

No. 613,954.

Patented Nov. 8, 1898.

W. J. ALLEN.
VALVE FOR ENGINES.
(Application filed Jan. 22, 1898.)

(No Model.)

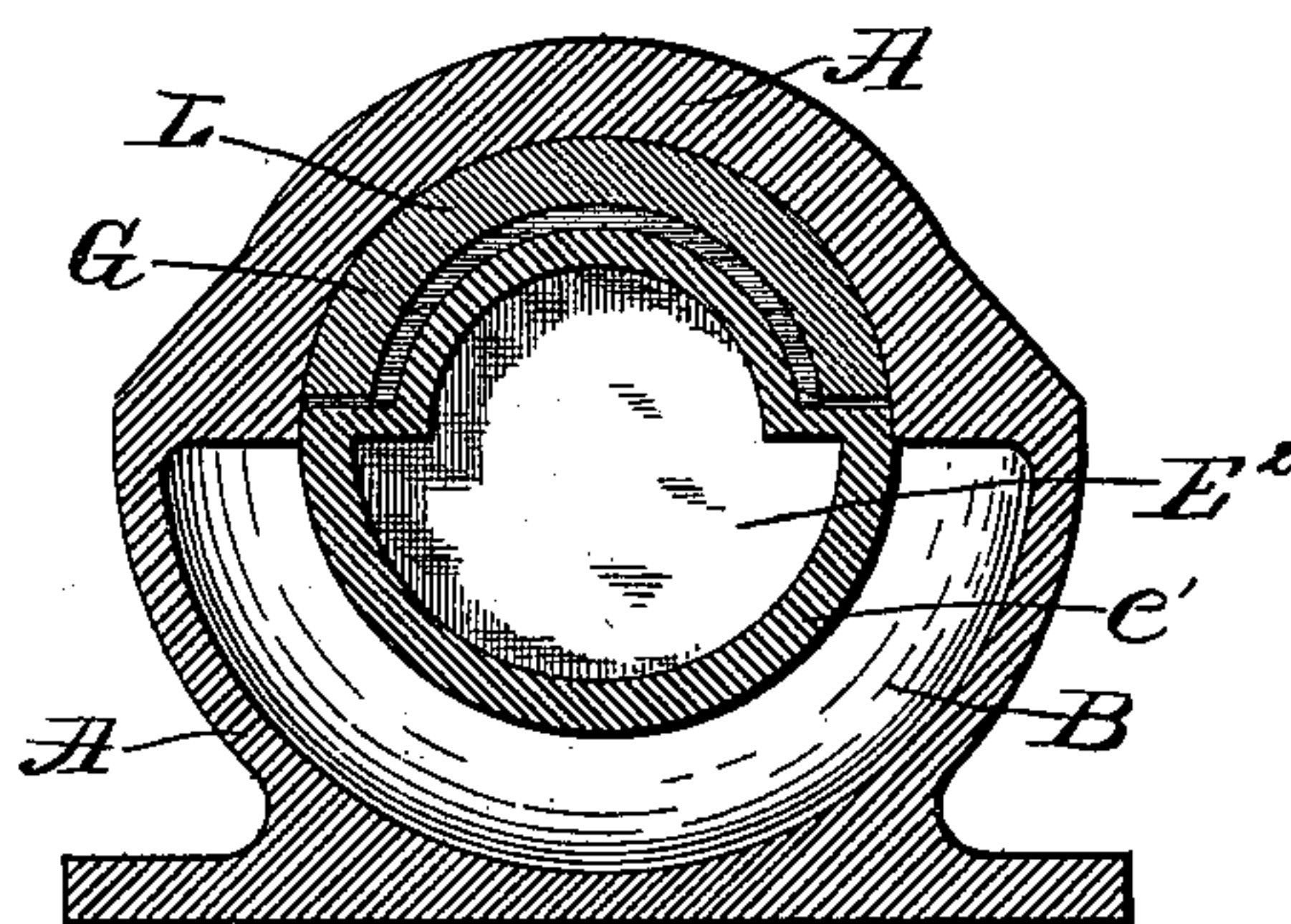
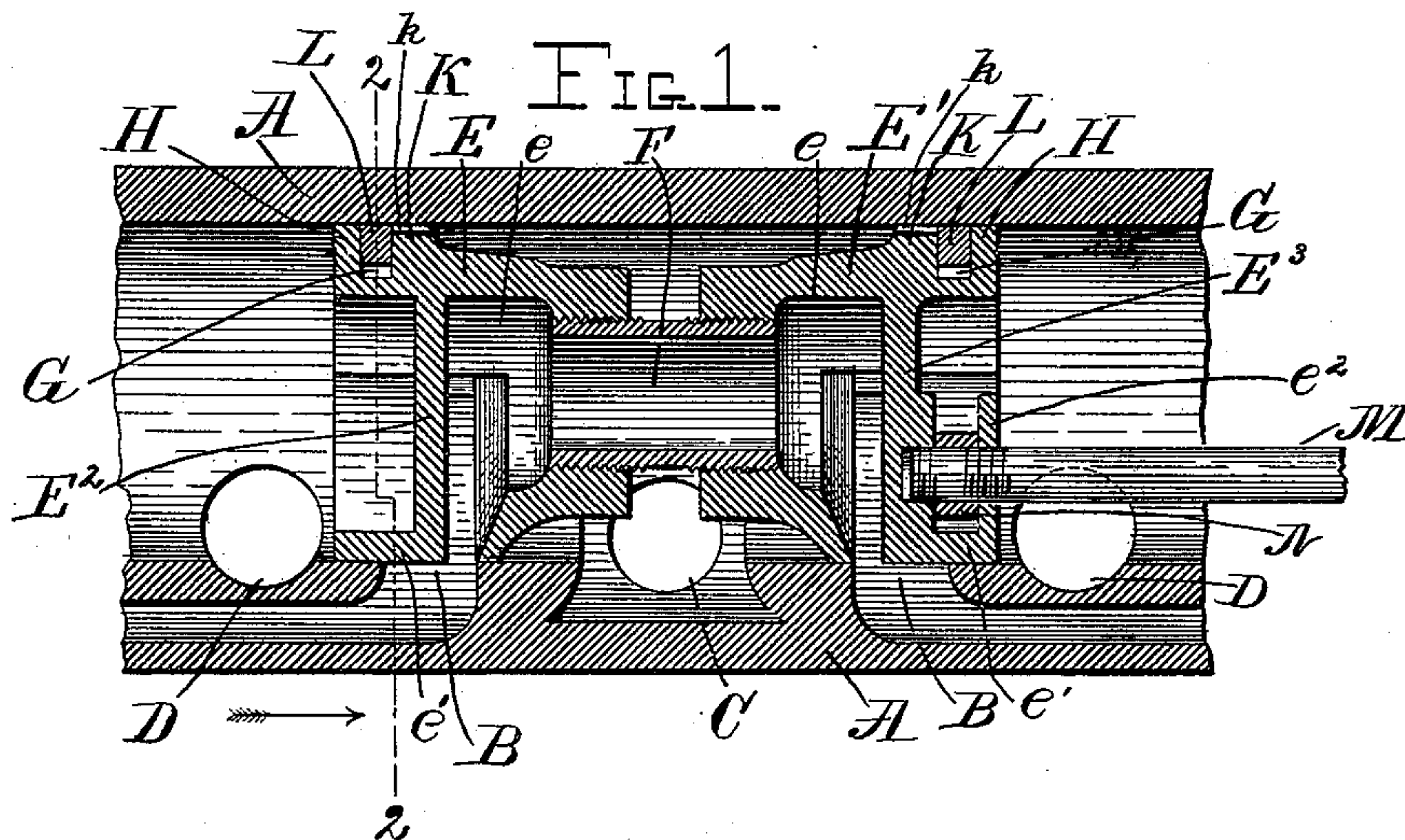


FIG. 2.

