

(No Model.)

G. FLESHER.

COMBINED HIGH AND LOW WATER ALARM FOR BOILERS.

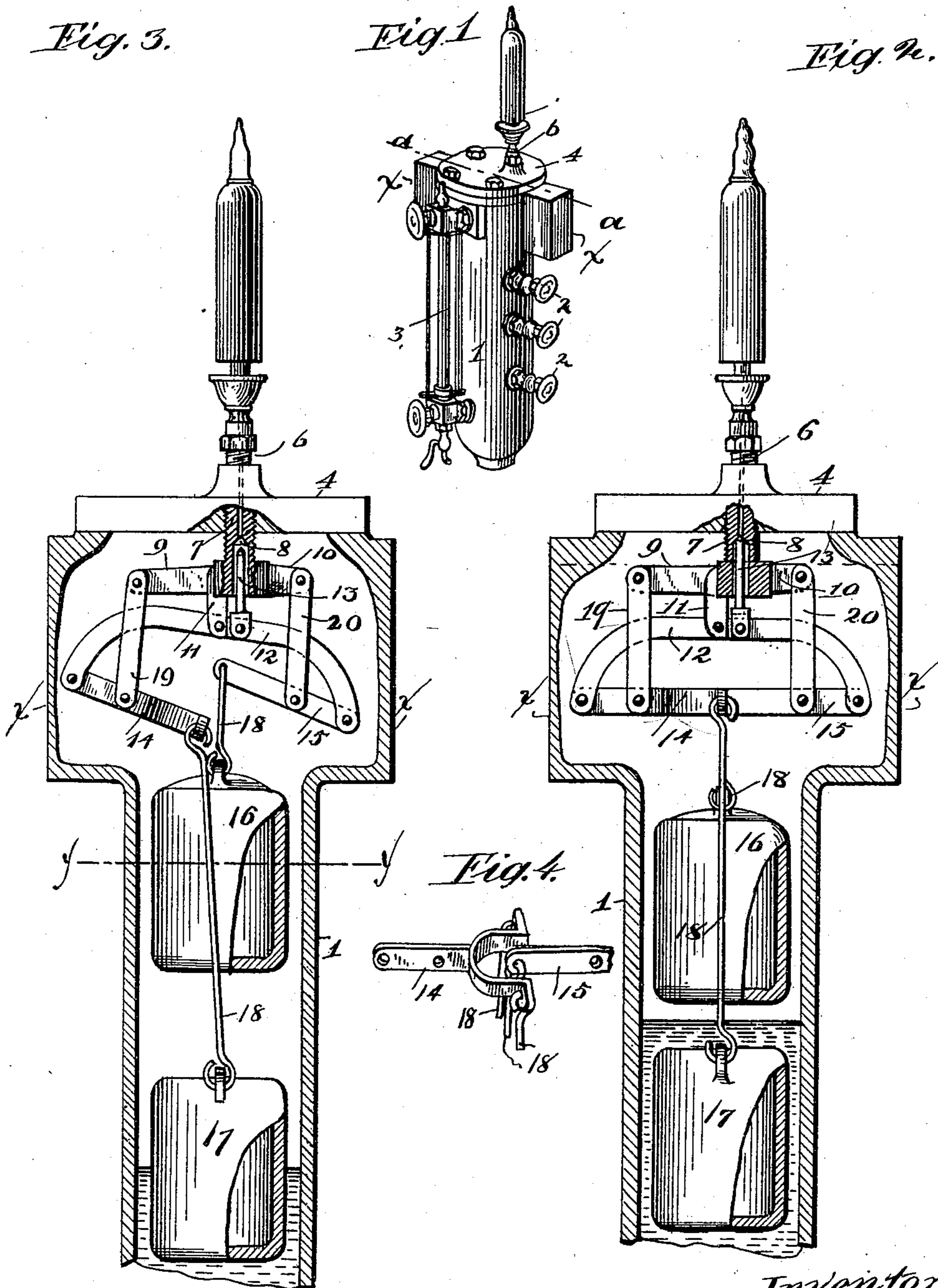
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Fig. 3.

Fig. 1

Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

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COMBINED HIGH AND LOW WATER ALARM FOR BOILERS.

