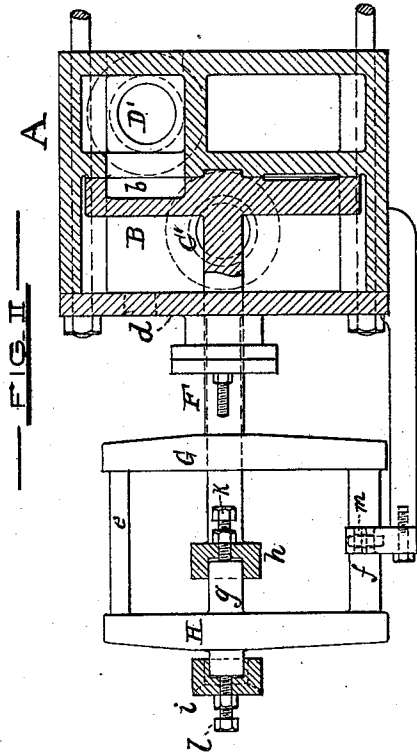
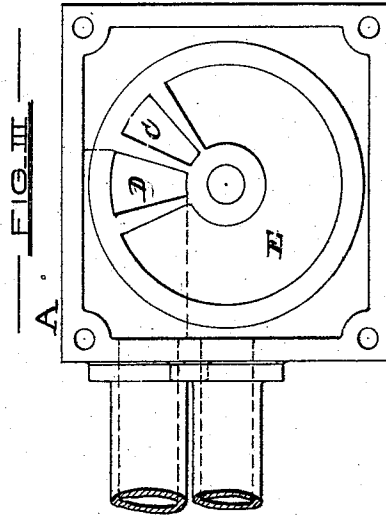
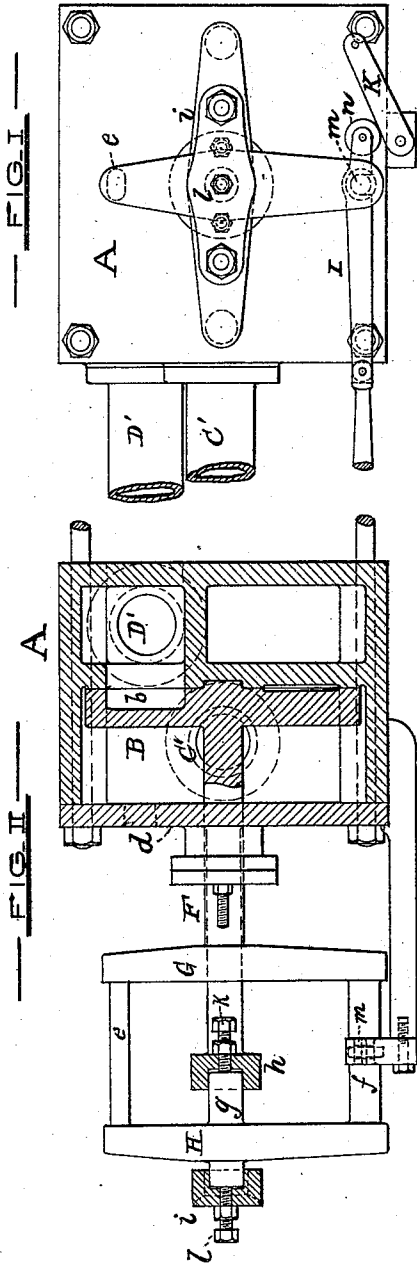


W. F. MARTIN.

CUT-OFF VALVE.

No. 170,483.

Patented Nov. 30, 1875.



WITNESSES

Wm. H. Johnson

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UNITED STATES PATENT OFFICE

WILLIAM F. MARTIN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF
ONE-HALF HIS RIGHT TO SAMUEL GILBERT, OF SAME PLACE.

IMPROVEMENT IN CUT-OFF VALVES.

Specification forming part of Letters Patent No. **170,483**, dated November 30, 1875; application filed
July 14, 1875.

