No. 834,614. PATENTED OCT. 30, 1906.

R. H. GRAY.

CARBURETER.

APPLICATION FILED JUNE 15, 1906.

Fig. 1.

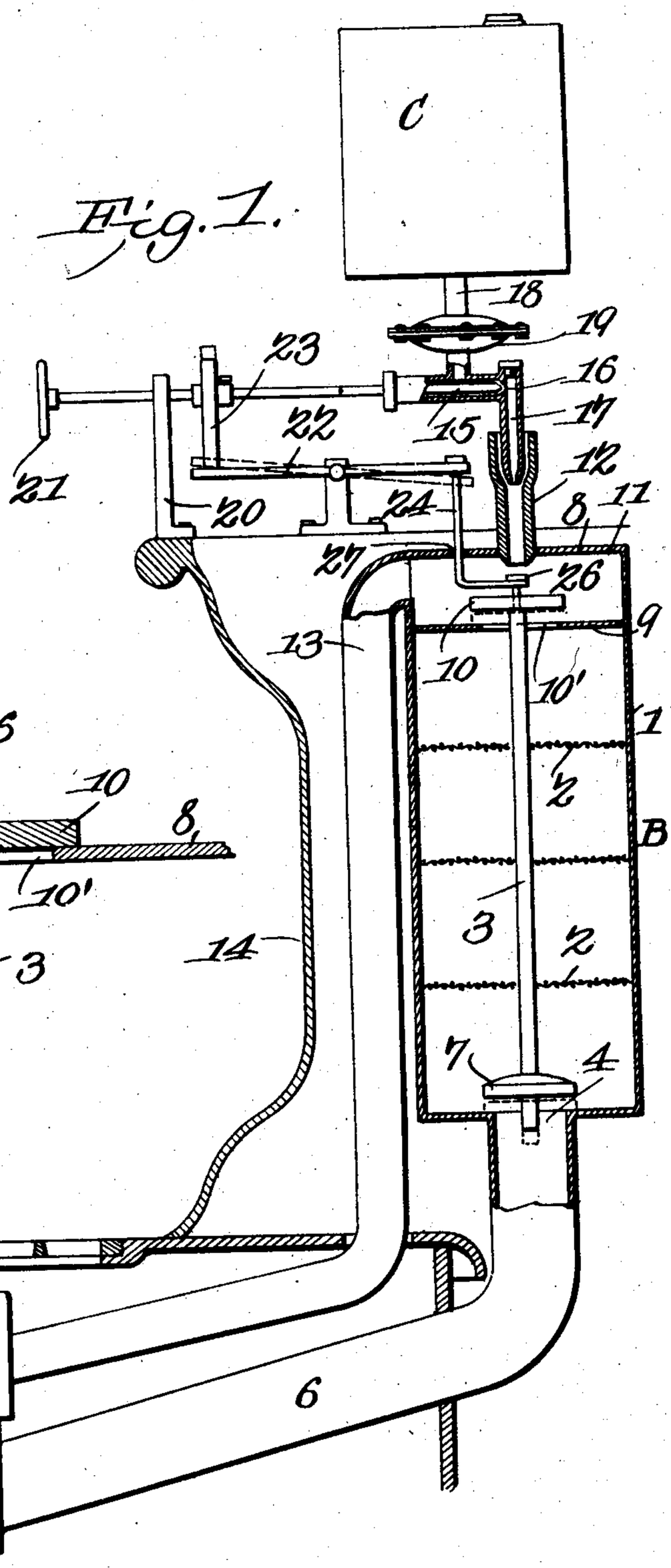
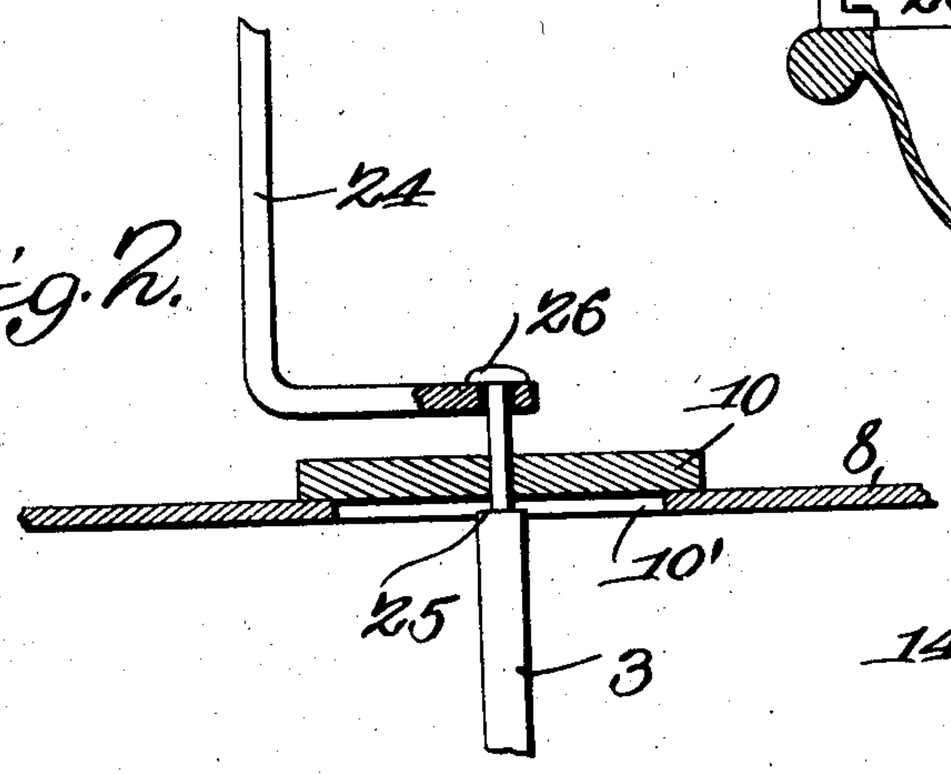


