

M. BALAZIK.
FEED WATER REGULATOR FOR BOILERS.
APPLICATION FILED JUNE 28, 1910.

1,004,341.

Patented Sept. 26, 1911.

2 SHEETS-SHEET 1.

FIG. 1

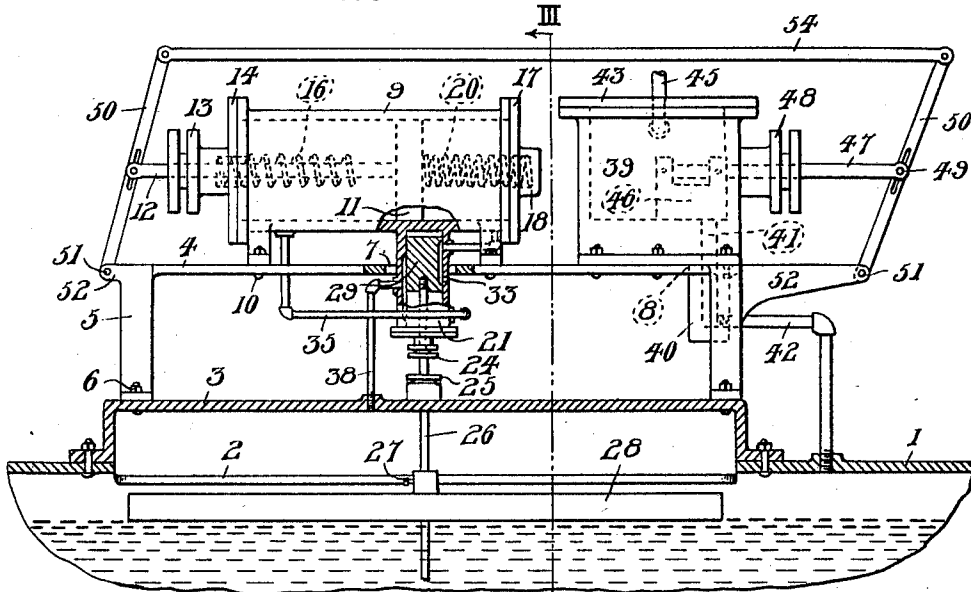
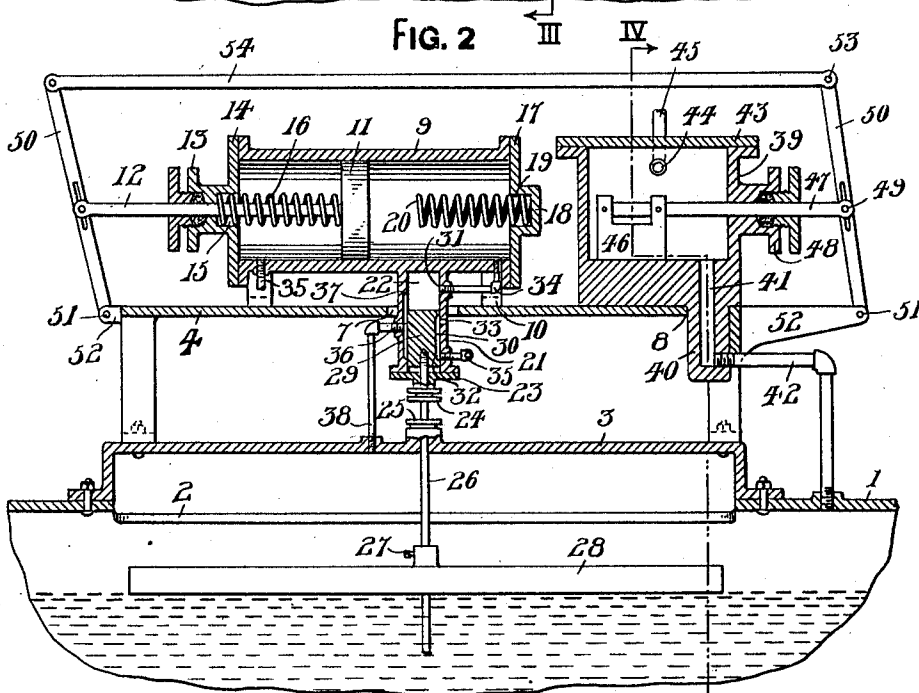


