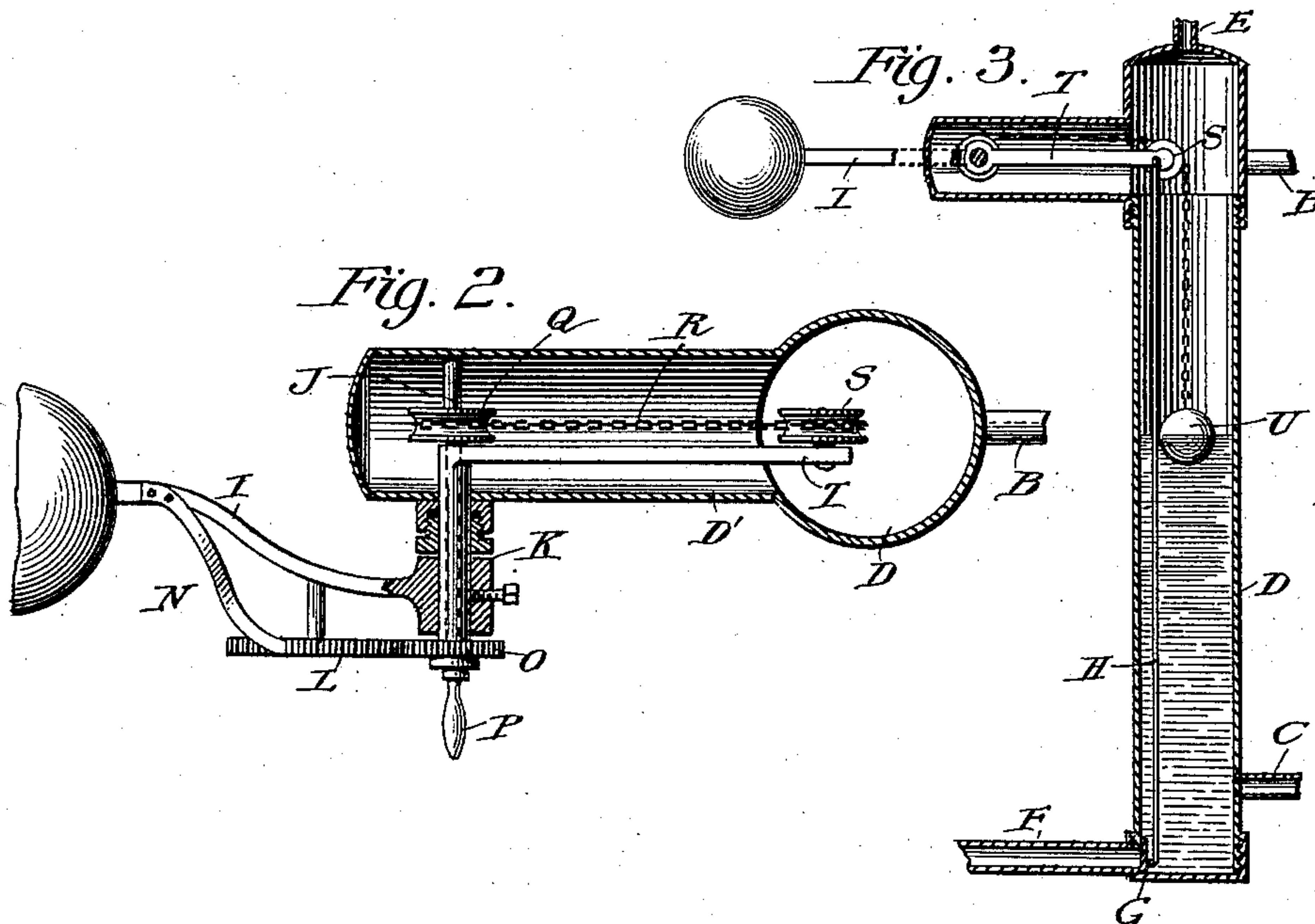
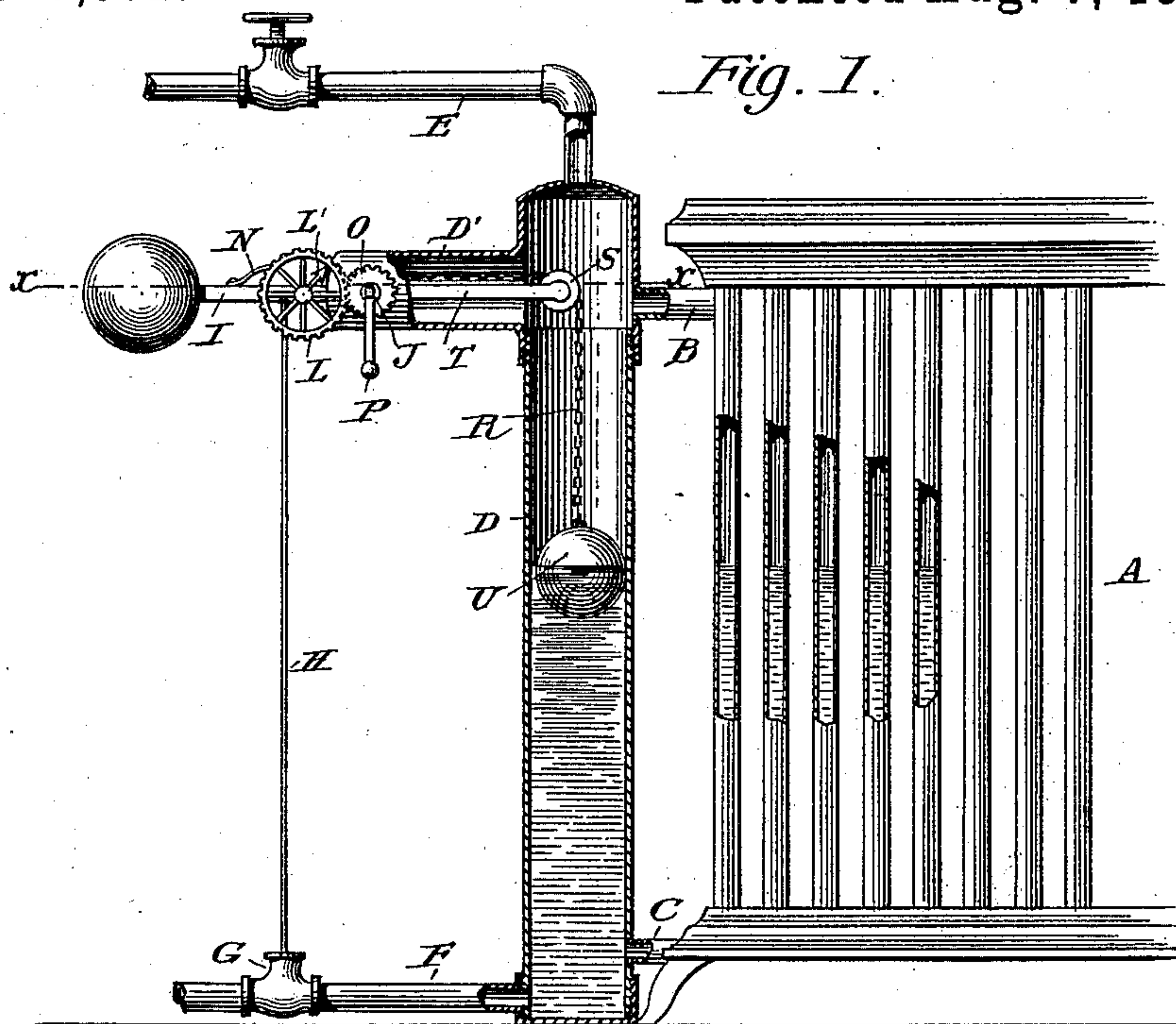


