

E. B. Latch,
Steam Balanced Valve.
No. 83,716. Patented Nov. 3, 1868.

Fig. 1

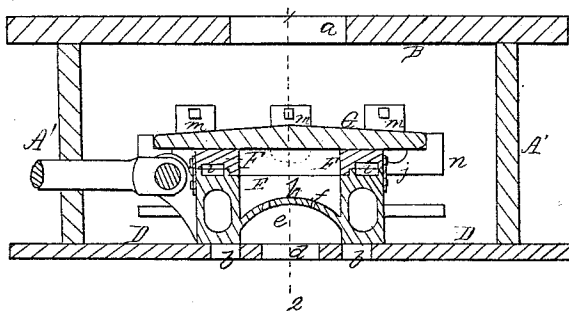


Fig. 2

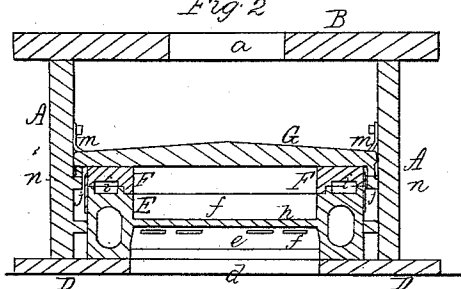
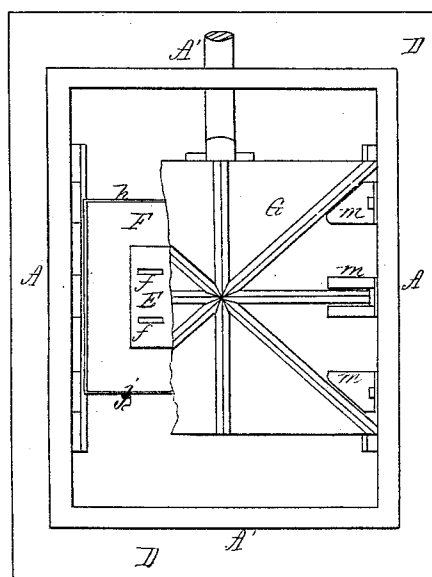


Fig. 3



Witnesses

Wm. Steel
John Parker

Inventor

E. B. Latch
By his Att'y
H. Watson

United States Patent Office.

E. B. LATCH, OF GENERAL WAYNE, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND EDMUND LINCOLN, OF CLEVELAND, OHIO.

Letters Patent No. 83,716, dated November 3, 1868.

IMPROVEMENT IN STEAM-ENGINE SLIDE-VALVES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, E. B. LATCH, of General Wayne Post Office, Montgomery county, Pennsylvania, have invented an Improvement in Slide-Valves; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention consists in the combination of a slide-valve, a plate, and intervening springs or elastic packing, with a second plate, the whole being constructed and arranged, substantially as described hereafter, so that the valve may be relieved from excessive pressure, and may work more freely than ordinary valves, the operation of which seriously detracts from the power of the engine.

My invention further consists of a thin metal strip, arranged substantially as herein described, in respect to the valve and the plate adjacent to the same, so that a tight joint may be maintained between the two.

In order to enable others skilled in the art to make and apply my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a sectional view of a steam-chest containing my improved slide-valve and its adjuncts;

Figure 2, a transverse section on the line 1-2, fig. 1; and

Figure 3, a plan view.

Similar letters refer to similar parts throughout the several views.

A A represent the sides, and A' A' the ends of the steam-chest, of which B is the cover, having an opening, *a*, communicating with the steam-pipe.

D is the face of the cylinder, in which are the usual steam-ports, *b b*, and exhaust-port, *d*.

E is the slide-valve, having on the under side a recess, *e*, adapted to the ports of the cylinder, as usual, and between this recess and the upper recess *f* is a partition, *h*, in which are a number of small holes.

F is a plate, of a rectangular form, corresponding to that of the valve, to the upper face of which the plate is so fitted that it cannot move laterally or longitudinally, independently of the valve, and the upper face of the latter and under face of the plate are so formed that a packing-space, *i*, intervenes between the two.

The joint between the valve and the plate is closed, at the exterior of the same, by a thin metal strip, *j*,

which is loosely attached to the valve and plate, and extends entirely around the same.

A second plate, G, which I term the packing-plate, is situated directly above the plate F, and this plate G has, on each side, ribs, which bear upon recessed ledges, *n*, in the chest, as seen in fig. 2, the ribs and ledges being such as to prevent the plate G from moving with the valve.

It should be understood, however, that a system of springs, or an elastic packing intervenes between the valve and the plate F, so that when the packing-plate G is, by the pressure of steam, brought into contact with the ledges on the chest, it has compressed the packing or springs between the valve and plate F, with which the packing-plate G is consequently in intimate contact.

The valve and its plate F can thus slide freely between the face of the cylinder and the plate G, and is relieved from that excessive pressure of steam which renders the working of ordinary valves difficult, and detracts from the power of the engine.

In order to keep the plate G down to its bearing, I use springs, *m m*, attached to the inside of the steam-chest, and these springs effectually prevent all jumping of the valve.

The pressure of steam maintains the thin strip, *j*, of metal tight against the sides of the valve and plate F, so as to maintain a tight joint between the two. Should there be a slight leakage at this joint, the steam will pass freely off through the openings in the partition to the exhaust.

I claim as my invention, and desire to secure by Letters Patent—

1. The combination of the valve E, plate F, and intervening springs or elastic packing with the packing-plate G, the whole being constructed and arranged substantially as herein set forth.

2. The thin metal strip *j*, adapted to the valve E and plate F, substantially as specified.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

E. B. LATCH.

Witnesses:

E. H. BAILEY,
C. B. PRICE.