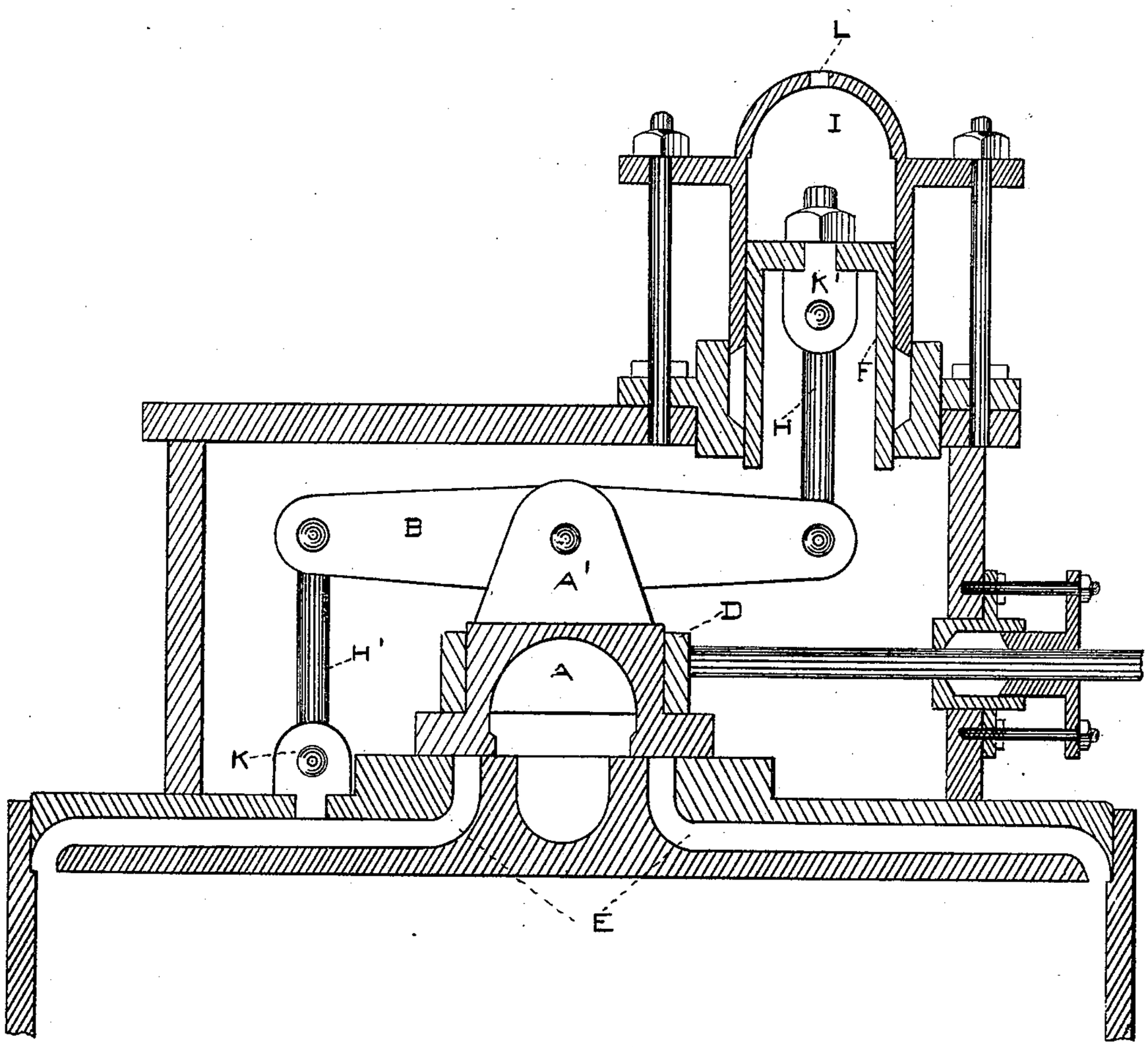
(No Model.)

J. BEWSHER.

BALANCED SLIDE VALVE.

No. 300,756. Patented June 24, 1884.



WITNESSES:

Frederick W. Kunnyff

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JAMES BEWSHER, OF KANSAS CITY, MISSOURI.

BALANCED SLIDE-VALVE.

SPECIFICATION forming part of Letters Patent No. 300,756, dated June 24, 1884.

Application filed February 18, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES BEWSHER, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Balanced Slide-Valves, of which the following is a specification, reference being had therein to the accompanying drawing.

The common slide-valve is exposed to the pressure of steam, and it produces a very heavy friction, and soon wears so that it leaks, and there is consequently a great loss from friction, loss of steam, and power.

The object of my invention is to relieve the slide-valve of its heavy load and to save power, wear and tear of the machinery, and save fuel; or, in other words, my object is to automatically balance the slide-valve.

Similar letters refer to similar parts in drawing.

A A is a slide-valve, with a lug cast or bolted on top of valve to receive pin.

B is an equalizing beam or bar attached to lug by pin.

H H are two radius-rods, one end of each being attached to equalizing-beam B, the other ends being attached at K K.

K K is stationary connection for radius-rods H H.

F is hollow-plunger, with the lower end exposed to pressure in steam-chest, and top open to atmosphere.

I is gland for packing plunger. It has a circular top to prevent dirt and cinders from getting into plunger.

L is a small hole in cap to allow any escape of steam, and to prevent any escape of steam that might pass the plunger from creating a pressure on top of plunger.

E E are steam-ports conveying steam to ends of cylinder.

The operations are as follows: The slide-valve, having a reciprocating motion, carries equalizing-bar; being attached to radius-rods H H, produces a parallel motion at A, as the arc of radius-rods being in opposite directions caused by their centers being the same distance on opposite of equalizing-beams as their centers are apart; hence one radius-rod takes up what change from a straight line the other makes. Hence a perfectly parallel motion is the result on the valve. The valve is balanced by the pressure of steam on F, whose area is sufficient to counterbalance the weight on valve, and take up any lost motion caused by wear.

What I claim as new, and desire to secure by Letters Patent, is—

The combination, with a steam-engine slide-valve, and its inclosing steam-chest provided with a vertical packing-chamber and plunger near one end, an equalizing-bar pivoted midway of its length to the back of the valve, and having a vertically-vibrating link journaled, as shown, to one extremity for connection with the balancing-plunger, the opposite end being journaled to and connected by a similar link to the bottom of the chest, the described vibrating links each constructed of substantially identical dimensions, and attached to the parts described, as shown, so that the central pivot of the equalizing-bar may reciprocate in a line parallel to the valve-face, and the plunger be devoid of motion, substantially as described and shown.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES BEWSHER.

Witnesses:
FREDERICK W. KUMPF,
CLAUDE E. JONES.