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Patented Sept. 18, 1900.

C. W. ATKINSON.
CARBURETER.

(Application filed Mar. 7, 1900.)

(No Model.)

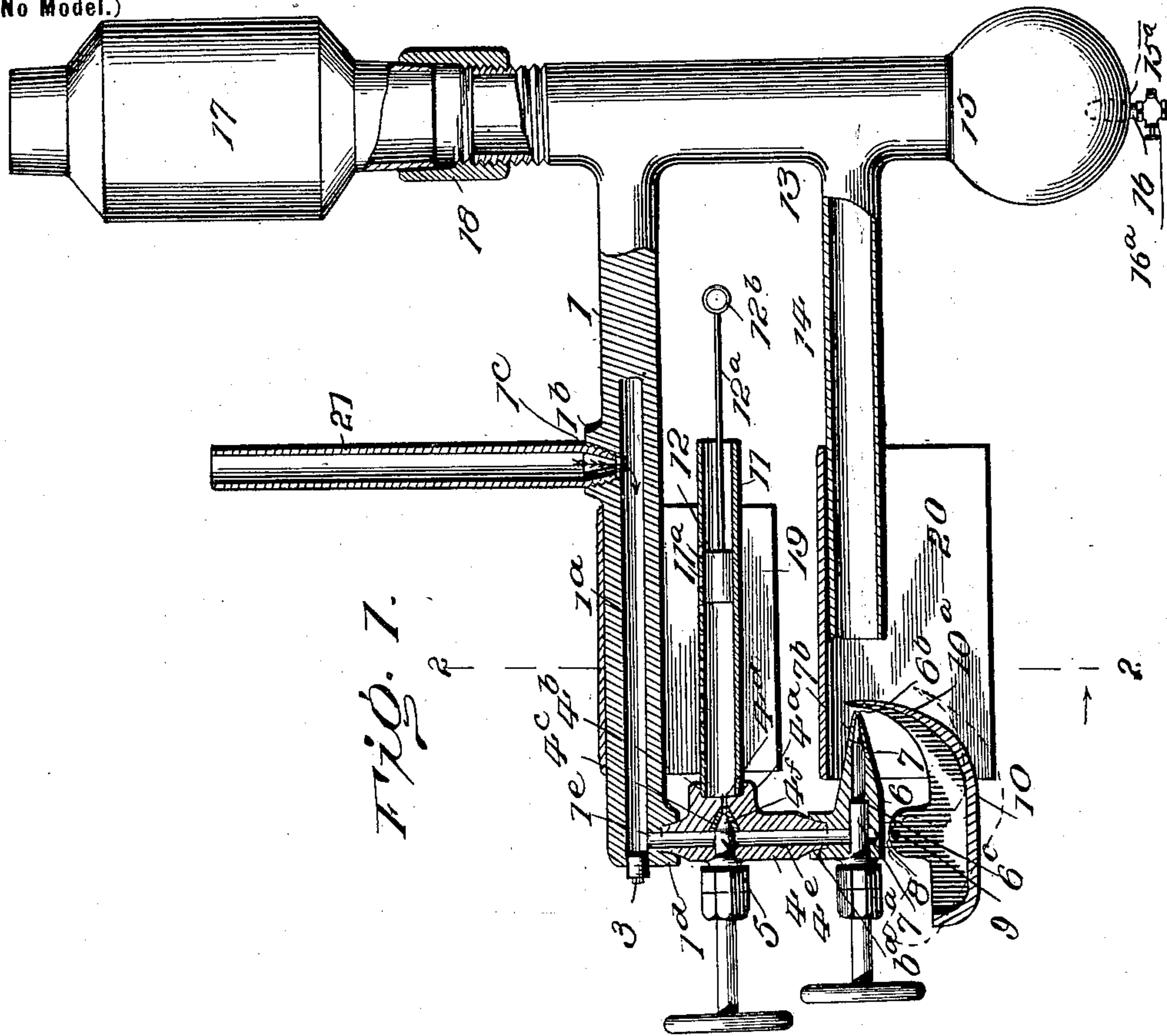


Fig. 1.

