

(No Model.)

J. F. BARKER.

SAFETY CUT-OFF AND THROTTLE VALVE FOR STEAM ENGINES.

No. 250,332.

Patented Dec. 6, 1881.

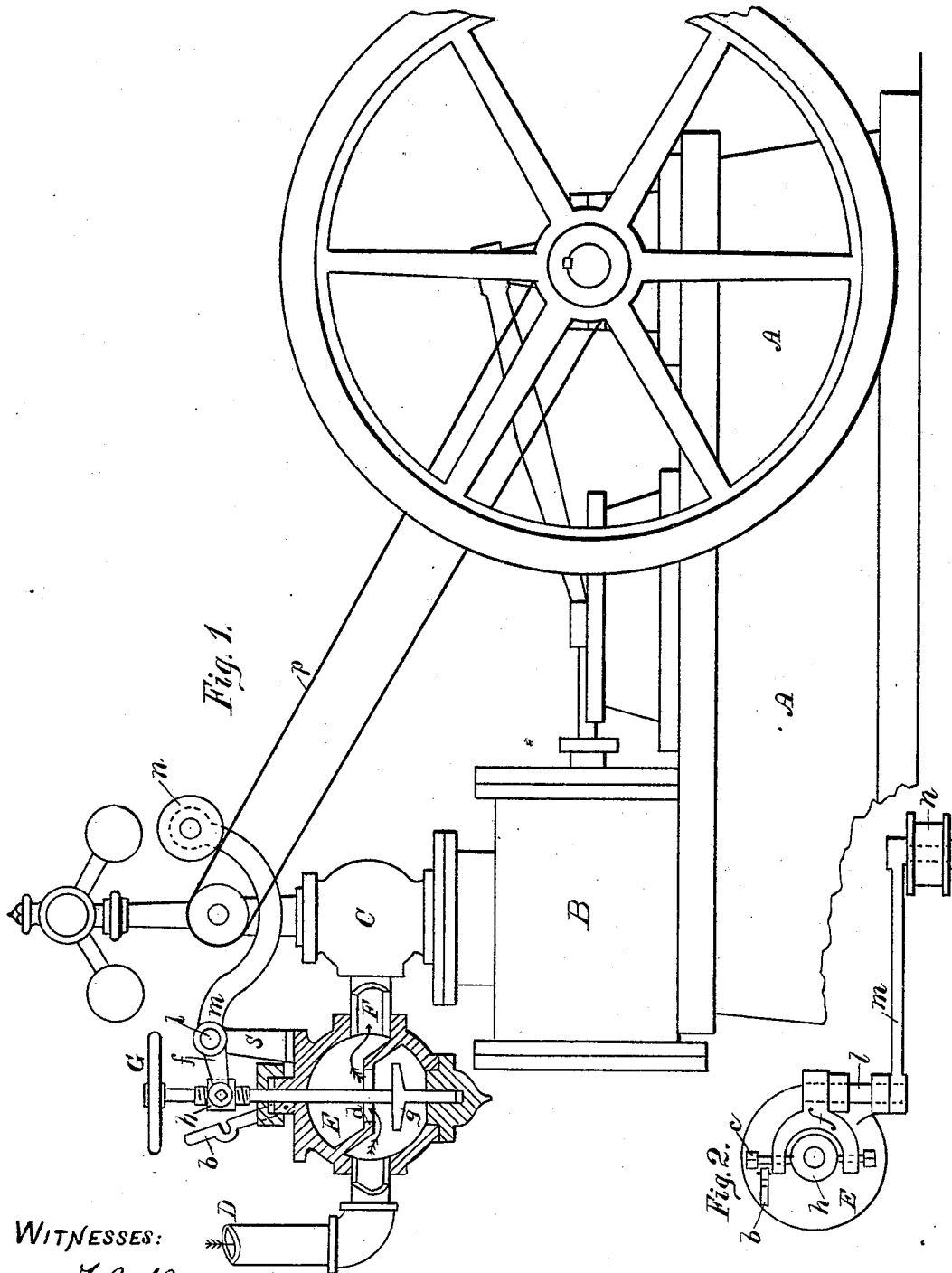


Fig. 1.

Fig. 2.

WITNESSES:

J. J. Vaughan.  
Geo. M. Bailey.

INVENTOR:

John F. Barker

# UNITED STATES PATENT OFFICE.

JOHN F. BARKER, OF CHEMUNG COUNTY, NEW YORK, ASSIGNOR TO CHARLES D. LARUS AND HERBERT C. LARUS, OF RICHMOND, VIRGINIA.

