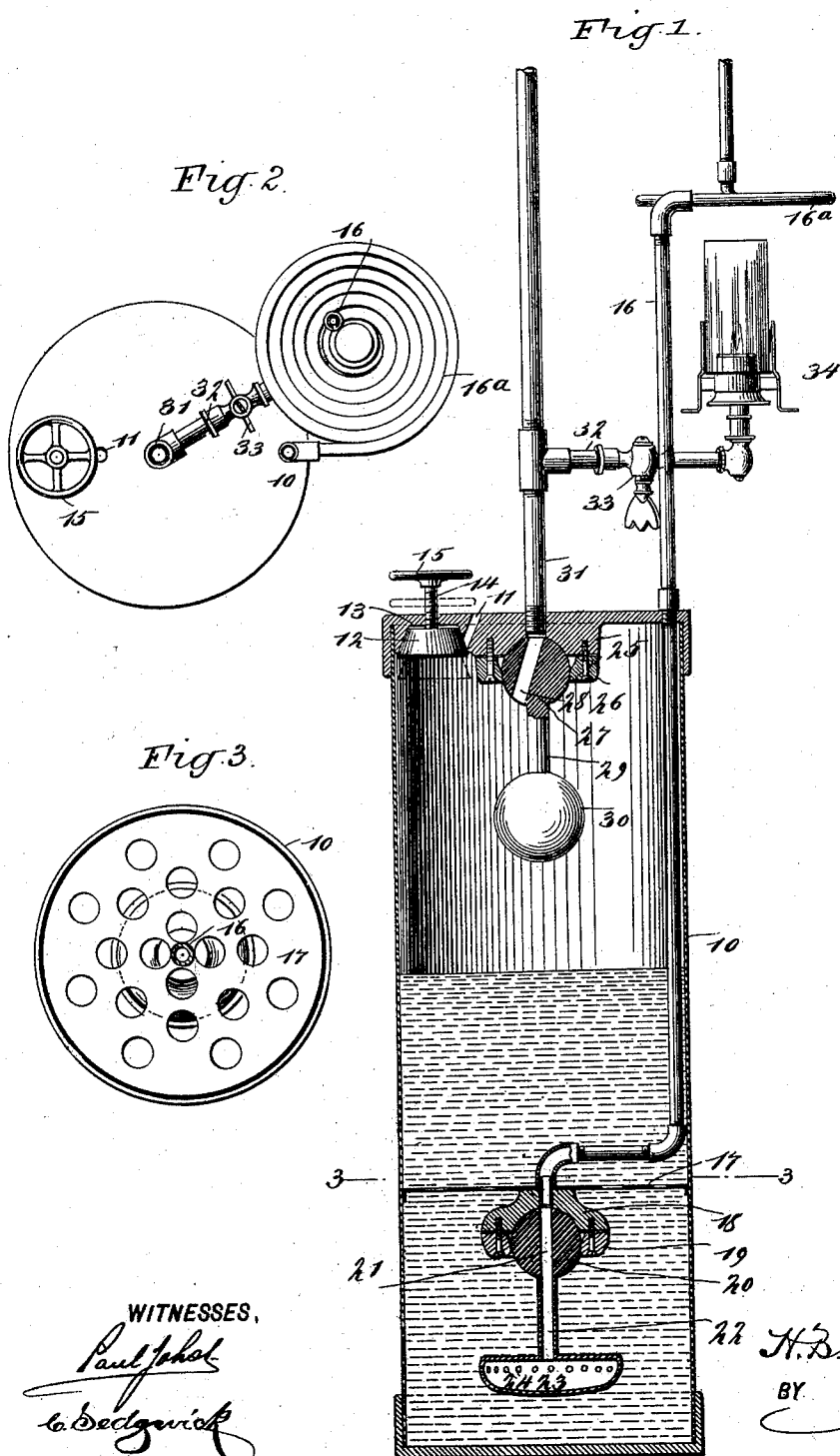


(No Model.)

H. B. CORNISH.
CARBURETOR.

No. 505,700.

Patented Sept. 26, 1893.



UNITED STATES PATENT OFFICE.

HARRY B. CORNISH, OF HAMPTON, IOWA.

CARBURETOR.

SPECIFICATION forming part of Letters Patent No. 505,700, dated September 26, 1893.

Application filed June 15, 1893. Serial No. 477,687. (No model.)

To all whom it may concern:

Be it known that I, HARRY B. CORNISH, of Hampton, in the county of Franklin and State of Iowa, have invented a new and Improved Carburetor for Cars, &c., of which the following is a full, clear, and exact description.

My invention relates to improvements in that variety of lighting apparatus in which air is carbureted by forcing it through a body of hydrocarbon, and the vapor thus evolved burned as a gas.

The object of my invention is to produce a very simple and inexpensive apparatus of this kind which may be used anywhere for lighting purposes, but which is especially applicable for use on railroad trains, which is constructed in such a way that the gasoline or other hydrocarbon used cannot by any possibility escape from its tank, even though the car provided with the apparatus should tip over, to provide automatic valves which shut off both the hydrocarbon and the air when the car is excessively tipped, and in general to arrange an apparatus which is adapted to provide an efficient means of lighting and which is practically safe.

