

H. C. BULL.
Safety-Valve.

No. 159,068.

Patented Jan. 26, 1875.

Fig: 2

Fig: 1.

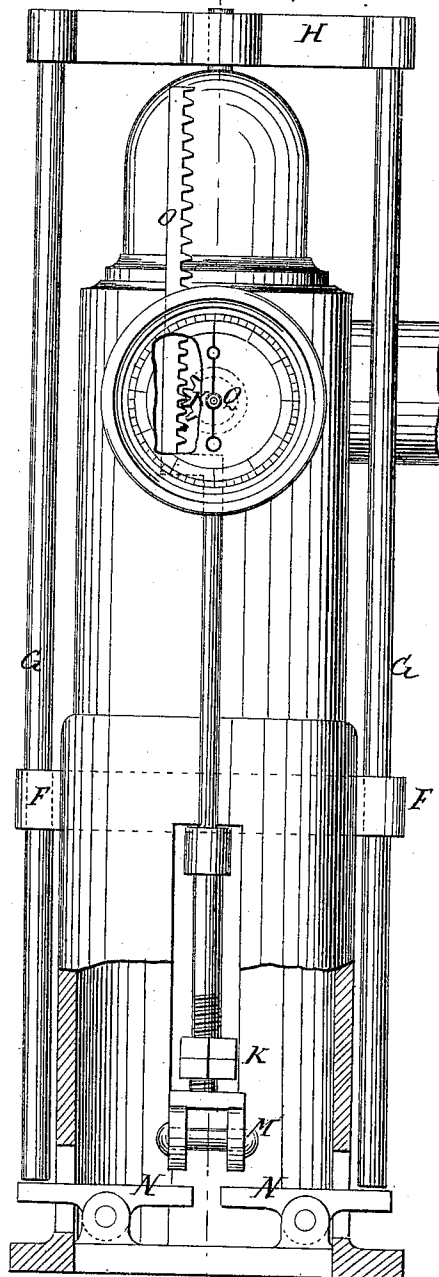
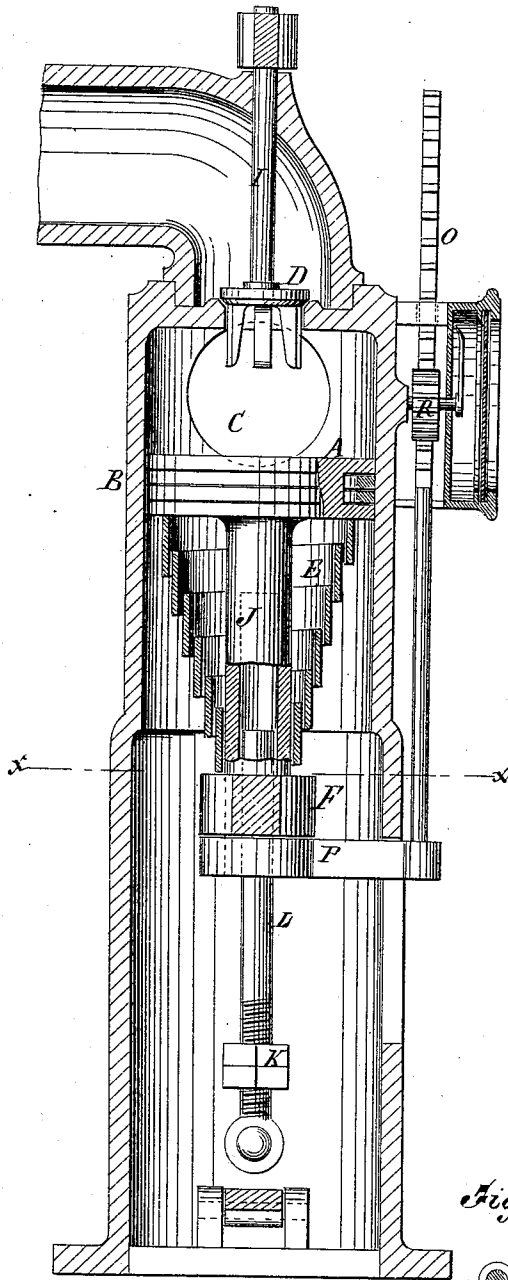
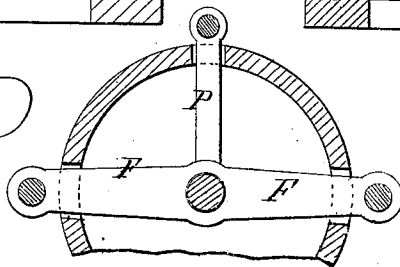


Fig: 3.



WITNESSES:

Chas. Nida
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INVENTOR:

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BY

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UNITED STATES PATENT OFFICE.

HENRY C. BULL, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND M. A. SOUTHWORTH, OF NEW ORLEANS, LOUISIANA.

IMPROVEMENT IN SAFETY-VALVES.

Specification forming part of Letters Patent No. **159,068**, dated January 26, 1875; application filed July 11, 1874.

To all whom it may concern:

Be it known that I, HENRY C. BULL, of New York city, in the county and State of New York, have invented a new and Improved Safety-Valve and Steam-Gage, of which the following is a specification:

This invention consists of a piston of large area, subject to the pressure of the steam, and by the pressure holding the valve closed through the medium of a spring until the set point for blowing off is reached, when the pressure is caused, by means of a rod and lever, to react on the spring, and to open the valve and allow the steam to escape. The invention also consists in the arrangement of an adjustable collar for varying the set point at which the valve shall open and allow escape of steam.

Figure 1 is a side elevation of my improved safety-valve and steam-gage with some parts broken out. Fig. 2 is a sectional elevation taken on the line *xx* of Fig. 1, and Fig. 3 is a horizontal section taken on the line *yy* of Fig. 2.

Similar letters of reference indicate corresponding parts.

A is the piston in a cylinder, B, to which steam is admitted from the boiler by the pipe C, the steam being between said pistons and the safety-valve D. Below the piston is a spring, E, for opposing the pressure, and allowing the piston to move and open the valve at the proper time. This spring rests at the lower end on the cross-head F, which extends out through slots in the side of the cylinder, and is supported on the rods G, which hang from the cross-head H on the top of the valve-stems I, so that the pressure of the spring on the cross-head F holds the valve shut until the proper time for opening it, when the opening is effected by the lower end of the hollow piston-rod J coming down on the adjustable col-

lar K of rod L, and forcing the head M of said rod on the levers N, so that by pressing them down at one end they lift the rods G by their other ends, and compress the spring from the lower end, so as to open the valve and let the steam escape. The set point at which the valve shall be opened is varied by shifting the collar K up and down on the rod L, for which said collar is composed of a couple of screw-nuts. The head M is represented, as I propose to make it, for connecting a damper-regulator; but for the purpose for which it is here shown it may be merely a plain head. The sleeve J of the piston is made hollow to receive the rod L in it; but it may be received in a hollow of rod L, if preferred, although this is the best arrangement, on account of the spring; and for the connection of the pressure-gage-actuating rack O, which is connected to the lower end of the piston-rod by the arm P. The rod O turns the pointer Q of a gage by a pinion, R.

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

1. The piston A and spring E, connected to the safety-valve by rods G and cross-heads F H, so as to hold the valve shut until the pressure reaches the blow-off point, and combined with rods J L and treadles N, so as to counteract the spring and open the valve at the blow-off pressure, substantially in the manner described.

2. The combination of an adjusting-collar, K, with rods L and J, as described, for varying the set point, substantially as specified.

HENRY C. BULL.

Witnesses:

T. B. MOSHER,
ALEX. F. ROBERTS.