping Engine.

PATENTED JUL 4 1871

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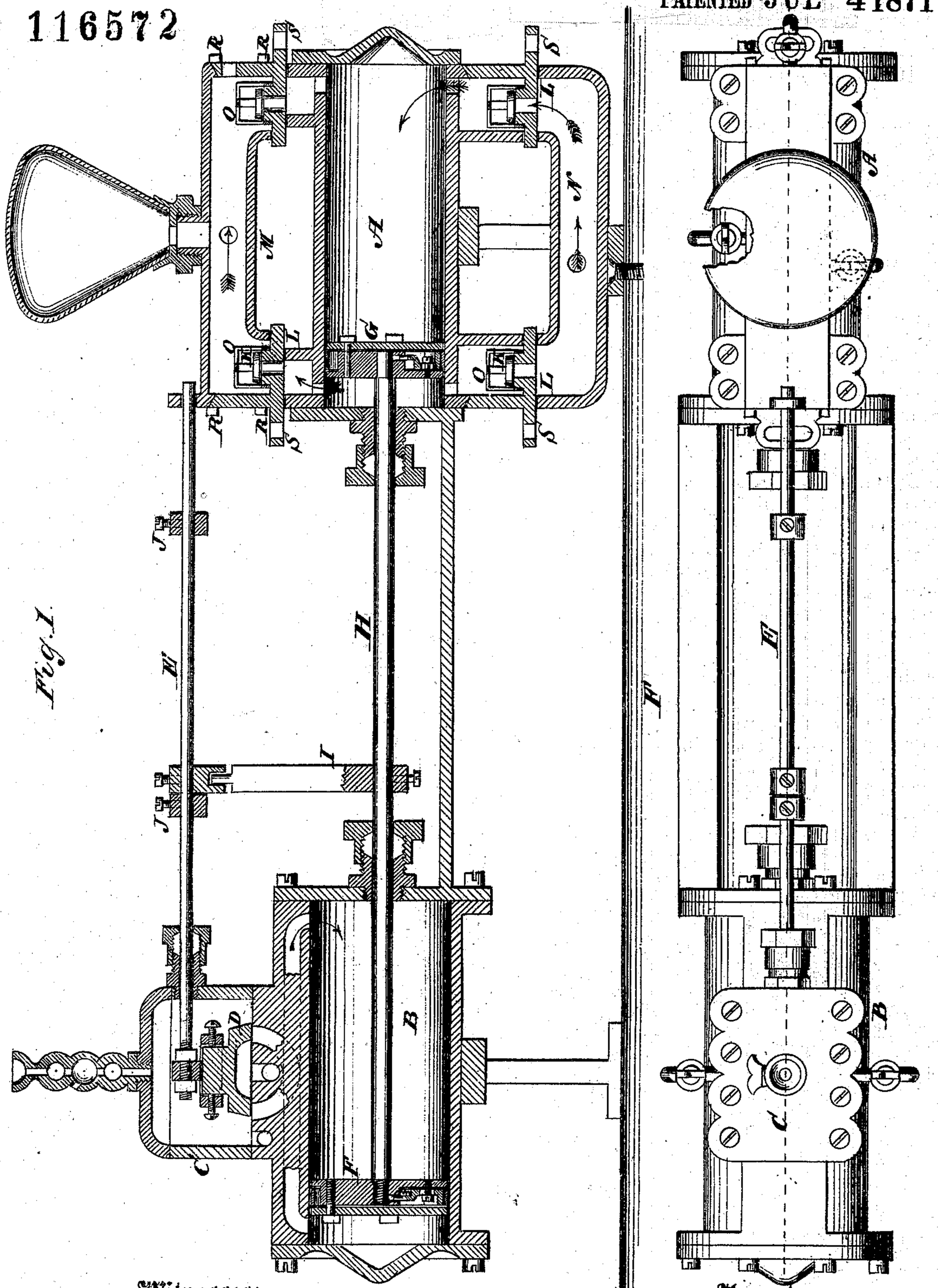

Fig. 1.

Witnesses:

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Wm H. C. Smith.

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116,572

UNITED STATES PATENT OFFICE.

PATRICK DOYLE, OF NEW COMERSTOWN, OHIO.

IMPROVEMENT IN STEAM PUMPING-ENGINES.

Specification forming part of Letters Patent No. 116,572, dated July 4, 1871.

To all whom it may concern:

Be it known that I, PATRICK DOYLE, of New Comerstown, in the county of Tuscarawas and State of Ohio, have invented a new and useful Improvement in Steam Pumping-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.

This invention relates to a new and useful improvement in steam-pumps; and consists in the mode of connecting the valves and valve-seats with the pump, and in the arrangement and combination of parts, as hereinafter more fully described.

In the accompanying drawing, Figure 1 represents a vertical longitudinal section of the whole apparatus, taken on the line *x x* of Fig. 2. Fig. 2 is a top or plan view.

Similar letters of reference indicate corresponding parts.

A is the pump-cylinder. B is the steam-cylinder. C is the steam-chest. D is the steam-valve. E is the valve-rod. F is the steam-piston. G is the pump-piston. H is a common piston-rod, to the end of which the pistons F and G are attached, as represented in the drawing. I is an arm on the piston-rod. J J are adjustable tappets on the valve-rod. The steam-valve D is operated by means of the arm striking the tappet at each stroke of the engine. K represents the valves, and L the valve-seat plates of the pump, arranged to operate in the water-chambers M N, as seen in Fig. 1. The valve-seat of the pump is on the angular plate L, with the valve working upon its horizontal portion, to which portion the valve-cage O is attached. The angular plate is fastened in the position seen in the drawing by the screw-heads or buttons R. When the buttons are turned so as to release the upright portion of the plate the entire plate, with the valve, may be drawn out for repairs or other purposes. The valve-seat plates form partitions in the water-chambers, so that the water is forced (when the piston moves) as indicated by the arrows. By this arrangement of the valves and seats it will be seen that any one of the valves and seats may be removed for grinding or cleaning, or partly removed for letting off the water in freezing weather, or for other purposes. The horizontal portion of the valve-plate projects as seen at S, with an orifice for the hand in the projecting portion for facilitating the removal of the plate and valves.

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

The angular valve-plate L, forming the valve-seat and supporting the valve, and made removable, in combination with a pumping-engine, substantially as and for the purposes described.

PATRICK DOYLE.

Witnesses:

MORRIS CRETER,
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