To all whom it may concern:

Be it known that I, WILLIAM F. MARTIN, of the city of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Steam-Valves and Attachments for Steam-Engines, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention relates to a combination of parts forming the means of communication between the eccentric rod and the steam-valve, the said parts being arranged with reference to an arm, the position of which is controlled by the engine-governor, so as to regulate the cutting-off point, or portion of the stroke of the piston at which the flow of steam to the cylinder is discontinued, and that contained in the cylinder used expansively, as hereinafter described.

In the further description of my invention which follows, due reference must be had to the accompanying drawing, forming a part of this specification, and in which—

Figure 1 is a front view of a steam-chest having my improvements attached thereto; and Fig. 2, a side view of the same, partly in section. Fig. 3 is a plan of the steam-chest, with the valve and its attachments removed.

Similar letters of reference indicate similar parts in all the figures.

A is the steam-chest, and B the valve, circular in form, and provided with steam and exhaust openings, corresponding with the ports in the valve-face, in position the exhaust-opening in the valve not, however, passing through the same, but being as shown by *b*. C and D are, respectively, the steam and exhaust ports in the valve-face E; and C' and D', the steam and exhaust channels to and from the chest. F is the valve-stem, extending from the valve B, through the packing-box in the steam-chest cover *d*, to a cross-arm, G, connected by the bars *e* and *f* to a second cross-arm, H. The arm H is attached to an independent stem, *g*, supported by the

frame *h* and clamp *i*. The wear of the valve and valve-face, where they come into contact, is reduced by means of the set-screw *k*, which receives a portion of the strain caused by the pressure of the steam upon the back of the valve. The set-screw *l* serves to prevent the valve from being forced from its face when in operation. The bar *f* is constructed sufficiently heavy to close the steam-port C by its own gravity; consequently, when the mechanism above described as attached to the valve is uninfluenced by the eccentric rod or any connection thereof, the entrance of steam to the cylinder is prevented. I is a rod, connected to the eccentric rod rigidly or by means of a joint, and notched to fit over a pin, *m*, formed in the bar *f*. The rod I is fitted with a roller, *n*, at the end thereof, for purposes hereinafter described. K is a finger, pivoted to a lug extending from the bottom of the steam-chest, and to which the rod operated by the engine-governor is attached.

The inclination of the finger K regulates the point at which the flow of steam to the cylinder is cut off, as follows: Upon the opening of the steam-port C the rod I advances toward the inclined plane formed by the finger K, and as the roller *n* comes into contact with it, the rod I is raised from the pin *m*, and the bar descends by its own gravity, closing the valve.

From this it will be understood that the greater the elevation of the end of the finger K, the sooner the rod I will become detached from the pin *m*, and the steam be cut off, and the nearer the finger approaches to a horizontal line, the longer the valve is operated by means of the eccentric and attachments. Upon the return of the rod I the notch re-engages with the pin *m*, and the exhaust D is brought into communication with the steam-port C by means of the exhaust-opening *b* in the valve B.

The steam-chest, with the attachments described, is designed to be applied to one end of the steam-cylinder, a corresponding combination being connected to the other.

In cases where a governor is not to be used the inclination of the finger K can be altered by means of any suitable mechanism.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In combination with the valve B, as described, the stem F, to which is attached the cross-arms G H, connected by the bars *e f*, and the independent stem *g*, supported by the frame *h*, clamp *i*, and set-screws *k* and *l*, substantially as shown.

2. As means for supporting the independent stem *g*, the frame *h* and clamp *i*, provided with the set-screws *k* and *l*, substantially as specified.

3. In combination with the bar *f*, in which is formed the pin *m*, the rod I, fitted with the roller *n*, and movable finger K, actuated by the governor, substantially as and for the purpose set forth.

In testimony whereof I have hereunto subscribed my name this 19th day of June, in the year of our Lord 1875.

WILLIAM F. MARTIN.

Witnesses:

WM. B. COLLINS,
JOSEPH MCKINNY.