J. RUTHVEN.

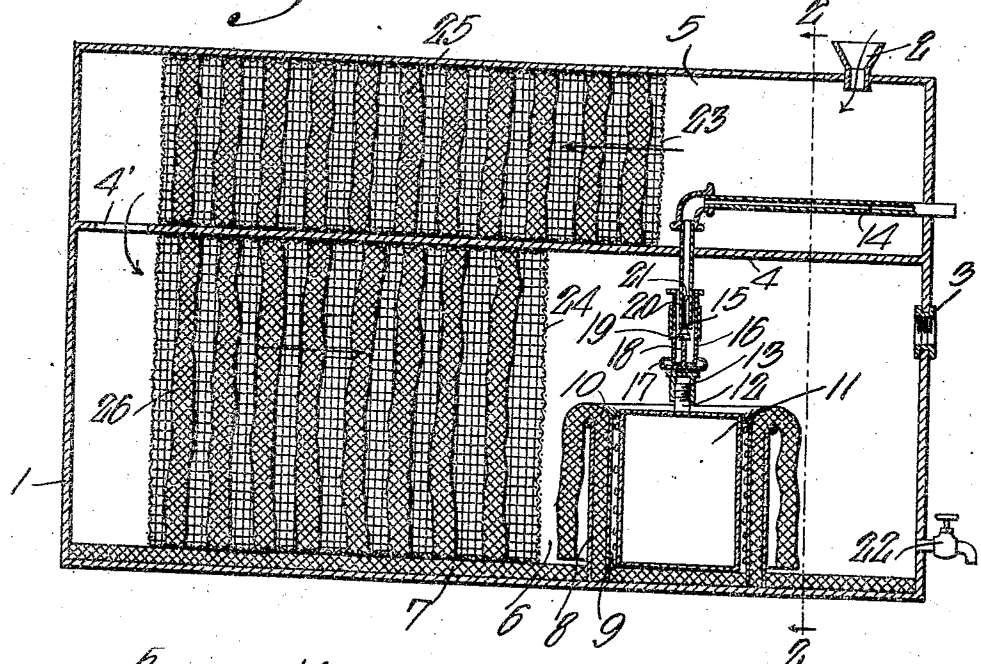
CARBURETER.

APPLICATION FILED JAN. 25, 1912.

1,046,653.

Patented Dec. 10, 1912.

Fig. 1.



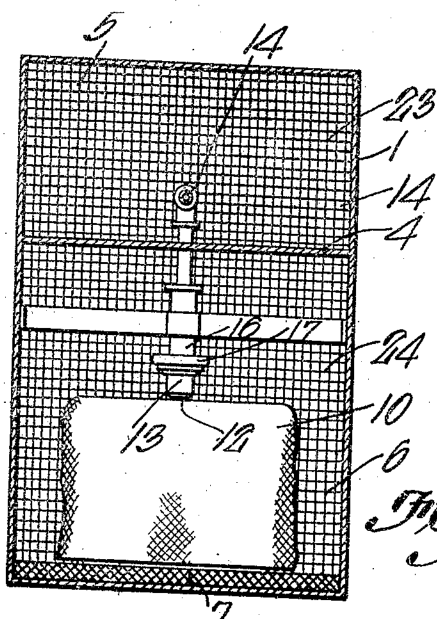


Fig. 2.

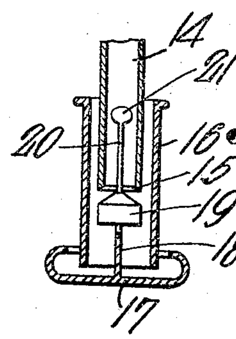


Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

JOHN RUTHVEN, OF DETROIT, MICHIGAN.

CARBURETER.

1,046,653. Specification of Letters Patent. Patented Dec. 10, 1912.

Application filed January 25, 1912. Serial No. 673,380.

To all whom it may concern:

Be it known that I, JOHN RUTHVEN, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Carbureter, of which the following is a specification.

