

(No Model.)

C. J. CRONIN.
LOW WATER ALARM FOR BOILERS.

No. 423,857.

Patented Mar. 18, 1890.

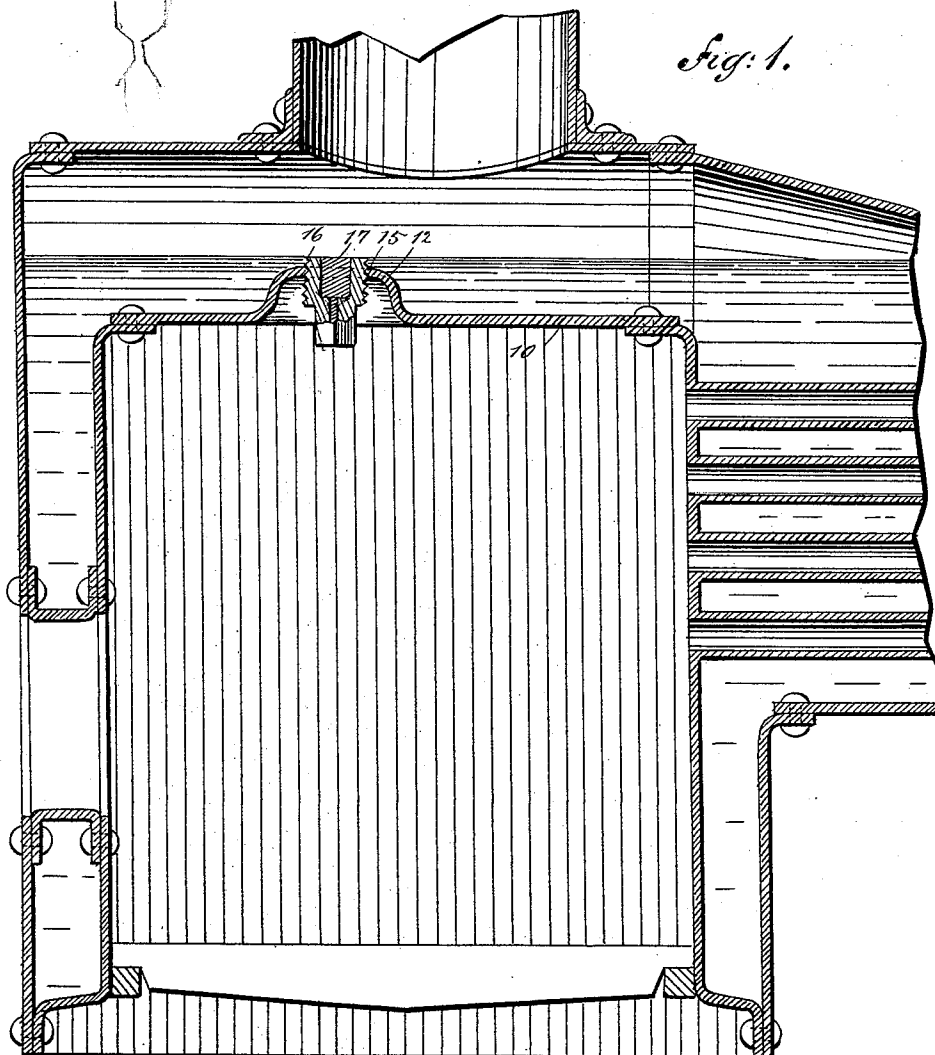
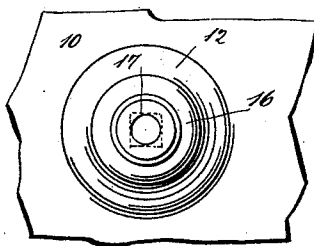


Fig. 2.

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UNITED STATES PATENT OFFICE.

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LOW-WATER ALARM FOR BOILERS.

SPECIFICATION forming part of Letters Patent No. 423,857, dated March 18, 1890.

Application filed June 20, 1889. Serial No. 314,918. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS J. CRONIN, of Findlay, in the county of Hancock and State of Ohio, have invented a new and improved Low-Water Alarm for Boilers, of which the following is a full, clear, and exact description.

My invention relates to a low-water alarm for steam-boilers; and the object of the invention is to provide a simple means for preventing explosions in boilers having a fire-box within the casing and to prevent overheating of the crown-sheet by reason of low water.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a partial longitudinal section taken through a boiler at the fire-box end and having my improvement applied, and Fig. 2 is a partial plan view of the crown-sheet.

In the crown-sheet 10 of the fire-box 11, preferably at or near the center, an upwardly-extending inverted-cup-shaped offset 12 is formed, which may be cylindrical or essentially conical in general contour. This offset, which rises above the plane of the crown-sheet an inch, more or less, is produced in new boilers by upsetting or indenting the inner face of the crown-sheet in any approved manner, as illustrated in the drawings. In the center of the offset or cup-like forging, if used, a threaded aperture 15 is produced, into which aperture a plug or carrier 16 is screwed, bored in two diameters, the upper diameter being the larger. The enlarged portion of the bore of the plug is provided with a filling 17 of lead, or of an equivalent soft material capable of melting at a low temperature.

In operation, when the water falls a sufficient distance to expose the upper surface of the plug, the lead is melted by the heat from the fire-box and runs down into the said box,

whereupon the steam enters the fire-box, gives the alarm, and extinguishes the fire. The device not only gives timely warning, but also leaves a reserve of an inch of water upon the top of the crown-sheet, more or less, according to the height of the offset or elevation 12.

In forming seams in fire-boxes two inches in all laps are exposed to the fire, and water at a similar height above the laps effectually prevents them from being overheated. As heretofore stated, the moment the water recedes from the top of the elevation 12 in the crown-sheet the plug becomes so hot as to melt the lead, and yet there is not an eighth of an inch of the crown-sheet left unprotected.

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

1. In a steam-boiler, a crown-sheet formed with an inverted-cup-shaped elevation apertured and extending above the plane of the upper face of the crown-sheet, a carrier having a central bore secured in the said elevation and projected above the same, and a plug of a soft material—such as lead—inserted in the upper end of the carrier, substantially as shown and described, whereby when the water in the boiler falls below the upper end of the carrier the soft material will be melted by the heat from the fire-box and an alarm given, as set forth.

2. In a boiler, the combination, with a fire-box and the crown-sheet thereof formed with an upwardly-projecting and inverted-cup-shaped offset or elevation, said offset or elevation being apertured, of a carrier bored in two diameters vertically secured in the offset or elevation having one end projecting above the same, and a filling of a soft material—such as lead—located in the larger diameter of the carrier, all combined for operation substantially as shown and described.

CORNELIUS J. CRONIN.

Witnesses:

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