

No. 876,725.

PATENTED JAN. 14, 1908.

J. B. MOWRY.
FEED WATER GOVERNOR.
APPLICATION FILED MAR. 25, 1907.

2 SHEETS—SHEET 2.

Fig. 2

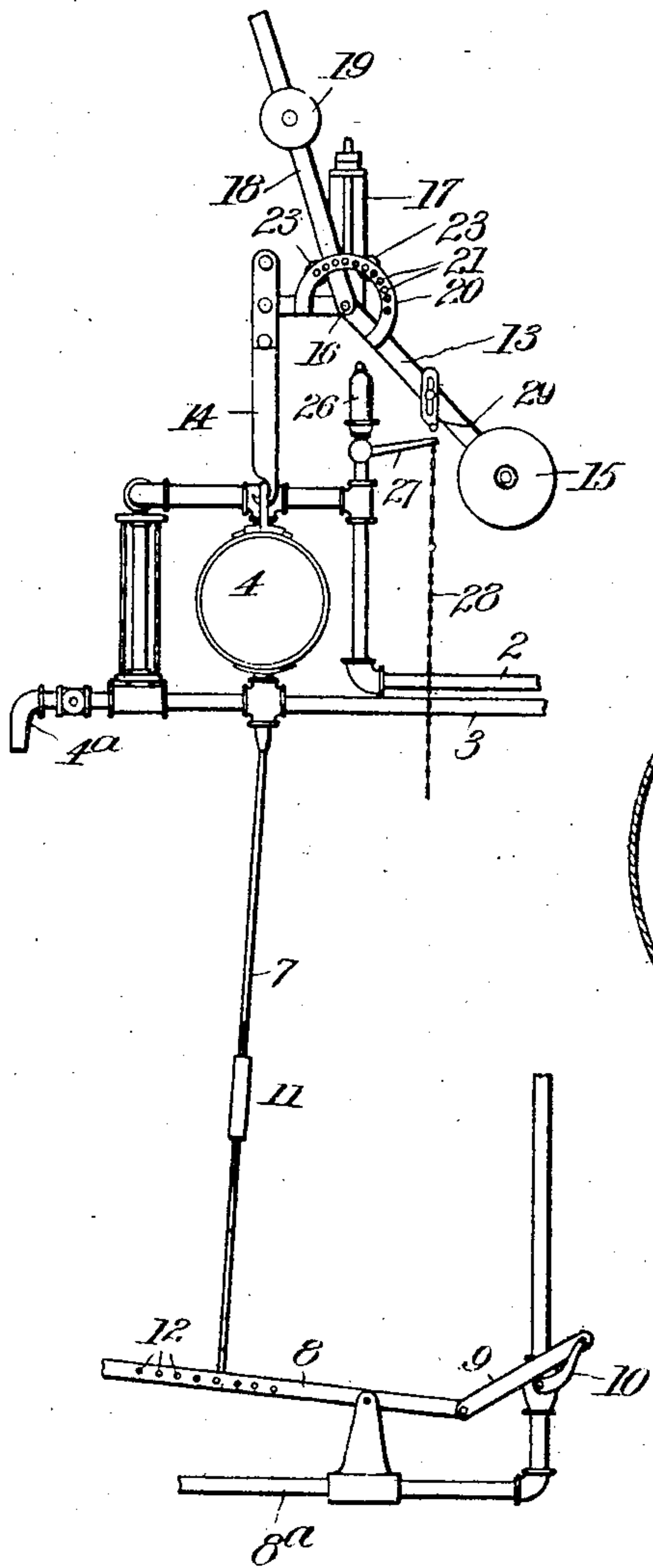
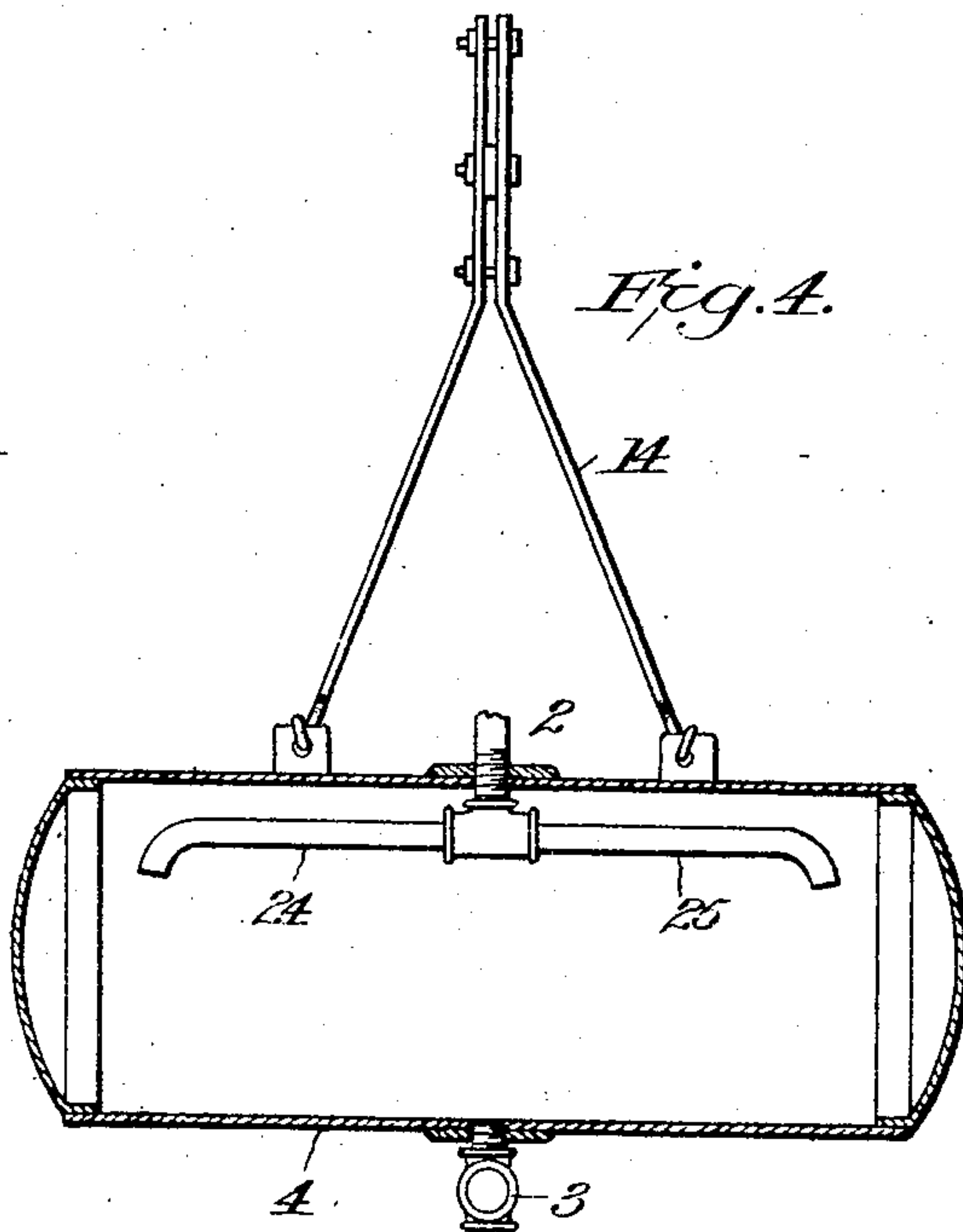


