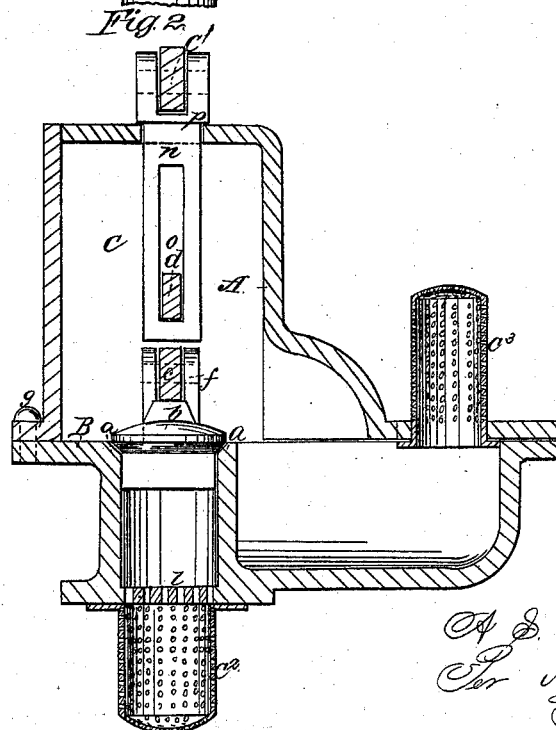
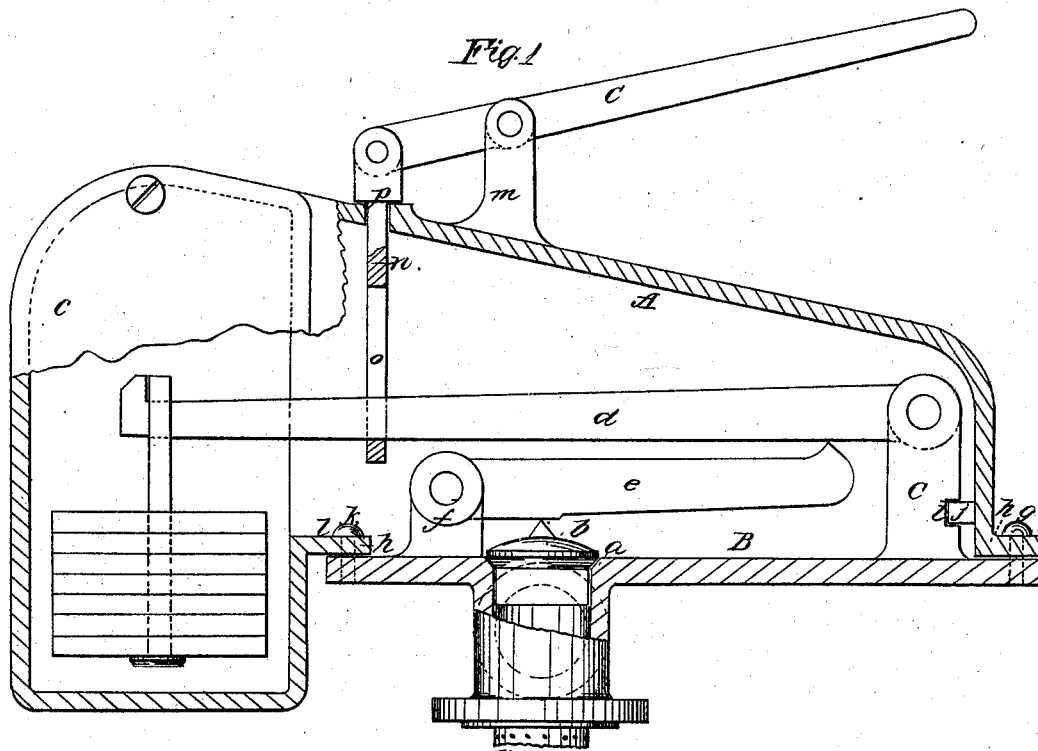


*A. S. Cameron,*  
*Steam Safety Valve.*

*N<sup>o</sup> 54,682.*

*Patented May 15, 1866.*



*Witnesses*

*A. W. B. Livingston*  
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# UNITED STATES PATENT OFFICE.

A. S. CAMERON, OF NEW YORK, N. Y.

## IMPROVEMENT IN LOCK-UP SAFETY-VALVES.

Specification forming part of Letters Patent No. 54,682, dated May 15, 1866.

