

Sept. 8, 1925.

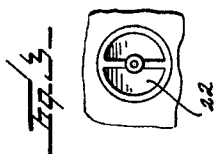
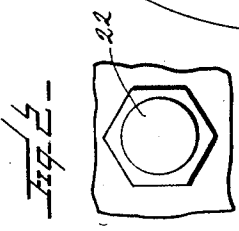
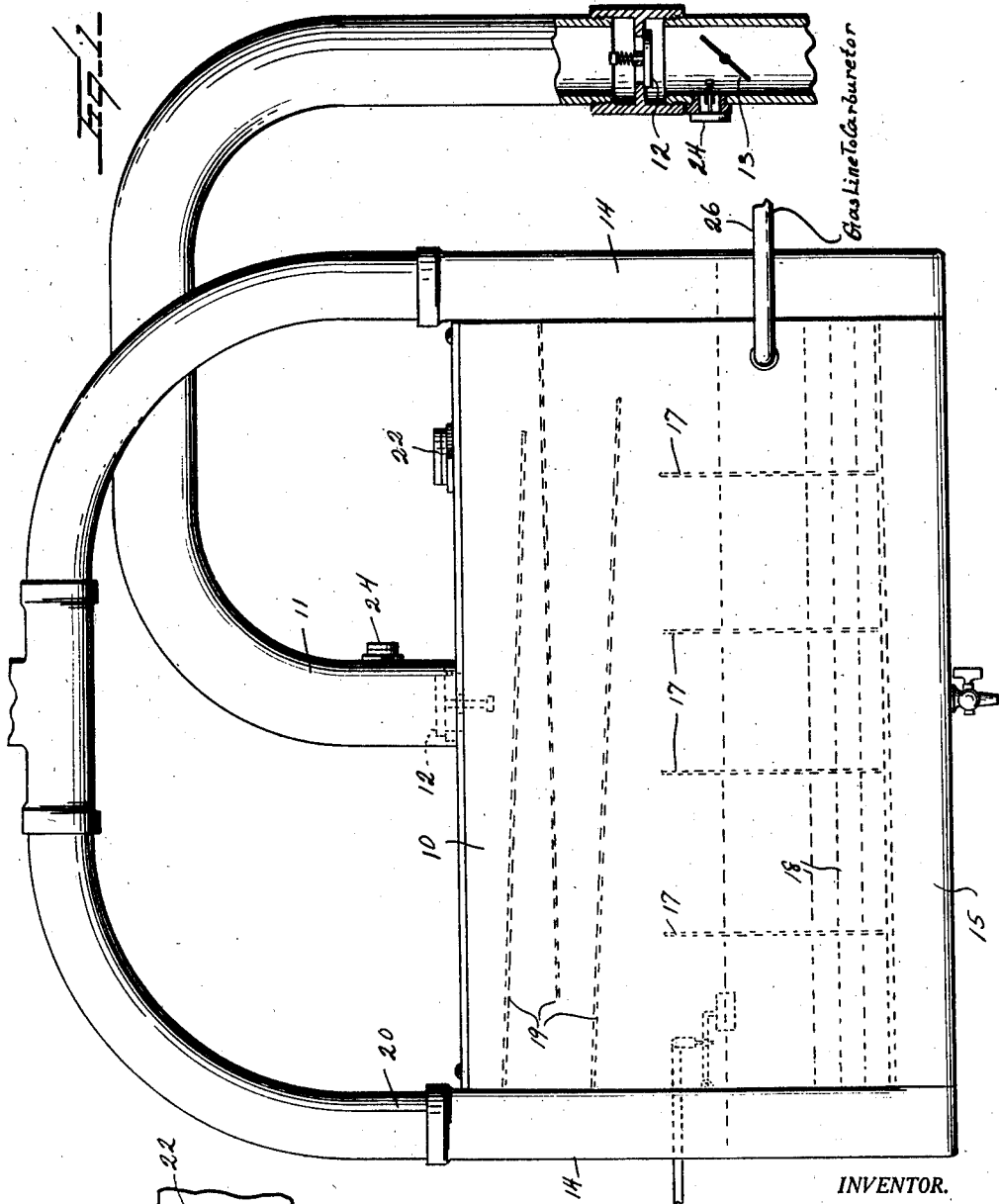
1,552,866

C. L. MILLER

CARBURETOR

Filed April 10, 1924

2 Sheets-Sheet 1



INVENTOR.

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CARBURETOR.

Application filed April 10, 1924. Serial No. 705,524.

To all whom it may concern:

Be it known that I, CHARLES L. MILLER, a citizen of the United States, residing at Pomerooy, in the county of Calhoun and State of Iowa, have invented certain new and useful Improvements in Carburetors, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to carburetors for internal combustion engines, and particularly to means for initially carbureting air before it passes to the regular carburetor of the engine, the invention being particularly adapted for Ford automobiles.

The general object of the invention is to provide a very simple and effective structure of this character wherein air is allowed to pass up slowly through a body of gasoline or other liquid fuel, the air thus becoming carbureted or absorbing the gasoline vapor, the vapor so produced being highly combustible, much more so than the vapor passing from the ordinary carburetor, and being carried off either to the intake of the carburetor or directly to the intake of the engine.

A further object is to provide a device of this character in which the air is heated prior to its entrance into the gasoline container and which is so constructed as to allow the air to bubble up through the gasoline or other liquid fuel, and in which provision is made to prevent backfiring and prevent the raw gasoline or other liquid from passing into the pipe leading to the engine.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of a carburetor constructed in accordance with my invention;

Figure 2 is a fragmentary top plan view of the casing 10;

Figure 3 is an inside face view of the safety valve 22;

Figure 4 is a vertical sectional view through the carburetor;

Figure 5 is a fragmentary view of the pipe 11 with the safety valve 24.

