J. H. ANNEAR.

Feed Water Heater.

No. 230,984. Patented Aug. 10, 1880.

Fig 1

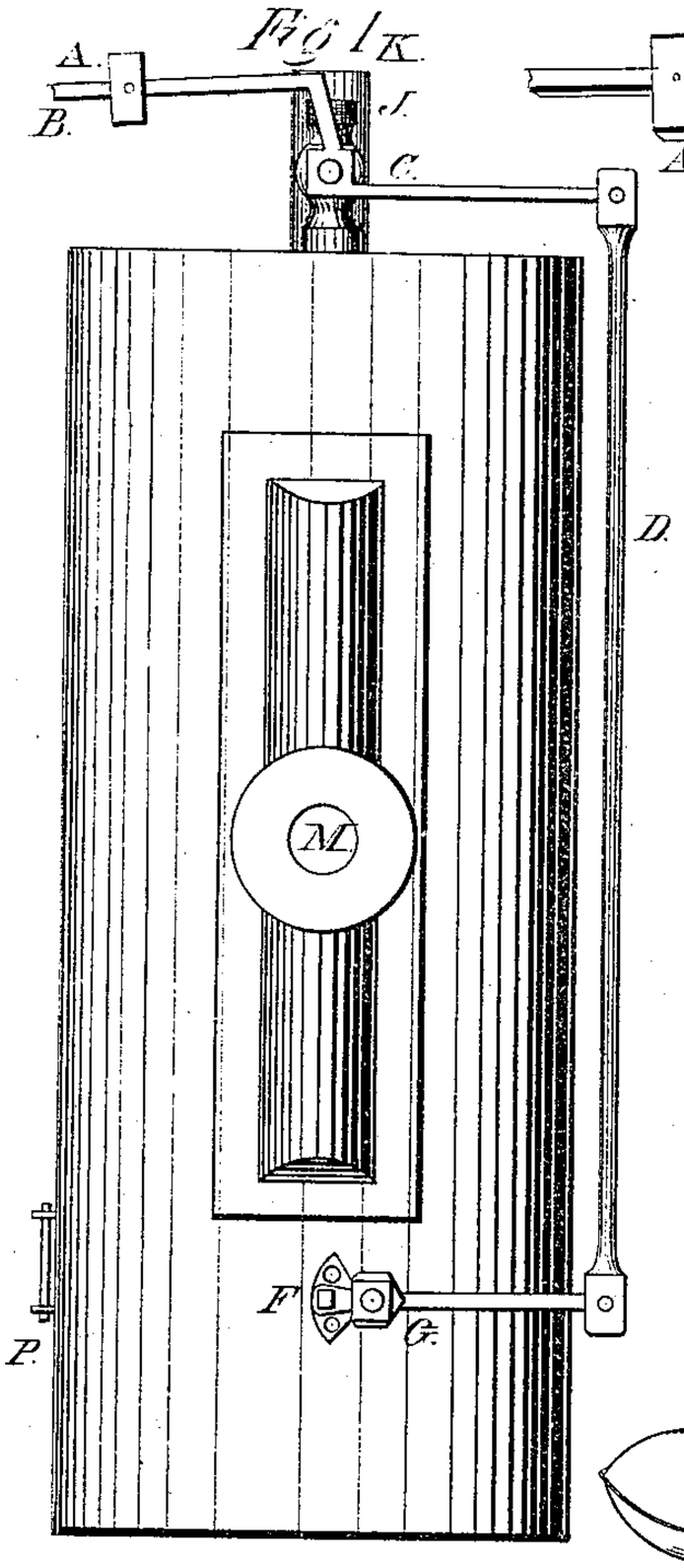


Fig 5

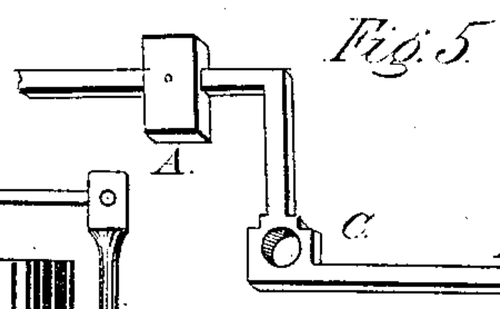


Fig 2.

