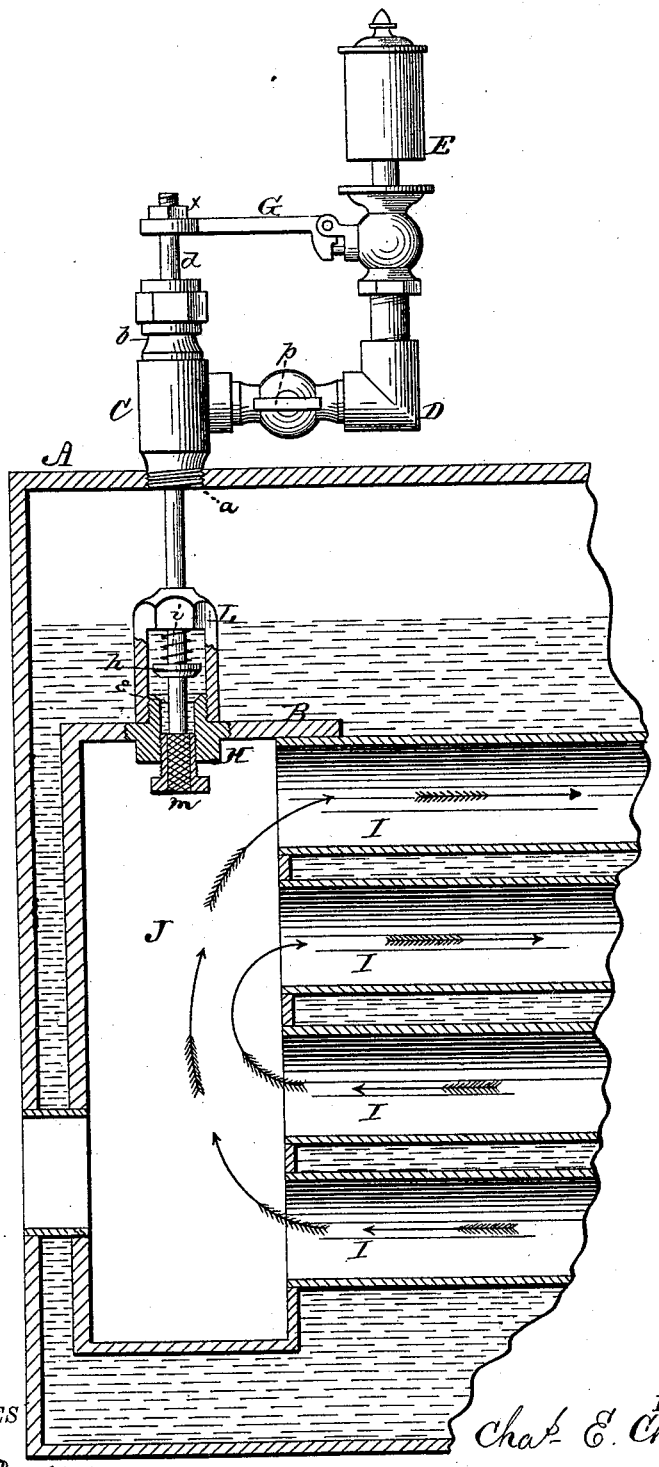
C. E. CHRISTIAN.

Low-Water Indicator.

No. 167,069. Patented Aug. 24, 1875.



WITNESSES

Henry N. Miller

C. L. Everly

By

INVENTOR

Chas. E. Christian

Alexander Mason

Attorneys.

UNITED STATES PATENT OFFICE.

CHARLES E. CHRISTIAN, OF ERIE, PENNSYLVANIA.

IMPROVEMENT IN LOW-WATER INDICATORS.

Specification forming part of Letters Patent No. **167,069**, dated August 24, 1875; application filed May 19, 1875.

To all whom it may concern:

Be it known that I, CHARLES E. CHRISTIAN, of Erie, in the county of Erie and in the State of Pennsylvania, have invented certain new and useful Improvements in Boiler Safety-Alarms; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of an automatic low-water alarm and steam and water retainer, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, which represents a vertical section of the rear end of a return-flue boiler with my invention applied thereto.

A represents the steam-boiler, with flues I I and back flue-connection J, having the crown-sheet B on top thereof. In the top of the boiler A is screwed a T-connection, C, formed with the nipple *a* and gland and stuffing-box *b*, all in one piece. In the T-connection C is screwed an L-shaped pipe, D, leading to the ordinary steam-whistle E. G is the whistle-lever, arranged to open the whistle-valve by downward pressure. The outer end of the lever G is placed over the upper end of a valve-rod, *d*, which passes vertically down through the gland and stuffing-box *b*, T-connection C, and nipple *a* into the boiler. In the bridge B is fastened a collar, H, the upper end of which forms the valve-seat *e*. Around the upper end of the collar H is fastened a stirrup, L, extending upward, and through which the valve-stem *d* passes. On this stem is secured a valve, *h*, which is to be forced downward on its seat *e* by a spring, *i*, placed around the stem, between the valve and stirrup, as shown. In the lower end of the collar H is inserted a plug, *m*, of Banca tin, upon which the valve-stem *d* rests, to hold the valve *h* up from its seat. As the water in the boiler becomes as low as the top of the Banca-tin plug *m* the heat will cause the plug to drop out, thereby causing the valve to close for the purpose of retaining the remaining steam and water, and also to blow the whistle for the purpose of giving the alarm, and thus giving notice that the Banca tin has melted out. The upper end of the valve-stem passes through the outer end of the whistle-lever, and has a nut, *x*, screwed on its upper end, so as to pull the lever down.

It will be noticed that the valve closes automatically by the melting of the tin plug, aided by the spring. In the pipe D, leading from the T-connection to the whistle, is a stop-cock, *p*, for shutting off the steam from the whistle.

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

The combination, with the boiler A and crown-sheet B, of the collar H, with valve-seat *e* therein, Banca-tin plug *m*, valve-rod *d*, with valve *h*, the spring *i*, and whistle-lever G, all substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 14th day of April, 1875.

C. E. CHRISTIAN.

Witnesses:

D. B. MCCREARY,

F. CURTYE.