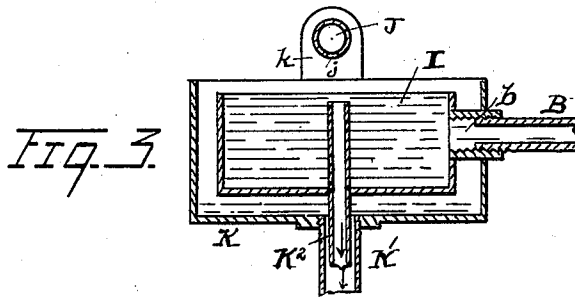
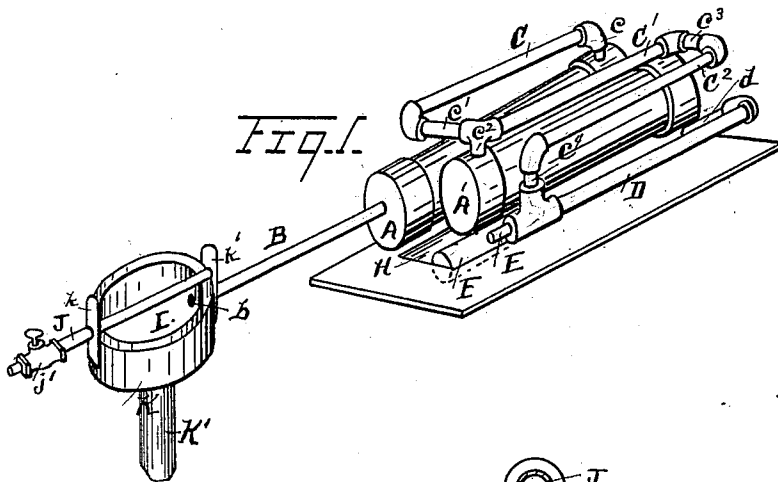
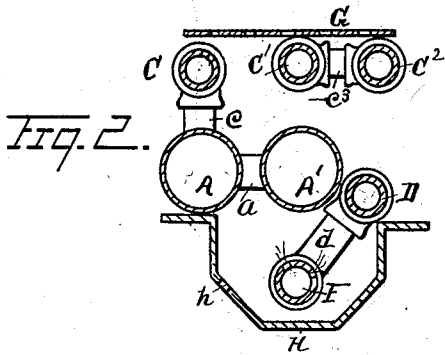


(No Model.)

E. G. MUMMERY
HYDROCARBON BURNER.

No. 465,944.

Patented Dec. 29, 1891.



Witnesses
John Schuman.
John F. Miller

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By his Attorney
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UNITED STATES PATENT OFFICE.

EDWIN G. MUMMERY, OF DETROIT, MICHIGAN.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 465,944, dated December 29, 1891.

Application filed December 29, 1890. Serial No. 376,077. (No model.)

To all whom it may concern:

Be it known that I, EDWIN G. MUMMERY, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Hydrocarbon-Burners; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to certain new and useful improvements in a hydrocarbon-burner; and it consists of the combinations of devices and appliances hereinafter specified and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective. Fig. 2 is a vertical cross-section, and Fig. 3 is a separate view of the overflow basin in section.

My invention has for its object more particularly the combination, with a hydrocarbon-burner, of a device for regulating and controlling the supply of water admitted to the burner to generate steam to commingle with the oil and vaporize it.

Heretofore considerable difficulty has been experienced in burners of the class wherein oil and water are used, suitably commingled and vaporized for fuel, owing to the difficulty in properly controlling the supply of water admitted to the burner. If too much water is at any time admitted, the fire will be put out. If too little water is admitted, the oil cannot be suitably vaporized. A regulating device is therefore demanded which shall be even and uniform in its operation, so as to constantly control the supply without variation and without the necessity of attention being given thereto. My invention is designed to accomplish this end, in connection with a burner essentially like that embodied in United States Letters Patent granted to me December 16, 1890, No. 442,693.

I carry out my invention as follows:

A and A' represent two generating-chambers, into which water is admitted through a supply-pipe B entering one of said chambers. These chambers communicate, preferably at

their extremities opposite the entrance of the supply-pipe, as shown, by a connecting-pipe *a*. In these chambers steam is generated.

CC' are superheating-pipes communicating with the chamber A, as shown at *c*, and with one another, as shown at *c'*, and also with the chamber A', as shown at *c''*. The water and generated steam thus pass through the chambers A A' in passing to the superheaters CC'.