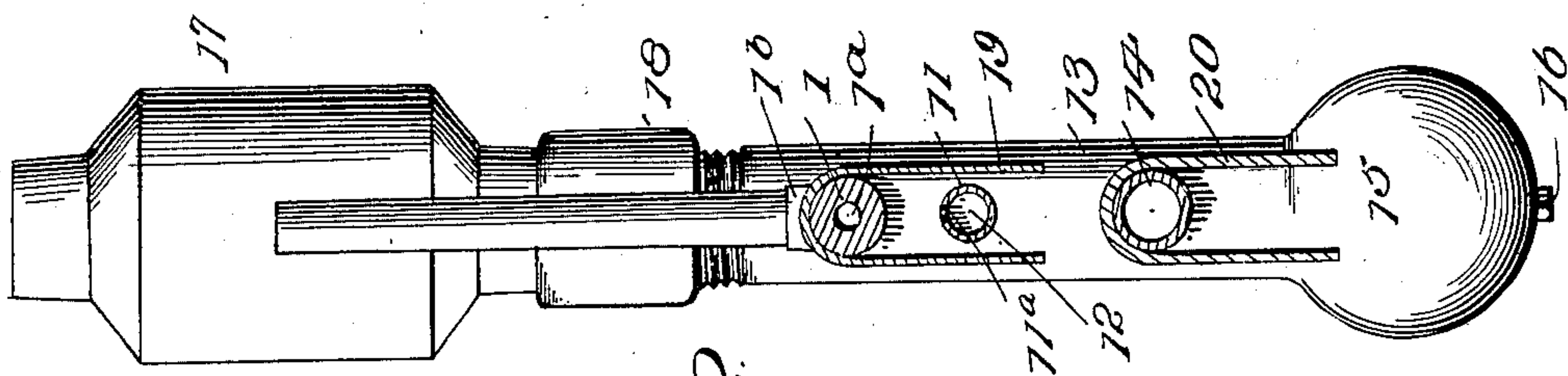


Fig. 2.

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CARBURETER.

SPECIFICATION forming part of Letters Patent No. 658,056, dated September 18, 1900.

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To all whom it may concern:

Be it known that I, CHARLES W. ATKINSON, a citizen of the United States, and a resident of Hudson, in the county of Lenawee and State of Michigan, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

My invention is an improvement in means for generating gas from gasolene, naphtha, or liquid hydrocarbons for illuminating or other purposes, such as heating and cooking.

My improvement comprises a horizontal gas-generating tube with which an oil-supply pipe is connected, a pendent gas-generating tube having an upper valve and supporting a horizontal burner-pipe having a series of holes located beneath the horizontal gas-generating tube and controlled by a piston or plunger adapted to be adjusted within the burner-pipe to admit the gas to the number of holes desired, a valve-housing secured to the lower end of the pendent gas-generating tube, having a lower valve, a pivoted initial heating-cup suspended from the housing and adapted to project in front of the outlet of the lower valve, a vertical feed-pipe having a receiving or commingling pipe extending in line with the lower valve, a drip-reservoir located at the lower end of the feed-pipe, and a storage-tank located at the upper end of the feed-pipe, all as hereinafter described and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is in part a side elevation and in part a section of my improved carbureter. Fig. 2 is a vertical section thereof on the line 2 2, Fig. 1.

1 is a horizontal gas-generating tube formed with a central bore 1^a, with an upwardly-extending collar 1^b near the inner end of the bore 1^a, containing an inlet-opening 1^c. The tube is also formed with a downwardly-extending collar 1^d near the outer end of the bore 1^a, containing an outlet-opening 1^e.

3 is a screw-plug for closing the bore 1^a, while permitting, on its removal, access to the bore 1^a for the purpose of cleaning the latter of any obstruction to the passage of liquid through the bore 1^a.

With the upwardly-extending collar I connect a vertical supply-pipe 21 for gasolene, naphtha, or liquid hydrocarbons leading from a suitable tank. (Not shown.)

4 is a pendent gas-generating tube formed with an inwardly-extending collar 4^a, having a burner-socket 4^b, a conical valve-seat 4^c in rear of the burner-socket, and a jet-opening 4^d intermediate of the valve-seat 4^c and the burner-socket 4^b. The pendent gas-generating tube is secured to the downwardly-extending collar 1^d of the horizontal gas-generating tube 1.

5 is an upper valve extending across the passage 4^e in the pendent gas-generating tube 4, having a conical end 4^f conforming to the conical valve-seat and controlling the flow of gas through the jet-opening 4^d.

To the lower end of the pendent gas-generating tube 4 is secured a valve-housing 6, having a vertical extension 6^a of the passage 4^e, a horizontal jet-opening 6^b, and a cylindrical valve-seat 6^c intermediate of the extension 6^a and the jet-opening 6^b.

