J. C. DEBES.

CUT-OFFS FOR STEAM-ENGINES.

No. 181,051, Patented Aug. 15, 1876.

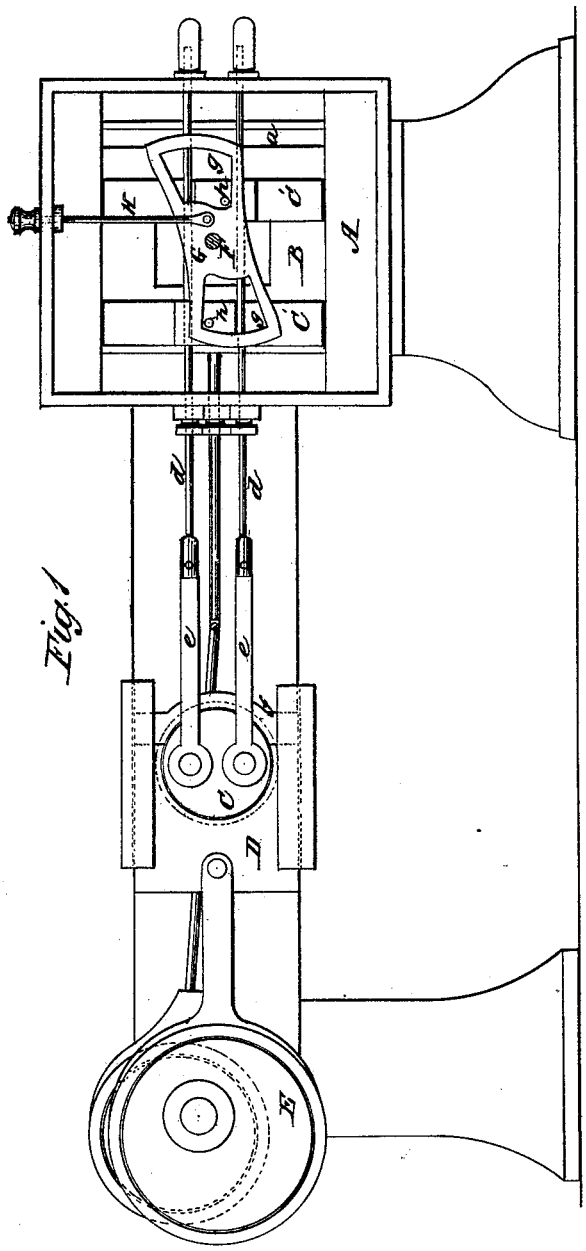

Fig. 1.

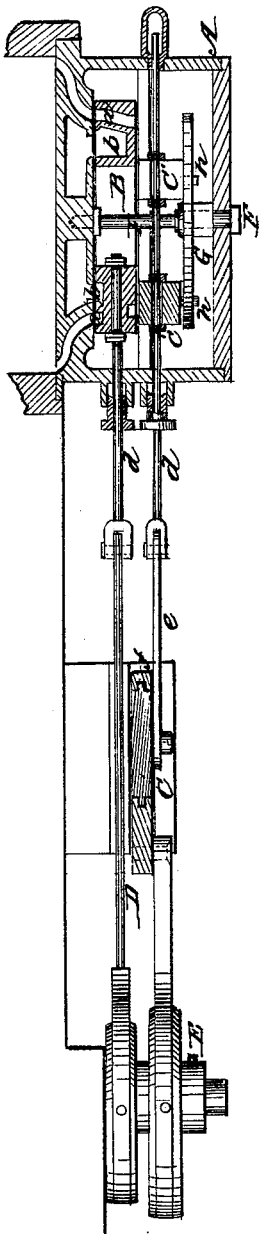

Fig. 2.

WITNESSES:

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UNITED STATES PATENT OFFICE.

JULIUS C. DEBES, OF JACKSON, MICHIGAN.

IMPROVEMENT IN CUT-OFFS FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **181,051**, dated August 15, 1876; application filed June 20, 1876.

To all whom it may concern:

Be it known that I, JULIUS C. DEBES, of Jackson, in the county of Jackson and State of Michigan, have invented a new and Improved Cut-Off for Steam-Engines, of which the following is a specification:

Figure 1 is a side elevation. Fig. 2 is a top view.

Similar letters of reference indicate corresponding parts.

My invention relates to that class of cut-off in which the stroke of the cut-off valves is controlled by the governor; and it consists of a plate placed on a central stud in the steam-chest, and provided with oblique slots, which engage with studs on the back of the cut-off valves, varying the time of the admission of steam according to the position of the plate, which is varied by the governor.

The invention will first be described in connection with drawing, and then pointed out in the claims.

A is an ordinary steam-chest, containing a common double expansion-valve, B, having the supply-ports *a* and the exhaust-ports *b*. C′ C′ are valves, which travel on the back of the valve B, and open or close the supply-ports at the proper time. These valves are provided with independent valve-stems *d d*, which are connected with the pins on the opposite sides of the disk C by the connecting-rods *e e*. The disk C is placed in a suitable bearing in the slide D, which is moved by the cut-off eccentric E. The strap *f* embraces the disk C and retains it in its place. A stud, F, is placed in the center of the valve-chest, and is secured both to the valve-seat and chest-cover. G is a plate, which is placed on the stud F, and is provided with oblique slots *g g*. *h h* are short studs projecting from the valves through the slots *g g*. The width of the slots *g g* is equal to the travel of the valve added to the diameter of the studs *h h*. H is a rod, which is pivoted to the plate G, and passes through a stuffing-box in the valve-chest, and connects with the governor. The position of the cut-off valves in relation to the ports *a* is changed as the plate G is turned by the governor.

As the speed of the engine increases, the governor depresses the rod H, when one of the studs *h* strikes the side of the oblique slot *g* early in the stroke, throwing the valve toward the supply-port *a*, and, by reason of the connection between the valves and the disk C, they are both thrown toward the ends of the main valve. When the engine runs slower, the plate G is moved in the opposite direction, producing an effect on the valves which is the reverse of that just described.

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

1. The slotted plate G *g*, arranged on stud F, and the pivoted rod H, connected with governor, in combination with valves C′ C′, having studs *h*, substantially as and for the purpose described.

2. The combination, with valves C′ C′, of eccentric E, connected therewith by yoke, slide D, disk C, rods *e e*, and stems *d d*, and the slotted plate G, as and for the purpose specified.

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Witnesses:

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