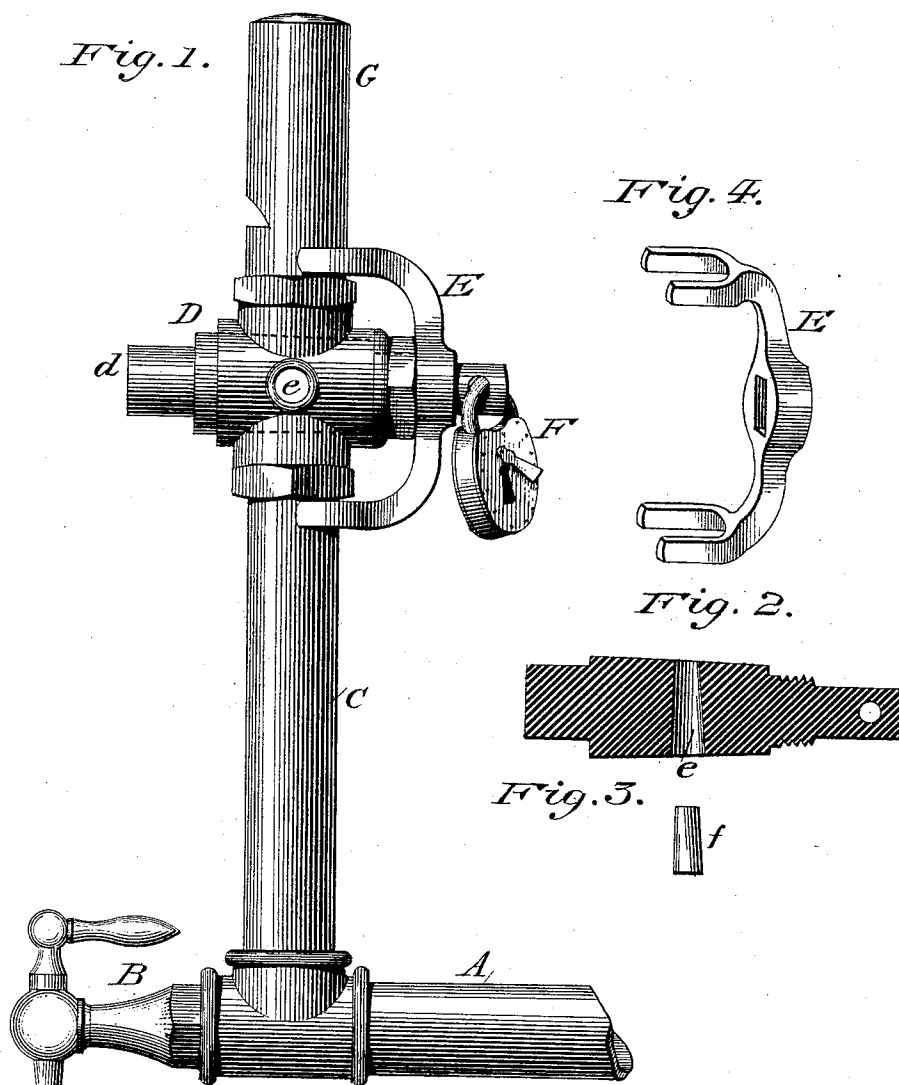


(No Model.)

J. A. STRAIGHT.  
LOW WATER ALARM.

No. 322,021.

Patented July 14, 1885.



Witnesses:

W. W. Straight  
L. W. Straight

Inventor:

John A. Straight

# UNITED STATES PATENT OFFICE.

JOHN A. STRAIGHT, OF HARTFORD, CONNECTICUT.

## LOW-WATER ALARM.

SPECIFICATION forming part of Letters Patent No. 322,021, dated July 14, 1885.

Application filed May 22, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. STRAIGHT, of the city of Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Low-Water Alarms, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of my invention is to provide an apparatus to be attached to a steam-generator at a given line that is so constructed that when the water in the generator shall fall below the said line a fusible plug shall be caused to melt and an alarm be given.

My invention consists in placing on a pipe that is connected with a steam-generator at a given line an apparatus that is so connected with the water therein that when the water is sufficiently high the apparatus will be in contact with water cooler than that in the generator; but when the water in the generator shall fall below a proper height steam will enter the said pipe, and a fusible-metal plug that melts at a low temperature, placed in a valve or stop-cock at the outer end of the pipe, is caused to melt, allowing the steam to escape, causing an alarm.

