

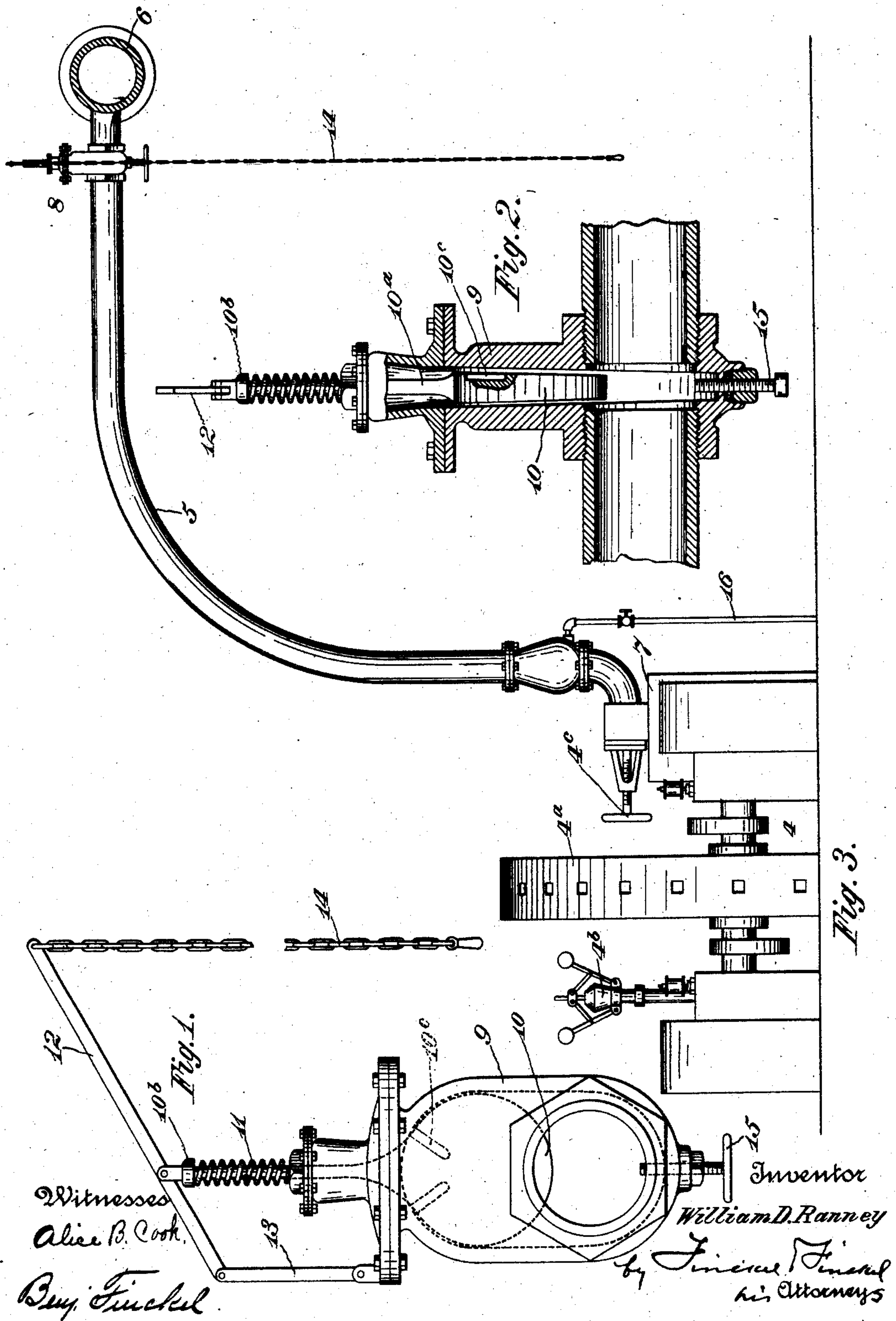
No. 883,480.

PATENTED MAR. 31, 1908.

W. D. RANNEY.

EMERGENCY CUT-OFF VALVE FOR STEAM ENGINES.

APPLICATION FILED AUG. 31, 1907.





# UNITED STATES PATENT OFFICE.

WILLIAM D. RANNEY, OF COLUMBUS, OHIO.

## EMERGENCY CUT-OFF VALVE FOR STEAM-ENGINES.

No. 883,480.

Specification of Letters Patent.

Patented March 31, 1908.

Application filed August 31, 1907. Serial No. 390,846.

*To all whom it may concern:*

Be it known that I, WILLIAM D. RANNEY, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Emergency Cut-Off Valves for Steam-Engines, of which the following is a specification.

