

W. LOVE.

Slide-Valves for Steam-Engines.

No. 144,463.

Patented Nov. 11, 1873.

Fig. 1.

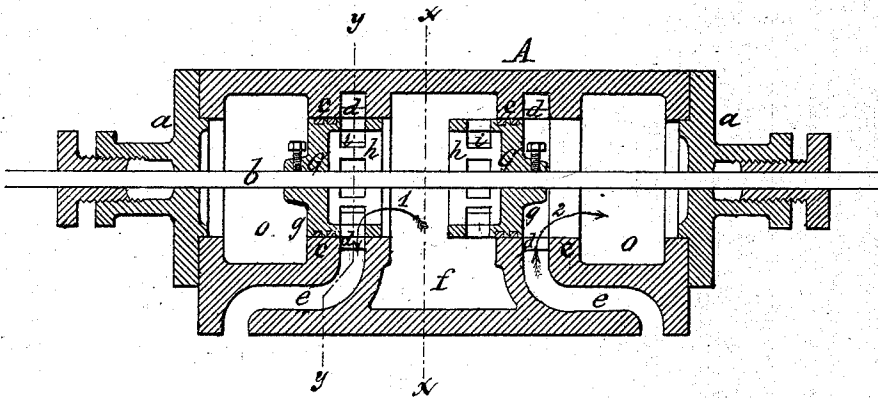


Fig. 2.

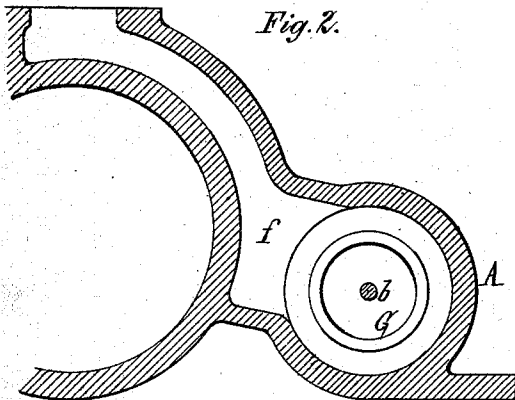


Fig. 3.

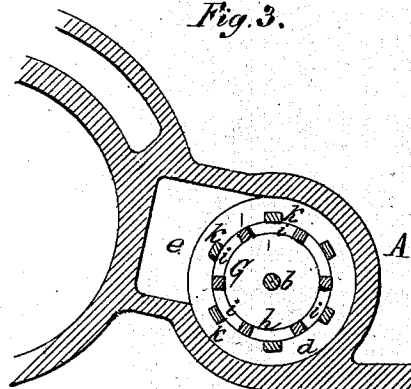
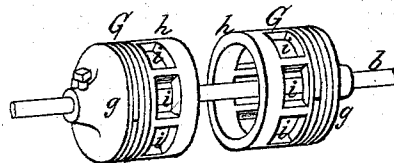


Fig. 4.



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UNITED STATES PATENT OFFICE

WILLIAM LOVE, OF BUFFALO, NEW YORK.

IMPROVEMENT IN SLIDE-VALVES FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **144,463**, dated November 11, 1873; application filed July 30, 1873.

To all whom it may concern:

Be it known that I, WILLIAM LOVE, of the city of Buffalo, in the county of Erie and State of New York, have invented certain Improvements in Slide-Valves for Steam-Engines, of which the following is a specification:

My invention relates to that class of slide-valves which consist of two tightly-packed steam-pistons, operating in conjunction with circular ports, and which are commonly designated as piston-valves; and the invention consists of a hollow piston-valve provided with steam-passages, so that the steam passes from the interior or cavity of the valve through said passages to the circular ports, whereby a greater bearing-surface of each piston is obtained, without increasing the stroke of the valve.

In the accompanying drawing, Figure 1 is a longitudinal section of my improved valve arranged in the steam-chest. Figs. 2 and 3 are cross-sections in line *x x* and *y y*, Fig. 1, respectively. Fig. 4 is a perspective view of my improved valve.

Like letters of reference designate like parts in each of the figures.

A represents the steam-chest, of cylindrical form, and closed at the ends by heads *a a*, provided with stuffing-boxes, through which passes the valve-rod *b*. *c* represents the cylindrical valve-seat, and *d* the circular steam-ports arranged therein, and forming a continuation of cylinder-ports *e e*. *f* is the steam-supply passage, arranged between the ports *d d*; and *o o*, the steam-exhaust passages, arranged outside of the ports *d d*, or between the latter and the heads *a a* of the steam-chest. *G G* represent the two hollow valve-pistons, each consisting of a solid disk or piston, *g*, fitting steam-tight in the valve-seat *c*, and a hollow cylindrical extension, *h*, provided with

a number of steam-passages, *i*, arranged in an annular row close to the solid portion *g* of each piston. The pistons *G* are arranged with their hollow portion *h* toward the central steam-inlet passage *f*, so that the steam passes from the latter into the cavity of each piston *G*, and thence, through the openings *i*, into the respective steam-ports, as indicated by the arrow 1 in Fig. 1. Steam is admitted to the cylinder-ports as soon as the inner edge of the solid portion *g* of each valve opens the port, and the exhaust commences as soon as the outside edge of the solid portion *g* opens the port, as shown by the arrow 2, Fig. 1, in the same manner as in an ordinary solid piston-valve. Hence, in my improved valve, the stroke is the same as in the ordinary solid valve, while the bearing-surface thereof is greatly increased by the extension *h*, whereby the wear is reduced, binding of the pistons in their seats prevented, and a smoother movement produced. The solid portion *g* of each valve-piston is provided with packing-rings of suitable construction, and the circular ports *d* are constructed with bridge-pieces *k*, to prevent said packing-rings from expanding into said ports when they pass over the same. The pistons *G G* are adjustably attached to the rod *b* by set-screws, or in any other suitable manner.

What I claim as my invention is—

The piston-valve *G*, provided with the hollow extension *h* and steam-passages *i*, in combination with the circular ports *d*, substantially as hereinbefore set forth.

WM. LOVE.

Witnesses:

CHAS. L. WHITING,
JNO. J. BONNER.