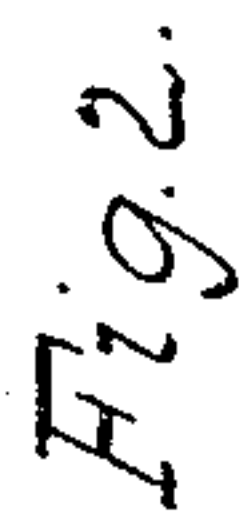
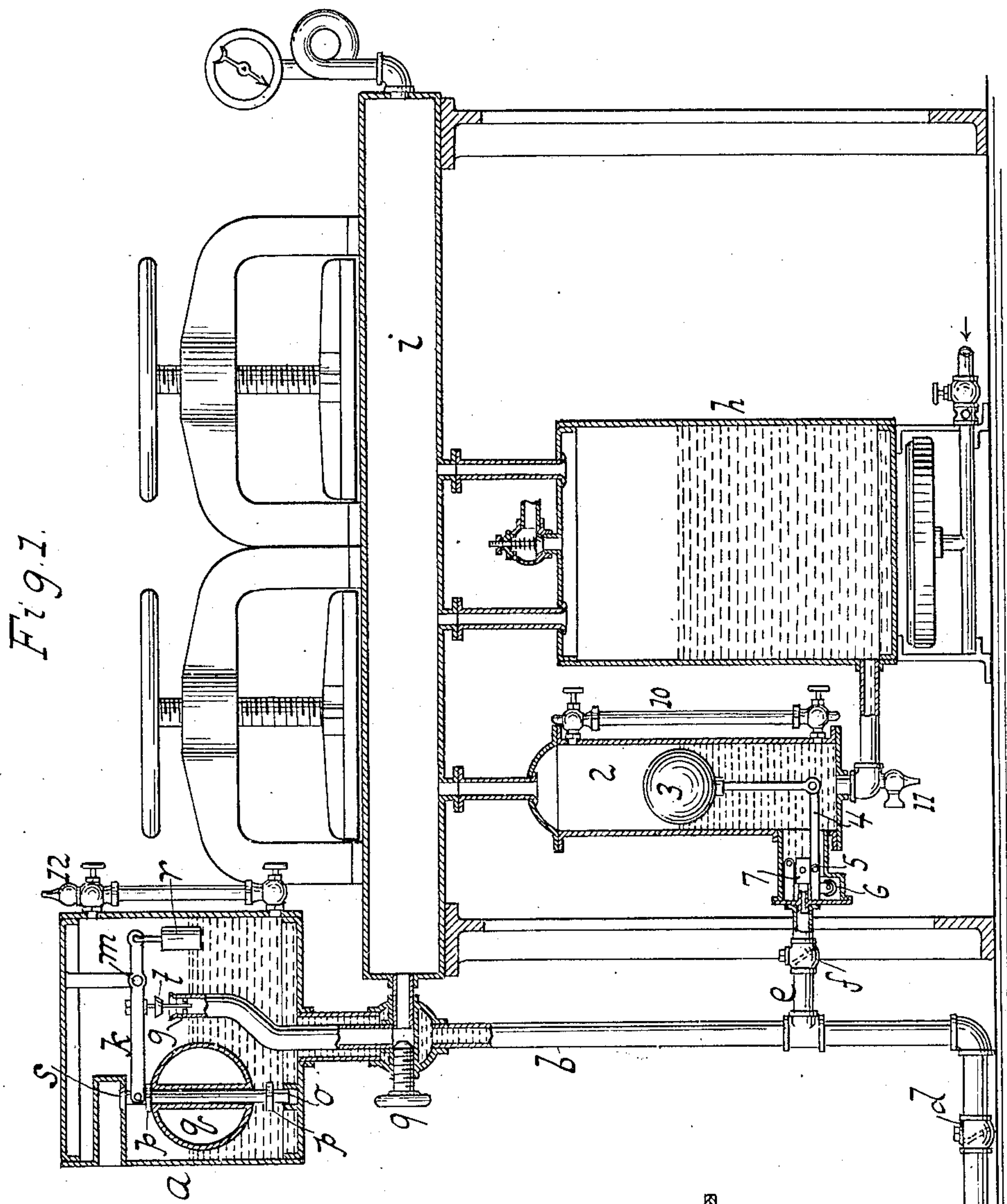


No. 844,873.

PATENTED FEB. 19, 1907.

T. KEENAN.
FEED WATER REGULATOR.
APPLICATION FILED JUNE 20, 1906.



WITNESSES:

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FEED-WATER REGULATOR.

No. 844,873.

Specification of Letters Patent.

Patented Feb. 19, 1907.

