

(No Model.)

W. LANCASTER.
ALARM.

No. 593,669.

Patented Nov. 16, 1897.

Fig. 1.

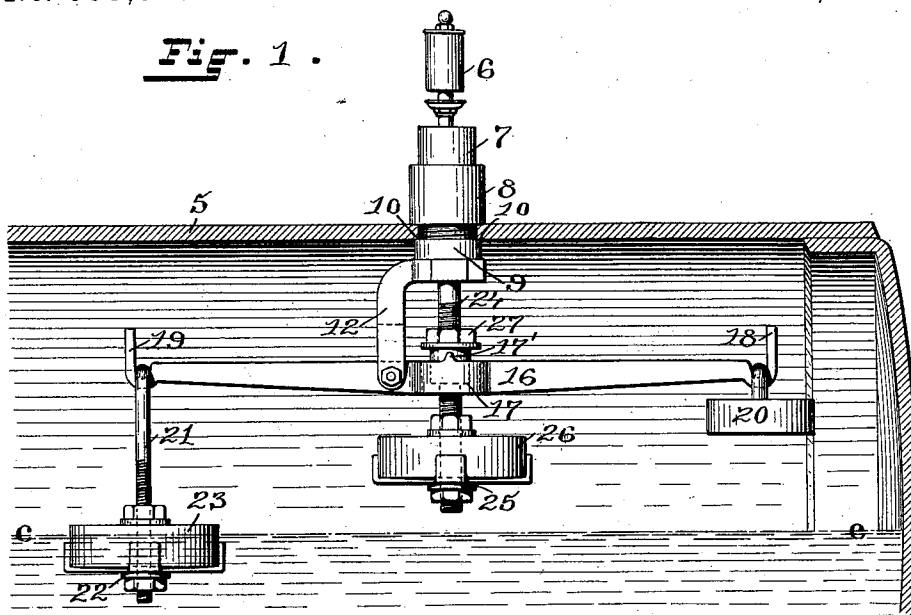


Fig. 2.

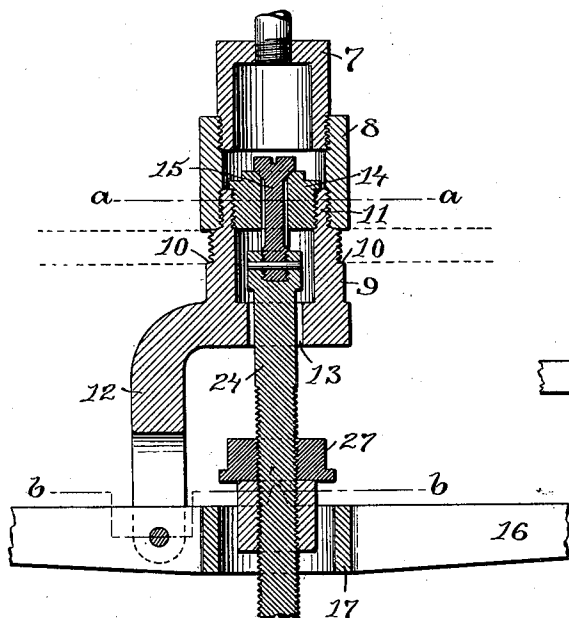


Fig. 3.

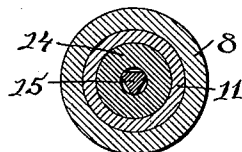
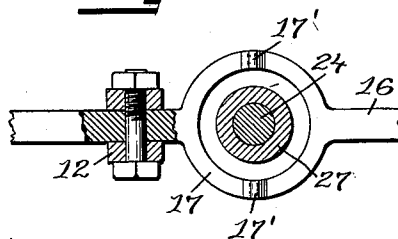


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM LANCASTER, OF SAYLESVILLE, RHODE ISLAND; MARGARET A. LANCASTER ADMINISTRATRIX OF SAID WILLIAM LANCASTER, DECEASED.

ALARM.

SPECIFICATION forming part of Letters Patent No. 593,669, dated November 16, 1897.

Application filed July 3, 1896. Serial No. 598,000. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LANCASTER, of Saylesville, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Alarms; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

10 This invention has reference to improvements in notification devices, and particularly to those which are applicable to steam-boilers.

15 The object of the invention is to produce an improved device whereby an alarm may be given for unduly high or low water or for high pressure in the boiler.

20 Another object is to so construct a device of this nature that it may be wholly contained within the boiler while connected with an exposed whistle or other indicating mechanism.

