

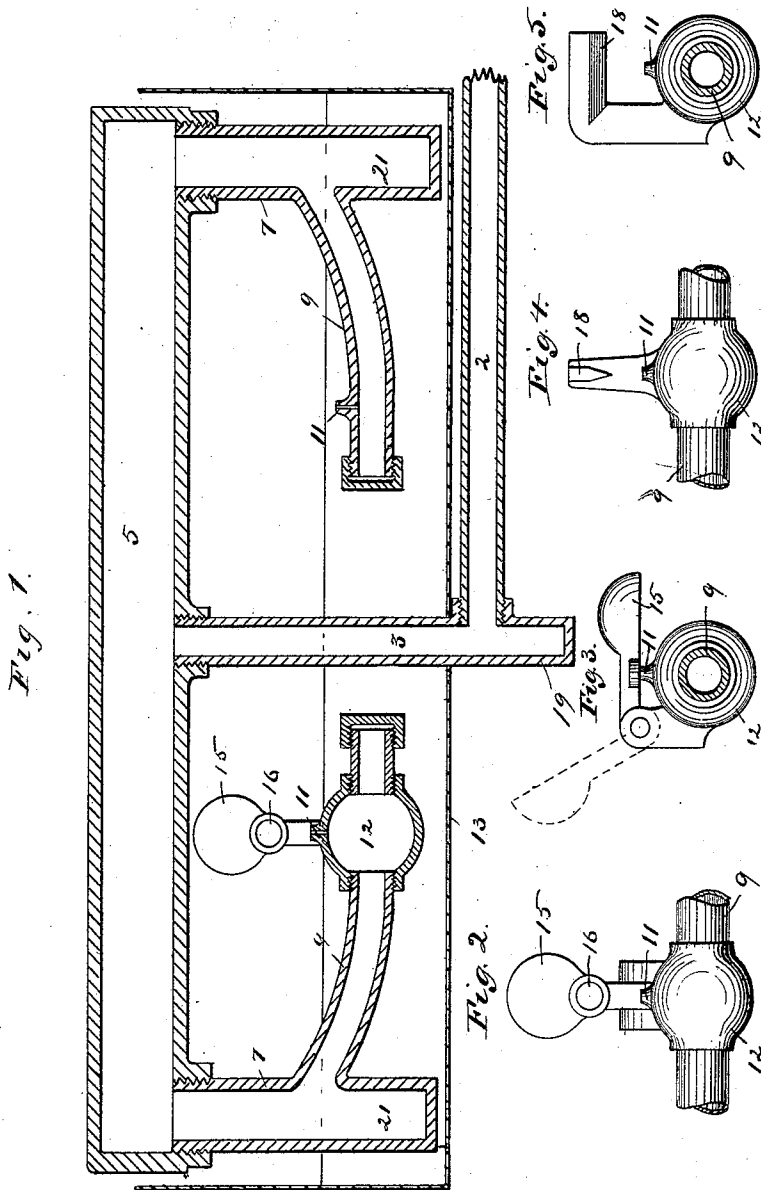
(No Model.)

C. G. ROLLINS.

HYDROCARBON VAPORIZER AND BURNER.

No. 397,940.

Patented Feb. 19, 1889.



Witnesses,  
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# UNITED STATES PATENT OFFICE.

CHARLES G. ROLLINS, OF MINNEAPOLIS, MINNESOTA.

## HYDROCARBON VAPORIZER AND BURNER.

SPECIFICATION forming part of Letters Patent No. 397,940, dated February 19, 1889.

Application filed May 23, 1888. Serial No. 274,849. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES G. ROLLINS, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain  
5 Improvements in Hydrocarbon Vaporizers and Burners, of which the following is a specification.

The object of my invention is to provide a  
10 cheap and durable burner which may be used for vaporizing and burning kerosene, gasoline, or other liquid hydrocarbon, and particularly to provide a burner that is adapted for the use in an ordinary cook-stove, and in which  
15 one burner may be lighted from another; the series of burners being provided with independent cut-offs.

The invention consists, generally, in the construction and combination hereinafter described, and particularly pointed out in the  
20 claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a longitudinal vertical section of a burner constructed in accordance with my invention.  
25 Fig. 2 is a view of the burner, showing the cut-off. Fig. 3 is a view of the burner, showing the cut-off closed. Figs. 4 and 5 are details showing the burner provided with a spreader or deflector.

30 In the drawings, 2 represents the supply-pipe, through which the oil is fed to the burner from any suitable source of supply. The supply-pipe 2 preferably connects with a vertical pipe, 3, which is joined at its upper  
35 end to the retort 5, which consists of two parts or branches radiating in opposite directions from the pipe 3. The retort may be provided with any number of branches radiating from the central pipe, 3. A vertical  
40 pipe, 7, is connected with the under side of retort 5, near each end thereof, and from the pipe 7 project the inwardly-extended burner-pipes 9. These pipes extend from the pipe 7 toward the vertical pipe 3, and they are each  
45 provided near their inner ends with the burners or nipples 11.

A suitable casing, 13, preferably surrounds the lower part of the burner, and this may be filled or partially filled with a packing of  
50 asbestos.

