

### Water Indicator.

Patented May 29, 1866.

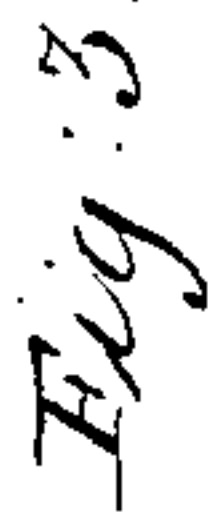


Fig. 2.

Fig. 1.

Witnesses.

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# UNITED STATES PATENT OFFICE.

GEORGE LUTZ, OF LANCASTER, OHIO.

## IMPROVEMENT IN WATER-INDICATORS FOR STEAM-GENERATORS.

Specification forming part of Letters Patent No. **55,130**, dated May 29, 1866.

*To all whom it may concern:*

Be it known that I, GEORGE LUTZ, of Lancaster, Fairfield county, State of Ohio, have invented new and useful Improvements in 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 make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The present invention relates particularly to improvements in a water-indicator for steam-boilers and other analogous purposes invented and patented by me on September 8, 1865, whereby it is considerably simplified in its construction and arrangement of parts and rendered much more effective in operation.

In the accompanying plate of drawings my improvements are illustrated, Figure 1 being a front view of the dial-plate with a portion of it broken out, and showing also the tube leading from the same to the boiler, through which the rod connecting the index-hand or pointer with the float passes broken; Fig. 2, a central vertical section through the casing of the dial-plate and through portions of the parts connecting its index-hand with the rod from which the float is hung within the boiler; Fig. 3, a rear view of the dial-plate casing, showing certain connecting parts of its index-hand, to be hereinafter particularly referred to in connection with Fig. 4, which is a detail view.

Similar letters of reference indicate like parts.

A in the drawings represents a box-tube, one end, B, of which projects inward through a suitable aperture therefor in the boiler-plate, and where it is secured by means of a nut, C, screwed upon its outer portion or end, D, and has an arm, F, upon the inside of the boiler. In the lower end of this arm the rod G is hung upon a fulcrum, having upon the outer end of its lower arm, H, the float, which is to rest or float upon the surface of the water in the boiler, and by the rising or falling of which as the level of the water in the boiler changes such level is to be indicated upon the dial-plate through the connecting parts to be now described. I, a vertical rod, hung at one or its lower end to the short arm of the float-rod H, from which it passes upward through a vertical hollow tube or casing, J, screwed at its lower end upon the outer portion of the boiler box-tube A, and at its upper

secured to the rear chamber, K, of the casing L for the dial-plate M, which is upon its front side and suitably protected or covered with a plate of glass, N.

To the upper end of the vertical rod I a crank-arm, O, of a horizontal shaft, P, turning in bearings at one end of the screw-plug Q of the rear chamber, K, hereinbefore referred to, of the dial-casing, and at its other in the screw-nut R, inserted in the front vertical plate, S, of same chamber, through which nut it extends, having a sector-rack, T, secured to its extreme end, the teeth of which engage with the pinion U upon the spindle V of the index-hand or pointer for the dial-plate M.

No packing is used for the bearings of the shaft P in the plate S of the chamber K back of the dial-casing, such bearing being made steam-tight in substantially a similar manner to that shown and described in the schedule annexed to the aforesaid Letters Patent for the rock-shaft therein employed, and therefore needing no particular explanation herein, although in the drawings (see Fig. 2) it is plainly shown.

From the above description it is manifest that the steam from the boiler passes upward through box A, tube J, into chamber K, from which it is prevented from escaping to the dial-casing by the peculiar manner in which the bearing of the shaft P, through which the index-hand is moved, is made steam-tight, as hereinabove alluded to, and that furthermore, through the connecting parts described between the boiler-float and the index-hand, the least variation in the height or level of the water in the boiler will be instantly indicated by the said index-hand upon the dial-plate, the connection being not only simple but exceedingly sensitive and effective in operation.

I claim as new and desire to secure by Letters Patent—

The rod I, incased within a tube, J, and hung at its lower end to the float-rod G, and at its upper end hung to the crank-arm O of the shaft P, in combination with the sector-rack T of shaft P, interlocked with the pinion U of the index-spindle, when arranged together substantially in the manner described, and for the purpose specified.

GEORGE LUTZ.

Witnesses:

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