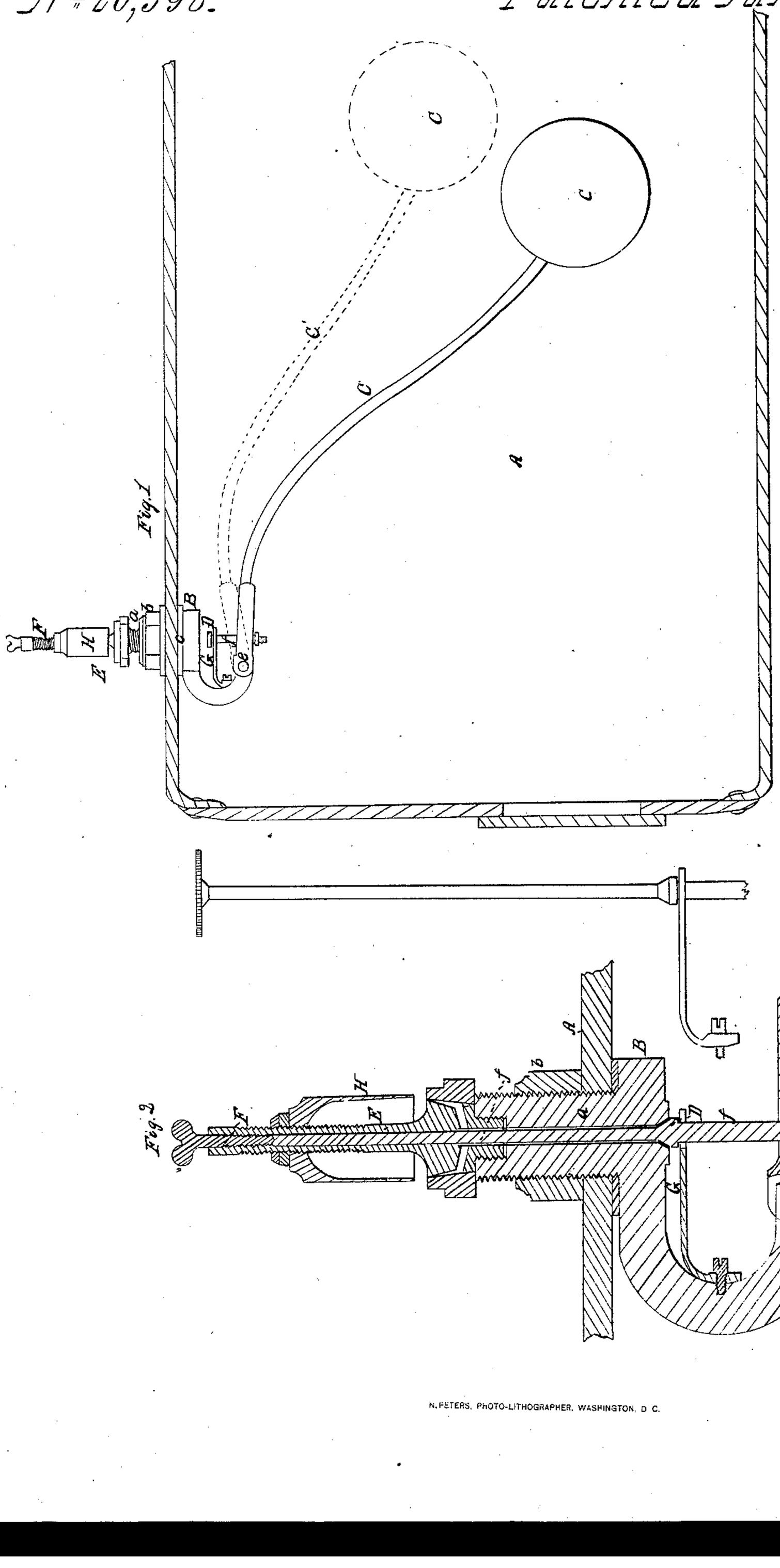
T. P. Akers,

Steam-Boiler Indicator.

No. 20,398. Patented June 1, 1858.



UNITED STATES PATENT OFFICE.

THOS. P. AKERS, OF LEXINGTON, MISSOURI.

TELEPHONIC INDICATOR FOR STEAM-BOILERS.

Specification of Letters Patent No. 20,398, dated June 1, 1858.

To all whom it may concern:

Be it known that I, THOMAS P. AKERS, of Lexington, in the county of Lafayette and State of Missouri, have invented a new and useful Improvement in Combination Steam-Boiler Alarms and Telegraphic Signals; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1, is a vertical longitudinal section of a steam boiler with my improvements applied to it, said improvement being shown in elevation. Fig. 2, is a vertical longitudinal section on an enlarged scale, of the improvement detached.

Similar letters of reference in each of the two figures indicate corresponding parts.