Fig. 4



WITNESSES:

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JOSEPH B. MOWRY, OF MANSFIELD, OHIO.

FEED-WATER GOVERNOR.

No. 876,725.

Specification of Letters Patent.

Patented Jan. 14, 1908.

Application filed March 25, 1907. Serial No. 364,402.

To all whom it may concern:

Be it known that I, JOSEPH B. MOWRY, a citizen of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Feed-Water Governors; 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.

My invention relates to feed water governors or regulators for steam boilers, tanks and vessels of various kinds.

It has for its object to provide improved means for maintaining the water-level within the vessel at an approximately constant height.

The invention consists in the feature of construction and combinations of parts hereinafter described and more particularly pointed out in the claims.

In the accompanying drawings, illustrating the preferred embodiment of my invention: Figure 1 is an elevation of devices embodying my invention looking at the end of the balanced receptacle showing the position of the devices when the valve to the pump is open and water is being fed to the boiler or tank. Fig. 2 is a similar view showing the positions of the devices when the valve is closed, parts being broken away. Fig. 3 is a broken side elevation of the receptacle and balancing devices, and Fig. 4 is a sectional view of said receptacle taken vertically and through the longitudinal axis thereof.

Referring more particularly to the drawings, 1 designates a water column which may be suitably connected to a steam boiler, tank or other vessel, the water level in which it is desired to regulate or maintain. Pipes 2 and 3 lead from said water column the desired distance to the receptacle 4. The pipe 2 enters said receptacle through the top and the pipe 3 through the bottom thereof. At one side of said receptacle a sight glass or gage is arranged between said pipes and the lower one is provided with a cock 4^a for drawing off water. Said pipes are preferably guided and partly supported by the arm 5 of a bracket 6, but said supports do not prevent the pipes from having sufficient vibration to permit the required vertical oscillation of the receptacle.

A rod 7 secured to the bottom of the receptacle connects with the lever 8 pivoted on

the feed-steam pipe 8^a to an engine for supplying the vessel or boiler. Said lever, in turn, is connected by means of the link 9 to the handle 10 of a valve in said steam pipe. The rod 7 is made in sections and provided with a turn buckle 11 for adjustment. The lever 8 is formed with a series of holes 12 for adjustably securing said rod 7 thereto.

