

C. H. VANDYNE & S. A. ALEXANDER.

Improvement in Slide-Valves for Steam-Engines.

No. 128,340.

Patented June 25, 1872.

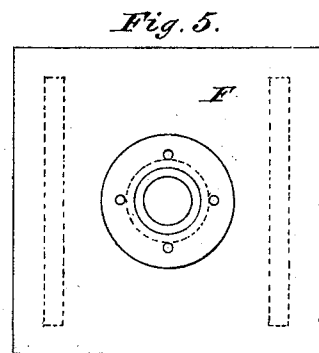
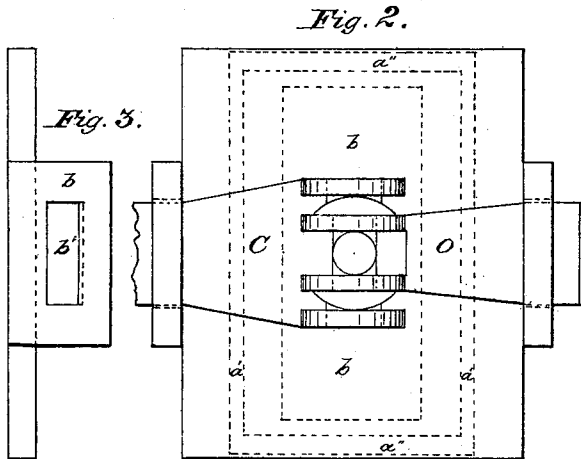
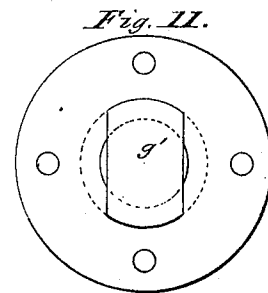
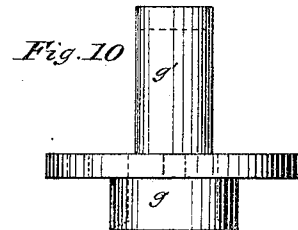
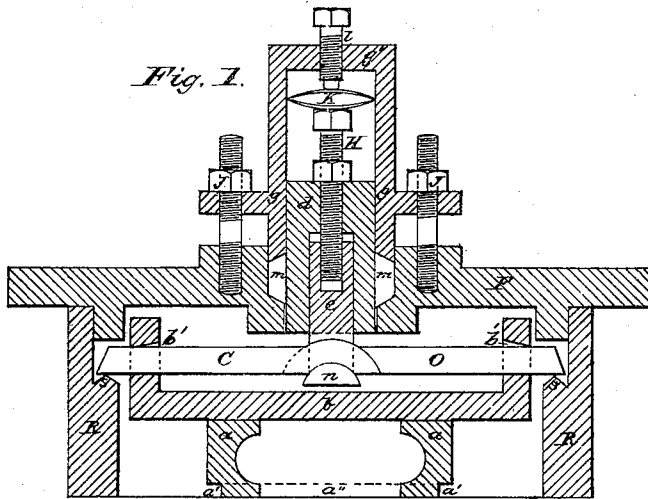


Fig. 8.

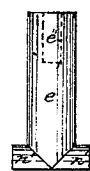


Fig. 9.



Fig. 6.

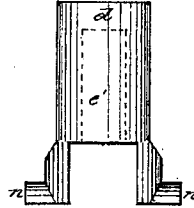
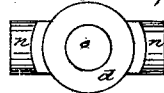


Fig. 7.



Witnesses:

H. Lauderburn
John M. Williams.

Inventor:

Charles H. Vandyne
Solomon A. Alexander

UNITED STATES PATENT OFFICE.

CHARLES H. VANDYNE, OF HAZLETON, AND SOLOMON A. ALEXANDER, OF
SUNBURY, PENNSYLVANIA.

IMPROVEMENT IN SLIDE-VALVES FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. 128,340, dated June 25, 1872.

SPECIFICATION.

We, CHARLES H. VANDYNE, of Hazleton, in the county of Luzerne and State of Pennsylvania, and SOLOMON A. ALEXANDER, of Sunbury, in the county of Northumberland and State of Pennsylvania, have invented certain Improvements in the Slide-Valves of Steam-Engines, to relieve them of the excessive pressure from the steam.

Nature and Objects of the Invention.

The invention relates to the combination of cylinders and levers for the purpose of sustaining plates placed over the valves, so that the pressure of the steam will be upon the plates and not upon the valves.

Description of Accompanying Drawing.

Figure 1 is a side sectional elevation of a device embodying our invention. Fig. 2 is a plan of a plate, levers, and valve, the dotted lines representing the valve. Fig. 3 is an end elevation of the plate *b*. Fig. 4 is an elevation of the steam-chest cover *F*. Fig. 5 is a plan of Fig. 4. Fig. 6 is an elevation of a cylinder with projections at one end for the lever *C* to rest upon. Fig. 7 is a plan of Fig. 6. Fig. 8 is an elevation of a small cylinder with projections at one end to receive the lever *O*. Fig. 9 is a plan of Fig. 8. Fig. 10 is an elevation of a gland for the top of the steam-chest cover. Fig. 11 is a plan of Fig. 10.

General Description.

a is a slide-valve open above. The dotted line in the elevation represents an offset for a yoke to rest upon, the offset *a' a'* being added to the length of the valve for the purpose of balancing the downward pressure of the steam on the offset *a''*. *b* is a plate covering the whole upper face of the valve and the space through which the valve travels. This plate is sustained by the levers *C* and *O* passing through the loops in each end of the plate, one of which loops is shown in the elevation of the plate, Fig. 3. The levers *C* and *O* rest on projections *s s* from the steam-chest *R*. The

other ends of the levers rest on the projections *n n* and *n' n'* of the cylinders *d* and *e*. The cylinder *e* is constructed to work loosely in a cavity, *e'*, in the cylinder *d*, to which it is attached by the bolt *H*. This bolt is screwed through the cylinder *d* and into the cylinder *e* at *e''*. The bolt is constructed with a different pitch of thread for each cylinder. By this means the cylinder *e* is adjustable to the cylinder *d*, the former rising or falling within the latter as the screw is turned; and the action of the two levers upon the plate can be made equal and symmetrical. The cylinder *d* passes through the steam-chest cover *F*, and is made steam-tight by the gland *g* being pressed against the packing *m m* by means of the bolts *J J*. An elliptic spring, *K*, is placed on the top of the bolt *H* to increase the pressure on the valve, and is adjusted, as may be required, by the bolt *l* passing through that part of the gland marked *g'*.

When the steam enters the chest the pressure acts on the cylinders *d* and *e*, which, being attached to the levers *C* and *O*, cause the levers to operate on the fulcrums *s s* and in the loops *b' b'*, so as to counterbalance the heavy pressure of the steam on the plate *b*. The proportions of the levers *C* and *O* and the areas of the cylinders *d* and *e* are regulated to resist so much of the pressure upon the plate *b* as may be desirable.

Claims.

We claim as our invention—

1. The combination of the levers *C* and *O* with the cylinders *d* and *e* acting on the plate *b*, substantially as and for the purpose hereinbefore set forth.

2. The combination of the levers *C O*, cylinders *d e*, and plate *b*, with the valve *a* having offsets *a' a''*, substantially as and for the purposes herein set forth.

CHARLES H. VANDYNE.
SOLOMON A. ALEXANDER.

Witnesses:

F. LANDERBURN,
JOHN M. WILLIAMS.