W. T. PECK & J. E. CLELAND.

STEAM HEATING APPARATUS.

APPLICATION FILED AUG. 4, 1910.

990,769.

Patented Apr. 25, 1911.

2 SHEETS—SHEET 1.

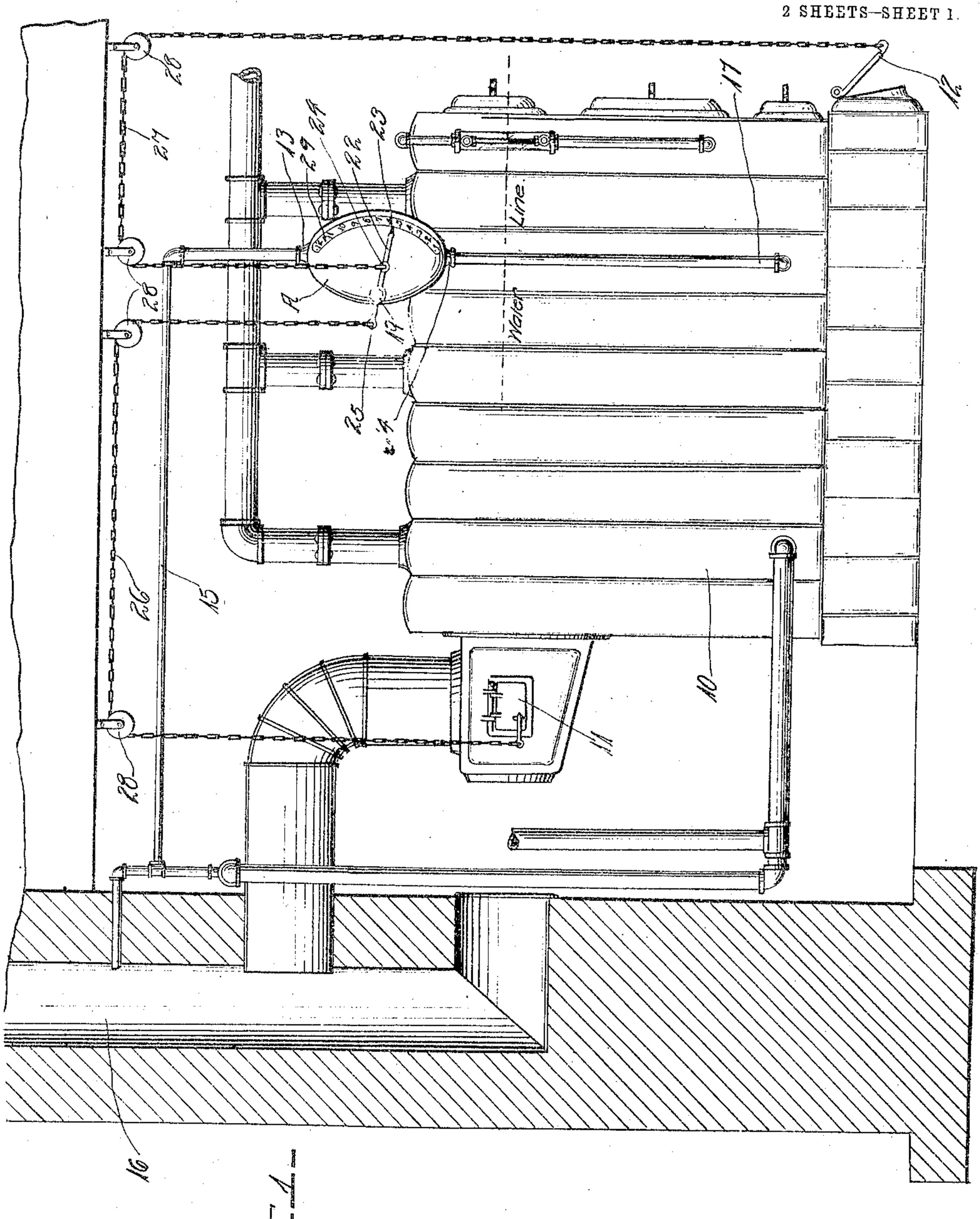

Fig. 1.

