(No Model.)

W. O. GUNCKEL.

STEAM BOILER FEEDER.

No. 398,778. Patented Feb. 26, 1889.

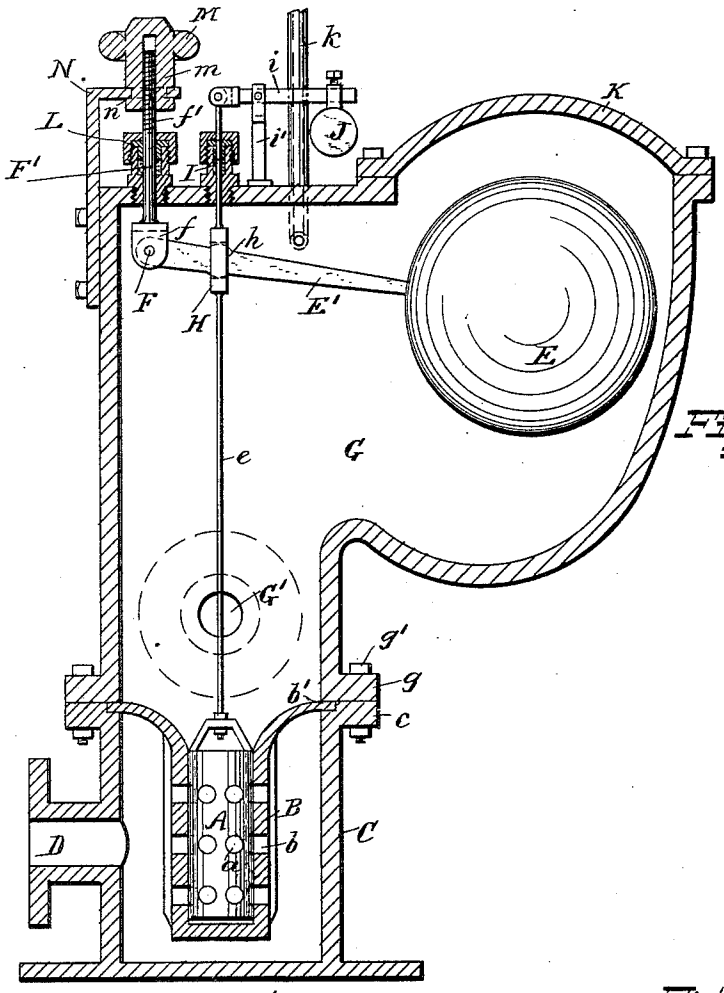


Fig. 1.

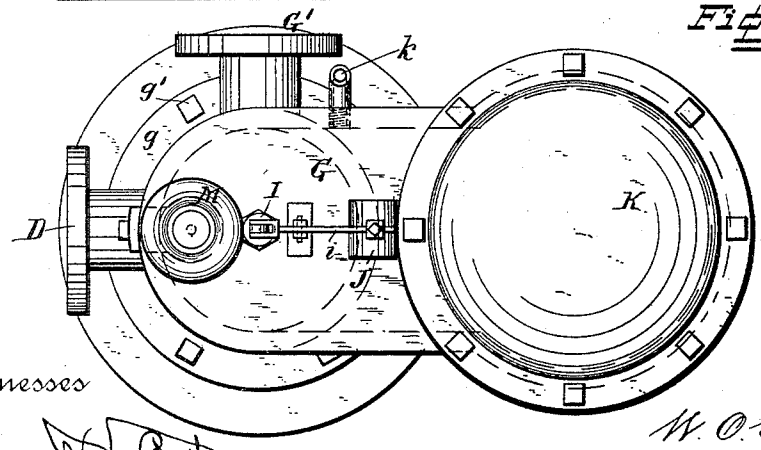


Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

WINFIELD O. GUNCKEL, OF TERRE HAUTE, INDIANA.

STEAM-BOILER FEEDER.

SPECIFICATION forming part of Letters Patent No. 398,778, dated February 26, 1889.

Application filed May 4, 1888. Serial No. 272,837. (No model.)

To all whom it may concern:

Be it known that I, WINFIELD O. GUNCKEL, a citizen of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented certain new and useful Improvements in Steam-Boiler Feeders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to regulators which are adapted to keep the water in a steam-boiler at a substantially uniform level, and is an improvement in the device for which I filed an application for Letters Patent on March 2, 1888, Serial No. 265,901.

The present invention consists in the novel construction and combination of the parts, hereinafter fully described and claimed, whereby the regulating-valve may be operated by hand to change the water-level of the boiler, and whereby the weight of the regulating-valve and the float may be counterbalanced.

In the drawings, Figure 1 is a vertical section through the device. Fig. 2 is a plan view of the device.