C² is an additional superheating-pipe communicating with the superheater C', as shown at *c''*, and with a mixing-chamber D, as shown at *c'*.

E is an oil-supply pipe leading into the mixing-chamber D. At or near the entrance of the oil, as will be seen, the steam is admitted to commingle therewith in a superheated condition to vaporize the oil and supply the vapors of the steam thereto to facilitate combustion.

The mixing pipe or chamber D communicates with a burner-tube F, located well under the vaporizing or generating chambers A A', so as to supply heat as directly as possible thereto to facilitate the generation of steam. The communication of the chamber D with the tube F is shown at L.

G is a cover-plate, preferably employed to deflect the flame.

H is a trough on which the burner rests, so arranged that the drip of the tube F, when the burner is lighted, will drop thereinto. This trough is provided with one or more openings *h* to admit air therethrough.

To control the feed of water to the generating-chambers A A', I employ an overflow-basin I, communicating with the supply-pipe B, as indicated at *b*.

J denotes the main water-supply pipe communicating with said basin or arranged to feed the water thereto, as indicated at *j*, said main pipe being provided with a shut-off cock *j'*.

K denotes a catch or waste basin located outside the overflow-basin I, the same being provided with a waste-pipe K'. The catch-basin is suspended from the pipe J in any suitable manner—as from ears *k k'*.

It will be observed that the overflow-basin I communicates with the pipe B through the

catch-basin K, as shown at *b*, above mentioned. The communication *b* may be located at the desired height in the overflow-basin to insure a constant feed of water therethrough.

5 Any excess of water discharged into the basin I freely overflows over the rim of said basin into the catch-basin, from whence it is discharged through the waste-pipe. This construction obviously provides for a constant supply of water in the basin I and prevents any surplus of water being admitted to the steam-generating chambers.

The surrounding catch-basin might be dispensed with and the waste-pipe be led upward through the base of the overflow-basin to a desired height to receive the overflow; but the use of the catch-basin insures a freer discharge of the surplus water from the overflow-basin. By means of the controlling-valve *j'* the feed from the supply-pipe J into the basin can be regulated as desired. The beneficial results obtained thereby will readily be seen. It is evident in shutting off the supply of water entirely by means of said cock or valve *j'*, when it is desired to extinguish the fire, the basin remains filled just to the level of the base of the channel in pipe B. Consequently in starting the fire again the controlling-valve *j'* can be operated to allow such a limited discharge from the basin through the pipe B into the generating-chamber that the water entering into the generating-chamber will be almost instantly heated and thereby quickly converted into steam. This operation greatly facilitates the starting of the fire and is found to be a point of much importance.

What I claim is—

1. The combination, with a hydrocarbon-burner provided with a water-supply pipe B, communicating therewith, of an overflow-basin communicating with said pipe, and a main supply-pipe J to admit water into said basin, substantially as described.

45 2. The combination, with a hydrocarbon-burner provided with a supply-pipe, of an overflow-basin communicating with said pipe, a waste-pipe for the overflow from said basin,

and a main supply-pipe admitting the supply to said basin, substantially as set forth.

3. The combination, with a hydrocarbon-burner provided with a supply-pipe B and main supply-pipe J, of an open overflow-basin located between said supply-pipes to receive the supply from the one and discharge it through the other, and a catch-basin located to receive the overflow from the overflow-basin, said catch-basin provided with a waste-pipe, substantially as set forth.

4. In a hydrocarbon-burner, the combination of the steam-generating chambers A A', superheating-pipes C C' C², communicating with one another and with the steam-generating chambers, a vapor-generating chamber D, communicating with the superheating-pipes, a burner communicating with the vapor-generating chamber, an oil-supply pipe communicating with said vapor-generating chamber, a water-supply pipe B and main supply-pipe J, and an overflow-basin located between said supply-pipes B J to receive the water from the one and supply it to the other, substantially as set forth.

5. In a hydrocarbon-burner, the combination of a steam-generating chamber, superheating-pipes C C' C², communicating with one another and with the steam-generating chamber, a vapor-generating chamber D, communicating with the superheating-pipes, a burner communicating with the vapor-generating chamber, an oil-supply pipe communicating with said vapor-generating chamber, a water-supply pipe B and main supply-pipe J, an overflow-basin located between said supply-pipes B and J to receive the water from the one and supply it to the other, and a valve located in the supply-pipe J to control the feed therefrom into said basin, substantially as set forth.

In testimony whereof I sign this specification in the presence of two witnesses.

EDWIN G. MUMMERY.

Witnesses:

N. S. WRIGHT,
JOHN F. MILLER.