

(No Model.)

2 Sheets—Sheet 1.

D. EDWARDS.  
FEEDWATER REGULATOR.

No. 278,112.

Patented May 22, 1883.

Fig. 1.

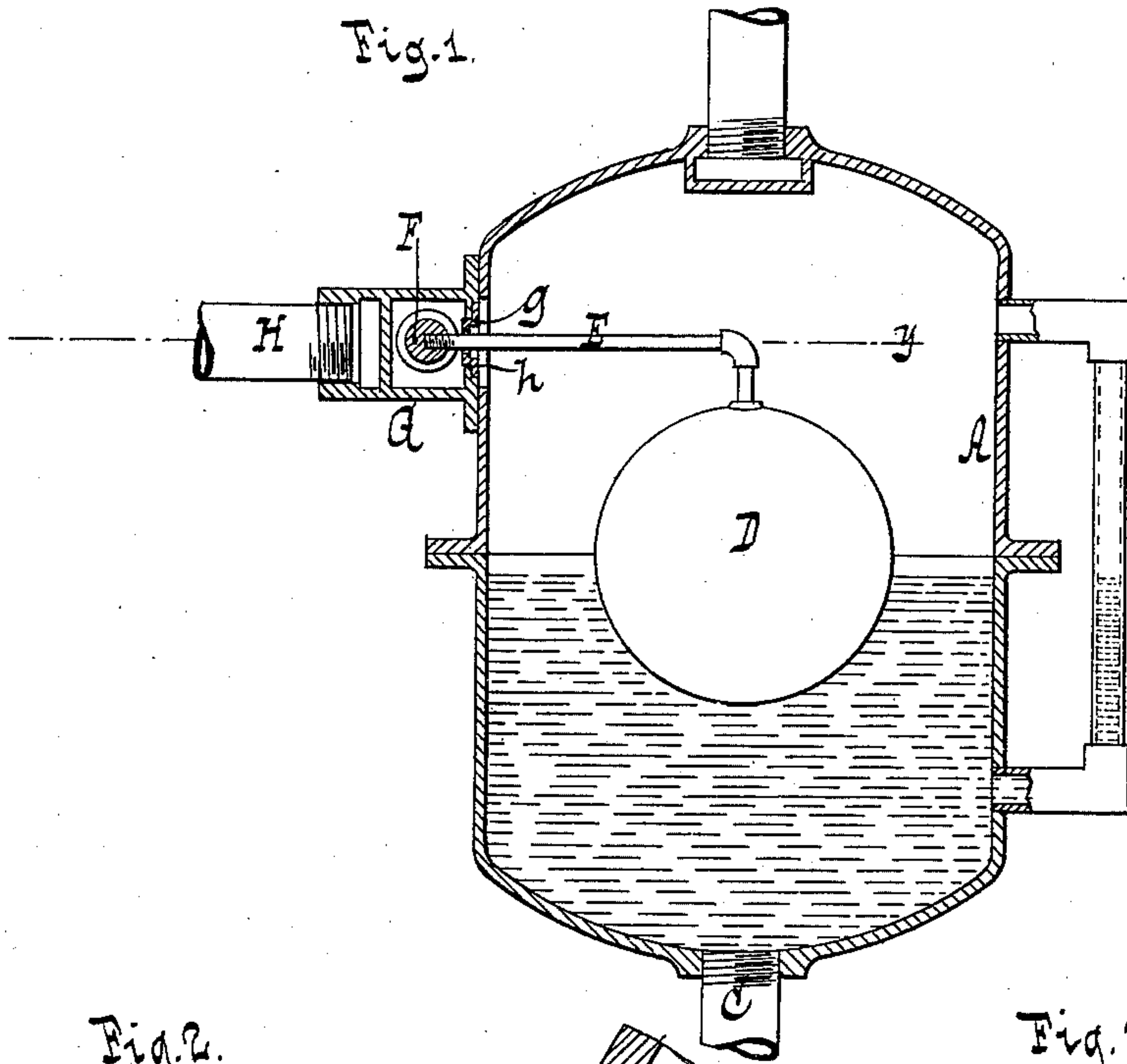


Fig. 2.

