

(No Model.)

E. ROTH LISBERGER.
ELECTRIC LOW WATER ALARM.

No. 480,673.

Patented Aug. 9, 1892.

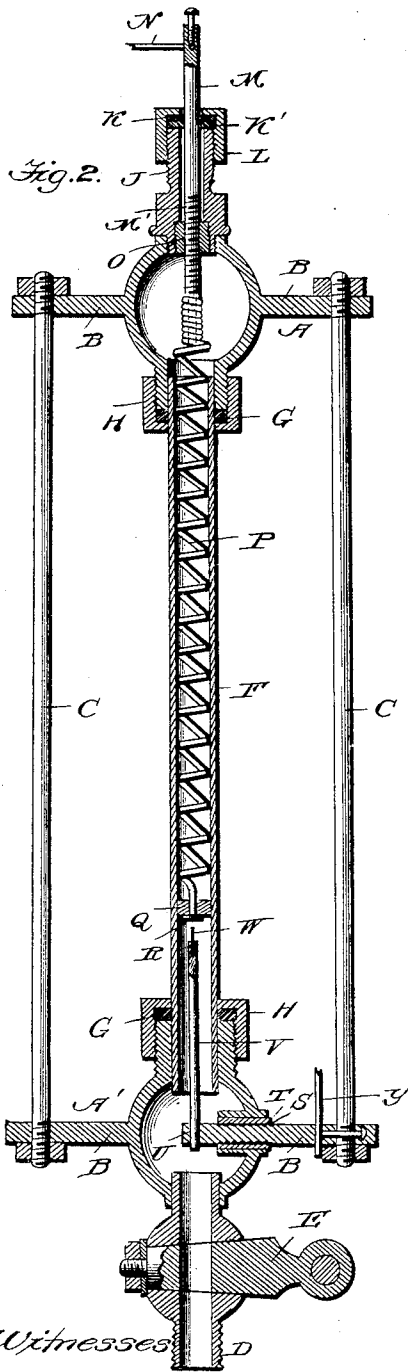


Fig. 2.

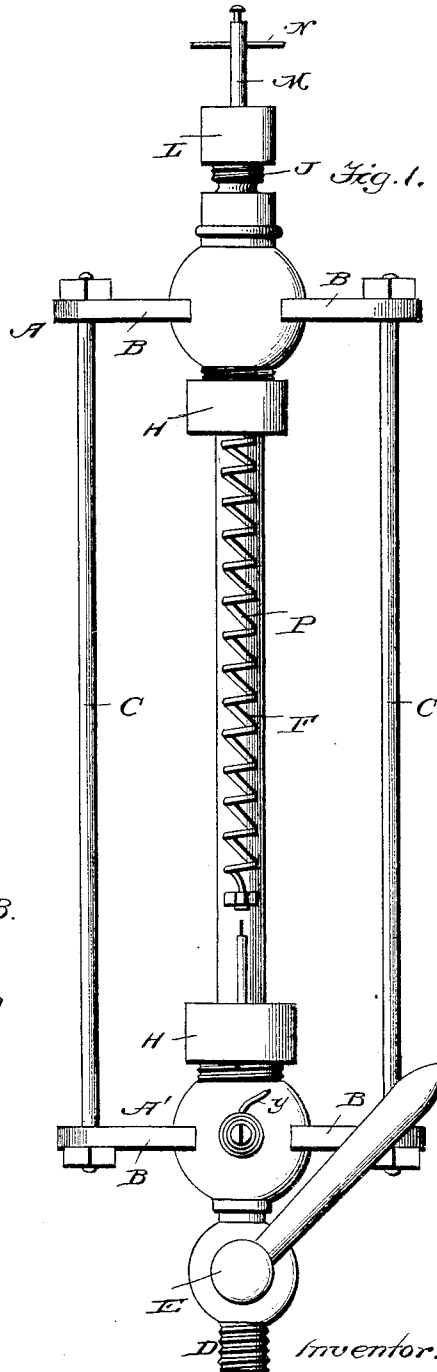


Fig. 1.

Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

ERNESTE ROTH LISBERGER, OF LIMA, OHIO.

ELECTRIC LOW-WATER ALARM.

SPECIFICATION forming part of Letters Patent No. 480,673, dated August 9, 1892.

Application filed April 18, 1892. Serial No. 429,587. (No model.)

To all whom it may concern:

Be it known that I, ERNESTE ROTH LISBERGER, a citizen of the United States, residing at Lima, in the county of Allen and State of Ohio, have invented certain new and useful Improvements in Electric Low-Water Alarms; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in electric low-water alarms; and the leading object of my invention is the provision of a device of this character which can be applied to a steam-boiler at a very small expense and which will instantly give the alarm when the water becomes low in the boiler, and thereby, by reason of its simplicity, cheapness, and efficiency, prove useful and practical.

To attain the desired objects, the invention consists of an electric low-water alarm embodying improved novel features, substantially as disclosed herein.

In order that the construction, operation, and advantages of my alarm may be readily understood, I have illustrated in the accompanying drawings, in—

Figure 1 a side elevation of an electric low-water alarm constructed according to my invention, and in Fig. 2 a vertical section thereof, and in Fig. 3 a detail view.

Referring by letter to the drawings, A and A' designate the upper and lower heads or cases, having each a series of arms or spokes B to receive the ends of the rods C, forming a structure adapted to be applied to the pipe D from the boiler, which pipe is provided with a cock E. Leading from case to case is the sight-tube F, made, preferably, of glass, although other material may be used, the ends of which fit the open inner ends of the cases and are secured in place by the packings G, preferably of rubber, and the caps H, making a tight joint or connection. To the upper head or case is connected the sleeve J, closed at its upper end by packings K and K' and cap L, and passing through cap,

and sleeve is the metal adjusting-stem M. The stem M is an electric conductor and receives the wire N and is threaded at M', and is thus adapted to be adjusted in the insulating-ring O, secured in the lower end of the sleeve J. To the lower end of the stem M is connected the upper end of the spiral spring P, carrying the guide Q, and terminating in the contact R. The guide is made open or with a central hub and arms, this construction allowing the water to fill the tube and still serving to guide the contact-point R. The lower case A' is provided with the side inlet S, having the non-conducting packing-ring T, through which passes the binding-post U, from which extends upward the stem V, having the contact-point W, and to the binding-post X is connected the other wire Y from the battery.

From the foregoing description, taken in connection with the drawings, the operation of my alarm will be readily understood, and is as follows:

The device is connected to the boiler and the water passes into the sight-tube and indicates the height of the water in the boiler, and while the water remains at the proper height the spring will retain its proper and initial position. When the water falls to an unsafe distance in the boiler, steam enters the sight-tube, expands the spring, and brings the contact-points together, closing the circuit and sounding an alarm. It is evident that I provide a simple, durable, and inexpensive device which can be easily applied and which will never fail to operate.

I claim—

1. An electric low-water alarm consisting of an upper and lower case, rods or posts connecting said cases, a pipe leading from the boiler to the lower case and having a cock, a sight-tube communicating with the cases, a spiral electric conductor arranged in the tube and having a contact-point, and a stationary conductor having a contact-point, the action of the steam or heat expanding the spiral conductor and bringing the points in contact, for the purpose described.

2. An electric low-water alarm consisting of an upper and lower case, a sight-tube com-

communicating with said cases, an adjustable electric conductor, a spiral conductor connected thereto and having a contact-point, a guide for said spiral conductor, and a stationary electric conductor having an adjustable contact-point, all arranged and adapted to operate for the purpose described.

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

ERNESTE ROTH LISBERGER.

Witnesses:

WILLIAM L. MEREHLING,
JOHN N. HUTCHISON.