7 is a lower valve having a cylindrical body 7^a extending across the passage extension 6^a into the cylindrical valve-seat 6^c and provided with a needle 7^b, controlling the jet-opening 6^b.

Formed on the valve-housing 6 is a pendent lug 8, and to this lug is pivoted, by means of a pivot-pin 9, a swinging initial heating-cup 10, having an upwardly-projecting lip 10^a located in advance of the jet-opening 6^b, so as to conduct oil into the cup 10 from this jet-opening for the initial heating of the burner. This upwardly-projecting lip 10^a, with the heating-cup, is adapted to be swung out of the way of the jet-opening 6^b to the position shown in dotted lines in Fig. 1 when gas commences to flow from the jet-opening 6^b.

11 is a horizontal burner-pipe located beneath and adjacent to the horizontal gas-generating tube 1 and having a series of gas-holes 11^a and secured to the burner-socket 4^b of the collar 4^a of the pendent gas-generating tube. Within the horizontal burner-pipe 11 is a piston or plunger 12 for closing or opening the gas-holes for regulating the heating of the oil for converting it into gas according to the demand on the carbureter to supply the number of gas-lights or heat actually in use. This piston or plunger is adjusted in

the burner-pipe by means of a rod 12^a, having a handle 12^b.

Mounted on the inner end of the horizontal gas-generator tube 1 is a vertical combined gas and air feed pipe 13, to which is connected a horizontal combined gas and air receiving pipe or commingling tube 14, located in line with the lower valve 7 and receiving the gas flowing from the jet-opening 6^b and atmospheric air injected therein by the stream of gas. To the lower end of the vertical feed-pipe is secured a bulb or reservoir 15, providing a drip-cup having a small opening 15^a, with which is connected a pipe 16, through which condensation is permitted to escape. This pipe is controlled by plug-valve 16^a.

Surmounting the vertical feed-pipe 13 is a gas-storage tank 17, from which commingled gas and air continues to rise to the gas-lights after the supply of liquid is cut off at the generator, so that the lights of a house or other building will still burn for a time to give light while the structure is being closed for the day, it being understood that the gas-lights are located at a greater height than the carbureter.

18 is a pipe-coupling whereby the storage-tank is fixed removably to the vertical gas and air feed pipe. In actual use the storage-tank would be of larger capacity than that indicated in the drawings with respect to the size of the generator.

19 is an inverted-U-shaped shield for the horizontal gas-generator tube and burner-pipe, while 20 is a similar-shaped shield for the lower valve-jet opening and receiving or commingling pipe.

The piston or plunger in the burner-pipe is for the purpose of opening or closing the holes in the burner-pipe to accommodate the number of illuminating-jets in use—as, for instance, if it is desired to use ten lights or jets it is not necessary to generate more gas than the ten lights or jets will consume, whereas if twenty or more lights or jets are used it will be necessary to generate more gas, which is accomplished by sliding the piston or plunger outward, thereby increasing the number of flames playing upon the horizontal generating-tube, and therefore the capacity of generation will be increased. Thus a small and large capacity is combined in my generator.

The surmounting tank provides means for storing the combined gas and air, so that when the generator is turned off in a building instead of the lights or jets going out immediately the contents of the tank still rise and feed the lights or jets, so that they will continue to burn and give sufficient illumination for a time to allow for closing up the building and getting out before the lights go out.

The shield 19 is for the purpose of protecting the flames issuing from the burner-pipe holes from unavoidable drafts of air. This shield fitting over the horizontal generating-

tube and the burner-pipe retains the heat generated by the flames, compelling the device to generate a steady and constant flow of gas. The other shield 20 is for the purpose of protecting the gas generated in passing from the lower jet-opening to the receiving or commingling tube. The shields are both removed while the device is being started; but when the device is operating the shields are replaced in position.

The generator is placed from seven to twelve feet below the lights or jets, and the storage-tank is placed about one foot or one foot and a half above the receiving or commingling pipe. Thus it will be seen that the storage-tank is a number of feet below the lights or jets.

