

(No Model.)

J. M. WILLIAMS.
HIGH AND LOW WATER ALARM.

No. 420,649.

Patented Feb. 4, 1890.

FIG. 1.

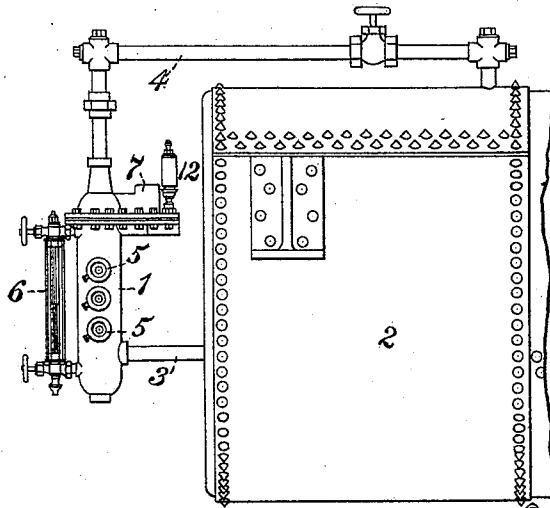
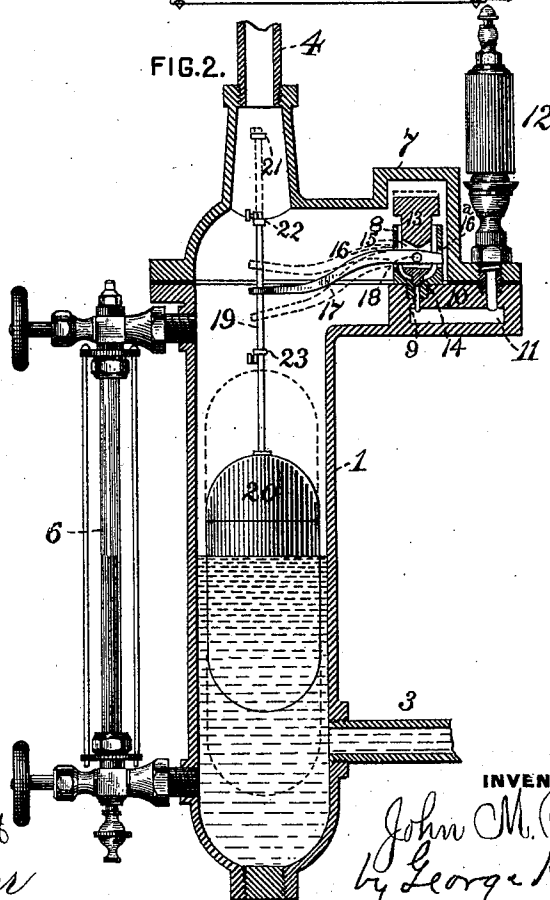


FIG. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN M. WILLIAMS, OF PITTSBURG, PENNSYLVANIA.

HIGH AND LOW WATER ALARM.

SPECIFICATION forming part of Letters Patent No. 420,649, dated February 4, 1890.

Application filed June 24, 1889. Serial No. 315,347. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. WILLIAMS, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in High and Low Water Alarms, of which improvement the following is a specification.

The invention described herein relates to certain improvements in that class or kind of devices employed for indicating the condition of water within a boiler at the two extremes of safety—*i. e.*, a high and a low level.

As the class of devices to which this invention pertains is of necessity arranged within the boiler or chambers connected thereto, and hence is not readily accessible, it is desirable that such devices should be constructed in as permanent and simple a form as possible; and to this end the invention consists in the construction and combination of mechanical devices or elements, all as more fully herein-after described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a view in side elevation of a portion of a boiler provided with a water-column having my device inclosed therein, and Fig. 2 is a sectional view, on an enlarged scale, of the water-column, and showing my invention in section.

As is the usual practice, the water-column 1 is connected at its lower end to the boiler 2 by a pipe 3, entering the boiler below low-water level, and at its upper end by a pipe 4, entering the boiler above the high-water level or the steam-dome. This water-column is provided with the usual gage-cocks 5 and glass gage-tube 6.

Within a lateral extension 7 of the water-column is placed the valve case or shell 8, having a ported stem 9, screwing into an enlargement 10, formed on the lower side of the lateral extension 7, the port in the stem connecting with a passage 11 in the enlargement, the outer end of said passage connecting with a whistle 12 or other audible alarm capable of being operated by steam. The valve consists of a block 13, fitting within the shell or case, and provided with teat or projection 14, adapted to a seat formed around the upper

end of the port in the stem 9 of the valve-case. A slot 15 is formed through the block 13, and similar slots 16 and 16^a are formed in the walls of the valve-case for the passage of the operating-lever 17, which is connected to the block by a pin 18. The lower ends of the slots 16 form fulera for the lever 17, as hereinafter described.

In the outer end of the lever 17 is formed an eye for the rod 19, extending upwardly from the float 20, arranged in the water-column, as shown in Fig. 2, said float being preferably of such shape and size as will prevent excessive lateral swaying of the rod 19, which preferably is also guided at its upper end by an eye formed in a bar or rod 21, secured in the water-column. Stops 22 and 23 are adjustably secured on the rod 19 in such position with relation to the movement of the float and the normal position of the lever 17 when the valve is closed on its seat, that when the water in the boiler approaches the high-water level the stop 23 will engage and lift the lever 17, the lower end of the slot 16^a in the valve-case serving as a fulcrum, thereby raising the valve and permitting the steam to pass to and through the whistle, and when the water approaches the low-water level the stop 22 will engage and depress the lever 17, thereby raising the valve, the lower end of the slot 16 serving in this case as the fulcrum. It will be observed that the wall of the upper end of the slot 15 in the valve is oppositely beveled, so that the valve may not be tipped by the lever in raising the valve.

I claim herein as my invention—

The combination of a steam-operated alarm, a valve case or shell having slots therethrough, a slotted valve arranged in said case or shell, a lever passing through the slots in the shell and valve, the lower ends of the slot serving as fulera for the lever, and a float for raising and lowering the lever, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JOHN M. WILLIAMS.

Witnesses:

DARWIN S. WOLCOTT,
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