(No Model.)

P. W. BRITTS.
RADIATOR REGULATOR.

No. 387,552.

Patented Aug. 7, 1888.



WITNESSES:

Clark.
C. Sedgwick

INVENTOR:

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UNITED STATES PATENT OFFICE.

PETER W. BRITTS, OF GUNNISON, COLORADO.

RADIATOR-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 387,552, dated August 7, 1888.

Application filed October 31, 1887. Serial No. 253,852. (No model.)

To all whom it may concern:

Be it known that I, PETER WINFRED BRITTS, of Gunnison, in the county of Gunnison and State of Colorado, have invented a new and Improved Radiator-Regulator, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved device for controlling and regulating the heat given off by a steam-radiator.

The invention consists of an adjustable float operating in a tank connected with the radiator, a weighted lever on which said float operates, and a valve connected with said weighted lever for regulating the outflow of the water of condensation from the radiator.

The invention also consists in the construction and arrangement of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of my improvement. Fig. 2 is an enlarged sectional plan view of the same on the line *xx* of Fig. 1, and Fig. 3 is a sectional side elevation of a modified form of my improvement.

The steam-radiator A, of any approved construction, is connected at its top and bottom by the pipes B and C, respectively, with the upper and lower ends of the tank D placed alongside of the radiator A, so as to establish a steam and water connection with the radiator A, whereby the water-level is the same in both. The tank D is connected at the top with the steam-supply pipe E, provided with the usual valve. The bottom of the tank D is provided with a water-outlet pipe, F, leading to the boiler, and provided with a gate-valve, G, having a valve-rod, H, pivotally secured to a weighted lever, I, fastened on a sleeve, K, turning in suitable bearings on the hollow branch arm D', extending at right angles from the upper end of the tank D.

