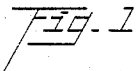


H. F. COOK.
HIGH OR LOW WATER ALARM.

Patented Apr. 14, 1896.



H. Griswold,
Helen M. Hutchinson

Herbert F. Cook
By E. L. Thurston
his atty.

UNITED STATES PATENT OFFICE.

HERBERT F. COOK, OF CLEVELAND, OHIO.

HIGH OR LOW WATER ALARM.

SPECIFICATION forming part of Letters Patent No. 558,161, dated April 14, 1896.

Application filed January 6, 1896. Serial No. 574,536. (No model.)

To all whom it may concern:

Be it known that I, HERBERT F. COOK, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in High or Low Water Alarms; and I do hereby declare the following to be a full, clear and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in high and low water alarms for steam-boilers.

The object of the invention is to provide a simple and inexpensive but thoroughly effective device of this character; and the invention consists in the construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a central vertical sectional view of my improved device, and Fig. 2 is a horizontal section on line 2 2.

Referring to the parts by letter, A represents the water-column chamber, which is connected at two points—viz., below the low-water level by the pipe *a* and above the high-water level by the pipe *a'*. The water in this column will therefore be at the same level as it is in the boiler. At one side of the chamber A is an enlargement *a*², in which is contained a part of the alarm mechanism.

B represents a float contained in the chamber A. A stem *b* is secured to the float, and on the stem are two shoulders *b'* *b*², near the upper and lower ends, respectively.

C represents a valve which is adapted to close the opening *c*, which connects the interior of the chamber A with the whistle G. This valve is a long rod having a tapered end *c'*, which fits the tapered valve-seat *c*². The upper and lower ends of this valve lie and move in the guiding-sockets *a*³ *a*⁴ in the plugs *a*⁵ *a*⁶, which are inserted in the upper and lower offset-walls of the casing of the water-column chamber.

F represents a weighted arm pivoted to the fixed bracket *f*, and its end is forked and engages with the horizontal pin *c*³ on the valve. The object of the weighted arm is to hold the valve closed; but any other well-known

mechanism, as a spring, might be substituted therefor.

D represents a lever pivoted to a fixed bracket *d*, which in the construction shown is formed on the inner face of the tightly-fitting plug *d'*. This lever is forked near one end and the valve C passes between the forks. The other end of the lever is provided with a hole *d*², through which the float-stem *b* passes loosely.

E E' represent two links, which are pivoted to the lever D on opposite sides of the valve. One link extends upward and the other downward, and they are provided with approximately horizontal ends *e e'*. In these ends the holes *e*² *e*³ are formed, and the valve C passes loosely through said holes. On the valve are the two shoulders *c*³ *c*⁴, with which the ends of the links will engage when the lever D is rocked.

When the water in the boiler reaches the high limit of safety, the float, has risen until the shoulder *b'* thereon moves the lever D upward. This causes the link E' to strike the shoulder *c*⁴ and open the valve. When the water reaches the low safety-level, the float has moved down until the upper shoulder *b*² on the stem *b* strikes the lever D. The rocking of said lever draws the link E against the shoulder *c*³ and opens the valve.

Having described my invention, I claim—

1. In a high and low water alarm, the combination of a water-column chamber adapted to be connected with a steam-boiler, a float in said chamber, having a stem which is provided with two shoulders, with an alarm-whistle, a self-closing valve for the port which connects the whistle and water-column chamber, two shoulders on said valve, a pivoted lever which projects into the path of the shoulders on the float-stem, and two links which are pivoted to said lever and are adapted to engage respectively with said shoulders on the valve when the lever is rocked, substantially as and for the purpose specified.

2. In a water-alarm, the combination of a water-column chamber adapted to be connected with a steam-boiler, a float in said chamber, and a float-stem having two shoulders, with an alarm-whistle, a self-closing

valve for the port which connects the whistle
with said chamber, two shoulders on said
valve, a pivoted lever which projects into the
path of the two shoulders on the float-stem,
5 two links pivoted to said lever, extending re-
spectively upward and downward therefrom
and having approximately horizontal perfor-
ated ends through which said valve passes

loosely, substantially as and for the purpose
specified. 10

In testimony whereof I affix my signature
in presence of two witnesses.

HERBERT F. COOK.

Witnesses:

E. L. THURSTON,
L. F. GRISWOLD.