To operate the carbureter, the valves being closed and the shields in place, the shields are removed, and the lower valve is opened, so as to permit oil to pass down the lip into the cup, where the oil is ignited. As soon as gas begins to flow the upper valve is opened, thus admitting some of the gas to the burner-pipe, where it is ignited as it issues through the burner-pipe holes. The cup being tilted backward, the main body of the gas is discharged from the lower valve into the receiving or commingling pipe, causing atmospheric air to be injected therewith. The shields are next replaced.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. A carbureter comprising a horizontal gas-generating tube, a pendent gas-generating tube connected with the horizontal gas-generating tube and having a horizontal jet-opening, and an upper valve controlling the jet-opening, a horizontal burner-pipe having a series of holes and located in line with the upper jet-opening adjacent to the horizontal gas-generating tube, a valve-housing secured to the lower end of the pendent gas-generating tube, having a horizontal jet-opening, and a lower valve controlling the jet-opening, and a vertical feed-pipe, having a horizontal commingling-pipe, located in line with the lower jet-opening.

2. A carbureter comprising a horizontal gas-generating tube, a pendent gas-generating tube connected with the horizontal gas-generating tube and having a horizontal jet-opening and an upper valve controlling the jet-opening, a horizontal burner-pipe having a series of holes and located in line with the upper jet-opening adjacent to the horizontal gas-generating tube, a piston or plunger adapted to be adjusted in the burner-pipe for cutting off or opening the holes at will, a valve-housing secured to the lower end of the pendent gas-generating tube, having a horizontal jet-opening and a lower valve controlling the jet-opening, and a feed-pipe having a horizontal commingling-pipe located in line with the lower jet-opening.

3. A carbureter comprising a horizontal gas-

generating tube, a pendent gas-generating tube connected with the horizontal gas-generating tube and having a horizontal jet-opening and an upper valve controlling the jet-opening, a horizontal burner-pipe having a series of holes and located in line with the upper jet-opening, adjacent to the horizontal gas-generating tube, a valve-housing secured to the lower end of the pendent gas-generating tube, having a horizontal jet-opening, and a lower valve controlling the jet-opening, a feed-pipe having a horizontal commingling-pipe located in line with the lower jet-opening, and a drip-reservoir located at the lower end of the feed-pipe.

4. A carbureter comprising a horizontal gas-generating tube, a pendent gas-generating tube connected with the horizontal gas-generating tube, and having a horizontal jet-opening, and an upper valve controlling the jet-opening, a horizontal burner-pipe having a series of holes and located in line with the upper jet-opening, adjacent to the horizontal gas-generating tube, a valve-housing secured to the lower end of the pendent gas-generating tube having a horizontal jet-opening, and a lower valve controlling the jet-opening, an initial swinging heating-cup, pivoted to the valve-housing, having a lip adapted to project in front of the lower jet-opening, and a feed-pipe having a horizontal commingling-pipe located in line with the lower jet-opening.

5. A carbureter comprising a horizontal gas-generating tube, a pendent gas-generating tube connected with the horizontal gas-generating tube, and having a horizontal jet-opening, and an upper valve controlling the jet-opening, a horizontal burner-pipe having a series of holes and located in line with the upper jet-opening, adjacent to the horizontal gas-generating tube, a valve-housing secured to the lower end of the pendent gas-generating tube, having a horizontal jet-opening and a lower valve controlling the jet-opening, a feed-pipe having a horizontal commingling-pipe located in line with the jet-opening, and a removable inverted-U-shaped shield fitting over the lower jet-opening, and over the commingling-pipe.

erating tube, and having a horizontal jet-opening, and an upper valve controlling the jet-opening, a horizontal burner-pipe having a series of holes and located in line with the upper jet-opening, adjacent to the horizontal gas-generating tube, a valve-housing secured to the lower end of the pendent gas-generating tube, having a horizontal jet-opening and a lower valve controlling the jet-opening, a feed-pipe having a horizontal commingling-pipe located in line with the lower jet-opening, and a removable inverted-U-shaped shield fitting over the horizontal gas-generating tube and burner-pipe.

6. A carbureter comprising a horizontal gas-generating tube, a pendent gas-generating tube, connected with the horizontal gas-generating tube, and having a horizontal jet-opening, and an upper valve controlling the jet-opening, a horizontal burner-pipe having a series of holes and located in line with the upper jet-opening, adjacent to the horizontal gas-generating tube, a valve-housing secured to the lower end of the pendent gas-generating tube having a horizontal jet-opening and a lower valve controlling the jet-opening, a feed-pipe having a horizontal commingling-pipe located in line with the jet-opening, and a removable inverted-U-shaped shield fitting over the lower jet-opening, and over the commingling-pipe.

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