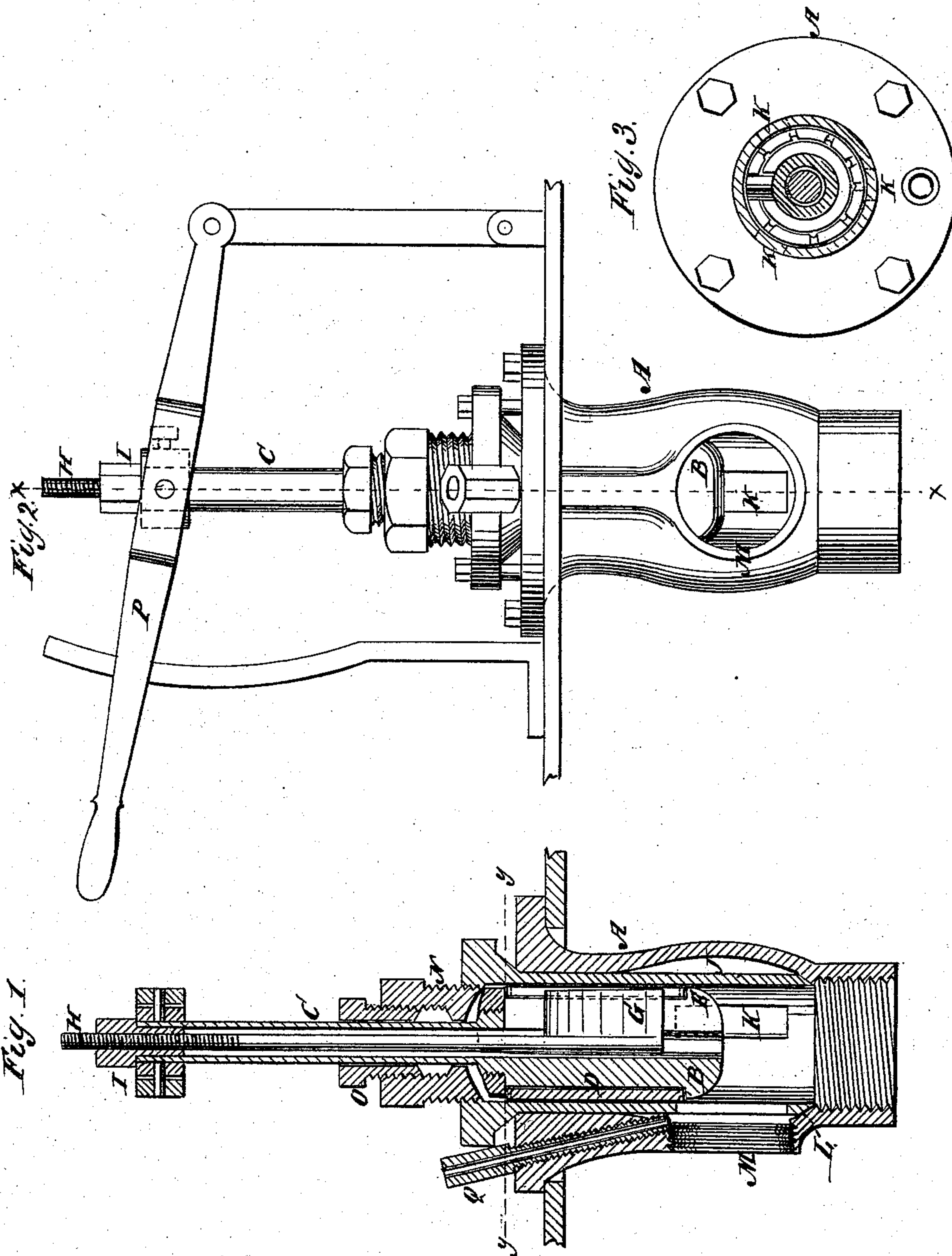


E. A. GATES.
Throttle-Valves.

No. 154,661.

Patented Sept. 1, 1874.



Witnesses:

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UNITED STATES PATENT OFFICE.

ETHAN A. GATES, OF BURLINGAME, KANSAS, ASSIGNOR OF ONE-HALF HIS
RIGHT TO SANFORD R. LEONARD.

IMPROVEMENT IN THROTTLE-VALVES.

Specification forming part of Letters Patent No. **154,661**, dated September 1, 1874; application filed
January 24, 1874.

To all whom it may concern:

Be it known that I, ETHAN A. GATES, of Burlingame, in the county of Osage and State of Kansas, have invented a new and useful Improvement in Throttle-Valves, of which the following is a specification:

The invention will first be fully described, and then pointed out in the claims.

In the accompanying drawing, Figure 1 represents a vertical longitudinal section of the entire device on the line *xx* of Fig. 2. Fig. 2 is an elevation, showing the throttle-valve as when in use. Fig. 3 is a cross-section of Fig. 1, taken on the line *yy*.

Similar letters of reference indicate corresponding parts.

A is the valve-shell. B represents the valve. C is the valve-rod. D is a packing-ring around the valve. This packing is an elastic ring cut longitudinally, and confined between the shoulder E of the valve and below the nut F at the top, and is made to snugly fit the valve-cylinder or inside of the shell A. This packing-ring is expanded by means of a wedge, G. The valve-rod is a tube, and H is a rod therein, to the lower end of which the wedge G is attached. By turning the nut I on the upper end of this rod, and drawing the rod upward, the wedge is made to expand the ring, so that the valve works steam-tight in the cylinder. J is a chamber, in the shell A, around the cylinder, provided with three ports on the

sides of the valve marked K in the drawing. L is the valve-seat. When the valve is on its seat these ports are closed, and when the valve is raised the steam passes through the ports K into the chamber J, and is discharged into the steam-pipe attached to the shell at the point M. N is the top of the valve-chamber, which is screwed into the top of the shell. O is a stuffing-box therein. P is the lever, by means of which the valve is operated. Q is an oil-tube, which passes down through the shell, and delivers oil to lubricate the valve. This valve is balanced by the pressure of steam upon its sides, so that it works up and down without undue friction, and always works steam-tight. The positions of the ports K are indicated in the cross-section.

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

1. A piston throttle-valve, having a chambered shell, J, and ports K, and provided with an oil-tube, Q, for lubricating the valve, substantially as shown and described.

2. The interior rod H and wedge G, in combination with the expansible packing-ring D, as shown and described, and for the purposes set forth.

ETHAN A. GATES.

Witnesses:

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