

(No Model.)

A. JACKSON.
BALANCED SLIDE VALVE.

No. 312,858.

Patented Feb. 24, 1885.

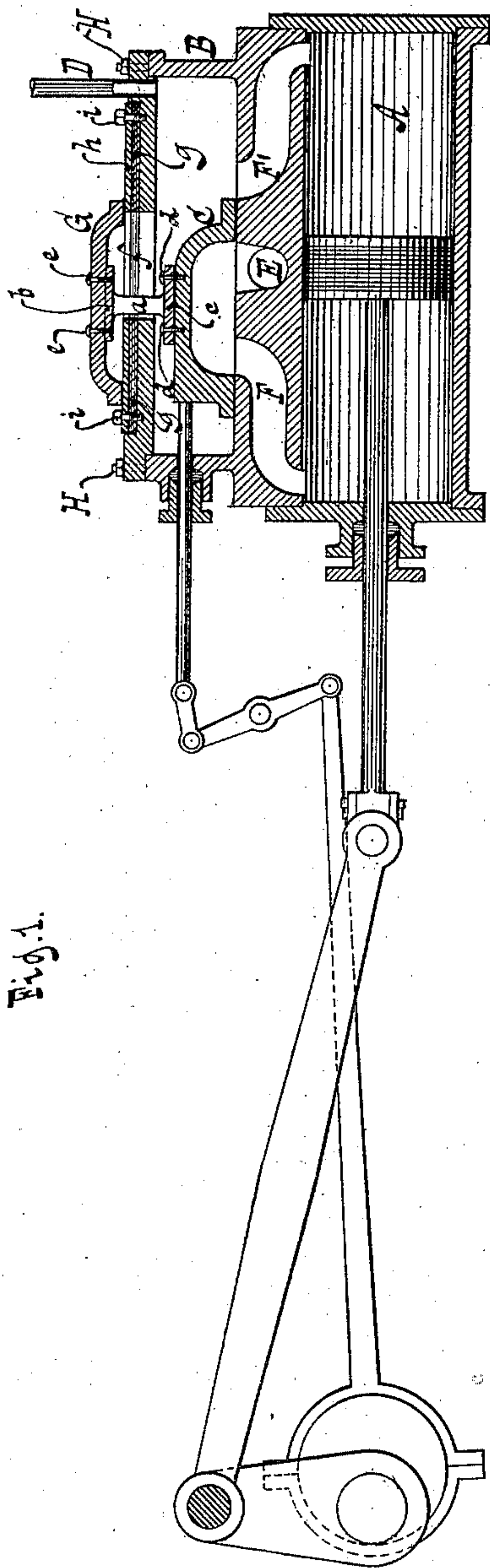


Fig. 1.