Fig. 2.



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CARBURETER.

No. 834,614. Specification of Letters Patent. Patented Oct. 30, 1906.

Application filed June 15, 1906. Serial No. 321,940.

To all whom it may concern:

Be it known that I, ROBERT H. GRAY, a citizen of the United States, residing at Dallas City, in the county of Hancock and State of Illinois, have invented a new and useful Carbureter, of which the following is a specification.

This invention relates to a carbureter designed more especially for use in connection with gasolene-stoves.

In the operation of gasolene-stoves provided with carbureters it is customary to discharge the unused gases from the carbureter after the flame of the burner is extinguished, thereby causing considerable waste of gas and filling the kitchen with a disagreeable odor.

The main object of this invention is to provide a carbureter in which the gas therein at the time of extinguishing the burner-flame is retained, so as to be utilized for lighting the fire when it is again desired and incidentally preventing the uneconomical waste of the gas by escaping into the room and also the accompanying disagreeable odor.

A further object of the invention is to provide a mechanism for entrapping gas or vapor in the carbureter every time the stove is shut down.

A still further object is the employment of a mechanism for retaining a charge of gas in the carbureter, which mechanism is adapted to be actuated by and simultaneously with the valve controlling the supply of gaoslene or other fuel from a suitable source to the stove.

With these objects in view and others, as will appear as the nature of the invention is better understood, the same comprises the various novel features of construction and arrangement of parts to be fully described hereinafter and set forth with particularity in the claims.

In the accompanying drawings, which illustrate one of the embodiments of the invention, Figure 1 is a vertical longitudinal section of the carbureter and controlling mechanism applied thereto. Fig. 2 is a detail sectional view of one of the valves of the controlling mechanism drawn on an enlarged scale.

Corresponding parts in both figures are indicated throughout by similar characters of reference.

Referring to the drawings, A represents a portion of a gasolene-stove, which may be of any approved construction, B the carbureter for supplying an inflammable gas thereto, and C the source of fuel, such as gasolene.

The carbureter B comprises an upright cylindrical chamber 1, having a plurality of spaced gauze diaphragms 2, each centrally perforated for guiding the movement of a vavle-stem 3, which extends substantially the full length of the chamber. The lower head of the chamber 1 is provided with a discharge-port 4, that discharges the inflammable gas to a burner 5 of the stove through the pipe 6. The discharge-port 4 is controlled by a valve 7, secured on the valve-stem 3. Suitably below the upper head 8 of the carbureter-cylinder is a partition 9, having a central port 10′, which is controlled by the disk valve 10 on the upper end of the stem 3. The space between the upper head 8 and partition 9 forms an inlet-chamber 11, through which gasolene and air are supplied, the gasolene entering through the tubular mouth 12 at the center of the head 8, while the air is drawn in at one side through the pipe 13, arranged with its inlet end adjacent the burner, so as to draw in a supply of heated air. The carbureter is supported on the gas or mixture supply pipe 6 and is located at the rear of the stove, where it and the air-supply pipe are concealed by a front plate or guard 14, which may be suitably ornamented to improve the appearance of the stove, this, however, being a common construction in gasolene-stoves.

