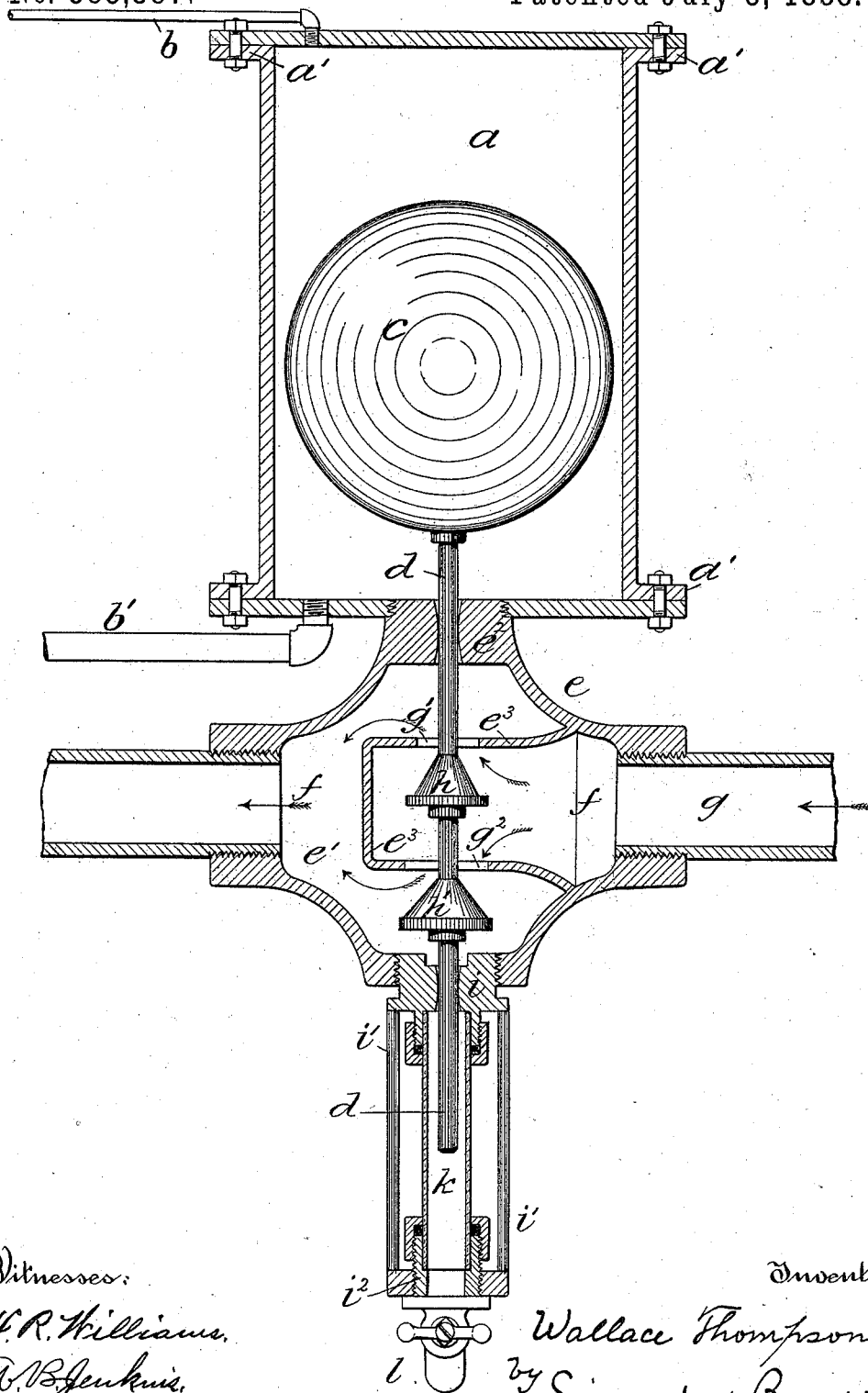


(No Model.)

W. THOMPSON.
FEED WATER REGULATOR.

No. 385,387.

Patented July 3, 1888.



Witnesses:

H. R. Williams.

A. B. Jenkins.

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UNITED STATES PATENT OFFICE.

WALLACE THOMPSON, OF SOUTH MANCHESTER, CONNECTICUT.

FEED-WATER REGULATOR.

SPECIFICATION forming part of Letters Patent No. 385,387, dated July 3, 1888.

Application filed November 26, 1887. Serial No. 256,217. (No model.)

To all whom it may concern:

Be it known that I, WALLACE THOMPSON, of South Manchester, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Feed-Water Regulators for Boilers, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

My invention relates to the class of devices that are used to automatically control or regulate the supply of feed-water to a boiler; and my invention consists in the combination of the float-chamber with boiler-connections, the float connected to a valve in the supply-pipe, and the peculiar valve with a sight-glass, into which the lower end of the valve-rod or an extension therefrom extends; and it further consists in details of the several parts of the apparatus and their combination, as more particularly hereinafter described, and pointed out in the claims.