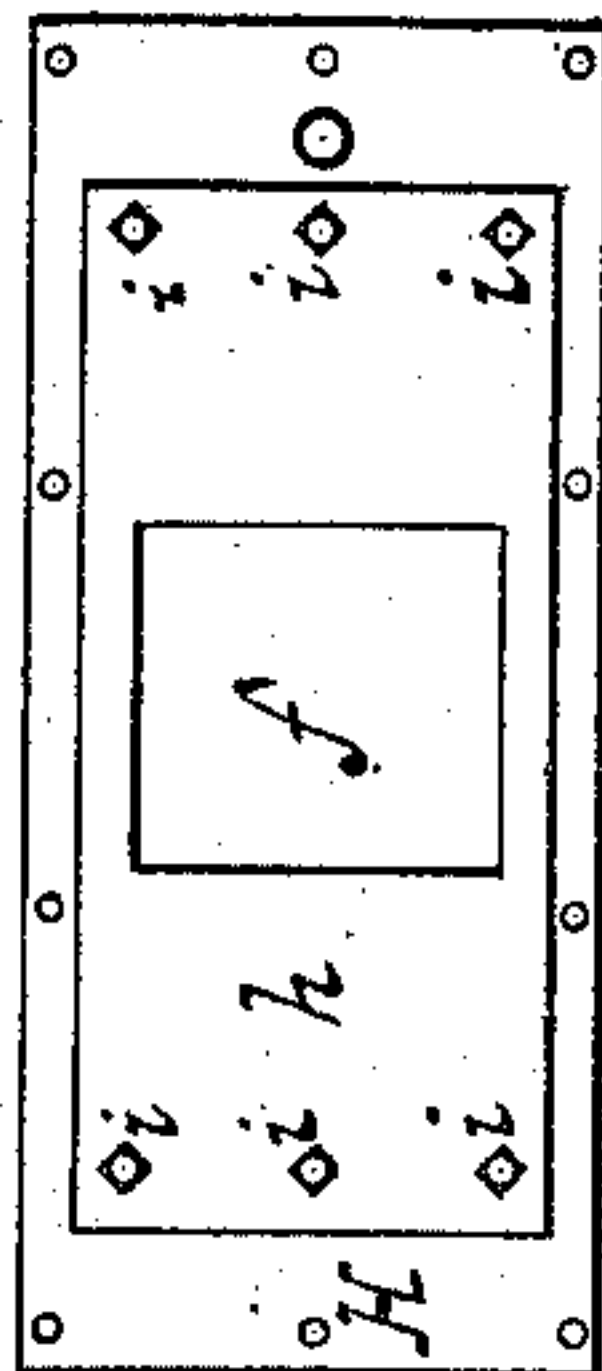


Fig. 2.

WITNESSES:

Otto Hufeland
William Miller

INVENTOR

Alonzo Jackson

BY

Van Vantwoord, Haupp

ATTORNEYS

UNITED STATES PATENT OFFICE.

ALONZO JACKSON, OF NEW YORK, N. Y.

BALANCED SLIDE-VALVE.

SPECIFICATION forming part of Letters Patent No. 312,858, dated February 24, 1885.

Application filed October 2, 1884. (No model.)

To all whom it may concern:

Be it known that I, ALONZO JACKSON, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Balanced Slide-Valves, of which the following is a specification.

This invention relates to improvements in balanced slide-valves; and it consists in the novel construction and combination of devices hereinafter described and claimed, reference being had to the accompanying drawings, illustrating my invention, in which—

Figure 1 represents a longitudinal section of a steam-cylinder provided with my balance-valve. Fig. 2 is a face view of the cover of the valve-chest detached.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates the cylinder of a steam-engine. B is the valve-chest, and C is the slide-valve. The slide-valve is seated on the bottom of the valve-chest, and steam is admitted to it through a pipe, D, which enters at any suitable point. E is the exhaust-port, and F F' are the steam-ports.

With the slide-valve C is combined a counterbalance-plate, G, which has its seat on the cover H of the valve-chest. Said counterbalance-plate is connected to the slide-valve by one or more columns, a, which are provided with top and bottom flanges, b c, and secured to the slide-valve by screws d, and to the counterbalance-plate by screws e. Said columns extend through a slot, f, in the cover of the valve-chest, so that they do not interfere with the movement of the slide-valve. By referring to Fig. 1 it will be seen that the inner surface of the counterbalance-plate is exposed to the action of the live steam, which also acts upon the back of the slide-valve, and if the area of the exposed inner surface of the counterbalance-plate is equal to the area of the back of the slide-valve the latter is balanced against the action of the live steam. At the same time the outer surface of the counterbalance-plate is exposed to the pressure of the atmosphere, and the inner surface of the slide-valve is exposed to the pressure of the exhaust-steam, so that the action of the exhaust-steam on the slide-valve is counterbalanced by the action of the atmosphere on the counterbalance-plate, or nearly so. Of course the area of the counterbalance-plate must be changed according to the

nature of the engine. If my slide-valve is used for a low-pressure engine, the area of the exposed inner surface of the counterbalance-plate must be somewhat larger in proportion to the exposed area of the slide-valve than it is if the slide-valve is used for a high-pressure engine; but it will be readily seen from the foregoing description that by properly gaging the area of the counterbalance-plate G the slide-valve can be balanced in regard to the pressure of the live steam, as well as in regard to the action of the exhaust. The counterbalance-plate is made detachable from the slide-valve, so that either the valve or plate can be ground down upon its seat independent of each other.

In order to be able to seat valve and plate correctly, I provide the cover H with a recess, into which is placed a sheet, g, of india-rubber, and also a metallic plate, h, which latter forms the seat for the counterbalance-plate. The plate h is secured to the cover H by screws i, and by means of these screws and the elastic support g the plate h can be so adjusted that both the slide-valve and the counterbalance-plate are correctly seated.

I do not broadly claim a slide-valve connected with a counterbalance-plate seated on a valve-chest and exposed to the pressure of steam or of the atmosphere; but

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

1. The combination, with the slide-valve C and the exhaust-port E, situated beneath said slide-valve, and with the counterbalance-plate, which is firmly connected to the slide-valve, of a yielding seat for said counterbalance-plate arranged on the outside of the valve-chest, substantially as and for the purpose described.

2. The combination, substantially as hereinbefore described, with the slide-valve, and with the counterbalance-plate firmly connected to the slide-valve, of the metallic plate h, secured to the valve chest and forming the seat for the counterbalance-plate, and of the elastic support g, placed beneath said metallic plate.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

ALONZO JACKSON. [L. s.]

Witnesses:

W. HAUFF,
E. F. KASTENHUBER.