The tank C, containing gasolene, is suitably supported above the carbureter, so as to feed the fuel by gravity thereto, the flow being controlled by a valve 15, which is adapted to open and close the port 16 of the nozzle 17, which latter projects into the mouth 12. The supply from the tank to the nozzle flows through the conduit 18, having a straining device 19. The valve-stem is supported adjacent its outer end on a bearing-post 20, suitably arranged on the member 14, and the stem is actuated by a hand-wheel 21.

It is preferable to actuate the valves 7 and 10 of the carbureter so that they will open their respective ports simultaneously with the opening of the needle-valve and also to close with the closing of the latter. This can be done in a variety of ways, one of which is accomplished by a mechanism comprising a

lever 22, suitably mounted to be oscillated by an eccentric 23 or equivalent means, and a link 24, connecting the lever with the upper end of the valve-stem 3. The eccentric 23 is mounted on the needle-valve stem and is so disposed thereon as to depress the end of the lever engaging therewith simultaneously with the opening of the needle-valve. The lever 22 is fulcrumed on the top of the guard 14, and the link 24 is connected to the rear end thereof, so that as the front end of the lever is depressed the valve-stem 3 is raised and the valves 7 and 10 lifted from their respective ports.

When the parts are in the position shown, the apparatus is in full operation, gasolene feeding drop by drop from the nozzle 17 through the mouth 12 and upon the upper valve 10. From here it passes or flows onto the partition 9, thence through the port thereof to the upper perforated diaphragm 2. While passing into the chamber of the carbureter through the inlet-chamber 11 the gasolene picks up more or less air, the complete carbureting taking place, however, in the carbureter proper, wherein the diaphragms 2 serve the double purpose of separating the gasolene successively into small particles and holding them in suspension thereon for a better action of the air. When it is desired to shut down the stove, the hand-wheel 21 is turned to close the needle-valve, thereby cutting off the flow of gasolene. At the same time the valves 7 and 10 are seated, so as to close the inlet and outlet ports of the carbureter, and thus confine the gas existing therein and hold it in readiness to supply the burner when it is desired to relight the stove. When the stove is shut down, the working parts of the apparatus assume the position shown by dotted lines.

In order to insure proper seating of both valves 7 and 10, one of them is loosely mounted on the valve-stem 3 so that it will seat by its own weight. In the present instance the upper valve 10 is shown movably mounted on the valve-stem. The stem is slightly reduced or otherwise shaped to form a shoulder or abutment 25, which is adapted to engage the valve to uncover the port thereof. When the valve is raised, as shown in full lines in Fig. 1, the valve rests on the shoulder; but when the valves 7 and 10 are seated the shoulder is disengaged from the valve 10, so as to insure the latter being positively seated, as shown in Fig. 2. In other words, there is a lost-motion connection between the upper valve and the stem. The upper extremity of the valve-stem is provided with an enlargement or head 26, which is engaged by the bifurcated lower end of the L-shaped link 24, the link being constructed in the shape shown for the reason that the valve-stem lies centrally below the mouth 12 and the rear end of the lever extends slightly short of the mouth. The vertical portion of the link is guided through an opening 27 in the head 8 of the carbureter-cylinder.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily understood by those skilled in the art to which it appertains. It is obvious that by means of the present invention a fire can be started instantly by reason of the ever-present supply of gas contained in the carbureter during the time the stove is shut down, so that no waiting is required to generate the gas when the stove is to be started, as is necessary in other constructions with which I am acquainted. Furthermore, the flame can be instantly extinguished without the wasteful use of gas escaping into the room and producing a deleterious odor.

I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof; but I desire to have it understood that the apparatus shown is merely illustrative and that various changes may be made when desired as are within the scope of the invention.

What is claimed is—

1. The combination of a burner, a source of fuel-supply, a carbureter connected with the source and burner for supplying inflammable gas to the latter, means in the carbureter comprising separate valves at the inlet and outlet ends thereof for retaining a supply of gas in the carbureter, means for controlling the supply of fuel from the tank to the carbureter, and a mechanism for simultaneously actuating both of the said means.

