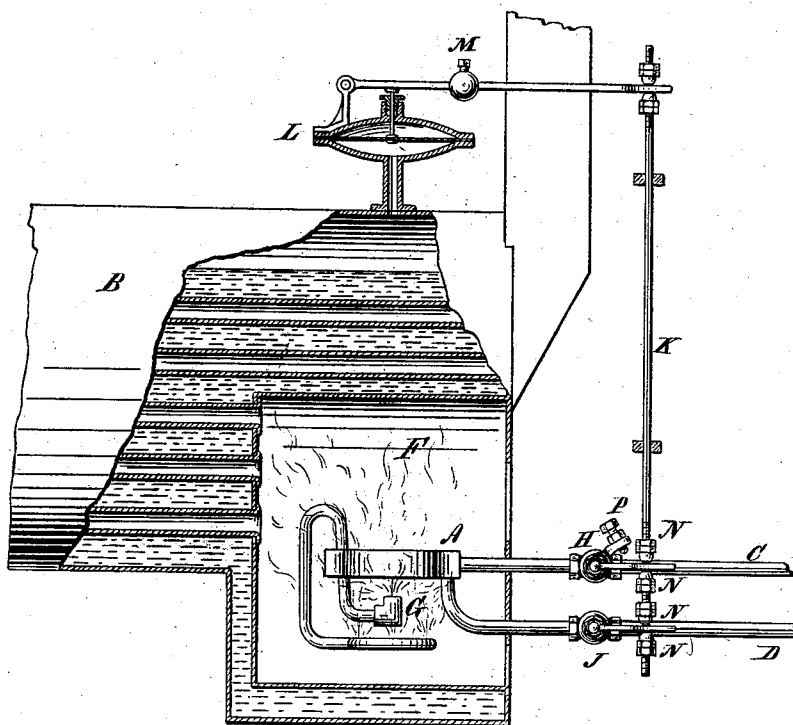


(No Model.)

E. N. DICKERSON, Jr.
HYDROCARBON BURNER.

No. 256,551.

Patented Apr. 18, 1882.



Witnesses:

Geo. W. Matt
S. J. Sullivan

Inventor:
E. N. Dickerson, Jr.

UNITED STATES PATENT OFFICE.

EDWARD N. DICKERSON, JR., OF NEW YORK, N. Y.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 256,551, dated April 18, 1882.

Application filed January 5, 1881. (No model.)

To all whom it may concern:

Be it known that I, EDWARD N. DICKERSON, Jr., of the city, county, and State of New York, have invented a new and useful Improvement in Regulators for Hydrocarbon-Burners, of which the following is a full, true, and exact description, reference being had to the accompanying drawing.

My invention relates to a method of automatically regulating the combustion or heat produced by a hydrocarbon-burner under boilers or other similar places where pressure is generated; and it consists in combining, with the naphtha or naphtha and water supply pipes leading to such burner, a valve or valves controlled automatically by the pressure produced by the combustion, and so arranged as to automatically control the supply of liquid fuel without completely cutting off the same. A preferable way to accomplish this result is by means of what is known as the "Clark Damper," though equivalent methods might be resorted to.

My invention will be clearly understood from the drawing, which represents a view, partly perspective and partly broken, of my apparatus in situation under a boiler.

B represents generally the boiler, and F the fire-box thereof. A naphtha-burner, A, is therein located. This may be of any of the kinds well known; but I prefer to have one in which water and steam are burned together.

C represents the pipe for supplying water or steam, as the case may be, to the naphtha-burner, and D the naphtha-supply pipe.

G represents one of the orifices of the naphtha-burner, which is used to heat the retort where decomposition occurs.

H represents a valve controlling the water-supply, and J a valve controlling the naphtha-supply. K is a connecting-rod moved vertically by the Clark damper L, which may be made adjustable by sliding weight M. The stems controlling valves H and J are controlled by adjustable nuts N N N N. The upward movement of the rod K may be limited by an adjustable stop, P, for a purpose to be explained.

The operation of my apparatus will now be readily understood. In the ordinary condition, and before steam has been generated, the

apparatus will be substantially in the position shown in the drawing, and water and naphtha will be allowed to flow into the burner A and be there consumed, thereby heating the boiler and making steam. As soon, however, as the pressure in the boiler is sufficient to counter-balance the weight M the rod K will begin to rise, thereby shutting off the water and naphtha supply. The extent to which this supply is reduced can be determined by the adjustment of the stop P; because it would be undesirable to shut off the flow altogether, and because so doing would necessitate kindling the fire afresh. By having the positions of the valves relatively adjustable the apparatus may be so arranged that the water will be entirely shut off, leaving a limited supply of naphtha, which will burn at the point G and keep the apparatus hot and ready to start afresh when the steam falls in the boiler B. By this means an exact regulation of the supply of fuel to the boiler by means of the pressure existing in such boiler is obtained, while at the same time the apparatus may be so adjusted as to maintain a constant fire under all circumstances.

I am aware that the draft leading to the fire-box in boilers has been controlled by a Clark damper connected with the boiler before my invention; and I do not claim broadly the idea of controlling the fire beneath a boiler by the pressure in a boiler.

I do not claim broadly a pressure-regulator combined with the heating devices of a generator, nor do I claim a pressure-regulator for regulating the flow of gases and provided with adjusting appliances, both being old; but

I do claim as my invention and desire to secure by Letters Patent—

The combination of the burner A, steam or water and naphtha pipes communicating therewith, a pressure-regulator, cocks in the pipes, and adjustable connections between the regulator and cocks, substantially as specified, whereby both the amounts and the relative supply of the naphtha and water are determined by the regulator, while the total stoppage of the fuel-supply is prevented, as set forth.

E. N. DICKERSON, JR.

Witnesses:

S. F. SULLIVAN,
WM. A. POLLOCK.