The present invention relates to improvements in carbureters, the primary object of the invention being the provision of a carbureter adapted to be disposed to rest above the exhaust manifold of an explosive engine, the same being supplied with a hydrocarbon fluid, such as gasolene or alcohol, inlet and valve controlled mechanism, whereby the said fluid is fed within the device and through capillary attraction is so held that the air drawn through the device due to the action of the explosive engine will be thoroughly mixed with the hydrocarbon fluid in the proper proportion for the carbureted air and conveyed directly to the explosive chambers of the engine, thus producing a dry carbureted air, so as to obtain from the hydrocarbon fluid the highest possible combustion, thus resulting in a great saving in the consumption of the fluid with the maximum amount of power therefrom.

A further object of the present invention is the provision of a carbureter which is composed of a receptacle having upper and lower separated but communicating chambers and which has leading thereinto an air inlet, each chamber being provided with air filters, so that the moisture in the air is extracted therefrom before the commingling of the air with the hydrocarbon fluid to produce the best possible carbureted air before the same is supplied to the explosive engine.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangements of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings—Figure 1 is a longitudinal sectional view through the complete carbureter. Fig. 2 is a section taken on line 2—2 of Fig. 1. Fig. 3 is an enlarged detail sectional view of the float controlled valve.

Referring to the drawings, the numeral 1 designates the tank or reservoir which is provided with the air inlet 2 at the top and forward end thereof and with the gas outlet 3 in the wall of the lower portion of the reservoir so that the air is forced to travel twice the length of the reservoir before passing out of the gas outlet. This tank or reservoir is divided by means of the partition 4 and the port 4′ into the upper and lower communicating compartments or chambers 5 and 6 respectively.

In the bottom of the chamber or compartment 6 are slabs 7 of asbestos, the same being placed therein so that the bottom of the tank or reservoir may be placed above the exhaust manifold of an explosive motor and insulate the reservoir from being heated to too great a degree; but to permit the heat to assist in the carburation of the air within the carbureter. Any number of these slabs may be employed to secure the desired regulation of heat from the manifold.

Mounted within the forward end of the compartment 6 is a sleeve or collar 8, which with the perforated sleeve or collar 9 forms an annular receptacle for the wick 10, the perforated sleeve 9 forming a guiding means and receptacle for the hollow float 11, whose stem 12 carries the valve actuating cap 13. The wick 10 is so constructed and arranged that the lower edge thereof will be disposed exteriorly of the sleeve or band 8 and terminate at a point near the bottom of the reservoir or tank, so that the hydrocarbon fluid will be fed by capillary attraction upwardly and exteriorly of the sleeve 8 to be placed in such position for being acted upon by the inflow of air to produce the desired carbureted air.

Leading into the tank or reservoir is the fluid hydrocarbon conduit 14, which as shown is provided with the valve seat 15 upon its lower outlet end, the same being disposed above the cap 13 and stem 12 of the float 11. Mounted for sliding movement upon the free end of the conduit 14 is a guiding sleeve 16 which is provided with the hydrocarbon fluid spraying head 17 disposed to be engaged at all times by the cap 13. The spraying member 17 is connected to the lower end of the sleeve 16, which is open, by means of the web 18 which extends upwardly and in operable relation to the valve 19 carried by the stem 20 within the

lower open end of the conduit 14, the guiding ball 21 carried by the upper end of said stem assisting in properly holding the stem and valve in operable relation in the lower end of the conduit 14, so that the raising of the float 11 will cause the cap 13 to lift the spraying member 17 and consequently the sleeve 16, so that the valve 19 will be raised into conduit closed position. Upon the downward movement of the float 11, due to the fall of the fluid hydrocarbon within the receptacle formed by the sleeves 8 and 9, the sleeve 16 will fall and consequently permit the valve 19, due to gravity and the pressure of the fluid hydrocarbon in the conduit 14 to open, as indicated in Fig. 3, and thus permit the automatic feeding of the fluid hydrocarbon over the rim of the member 17 upon the top of the float 11 and finally into the annular receptacle formed by the said sleeves 8 and 9, the said fluid being fed through the perforations of the sleeve 9 to the wick 10, where by capillary attraction the fluid is carried exteriorly of the sleeve 8 and into the open portion of the compartment 6, so that the air coming in contact with the wick 10 will properly commingle with the hydrocarbon fluid to produce the desired carbureted air. Should the fluid hydrocarbon fed to the carbureter not be properly carbureted and consequently remain in a liquid state upon the bottom of the receptacle or reservoir 1, a drain cock 22 is provided for the draining thereof from the device.