To these ends my invention consists of certain features of construction and combinations of parts, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken sectional elevation of the apparatus embodying my invention, the regulating valves and the carbureting tank being shown in section. Fig. 2 is a sectional plan of the apparatus; and Fig. 3 is a sectional plan on the line 3-3 in Fig. 1.

The apparatus is provided with a carbureting tank 10 and usually a tank is provided for each car, although it is obvious that one tank may furnish carbureted air or gas for several cars. In the top of the tank is a port 11 through which the tank may be filled, and this port leads from the conical seat 13 in the top of the tank, in which seat is a valve 12 having an upwardly-extending threaded stem 14 projecting through the tank top and terminating in a handle 15. The valve may be

opened and closed in the usual way by turning the valve stem.

The tank is adapted to contain any suitable hydrocarbon, gasoline being preferably employed, and the air which is forced into the tank is admitted through a pipe 16 which is adapted to connect with any suitable air compressor, but which is preferably supplied with compressed air by connecting it with the train pipe of the ordinary air brake system.

The supply pipe 16 is formed into a coil 16^a which is adapted to be placed over a burner or other heating apparatus, so that the air passing through the pipe is warmed and is thus capable of rapidly volatilizing the hydrocarbon through which it passes. The pipe 16 projects downward through the top of the carbureting tank and through a perforated supporting plate or diaphragm 17 in the lower portion of the tank, where it enters a valve casing or socket 18 having a removable bottom portion 19, and in this seat or socket thus formed is held to turn a ball valve 20 having a bore 21 which is adapted to register with the pipe 16 and which extends downward through the stem 22 of the valve, this stem terminating in a rose 23 having numerous perforations 24 through which the air passes, and the rose acts as a distributor and causes the air to be finely subdivided so that it rises through the body of hydrocarbon in the tank in a way to pick up the greatest possible amount of carbon. It will be seen then that this valve 20 and rose 23 act in the double capacity of a valve and air distributor, and if the car is tipped over or the tank itself tipped to any extent, the rose 23 swings to one side and it is of sufficient heft to turn the valve 20 so as to close the air pipe. A similar provision is made for closing the top of the tank so that in case of accident no gasoline or other hydrocarbon may escape from the tank. The top of the tank is provided with a two-part valve seat comprising the rigid section 25 and the detachable plate 26, these parts forming a socket for the valve 27, which is also a ball valve, and through which extends diagonally a port 28 opening at one end into the tank and connecting at the other with the pipe 31 through which the carbureted air passes to the burners. The

valve 27 has a depending stem 29 at the lower end of which is a weight 30, and it will be observed by reference to Fig. 1, that when the tank is in a vertical position the weight 30 and the weighted rose 23 will hang vertically downward so as to open both valves 20 and 27 and thus provide a free course for the air, both before and after it is carbureted. The pipe 31 may be conducted into any desired quarter, and may be provided with any necessary number of branch pipes and burners, and it has one branch pipe 32 controlled by a cock 33 and which is provided with a burner 34 located immediately beneath the coil 16^a, and the burner serves to heat the coil and the air which passes through it. The air which first enters the carbureting tank will, of course, be cold, but it will pick up sufficient carbon to make it inflammable and it may be lighted at the burner 34 so as heat the air which afterward passes through the coil. The warm air which passes through the hydrocarbon causes the latter to be thoroughly volatilized; and it will be seen from the above description that the inflammable material in the tank cannot be spilt in case of an accident, as the valves 20 and 27 immediately close. It will be observed too from the foregoing description and by reference to the drawings, that the valves controlling the supply and discharge to the tank are wholly within the tank, so that there is no danger of the valve being broken on the outside of the tank, and means of escape provided for the inflammable material within. This is an important feature of my invention, as it renders accidents impossible; and an objection to, all gas generating and carbureting attachments for cars has been that the valves have been located in exposed places, so that in case of accident they break and permit the escape of the inflammable material.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with the oil tank provided with an outlet in its top and an air inlet pipe terminating within the tank above its bottom, of two pendulous swinging valves depending from the said inlet and outlet pipes and having a universal connection therewith to permit the valves to swing in all directions and close the inlet and outlet pipes; the bores of the valves registering with the pipes when the pendulous valves are in a vertical position, substantially as set forth.

2. The combination with the tank provided with an inlet and an outlet pipe and pendulous swinging inlet and outlet valves within the tank and ball and socketed to the inner ends of said inlet and outlet pipes and having their bores normally registering with the bores thereof; whereby said pipes will be automatically closed when said bores are out of register, substantially as set forth.

3. The combination, with the carbureting tank having a suitable discharge pipe, of an air supply pipe delivering into the tank, a ball valve at the inner end of the pipe, and a weighted rose connected with the valve to swing therewith and adapted to discharge into the lower portion of the tank, substantially as described.

4. The combination with the tank and its inlet pipe of a pendulous swinging rose in the tank and ball and socketed to the inner end of the said pipe with its bore normally registering with the bore thereof, substantially as set forth.

HARRY B. CORNISH.

Witnesses:

H. C. LIGGETT,
E. P. ANDREWS.