A is the cylindrical balanced regulating-valve provided with holes *a*. B is the cylinder in which the valve works, provided with annular orifices *b*, and *b'* is the flange by which the said cylinder is held in position. C is the casing for the valve and its cylinder, provided with a flange, *c*, at the top, and D is the inlet for the water from the pump. All these parts are the same as described in my aforesaid application, and the inlet-pipe is provided with a safety-valve in a similar manner, but not shown in the drawings forming a part of this application.

E is the float, and *e* is the regulating-valve rod; but according to this invention the float is not secured to the said rod direct, but is fastened upon the end of a lever, E', pivoted on the pin F, which passes through the double eye *f* at the lower end of the vertical spindle F', the upper end of which is provided with a screw-threaded portion, *f'*.

G is the casing for the float and its lever. This casing is provided with the flange *g* at its base, and *g'* are bolts which secure it to the flange of the valve-casing, and also serve to secure the valve-cylinder flange in position between the two said flanges.

G' is the outlet for the water which goes into the boiler after passing through the regulating-valve. The valve-rod *e* is provided with a yoke, H, through which the lever E' passes, and *h* is an enlargement upon the said lever which fits the slot in the yoke and enables the float to operate the valve. The upper end of the valve-rod *e* is passed through the float-casing, and I is a stuffing-box for keeping it steam-tight. A lever, *i*, is pivoted to the top of the rod *e*, and the said lever is pivotally supported by the stand *i'*, secured to the casing.

J is an adjustable weight upon the end of lever *i* for counterbalancing the weight of all the moving parts inside the casings, which are connected with the regulating-valve rod when the float is at the water-level.

K is a cover for the float-casing above the float, and *k* is a steam-pipe by which the upper part of the casing is placed in communication with the steam-space of the boiler, so that the pressure in both may always be the same.

The spindle F' is passed through the float-casing, and L is a stuffing-box for preventing the escape of steam.

M is a hand-wheel provided with a screw-threaded sleeve, *m*, which engages with the screw-threaded end of the spindle.

N is a standard secured to the casing, and *n* is a journal formed on the outside of the sleeve, so that it may revolve in the hole at the top of the standard without moving vertically.

The operation of the regulating-valve is the same as described in the above-mentioned application, the surplus water being returned into the hot well of the pump. The water-level of the boiler can, however, be changed by means of the hand-wheel, which changes the position of the fulcrum of the float-lever and operates the regulating-valve direct in the first place. The counter-balance enables the float to be made heavy without being inconveniently bulky, so that it will have weight enough to overcome the friction of the regulating-valve when the level of the water in the boiler is reduced and the regulating-valve

requires to be opened, so that more water may enter the boiler.

What I claim is—

1. The combination, with the regulating-valve of a steam-boiler feeder, of a lever and a float for operating the valve, and a hand-actuated screw for altering the position of the fulcrum of the said lever, thereby permitting the water-level of the boiler to be changed, substantially as and for the purpose set forth.

2. The combination, with the regulating-valve of a steam-boiler feeder, of a lever and a float for operating the valve, an adjustable fulcrum for said float-lever, and a weight for counterbalancing the said valve and float when the float is supported at any desired water-level, substantially as and for the purpose set forth.

3. The combination, with the regulating-valve of a steam-boiler feeder, of a lever and a float for operating the valve, and an adjustable fulcrum for the said float-lever, substantially as and for the purpose set forth.

4. The combination, with the regulating-valve of a steam-boiler feeder, of the valve-stem connected to the valve, the float, the float-lever operatively connected to the said valve-stem, the vertical screwed spindle provided with a fulcrum-pin for the float-lever, and a revoluble screw-threaded sleeve for adjusting the position of the vertical spindle, substantially as and for the purpose set forth.

5. The combination, with the regulating-valve of a steam-boiler feeder, of the valve-stem connected to the valve and provided with a yoke, the float, the float-lever provided with an enlargement engaging with said yoke, the screwed spindle projecting through the float-casing and provided with a fulcrum-pin for the lever at its lower end, a standard secured outside the float-casing, and a revoluble screw-threaded sleeve journaled in the standard for operating the said spindle, substantially as and for the purpose set forth.

6. The combination, with the regulating-valve of a steam-boiler feeder, of the valve-stem connected to the valve, the float, the float-lever operatively connected to the said valve-stem, the vertical screwed spindle provided with a fulcrum-pin for the float-lever, a revoluble screw-threaded sleeve for adjusting the position of the vertical spindle, a lever pivoted to the end of the valve-stem, a stand pivotally supporting the said lever, and a weight upon the free end of the said lever for counterbalancing the regulating-valve and other moving parts when the float is supported at the water-level, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WINFIELD O. GUNCKEL.

Witnesses:
FRED F. CORNELL,
C. T. NOBLE.