T. WHITTAKER.

Cut-Off Valve.

No. 196,847. Patented Nov. 6, 1877.

Fig: 1.

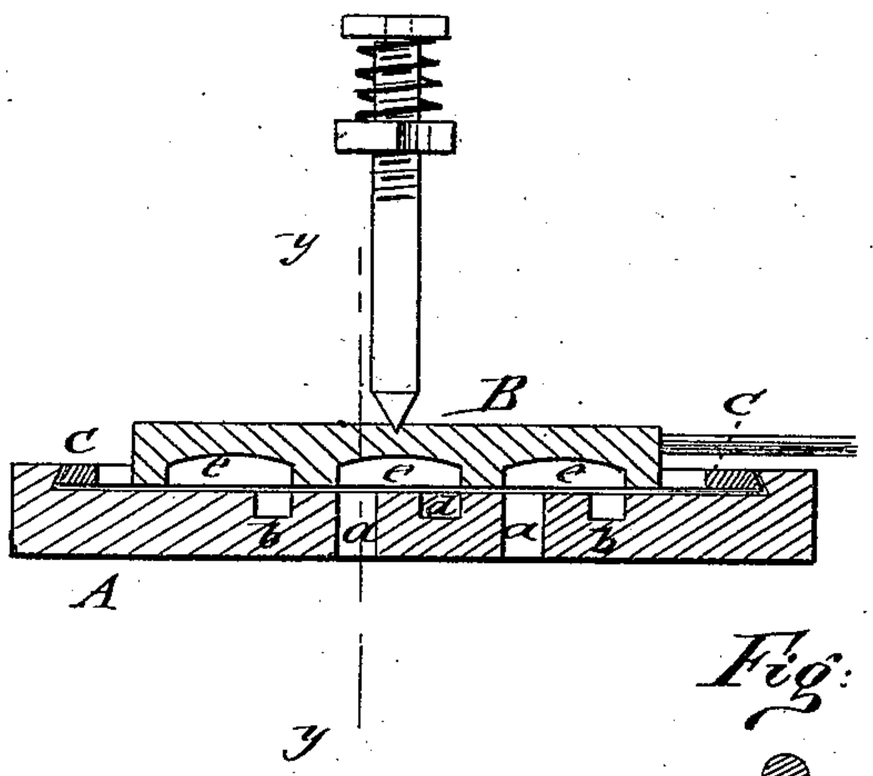


Fig: 2.

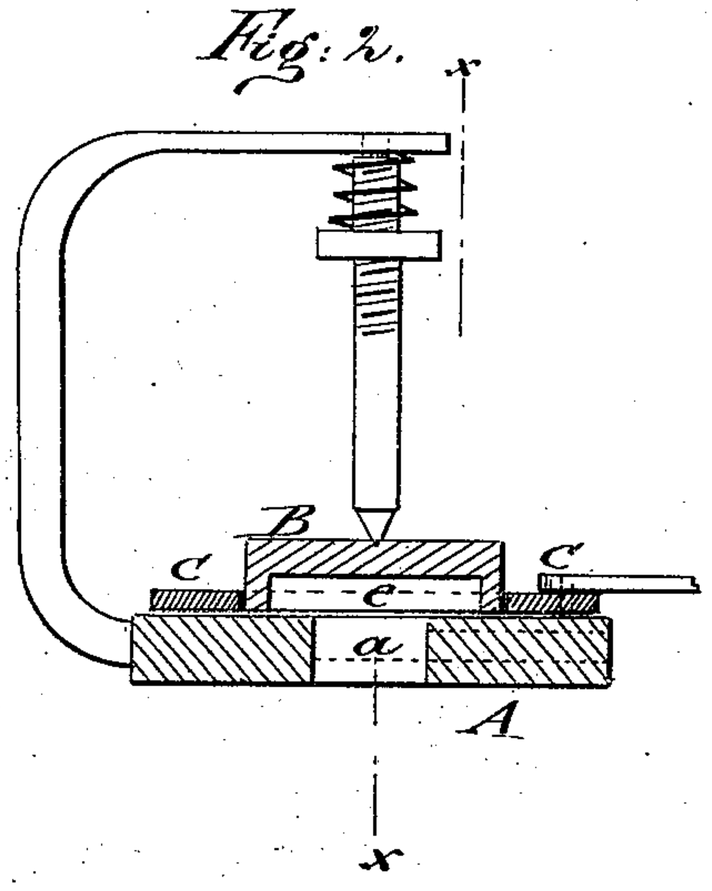


Fig: 3.

