

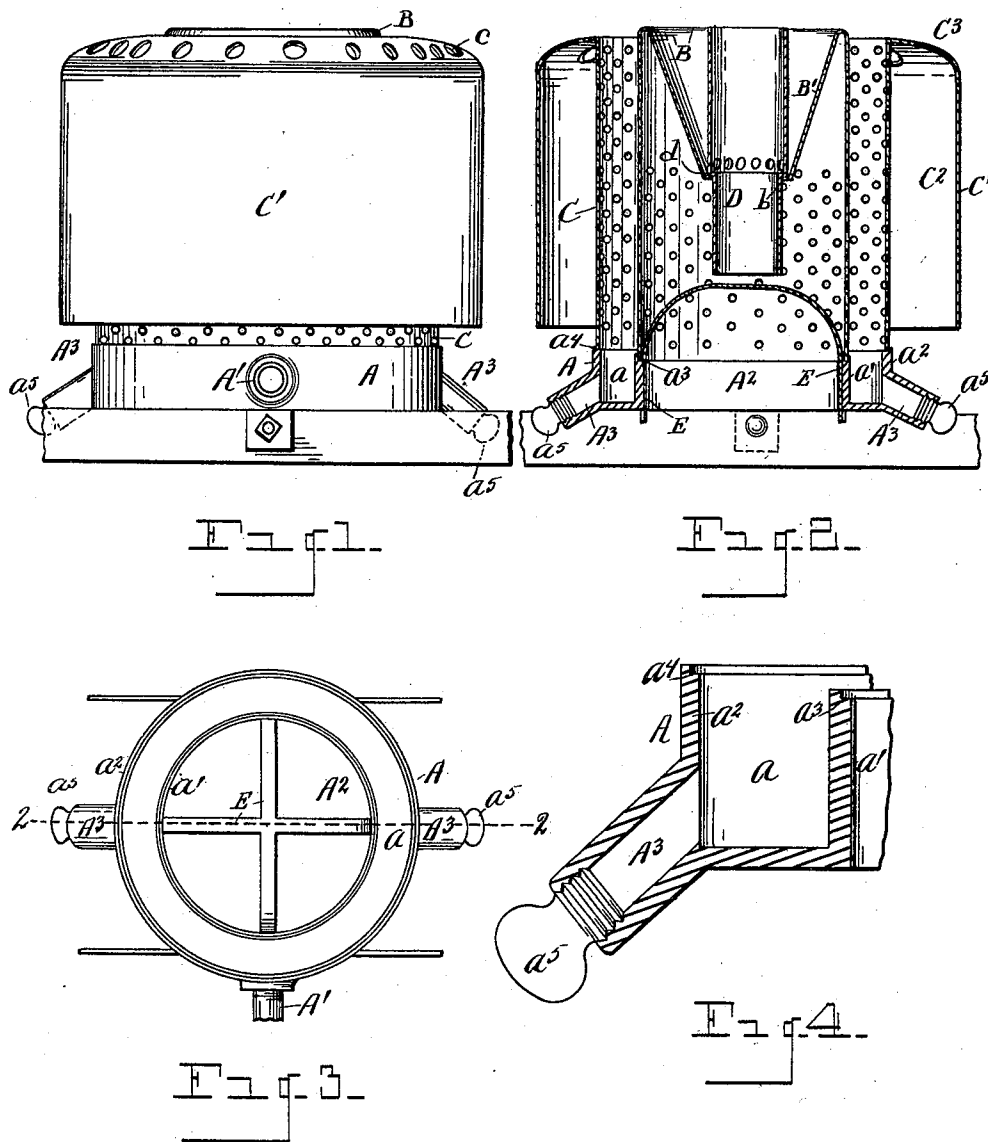
No. 621,696.

Patented Mar. 21, 1899.

E. G. MUMMERY.
HYDROCARBON BURNER.

(Application filed Mar. 5, 1898.)

(No Model.)



WITNESSES.

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EDWIN G. MUMMERY, OF DETROIT, MICHIGAN, ASSIGNOR TO THE SUN VAPOR STOVE COMPANY, OF SAME PLACE.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 621,696, dated March 21, 1899.

Application filed March 5, 1898. Serial No. 672,708. (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 it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object certain new and useful improvements in hydrocarbon-burners; and it consists of the construction, combination, and arrangement of devices hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation embodying features of my invention. Fig. 2 is a vertical cross-section of the same on the line 2 2, Fig. 3. Fig. 3 is a plan view of the base, and Fig. 4 is an enlarged view in detail showing features of my invention.

My invention has reference more particularly to a novel construction of the base and to a novel construction of the inner foraminous wall and its depending tube.

