W. A. COLE.
Low-Water Indicator.

No. 206,773. Patented Aug. 6, 1878.

Fig. 2.

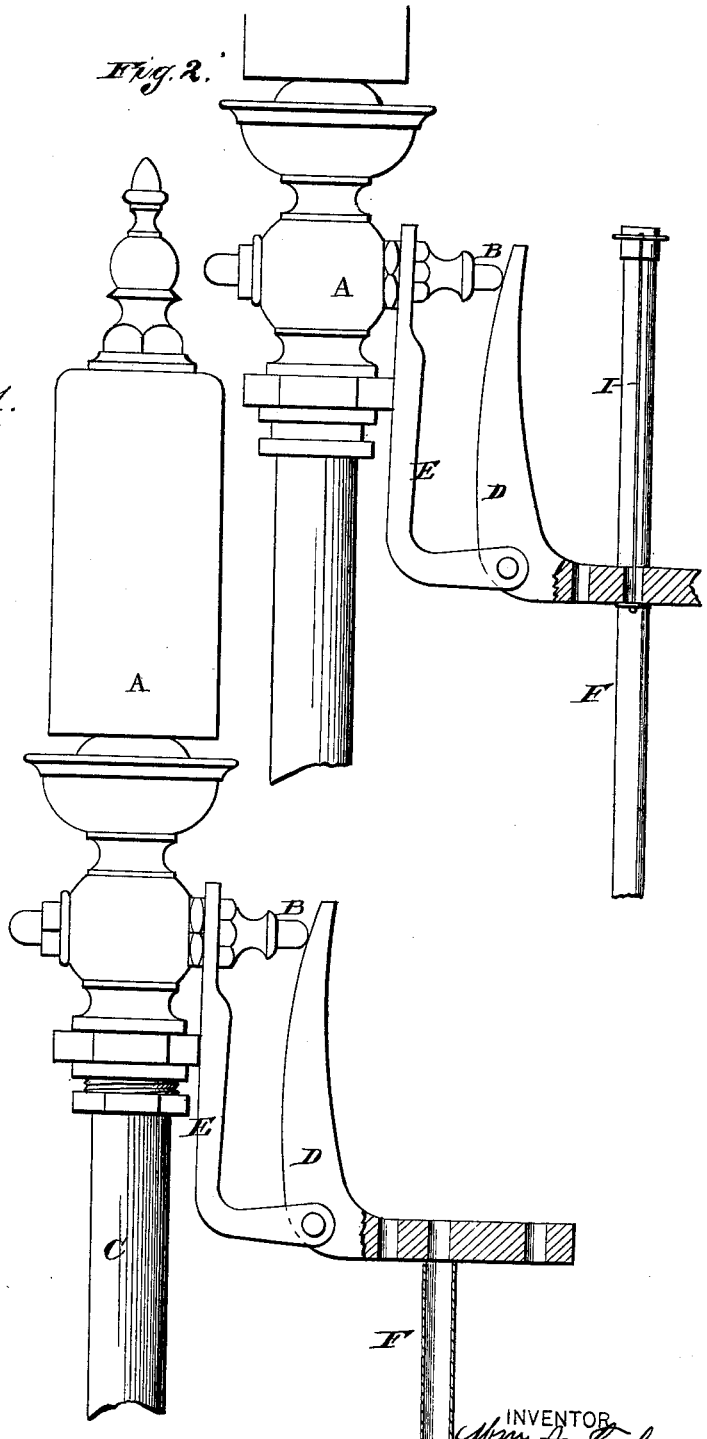

Fig. 1.

WITNESSES
F. L. Ouraud
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BY

INVENTOR
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UNITED STATES PATENT OFFICE.

WILLIAM A. COLE, OF WENTLINGS, ASSIGNOR OF ONE-HALF HIS RIGHT TO D. R. PAYNE, OF PICKWICK, PENNSYLVANIA.

IMPROVEMENT IN LOW-WATER INDICATORS.

Specification forming part of Letters Patent No. **206,773,** dated August 6, 1878; application filed July 27, 1878.

To all whom it may concern:

Be it known that I, WILLIAM A. COLE, of Wentlings, in the State of Pennsylvania, have invented certain new and useful Improvements in Low-Water Indicators; 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 a low-water indicator, 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 drawings, in which—

Figure 1 is a side elevation of my invention. Fig. 2 is a side elevation, showing a modification of the same.

A represents an ordinary steam-whistle with a horizontally-operating valve, B, and is secured to a pipe, C, leading to the steam-space of the boiler. This pipe is to connect the whistle with the upper gage of the boiler.

E represents an arm depending from any portion of the steam-whistle, and having its lower end bent outward to form a bearing for an elbow or bell-crank lever, D, below the valve, said lever being pivoted at its angle in such bearing. The end of the vertical arm of the bell-crank lever bears against the end of the whistle-valve B, while the horizontal arm of said lever is supported on the upper end of a pipe, F, which connects with the middle or lower gage of the boiler.

The pipe F should be made of brass or other metal that will expand freely by the action of steam within it.

Ordinarily the lower end of this pipe F is below the water-line in the boiler; but when the water falls below the low-water mark the end of the pipe will be opened and the steam will enter and fill the same, causing it to expand by the heat. This expansion of the tube operates the lever D so as to turn it on its pivot and open the valve, allowing the steam to pass and sound the whistle. When water then is supplied to the boiler, the lower end of the pipe F becomes again below the water-line, the steam in the pipe condenses, the pipe cools and contracts, and the valve closes, shutting off the steam from the whistle.

If desired, the pipe F may be run up above the lever, and the upper end of said pipe then, by a hooked rod, I, connected with the lever to operate in the same manner.

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

The combination of the steam-whistle A and its valve B, secured to a pipe, C, with the hanger E, bell-crank lever D, and expansible pipe F, all constructed and arranged for operation substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 27th day of July, 1878.

WILLIAM A. COLE.

Witnesses:
H. AUBREY TOULMIN,
J. J. MCCARTHY.