No. 865,060. PATENTED SEPT. 3, 1907.

A. F. ROCKWELL.

CARBURETER.

APPLICATION FILED DEC. 19, 1905.

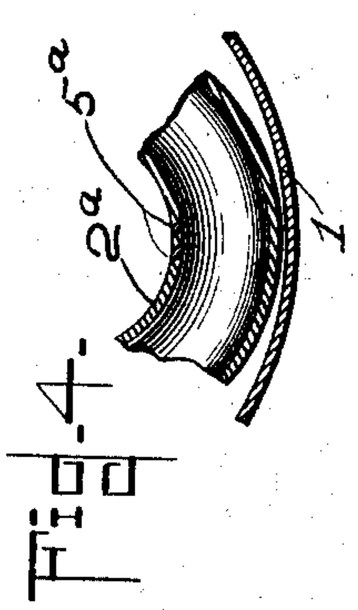

Fig. 4.

Fig. 1.

Fig. 2.

Fig. 3.

WITNESSES:

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CARBURETER.

No. 865,060. Specification of Letters Patent. Patented Sept. 3, 1907.

Application filed December 19, 1905. Serial No. 292,441.

To all whom it may concern:

Be it known that I, ALBERT F. ROCKWELL, a citizen of the United States, residing at Bristol, county of Hartford, State of Connecticut, have invented a certain new and useful Carbureter, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a carbureter for impregnating air with a suitable fuel, preferably a liquid, whereby the carbureted air will be in a condition to be subsequently ignited.

The device is particularly applicable in connection with explosive motors, however, I do not limit myself to this particular use, as it may be combined with other sources of consumption if desired.

One of the objects of the invention is to simplify the construction of a carbureter, whereby the absorption or intermingling of one of the constituent elements of the product to be burned with the other constituent element or elements will be assured.

Another object of the invention is to provide a cheap, durable and simple construction of carbureter which will be efficient in producing the desired result.

Other objects and advantages, as well as the novel details of construction of this invention will be specifically set forth hereinafter, it being understood that changes in form, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages thereof.

In the drawings: Figure 1 is a vertical, longitudinal, sectional view through a carbureter constructed in accordance with my invention; Fig. 2 is a fragmentary cross-sectional view through part of the carbureter casing, showing a part of one of the convolutes of the coil in elevation, together with a part of the supply tube for said coil; Fig. 3 is an end elevational view of a slightly modified form of coil; and Fig. 4 is a fragmentary cross-sectional view through a part of the carbureter casing, showing part of one of the convolutes of the coil arranged in accordance with the construction shown in Fig. 3, in elevation.

In the preferred embodiment of my invention as illustrated in the drawings, I employ a tank 1, which is preferably constructed so that its longitudinal portion will be approximately horizontal, the reason for which is that a convenient means is provided for incasing a coiled tube 2 within the tank through which the air may pass. The tube 2 has one end 3 in communication with the outside atmosphere, the remaining portion of the tube being illustrated as coiled within the tank or casing 1, with its outlet end terminating within the tank 1, and adjacent the upper portion of said tank. Leading from the bottom of the tank 1 is illustrated a feed tube 4, which passes below the bottom of the tank, and then enters said tank, being in communication with the lower portions of the convolutes of the coil 2 through the medium of the openings 5.

6 designates a float valve of any preferred construction coöperating with the filling tube 7 of the tank 1, which tube may normally be closed by the cap 8. I have illustrated a gas dome 9 as leading from the upper portion of the tank 1, and adapted to communicate with the source of consumption through the medium of a tube 10. In actual practice the liquid will be introduced into the tank 1, through the filler tube 7, until the liquid has reached a predetermined level, not wholly filling the tank, however, in order to insure the proper level of the liquid for the maximum quantity of the same within the tank, I prefer to utilize the float valve 6, in communication with the tube 7, so that when a sufficient quantity of the liquid has entered the tank, the pipe 7 will close.