My invention also embodies the general construction, combination, and arrangement of devices hereinafter claimed and illustrated in the drawings.

I carry out my invention as follows:

A represents a base constructed with a vaporizing-channel a , into which the hydrocarbon fuel is admitted, as through an inlet-pipe A' . The base is preferably constructed of cast metal, having an interior opening A^2 , the vaporizing-channel a being formed with upwardly-projecting flanges a' and a^2 . These flanges are preferably rabbeted on their upper edges, as shown at a^3 and a^4 . My present invention contemplates particularly forming the base A with one or more receptacles or chambers A^3 , communicating therewith, the lower or outer extremities of said receptacles being closed in any suitable manner, as by threaded stoppers a^5 . Two such receptacles or chambers A^3 are shown in the

accompanying drawings; but I do not limit myself solely to any specific number of the same. In the admission of the hydrocarbon fuel to the channeled base A provision is made by these receptacles or chambers against an undue supply being admitted to the generating-channel in the initial lighting up of the burner, any overplus of fuel being received into said receptacles or chambers, and when the base is heated the fuel in said receptacles will of course readily be vaporized and discharged therefrom.

B denotes an inner wall made foraminous at its lower end, as shown in Fig. 2, and imperforate toward its upper end, said foraminous wall resting upon the upper edge of the inner flange a' of the base.

C is an outer foraminous wall spaced from the wall B to form a combustion-chamber being above the vaporizing-channel a of the base. This outer foraminous wall rests upon the upper edge of the flange a^2 of the base. Within the upper end of the inner wall B is an outwardly and upwardly flaring or inverted-frustum-shaped tube B' , the lower and narrowed end of which is open and projects downward within the wall B a suitable distance, preferably substantially to a level with the upper part of the foraminous portion of the wall B . This frustum-shaped or flaring tube B' diverges from its lower end in an upward direction to the upper edge of the imperforate end of the inner wall B and may be formed integral therewith of suitable sheet metal pressed to required form, said flaring tube being preferably imperforate. The lower or narrowed end of the flaring tube B' is preferably constructed with an inwardly-projecting supporting-flange (indicated at b) to support an interior tube D , which may be formed with a shoulder, as at d , resting upon the supporting-flange b . This tube projects downward below the lower end of the flaring tube B' and is open at both extremities, the upper extremity projecting upward substantially to a level with the upper edge of the wall B . The upper part of the tube D is preferably provided also with perforations, as shown in Fig. 2.

About the outer foraminous wall C is an imperforate wall C', spaced from the wall C, forming an air-chamber C² therebetween, open at its lower end. This outer wall C' projects inward at its upper end, as indicated at C³, the inwardly-projecting portion being provided with suitable perforations c. The foraminous wall C and the imperforate wall C' may be formed in a single integral piece pressed or shaped to required form. The two walls B and C are preferably made removable from the base. It will be obvious that the wall B, with the flaring tube B' and the tube D, may all be lifted off together from the base, while the wall C, with the outer wall C', may also be lifted off together. To guide the inner wall B in seating the wall upon the base, I provide upwardly-projecting guide-arms E, curved or bent inward, the lower extremities of said arms being attached in any suitable manner to the base, said arms being so arranged as to readily direct the wall B to its seat. The guide-arms are employed to facilitate lighting the burner and enable the operator to dispense with any additional means of lighting the same—as a torch, for example. It will readily be seen that by removing the inner wall B from the base a lighted match may readily be placed into contact with the fuel in the channelled base to ignite the fuel, the inner wall B being then replaced, said arms, as above stated, serving to guide the inner wall to its seat in a proper and efficient manner. These arms may extend over the interior opening A² of the base, as shown. Should any foreign matter fall into the vaporizing-channel, also, the inner wall may readily be removed and the foreign matter extracted, after which the inner wall could readily be seated. The use of the guides enables any person to readily replace the inner wall in proper position and greatly facilitates the use of the burner.

The perforations in the tube D are preferably adjacent to the shoulder b thereabove. It will readily be observed that should water, for example, be spilled over the inner wall of the burner it will be directed by the flaring tube B' downward to its lower end, the water passing through the orifices d and being discharged through the lower end of the tube D, the lower end of the tube opening downward above the interior opening A² of the base, so that any water that might be spilled will be readily discharged through the opening A² of the burner without detriment or inconvenience. Where an inwardly-projecting cap has been employed, as in burners heretofore constructed, at the top of the inner wall, especially when the cap has been rounded toward the center, the water would naturally flow off from the cap and into the combustion-chamber, by which means the fire would be liable to be put out or the flame greatly interfered with; but by dispensing with a cap or inwardly-projecting partition and employing a flaring tube of an inverted-frustum shape,

as described and shown, such liability is entirely prevented in the manner hereinbefore stated.

