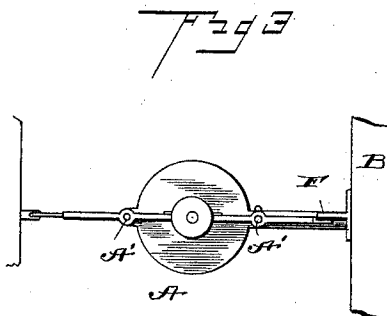
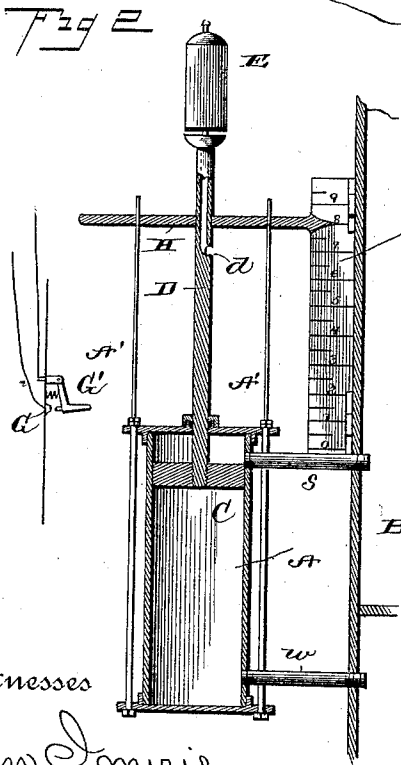
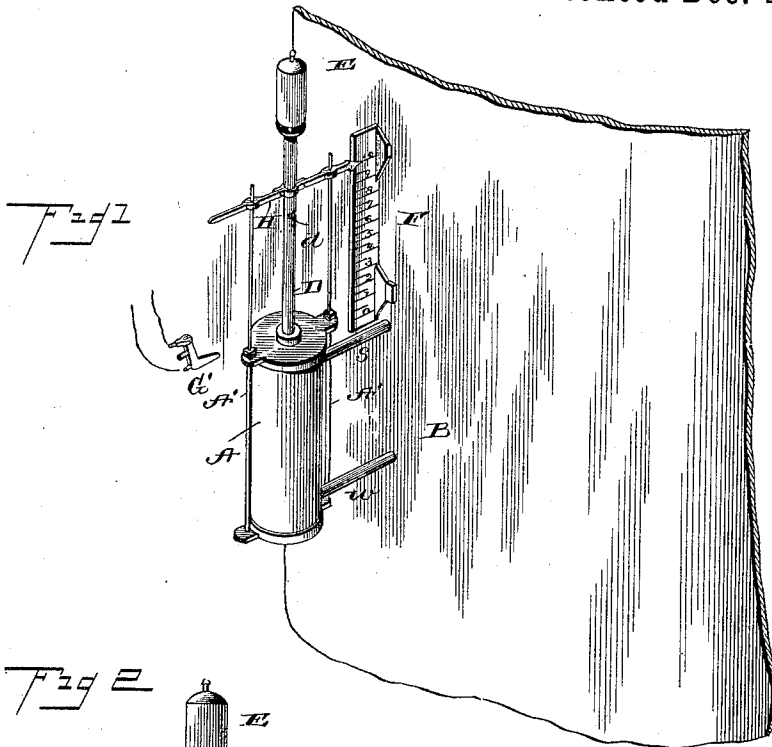


(No Model.)

F. ST. CLAIR.
LOW WATER ALARM.

No. 465,767.

Patented Dec. 22, 1891.



Witnesses
John Smurie
Abm. J. Luce,

Inventor
Frank St. Clair,
By his Attorney,
J. R. Little,

UNITED STATES PATENT OFFICE.

FRANK ST. CLAIR, OF MANCHESTER, NEW HAMPSHIRE, ASSIGNOR OF ONE-HALF TO JOHN B. VARICK, OF SAME PLACE.

LOW-WATER ALARM.

SPECIFICATION forming part of Letters Patent No. 465,767, dated December 22, 1891.

Application filed April 11, 1891. Serial No. 388,569. (No model.)

To all whom it may concern:

Be it known that I, FRANK ST. CLAIR, residing at Manchester, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Low-Water Alarms, of which the following is a specification.

This invention relates to an improved low-water alarm for steam-boilers, and is adapted to indicate visibly and audibly when the water reaches a certain level, and it is also adapted to sound an electric signal at any particular time and place.

With these objects in view my invention consists in the peculiar construction of the various parts and their novel combination or arrangement, all of which will be more fully hereinafter described and claimed.

In the drawings forming a part of this specification, Figure 1 is a perspective view of my improved device. Fig. 2 is a central vertical section, and Fig. 3 is a top plan view.

In carrying out my invention I employ a cylinder A, which is connected with the boiler B by means of the water-pipe *w* and steam-pipe *s*. The heads of the cylinder are held on by the rods A', the upper portions of said rods extending a considerable distance above the top head, as clearly shown. Within the cylinder is arranged a piston C, and connected with the same is a tubular piston-rod D, said rod passing through the top head of the cylinder, and upon its upper end is arranged a steam-whistle E. An aperture *d* is made in the tubular rod at a predetermined point, the purpose of which is to allow the steam to enter the rod and sound the whistle when the water in the boiler sinks, and allows the piston to descend until the aperture *d* is within the cylinder.

A gage-plate F is connected with the boiler, and upon the opposite side of the cylinder is arranged an electric push-button G, and in connection therewith an elbow-lever G'.

A horizontal pointer-arm H is secured to the tubular rod D a short distance below the whistle E, said arm being rigid with the rod D and sliding on the upper portions of the rods A', which act as guide-rods. One end of the pointer-arm rests adjacent to the gage-

plate F, and is adapted to indicate visibly the level of the water in the boiler, and the opposite end of the pointer-arm is adapted to engage the elbow-lever operating the electric push-button and sounding a signal at any particular place.

Any suitable number of push-buttons and connections may be arranged in connection with my apparatus to give any number of signals.

From the above the operation and advantages of my device will be apparent to every one skilled in the art to which it pertains.

Having thus described my invention, what I claim is—

1. The combination, with the cylinder, the steam and water pipes communicating therewith, the piston, and tubular piston-rod provided with an aperture and with a whistle at its end, of a gage-plate, electrical alarm connections, and a rod secured to the piston-rod and carrying an indicator at one end and an arm at the other adapted to close the electrical circuit, substantially as set forth.

2. The combination, with the cylinder, the steam and water pipes, the piston, and piston-rod provided with a whistle, and the guide-rods projecting upwardly from the cylinder parallel with the piston-rod, of the gage-plate, the electrical alarm connections, the transverse rod carried by the piston and working upon the guide-rods, said transverse rod carrying an indicator at one end of an arm at the opposite end adapted to contact with the electrical connections, substantially as and for the purpose set forth.

3. The combination, with the cylinder, the steam and water pipe, the piston and piston-rod, and the guide-rods projecting upwardly from the cylinder parallel with the piston-rod, of the gage-plate and the indicator carried by the piston-rod and working upon the guide-rods, substantially as and for the purpose set forth.

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

FRANK ST. CLAIR.

Witnesses:

JOHN C. BICKFORD;
ANNABEL MINARD.