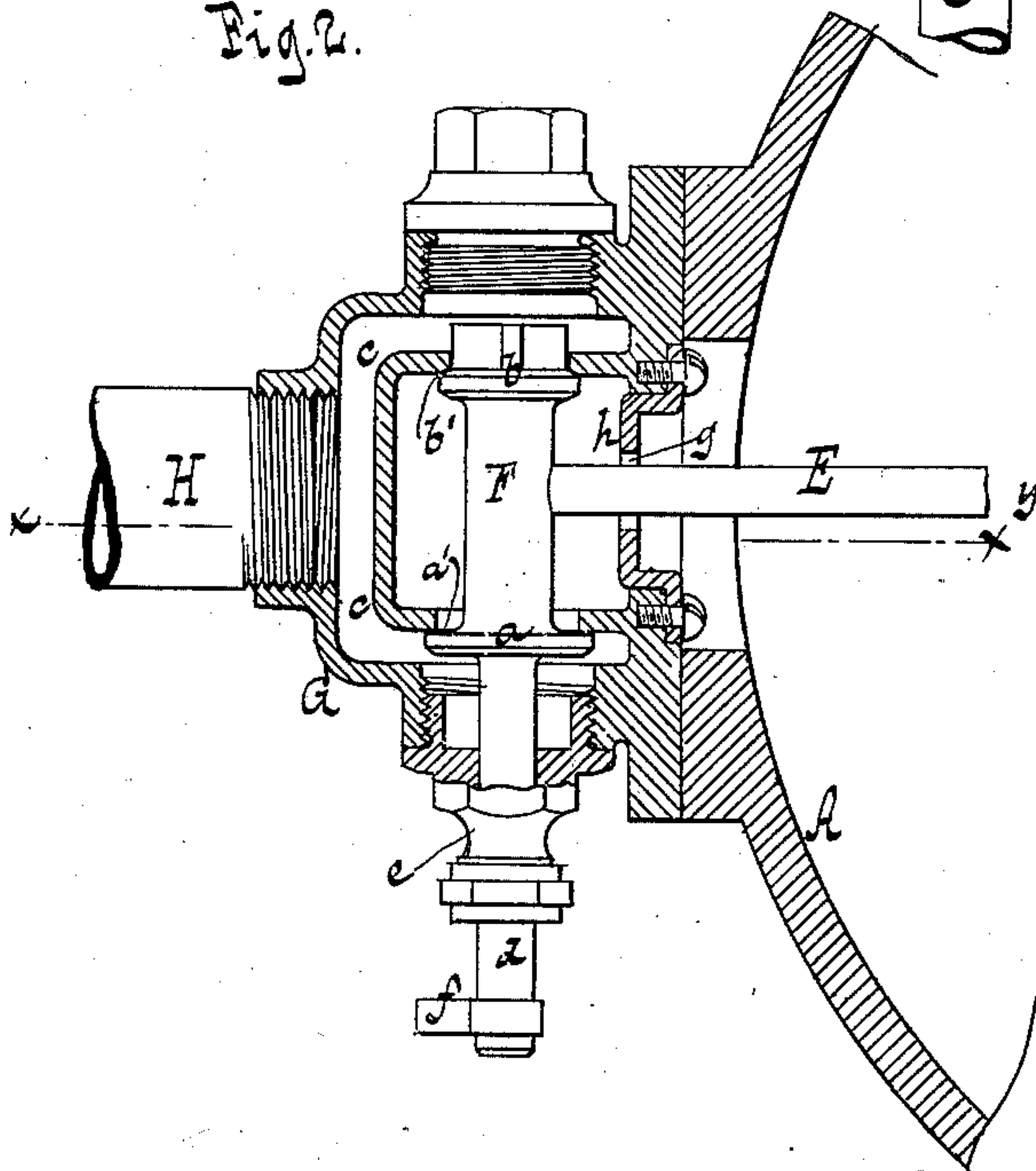
