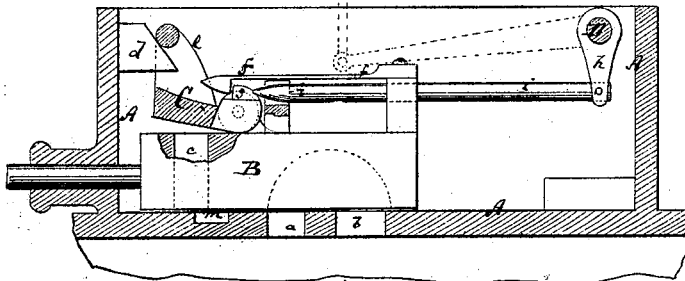


*T. Sault,*  
*Cut Off Valve.*

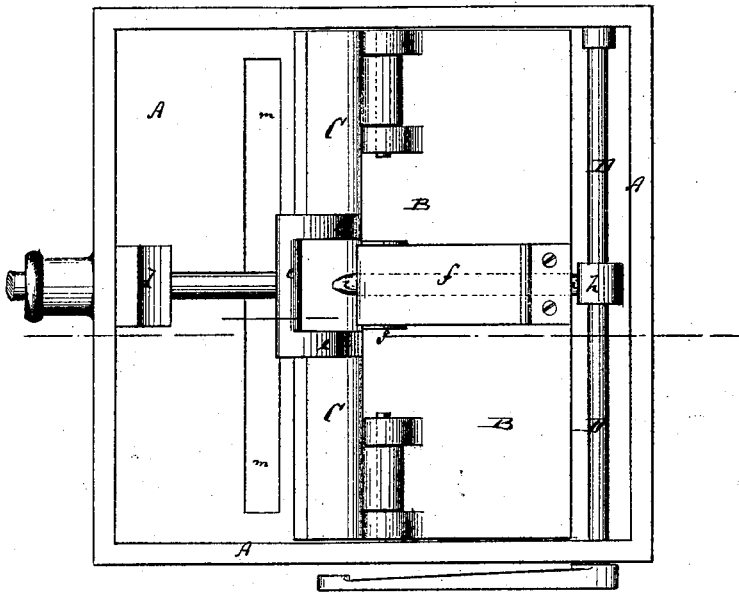
*No. 113101.*

*Patented Mar. 28. 1871.*

*Fig. 1.*



*Fig. 2.*



**Witnesses:**

*Chas. Nide*  
*L. S. Moabes*

**Inventor:**

*T. Sault*  
per *Mmmu H*  
**Attorneys.**

# United States Patent Office.

THOMAS SAULT, OF NEW HAVEN, CONNECTICUT.

Letters Patent No. 113,101, dated March 28, 1871.

## IMPROVEMENT IN CUT-OFF ATTACHMENTS TO 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, THOMAS SAULT, of New Haven, in the county of New Haven and State of Connecticut, have invented a new and improved Cut-off Attachment to Slide-Valves; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Figure 1 represents a vertical section of my improved cut-off attachment.

Figure 2 is a plan or top view of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to a new automatic valve, which is applied to the aperture or port of an ordinary slide-valve to close the same at the required time, and thereby regulate the admission of steam to the cylinder.

My invention consists in certain improvements upon slide-valves, which will be first described in connection with all that is necessary to a full understanding thereof, and then clearly pointed out in the claim.

Its general arrangement is similar to that of an ordinary foot-valve.

At the end of the stroke of the slide-valve the valve C is opened by means of an arm, *d*, projecting from the end of the chest, and entering within a yoke, *e*, that projects from the valve C.

The working face of the arm *d* is beveled to gradually raise the yoke and valve C, and thereby open the latter.

When opened the valve C is held open by means of a snap-spring, *f*, which is attached to the slide-valve and catches over a shoulder or ear, *g*, on C, as shown in fig. 1.

In this figure the valve C is shown in the position just after having been opened by the arm *d* and held open by the snap *f*.

The valve C being thus elevated, the aperture *c* is open to the admission of steam, which, during the subsequent motion of the slide-valve, can freely enter the port *a*.

D is a crank-shaft hung transversely in the steam-chest, and connected in suitable manner with the governor of the engine, so that the velocity of the governor will regulate the position of the crank *h* of said shaft.

To the end of the crank *h* is pivoted a rod, *i*, which is furthermore supported in perforated lugs *j j*, projecting from the slide-valve, to be guided horizontally whatever the position of the crank.

The end of the rod *i* is pointed or rounded, and enters below the spring *f* to elevate the same and disengage it from the valve C.

The same moment the cone or rounded end of the rod *i* comes in contact with the valve C, and in passing over it closes the valve, assisted by the current of steam entering through the port *c*.

The position of the governor affects that of the rod *i*, and the consequent length of time during which the valve C is kept open. Thus, when the governor moves slow it withdraws the rod *i* somewhat from that end of the chest to which the arm *d* is attached, and causes thereby more steam to enter the cylinder than during a greater velocity when the rod *i* is pushed further ahead to quickly close the valve C.

For the other slide-valve, or for the other end of it, the shaft D carries another crank opposite to *h*, and has the same connected with another rod, *i*, acting in the same manner.

In order to admit steam under the valve C as the same is being opened, and for the purpose of balancing the same, I have arranged a depression or recess, *m*, in the valve-seat.

The opening *c* will arrive at this recess before the arm *d* enters the yoke *e*, and will therefore receive steam under the valve C for properly balancing the same, whereby the opening is facilitated.

Having thus described my invention,

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

1. The arm *d* and yoke *e*, combined with the hinged valve C and with the snap *f*, for opening and holding open said valve C, as specified.

2. The rod *i*, connected with the governor of the engine, and combined with the hinged valve C on the slide-valve B, substantially as herein shown and described.

3. The recess *m* in the valve-seat, for the purpose of admitting steam under the hinged valve C preparatory to the opening of the same, as specified.

THOMAS SAULT.

Witnesses:

J. C. NORTH,  
J. F. DYAS.