I prefer to have the lower portion of the overflow receptacles or chambers A³ project slightly above the lower surface of the vaporizing-channel of the base, permitting a desired or proper amount of fuel to be retained in the vaporizing-channel sufficient for ignition or starting the burner to work; but should the controlling-valve be open sufficiently to allow a larger supply of fuel to enter the vaporizing-channel than can readily be cared for by the initial flame the fuel will overflow into said receptacles and still permit the flame to burn evenly to heat the base, when, as above stated, the fuel that has overflowed into said receptacles will also be vaporized and consumed. The provision of these overflow-receptacles A³ permits the controlling-valve regulating the feed-supply to be opened to a fuller capacity than would otherwise be permissible, this fuller opening of controlling-valve insuring a quicker heating of the base and a speedier lighting up of the burner to its full capacity. It will readily be observed that if the controlling-valve were opened to a less capacity than could be controlled by the initial flame the flame would not heat the base so quickly as it would otherwise do; but by providing these receptacles the valve may be opened to a fuller capacity, permitting a sufficient supply of fuel to enter the vaporizing-channel to cover the base thereof throughout, and should the supply be greater than what is required for this purpose, instead of working any detriment to the initial lighting of the burner it will simply overflow into said receptacles and be cared for in the manner above stated. Without said receptacles, should the controlling-valve be opened too widely, such a quantity of fuel is liable to be supplied to the vaporizing-channel that the flame within the combustion-chamber cannot properly care for the vapor generated, in consequence of which the vapor would be liable to pass through the lower portion of the outer foraminous wall, where it would ignite and cause a flame outside the combustion-chamber, which is not desired. It is desirable to open up the valve in lighting the burner to insure a good capacity of the burner, so that the attendant after once lighting the burner and setting a cooking utensil, for example, thereover would leave the burner to do its work without further regulation of the valve. Without such a provision, however, as the overflow-receptacles this would be entirely impracticable, but by this provision it becomes entirely feasible, inasmuch as the receptacles will take care of any overplus of liquid fuel in the vaporizing-channel. It will be understood that the vaporizer when heated will vaporize the amount of fuel necessary to produce the desired capacity, but that owing to the base being in an unheated condition when the valve is opened

to admit the fuel thereto the liquid fuel would accumulate faster than it can be vaporized without the provision of said overflow-chambers until the base is heated. The liquid fuel in the base of the vaporizing-channel will first be vaporized after the base is heated. Then the fuel in the overflow-receptacles will be vaporized.

What I claim as my invention is—

10 1. In a hydrocarbon-burner, a channeled base provided with an overflow-receptacle opening into the channel of the base, substantially as and for the purpose described.

15 2. In a hydrocarbon-burner, a base provided with a vaporizing-channel, said base formed with an overflow-receptacle communicating with the vaporizing-channel, and means to close the outer extremity of said receptacle, substantially as set forth.

20 3. In a hydrocarbon-burner, the combination with a channeled base, of outer and inner foraminous walls located thereupon forming a combustion-chamber between them, the inner wall provided with an outwardly and
25 upwardly flaring tube therewithin open at its lower end, and an additional tube supported within the flaring tube, said additional tube provided with perforations adjacent to the lower end of the flaring tube, said flaring tube
30 being imperforate above its lower end and the inner wall made imperforate toward its upper end adjacent to the flaring tube, substantially as set forth.

4. In a hydrocarbon-burner, a channeled

base provided with a receptacle opening into 35 the channel of the base above the base of the channel, substantially as set forth.

5. In a hydrocarbon-burner, a base provided with a vaporizing-channel and with an overflow-receptacle opening into said chan- 40 nel, said base constructed to receive a limited amount of fuel independent of said receptacle, substantially as set forth.

6. In a hydrocarbon-burner, the combination of a base provided with a vaporizing- 45 channel, foraminous walls located thereabove forming a combustion-chamber between them, the inner of said walls being removable, and a guide projecting within the inner wall to direct the seating of the inner wall, for the 50 purpose set forth.

7. In a hydrocarbon-burner, the combination of a base provided with an open center and with an outer vaporizing-channel, forami- 55 nous walls located thereabove forming a combustion-chamber between them, the inner of said walls being removable, and a guide secured to said base and projecting upward within the lower end of the inner wall above the open center of the base to direct the seat- 60 ing of said inner wall, for the purpose set forth.

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

EDWIN G. MUMMERY.

Witnesses:

N. S. WRIGHT,
MARY HICKEY.