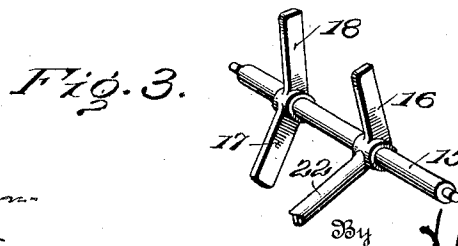
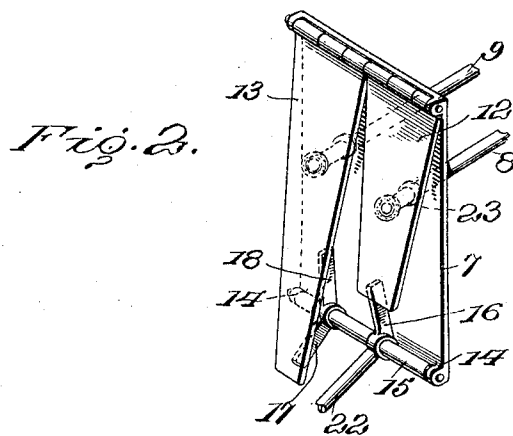
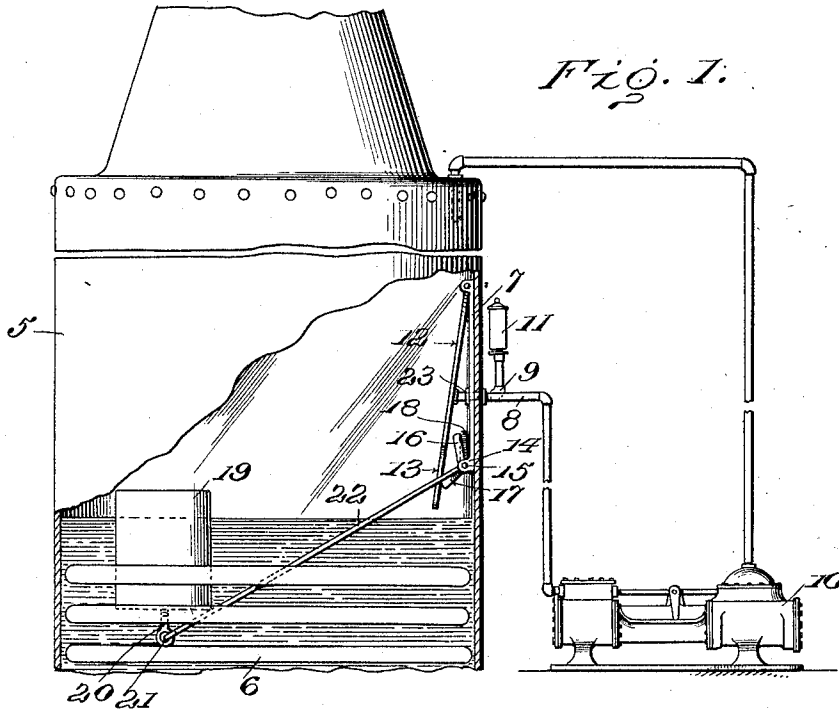


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 COMBINED FEED WATER REGULATOR AND ALARM.
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1,005,246.

Patented Oct. 10, 1911.



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COMBINED FEED-WATER REGULATOR AND ALARM.

1,005,246.

Specification of Letters Patent.

Patented Oct. 10, 1911.

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To all whom it may concern:

Be it known that I, LEONARD C. LOSINGER, citizen of the United States, residing at Loon Lake, in the county of Stevens and State of Washington, have invented certain new and useful Improvements in Combined Feed-Water Regulators and Alarms, of which the following is a specification.

This invention relates to boilers and more particularly to a combined feed water regulator and alarm especially designed for use in connection with steam boilers.

The object of the invention is to provide means for feeding water to a boiler should the liquid in the latter fall below a predetermined level, and means for sounding an alarm in case the water in said boiler rises above or falls below said level.

A further object is to provide a device of the character described, including a float having an arm pivotally connected therewith and provided with angularly disposed fingers adapted to engage and open suitable flap valves when the water in the boiler reaches a predetermined height and thereby cause the steam to operate the pump or injector and in case the water rises very high or falls very low in the boiler, actuate a whistle or other audible signal.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

For a full understanding of the invention and the merits thereof, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a front elevation, partly in section of a steam boiler provided with a combined feed water regulator and alarm, constructed in accordance with my invention; Fig. 2 is a perspective view of the supporting plate and flap valves detached; Fig. 3 is a detail perspective view of the rock shaft and valve actuating fingers detached.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawing by the same reference characters.

The combined feed water regulator and alarm forming the subject matter of the present invention is shown by way of illustration in connection with a fire tube boiler in which 5 designates the casing and 6 the fire tubes.