Application filed June 20, 1906. Serial No. 322,575.

To all whom it may concern:

Be it known that I, THOMAS KEENAN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Feed-Water Regulators, of which the following is a specification.

This invention relates to means by which the water-supply for a boiler can be automatically kept at required level.

This invention is set forth in the following specification and claims, and illustrated in the annexed drawings, in which—

Figure 1 is a sectional view of a device embodying this invention. Fig. 2 is a detail view.

In the drawings is shown a reservoir *a*, which can be supplied, as well as discharged, by conduit *b*. The supply from conduit *c* is prevented from flowing back by check-valve *d*, and the discharge *e* has a check-valve, as shown at *f*. A pressure-inlet tube *g* communicates with the steam or pressure space of either the boiler *h* or of a space communicating with the boiler. In the drawings is shown the table or hollow plate *i* of a drying-press; but the invention is not limited to such use. The reservoir *a* has a lever *k* fulcrumed at *m*. To this lever is pivoted a stem *o* with two nuts or bumper-points *p*. A float *q* slides on the stem to bump against one or another of the points *p*. A counterweight *r* at one arm of lever *k* tends to balance the other arm or the stem *o*, and easy operation is attained.

When the water in reservoir *a* is below a certain level, the float *q* coming against the lower bumper-point *p* actuates the lever *k* to open the escape-valve *s* and close the pressure or steam entrance valve *t* at pressure-inlet *g*. The valve at *s* when open allow pressure in the reservoir to escape, and the water-pressure from the main through intake *c* will fill the reservoir *a*. As the float rises to the upper contact-point *p* the lever *k* is moved to close valve *s* and open valve *t*. The pressure from valve *t* in reservoir *a* will cause the reservoir to discharge through conduit *e* into the chamber 2. In this chamber is a float 3. This float or its stem is pivoted to a lever 4, fulcrumed at 5 and having a counterweight 6. This lever 4 actuates a valve or plug 7, sitting against inlet *e*.

When the water in chamber 2 is low, the float 3 sinks, and the lever 4 moves valve-plug 7 away from the mouth of inlet *e* to allow the fluid to enter or the chamber 2 to be charged. As the float is carried up by the rising fluid the valve 7 is closed and the flow from inlet *e* stopped. The chamber 2 communicates with the boiler *h*. As the water in the boiler is consumed the level in the boiler, as also in the chamber 2, sinks, and the descending float 3 opens the inlet *e*. A feed thus occurs which is continued until the water in the boiler has returned to the desired level. The float 3 then again cuts off the supply until the water sinks below the required level.

The pressure-conduit *g* can be closed by a valve 9, if required. The device, as seen, is automatic. As the water sinks in the reservoir *a* the pressure-valve *s* opens for the main supply from *c* to fill the reservoir. As the water sinks in the boiler or in the float-chamber 2 the valve 7 is opened to allow refilling. Sight-glasses can be applied. The valve 7, being at the mouth of the entrance *e*, will break the force of the inflow or charge so as not to agitate the level visible through the sight-glass 10. A blow-off cock can be applied, as seen at 11. In case valve 9 is closed and valve 12 at reservoir *a* is opened then the air in reservoir *a* can escape at valve 12 as water feeds in from supply *c*. The boiler *h* and float-chamber 2 have a common water-level therein. The steam or pressure from the boiler rising into the space *i* can communicate thence with the reservoir *a* by way of pressure-inlet tube *g*.

I claim—

1. The combination with a reservoir and water-inlet, of a pressure-inlet extended through the water-inlet and having a valve, a float-actuated valve in the reservoir, a feed-water tube communicating with the reservoir, and a float-actuated valve in the feed-water tube.

2. The combination with a boiler, of a float-chamber and inlet, a float in the chamber, a counterbalanced lever connected to the float and having a valve for the inlet, a reservoir having a pressure-outlet, a pressure-inlet tube extended from the pressure or steam space of the boiler into the reservoir, a discharge-pipe from the reservoir made to

communicate with the inlet, valves for the pressure-outlet and pressure-inlet, and a float-actuated lever for opening and closing the valves in the reservoir.

- 5 3. The combination with a boiler and a float-chamber having a common water-level, inlet-valve for the chamber, a float and lever for actuating the valve, a reservoir having a pressure-outlet, a pressure-inlet tube extend-
10 ed from the pressure or steam space of the boiler into the reservoir, a discharge-pipe from the reservoir made to communicate with the

inlet, valves for the pressure-outlet and pressure-inlet, and a float-actuated lever for opening and closing the valves in the reservoir.
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In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

THOMAS KEENAN.

Witnesses:

GEORGE HULSBERG,
EDWARD WIESNER.