*To all whom it may concern:*

Be it known that I, A. S. CAMERON, of the city, county, and State of New York, have invented a new and Improved Lock-Up Safety-Valve; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal vertical section of this invention. Fig. 2 is a transverse section of the same.

Similar letters of reference indicate corresponding parts.

This invention consists in the arrangement of a closed case or box, which cannot be opened except by the person authorized to do so, in combination with a single-disk safety-valve with a single or compound lever, in such a manner that while the openings are free for the ingress and egress of steam, the valve is protected and cannot be tampered with.

It consists, also, in the arrangement of a slotted counter-lever, in combination with the closed case and main lever of the safety-valve, in such a manner that the attendant is enabled to blow off without supplying the means of adding to the load of the valve.

A represents a case made of cast-iron or any other suitable material, and provided with a bottom plate, B, which is provided with a seat, *a*, for the flat single-disk valve *b*. From the bottom plate rises a standard, *c*, which forms the bearing for the fulcrum-pin of the main lever *d*, and this lever is made to act on a secondary lever, *e*, which has its fulcrum on a pin in a standard, *f*, close to the valve, and which bears on a point or knife-edge rising from the top of the valve, as shown. I have adopted the compound-lever arrangement so as to be able to reduce the length of the case A, although it must be remarked that my invention is equally applicable to valves with single levers.

The bottom plate, B, is fastened to the case by a series of screws, *g*, passing through a flange, *h*, and the case is provided with a door, C, which is locked and sealed in any suitable manner, so that a single seal is sufficient to render the case perfectly safe.

In order to prevent the bottom plate being taken off without breaking the seal I have provided the standard *c* with a notch, *i*, to receive a stud, *j*, which projects from the inside of the case and is tapped in the bottom plate. If all the screws *g* are removed, the bottom plate is still retained by the stud *j* and screw *k*, and the latter screw cannot be reached except by violating the seal on the door.

Furthermore, in order to prevent the engineer or attendant from tampering with the valve through the steam or blow-off channels, I protect these channels by a perforated plate *l*; or instead of this the channels may be curved in such a manner that the valve cannot be reached.

As an additional security against reaching and tampering with the valve from the interior of the boiler, I apply a perforated sheet-metal cap, C<sup>2</sup>, which will permit the free passage of steam, but prevent any approach to the valve-port for the purpose of plugging or covering it. The said cap itself is not of sufficient strength to resist the pressure of steam, so that if it should be covered on the inside with rags or anything else to interfere with the passage of steam, the cap would collapse and thus show the apparatus had been tampered with.

In like manner the discharge-port is covered with a perforated sheet-metal cap, C<sup>3</sup>, which prevents access to the port. Should this cap be covered to prevent the escape of steam the covering would be blown off, or if this were prevented the whole cap would be carried away, and thus show the interference. A bunch of wires projecting from the openings would prevent their being plugged up.

C' is a lever, which enables the attendant to blow off. This lever has its fulcrum on a standard, *m*, rising from the top of the case, and it connects with a slotted bar, *n*, which straddles the main lever *d*. This slot *o* in the valve, however, is made of such a length that its top edge cannot be depressed far enough to bear upon the main lever, the bar *n* being provided with a shoulder, *p*, which prevents the same from going down beyond the desired point. The attendant is thus enabled to blow off, but he cannot add any additional load to the valve.

I am aware that single disk-valves with direct weights have been inclosed in protecting-cases with good effect; but such valves require

too much weight where a large valve and a high head of steam are necessary.

My arrangement is applicable to valves of any size, and the valve can be easily loaded to any desired pressure.

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

1. The closed case A, constructed substantially as herein described, in combination with a single-disk safety-valve, *a*, and lever, substantially as and for the purposes set forth.

2. The notched standard *c*, rising from the bottom of the case A, arranged relatively with the internal screw, *k*, applied substantially as and for the purpose described.

3. The counter-lever C, in combination with the slotted bar *n*, provided with a shoulder, *p*, and with the main lever *d* of the safety-valve, constructed and operating substantially as and for the purpose set forth.

4. A cap applied to the valve-port or discharge-port of a lock-up safety-valve apparatus, for the purpose and in the manner explained.

A. S. CAMERON.

Witnesses:

M. M. LIVINGSTON,  
W. HAUFF.