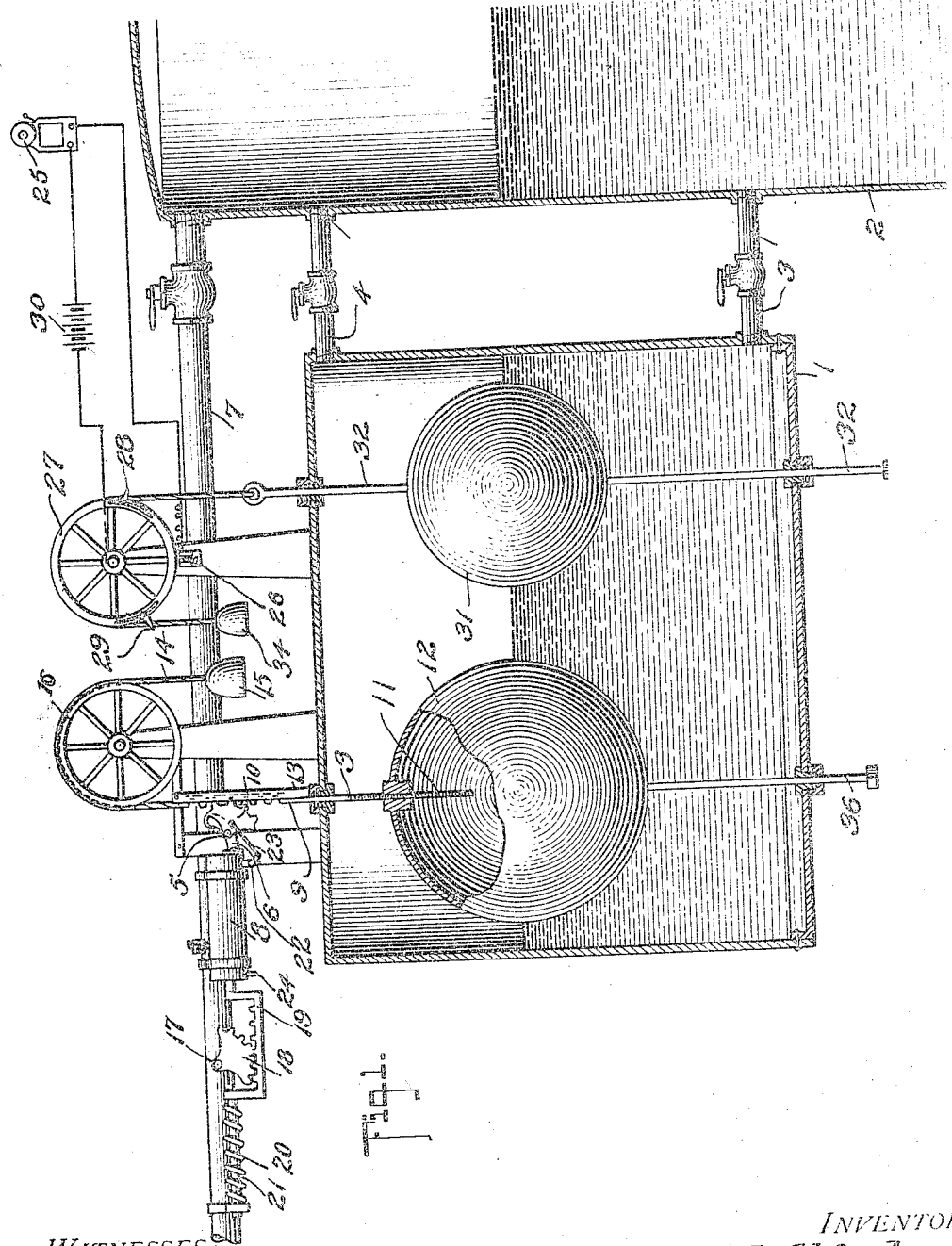


J. H. ALFREDSON.
 FEEDER FOR STEAM BOILERS.
 APPLICATION FILED AUG. 17, 1911.

Patented Aug. 20, 1912.
 2 SHEETS—SHEET 1.