25 The invention consists of a counterweight-lever pivotally mounted, a float connected with the lever adapted to overbalance the counterweight, and a second float mounted to operate independent of the lever for high water or be lifted by the lever for low water.

30 The invention also consists in such other novel features of construction and combination of parts as shall hereinafter be more fully described, and pointed out in the claim.

35 Figure 1 represents a side elevation of the improved device and its whistle shown as set in place on a steam-boiler, portions of which are shown in section. Fig. 2 represents a vertical sectional view of portions of the lever, the valve-rod, the valve, and its valve-chamber, the thickness of the boiler-shell being indicated in dotted lines. Fig. 3 represents a 40 cross-sectional view taken on a line *a a*, Fig. 2. Fig. 4 represents a similar view taken on a line *b b*, Fig. 2.

Similar letters and numbers of reference designate corresponding parts throughout.

45 In the drawings, 5 indicates a portion of a steam-boiler, in which *c c* indicate the normal water-line. In the upper portion of the boiler is a circular hole or opening in which the valve-chamber is secured, as hereinafter described.

The whistle 6 is connected by a pipe with the upper inverted-cup-shaped portion 7 of the valve-chamber. This cup-shaped portion 7 has a screw-thread around its lower portion which screws into the upper threaded portion 55 of the annular casing 8, the lower end of which is adapted to be seated against the outer surface of the boiler 5, around the opening therein. Into this opening is screwed the chambered bushing member 9, having the shoulder 10 abutting against the inner surface of the boiler-shell, the rim 11, on which the casing 8 is screwed, and the pendent arm 12, forked at its lower end. The lower end of the bushing member has the perforation 13, and in the 65 rim 11 is screwed the valve-seat 14, through an axial perforation in which the valve 15 extends, its upper end being seated in the valve-seat.

To the forked portion of the arm 12 is pivoted the lever 16, having the ring 17, the bearing 17', and the hooks 18 and 19. On the hook 18 is hung the counterweight 20, and on the hook 19 is hung the rod 21, provided with the frame 22, adjustable on the 75 rod and carrying the float 23, formed of buoyant material, generally fire-tile.

To the valve 15 is secured the valve-stem 24, which extends down through the perforation 13 in the bushing member and through 80 the ring 17 of the lever 16. At its lower end it is furnished with a frame 25, adjustable on the stem and carrying a float 26, similar to the float 23, and adapted to lift the valve-stem when partially immersed. On this stem 24, 85 above the ring 17, is adjustably mounted the nut 27, against which the bearings 17' of the ring bear when the weighted end of the lever 16 is raised.

When the water in the boiler is at its normal height, the weight 20 is balanced by the float 23, as shown in the drawings. Should the level of the water be lowered from any cause, the float 23 will move down with the water, the weighted end of the lever 16 rising. 95 If the lowering of the water continues sufficiently, this movement of the lever will eventually bring the bearings 17' against the nut 27 on the valve-stem 24, lifting this stem and its valve and allowing steam to escape 100

to the whistle 6. If the water in the boiler should rise above the normal line and reach the float 26, this float will rise on the water and the valve-stem and its valve will be
5 moved upward without reference to the lever 16, thus allowing the escape of steam to the whistle. Again, when in starting up the boiler the water-supply valve is accidentally closed and the safety-valve is out of order
10 the steam under high pressure may pass through the perforations in the bushing 9 and cause the lifting of the valve sufficiently to permit the escape of enough steam to operate the whistle 6 and call attention to the dangerous condition of the boiler.
15

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

The combination with the valve-chamber,
20 comprising the inverted cup 7, the casing 8, the bushing member 9 having the shoulder

10, the rim 11 to which the casing 8 is secured and the arm 12, the valve-seat 14 secured in the rim 11, and the valve 15 mounted to move vertically in a perforation of the seat, of the
25 lever 16 pivoted in the lower part of the arm 12 and having the ring 17, the weight 20 at one end of the lever, the rod 21 depending from the opposite end of the lever and provided with the frame 22 and float 23, the frame
30 25 adjustable on the rod 24 secured to the valve and extending through the ring 17 adjustable at the lower end of the rod, the float 26 carried thereby, and the nut 27 adjustable on the valve-stem above the ring 17, as described.
35

In witness whereof I have hereunto set my hand.

WILLIAM LANCASTER.

Witnesses:

EDWIN BYE,

JOSEPH A. MILLER, Jr.