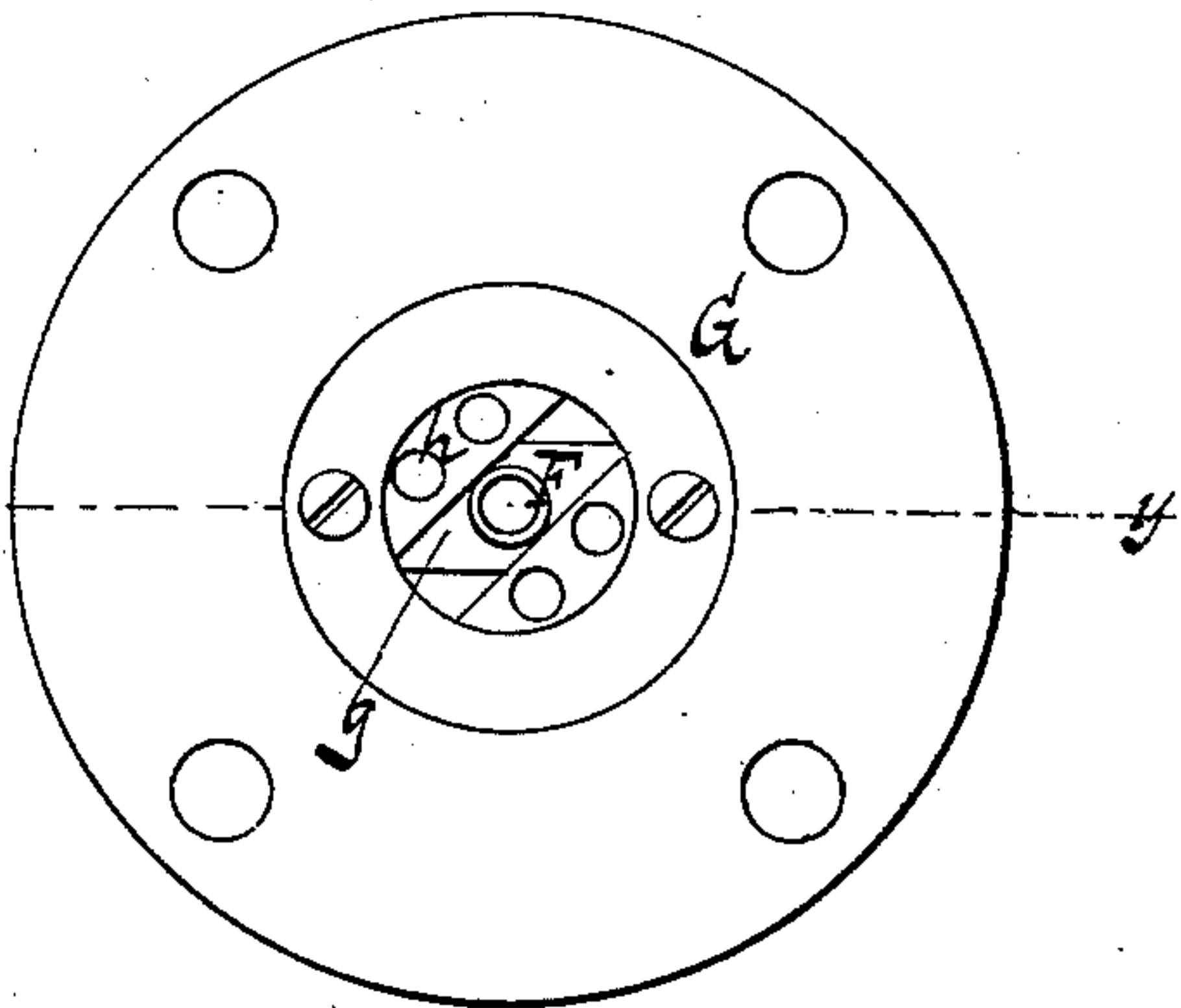


