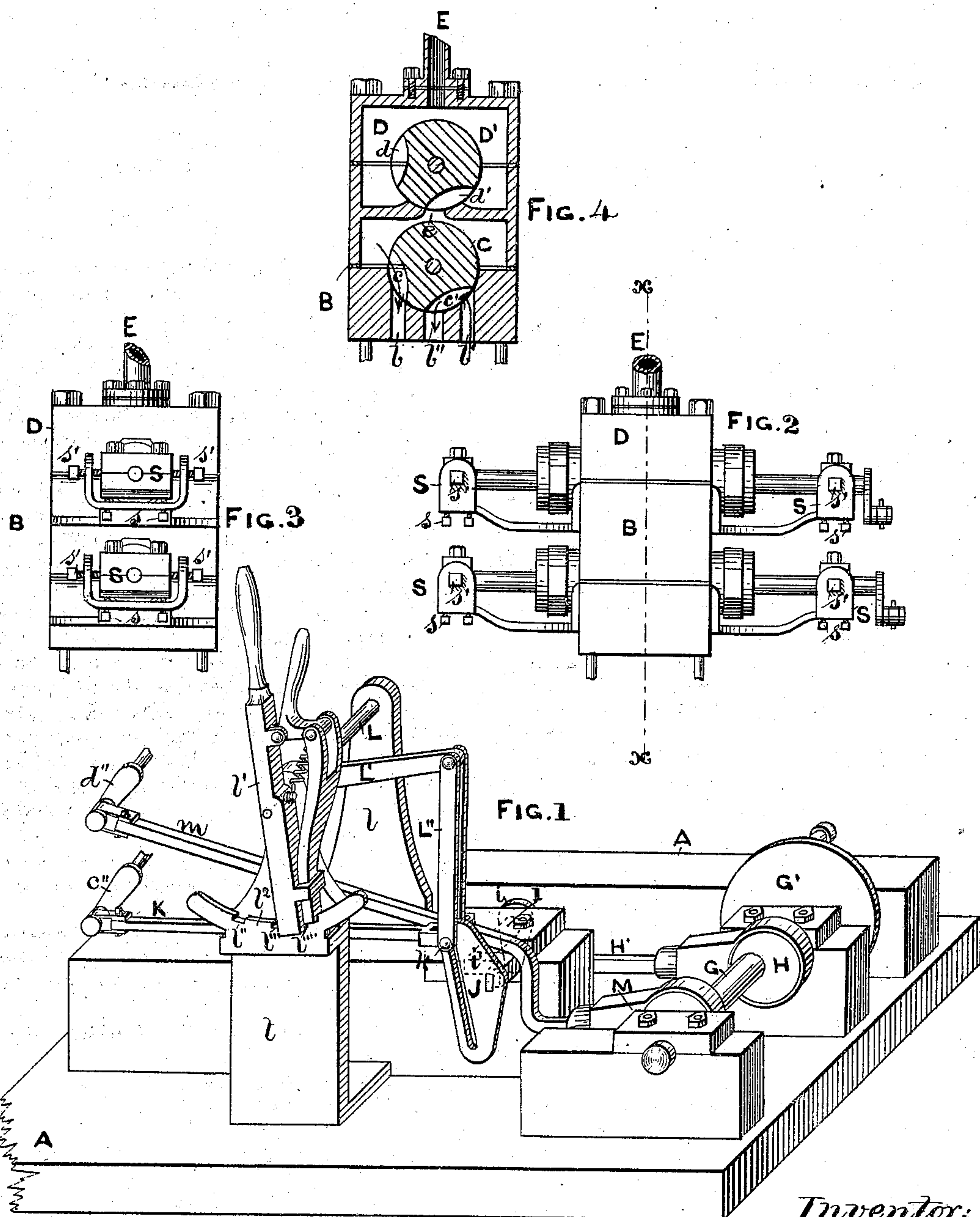


W. BURROWS.

Valve-Bearings for Steam-Engines.

No. 150,522.

Patented May 5, 1874.



Witnesses:

A. McCallum  
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# UNITED STATES PATENT OFFICE.

WILLIAM BURROWS, OF ASTORIA, ILLINOIS.

## IMPROVEMENT IN VALVE-BEARINGS FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **150,522**, dated May 5, 1874; application filed February 13, 1874.

*To all whom it may concern:*

Be it known that I, WILLIAM BURROWS, of Astoria, county of Fulton and State of Illinois, have invented a new and useful Improvement in Valve-Bearing for Steam-Engines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a perspective view of the base or supporting frame and the valve-working devices of my engine. Fig. 2 is a side elevation of the steam-chests. Fig. 3 is an end elevation of Fig. 2, and Fig. 4 is a sectional view on the plane of the line *x x*.

Referring to the parts by letters, letter A represents the bed-plate or base, upon which the parts of the supporting devices are mounted; B, the steam-chest with a rotary valve, C, and has a chamber, D, above it, in which is a rotary valve, D'. E is the steam-inlet pipe. *e* is an opening from chamber D to steam-chest B; *b b'*, openings from the steam-chest to the interior of any steam-cylinder; (not shown in the drawings;) *b''*, the exhaust-opening. The stems of the valves C and D' are extended, as shown plainly at Fig. 2, and are provided with suitable steam-packing where they pass through the walls of their respective steam-chambers, and are provided with bearings S at their outer ends, which bearings are made adjustable vertically by the set-screws *s s*, and laterally by the set-screws *s' s'*. (See Figs. 2 and 3.) The valve C has two longitudinal

grooves, *c c'*, cut in its surface, so arranged that when one of them coincides with or covers the exhaust-opening and with either of the openings *b'*, the other will communicate with the interior of the steam-chest B and with the remaining opening *b* or *b'*, as the case may be. The valve D' has also two longitudinal grooves *d d'*, which alternately open and close the passage *e*.

My improvement is shown as adapted for use with an engine having what is known as the "link-motion" valve-gear, the construction of which is shown by Fig. 2 of the drawings.

The operation of my invention is as follows: The operation of the cut-off D' is too well known to require description here. The valve C in the position shown at Fig. 4 will exhaust through the ports *b' b''*, and take steam through the ports *c d*, and vice versa. The adjustment of the valves to compensate for wear, &c., may be effected by the adjustable blocks S either in a vertical plane by the set-screws *s*, or a horizontal plane by the set-screws *s'*, without taking the devices apart.

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

The valves C and D', having the extended stems, in combination with bearings S, and screws *s* and *s'*, substantially as and for the purpose specified.

WILLIAM BURROWS.

Witnesses:

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