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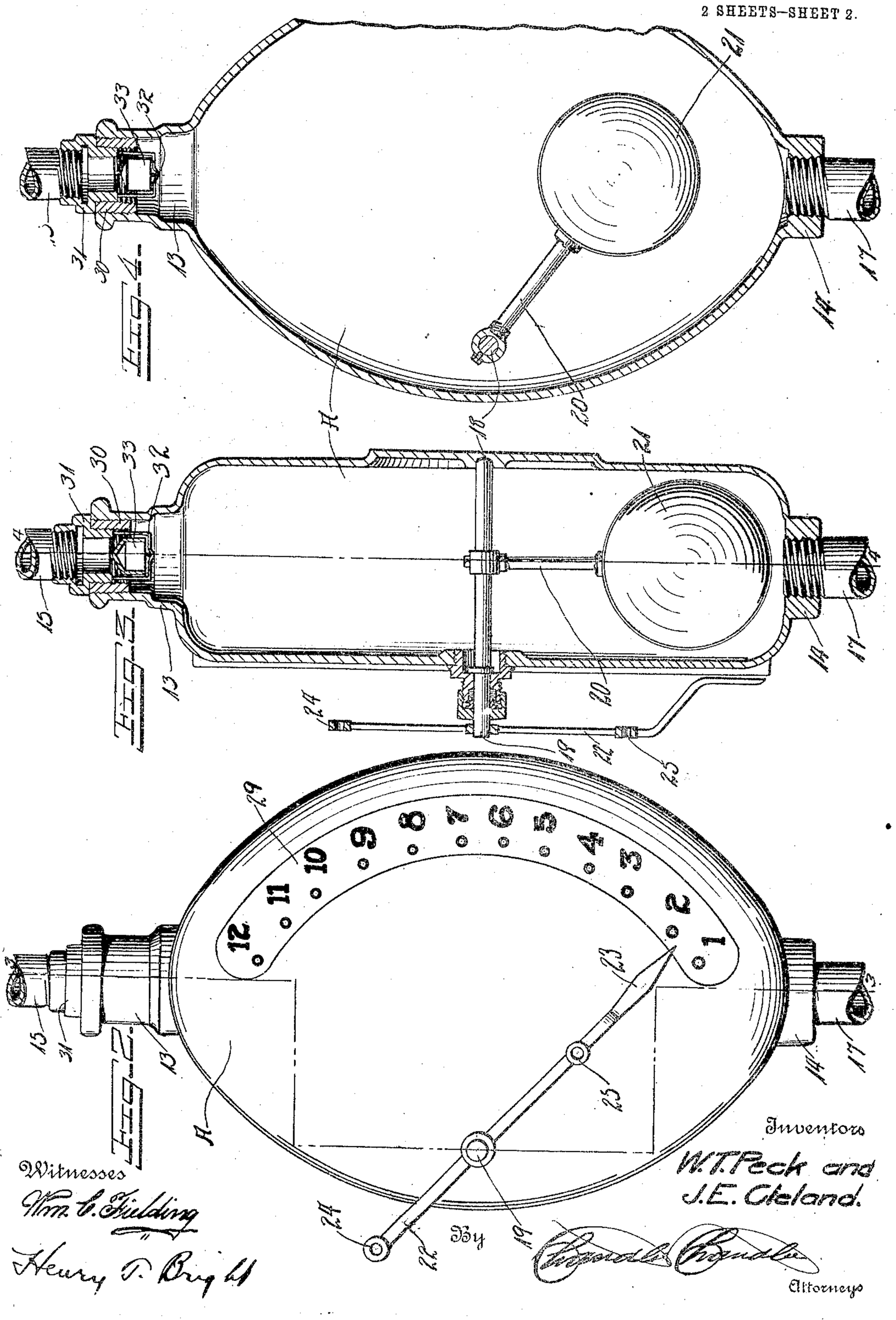

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UNITED STATES PATENT OFFICE.

WILLIAM T. PECK AND JAMES E. CLELAND, OF LYNCHBURG, VIRGINIA.

STEAM-HEATING APPARATUS.

990,769. Specification of Letters Patent. Patented Apr. 25, 1911.

Application filed August 4, 1910. Serial No. 575,473.

To all whom it may concern:

Be it known that we, WILLIAM T. PECK and JAMES E. CLELAND, citizens of the United States, residing at Lynchburg, in the county of Campbell, State of Virginia, have invented certain new and useful Improvements in Steam-Heating Apparatus; and we 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 steam heating apparatus.

The object of the invention is to provide a steam heating apparatus adapted to control automatically the draft of the boiler and thereby secure a uniform steam pressure and to enhance the efficiency of the system with which it is associated.

With the above and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts as will be hereinafter more fully described and particularly pointed out in the appended claim.