Through the sleeve K passes a shaft, J, carrying on its outer end a pinion, O, meshing into a gear-wheel, L, mounted to turn on a stud secured on the weighted lever I. A

spring-pawl, N, is fastened by one end to the lever-arm I and engages with its free end the teeth of the gear-wheel L, so as to prevent a return movement of the pinion O and its shaft J. The latter is also provided on its outer end with a crank-arm, P, for turning the shaft. On the inner end of the latter, inside of the branch arm D', is secured a drum, Q, on which winds one end of the chain or rope R, passing over a pulley, S, held on the free end of an arm, T, secured to the sleeve K on the inside of the hollow branch arm D'. The arm T, the sleeve K, and the weighted lever I thus form one piece, so that when the arm T swings downward the weighted lever I swings upward, and vice versa.

The pulley S projects to about the middle of the tank D, and the rope or chain R, passing over said pulley S, extends downward and carries at its lower end a weighted float, U, which rises and falls with the water-level in the tank D and in the radiator A. Suitable stuffing-boxes are employed to make the sleeve K steam-tight on the hollow arm D'.

On the gear-wheel L is held a pointer, L', for indicating the position of the float U after it has been adjusted.

The operation is as follows: The float U can be raised or lowered to any desired height in the tank D by turning the crank-arm P and disengaging temporarily the pawl N of the wheel L. The turning of the shaft J causes the pinion O to turn the gear-wheel L, which, with its pointer L', assumes a certain position, according to the height of the float U in the tank D, so that the pointer L' indicates the respective height of the float U in said tank. When the float is adjusted, the pawl N is again thrown in contact with the gear-wheel L, thus preventing an unwinding of the chain R from the drum Q, which, with its shaft J, is held in a locked position by said pawl N. The weight of the float U exerts its pressure against the arm T, which, with the weighted arm I, is thus held in a normal position, so that the valve G remains closed. The steam entering the radiator A through the supply-pipe E, the tank D, and the pipe B can now condense, and the water of condensation accumulates in the radiator A and the tank D. When sufficient water has accumulated, the float U rises with

the water-level, thus relieving the arm T of its weight, whereby the weighted lever-arm I swings downward and by the rod H opens the valve G, so that the surplus water in the radiator flows out through the pipe F until the normal level is reached. The float U moves downward with the falling of the water-level and again exerts its pressure on the arm T, which thus swings downward and turns the sleeve K, whereby the weighted lever-arm I is again swung upward, thus closing the valve G and retaining the water in the radiator A at a normal level.

By adjusting the position of the float U in the tank D, I am enabled to vary the height of the water to any desired normal level, so that the steam-space in the radiator A is increased or diminished, as desired. The radiation of heat from the radiator is thus similarly increased or diminished according to the amount of steam permitted to occupy the radiator A.

Instead of securing the valve-rod H to the lever-arm I, I may also place the rod H inside of the tank B, as shown in Fig. 3, and connect the said rod H to the arm T, instead of the weighted lever-arm I. The gate-valve G operates over the opening of the pipe T into the tank D in the same manner as above described—that is, when the float U rises the valve G is lifted and establishes connection between the outlet-pipe F and the tank D.

I do not limit myself to the special float and connections shown and described, as any adjustable float connected with the waste-valve can be used for the same purpose. In the same manner a weight-balanced float or a spring-balanced adjustable float can be employed with the same result as stated.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a radiator, of a tank connected at top and bottom with the radiator and provided with an inlet and outlet

pipe, a valve for opening and closing the outlet-pipe, a weighted lever connected to said valve, and a float in the tank and connected to the weighted lever, substantially as described.

2. The combination, with a radiator, of a tank connected at top and bottom with the radiator and provided with an inlet and outlet pipe, a valve in the outlet-pipe, a weighted lever provided with an arm projecting into the tank, a pulley on the said arm, a float in the tank, a chain secured to the float and passing over the pulley, and a connection between the valve and weighted lever, substantially as described.

3. The combination, with a tank constructed to be connected to the radiator at top and bottom and provided with a lateral extension and an inlet and outlet pipe, and a valve in the outlet-pipe, of a shaft journaled in the lateral extension and provided with a drum and a pinion, a weighted lever mounted on the shaft and provided with a pinion meshing the pinion on the said shaft, and with an inwardly-projecting arm carrying a pulley, a chain on the drum, a float on the end of the chain, and a connection between the valve in the outlet-pipe and the weighted lever, substantially as described.

4. The combination, with a tank constructed to be connected to a radiator provided with a lateral extension and inlet and outlet pipes, and a valve in the outlet-pipe, of a shaft journaled in the lateral extension and provided with a drum and pinion, a sleeve on the shaft provided with an inwardly-projecting arm carrying a pulley and a weighted lever carrying a pinion meshing with the pinion on the said shaft, a pawl engaging the pinion on the weighted lever, a chain on the drum and having a float at its end, and a rod connecting the valve in the outlet-pipe with the weighted lever, substantially as described.

PETER W. BRITTS.

Witnesses:

C. T. SILLS,
C. G. BENNETT.