The nature of my invention consists in giving such a peculiar form to the bracket on which the float is suspended, that it will allow of the float being suspended from the top of the boiler, and also serve as a seat for the valve and a guide for the steam thereof, and likewise as a receptacle and support for the spring which insures the automatic closing of the valve at the proper time, in the event of its being thrown down from its seat from any direct or indirect cause.

My invention consists, 2nd, in the precise manner hereinafter specified of connecting the valve with the float stem by means of a lower extension screw, tapped stem oblong slot, adjustable and screw nut; whereby the float is allowed, or can be set to have more or less movement up and down according to the vibrations of the water without materially affecting the valve, so long as the proper amount of water in the boiler is maintained.

My invention consists, 3rd, in having the upper extension or stem of the valve extend up nearly through the alarm whistle standard, in combination with the providing of a set or valve opening screw in the upper end of said standard, and a valve closing spring on the lower extension or stem of the valve, as and for the purposes presently to be set forth.

By the first feature of my invention simplicity and durability are combined, there being but one fulcrum pin necessary, while every facility is afforded for suspending the float from near the center of the top of the boiler, a point where sediment is not so liable, as when located at the end of the boiler, to be thrown upon it by violent vibrations of the water in the boiler.

By the second feature of my invention durability and simplicity also are obtained, and at the same time all the advantages of not having the float affect the valve when simply operated upon by the vibrations of the water, and at the same time facilities for adjusting the float so that it shall open the valve with a greater or less height of water as may be deemed advisable, are obtained. And by the 3rd feature of my invention the signal from the engineer to the captain that all is right and ready to start can be given through the sounding of the whistle. The valve also can be tried or opened and closed by hand so as to ascertain if it is clogged or its operation perfect.

To enable others, skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, represents the boiler. B, a bracket from which the float C, is suspended. This bracket is made with a tubular vertical shank *a*, said shank being tapped or furnished with a screw thread which serves for holding it in the top of the boiler, a nut *b*, drawing the curved bracket close up to the inner side of the boiler and a leather gasket *c*, which is interposed between said arm and the top of the boiler, packing the joint steam tight.

The float C, is pivoted to the extremity of the curved arm of the bracket as shown at *e*, and is free to play up and down; *e*, serving as a fulcrum to the same.

D, is the conical valve, fitted to a conical seat formed in the bottom of the tubular shank of the bracket. The valve has an upper and lower stem, the lower stem *f*, extends down and couples with the float by means of an oblong slot *g*, in the stem C′ of the float, and a nut *h*; said nut being adjustable up and down by means of a screw thread *i*, which is cut on the extremity of the stem *f*. The upper stem *f′*, of the valve extends up through the tubular shank and nearly through the tubular screw standard E, which supports the ordinary steam whistle H, as shown; it fitting snugly but not tightly the bore of said standard.

F, is a set screw fitted to a female thread formed in the upper end of the whistle and serving as a means whereby the valve may

be opened by hand when desirable to give a signal to the captain that all is right, or when it is desired to try the condition of the valve. G, is a flat spring fitted to the bracket just below the shank so as to bear up against the valve as shown. This spring serves for closing the valve when the set screw is raised, or after an alarm has been sounded and the danger has been met by a supply of water.

A glance at the drawing Fig. 1, will be sufficient to understand the working of this instrument. When the boiler contains a proper supply of water the float C, and stem C′, will take the position represented in the figure by the dotted line. And when the water recedes in the boiler from whatever cause, to the graduated point below which there is danger of explosion, the float and stem will take the position represented in the drawing (Fig. 1) by the dark line; in which position the stem rests on the nut *h*, which is screwed on the end of the lower stem *f*, of the valve. Now it is plain that if the water continues to recede in the boiler, the weight of the float C, will depress the stem C′ open the valve D, and thus permit the steam to rush out through the hollow shank of bracket B into the steam whistle H, giving a shrill and prolonged alarm until a sufficient supply of water is admitted into the boiler, whereupon the float C, and the stem C′ are elevated, and the valve D, forced back to its place by the spring G.

Whenever it is desired to try the valve D, or give the signal for starting or any other purpose, the engineer turns the screw F, and thereby lowers the valve D, whereupon the steam will escape and sound the whistle H. By then raising the screw the spring instantly closes the valve.

What I claim as my invention and desire to secure by Letters Patent, is—

1. Giving the peculiar specified form to the bracket B on which the float C C′ is suspended; for the purposes set forth.

2. The precise manner herein specified of connecting the valve D, with the float stem C′, by means of a lower extension screw tapped stem *f* oblong slot *g*, and adjustable screw nut *h;* for the purposes set forth.

3. Having the upper extension or stem *f′*, of the valve extend up nearly through the alarm whistle standard E, in combination with the providing of a set or valve opening screw F, in the upper end of said standard E, and a valve closing spring G, on the lower extension or stem *f*, of the valve; substantially as and for the purposes set forth.

THOS. P. AKERS.

Witnesses:
G. YORKE ATLEE,
WM. ATLEE.