Fig. 3.



WITNESSES:

*Otto Aufeland*  
*William Miller*

INVENTOR

*David Edwards*

BY *Van Santwood & Hauff*

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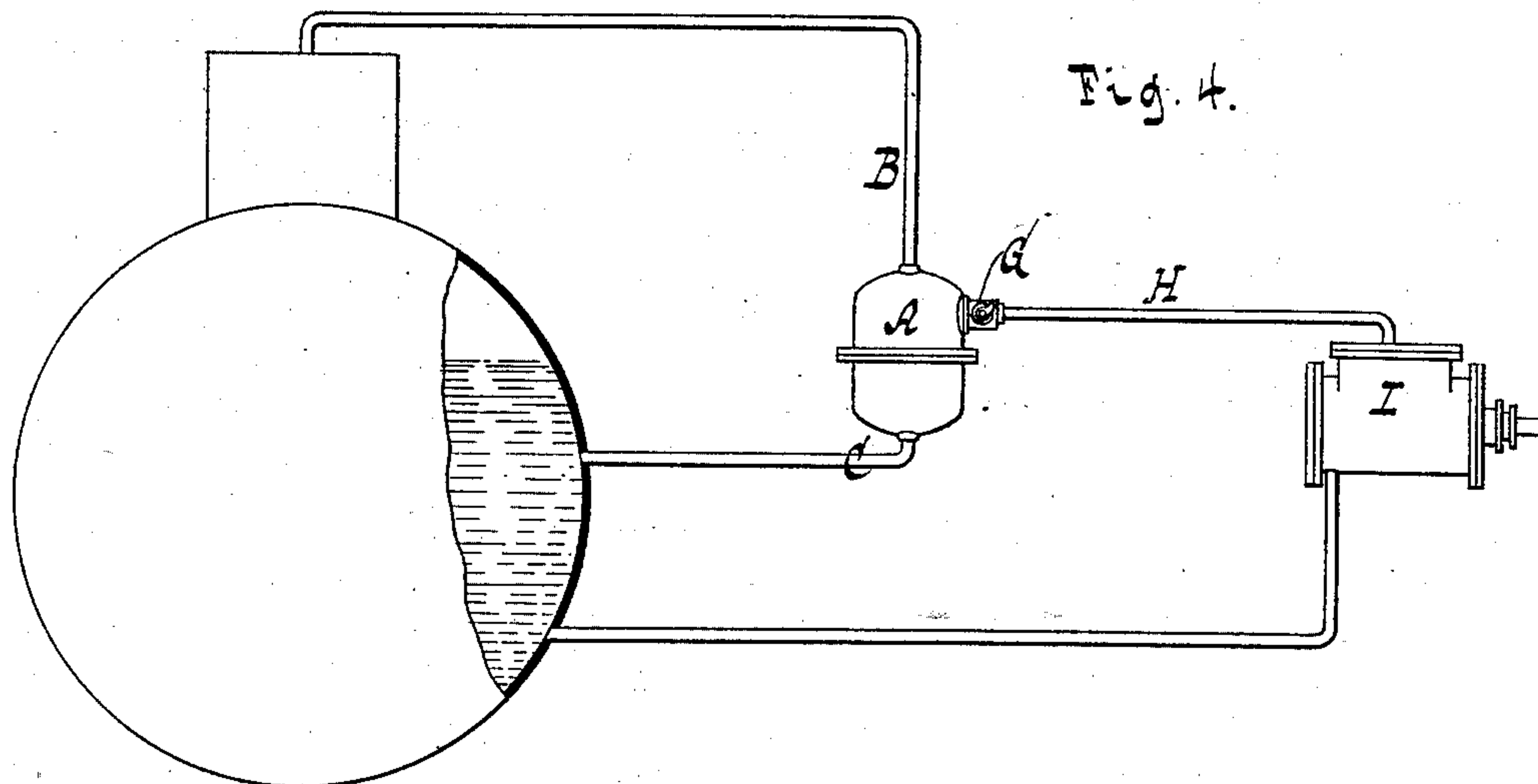
(No Model.)

2 Sheets—Sheet 2.

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WITNESSES:

*Otto Hupfand*  
*William Miller*

INVENTOR

*David Edwards*

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# UNITED STATES PATENT OFFICE.

DAVID EDWARDS, OF NEW YORK, N. Y.

## FEED-WATER REGULATOR.

SPECIFICATION forming part of Letters Patent No. 278,112, dated May 22, 1883.

Application filed April 12, 1883. (No model.)

*To all whom it may concern:*

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

This invention consists in the combination of a pot, two pipes, one extending from the top part and the other from the bottom part of said pot, a float situated in the pot, a valve-chamber connected to the pot and communicating with the same, a balanced valve inclosed in said valve-chamber, a rod connecting the float with the valve, an oblique slot on the inner face of the valve-chamber, through which said rod passes, and a pipe emanating from the valve-chamber, so that when the pot is placed with its middle on a level with the mean water-line of a steam-boiler and the pipes extending from the same are connected one with the steam-space and the other with the water-space of the boiler the valve will be opened automatically whenever the water in the boiler sinks below its mean water-line, and steam will pass through the pipe emanating from the valve-chamber to impart motion to the feed-pump, or water under pressure will flow through said pipe directly into the pot, and consequently into the boiler, until the float rises and the valve is closed.