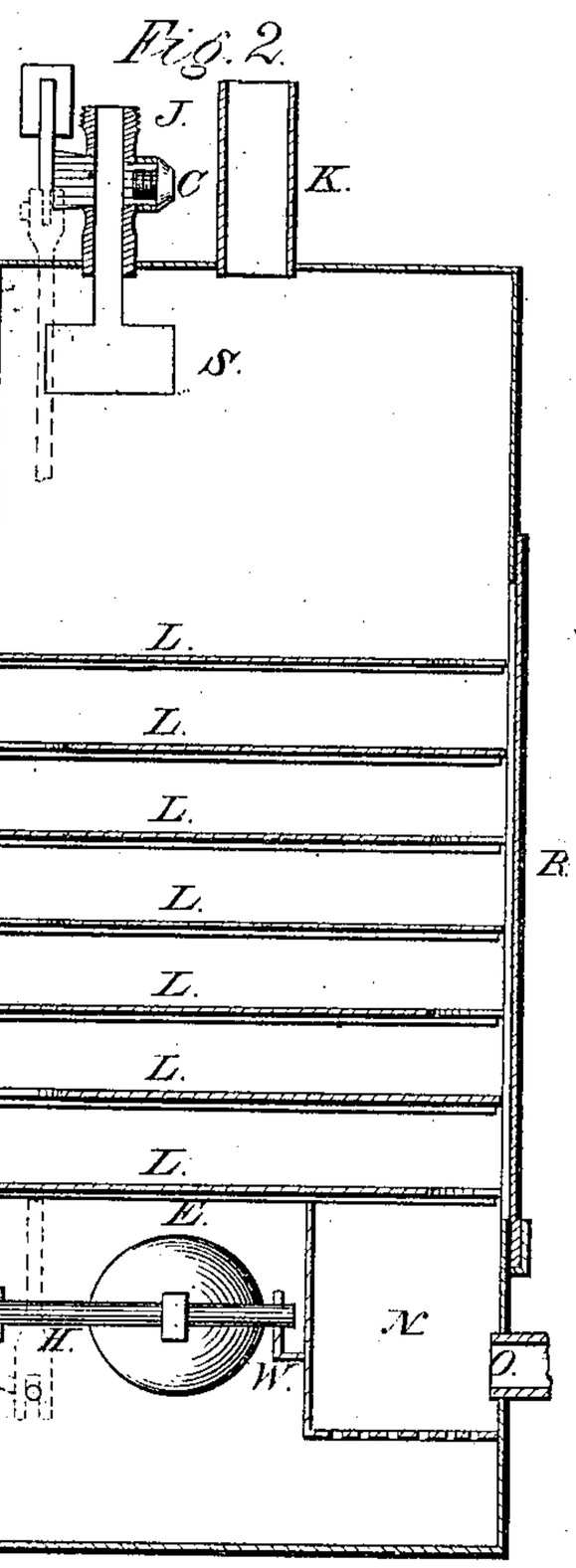


Fig 4.

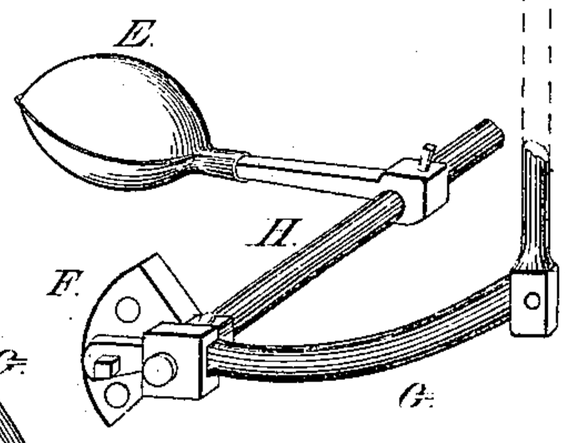
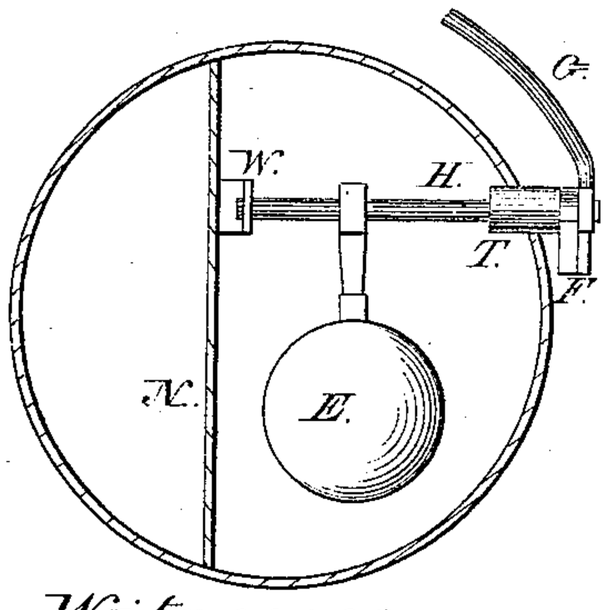


