

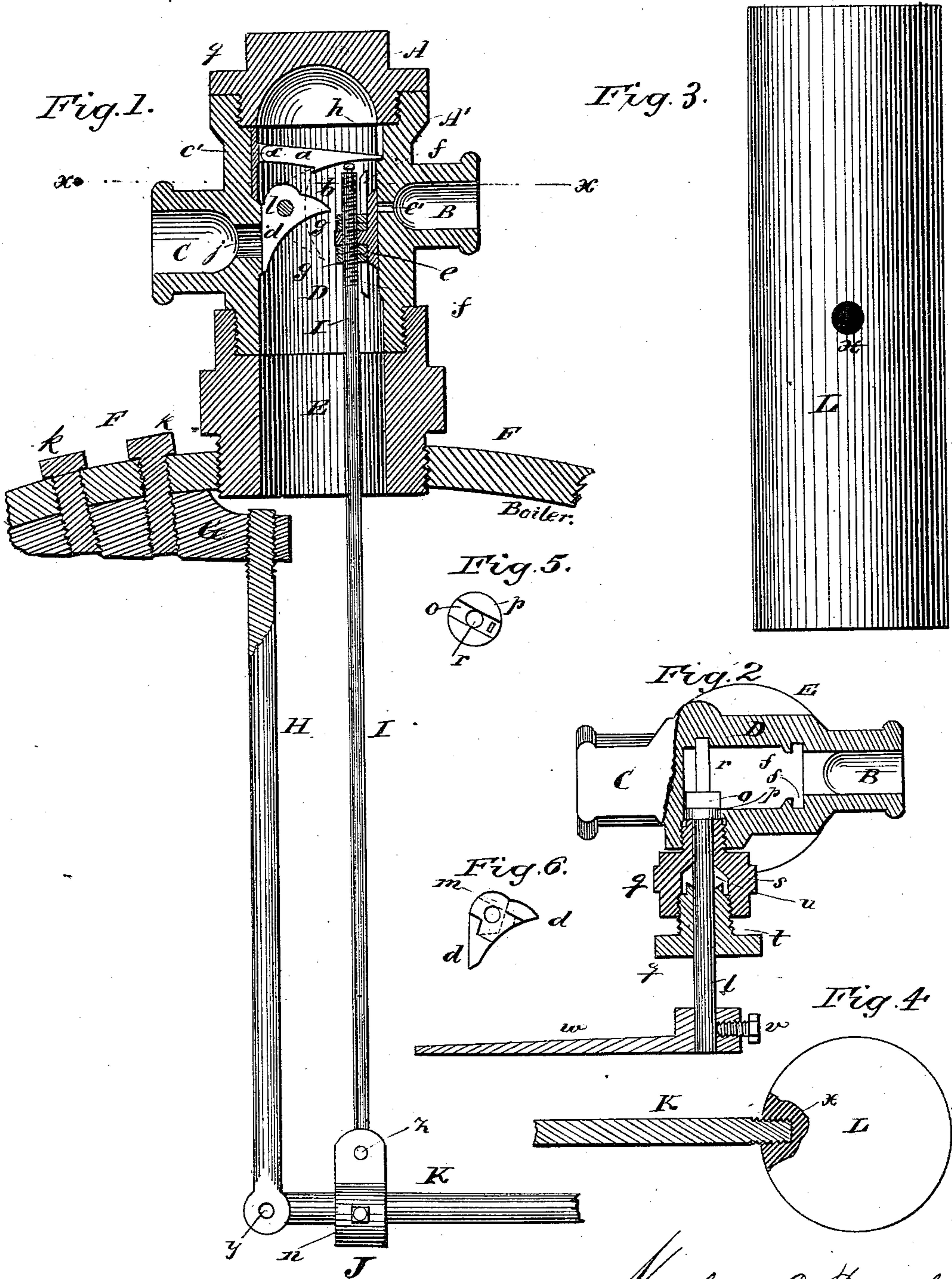
(No Model.)

N. C. BUTLER.

AUTOMATIC WATER ALARM AND REGULATOR.

No. 278,872.

Patented June 5, 1883.



WITNESSES:

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NATHAN C. BUTLER, OF LEIPSIC, OHIO.

AUTOMATIC WATER ALARM AND REGULATOR.

SPECIFICATION forming part of Letters Patent No. 278,872, dated June 5, 1883.

Application filed March 30, 1883. (No model.)

To all whom it may concern:

Be it known that I, NATHAN C. BUTLER, of Leipsic, in the county of Putnam and State of Ohio, have invented certain new and useful
5 Improvements in Automatic Water Alarms and Regulators for Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to
10 which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an automatic water indicator and regulator for steam-boilers; and
15 it consists in the parts which will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a portion of the boiler with my device, partly in section, attached thereto. Fig.
20 2 is a horizontal sectional view of the device, showing the water-regulating parts, (section through line *xx* in Fig. 1.) Fig. 3 is a plan view of the float. Fig. 4 is an end view thereof with a fragment of the float-lever attached.
25 Fig. 5 is an inside end view of the water-regulating-valve stem, and Fig. 6 is a side view of the water-regulating valve.