The receptacle 4 is balanced or supported by means of a double armed lever 13, the short arm of which connects with a bracket 14 secured to said receptacle and the long arm of which carries a weight 15. Said lever 13 is pivoted around a pin 16 carried by a bracket 17 secured to a fixture. Also pivoted on said pin 16 is an upwardly extending pendulum arm 18 having a weight 19 adjustably mounted thereon. A segment 20 is secured to the lever 13 and is arranged above it and over the pivot thereof. Said segment has a series of perforations 21 therein through two of which pins 22 are passed upon which are mounted cam washers 23. The arm 18 extends up between said cam washers where by it may be suitably adjusted.

As shown in Fig. 4, in order to clean the receptacle 4 to prevent the governor from getting out of balance, I place branch pipes 24 and 25 within said receptacle, said branch pipes being connected to the pipe 2. The ends of said branch pipes are bent downward, as shown, to direct the flow toward the bottom. By cutting off pipe 3 by cock 26, opening cock 4^a and turning steam through pipe 2 and branch pipes 24 and 25, any accumulation of matter or sediment may be quickly removed.

It will be understood, of course, that the receptacle is to be arranged opposite the water level in the vessel to which the device is applied. The weight 15 is heavy enough to balance the receptacle when filled with water to the desired level for the water in the vessel. When the water in said vessel and receptacle rises above said level, the weight of said receptacle overcomes the weight 15 and said receptacle drops thereby closing the valve in the feed steam pipe 8^a by means of the rod 7, lever 8 and link 9. When the water in said receptacle and vessel falls slightly below the desired level, the receptacle becomes lighter than the weight 15 and is then raised at the same time opening the valve in pipe 8^a and feeding steam to the pump which supplies said vessel. It will, therefore, be seen that the receptacle will

oscillate up and down at intervals as long as the device is in operation, thereby automatically operating the valve which governs the action of the pump for supplying water to the vessel or boiler. The function of the weighted arm 18 is to exert additional force alternately on the side of the receptacle and on the side of the weighted arm of the lever 13 to insure the complete opening and closing of the valve in the steam pipe 8^a.

A whistle 26^a is mounted on the pipe 2 and controlled by a lever 27 to which an operating cord or chain 28 may be attached. Said whistle is automatically turned on every time the receptacle is raised and the pump is supplying water to the vessel or boiler, by means of a trip plate 29 adjustably secured to the weighted arm of the lever 13 in such position that it will engage and depress the lever 27 when said lever arm falls.

I claim:

1. In a device of the character described, the combination, with a vessel, of a receptacle, pipes connecting said vessel and receptacle, means carried by said receptacle for governing the supply of water to said vessel, a weighted lever pivoted to a fixture and adapted to balance said receptacle, and a weighted arm mounted on the same pivot with, and adjustable with relation to said lever for the purpose specified.

2. In a device of the character described, the combination, with a vessel, of a receptacle, pipes connecting said vessel and receptacle, means carried by said receptacle for governing the supply of water to said vessel, a weighted lever pivoted to a fixture and adapted to balance said receptacle, a segment on said lever arranged opposite its pivot, a weighted arm mounted on the same pivot with said lever, and means carried by said segment whereby said arm may be adjusted relative to said lever.

3. In a device of the character described, the combination, with a vessel, of a receptacle, pipes connecting said vessel and receptacle, means carried by said receptacle for governing the supply of water to said vessel, a weighted lever pivoted to a fixture and adapted to balance said receptacle, a segment on said lever arranged opposite its pivot, a weighted arm mounted on the same pivot with said lever, pins adapted to be inserted in any of a series of holes in said segment, and cam-washers on said pins whereby said arm may be adjusted relative to said lever.

4. In a device of the character described, the combination, with a vessel, of a receptacle, pipes connecting said vessel and receptacle, means carried by said receptacle for governing the supply of water to said vessel, a weighted lever pivoted to a fixture and adapted to balance said receptacle, a whistle mounted on one of said pipes and having a projecting operating arm and a trip on the weighted end of said lever and adapted to engage said arm when said lever drops.

5. In a device of the character described, the combination, with a vessel, of a receptacle, pipes connecting said vessel and receptacle, a valved steam supply pipe to a pump for supplying water to said vessel, a lever pivoted on said supply pipe, a rod connecting said lever with said receptacle, a weighted lever pivoted to a fixture and adapted to balance said receptacle, and a weighted arm mounted on the same pivot with, and adjustable with relation to said weighted lever for the purpose specified.

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

JOSEPH B. MOWRY.

Witnesses:

JOS. E. SMITH,
FRANCIS MANIOTT.