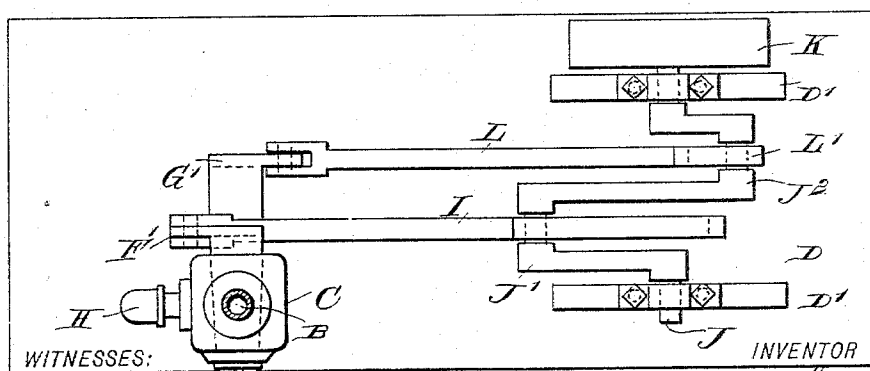


M. GREGSON.
BOILER FEEDER.

Patented Feb. 5, 1895.



Donn Twitchell
Rev. J. Keast

INVENTOR
M. Gregson
BY
Munn & Co
ATTORNEYS.

UNITED STATES PATENT OFFICE.

MOSES GREGSON, OF PHILOMATH, OREGON.

BOILER-FEEDER.

SPECIFICATION forming part of Letters Patent No. 533,803, dated February 5, 1895.

Application filed April 18, 1894. Serial No. 508,044. (No model.)

To all whom it may concern:

Be it known that I, MOSES GREGSON, of Philomath, in the county of Benton and State of Oregon, have invented a new and Improved Boiler-Feeder, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved boiler feeder, which is simple and durable in construction and arranged to introduce at regular intervals a measured quantity of water into the boiler, from the supply pipe.

The invention consists of certain parts and details, and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional side elevation of the improvement; and Fig. 2 is a plan view of the same.

The boiler A is provided with the feed or supply pipe B, in which is arranged, a suitable distance above the boiler, a casing C, as is plainly shown in Fig. 1, and supported on a suitable framework D. The upper end of the feed or supply pipe B is connected with the water supply tank E, so that the water can flow by gravity through the pipe B and its casing C to the boiler A, to fill the same.

In order to regulate the quantity of water passing from the supply tank E to the boiler A, I provide two valves F and G in the said casing C, the said valves being arranged to alternately open and close, so that when the valve G is closed and the valve F is open, water can flow from the tank E into the casing, to fill the same between the valves F and G, and then the valves are reversed, that is, the valve F is closed and the valve G is opened, as shown in Fig. 1, to permit the water in the casing to flow through the lower end of the feed or supply pipe B into the boiler A.

In order to cause a ready flow of the water from the casing C to the boiler A, I provide the steam pipe H, adapted to connect the bore of the casing C, below the valve G, with the valve F, which, for this purpose, is preferably made as a two-way valve, as indicated in Fig. 1, and when in a closed position it

connects with the upper end of the pipe H, so that steam can flow from the boiler to the supply pipe B into the lower end of the casing C, and through the pipe H and valve F upon the top of the water contained in the casing C, so as to equalize the pressure on the top and bottom of the water, and to permit the same to flow, by its own gravity, through the open valve G into the boiler A.

In order to alternately operate the valves F and G at stated intervals, the following mechanism is provided: The valve stem F' of the valve F is connected with a pitman I having a slot I' engaged by a crank arm J' formed on a shaft J journaled in suitable bearings on standards D' of the frame D. The shaft J is provided with a pulley K, connected with suitable machinery for turning the said shaft at a certain rate of speed, governed by the amount of water needed for the boiler during a certain length of time. The valve stem G' of the other valve G is likewise connected with a pitman L having a slotted end L' engaged by a crank arm J², likewise secured on the shaft J and extending in an opposite direction to the crank arm J'.

When the several parts are in the position shown in Fig. 1, and the shaft J, in rotating in the direction of the arrow a' acts by means of its crank arm J² on the pitman L, so as to close the valve G, then the other crank arm passes loosely through the slot I' until the crank pin of the said crank arm J' finally moves against the outer end, so as to exert a pull on the pitman I, to open the valve F. Water can now flow from the supply tank E through the upper part of the supply pipe B into the casing C, to fill the same above the closed valve G. On the further revolving of the shaft J the crank arm J² first acts on the pitman L, to move the valve G into an open position, and then the crank arm J' acts on the pitman I, so as to close the valve F by moving it into the position shown in Fig. 1. Communication is now established between the valve F and the pipe H with the boiler, to equalize the pressure on the top and bottom of the water contained in the casing C, so that the water now flows by its own gravity through the open valve G to the boiler. The above described operation is then re-

peated on the further revolving of the shaft J; that is, if the valve G is closed, the valve F is opened, and a measured quantity of water passes into the casing C to be then discharged to the boiler, as described. It will be seen that by this arrangement a measured quantity of water is fed into the boiler without requiring a pump, injector, or other forcing device.

10 A marked advantage of the device herein shown and described over prior constructions of its class is, that water of any temperature may be used by this device without in any manner interfering with its working.

15 Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A boiler feeder, comprising two rotary valves arranged in the feed or supply pipe and located suitable distances apart, the said valves being adapted to be turned to alternately open and close the same, and a steam pipe connecting the uppermost valve with the supply pipe below the other valve, when said uppermost valve is closed and said lower valve is open substantially as shown and described.

2. The combination with a casing forming a continuation or section of the feed water pipe and provided with a valve at both ends to alternately open and close the respective ends thereof; the upper valve having a two-way passage, of a steam pipe extending from the casing below the lower valve and communicating at its upper end with the casing through the passage in the upper valve when said valve is in its closed position, substantially as described.

3. The combination with the casing and its rotary valves having crank arms, the upper valve having a two-way passage and a steam pipe extending from the lower end of the casing below the lower valve and communicating with the upper part of the casing through the two-way valve, of an oppositely cranked shaft and pitmen connecting said cranks with the valve cranks to alternately open and close said valves, substantially as described.

MOSES GREGSON.

Witnesses:

R. O. LOGGAN,
J. E. HENKLE.