In the accompanying drawings, Figure 1 represents a vertical section of my pot in the plane *xx*, Fig. 2. Fig. 2 is a horizontal section in the plane *yy*, Figs. 1 and 3, on a larger scale than the previous figure. Fig. 3 is an inside face view of the valve-chamber. Fig. 4 is a sectional view of a boiler with my attachment when connected to the feed-pump.

Similar letters indicate corresponding parts.

In these drawings, the letter A designates the pot, which is by preference made in halves and with a circular cross-section, but which may be made in any form or shape suitable for the purpose. From the top part of this pot extends a pipe, B, which is intended to connect with the steam-space of a boiler, (see Fig. 4,) and from the bottom part of the pot extends a pipe, C, which is intended to connect with the water-space of the boiler, the pot being placed at such a level that when the water in the boiler rises to the mean water-line the

pot is about half-filled with water, as indicated in Fig. 1. In the interior of the pot is the float D, which connects by a rod, E, with a valve, F, situated in a chamber, G, which is secured to the pot, as shown in Figs. 1, 2, and 4. Said valve has two disks, *a b*, and in the interior of the valve-chamber are formed two seats, *a' b'*, one for each of the valve-disks, as shown in Fig. 2. The space *c*, outside of the disks *a' b'*, communicates with a pipe, H, which extends from the valve-chamber, and which may either be connected to the steam-chest of the feed-pump I, as shown in Fig. 4, or which may be connected with a water tank or reservoir situated at such an elevation that the water will flow from it under a certain pressure. The stem *d* of the valve F extends through a stuffing-box, *e*, and on its end is mounted a cam, *f*, the object of which will be presently explained. The rod E, which connects the float with the valve, extends through an oblique slot, *g*, (best seen in Fig. 3,) which is formed in a disk, *h*, secured to the inner face of the valve-chamber G. If this slot were made perpendicular, the rising and falling motion of the float would simply produce an oscillating motion of the valve F; but by the oblique slot the valve is moved away from its seats when the float D sinks down, and when the float rises the valve is caused to close on its seats. The disk *h*, which contains the oblique slot, is perforated with a number of holes, Fig. 3, so that when the float sinks down and the valve is moved away from its seats a free communication is opened between the interior of the pot and the pipe H. If this pipe is connected to the steam-chest of the feed-pump I, as shown in Fig. 4, this pump receives no steam as long as the water in the boiler is up to the desired level; but when the water sinks below the mean water-line the float in the pot A sinks down, the valve F is opened, and steam passes from the boiler through the pipe B to the pot, and from the pot through the pipe H to the feed-pump. This pump is set in motion, and a sufficient supply of water is being forced into the boiler to retain practically a constant level. The cam *f* on the stem of the valve F is intended to start a steam-whistle whenever the float in the pot sinks down, and said cam can be easily so adjusted that the attention of the engineer is awakened if the feed-pump, from



some cause, should not act. If my pot is connected to a low-pressure boiler, and if there is a supply of water under pressure sufficiently greater than the boiler-pressure, the pipe H  
5 may be connected directly to the water-supply pipe, and when the float sinks down and the valve F is opened the water flows into the pot against the pressure of the steam, which is supposed to be, say, ten pounds, while the  
10 water flows under a pressure of, say, twenty pounds to the square inch. From the pot the water flows directly into the boiler until the high-water line is reached, when the valve F is closed and the supply of water is cut off.

15 I am aware of the patent granted to Silas C. Salisbury, dated October 3, 1882, and numbered 265,542, and I do not wish to claim as my invention anything shown and described in this patent. The float contained in my pot is con-  
20 nected directly to a balanced valve by a rod which passes through an oblique slot. By this arrangement a multiplicity of joints is avoided, and the supply of water to the boiler is con-

trolled without fail. In fact I have adapted the steam-trap described in my Patent No. 25 244,571 to act as a feed-water regulator.

What I claim as new, and desire to secure by Letters Patent, is—

The combination, substantially as hereinbefore described, of the pot, the two pipes, one 30 extending from the top part and the other from the bottom part of said pot, the float situated in the pot, the valve-chamber connected to the pot and communicating with the same, the balanced valve inclosed in said valve-  
35 chamber, the rod connecting the float directly with the valve, the oblique slot through which said rod passes, and the pipe emanating from the valve-chamber.

In testimony whereof I have hereunto set my 40 hand and seal in the presence of two subscribing witnesses.

DAVID EDWARDS. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.