2. The combination of a burner, a source of fuel-supply, a carbureter connected with the source and burner for supplying inflammable gas to the latter, separate valves at the inlet and outlet ends of the carbureter, means for opening and closing the valves simultaneously, a valve for controlling the supply of fuel to the carbureter, and a device connected with the valve and said means for opening or closing the fuel-controlling valve and valves of the carbureter together.

3. The combination of a burner, a source of fuel-supply, a carbureter connected with the source and burner for supplying inflammable gas to the latter, a valve between the source and carbureter, two valves in the carbureter for retaining a supply of gas therein, and mechanism exterior of the carbureter for actuating the three valves simultaneously.

4. The combination of a burner, a source of fuel-supply, a carbureter connected with the source and burner for supplying inflammable gas to the latter, a reciprocating device in the carbureter for retaining and releasing a supply of gas in and from the same, a rotatable valve intermediate the carbureter

and source of supply for controlling the flow of fuel, and a mechanism for actuating the said device and valve simultaneously.

5. The combination of a burner, a source of fuel-supply, a carbureter connected with the source and burner for supplying inflammable gas to the latter, a reciprocating device in the carbureter for retaining and releasing a supply of gas in and from the same, a needle-valve arranged exterior to the carbureter to control the supply of fuel from the source to the carbureter, a mechanism between the stem of the valve and the device arranged to cause the latter to release the supply of gas simultaneously with the opening of the needle-valve and to retain a supply of gas when the needle-valve is closed, and means for actuating the needle-valve.

6. The combination of a burner, a source of fuel-supply, a carbureter connected with the source and burner for supplying inflammable gas to the latter, inlet and outlet ports in the carbureter, connected valves controlling the ports, a valve arranged intermediate the source and carbureter, and a lever arranged intermediate the latter valve and the valves of the carbureter whereby all of the valves are opened and closed simultaneously.

7. The combination of a burner, a source of fuel-supply, a carbureter connected with the source and burner for supplying inflammable gas to the latter, inlet and outlet ports in the carbureter, connected valves controlling the ports, a valve arranged intermediate the source and carbureter, a lever, means on the stem of the last-mentioned valve for tilting the lever, and a link extending from the lever to a point within the carbureter and connected with the valves in the latter.

8. The combination of a burner, a source of fuel-supply, a carbureter connected with the source and burner for supplying inflammable gas to the latter, inlet and outlet ports in the carbureter, separate valves for the ports, a common valve-stem, and a device extending from a point within to a point without the carbureter and connected with the stem for actuating the valves.

9. The combination of a burner, a source of fuel-supply, a carbureter connected with the source and burner for supplying inflammable gas to the latter, inlet and outlet ports in the carbureter, separate valves for the ports, a common valve-stem to which one valve is positively connected and the other loosely connected, and means for actuating the valves.

10. The combination of a carbureter having separate ports, a valve at one of the ports for controlling the supply of mixture therefrom, a valve at the other port coöperating with the first to hold a charge of gas in the carbureter, means for simultaneously opening and closing the valves, a stem to which the valves are connected, and diaphragms in the carbureter which guide the movement of the said stem.

11. The combination of a carbureter, a valve for controlling the supply of mixture therefrom, a valve coöperating with the first to hold a charge of gas in the carbureter, a valve-stem in the carbureter to which the valves are attached, means exterior of the carbureter for actuating the valve-stem, and a plurality of perforated diaphragms in the carbureter which serve to guide the movement of the stem.

12. The combination of a carbureter, a valve for controlling the supply of mixture therefrom, a valve coöperating with the first to hold a charge of gas in the carbureter, a stem extending longitudinally of the carbureter to which one valve is positively connected, a lost-motion connection between the other valve and the stem, and means for actuating the valve-stem.

13. The combination of a carbureter-chamber, ports at opposite ends thereof, a plurality of gauze diaphragms in the chamber which are provided with central perforations, a valve-stem guided by the perforations of the diaphragm, valves on the opposite ends of the stem arranged to close and open the ports simultaneously, and a device for imparting motion to the valve-stem.

14. The combination of a carbureter-chamber, a partition dividing the chamber into separate compartments, a port in the partition, separate inlets for air and fuel leading to one of the compartments, a plurality of diaphragms in the other compartment, an outlet-port, a valve for the latter, a valve controlling the port in the partition, a stem connected with the valves to close and open them simultaneously, and means connected with the stem for actuating the same.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ROBERT H. GRAY.

Witnesses:
L. J. HALL,
H. D. MURRY.