In stationary high-speed steam-engine practice it is quite a frequent occurrence that the engine will "run away", that is, become uncontrolled by the mechanism provided in connection with the engine for that purpose. The running away of an engine is fraught with great danger to the engineer and persons who happen to be near it. Among the most frequent causes of the running away of an engine is the breaking of the governor belt, the disabling of the governor itself, or the sudden release of a heavy load in the way of work imposed on the engine. The ordinary throttle for cutting off steam in such an emergency is not only commonly located at a dangerous place, to-wit: near the fly-wheel, but such throttle is also slow in operation.

The object of the present invention, therefore, is to provide means whereby the steam supply in the exigency of a runaway or disabled engine, can be quickly cut off and with comparative safety to the life and limbs of the engineer or person undertaking it.

The invention consists in the construction hereinafter described and claimed, the invention not being confined to the precise form of the parts shown and set forth.

In the accompanying drawing—Figure 1 is a side view of the valve taken from a plane transverse the pipe it intercepts; Fig. 2 is a vertical section (with parts in full and section) of the valve, said view generally being taken at right angles to the view Fig. 1; Fig. 3 is a general view showing the device in connection with an engine and a header and steam-supply pipe.

4 designates the engine, which, as usual, has a fly-wheel 4<sup>a</sup>, a governor as seen at 4<sup>b</sup>, and the usual throttle as seen at 4<sup>c</sup>.

The character 5 designates the goose-neck or steam-supply pipe that leads from the header 6 to the valve chamber 7.

8 designates generally my improved cut-off valve. I locate said cut-off valve in the steam-supply pipe 5 near the header 6, which is usually in an elevated position near the boiler and comparatively remote from the engine.

The valve itself comprises a suitable casing 9 into which sections of the supply pipe are threaded. In the valve casing works a tapered flat-like sliding valve member or gate proper 10 having a stem 10<sup>a</sup> that extends upward through a suitable hood and stuffing box at the upper end of the casing. The face of the gate on the steam-supply side is provided with grooves 10<sup>c</sup> constituting ports, which, when the gate is closed on its seat, admit steam into the chamber above the gate to hold it firmly downward when it has been pulled down and seated. The upper end of the valve-stem is provided with a shoulder 10<sup>b</sup> between which and the stuffing box is interposed a coiled spring 11 to hold the gate normally but yieldingly up and in position to permit the passage of the steam supply, and to prevent the closing of the valve due to the weight of the gate and its operating lever if the steam should be shut off the line for any purpose. Attached to the upper extremity of the stem is a lever 12 fulcrumed in the upper end of a link 13 that is connected at its lower end to an ear on the valve casing. Attached to the other end of the lever 12 is a chain 14 that hangs with its lower end within easy reach of the engineer. The lower end of the casing is furnished with a jack-screw 15, in a suitable stuffing box to prevent leakage, said screw being adapted to be turned to press upward on the lower end of the gate for the purpose of safely and positively unseating it against the steam pressure after it has been closed. My valve can be used in addition to the ordinary throttle valve and when so used may appropriately be termed an emergency valve.

In practice, when it is observed that the engine is running away, or when a part of the engine is observed to be disabled and it is important that the steam supply be quickly cut off, it is an extremely safe, simple and expeditious operation to pull down the emergency valve by means of the chain 14.

Many times the water from the boiler is thrown over through the steam-supply pipe in such large quantity that the condensation trap and bleeder 16 therefor are incapable of carrying it off. In such cases the cylinder takes so much of the water that the cylinder-head is blown or forced out, thereby causing great loss of time and expense. The flowing of water into the steam-supply pipe causes a peculiar rattle and hammering well recognized by engineers and in such



cases the blowing out of the cylinder-head can be forestalled by a prompt application of the emergency valve.

What I claim and desire to secure by Letters Patent is:

1. A cut-off valve for the supply pipe of a steam engine consisting of a valve casing, a sliding gate therein, means for normally pressing said gate into open position, and means for manually and directly pulling said gate into closed position.

2. A cut-off valve for the supply-pipe of a steam-engine consisting of a valve-casing, a sliding gate therein, means for normally and yieldingly holding said gate in open position, and means for closing said gate on its seat, said gate being provided with a port in its face at the steam-supply side to admit steam pressure above it.

3. A cut-off valve for the supply-pipe of a

steam-engine consisting of a valve-casing, a wedge-shaped rectilinearly sliding gate therein, means for normally and yieldingly holding said gate in open position, and manually operative means for closing said gate on its seat, said casing provided with a screw-jack to turn against the end of the gate to unseat the same after it has been closed.

4. A cut-off valve for the supply pipe of a steam engine consisting of a valve casing, a sliding gate therein, means for normally pressing said gate into open position, means for manually and directly pulling said gate into closed position, and a screw-jack to turn against the end of the gate after it is closed to unseat the same.

WILLIAM D. RANNEY.

Witnesses:

BENJAMIN FINCKEL,  
ALICE B. COOK.