

C. F. KURZ.

Low Water Indicator for Steam-Boilers.

No. 208,829.

Patented Oct. 8, 1878.

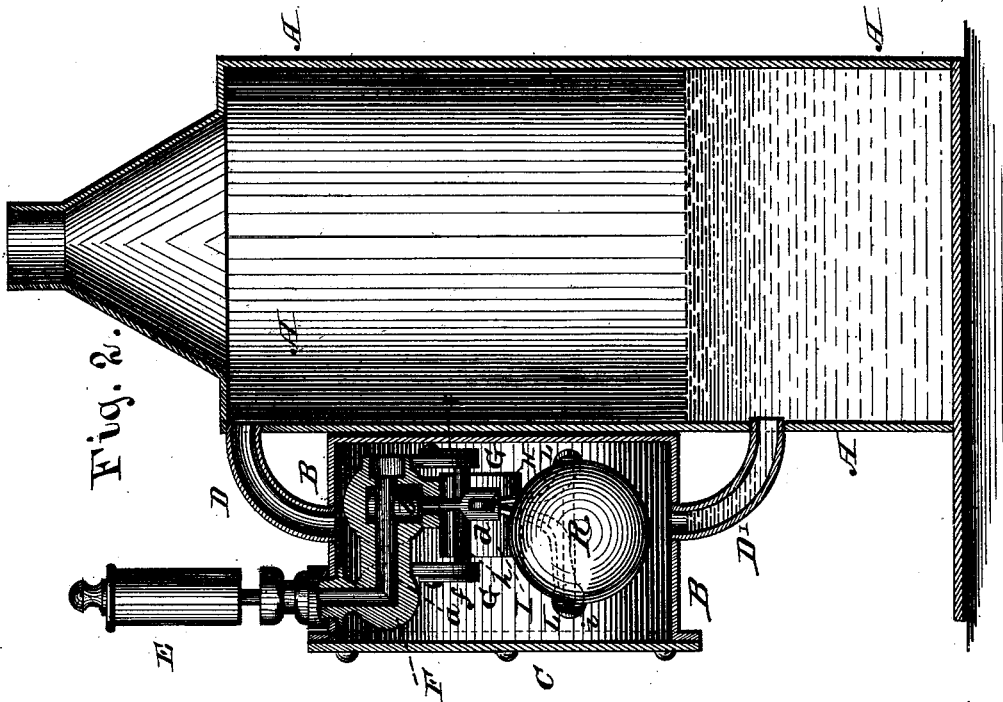


Fig. 2.

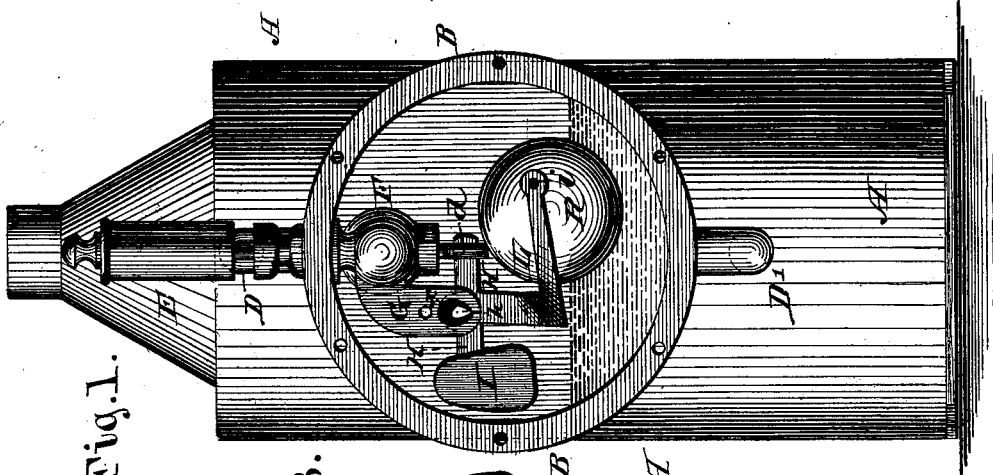


Fig. 1.

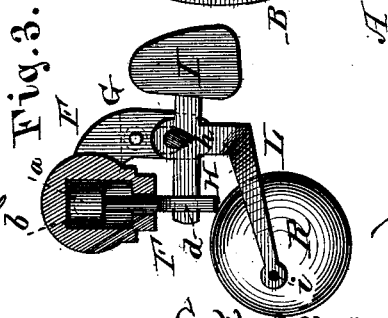


Fig. 3.

Witnesses:

F. C. Dietrich
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UNITED STATES PATENT OFFICE.

CHRISTOPH F. KURZ, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN LOW-WATER INDICATORS FOR STEAM-BOILERS.

Specification forming part of Letters Patent No. **208,829**, dated October 8, 1878; application filed April 24, 1878.

To all whom it may concern:

Be it known that I, CHRISTOPH F. KURZ, of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Low-Water Indicators for Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

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

In the annexed drawing, to which reference is made, and which fully illustrates my invention, Figure 1 is a front view of a steam-boiler with my indicator, the head of the indicator-case being removed. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a side view of the alarm mechanism.

A represents an upright steam-boiler, to one side of which is attached a cylindrical casing, B, provided with a head, C, fastened thereto by bolts and packed in suitable manner to make a steam and water tight joint. D is a pipe connecting the top of the boiler with the top of the casing B. A similar pipe, D', connects the bottom of the casing with the water-space of the boiler, and hence the water will stand in the casing at the same height as in the boiler, and rise and fall therewith.

On top of the casing B is a steam-whistle, E, which communicates with a passage, *a*, in a casting, F, inside of the casing B, as shown in Fig. 2. In the passage *a* is arranged a valve, *b*, with downwardly-projecting stem *d*, the casting F constituting a valve-box open at one end, communicating with the whistle at the other end, and provided with the intermediate valve *b*.

The valve-box F is provided with two arms, G G, in the lower ends of which are made slots *x x* to receive the knife-edged journals *h h* of a lever, H, hung between said arms. These journals are held in place by means of a plate,

f, on the outer side of each arm G, thus preventing any lateral movement of the lever H. One end of lever H enters a slot made in the valve rod or stem *d*, while the other end of the lever is provided with a weight, I, for holding the valve to its seat, and thus shut off the steam from the whistle.

From the center of the lever H project two L-shaped and curved arms, L L, which extend beyond the lower end of the valve-stem and have a float, R, hung upon a rod, *i*, between their outer ends. As long as the water in the boiler is above low-water mark the valve *b* remains closed, but as soon as it falls below said mark the float falls with it; and as said float is made to overbalance the weight I the valve *b* opens and admits steam into the whistle, sounding the alarm, which continues to sound until water has been pumped into the boiler and attained a sufficient height therein to raise and operate the ball-float.

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

1. In combination with a steam-boiler, A, a casing, B, connected with the boiler by the steam and water pipes D D', a whistle, E, on top of said casing, and a valve-box, F, with valve *b*, operated by a float, I, inside of said casing arms, G G, with slots *x x*, lever H, and journals *h h*, substantially as and for the purposes herein set forth.

2. The combination of the valve-box F, arms G G, with slots *x x*, lever H, with knife-edged journals *h h*, and the plates *f f*, as and for the purposes herein set forth.

3. The combination, with the valve-box F and its arms G G, of the lever H, valve *b*, with slotted stem *d*, weight I, arms L L, and float R, all substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

CHRISTOPH F. KURZ.

Witnesses:

JOHN OTTO,
MARTIN L. GEBAUER.