1,036,408.



WITNESSES:
C. H. Wagner
E. Larson

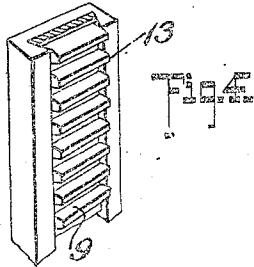
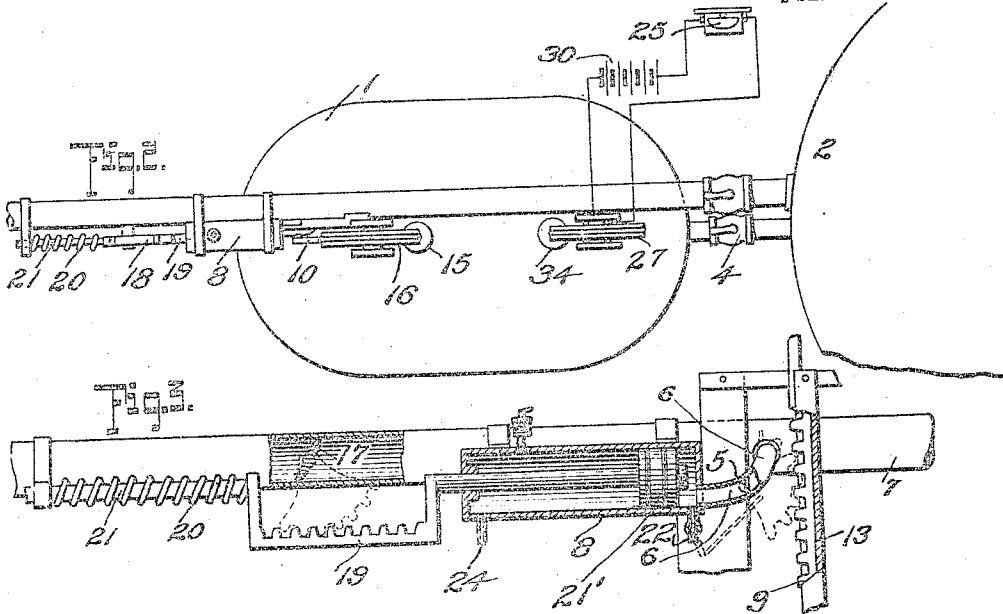
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UNITED STATES PATENT OFFICE.

JOHN H. ALFREDSON, OF HIBBING, MINNESOTA

FEEDER FOR STEAM-BOILERS.

1,036,408.

Specification of Letters Patent. Patented Aug. 20, 1912.

Application filed August 17, 1911. Serial No. 644,552.

To all whom it may concern:

Be it known that I, JOHN H. ALFREDSON, a citizen of the United States, residing at Hibbing, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Feeders for Steam-Boilers, of which the following is a specification.

This invention relates to automatic boiler feeders and an object thereof is to provide float means by which a valve in the steam passage, leading from the boiler to the water feed pump, is operated, and in which the operation of said valve is facilitated by the use of a piston acted upon by steam let on by an auxiliary valve operated by direct connection with the float.

For a full understanding of the present invention, reference is to be had to the following description and to the accompanying drawings, in which—

Figure 1 is a vertical section of the present invention; Fig. 2 is a top plan view; Fig. 3 is a detail sectional view; Fig. 4 is a detail perspective view of a guide member for the float rack.

Throughout the following detail description and on the several figures of the drawings, similar parts are referred to by like reference characters.

Specifically describing the present invention, a float housing 1 is arranged on one side adjacent to the top of the boiler 2, and a pipe 3 connects the boiler with the bottom of the float housing while a pipe 4 is located at the top. The float housing is so arranged that the water level in the boiler will be at a height normally intermediate said bottom and top pipes 3 and 4, and the water will have free passage to the housing through the pipe 3.

