

G. J. RAINS.

Safety-Valves.

No. 136,938.

Patented March 18, 1873.

Fig. 1.

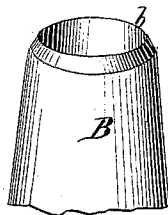


Fig. 2.

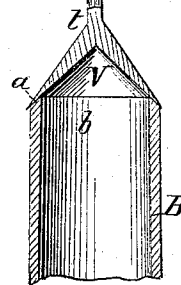
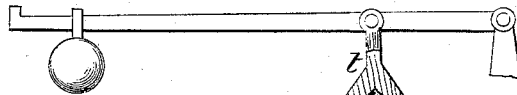


Fig. 3.

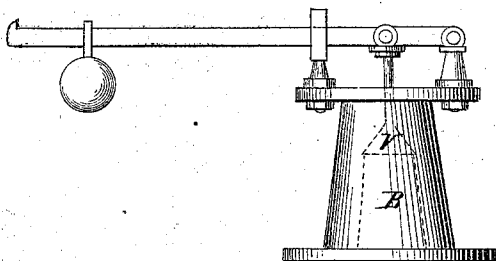
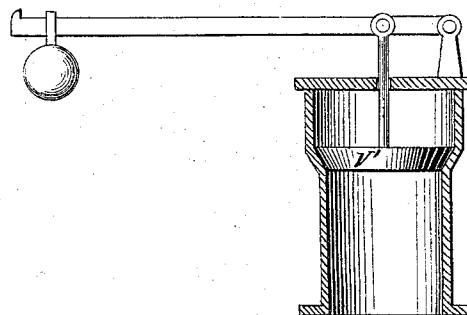


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

GABRIEL J. RAINS, OF AIKEN, SOUTH CAROLINA.

IMPROVEMENT IN SAFETY-VALVES.

Specification forming part of Letters Patent No. **136,938**, dated March 18, 1873.

To all whom it may concern:

Be it known that I, GABRIEL J. RAINS, of Aiken, in the county of Aiken and State of South Carolina, have invented a new and useful Improvement in Safety-Valves, of which the following is a specification:

Figure 1 is a perspective view; Fig. 2, a vertical section of my improved valve. Fig. 3 is an outside view of the pipe containing the valve. Fig. 4 is a sectional view of the form of valve now in use.

Similar letters of reference indicate corresponding parts.

My invention relates to a hollow-cone safety-valve for steam-escapes from steam-boilers of every description, which cone is made to cover and in part inclose the end of the escape-pipe, on which it is made to fit steam-tight, pressed down upon it by weights, spring, or other device; and the elements of this cone are to make a right angle or less with each other at the vertex. A reference to the drawing fully explains the invention.

V is the hollow-cone valve; *a*, its ground-seat on the pipe B; and *b*, the orifice of the escape-pipe; and these constitute the main part of my invention.

My valve, in construction and operation, is the opposite of the common safety-valve most in use, a diagram of which common safety-

valve, V', will be found in Fig. 4 of the drawing.

It is of the first importance in the construction of my hollow-cone top V that the angle of the vertex *t* should be a right angle or less; and I desire this feature to be especially noticed.

The chief advantage of this valve is that, owing to the inclination of its outer sides, the steam has no power while escaping to cause it to be forced back upon the seat. If the angle of the cone would be in excess of ninety degrees the steam would gain such power, and thereby retard the escape. In ordinary safety-valves this is the chief objection, that steam, as soon as it commences to escape, causes a pressure upon the top of the valve, which tends to shut the same, thereby materially interfering with the necessary escape.

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

The inverted-cone valve V, made to cover and in part inclose the end of the escape-pipe *b*, the elements of the cone forming an angle of ninety degrees or less, when constructed and arranged as set forth.

Witnesses: GABRIEL J. RAINS.

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