In describing the invention in detail reference will be had to the accompanying drawings wherein like characters of reference denote corresponding parts in the several views; and in which,

Figure 1 is a side elevation of a boiler with the invention associated therewith; Fig. 2, an enlarged side elevation of the invention; Fig. 3, a section on the line 3—3 of Fig. 2; and, Fig. 4, a section on the line 4—4 of Fig. 3, the reservoir being partly broken away.

Referring to the drawings, 10 represents the boiler which may be of any desired form and which is provided with a check damper 11 and a draft door 12 located respectively at the smoke pipe or flue and at the bottom of the boiler for controlling the draft through the smoke pipe or connection and through the base of the boiler to the fire, and these dampers are controlled by means hereinafter described for maintaining a uniform steam pressure throughout the system with which the boiler 10 is associated.

The pressure regulator is indicated generally by A and comprises a substantially elliptical casing provided with an upper opening 13 and a lower opening 14. A pipe connection 15 has one end mounted in the opening 13 and its other end communicating with the atmosphere through the chimney 16. Another pipe 17 has one end secured in the opening 14 and its other end communicating with the interior of the boiler 10 below the water line. From this construction it will be apparent that as the pressure in the boiler 10 increases the water contained therein will be forced through the pipe 17 into the casing or reservoir of the pressure regulator. Journaled in the casing of the reservoir is a shaft 18, one end of which extends exteriorly of the reservoir as at 19. Fixed on the shaft 18 within the reservoir is an arm 20 which carries at its free end a float 21. Another arm 22 is also fixedly secured intermediate its ends to the exterior portion of the shaft 18 and has one end terminating in a pointer 23. Also formed in the arm 22 on opposite sides of its connection with the shaft 18 are eyes 24 and 25 and a chain 26 has one end connected in the eye 24 and its other end secured to the check damper 11, while another chain 27 has one end secured in the eye 25 and its other end to the draft door 12; said chains traveling over suitable pulleys 28 arranged above the boiler. Removably mounted upon the outer face of the reservoir adjacent the pointer 23 is a dial plate 29 which has indicated thereon a scale of pressures, increasing from its bottom toward its top.

As water is forced by the pressure in the boiler into the reservoir it will be apparent that the float 21 will be elevated and the shaft 18 in consequence rotated. This rotation of the shaft 18 will in turn cause a movement of the arm 22 and effect through the chain connections 26 and 27 the opening of the check draft 11 and the closing of the draft door 12 and thus decrease the pressure in the boiler. A reverse movement of the arm 22, due to the descent of the float 21 will in turn open the draft door 12 and close the check damper 11, thus raising the pressure within the boiler. During this movement of the arm 22 the pointer 23 will at all times indicate in connection with the dial plate 29 the pressure existing within the boiler. In order to prevent the water forced into the reservoir from passing through the opening 13 there is detachably mounted in said opening a tubular bushing 30, while a second tubular bushing 31 is detachably mounted within the bushing 30 and has the outer end of its bore threaded for connection with the pipe 15. Suspended

from the lower end of the bushing 31 is a plurality of U-shaped wires 32 with their bent portions intersecting each other and disposed across the bore of the bushing 31. Seated upon the bent portion of the wires 32 is a hollow float valve 33, the lower end of which is open, while the upper end thereof is closed and of conical formation. From this construction it will be apparent that when the water forced into the reservoir reaches the level of the float valve 33, the latter will be raised from its seat upon the bent portion of the wires 32 and elevated so as to close the opening through the bushing 31 and thereby prevent the passage of water through the pipe 15.

As the dial 29 is removable it will be apparent that the figures thereon can be changed and the reservoir placed at a higher or lower point and the pointer and dial will still indicate the higher or lower pressures.

What is claimed is:

In a steam heating apparatus, the combination of a boiler, a reservoir located above the water line of the boiler, having an upper opening venting to the atmosphere, and a lower opening in communication with the boiler below the water line, a bushing mounted in said upper opening, a plurality of U-shaped wires suspended from the lower end of said bushing and extending into the reservoir and having their bent portions intersecting each other, a float valve seated upon the bent portion of said U-shaped wires and guided by the arms thereof during its movement to open and close the opening through the bushing, a float located within the reservoir, and a damper and a draft door connected with and operated by said float.

In testimony whereof, we affix our signatures in presence of two witnesses.

WILLIAM T. PECK.
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Witnesses:
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