No. 849,203. PATENTED APR. 2, 1907.

W. A. CARSON.

WATER REGULATOR.

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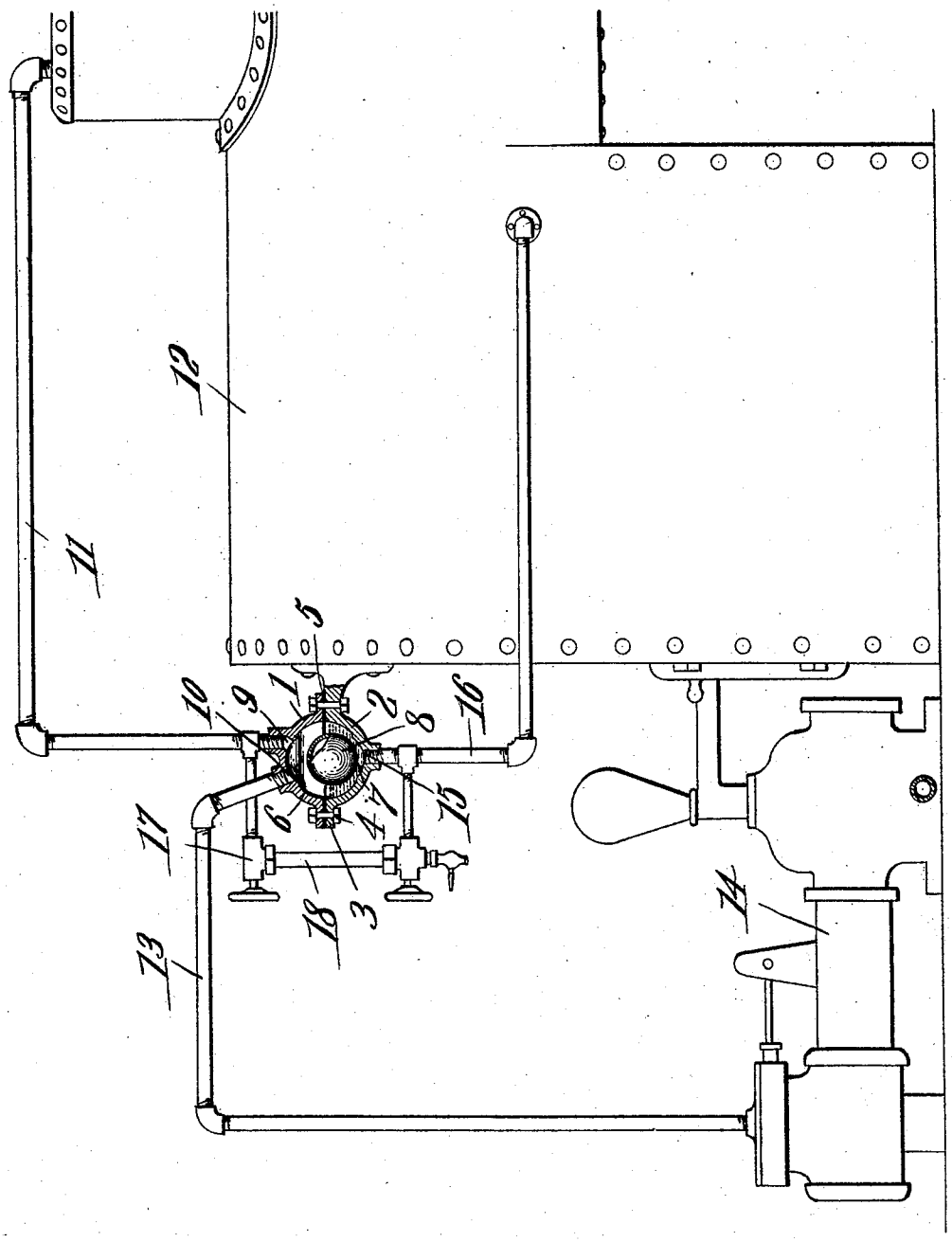

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WILLIAM ALEXANDER CARSON, OF WEISER, IDAHO.

WATER-REGULATOR.

No. 849,203. Specification of Letters Patent. Patented April 2, 1907.

Application filed October 17, 1906. Serial No. 339,410.