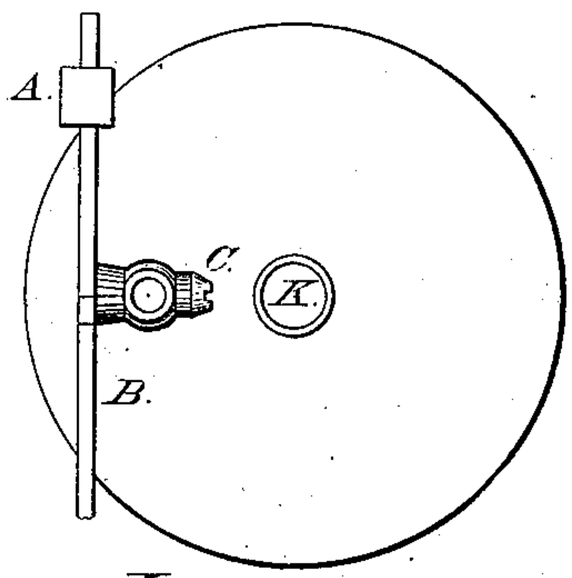
Fig 3.



Witnesses

Horace Stewart Moran.

William Russell Shannon



Inventor

John Henry Annear

UNITED STATES PATENT OFFICE.

JOHN H. ANNEAR, OF WEATHERFORD, TEXAS.

FEED-WATER HEATER.

SPECIFICATION forming part of Letters Patent No. 230,984, dated August 10, 1880.

Application filed April 20, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOHN HENRY ANNEAR, of the town of Weatherford, in the county of Parker and State of Texas, have invented a new and useful Improvement upon Feed-Water Heaters attached to Steam-Boilers and upon the Lime-Extracting Heater and Filter Combined, of which the following is a specification.

The invention relates to the water-feeding of such heaters and lime-extracting heaters and all similar machines.

Heretofore generally the water-supply to such heaters and lime-extractors has been regulated by valves or stop-cocks attached to the supply-pipe by hand, and they have consequently been a cause of constant watchfulness to the engineer in charge and a fruitful source of accidents and damage to the engine in case the water is allowed to overflow the exhaust-pipe from the engine.

The object of my invention is to provide a system of levers and a float which will automatically regulate the feed or supply of water to such heaters and lime-extractors whether it be slow or fast, and also to prevent the water from overflowing the shelves in the lime-extractors and washing the lime deposits off of the shelves into the lower chambers of the heater; and, further, that by securing a uniform supply of water the steam acts more equally upon the water, and thus secures a more uniform deposit of the lime than can be otherwise obtained.

The invention consists in securing, by means of a float made of metal or other material of sufficient size and bouyancy, upon the surface of the water in the heater, a lever power which is transmitted, by means of a system of levers and pitman-rod, to the stop-cock in the supply-pipe, and counteracted by means of a weight or counterbalance on an extension-lever also attached to the stop-cock.

In the accompanying drawings, in which similar letters of reference are used to indicate similar or like parts, Figure 1 represents a common upright lime-extracting heater and filter combined with my attachment. Fig. 2 represents a vertical cross-section of the same with my attachment displayed. Fig. 3 shows the upper attachment in plan view, and Fig. 4 the lower attachment of my improvement in horizontal section. Fig. 5 shows a perspective view of my appliance disconnected from the machine to which it is intended to be applied.

It consists of a float, E, a shaft, H, a lever, G, a pitman-rod, D, a lever, B, and weight or counterbalance A, and a quadrant, F.

The float is, by means of a fixed rod, connected with the shaft H, which extends from the inside of the heater, where one end is secured to the outside, and to the projecting end of which is attached a slotted quadrant, F, rendering the appliance adjustable. The lever G, by means of which the upward motion of the float on the surface of the water, produced by the rise of the water in the heater, is imparted to the pitman-rod D, and by it imparted to the lever B, is connected with the stop-cock C.

The use of the counter-balance A is simply to equalize the power as the float by its buoyancy rises with the water; so with the depression of the water the counter-balance A forces the float to follow.

In the accompanying drawings Figs. 1 and 2 are used only to illustrate how my invention is attached and used. J is the supply-pipe for water. K is the steam-outlet pipe; L, shelves in the lime-extractor over which the water flows. M is a steam-supply pipe. O is the water-outlet pipe; R, the door of heater; S, overflow-cup on end of cold-water pipe. T is a packing-box and opening for the shaft H. W is a journal-bearing. N is a filter.

What I claim is—

The combination of the float E, shaft H, lever G, with a slotted quadrant, F, pitman D, lever B, and weight A, constructed and arranged substantially as described, and for the purposes set forth.

JOHN HENRY ANNEAR.

Witnesses:

HORACE STEWART MORAN,

WILLIAM RUSSELL SHANNON.