SPECIFICATION forming part of Letters Patent No. 551,159, dated December 10, 1895.

Application filed October 23, 1894. Serial No. 526,773. (No model.)

To all whom it may concern:

Be it known that I, GEORGE FLESHER, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in a Combined High and Low Water Alarm for Boilers, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in a combined high and low water alarm for boilers, and the objects are to provide means for indicating a predetermined high or low water-level in the boiler, in connection with a single valve-opening to the alarm; and it consists in the combination of compensating levers, float-weights, and valve to the alarm, with inclosing case, and in the construction of the various parts, as hereinafter described, shown in the accompanying drawings, and more specifically pointed out in the claim.

In the accompanying drawings, Figure 1 is a perspective view of the device. Fig. 2 is a vertical central section on line *a a*, Fig. 1, showing the position of levers at normal water-level and valve closed. Fig. 3 is a similar section showing position of levers at low water-level. Fig. 4 is a detail of short levers.

In the figures, 1 is the case provided with try-cocks 2 and glass water-indicator 3 of the usual type.

4 is the head of the case, into which the nozzle of the steam-whistle is inserted at 6. In line with this nozzle is inserted into the head the nozzle 7, provided with the valve-seat 8 and rigid arms 9 and 10 extending horizontally, and the depending arm 11, to which is suspended centrally the horizontal beam 12. The pointed valve 13 is pivoted at a slight distance from the central point of the beam 12, so as to play vertically against the seat 8. The outward extremities of the beam 12 are bent downward, and to them are pivoted the short levers 14 and 15 turned toward each other, which support the hollow weights 16 and 17 from their inner extremities by rods 18. The short levers are pivoted at a short distance from their attachments to the beam 12 to the links 19 and 20, which depend in turn from the arms 9 and 10. The

points from which the rods carrying the weights depend are centrally located, so as to bring the weights into the center of the case, to accomplish which the lever 14 is forked, as shown in Fig. 4, and two rods connect the ends of the fork with the weight 17.

The hollow weights are designed to serve both as weights and floats and alternately raise and lower the inner extremities of the short levers and oscillate the beam upon its pivot, thus closing and opening the valve.

The mode of operating the device is as follows: As seen in Fig. 2, the water-level is between the float-weights, so that while the lower weight has a tendency to rise in the water, the upper weight, being free from water, will have a tendency to fall, the resultant effect upon the beam and valve being to maintain them rigidly in position with the valve pressed against its seat, the short levers pivoting upon the depending links and shoving upward the extremities of the beam bearing the valve and preserving a perfect equilibrium. When, however, the water-level falls, the lower weight also falls and the equilibrium is lost, so that the balance of the beam is disturbed and the end bearing the valve is forced down until the valve opens, admitting the passage of steam, so as to sound the whistle, as shown clearly in Fig. 3. It will be seen that the balance of the beam is so nicely regulated in relation to the weight-floats that the fall of the water below the required level or its rise above the level of the upper weight will open the valve, since if the water raises the upper weight the balance between the weights is again lost and the lower weight will fall, the weights being equal. *yy* represent the high-water line. In this manner the alarm will be sounded in case of either high or low water, and the glass gage at the side of the case will indicate at once the condition of the water-level as soon as the alarm sounds.

The sides of the casing are extended at the top to give plenty of room for the lever mechanism to play, as at *x*, and the steam-admission and water-admission pipes are secured to the rear of the case in the usual manner with these devices.

The advantages of this device are obvious, since both high and low water levels are at

once indicated by one valve and one set of
connected mechanism, whereas heretofore a
separate valve was employed for each float,
and one might fail to operate while the other
5 might be all right, and no attention would
be paid to the one that was out of order on
that account.

Having described my invention, what I
claim as new, and desire to secure by Letters
10 Patent, is—

In an alarm for boilers, an inclosing case
contracted at its lower portion so as to act as
a guide for the floats, a whistle mounted

thereon, and a single valve connected with
the whistle, combined with the pivoted lever 15
12, to which the valve is connected, the in-
wardly turned levers 14, and 15, connected to
opposite ends of the lever 12, the rods 18, the
two floats, and the two links 19 and 20 to the
lower ends of which the levers 14 and 15 are 20
pivoted, substantially as shown.

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Witnesses:

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