Like letters indicate like parts throughout the several views.

30 A is a cap provided with threads which engage the threads in the casing A'. B is a recessed projection on casing A', and formed integral therewith. C is also a projection on casing A', similar in construction to B. D is
35 the inside of the casing, in which the steam and water valves are located. E is a plug having inside threads, by means of which the outside threads on casing A' are engaged thereto. The lower end of plug E screws into boiler
40 F. G is a block bolted to the inside of the boiler. H is a rod fixed at its upper end to block G, and pivoted at its lower end to lever K. I is a rod connected at its lower end to the adjustable block J. L is the float, into
45 which one end of the lever K is fixed. The rod I is adjustable on lever K by means of the sliding block J and set-screw *n*, whereby the vertical play of rod I and valve *e* may be regulated.

50 In the small letters, *a* is a lock-lever. *b* is an adjustable set-screw in the top of rod I. *c* is the pivoted end of lever *a*. Said lever is let

in from the top, (in a dovetail, *c'*), and held in position by cap A. *d* is the water-regulating valve. *e* is the alarm or whistle valve, and
55 *f f'* are the slides for the same. *g g* are nuts on rod I, to secure valve *e* adjustably. *h* is a recess on the inside of casing A', in which the point of lock-lever *a* rests. *e'* is the alarm or steam-whistle port. *j* is the injector steam-
60 port. *k k* are bolts for securing the block G to boiler F. *l* is the water-regulating-valve stem. *m* is a recess or mortise in the water-regulating valve *d*. (See Fig. 6.) *n* is a set-screw in block J, for adjustably securing the same on
65 lever K. *o*, Fig. 2, is the flattened surface of valve-stem *l*. *p* is a bearing for valve-stem *l*. *q* represents the parts upon which a wrench may be used. *r* is a bearing for valve *d*. *s* is a movable stuffing-box, which secures the
70 valve-stem *l*, and *t* is the packing-nut. *u* represents the stuffing-space. *v* is a set-screw for securing lever *w* to rod *l*. *x* is the opening, Fig. 3, in float L, into which the lever K is fastened. *y* is a pin uniting rod H and lever
75 K. *z* is also a pin, connecting block J and rod I.

The operation of the device is as follows: When the water in the boiler gets low, the float L carries the float-lever K down, which
80 draws down on the rod I and valve *e* and opens the alarm-port *e'*, which permits the steam to enter the opening B, and thence into a whistle attached thereto, but not shown in the drawings. The whistle will notify the attendants
85 of the condition of the water. Then by turning the lever *w* in Fig. 2, which is secured to stem *l*, the valve *d* will be raised and secured by the lock-lever *a*, as shown by dotted lines, Fig. 1. The injector is then set to work, and
90 the water forced into the boiler through the openings C, *j*, D, and E. As the water fills in, the float L is lifted, thereby raising the lever K, rod I, and valve *e*, and said valve, in rising, closes the port *e'* and causes the whistle to
95 stop blowing. The same upward movement forces the set-screw *b* on top of rod I into contact with lever *a*, whereby said lever is raised and the valve *d* disengaged therefrom, which action permits the valve *d* to fall and close the
100 injector-port *j*.

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

1. In an automatic water indicator and reg-

ulator for steam-boilers, the float L, lever K, rod I, valve *c*, and set-screw *b*, in combination with the pivoted lever *a* and water-valve *d*, substantially as described, and for the purposes set forth.

2. In an automatic water indicator and regulator for steam-boilers, the float L, lever K, block G, and rods H I, in combination with the valves *c d* and pivoted catch-lever *a*, substantially as described, and for the purposes set forth.

3. In an automatic water indicator and regulator for steam-boilers, the float L, lever K, block G, and rods H I, in combination with the valves *c d*, lever *a*, and casing A', provided with ports *e' j*, substantially as described, and for the purposes set forth.

4. In an automatic water indicator and reg-

ulator for steam-boilers, the float L, lever K, adjustable block J, boiler-block G, and rods H and I, in combination with the valves *c d*, lever *a*, and casing A', substantially as described, and for the purposes set forth.

5. In an automatic water indicator and regulator for steam-boilers, the float L, lever K, and rod I, suitably suspended in the boiler, and the valve *c*, in combination with the lever *a*, valve *d*, rod *l*, and lever *w*, substantially as described, and for the purposes set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

NATHAN COLE BUTLER.

Witnesses:

W. W. SMITH,

FRED SANFORD SMITH.