SAFETY CUT-OFF AND THROTTLE VALVE FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 250,332, dated December 6, 1881.

Application filed August 3, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. BARKER, a citizen of the United States, residing in the county of Chemung and State of New York, (temporarily sojourning in the city of Richmond, county of Henrico, and State of Virginia,) have invented a new and useful Safety Cut-Off and Throttle Valve for Steam-Engines, of which the following is a specification.

My invention relates, primarily, to valves placed upon steam-engines for the purpose of stopping the said engines in case of accident—such as the breaking or running off of the governor-belt; and, secondarily, to combine therewith a suitable throttle-valve for stopping and starting the engine. I attain these objects by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my invention, showing it applied to a horizontal engine, and Fig. 2 is a plan, showing the arrangement of the levers, &c.

Similar letters refer to like parts in the two views.

A A is a horizontal engine, whose cylinder B has fixed upon it the usual form of governor, C.

My valve is located between the boiler and the governor, in the place usually occupied by the ordinary throttle-valve.

My valve is composed of a hollow cast-iron globe, E, having within it a diaphragm, *d*, perforated by a circular opening, fitted to which is the vertical valve *g*, closing upward. The steam-pipe D from the boiler enters under this diaphragm, while above the diaphragm is the pipe F, which conveys the steam to the governor and thence into the cylinder. The stem of the valve *g* passes up through the nut *h*, which is pivoted in the forked lever *f*. The lever *f* is fixed to one end of the shaft *l*, which is fitted on the bracket *s*, rising from the top of the globe E. At the opposite end of the shaft *l* is fixed the lever *m*, the outer end of which carries the pulley *n*, resting on the governor-belt *p*. By this means the nut *h* is held firmly in position so long as the governor-belt remains in its place and by the hand-wheel G. The valve *g* is used as an ordinary throttle-valve for

stopping and starting the engine. The lever *b* is provided for holding the valve-nut in a positively fixed position while the valve *g* is being opened to start the engine, for which purpose it is placed in an upright position, the notch engaging the set-screw *c*. After the engine is started the lever *b* is thrown back to the position shown. The valve *g* being open and the engine in motion, the valve is held open by the upward pressure of the governor-belt *p* acting upon the pulley *n*, and through the levers *m f* and rock-shaft *l*. Upon the breaking or accidental displacement of the governor-belt the pressure is released from under the lever *m*, and by its weight and the pressure of steam under the valve *g* the valve is instantly closed and the engine stopped, thus acting as a safety cut-off valve in case of such accidents.

By employing, in combination with the inlet-pipe and the governor, the hollow expanded globe E and the diaphragm *d*, suspended transversely within the globe, I am enabled to form a valve-seat which shall operate more efficiently in conjunction with the reciprocating valve than if a rotary valve be employed in an ordinary circular pipe.

By means of the rectilinearly-reciprocating valve *g*, I am enabled to more instantly and tightly close the steam-passage than can be done with the rotating valves heretofore employed.

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

1. The combination, with the inlet-pipe, the governor-belt, the governor, a valve independent of the governor-valve and adapted to shut off the steam, and the mechanism which operates by gravity to close the last said valve, of the mechanism for adjusting or moving the last said valve to and from its seat independently of the other parts, substantially as set forth.

2. The combination of the governor, the globe E independent of the governor, the diaphragm *d*, supported transversely across the interior of said globe and provided with a valve-seat, the valve *g*, having a longitudinally-reciprocating stem, the supporting device S, and the weighted

lever *m*, pivotally connected both to said supporting device and to the valve-stem, substantially as set forth.

3. The combination of the governor, the inlet-pipe, the valve separate from the governor-valve, a stem for said valve separate from the governor-valve stem, the nut *h*, engaging with said stem, and the notched lever *b*, which holds the nut stationary while the valve-stem is being adjusted, substantially as set forth.

4. The combination, with the inlet-pipe and the governor, of the hollow globe *E*, the diaphragm suspended across the interior of the globe, and provided with a passage and with a valve-seat, the rectilinearly-reciprocating valve *g*, the weighted lever *m*, connected to said stem

by a pivot, and mechanism, substantially such as described, for supporting the weighted lever *m* at a point other than the point of said pivot, as set forth.

5. The combination of the nut *h* and the valve *g* with the levers *m*, *f*, and *b*, substantially as set forth.

6. The combination of the hand-wheel *G*, nut *h*, and levers *m* and *f* with the globe *E*, the valve *g*, and the reciprocating stem thereof, substantially as set forth.

JOHN F. BARKER.

Witnesses:

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