To all whom it may concern:

Be it known that I, WILLIAM ALEXANDER CARSON, a citizen of the United States, residing at Weiser, in the county of Washington and State of Idaho, have invented a new and useful Water-Regulator for Steam-Boilers, of which the following is a specification.

This invention relates to water-regulators for steam-boilers; and its object is to provide a novel device for automatically controlling the passage of steam from the boiler to a feed-water pump, the operation of said means being dependent upon the water within the boiler, so that whenever the surface of the water falls below a predetermined level steam will be automatically admitted from the boiler to the pump, so as to force the water back to the desired level, whereupon the action of the pump will be automatically stopped.

With the above and other objects in view the invention consists of certain novel features of construction and combinations of parts, which will be hereinafter more fully described, and pointed out in the claims.

In the accompanying drawing is shown the preferred form of the invention.

Said drawing is a diagrammatical view showing the relative positions of the regulator and a boiler and pump, the regulator being shown in section.

Referring to the drawing by characters of reference, 1 and 2 are upper and lower cup-like members having annular flanges 3 at their adjoining edges adapted to be fastened together by means of bolts 4 or in any other preferred manner, so as to form a casing which is substantially elliptical in cross-section. It is of course understood that suitable packing 5 is interposed between the flanges, so as to render the joints steam-tight. The inner faces of the members 1 and 2 have concaved seats 6 and 7 formed thereon and shaped to conform with the outer face of a spherical float 8, which is loosely mounted within the casing and is of less diameter than the smallest internal diameter of the casing. This float of course normally rests upon the lower seat 7; but whenever water is admitted to the casing it will rise by reason of its buoyancy and bear upon the upper seat 6. Two ports 9 and 10 are formed within the upper member 1 of the casing and open through the seat 6, and one of these ports 9 is connected, by means of a pipe 11, with a boiler 12, so as to conduct steam from the boiler to the interior of the casing, and the other port 10 is connected, by means of a pipe 13, with a feed-water pump 14, which may be of any desired construction. Another port 15 opens through the center of the seat 7 and is connected, by means of a pipe 16, with the lower portion of the boiler 12, so that water may be conducted therefrom into the casing. The pipes 11 and 16 are also preferably connected by a by-pass 17, including a water-glass 18, whereby the level of the water within the casing and the boiler may readily be ascertained. It will of course be understood that this casing is adapted to be mounted adjacent the boiler, so that the water-level which it is desired to maintain within the boiler will be in a plane intersecting the casing.

As the level of the water within the casing will be the same as that within the boiler, owing to the pipe connection 16, the float 8 will be kept upon the seat 6 as long as the water is at the desired level, and therefore steam will be prevented from passing through the ports 9 and 10 and to the pump 14. When, however, the level of the water falls, the float will move downward, and as soon as it leaves the seat 6 steam will rush from the port 9 to the port 10 and thence to the pump 14, which will be promptly set in motion and force water into the boiler. As the water-level rises the float 8 will be moved upward, and as soon as the desired level has been reached the float will cut off the passage of steam to the pump. The by-pass 17 serves to maintain the pressure in the upper and lower portions of the casing uniform at all times. It will be understood that of course it is impossible for the float 8 to stick upon either of the seats, for the reason that the pressure exerted thereagainst through the ports will always be sufficient to unseat the float at the proper time.

It will be seen that this regulator is very simple in construction and obviates the necessity of employing check-valves, springs, and other complicated mechanism such as usually utilized. There are no parts to get out of order, and the same will be found very efficient for the purposes intended.

The preferred form of the invention has been set forth in the foregoing description; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes as fairly fall within the scope of the claims.

What is claimed is—

1. A feed-water regulator for steam-boilers comprising a casing, a spherical float therein constituting a valve, said casing having a seat conforming in contour with the base of the float, said seat having a steam-inlet and a steam-outlet therein adapted to be simultaneously opened or closed by the float, and means for directing water into the casing.

2. A feed-water regulator for steam-boilers comprising oppositely-disposed substantially cup-like members secured together to form a casing, the upper member having a rounded seat, means for conducting steam to and from the casing, said means intersecting the seat, means for directing water into the casing, and a float loosely mounted within the casing and adapted to be raised into or to move downward from the seat to simultaneously close or open the steam inlet and outlet.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM ALEXANDER CARSON.

Witnesses:

INA SHEARER,

NANCY SHEARER.