Secured to the inner wall of the boiler, is a plate 7 having spaced perforations formed therein for the reception of conductors 8 and 9, one of which communicates with a pump or injector 10 and the other with a signal 11, preferably in the form of a whistle, as shown.

Pivotally connected with the upper end of the plate 7, are spaced flap valves 12 and 13, one of which forms a closure for the conductor 8, while the other serves to normally close the conductor 9. The valves 12 and 13 are preferably in the form of flat plates of different lengths, said plates or valves being normally held in closed position by the pressure of the steam within the boiler.

The lower end of the plate 7 is cut or severed, and the metal at said cut or severed portion bent or rolled upon itself to form transversely alined eyes 14 in which is journaled a rod 15. Extending laterally from one end of the rod 15, is a finger 16 adapted to engage the valve 12 and open the latter so as to allow the steam from the boiler to operate the pump and supply water to said boiler should the liquid in the latter fall below a predetermined level.

Disposed in spaced relation to the finger 16, are angularly disposed fingers 17 and 18, one of said fingers being adapted to open the valve 13 when the water in the boiler falls below a predetermined level, and the other finger 18 being adapted to open the valve 13 when the water rises above said level, thus to permit the steam from the boiler to actuate the whistle and sound an alarm in case of any material variation in the height of the water.

Disposed within the boiler, is a float 19 having a depending stem 20, to which is pivotally connected at 21, an arm or lever 22, the latter being fastened to the transverse rod 15 at the finger 16 so that as the float rises and falls, the arm 22 will be oscillated to effect the opening of the flap valves.

Thus it will be seen that should the water in the boiler fall below a predetermined level, the float will drop, and through the medium of the arm 22, oscillate the trans-

verse rod 15 so as to cause the finger 16 to tilt the valve 12 on its pivotal axis, thus allowing the steam in the boiler to flow through the pipe 8 to the injector. Should the injector, for any reason fail to operate and the water in the boiler become very low, the upper finger 18 will open the valve 13 so as to allow the steam to pass through the conductor 9 to the whistle and sound an alarm.

When the float ascends, the fingers 16 and 18 will be moved out of the path of the valves 12 and 13, thus allowing the valves to close, and in which position they will be held by the pressure of the steam within the boiler. Should the water in the boiler rise above a predetermined level, the lower finger 17 will engage and open the valve 19 so as to cause the steam to pass through the conductor 13 and sound an alarm, as will be readily understood.

Suitable packing 23 preferably surrounds the conductors 8 and 9 where they pass through the plate 7 in order to prevent leakage.

The indicating mechanism may be used in connection with any style of boiler and the flap valves 12 and 13, instead of being pivotally connected to the plate 7, may be secured directly to the boiler, without departing from the spirit of the invention.

Having thus described the invention, what is claimed as new is:

1. The combination with a boiler including a pump and signal, of conductors forming a source of communication between the boiler and said pump and signal, valves normally closing said conductors, a rock shaft provided with fingers for engagement with the valves, and a float disposed within the boiler and operatively connected with the rock shaft for actuating the fingers to open the valves when the water in the boiler falls below a predetermined level.

2. The combination with a boiler including a pump and signal, of a plate secured to the interior of the boiler and provided at one end thereof with transversely alined eyes, conductors extending through the boiler and plate and connected with the signal and pump, respectively, independent valves pivotally mounted on one end of the plate and normally closing the adjacent ends of the conductors, a rock shaft journaled in said eyes and provided with means for engage-

ment with the valves, a float arranged within the boiler, and a connection between the float and rock shaft.

3. The combination with a boiler including a pump and signal, if conductors forming a source of communication between the interior of the boiler and said pump and signal, valves engaging the inner ends of the conductors and normally held in closed position by the pressure of the steam in said boiler, a rock shaft having fingers secured thereto for engagement with the valves, and a float arranged within the boiler and operatively connected with the rock shaft.

4. The combination with a boiler including a pump and signal, of a plate secured to the interior of the boiler and having spaced openings formed therein, conductors extending through said openings and connected with the pump and signal, respectively, flap valves of different lengths pivotally mounted on the plate and forming a closure for the inner ends of the conductors, a rock shaft journaled on the plate and provided with a single finger for engagement with the short flap valve, spaced angularly disposed fingers spaced from the first mentioned finger for engagement with the long flap valve, a float, and a rod having one end thereof connected with the rock shaft and its other end pivotally connected with the float.

5. The combination with a boiler including a pump and signal, of conductors forming a source of communication between the boiler and said pump and signal, independent valves for normally closing the inner ends of the conductors and held in closed position by the pressure of the steam in the boiler, a rock shaft, a float disposed within the boiler, a connection between the rock shaft and float, and means carried by the rock shaft for opening the valve controlling the passage of steam to the pump, when the water in said boiler reaches a predetermined level and for opening the valve controlling the flow of steam to the signal when the water in the boiler rises above or falls below said level.

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

LEONARD C. LOSINGER. [L. s.]

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