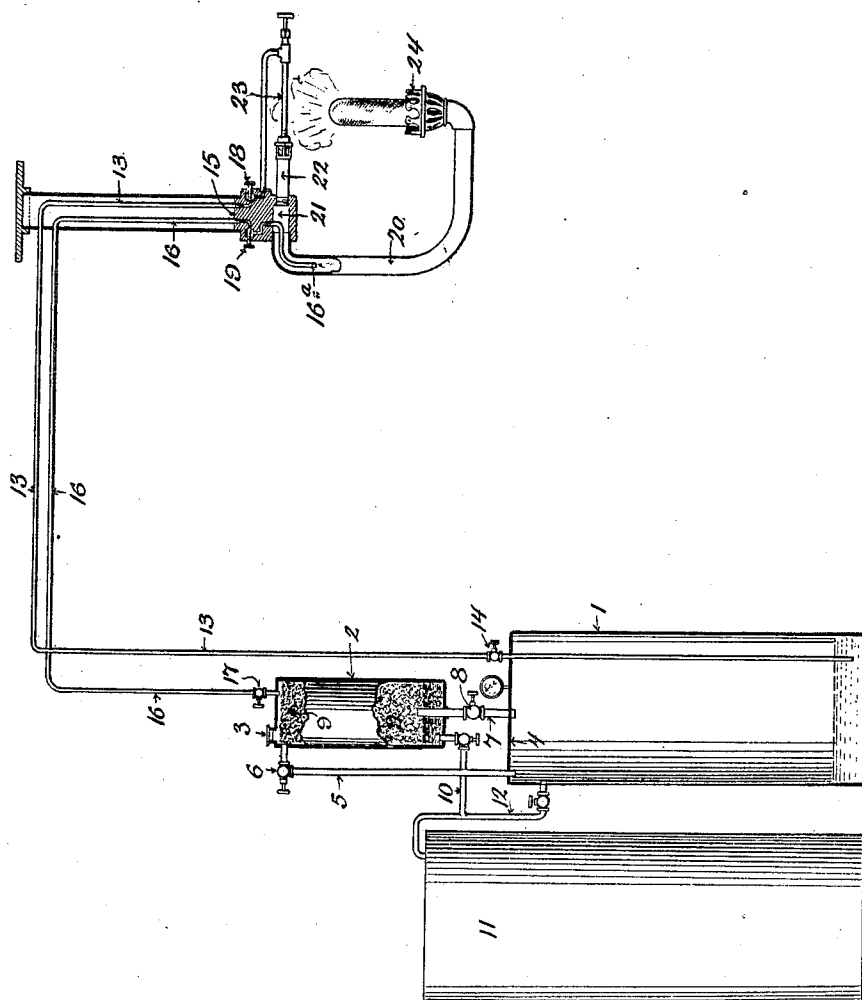


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 GAS APPARATUS.
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UNITED STATES PATENT OFFICE.

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GAS APPARATUS.

971,019.

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To all whom it may concern:

Be it known that we, JESSE CAPPON and JOHN A. SCHANTZ, both citizens of the United States, and residents of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Gas Apparatus; and we do hereby declare that the following is a full, clear, and exact description thereof.

Our invention relates to gas apparatus employing carbureted air, the gaseous fluid being obtained by a mixture of air and gasoline, or alcohol.

One object of the invention is to provide a simple, economical and efficient carbureter mixing chamber.

Another object is to provide means whereby ignition of gas at the burner is instantaneous, thus dispensing with the use and inconvenience in applying a heating torch to the burner in order to generate gas incidental to lighting.

Still another object of our invention is to provide means for charging the air storage tank with gaseous fluid from time to time as required.

With the above objects in view the invention consists in certain peculiarities of construction and combination of parts as fully set forth hereinafter with reference to the accompanying drawing and subsequently claimed.

The drawing illustrates in diagram a gas apparatus embodying the features of our invention.

Referring by characters to the drawing, 1 indicates a closed fuel supply tank having a carbureter 2 located above the same, the carbureter being provided with a filling-nipple 3 and is provided with a suitable closure-cap, said nipple being extended from the upper head of the carbureter. The carbureter, adjacent to its upper head is also connected to the upper head 4 of the fuel supply tank, by means of a vent-pipe 5, which pipe is provided with a valve 6. A gasoline feed-pipe 7 is connected to the carbureter bottom and upper head 4 of the air-tank 1, the feed-pipe being provided with a controlling valve 8, and is arranged to have its mouth disposed slightly above the bottom of said carbureter. The carbureter 2 also constitutes a mixing chamber to be utilized in connection with the lighting system when it is desired to ignite the gas at a burner.

With the above purpose in view the carbureter is provided with a filler of fine steel shavings 9, or similar material, and also connected at its bottom with a valve-controlled air supply pipe 10, which pipe in this instance is shown in communication with an air tank 11 in which is stored a suitable volume of compressed air, it being understood, however, that any convenient source of air supply under pressure may be substituted therefor. The supply pipe 10 also has a valve-controlled branch connection pipe 12 that communicates with the upper portion of the fuel supply tank 1, whereby said tank is filled with air at the desired pressure from time to time as its supply is depleted, due to consumption.

A liquid fuel supply pipe or main 13 is let into and terminates a short distance from the bottom of the air-tank 1, extending upward and through the head 4 thereof, at which point it is provided with a controlling valve 14. The fuel supply pipe 13 communicates with a head 15 of each burner fixture in the series, there being only one of such burners shown in the diagram for simplicity in illustration, and it is understood that any form of burner of the type shown can be utilized in the application of our invention.