Mounted removably within the upper compartment 5 is a cage 23, made of netting, while also mounted in the compartment 6 between the fluid hydrocarbon controlling mechanism and the port 4′ is a cage 24 of netting. The cage 23 contains the moisture extracting wicks 25, so that air drawn in due to the operation of the explosive engine, through the inlet 2 will be forced to pass through the wicks 25. The cage 24 carries the wicks 26, whose lower ends are disposed to absorb the oil upon the bottom of the lower compartment 6, so that the air after having had the moisture extracted by the wicks 25, will pass through the oil saturated wicks 26, and thus a properly mixed and dry carbureted air will be produced and carried through the gas outlet 3 to the explosive chambers of the explosive motor.

From the foregoing description, taken in connection with the drawings it is evident that with a carbureter of the character herein set forth, that the carbureted air will contain no streaks whatsoever, and that the same will be regulated to contain the desired amount of air and hydrocarbon fluid, so that a complete combustion will be the result, thus economizing in the use of the hydrocarbon fluid and producing a highly efficient carbureted air. It is also evident that with a structure of this character that the carbureted air may be passed into a reservoir after leaving the present form of carbureter and before entering the explosive chambers of the motor, and that further any means may be provided for regulating the supply of air so that the desired richness of carbureted air will constitute the explosive mixture before the entrance of the same into the engine. By mixing the carbureted air before entering the manifold of the engine, contrary to the usual custom with the carbureters now used, there is practically no waste of the fluid, as the same is entirely vaporized before entering the manifold. With this form of carbureter, it is also evident that the explosive motor may be started without the usual cranking in that the carbureted air is instantly supplied, a portion being retained within the cylinders at the starting of the engine, and by reason of the thorough mixture of the carbureted air, remains in such gaseous state, that the simple manipulation of the starting device will ignite the gas within the engine and start the same, which action draws the carbureted air from this form of carbureter to the engine, generating such carbureted air in the proper proportion during the operation of the explosive engine.

What is claimed is:

1. A carbureter, having a sealed tank divided into an upper and lower communicating compartment, the upper compartment being provided with an air inlet while the lower compartment is provided with a carbureted air outlet, a hydrocarbon fluid supply conduit leading into the lower compartment, a float compartment mounted in the lower compartment below the outlet end of the conduit, a float controlled valve mounted in said compartment and the outlet end of the conduit to regulate the flow of fluid to the float compartment, and means mounted in the float compartment for feeding the fluid from and exteriorly thereof into the lower compartment by capillary attraction.

2. A carbureter having a sealed tank divided into an upper and lower communicating compartment, the upper compartment being provided with an air inlet while the lower compartment is provided with a carbureted air outlet, a hydrocarbon fluid supply conduit leading into the lower compartment, a float compartment mounted in the lower compartment below the outlet end of the conduit, a float controlled valve mounted in said compartment and the outlet end of the conduit to regulate the flow of fluid to the float compartment, means mounted in the float compartment for feeding the fluid from and exteriorly thereof into the lower compartment by capillary attraction, an air filtering and moisture removing means disposed in the upper compartment of the tank,

and fluid holding capillary attracting fabric disposed in the lower compartment and through which air passes to the outlet.

3. A carbureter, having a sealed tank provided with an air inlet and a carbureted air outlet, a hydrocarbon fluid supply conduit leading thereinto and provided with a valve seat upon its lower end, a dispensing cup mounted in the tank and disposed below the outlet end of said conduit, a float actuated valve mounted in said cup for controlling the outlet of the conduit, a perforated sleeve mounted within said cup and forming an annular compartment between the same and the walls of the cup, an absorbent member mounted in said annular chamber and extending outwardly and about the cup to feed the fluid exteriorly of the cup into the bottom of the tank by capillary attraction, and an air filtering means interposed between the air inlet and the valved fluid inlet and float controlled means.

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

JOHN RUTHVEN.

Witnesses:
JOHN DUNN,
ANNA T. MURPHY.