

L. Fulton,
Steam-Boiler Indicator.
N^o 64,007. Patented Apr. 23, 1867.

Fig: 1.

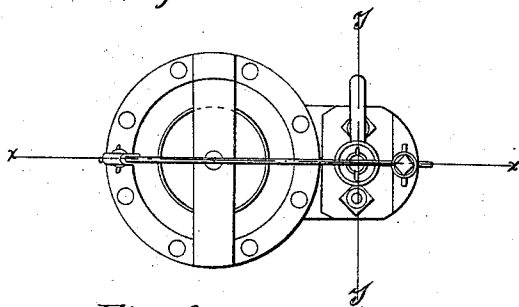


Fig: 2.

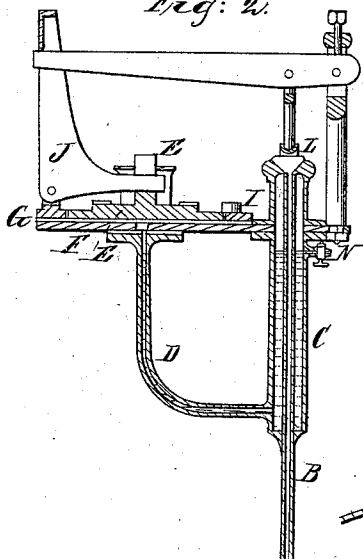
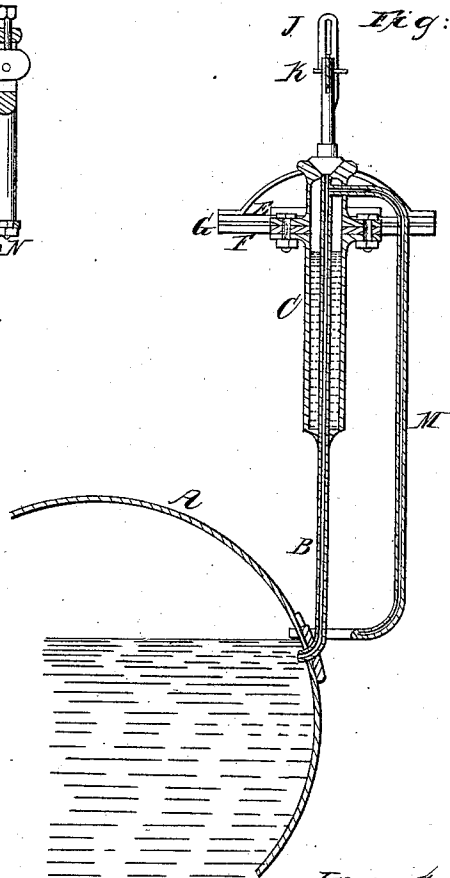


Fig: 3.



Witnesses:
G. H. Morrison
N. K. Clements

Inventor:
Lorenzo Fulton

United States Patent Office.

LORENZO FULTON, OF EDINBURG, INDIANA.

Letters Patent No. 64,007, dated April 23, 1867.

IMPROVEMENT IN LOW-WATER INDICATORS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, LORENZO FULTON, of Edinburg, in the county of Johnson, and State of Indiana, have invented a new and improved Safety-Gauge for Steam Generators; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, which are made part of this specification, and in which—

Figure 1 is a plan of my improved safety-gauge.

Figure 2 is a vertical section of the same in the plane indicated by the line *x x*; and

Figure 3 is a vertical section taken at the line *y y*.

Similar letters of reference indicate corresponding parts in the several figures.

My aim in devising the subject of the present invention has been to provide a more simple and effective means for indicating a low state of the water in steam generators, in order that the supply may be increased in time to avoid danger of explosion or damage. To attain the desired end I insert into the boiler, at a point corresponding with the lower water line, a pipe which, rising vertically outside of the boiler, is enclosed about its upper portion by a sleeve pipe containing a suitable liquid, which is heated and converted into steam by steam which rises within the enclosed pipe when the water reaches the low-water line in the boiler, the steam in the sleeve pipe causing the liquid therein to act upon a disk which vibrates a trigger to open a blow-off aperture or actuate an alarm apparatus.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe it in detail.

A may represent a boiler of any suitable form, and provided with the ordinary appurtenances for safety and convenience. B is a pipe, the mouth of which is within the boiler at a point corresponding to the low-water line. Outside of the boiler the upper portion of the pipe B is enclosed by a sleeve pipe, C, which is supplied with alcohol, water, or other suitable liquid. D is a bent pipe leading from the sleeve pipe C, and employed to conduct the liquid therefrom and cause it to act upon a disk, E, which rests upon an elastic packing, G, which is held upon the face-plate F by the fixed flange or annulus I. The slotted stem E', which rises from the disk E, holds the end of a pivoted trigger, J, which, when vibrated, may be made to actuate an alarm-bell or release the end of the lever K, which, in rising, lifts the valve L and opens the upper end of pipe B, through which steam from the boiler may be allowed to blow off. When the water in the boiler has reached its lowest state the mouth of pipe B is in communication with the steam space, and the steam passing up through B heats the liquid in C and converts a portion of it into steam. The steam thus generated in C acts to force the liquid therefrom into pipe D, rising in which it impinges against the elastic packing G, raises disk E, vibrates the trigger J, and thereby opens the blow-off valve or starts an alarm apparatus. A pipe, M, may be used to convey steam from the boiler to the upper part of pipe B, so as to counteract the upward pressure of steam in the latter, and thereby enable the water to readily flow out of the same and into the boiler when the water reaches the low line. The disk E and packing G can be removed to permit C to be supplied with liquid through D, during which process the opening of the cock N admits of the free displacement of the confined air.

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

1. The arrangement of the pipe D in connection with the chamber C, substantially as shown and described, for the purpose of conveying a signal to a point at any desired distance, as set forth.
2. I claim the combination of the pipes B, C, and D with the disk E and trigger J, substantially as and for the purpose set forth.
3. I claim the equalizing pipe M in combination with the boiler A and pipe B, substantially as and for the purposes described.

To the above specification of my improvement I have signed my hand this 1st day of April, 1867.

LORENZO FULTON.

Witnesses:

GEO. A. MORRISON,
C. D. SMITH.