An independent auxiliary fuel supply-pipe 16 leads from the top head of the carbureter 2, at which point this supply-pipe is provided with a suitable controlling valve 17, and from thence said supply-pipe is connected to the head 15 of the burner fixture, in a similar manner to the supply-pipe 13. Both the main pipe 13 and auxiliary pipe 16 communicate with separate ducts in the head 15, which ducts are controlled by independent pin-valves 18 and 19 respectively. A continuation or section 16^a of the auxiliary supply pipe 16 extends from the valve-controlled duct in the head 15, and into a burner supply neck 20, which neck communicates with a channel 21 of said head. This channel 21 also carries the mixing nozzle 22 of a valve-controlled generator tube 23, which tube is in pipe connection with the head duct that leads from the gas main 13, the said duct being controlled by pin-valve 18 as shown.

A burner 24 is fitted to the recurved end of the neck 20 and is positioned under the generator tube 23, in such relation thereto as to impart sufficient heat to said tube, when

the burner is ignited, so as to generate the gas from the oil that is forced therethrough from the fuel tank 1.

The short section of pipe 16^a, which depends into the neck 20, is provided for the purpose of preventing the action of the carbureted air, when passing therethrough to the burner, from causing air to be sucked through the mixing nozzle 22 and thus reduce the quality of the carbureted air to such an extent that the same would become inefficient for the initial ignition at the burner.

In the operation, the fuel tank 1 is first filled with air to the desired pressure and all valves communicating therewith closed. The carbureter 2 being filled with gasoline, valve 6 of the vent-pipe is opened together with valve 8 of the feed-pipe 7. Air is thereby admitted to the top of the carbureter chamber from the tank, whereby an equalization of pressure is obtained. The gasoline will then flow from said carbureter chamber into the fuel supply tank 1 and the pressure thereon will cause the mixture of air and gas to be forced through the main pipe 13 to the burner fixture head. A portion of the gasoline, by capillary attraction, will adhere to the steel shavings contained in the carbureter chamber, after the same has been emptied, with the exception of a small quantity that will remain in the bottom thereof, due to the elevation of the mouth of the feed-pipe 7 within said chamber. The gaseous fluid may now be instantaneously ignited at the burner by opening the valve-controlled air supply-pipe 10, and the controller-valve 17 of the auxiliary supply-pipe 16, together with the pin-valve 19. This permits air under pressure to pass up through the carbureter chamber from air tank 11, causing the same to become richly laden with the gaseous fluid as it passes through the layer of oil contained in the bottom of the carbureter, supplemented by the oil laden steel shavings. The mixture thus obtained can be ignited at the burner instantaneously and the heat generated by the initial supply of carbureted air, will quickly heat the generator tube 23 to a sufficient degree, warranting the operator in opening the pin-valve 18 of the gas main pipe. Gas will thereafter be generated from the fuel supply contained in tank 1, which supply is delivered through the main pipe to the burner and the operator then cuts off the auxiliary pipe or "lighting supply" by means of the pin-valve 19. It should be understood the lighting operation only requires a small quantity of the gaseous fluid from the carbureter for accomplishing the desired result, and hence the residue of oil left in said mixing chamber is sufficient for many opera-

tions, this residue being supplemented with each filling operation of the fuel tank.

From the foregoing it is obvious that economy and efficiency results through employing a combined mixing chamber and oil reservoir capable of serving the two-fold functions of supplemental lighting source of supply and filling medium for the air tank.

We claim:

1. In a gas apparatus comprising a fuel tank adapted to contain a volume of oil and air under pressure above the same, a valve-controlled gas generating burner, and a main supply pipe connected to the burner and terminating in the tank adjacent to its bottom; the combination of a carbureter located above the fuel tank containing a filling of metallic shavings, a valve-controlled pipe connection between the carbureter and upper portion of the fuel tank, a valve-controlled oil feed pipe extending into said carbureter and terminating above its bottom to form an oil trap, the feed pipe being in communication with the upper portion of the fuel tank, an auxiliary supply pipe in communication with the top of the aforesaid carbureter and connected to the burner, and a controlling valve for the auxiliary supply pipe carried by said burner.

2. In a gas apparatus comprising a fuel tank adapted to contain a volume of oil and air under pressure above the same, an air tank in communication with the fuel tank, a valve-controlled gas generating burner, and a main supply pipe connected to the burner and terminating within the fuel tank adjacent to its bottom; the combination of a carbureter located above said fuel tank containing a filling of metallic shavings, an air-supply pipe connecting the air tank and carbureter bottom, a valve-controlled pipe connection between the top of the carbureter and upper portion of the aforesaid fuel tank, a valve-controlled oil feed pipe extending into said carbureter above its bottom to form an oil trap, the feed pipe being in communication with the upper portion of the fuel tank, an auxiliary pipe connecting the top of the aforesaid carbureter and burner, independent ducts in the burner communicating with the main and auxiliary supply pipes, and independent valves carried by the burner for controlling the ducts.

In testimony that we claim the foregoing we have hereunto set our hands at Milwaukee in the county of Milwaukee and State of Wisconsin in the presence of two witnesses.

JESSE CAPPON.

JOHN A. SCHANTZ.

Witnesses:

MAY DOWNEY,
CASANAVE YOUNG.