FIG. 2



WITNESSES

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FIG. 3

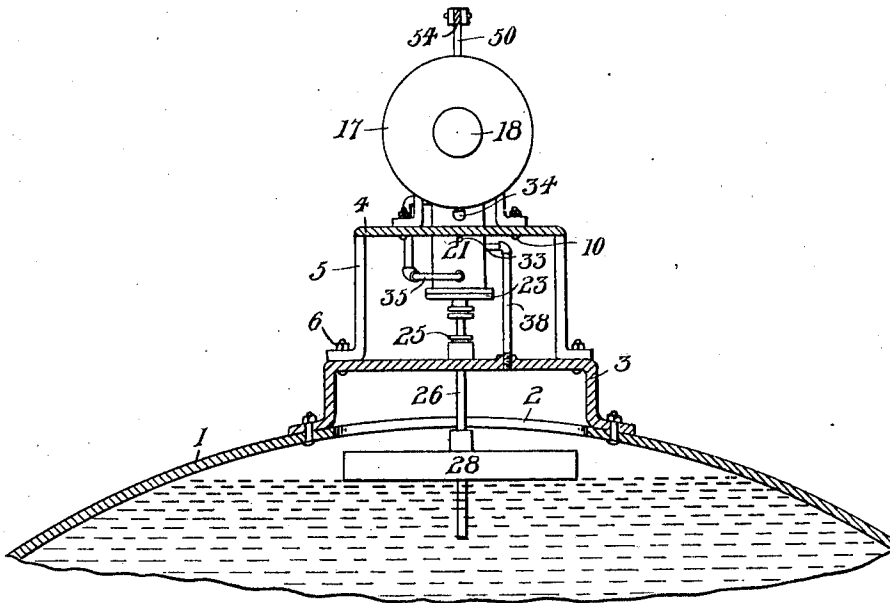
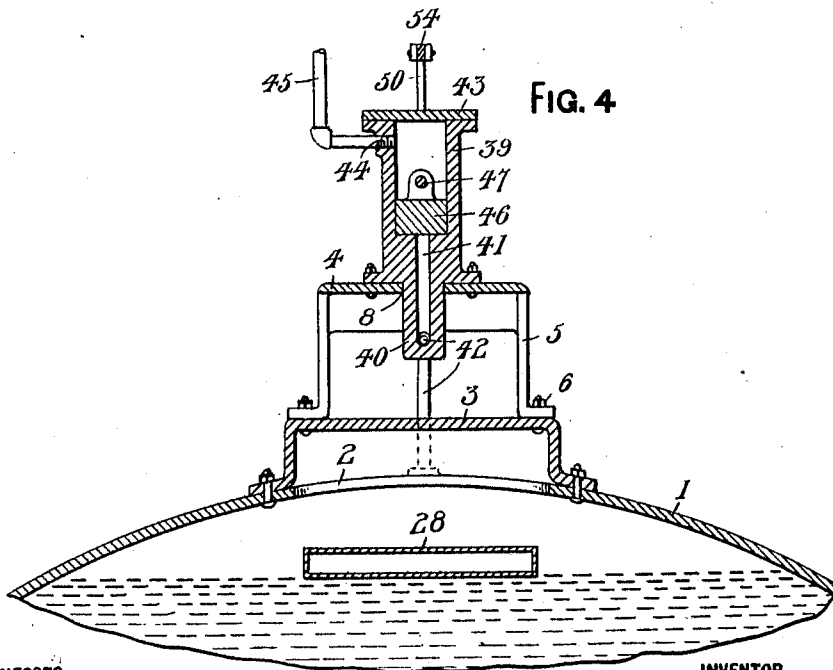


FIG. 4



WITNESSES

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UNITED STATES PATENT OFFICE.

MARTIN BALAZIK, OF REPUBLIC, PENNSYLVANIA.

FEED-WATER REGULATOR FOR BOILERS.

1,004,341.

Specification of Letters Patent. Patented Sept. 26, 1911.

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To all whom it may concern:

Be it known that I, MARTIN BALAZIK, a citizen of the United States of America, residing at Republic, in the county of Fayette and State of Pennsylvania, have invented certain new and useful Improvements in Feed-Water Regulators for Boilers, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a feed water regulator for boilers, and the object of the invention is to provide a regulator for boilers that is positive in operation, strong and durable, free from injury by ordinary use, applicable to various types of boilers, and efficient for the purposes for which it is intended.

I attain the above object by utilizing a suitable supply of steam, a float-actuated valve for controlling the supply of steam, a piston adapted to be moved by said steam, and a slide valve actuated by said piston and adapted to control the supply of water to the boiler. All these parts are compactly arranged upon the top of the boiler and are adapted to cooperate in maintaining a pre-described quantity of water within a boiler. The invention will be hereinafter specifically described and then claimed, and reference will now be had to the drawings forming a part of this specification, wherein:

Figure 1 is an elevation of the regulator mounted upon the boiler, the regulator and boiler being partly broken away and partly in section. Fig. 2 is a longitudinal sectional view of the regulator. Fig. 3 is a cross sectional view taken on the line III—III of Fig. 1, and Fig. 4 is a similar view taken on the line IV—IV of Fig. 2.

In the accompanying drawings the reference numeral 1 denotes a portion of the top of a boiler having an oblong opening 2 covered by a dome 3.

4 denotes an elevated platform having legs 5 secured to the top of the dome 3, as at 6. The platform 4 is provided with a central opening 7 and with another opening 8 located adjacent to the end of said platform.

9 denotes a cylinder secured upon the platform 4, as at 10, and in this cylinder is movably arranged a piston 11 having the piston rod 12 thereof extending through a stuffing box 13 carried by one of the heads 14 of the cylinder. The head 14 is pro-

vided with a recess 15 for a compression spring 16 encircling the piston rod 12 between the head 14 and the piston 11. The piston head 17 of the cylinder is provided with a central recess 18 in which is fixed the end convolution 19 of a compression spring 20, this spring cooperating with the spring 16 in cushioning a movement of the piston 11.