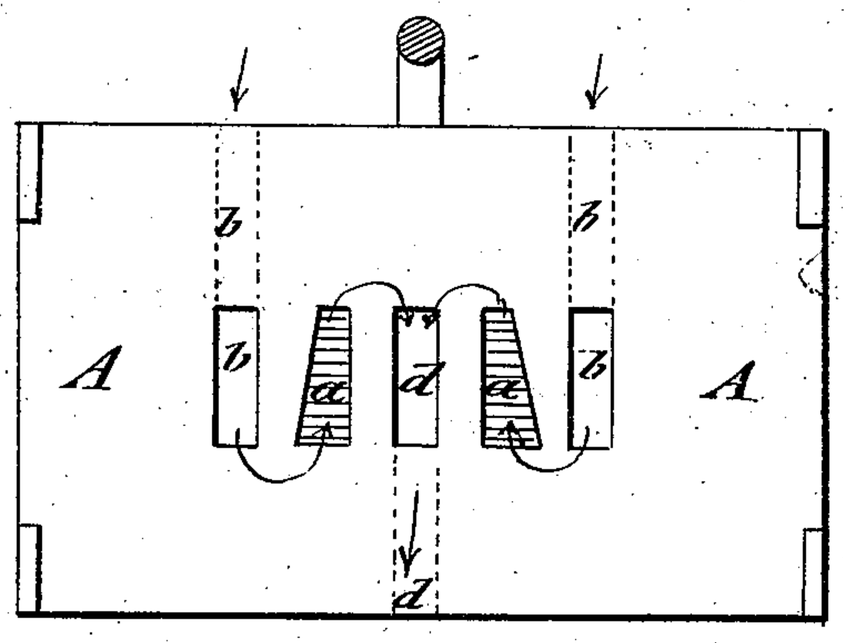


Fig: 4.

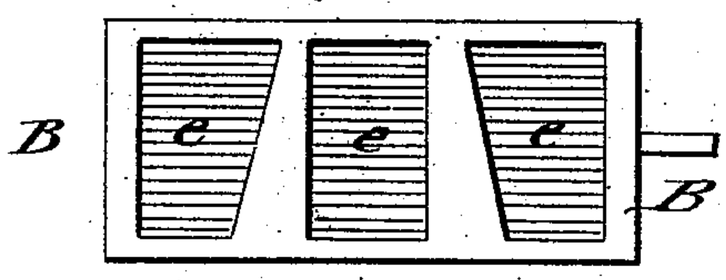
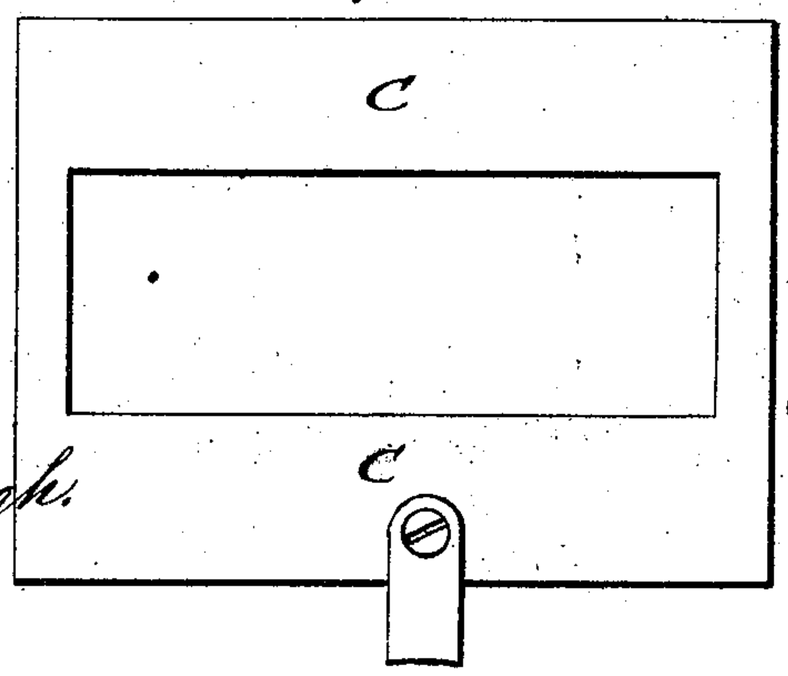


Fig: 5



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UNITED STATES PATENT OFFICE.