The burner-pipe 9 may be provided with a single burner, 11, or it may be provided with two or more burners. I also prefer to provide each burner with a hinged cut-off, as shown in Figs. 2 and 3. This consists of a  
55 weighted lever, 15, having a cap, 16, adapted to fit upon the end of the nipple and make a close joint therewith. When the lever is in a horizontal position, with the cap 16 resting upon the nipple, the nipple will be closed and  
60 none of the oil or vapor can escape therefrom. When the lever is thrown back to the position indicated by dotted lines in Fig. 3, the nipple is opened and the gas or vapor can escape  
65 freely therefrom. Where two or more of these nipples are used upon a single burner, as shown in Fig. 1, when it is desired to heat  
70 only a portion of the stove, one of the levers 15 may be arranged to shut off one of the burners and the others may be used alone. Should, however, it be desired to use both  
75 burners, if one of them is burning and the lever of the other is thrown up, the gas will escape from this burner and will be relighted from the other.

I may in some instances provide a wedge-shaped or conical deflector, 18, which may be arranged over the burner and a short distance  
80 above it, so that the escaping gas or vapor will be spread, and consequently the flame will be spread over a larger portion of the retort, and the same will be more readily heated, and the rushing sound occasioned when the vapor strikes in one place on the retort is lessened or entirely stopped.  
85

I prefer to provide a pocket, 19, extending below the junction of the pipes 2 and 3, and similar pockets, 21, extending below the junction of the pipes 7 and 9. Any sediment or dirt or scale from the inner surface of the  
90 retort that may be carried through the pipe by the inflowing oil or vapor will be lodged in these pockets, and this will prevent the filling up or clogging of the burner.

In burning kerosene or petroleum in the  
95 burner-retorts constructed for that purpose the best results are obtained when sufficient fluid is supplied to make gas in sufficient volume to create a pressure great enough to force the gas against the retort as it comes  
100

from the burner-pipe. A greater supply of fluid cannot be obtained by opening the valve in the supply-pipe, because the pressure of the gas will keep back the flow of the fluid.

5 A smaller supply of fluid would lessen the volume of gas, and thus lessen the pressure, and the gas would not be sufficiently heated, but would be heavy and the combustion poor. Thus it will be seen that the scope of the

10 range and degree of heat is very small in a retort having a fixed number of perforations of a fixed size. I overcome this objection by providing a retort having a series of burners with means for closing any number of them.

15 I am thus enabled to burn gas to the greatest advantage, for as many of the perforations may be closed as found desirable, while the others are in use. Where there is considerable pressure the combustion is more perfect,

20 and any number of the perforations may be closed where more than two are used, and thus any desired pressure may be obtained upon the gas supplied through the remaining burner or burners. While I have shown in

25 Fig. 1 only two perforations, it will be understood that I do not confine myself to any particular number, as any suitable number may be used with a single retort without departing from my invention. I also prefer to provide the perforations or nipples of the burners

30 in an enlarged portion, 12, of the burner-pipe. These enlarged portions are preferably in the form of hollow globes connected by threaded joints with the pipes 9, as shown at the left hand in Fig. 1. These enlargements

35 in the burner-pipe each forms a chamber which holds a body of gas which makes a more even flow of the gas to the burner, and also forms a sediment pocket or chamber.

40 The pan or casing 13, which incloses the lower portion of the burner, is provided with sides which are high enough to admit air to the gas at a point most advantageous to complete combustion, and the pan has ends, which

45 are high enough to prevent any end draft when the burner is set in a fire-box, much longer than the retort. The pan will preferably contain ashes or asbestos packing or wick,

50 from the burners, permitting it to burn and aid in heating the retort. The operation of the device will be readily understood. The

kerosene or petroleum passing through the supply-pipe is heated therein and converted into a vapor. It then enters the retort, where

55 it is superheated. This pipe 3 is preferably large enough to serve as a receptacle in which the oil is heated. This gas or vapor passes through the depending pipe 7 and the burner-pipe 9 to the perforations or nipples 11, where

60 it is burned. The burning gas heats the retort, and thus keeps up the supply of gas so long as the oil is supplied to the retort. Where a vertical pipe is used, as shown in Fig. 1, arranged midway between the burners, it is

65 partially heated from each of them, and where both burners are in use the gas will be supplied to both equally. If one of the burners is not in use, but little or no gas will be generated upon that side of the retort. If one

70 burner is in use and it is desired to use the other, it is only necessary to open its perforation, when some of the gas will escape therefrom and will be ignited from the other burner, and will thereafter generate its own supply

75 of gas. The casing or pan is of importance in this connection, as when the gas is permitted to escape from one burner for the purpose of igniting it from the other burner the casing retains it until such ignition has taken place.

80 By this means, therefore, I am enabled at any time to light one of the burners from either of the others. This could not be done without both the cut-offs for each burner and the casing employed in combination. Where each

85 burner is provided with a separate cut-off and the casing is provided surrounding all of the burners, this result may always be secured.

I claim as my invention—

In a hydrocarbon vaporizer and burner, the

90 combination, with the retort, of the burner-pipe arranged beneath said retort and provided with the hollow globe having the nipple, as shown, and the weighted lever hinged upon said globe and provided with a cap

95 adapted to cover the end of the nipple, substantially as shown and described.

In witness whereof I have hereunto set my hand this 19th day of May, 1888.

CHARLES G. ROLLINS.

In presence of—

R. H. SANFORD,  
A. C. PAUL.