21 denotes a depending valve body carried by the cylinder 9 and extending through the opening 7. The valve body 21 is provided with a bore 22 and the lower end of said bore is closed by a cap 23 mounted upon the end of the valve body 21. The cap 23 is provided with a stuffing box 24 and extending through this stuffing box and another stuffing box 25, carried by the dome 3 is a float rod 26. Adjustably connected to the lower end of the float rod 26 by a set screw 27 is an oblong flat float 28, said float having a central opening through which the rod 26 extends, whereby the float can be adjusted upon said rod. Connected to the upper end of the float rod 26 within the valve body 21 is a slide valve 29 having a by-path 30 formed in one side thereof, said by-path alternately establishing communication between ports 31, 32, and an exhaust port 33, these ports being formed in alignment in the wall of the valve body 21. The port 31 is connected to one end of the cylinder 9 by a pipe 34 and the port 32 is connected to the opposite end of the cylinder by a pipe 35. The wall of the valve body 21 opposite the exhaust port 33 is provided with a steam inlet port 36, the inner end of said port terminating in a longitudinal groove 37 formed in the inner wall of the valve body 21, while the outer end of the port 36 is connected by a pipe 38 to the dome 3, to receive steam from the top part of the boiler.

39 denotes a chest mounted upon the elevated platform 4, said chest having a depending portion 40 extending through the opening 8 of said platform. The depending portion 40 and the bottom of the chest 39 are provided with a vertical port 41 and the lower end of said port is connected by a pipe 42 with the top part of the boiler 1, while the upper end of the port terminates in the chest 39. The chest 39 is closed by a lid 43 and the wall thereof is provided with an opening 44 connecting with a water supply pipe 45. Slidably mounted in the

chest 39 is a slide valve 46 connected to a rod 47 extending through a stuffing box 48 carried by the end of the chest. The outer ends of the rods 12 and 47 are loosely connected, as at 49, to levers 50 pivotally connected, as at 51, to extensions 52 of the platform 4. The upper ends of the levers 50 are pivotally connected together, as at 53, by a connecting bar 54.

As shown in Fig. 2 of the drawings the float is in its lowest position and the boiler 1 is taking water from the pipe 45 through the chest 39, port 41, and pipe 42, and the steam admitted to the valve body 21 through the pipe 38 is also admitted to the cylinder 9 through the pipe 34, retaining the piston 11 in the position shown in Fig. 2.

When the float 28 is raised, as shown in Fig. 1 of the drawings, the steam passing through the pipe 34 passes through the valve body 21, pipe 35 to the cylinder 9 and forces the piston 11 into engagement with the spring 20 within said cylinder. This movement of the piston shifts the levers 50 in the slide valve 46, which closes the upper end of the port 41 and prevents the water from entering the boiler 1. When the cylinder 9 is taking steam at the forward end thereof the steam is exhausted from the rear end through the pipe 34, valve body 21, and exhaust port 33. The position of the float 28 upon the float rod 26 determines the level of the water within the boiler.

What I claim, is:

1. A feed water regulator for steam boilers comprising the combination with a boiler provided with a dome, of a platform mounted upon the dome, a cylinder carried by said platform, a piston within said cylinder, a float arranged in the boiler, a stem connected to the float and projecting through the dome, means suspended from the cylinder and connected to the stem and actuated by the float and in connection with the cylinder admitting steam thereto to shift said piston, a chest carried by the platform, a water supply pipe opening into said chest, a water feed pipe leading from the chest to

the boiler to one side of the dome of the latter, a valve movably mounted in said chest for closing communication between the chest and the water feed pipe, thereby cutting off the supply of water to the boiler, and a pair of levers operatively connected with the piston and said valve and pivotally connected with opposite ends of said platform and further pivotally connected together for shifting the piston and slide valve simultaneously in the same direction with respect to each other, thereby controlling the water supplied to the boiler.

2. A feed water regulator for steam boilers comprising the combination with a boiler provided with a dome, of a platform mounted upon the dome, a cylinder carried by said platform, a piston within said cylinder, a float arranged in the boiler, a stem connected to the float and projecting through the dome, means suspended from the cylinder and connected to the stem and actuated by the float and in connection with the cylinder admitting steam thereto to shift said piston, a chest carried by the platform, a water supply pipe opening into said chest, a water feed pipe leading from the chest to the boiler to one side of the dome of the latter, a valve movably mounted in said chest for closing communication between the chest and the water feed pipe, thereby cutting off the supply of water to the boiler, a pair of levers pivotally connected with opposite ends of said platform and having pin and slot connections intermediate their ends with the piston and valve, and a connecting bar pivotally connected at its ends to the upper ends of the levers whereby the piston and valve will be simultaneously actuated to control the supply of water to the boiler.

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

MARTIN BALAZIK.

Witnesses:

STEVE LOFUANKO,
JOHN KOMAR.