

J. N. POAGE.

Improvement in Automatic Boiler-Feeders.

No. 133,052.

Patented Nov. 12, 1872.

Fig. 1

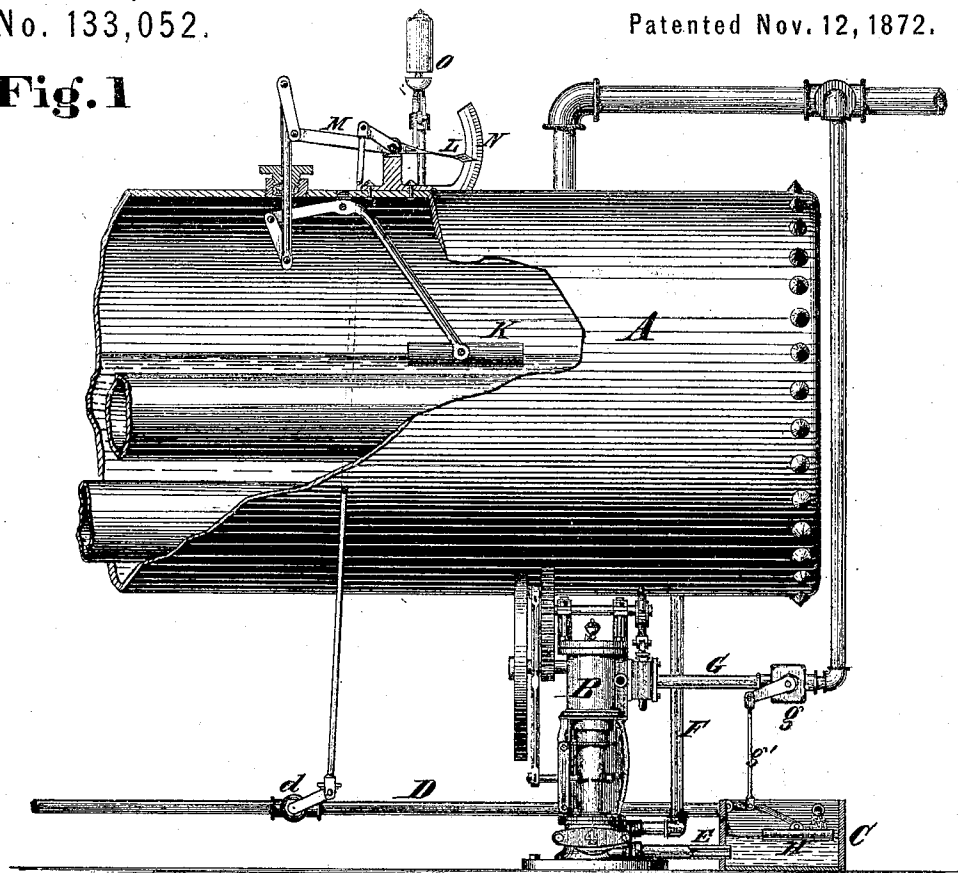


Fig. 2

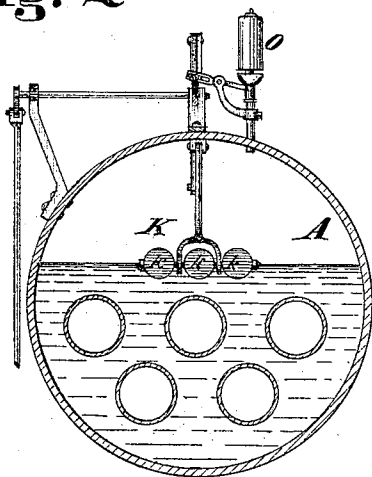


Fig. 4

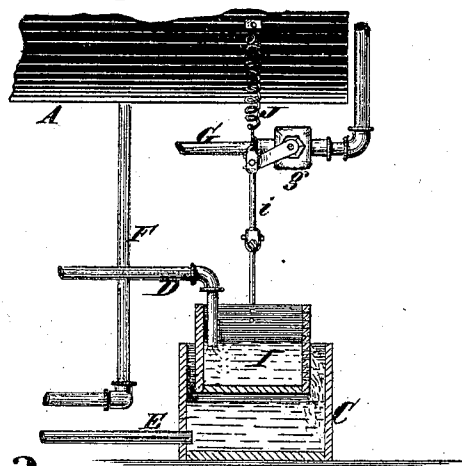
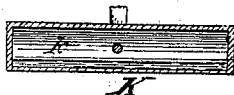


Fig. 3



Attest
John C. Jones

Inventor
John N. Poage
By F. Millward
Attorney

UNITED STATES PATENT OFFICE.