Witnesses
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VALVE FOR ENGINES.

SPECIFICATION forming part of Letters Patent No. 613,954, dated November 8, 1898.

Application filed January 22, 1898. Serial No. 667,563. (No model.)

To all whom it may concern:

Be it known that I, WALTER J. ALLEN, a citizen of the United States, residing at Shreveport, in the parish of Caddo, State of Louisiana, have invented certain new and useful Improvements in Valves for Steam-Engines, of which the following is a specification.

It particularly relates to the construction and position of the packing-rings and steam-ports and the attachment of the valve-stem off the center of the valve.

The object of my invention is to obtain a perfectly packed and balanced valve of novel construction, with minimum friction, dispensing with wide packing-rings (which are subject to too great steam-pressure and friction) and bridging of ports.

The steam-ports in my invention extend half-way around the periphery of the valve seat or casing. The packing is obtained by means of half-rings opposite said steam-ports; the rings and ports nearly meeting at their termini, the small intervening space fitting steam-tight against the casing, thus enabling the half-rings to run on solid iron casing. They are subject to little wear and no danger of catching and may be held against the wall of the casing by any desired steam-pressure by increasing or diminishing their width, as they do not run over the ports. They are also adjustable to any desired pressure of the valve to the seat by setting them in or out from their bearings. The advantages of half-rings over whole ones are that they travel on solid iron casing and are freer from wear and there is no danger of catching in the ports and no necessity for bridging of ports or wide rings, (subject to too great pressure and friction,) while the whole rings, which are available as packing-rings, pass over the ports and must be wide or require bridging. It is apparent that where the rings run between the ports only they permit the steam to leak under the ends of the piston where there is no packing, and consequently are no better than plug-valves.

To prevent turning of the valve, the stem

is attached by means of a loose slide-nut off from the center of the valve.

In the accompanying drawings, which form a part of this specification and in which similar letters refer to similar parts throughout both views, Figure 1 represents a vertical longitudinal section of the valve and a portion of the casing; and Fig. 2 represents a cross-section of the same, taken along the line 2 2, Fig. 1, and looking in the direction of the arrow.

A represents the valve-casing, provided with inlet-ports B, extending half-way around the casing.

C represents the exhaust-port, and D D locomotive supply-ports for admitting steam from the boiler. The valve consists of the front and rear end members E E', each being provided with a chamber e and connected by the hollow nipple F.

E² and E³ represent the front and rear end valve-walls, and e' the valve-lap. Extending almost half-way around each end of the valve are the valve-ring grooves G, forming shoulders H and K. The half-rings L fit into the grooves G between the shoulders H and K and are held against the valve-casing by the pressure of the steam against their lower sides, which enters the grooves G by openings k, left in the shoulder K. The portion of the valve left between the ends of the packing-rings and the ports fits snugly against the valve-casing, so as to prevent leakage of steam past that point.

The valve-rod M is secured to the wall E³, the wear, should any occur, being taken up by a loose nut N, carried between the wall E³ and flange e².

The valve-rod is secured to the valve eccentrically, thus preventing any liability of the valve to turn on its seat.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A balanced valve provided with a steam-port extending half-way around the periphery of each end thereof, with a hollow nipple

and with packing in the form of half-rings, the rings and ports nearly meeting at their termini, the small intervening parts being of the proper size to exactly fill the valve-casing, substantially as described.

2. The combination with a valve-casing provided with an inlet-port, exhaust-port, and ports for supplying steam to both sides of a valve, of a valve in said casing provided with

a steam-port extending half-way around the periphery of each end thereof, a central hollow nipple and packing in the form of half-rings and a valve-stem eccentrically attached to said valve, substantially as described.

WALTER J. ALLEN.

Witnesses:

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