THOMAS WHITTAKER, OF PASSAIC, NEW JERSEY.

IMPROVEMENT IN CUT-OFF VALVES.

Specification forming part of Letters Patent No. **196,847**, dated November 6, 1877; application filed October 10, 1877.

To all whom it may concern:

Be it known that I, THOMAS WHITTAKER, of Passaic, in the county of Passaic and State of New Jersey, have invented a new and Improved Cut-off Slide-Valve, of which the following is a specification:

In the accompanying drawing, Figures 1 and 2 represent vertical longitudinal and transverse sections of my improved cut-off slide-valve, respectively, on lines *x x*, Fig. 2, and *y y*, Fig. 1. Fig. 3 is a top view of the steam-cylinder, showing the steam-ports and induction and eduction channels. Fig. 4 is a bottom view of the slide-valve detached; and Fig. 5, a top view of the transversely-sliding valve frame or plate.

Similar letters of reference indicate corresponding parts.

This invention relates to an improved cut-off slide-valve, of simple and reliable construction, in which the admission of steam is regulated by connection with the governor, and diminished as the speed accelerates, and increased as the speed decreases, so as to secure uniformity of speed; and the invention consists of a balanced slide-valve that is guided in a transversely-sliding plate or frame connected to the governor of the engine.

The steam-ports of the cylinder, as well as the arched cavities of the slide-valve, are made tapering, to cut off the steam by the lateral throw of the valve-frame by the governor.

In the drawings, A represents the top plate of the steam-cylinder, which is provided with tapering steam-ports *a*, that connect with the customary steam-ducts to convey the steam to either side of the piston.

The top plate A is further provided with steam-induction channels *b* at both sides of the parts *a*, and with an eduction-channel, *d*, between the ports, of oblong shape.

The slide-valve B is arranged with three arched cavities, *e*, at the under side, of which the outer are tapering at the sides, corresponding with the tapering sides of the steam-ports, to establish the connection of the steam induction and eduction channels with the steam-ports, and secure the admission and exhaust of the steam to the cylinder through the ports *a*.

The slide-valve B is made wider than the steam-ports, and reciprocated in the usual manner from the eccentric, and balanced by spring-pressure acting on the top of the valve, or by other means, so that by this construction a steam-chest is dispensed with, and an easily-working slide-valve of simple construction obtained.

The slide-valve B is guided in a longitudinal recess of a slide plate or frame, C, that is connected in suitable manner with the governor of the engine.

The slide frame or plate C is moved by the governor, in dovetail guides of the top plate A, transversely to the throw of the slide-valve, and gives the slide-valve, by the tapering or angular ports and cavities, the action of a cut-off, by enlarging or diminishing the size of the steam-ports, so as to increase or diminish the quantity of steam admitted to the engine, according to the speed of the same. If the speed of the engine is accelerated, the slide frame and valve will be moved by the governor so as to produce a diminution of the steam inducted, and, conversely, when the speed is retarded the steam-ports are enlarged, and a larger quantity of steam is supplied, thus establishing a uniform speed of the engine.

The eduction-channel remains of the same size all the time, and admits a free exhaust of the steam.

Thus a simple construction of a balanced slide-valve, that acts at the same time as a regulator for the speed of the engine, is obtained.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. As an improvement in slide-valves, the combination, with the top plate of the cylinder, having tapering steam-ports and induction and eduction channels, of a balanced slide-valve with correspondingly-tapering cavities, to which longitudinal and transverse motion is imparted for regulating the speed of

engine, substantially as and for the purpose set forth.

2. The combination of the top plate of a steam-cylinder, having tapering steam-ports and induction and eduction channels, with a balanced slide-valve having correspondingly tapering cavities, the valve being guided by a transversely-reciprocating slide frame or plate connected to governor, substantially as and for the purpose specified.

THOMAS WHITTAKER.

Witnesses:

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