Referring to the drawing, the figure is a view in central vertical section of a feed-water regulator embodying my invention.

In the accompanying drawing, the letter *a* denotes a float-chamber that is made of any convenient material and size, but preferably cylindrical, with outturned flanges *a'*, by means of which the cover is secured to opposite ends of the chamber. A steam-connection with the boiler is made by means of the pipe *b*, that is connected to the boiler at one end and enters through the top of the float-chamber at the other end, the connection with the boiler being above the water-line, and the object of this connection being to equalize the pressure in the float-chamber and boiler. The float *c* is located within the float-chamber, and it is secured to the upper end of the valve-rod *d*, that extends downward through the valve-body *e'* of the valve *e*. The pipe *b'* leads from the bottom of the float-chamber to the boiler, which it enters below the water-line, for the purpose of getting in the float-chamber the level of the water in the boiler. The valve-body *e'* has a threaded stem, *e''*, by means of which it is secured in the bottom of the float-chamber, and through an opening in this stem the valve-rod passes. The throughway *f* in the valve-body is substantially in a horizontal plane when the

valve-rod is vertical, and on the pump side of the valve the inlet-pipe *g* enters it, the diaphragm *e''* dividing the chamber in the valve-body and having in it the ports *g'* *g''*, into which the conical valves *h* *h'* are fitted. These valves are borne on the valve-rod *d*, the valve *h* being smaller in diameter than the port *g''*, so that the valve-rod and valves may be inserted in place from below through the opening in the bottom of the valve-body, this opening being afterward closed by a screw-plug, *i*, that forms the top part of a frame, *j'*, that supports a sight-glass, *k*. The lower end of the valve-rod *d* extends within the glass *k*, so that the exact position of the float and level of the water in the boiler may be seen at a glance. The plug *i'* in the lower end of the frame closes the bottom of the glass and bears a petcock, *l*, that is used to blow out and clean the glass. When the boiler with which the regulator is connected is full, the valves are closed by the flow of water into the float-chamber through the pipe *b'*, which raises the float *c*, and with it the valve-rod, closing the valves. In order to remove the glass *k* to clean or renew it, the petcock *l* just below the glass is opened, and the pressure in the chamber of the valve *e* when the float-chamber is nearly empty causes the valve *h'* to close upon the top of the plug *i*, and when the parts are in this position the glass may be removed and replaced. If at any time the water is too high, the water may be blown off from the boiler, in order to allow the float and valve-rod to drop, so that the opening through the plug *i* is closed, as before, and the glass can then be removed and replaced or renewed. The glass *k* may be removed and replaced by a new one without shutting off the feed-water.

To operate the float and work the valves *h* *h'*, the water flows from the boiler back through the pipe *b'* at the bottom of the float-chamber. This pipe also serves to carry off all the surplus water which accumulates in the float-chamber from condensation of steam or that leaks up through the valve-stem around the valve-rod *d*, so that the same level exists at all times in the boiler and in the float-chamber.

The above-described mechanism making up my improved feed-water regulator may be used not only for the purpose above described, but

also as a regulator to control the operation of the feed-pump by placing the float-chamber below the valve and the sight-glass beneath the float-chamber and putting the regulator on the steam-supply pipe of the pump, this being simply a reversal of the parts, and the device may also, without departure from my invention, be used in connection with a trap for the end of the return-pipes of a heating system.

10 I claim as my invention--

1. In combination with the float-chamber having the pipes *b b'*, the valve-body *e'*, with threaded stem *e''*, and throughway *f*, divided by the diaphragm *e''*, having therein the ports
15 *g' g''*, the float *c*, secured to the upper end of the valve-rod *d*, that bears the conical valves *h h'*, and extending through the valve-body *e'* into the sight-glass *k*, and the frame *i'*, sup-

porting the glass and secured to the bottom of the valve-body, all substantially as described. 20

2. In combination with the float-chamber having the pipes *b b'*, the valve-body *e'*, with threaded stem *e''*, and throughway *f*, divided by the diaphragm *e''*, having therein the ports
25 *g' g''*, the float *c*, secured to the upper end of the valve-rod *d*, that bears the conical valves *h h'*, and extending through the valve-body *e'* into the sight-glass *k*, and the frame *i'*, supporting the glass and secured to the bottom of the valve-body, and the plug *i''*, secured in the
30 lower end of the frame and bearing a petcock, *l*, all substantially as described.

WALLACE THOMPSON.

Witnesses:

EDWARD M. OUGARD,
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