

J. Lockhead,

Steam Balanced Valve.

N^o 59,848.

Patented Nov. 20, 1866.

Fig. 1.

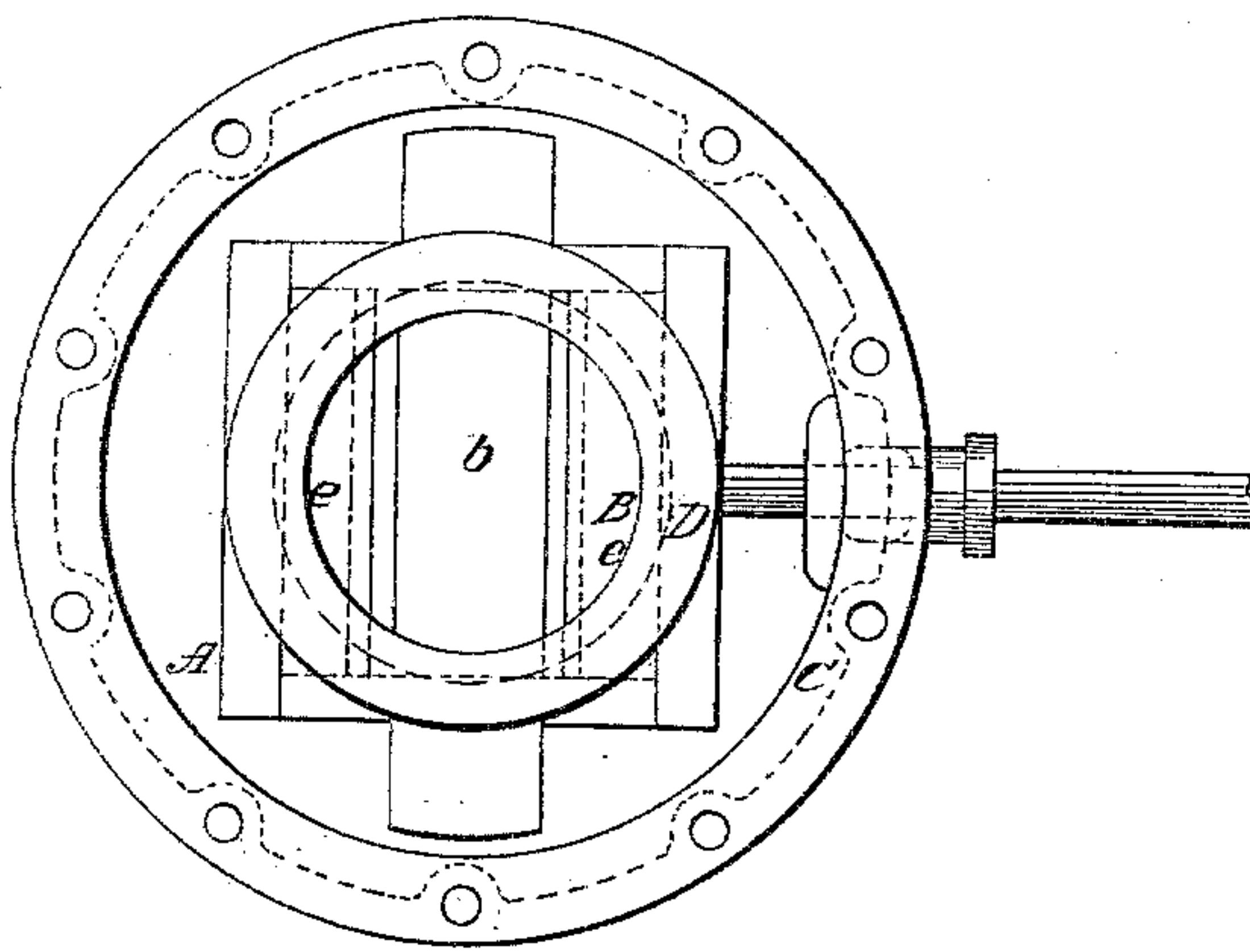
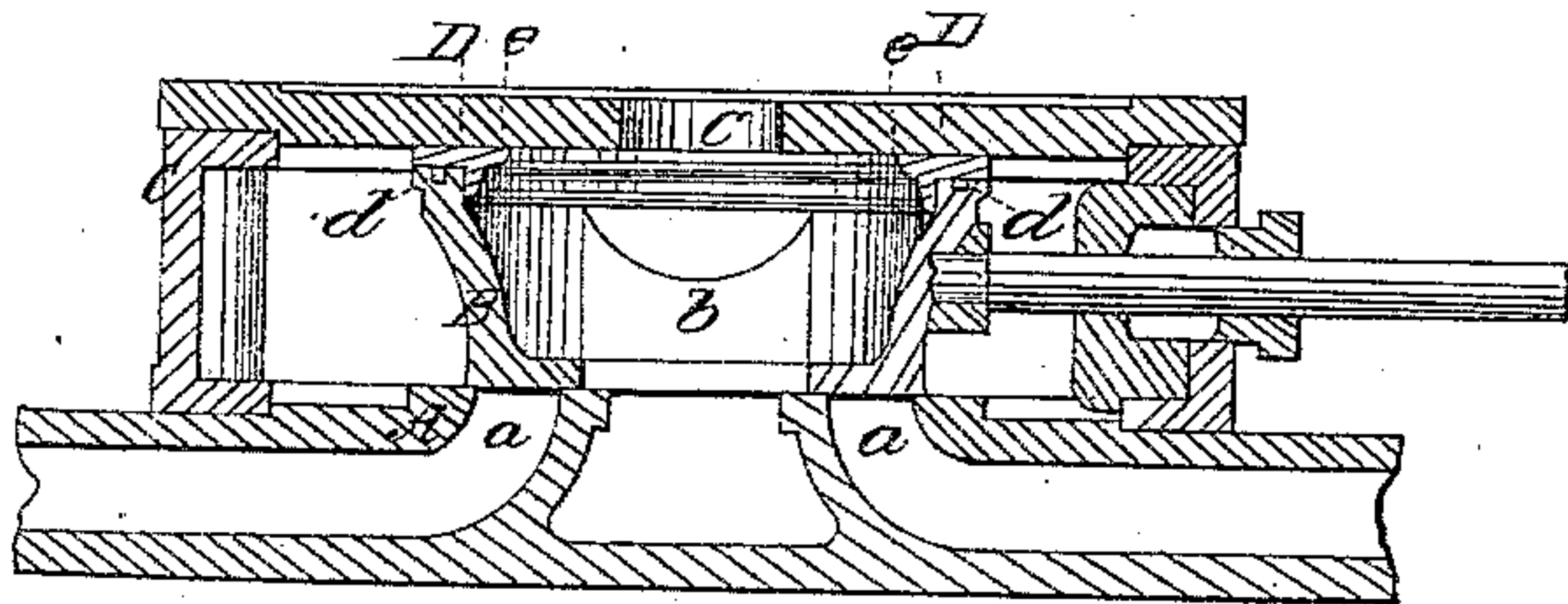