When the liquid has been introduced into the tank part thereof will gravitate into the tube 4, and in its endeavor to seek its level will pass through said tube 4 into the convolutes of the coil 2, through the openings 5. If the device is to be used in connection with an explosive motor, the pumping action resulting from the operating of the mechanism usually employed in connection with explosive motors will cause a partial vacuum in that part of the tank designated 11, and above the liquid, so that the air will enter the end 3, of the coil 2, and in its endeavor to get into the space 11 to destroy the vacuum, said air will force the liquid through the exit end 12 of the coil 2, so as to practically pump most of the liquid out of the coil 2, permitting it to commingle with the main body of the liquid. The air which has been forced through the coil 2 will have become saturated with the hydro-carbon constituents of the liquid, so as to make it combustible by the time it reaches the place of consumption, for example, an explosive motor. When it is understood that a liquid is always flowing from the tube 4, into the coil 2, through the openings 5, so long as the level of the liquid is above the upper portion 4^a of the tube 4, it will be apparent that the air will take up a sufficient amount of the hydrocarbon constituents of the liquid to carburet it sufficiently to make it combustible. In other words, after the carbureter has been once set in operation, there will be a continuous commingling of the liquid with the air during the entire time of the passage of the air through the coil, which commingling will only cease when either the air ceases to flow through the coil, or when the level of the liquid is below the portion 4^a of the tube 4.

One of the particular advantages resulting from the

arrangement herein shown is that the operation of the device will be efficient for supplying fuel to an explosive motor of a vehicle which it is to propel, and the efficiency of the carbureter will in no-wise be affected on account of the tilting or vibrations caused by the vehicle passing over inequalities in the road-bed. In other words, the tank may be placed at a considerable angle to a horizontal plane without destroying its efficiency in any way, and where the terms horizontal as applied to the position of the tank appears, I would have it understood that I do not limit myself to the position of the tank exactly in a horizontal plane, but I prefer to maintain the tank in as near a horizontal plane as will be practical during the passage of the vehicle over the road-bed.

In the form of coil shown in Figs. 3 and 4, each convolute 2^a is approximately circular with a constricted or reduced portion at the lowermost point, the walls of the tube at the constricted portion are provided with openings 5^a, for the introduction of the hydro-carbon oil into the tube. In this form the pipe 4 may be dispensed with, and the fuel permitted to enter the openings 5^a by gravitation. Attention is directed to the fact that the suction in the tubes caused by the vacuum in the chamber 11, and which results in causing a circulation of air to pass through the free end 3 of the tube, also assists in introducing or drawing the liquid into the coil so that the impregnation of the air with the fuel will be assured.

What I claim is:

1. A carbureter comprising a tank, a coil in said tank having a series of vertical convolutes, one end of said coil being in communication with the outside atmosphere and the other end of said coil being in communication with the interior of the tank, means for permitting liquid from said tank to enter independent convolutes of the coil, and an outlet port in communication with said tank.

2. The combination with a tank, of a tube having a series of horizontal coils in said tank, one end of said tube being in communication with the outside atmosphere and the other end being within the tank, means for introducing fluid from the tank through the walls of the coils, each of said coils having a separate inlet, and an outlet tube leading from said tank.

3. A carbureter comprising a tank, a horizontally positioned coiled tube within said tank, the inlet end of said tube being in communication with the outside atmosphere and the outlet end of said tube being in communication with the interior of the tank, a tube for conveying part of the liquid in said tank into coils of the tube through separate inlets in said coils, and an air outlet port in communication with said tank.

4. The combination with an elongated tank constructed so that its length is approximately horizontal, a coiled tube within said tank, the series of coils being approximately horizontal, an inlet end for said tube being in communication with the outside atmosphere and the outlet end of said tube being in communication with the interior of the tank, a tube for conveying part of the liquid in said tank into the coils of the tube, and a coöperating air outlet port in communication with said tank.

5. A carbureter comprising a tank, a coiled tube in said tank having a series of convolutes, one end of said coil being in communication with the outside atmosphere and the other end of said coil being in communication with the interior of the tank, means for permitting liquid to pass into the convolutes of the coil, and means for preventing the liquid level in each convolute from rising beyond a predetermined height.

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

ALBERT F. ROCKWELL.

Witnesses:
DE WITT PAGE,
HARRY W. TUTTLE.