In the accompanying drawings, Figure 1 is a side elevation of my invention. Fig. 2 is a vertical central section of the plug of the stop-cock when in position for alarming at low water, and showing the opening in which the fusible plug is placed. Fig. 3 is a vertical central section of the fusible plug. Fig. 4 is a perspective view of the wrench or locking device.

Similar letters of reference refer to similar parts in the different figures.

A is a pipe, which is inserted in the generator at the point at which an alarm is desired, and on the outer end of this pipe is screwed a T, in the outer end of which is secured a gage-cock, B. A pipe, C, extends upward from the T, having a stop-cock, D, at its upper end. The stop-cock D is made in the usual manner, except that the plug *d* of the stop-cock, instead of having the usual opening, is made solid, and a taper hole, *e*, is drilled from the outside casing of the stop-cock through the casing and the plug *d*.

The plug *d* may be elongated at either of its

ends and fitted to receive a wrench and lock, as will be hereinafter described.

In the hole *e*, drilled in the plug *d*, is inserted a taper plug, *f*, made of a fusible metal that melts at a very low temperature, and that fits the hole *e* so perfectly that no water can pass through it.

To the upper end of the stop-cock D is secured in any suitable manner a whistle, G.

Having described the apparatus for giving the alarm, I will now proceed to the description of a locking device used to prevent any tampering with the alarm that might prevent its operation when the water was low in the generator to which it is attached.

One end of the plug *d* of the stop-cock D is extended and fitted to receive a hasp and lock, as shown at Fig. 1. E is a hasp having a central opening to pass over the squared portion of the plug *d*, and having its ends bifurcated to fit upon the parts above and below the stop-cock D. F is a lock placed outside of the hasp E in an opening near the end of the plug *d*.

It will be seen that when the plug *d* of the stop-cock D is so turned that the hole *e* is in the same line as the opening of the pipe C, the fusible plug *f* prevents the escape of the water from the said pipe; but when the plug *d* is so turned that the hole *e* is across the opening of the pipe C the plug *d* prevents the escape of the water.

The tube A is connected with the generator at the line at which an alarm is desired, and as long as the water in the generator covers the end of the tube A the water in the indicator will remain comparatively cool. When the water in the generator drops below the end of the tube A, the water in the tubes A C will pass out of the indicator, and steam will enter. The temperature being thereby increased, the fusible-metal plug *f* is melted, and the steam permitted to escape through the whistle G, thereby causing an alarm. After a sufficient alarm has been given the stop-cock D is closed, and when the water has again filled the pipes A C and has become sufficiently cooled, a fusible plug is placed in the opening *e*, and the stop-cock D turned again to its former position, and the alarm is then ready to sound, should the water in the generator pass below the mouth of the pipe A.

B is used as a gage-cock, and also to blow out any sediment that may collect in the pipe A.

The opening *e* in the plug *d* may be of any desired shape that can be closed with a fusible plug, and also the pipe C may be inserted in the top of the generator and extend down to the low-water line, and in neither of these cases would the spirit of my invention be departed from.

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

1. In a low-water alarm, a stop-cock, D, having an opening, *e*, and a fusible plug, *f*, constructed substantially as shown and described.

2. In a low-water alarm, the stop-cock D, constructed substantially as shown and described, and fusible plug *f*, in combination with the pipe C, as and for the purpose specified.

3. In a low-water alarm, the stop-cock D,

constructed substantially as shown and described, and fusible plug *f*, in combination with the whistle G, as set forth, and for the purpose specified.

4. In a low-water alarm, the stop-cock D, constructed substantially as shown and described, and fusible plug *f*, in combination with the whistle G and the pipe C, as set forth.

5. In a low-water alarm, the combination and arrangement of the hasp E, lock F, and the accompanying devices, substantially as shown and described, and for the purpose set forth.

In witness whereof I have hereunto set my hand on this 23d day of April, 1884.

JOHN A. STRAIGHT.

Witnesses:

MITTIE M. STRAIGHT,

LIBBIE M. STRAIGHT.