Fig. 2.



Witnesses:

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IMPROVEMENT IN BALANCE SLIDE VALVES

JOHN LOCHHEAD, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 59,848, dated November 20, 1866.

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN LOCHHEAD, of San Francisco, in the county of San Francisco, and State of California, have invented a new and useful Improvement in Balance Slide Valves; 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 drawings forming part of this specification, in which—

Figure 1 represents a plan or top view of my invention, the cover of the steam-chest having been removed to expose the valve.

Figure 2 is a vertical central section of the same.

Similar letters of reference indicate like parts.

This invention consists in a metal ring fitted into an opening in the valve and made of such a shape that said ring is kept up tight against the inner surface of the steam-chest cover by the pressure of the steam alone, and without the aid of springs or other mechanical means. The ring is made of brass or other metal, which expands more than the cast iron or other material, from which the body of the valve is made, in such a manner that the expansion of the ring by the heat will make the joint between the same and the valve perfectly tight without the aid of packing.

A represents the face of the cylinder which forms the seat for the valve B. This valve is enclosed by the steam-chest C, and on its back is fitted a ring D, which works steam tight against the inner surface of the steam-chest cover.

Steam enters the valve-chest through a suitable opening in its side, and it is admitted alternately to the opposite ends of the cylinder, through the ports *a a'*. The exhaust steam passes off through the opening *b* in the valve, and through the ring D, and exhaust pipe or opening *c*.

In the back of the valve is turned a groove, *d*, to receive India-rubber or other suitable packing, which will keep the ring D up tight against the inner surface of the steam-chest cover if no steam is on. When steam is on, or if the engine is in operation, the exhaust steam passing up through the opening *b* of the valve, strikes the overhanging edge or flange *e* of the ring, and presses the same up tight against the inner surface of the steam-chest cover.

The ring, D, is made of brass, and ground into the valve, which is made of cast iron. By grinding the ring in its seat, it becomes a trifle too small, and when it is cold it does not make a tight joint with the valve. But as soon as the steam comes in contact with it, it heats and expands so as to render the joint tight, and to prevent the escape of steam. This effect is produced by making the ring of brass or some other metal which expands more by heat than the cast iron or other material from which the valve is made.

I do not claim, as my invention, a slide valve composed of two parts, working in opposite directions against the back of the steam-chest, and face of the cylinder, and admitting steam in the centre, but what I claim as new, and desire to secure by Letters Patent, is—

The overhanging edge or flange *e*, of the ring D, in combination with the opening *b*, in the valve B, and with the inner surface of the steam-chest cover constructed and operating substantially as, and for the purpose described.

The above specification of my invention signed by me this 9th day of May, 1866.

JOHN LOCHHEAD.

Witnesses:

C. A. MATHIEU,

J. W. McKENZIE.