Referring to these drawings, 10 designates a tank adapted to contain gasoline or other liquid fuel, from which the pipe 11 leads either directly to the engine or to the intake

of an ordinary carburetor. This pipe 11 is provided at a plurality of points in its length with check valves 12 so as to prevent backfiring and with a butterfly valve 13.

Extending downward on each end of the tank 10 are the air pipes 14. These pipes are connected at their lower ends by a pipe section 15 which extends transversely across the bottom of the tank and which is perforated at 16 to permit the air to pass upward in bubbles through the gasoline into the upper portion of the tank or container. Extending transversely across the tank at a plurality of points are the partitions 17 which prevent the liquid within the container from splashing, these partitions being perforated, and extending horizontally through the tank are a plurality of screens 18 which may be of perforated metal or of reticulated wire and which act to break up the air bubbles as they pass upward through the liquid in the tank and thus cause the air to more efficiently combine with and take up the gasoline.

Disposed in the upper portion of the tank and extending transversely thereacross are a plurality of splash plates or baffle plates 19 arranged in staggered relation, each baffle plate being inclined to the horizontal and in an opposite direction to the next adjacent baffle plates so that one baffle plate will discharge upon the other. These baffle plates not only prevent any liquid from splashing up into the pipe 11 and so passing over in its liquid form into the carburetor or engine, but any vapor which may become condensed upon the top wall of the tank or upon the baffle plates will shift backward down the baffle plates and be discharged again into the liquid in the tank.

Preferably the pipes 14 are connected in any suitable manner to air inlet pipes 20 which may meet, if desired, these air inlet pipes taking air from a point close to the exhaust of the engine so that the air will be heated. Inasmuch as I may use any of the many exhaust heated devices for preheating the air prior to its entrance into a carburetor, I have not illustrated any means for this purpose. These pipes 20 are preferably provided with screens 21 which prevent the passage of foreign particles, dirt and the like downward through the pipes 14 and into the gasoline container.

Preferably the top of the tank is provided with an outwardly opening valve 22 which

acts as a safety valve as, for instance, in case of backfiring or in case the pressure within the tank is excessive this valve may be held in its place by means of a spring or any suitable means urging it to a closed position. Preferably the bottom of the pipe 15 is provided with a drain cock 23. The outlet pipe 11 is also preferably provided with safety valves 24. Each is held to its seat by means of a spring and this opens in case of an increased pressure within the pipe greater than normal.

The operation of this device will be obvious from what has gone before. The preheated air passes downward through the pipes 20 into the pipes 14 and then along the pipe 15 and rises upward through the gasoline contained in the tank 10, the bubbles being broken up by the screens 18 so that the air will absorb a maximum quantity of gasoline. Then as the engine draws in its charge, vapor will be exhausted along the pipe 11, drawing vapor upward over the plates 19 and out through the pipe 11. Any condensate will be caught upon the plates 19 and discharged back into the tank and these plates 19, together with the baffles 17, act to prevent any splashing of the liquid up into the pipe 11 and so into the carburetor or into the engine.

Screens 25 are disposed in the pipe 11, which also tend to prevent any backfiring and also act to break up and intermingle the particles of gasoline vapor and air passing up through the pipe 11. Under some circumstances a pipe 26 extends from the tank 10 below the gasoline level therein and discharges into the float chamber of the ordinary conventional carburetor, the pipe 11 being preferably connected to the air intake of the carburetor or to the intake pipe leading from the carburetor. Preferably, however, it will open into the carburetor itself so that the carburetor will discharge the vaporized fuel from the aspirator nozzle into the stream composed of carbureted air.

I have found in actual practice that this construction is particularly effective, that it secures a very thorough carburetion of the air and produces a highly explosive mixture, and is very economical of power.

While I have illustrated certain details of construction which I have found to be of particular value, I do not wish to be limited to these details as it is obvious that many changes might be made without departing from the spirit of the invention.

I claim:—

1. A carburetor of the character described comprising a liquid fuel container, the container having a chamber formed at its bottom, the chamber having a perforated upper wall, air pipes extending downward on each side of the container and communicating at their lower ends with said chamber, means for conducting preheated air to said air pipes, a vapor outlet pipe leading from the top of the container and having check valves in its length, a series of baffle plates extending alternately from opposite ends of the container adjacent the top thereof and discharging one upon the other, the last plate discharging into the interior of the tank, baffle plates extending vertically upward through the tank, a plurality of screens extending horizontally through the tank adjacent its bottom and below the level of the liquid fuel therein, and an outwardly opening safety valve in the top of the container.

2. A carburetor of the character described comprising a liquid fuel container having a chamber formed in its bottom and having an upper perforated wall, an air pipe extending downward from one end of the container and communicating with said chamber, an outlet pipe extending from the top of the container, then laterally and then downwardly and adapted to be connected to the carburetor, the outlet pipe at its junction with the container having an upwardly opening check valve and adjacent this check valve but beyond it an outwardly opening, yieldingly closed safety valve, the downwardly extending portion of the outlet pipe being provided with a yieldingly closed, downwardly opening check valve and beyond this check valve with a yieldingly closed, outwardly opening safety valve.

In testimony whereof I hereunto affix my signature.

CHARLES L. MILLER.