JOHN N. POAGE, OF CINCINNATI, OHIO, ASSIGNOR TO MCGOWAN BROTHERS
PUMP AND MACHINE COMPANY.

IMPROVEMENT IN AUTOMATIC BOILER-FEEDERS.

Specification forming part of Letters Patent No. 133,052, dated November 12, 1872.

To all whom it may concern:

Be it known that I, JOHN N. POAGE, of Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Automatic Boiler-Feeding Apparatus, of which the following is a specification:

Nature and Objects of Invention.

My invention relates to the class of boiler-feeding apparatus designed to maintain the height of the water in the boiler at or near a certain elevation; and, if necessary, in case of accidental lack of water, give an alarm by whistle or otherwise; and consists: First, in a combination of, first, a tank for receiving feed-water; second, a steam-pump supplied with water from said tank; and, third, a float or equivalent in the feed-tank governing the supply of steam to the pump, by which combination the pump is made to work at a speed which increases as the water rises in the tank, and decreases gradually as the water falls in the tank, so that the motion of the pump is governed by the motion of the feed-water, and the pump is not permitted to run itself dry. Second, in a combination of, first, a float in the boiler governing the water-supply to the pump; second, a tank for receiving this supply for feed-water; third, a steam-pump connected to receive water from the feed-tank; and, fourth, a float in the feed-tank governing the supply of steam to the pump, by which combination the speed of the pump is regulated by the height of the water in the feed-tank, and at the same time the amount of water fed to the tank is governed by the rise and fall of the water in the boiler.

Description of the Accompanying Drawing.

Figure 1 is an elevation of a steam-boiler, partly in section, with my improved feeding apparatus attached thereto. Fig. 2 is a cross-section exhibiting the floats and whistle attachment. Fig. 3 is a longitudinal section of one of the floats, showing it partly occupied by water. Fig. 4 exhibits a modification in the device for connecting the feed-tank with the steam-pipe of the pump.

General Description.

A is the steam-boiler; B, the steam-pump for feeding the same; and C, a tank for receiving the feed-water to supply the pump. This tank is supplied with water through the pipe D, and provided with a pipe, E, for connection with the pump B. The pump discharges its water into the boiler through pipe F, and receives its steam through pipe G. The cock or valve *d* of the supply-pipe may be set by hand to discharge a given quantity of water in a specified time, or may be governed by automatic apparatus hereinafter described. The steam-pipe G of the pump is provided with a valve or cock, *g*, which is arranged to open automatically as the water rises in the tank, and close as the water falls in the tank, by the provision of a swinging float, H, in the tank connected to the valve *g* by rod *g'*. As a modification of this connection the pipe D may discharge into a tank, I, which is suspended by spring J, the tank being perforated to allow the water to be discharged therefrom at the rate required for feeding the boiler, and when the supply through the pipe D exceeds or falls short of this amount the box I rises and falls by the difference of weight upon the spring, and by means of rod *i* opens or closes the valve *g* to enable the pump to run at a speed corresponding with the quantity of water received through pipe D. The float K in the boiler I make of two or more tubes, *k k k*, arranged side by side, and partially filled with water for the purpose before explained, viz., to permit the free escape of steam, and thus enable the float to rest solid on the water and not be carried up by foam, and also to prevent collapse by exterior pressure. The float K is connected to the valve *d* by the mechanism shown clearly in Figs. 1 and 2, so that as the water rises in the boiler the valve *d* closes, and as the water falls in the boiler the valve *d* opens, the opening or closing of the cock or valve *d* influencing the speed of the pump B in the manner before explained, so as to cause the water in the boiler to assume a proper level after a rise or fall. A pointer, L, is attached to the lever M, which indicates upon a scale or dial-plate, N, the height of the water in the

boiler, and a whistle, O, is operated by the same lever M to give an alarm at the occurrence of low water in the boiler.

Claims.

1. The combination of the tank C, steam-pump B, valve *g* operated automatically by the variations in the height of the water in tank C, and intermediate devices, pipes, and connections, substantially as set forth.

2. The combination of the tank C, valve *d* operated automatically by the variations in

the height of the water in the boiler, steam-pump G, valve *g* operated automatically by the variations in the height of the water in tank C, and intermediate devices, pipes, and connections, substantially as set forth.

In testimony of which invention I hereunto set my hand.

JOHN N. POAGE.

Witnesses:

FRANK MILLWARD,
J. L. WARTMANN.