The auxiliary valve 5 is located in a steam pipe 6 which latter leads from the main steam pipe 7 to the cylinder 8 and said valve is operated by a float rack or actuating member 9 in mesh with a gear segment 10, the latter carried by the valve. The float rack 9 has a threaded extension 11 at the lower extremity thereof, said extension passing downward through the top of the float housing and carried by a float 12, which latter is adapted to rise and fall with the water level in the boiler, thereby operating the valve 5. The float rack or bar 9 is slidably mounted in a guide 13 and to the upper end of the former is connected by a flexible member 14,

a counter balance 15, the flexible member being guided by a sheave 16. The main valve 17 carries a toothed segment 18 which is in mesh with a rack 19 formed on the piston rod 20 of the piston 21, the latter being carried in the cylinder 8 and operated upon by the steam, thereby opening the valve 17 when the float 12 falls, owing to lowering of the water in the boiler.

A spring 20 is mounted on an extension 21 of the piston rod and is adapted to close the valve 17 when the water in the boiler has been raised to its normal level by the feed pump, not shown.

To facilitate the closing of the steam valve, the cylinder 8 is provided with a cock 22 adapted to be automatically opened by an arm and link connection 23 cooperating with the gear segment 10. Said cock will serve as an exhaust outlet when the cylinder steam passage 6 is closed and the piston is acted upon by the spring 20'. The opposite end of the piston has an open air passage 24.

It will be seen that the means for operating the steam valve 17 are of a powerful nature, and precaution has been taken to provide a simple and efficient construction.

A signaling system is provided to avoid accident and includes a bell 25 connected by electric wires to an insulated stationary contact point 26 and to the body of the sheave wheel 27, said sheave wheel carrying adjustable contact points 28 and 29. A battery 30 is illustrated as the source of power for the bell circuit. The contact points 28 and 29 are adapted to alternately come into contact with the stationary contact point 26, thereby closing the circuit and ringing the bell should the pump for some reason fail to start or stop when the water level in the boiler has risen or fallen to a certain predetermined point, regulated by the operating means for the starting or stopping of the pump.

A float 31 is mounted in a manner similar to the float 12 and has guide rods 32 and 33 at the top and bottom of the float housing. A weight 34 suspended by the flexible member to the float-rod serves to counter-balance the float and to rotate the wheel 27, thereby closing the electric current should the water level fall or rise below or above the predetermined points controlled, as described, by the pump.

The contact point 26 is insulated from the

sheave bearing bracket. The float 12, which is provided at the bottom with a guide 36, has screw connection with the rack rod 9, whereby adjustment of the time for starting and stopping the feed pump may be regulated.

Having thus described the invention, what is claimed as new is:

1. In a water feeding system for boilers, in combination with a boiler, a float housing having pipe connections with said boiler above and below the water line in the boiler, a float therein, a float rack carried thereby, a main steam passage, a valve therein, a cylinder having a piston mounted therein, a rack carried by the piston and having gear connection with the aforesaid valve, a cylinder steam passage, and a valve therein having gear connection with the aforesaid float rack, all for the purpose set forth.

2. In a water feeding system for boilers, in combination with a boiler, a float housing having pipe connections with said boiler above and below the water line in the boiler, a float therein, a float rack carried thereby, a main steam passage, a valve therein, a cylinder having a piston mounted therein, a rack carried by the piston and having gear

connection with the aforesaid valve, a cylinder steam passage, a valve therein having gear connection with the aforesaid float rack, and an exhaust cock in the cylinder having link connection with the last mentioned gear.

3. In a water feeding system for boilers, in combination with a boiler, a float housing having pipe connections with said boiler above and below the water line in the boiler, a float therein, a float rack carried thereby, a main steam passage, a valve therein, a cylinder having a piston mounted therein, a rack carried by the piston and having gear connection with the aforesaid valve to open the latter, an extension carried by the piston rack having a spring thereon to close the aforesaid valve, a cylinder steam passage, and a valve therein having gear connection with the aforesaid float rack, all for the purpose set forth.

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

JOHN H. ALFREDSON.

Witnesses:

HANS OLSON,
ERNEST CARLSON.