

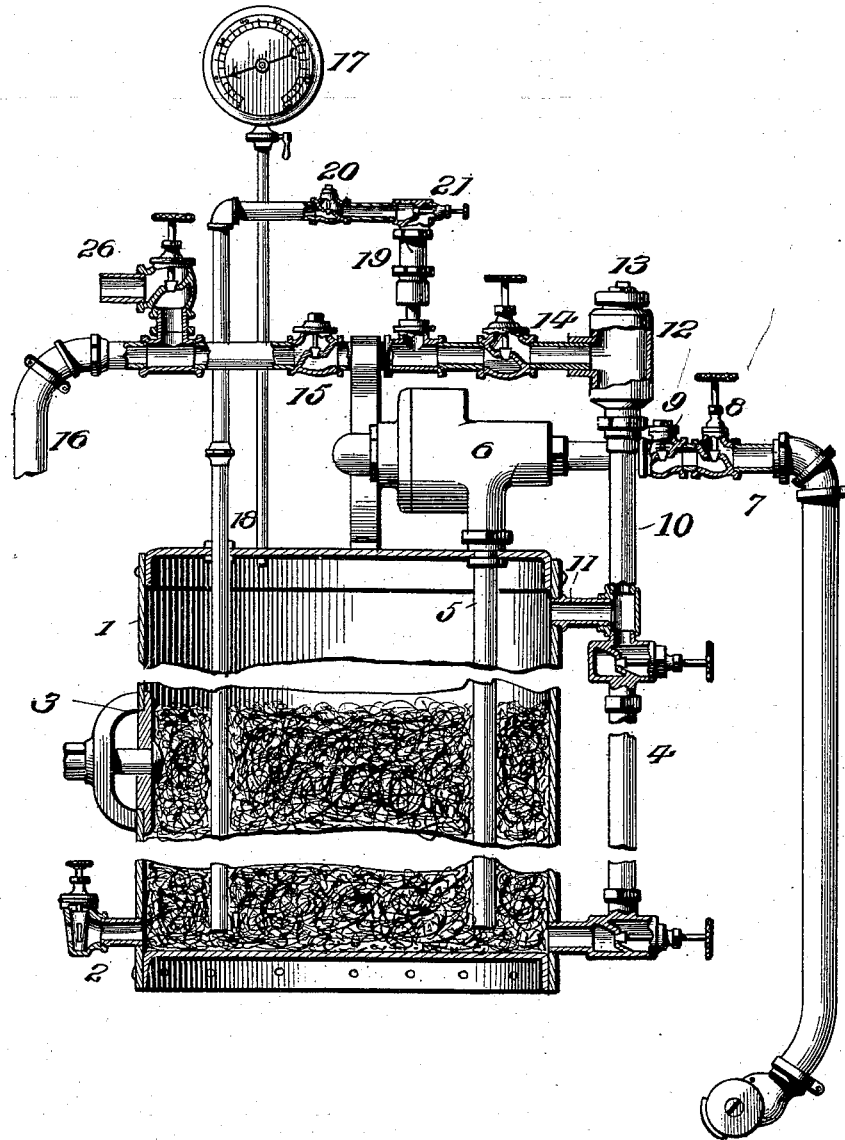
No. 650,276.

G. B. ROBISON.
CARBURETER.

Patented May 22, 1900.

(Application filed June 29, 1899.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE B. ROBISON, OF MOUNT VERNON, OHIO, ASSIGNOR OF ONE-HALF
TO CHARLES F. BRENT, OF SAME PLACE.

CARBURETER.

SPECIFICATION forming part of Letters Patent No. 650,276, dated May 22, 1900.

Application filed June 29, 1899. Serial No. 722,317. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. ROBISON, a citizen of the United States, residing at Mount Vernon, in the county of Knox and State of Ohio, have invented certain new and useful Improvements in Carbureters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention is designed to provide a carbureter of novel construction for use in connection with apparatus for heating the rims of locomotive and coach wheels, for straightening bent frames, braces, and axle-expanding cylinders, and for heating boiler-plate and articles requiring to be subjected to a uniform and high temperature. In this class of apparatus great difficulty has been experienced in getting sufficient flame when a great amount of heat is required for concentration upon a comparatively-small article or to be distributed over a large extent of surface. To meet this difficulty in a simple and effective manner is the chief feature of the invention.

A further purpose of the invention is to regulate the air-pressure within the tank and to prevent explosion of the said tank from back draft from the burner; also, to guard against loss of pressure in the tank in the event of a mishap to the air-compressor or the pipe conveying such air to the tank.

The foregoing are some of the chief features of the invention; but other advantages are contemplated and will appear in the course of the subjoined description, reference being had to the drawing hereto attached, which is a detail sectional view of the hydrocarbon-tank and the several pipes, valves, and parts coöperating therewith.

Corresponding and like parts are referred to in the following description and indicated in the drawing by the same reference characters.

