L. REINHARDT.

Surface Blow-Off for Steam-Boilers.

No. 215,161. Patented May 6, 1879.

*Fig1.*

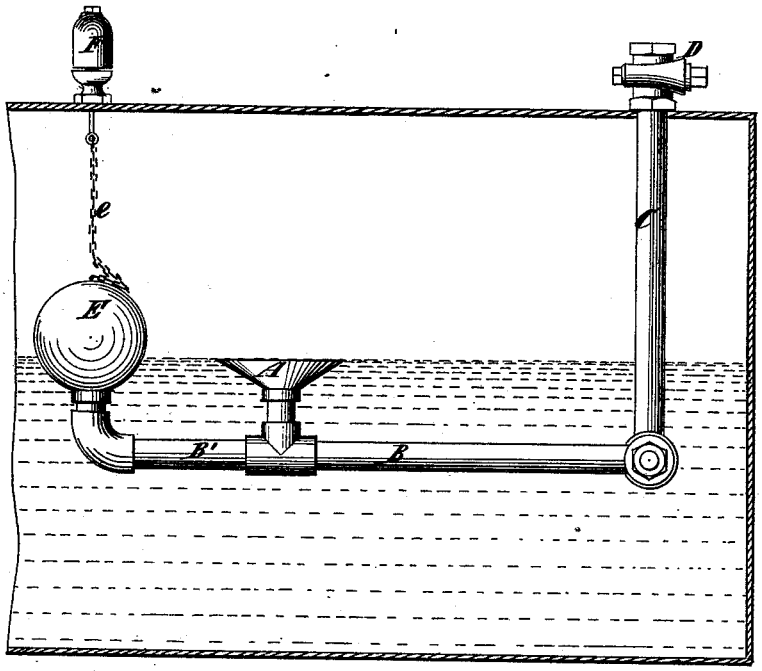
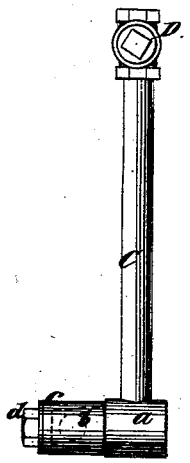



*Fig2.*




*Witnesses:*

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LUIS REINHARDT, OF HAVANA, CUBA.

## IMPROVEMENT IN SURFACE BLOW-OFFS FOR STEAM-BOILERS.

Specification forming part of Letters Patent No. **215,161**, dated May 6, 1879; application filed March 1, 1879.

*To all whom it may concern:*

Be it known that I, LUIS REINHARDT, a citizen of the United States, at present residing in Havana, in the Island of Cuba, have invented certain new and useful Improvements in Surface Blow-Offs for Steam-Boilers, of which the following is a specification.

My invention consists in the combination, with a steam-boiler, of a steam-whistle or other audible alarm, a vertically-adjustable surface blow-off having a funnel-shaped mouth, a float for keeping said mouth at about the level of water in the boiler, and a chain or cord connecting the float and whistle in such manner that the falling float will cause the whistle or other audible alarm to be sounded when the level of water in the boiler reaches a point of danger.

In the accompanying drawings, Figure 1 designates a sectional view of a portion of a boiler and a side view of a blow-off embodying my improvements; and Fig. 2 a detail view, showing the construction of certain parts of the blow-off.

Similar letters of reference designate corresponding parts in both the figures.

B C designate a blow-off pipe formed in two sections. The section B is provided at or near one end with a funnel-shaped mouth, A, preferably made of non-corrosive sheet metal, such as galvanized iron, and into which light impurities floating on the surface of the water pass. The section C is provided outside the boiler with a cock or valve, D, whereby the discharge from the pipe may be regulated.

The section B is arranged approximately in a horizontal position, and is secured at one end to the section C by means of a swing-joint. The section C is furnished at its lower end with a head, *a*, provided with a hollow extension, *b*, upon one side, which forms a bearing for a sleeve or ring, *c*, secured upon the end of the section B. The two parts constitute a flexible or swing joint, and are secured together by a nut, *d*. The section B is thus enabled to turn upon the section C without obstructing the passage through them.

For the purpose of properly supporting the funnel-shaped mouth at the level of the water I employ a float, E, attached to an extension, B′, of the pipe B, and which is of sufficient size to support, by its buoyancy, the section B and its appurtenances. This float rises and falls with the level of water in the boiler, and is arranged so as to maintain the funnel-shaped mouth A at such a height that its top edge shall always be at about the surface of the water.

I also preferably provide the boiler with a steam-whistle, F, or other audible alarm; and in order that this shall be sounded when the water in the boiler reaches a dangerous point, I attach the float E thereto by means of a chain or cord, *e*. When the water falls sufficiently the cord or chain *e* is drawn taut and opens the valve of the whistle F.

By my invention I provide for making surface blow-offs much more effective than heretofore, as they may be operated with equally good results whatever may be the level of water in the boiler.

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

The combination, with a steam-boiler provided with a steam-whistle or other suitable alarm, of a vertically-adjustable surface blow-off having a funnel-shaped mouth, A, a float, E, for keeping the said funnel-shaped mouth at about the level of the water in the boiler, and a chain or cord, *e*, connecting said float to said whistle, substantially as and for the purpose specified.

LUIS REINHARDT.

Witnesses:

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