The tank or reservoir 1 for containing the gasoline or other hydrocarbon may be of any desired formation, and is provided at its lower end with a valve-controlled drain 2, and has a hand-hole 3 in its side, closed in the usual manner. This tank or reservoir is nearly

filled with excelsior or similar light material for absorbing to a greater or less extent the gasoline or hydrocarbon supplied to the tank and utilized for carbureting the air forced therein and consumed at the burner after it has been carbureted. A gage 4 is provided at one side of the tank to determine the level of the hydrocarbon within the reservoir. A pipe 5 extends within the tank and is in communication with the means for supplying air under pressure, and this pipe terminates a short distance from the bottom of the tank and communicates at its upper end with a reducing-valve 6 of ordinary construction, whereby the pressure of the inflowing air is regulated so as to maintain a nearly-uniform pressure within the tank. The air-pipe 7, having connection at its outer end with the air-pump or air-compressing mechanism, is attached to the reducing-valve 6 and is provided with a controlling-valve 8 and a check-valve 9, the latter being located at a point between the controlling-valve 8 and the pressure-reducing valve 6 and serving to prevent the escape of air from the tank in the event of injury to the air-supplying pipe 7. The outflowing-pipe 10 communicates with the upper portion of the tank, as shown at 11, and is provided at any convenient point in its length with a drain-cup 12, of ordinary construction, having a plug-controlled opening 13, through which the gasoline or hydrocarbon is supplied to the tank when the latter requires replenishing and through which the displaced air escapes. A controlling-valve 14 and a check-valve 15 are located in the length of the outflowing-pipe 10, the valve 14 being designed for regulating the amount of carbureted air to be supplied to the burner in a given time and the check-valve 15 preventing any flame from the burner passing into the tank and causing an explosion. A flexible or hose pipe 16 connects the pipe 10 with the burner and enables the latter to be moved to any position within the length of range of adjustment of said pipe 16. A pressure-gage 17, of any desired pattern or make, is applied to the tank in order to determine the amount of pressure therein.

Upon closing the valve 14 and removing the plug 13 hydrocarbon can be supplied to the

tank, and after the latter has received the desired quantity the filling-opening of the cup 12 is closed by replacing the plug 13 and the valve 14 is opened to a greater or less extent, according to the gaseous mixture to be supplied to the burner. The pipe 7 being coupled to an air-pump or like device for compressing air and the valve 8 being opened said air under pressure enters the tank or reservoir 1 and passes upwardly through the body of the hydrocarbon and becomes carbureted and escapes from the upper portion of the tank through the opening 11 into the pipe 10 and passes to the burner through the pipe 16, where it is consumed. The volume of gas passing from the tank has frequently been found insufficient for many purposes. Hence the following means have been devised for increasing the quantity of gas available for consumption at the burner:

The means for adding to the flame of the gaseous mixture consists of a pipe 18, entering the tank 1 and extending to within a short distance of the bottom thereof, a sight-feed 19, a coupling for journaling the pipe 18 to the outflowing-pipe at a point intermediate of the check-valve 15 and the controlling-valve 14, a check-valve 20, and a controlling-valve 21, the latter regulating and determining the amount of hydrocarbon to be supplied to the carbureted air in its passage to the burner. Upon opening the valve 21 to the desired extent the pressure within the tank will cause a quantity of the hydrocarbon to pass therefrom through the pipe 18 and sight-feed 19 into the pipe 10, wherein it will be taken up by the current of carbureted air and carried to the burner and increase the flame by adding to the volume of the gas. The hydrocarbon is supplied to the pipe 10 in small quantities and is vaporized by the current of gas in the pipe 10 and causes the gaseous mixture to become supersaturated. The fluid gas coming in contact with the heated surface of the burner is increased in volume by the flashing action occasioned by the contact of the vapor-laden gas with the heated walls of the burner, this action being intensified by reason of the volatile nature of the hydrocarbon. When the valve 21 is closed, the carbureted air passing from the tank will be supplied to the burner without being enriched, as would be the case if the valve 21 were opened to a greater or less extent.

The burner 22 is of circular outline, and consists of a tube or pipe bent into curved form. This pipe or burner is provided upon its inner side with flame-orifices disposed upon opposite sides of a central line, the openings upon one side of the central line coming opposite the spaces between the openings upon the opposite side of said central line. After the rim has been sufficiently heated to expand it to the required extent and it being required to cool the supply of gas is shut off and the outer end portion of the pipe is cou-

pled to a water-main or other means for supplying a cooling agent. As shown, a valve 26 is coupled to the outer end portion of the pipe 10 and the water-main or other means for supplying a cooling agent is connected to the nipple of the valve 26 by means of a hose or other pipe.

Having thus described the invention, what is claimed as new is—

1. In apparatus of the character specified, the combination with a tank or reservoir for containing hydrocarbon, means for supplying air under pressure to said tank and an outflowing-pipe in communication with said tank for conveying the carbureted or gaseous mixture to the point of consumption, of means connected with the tank for supplying hydrocarbon to the gas-outflow pipe and enriching and increasing the volume of available gas at the point of consumption, substantially as set forth.

2. In apparatus of the character specified, the combination with a tank or reservoir for containing hydrocarbon, means for supplying air thereto under pressure, and an outflowing-pipe communicating with said tank for conveying the gaseous mixture to the point of consumption, of a pipe communicating with the gas-outflowing pipe and supplying hydrocarbon thereto, a controlling-valve in the length of the hydrocarbon-supplying pipe, and a sight-feed in said pipe, substantially as set forth.

3. In apparatus of the character described, the combination with a tank or reservoir for containing hydrocarbon, means for supplying air under pressure to said tank, and a gas-outflowing pipe in communication with said tank and provided in its length with a check-valve and a controlling-valve, of a hydrocarbon-supplying pipe communicating with said gas-outflowing pipe at a point between the check and controlling valves thereof and provided with a sight-feed and a controlling-valve, substantially as set forth.

4. In apparatus for the purpose set forth, the combination with a tank containing hydrocarbon, means for supplying air under pressure to said tank, and a gas-outflowing pipe in communication with said tank and provided with a check-valve and a controlling-valve, of a hydrocarbon-supplying pipe communicating with the lower portion of said tank and communicating with the outflowing-pipe at a point between the check and controlling valves thereof and itself provided with a sight-feed, a check-valve and a controlling-valve, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE B. ROBISON. [L. S.]

Witnesses:

A. S. CONBIT,
ARLA B. HOUCK.