July 1, 1930. W. H. COLLINS ET AL 1,769,176

CARBURETOR

Filed April 22, 1927

Fig. 1.

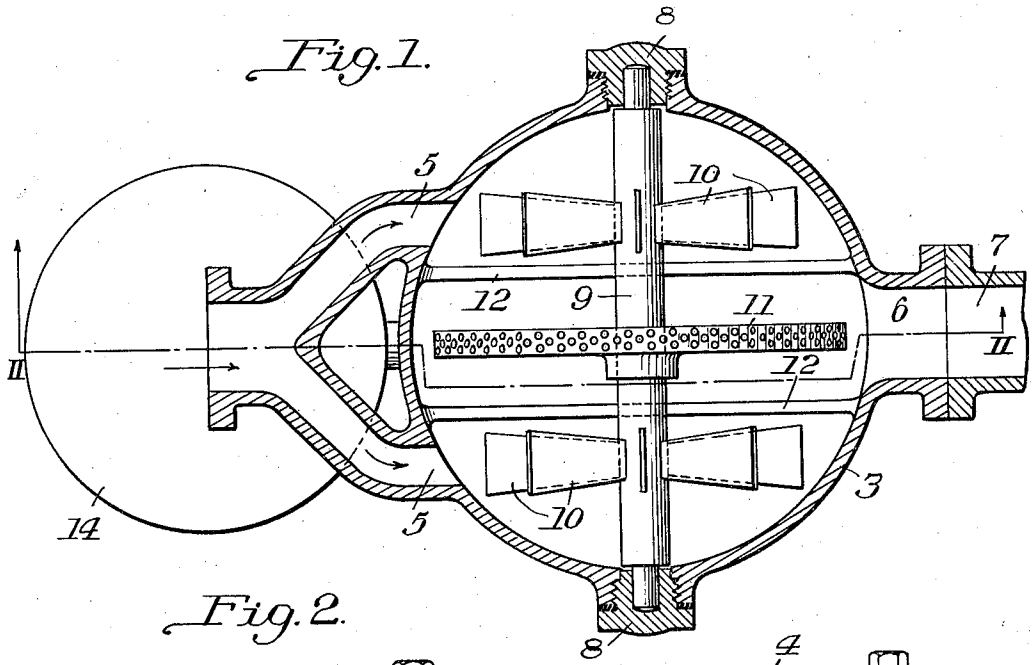
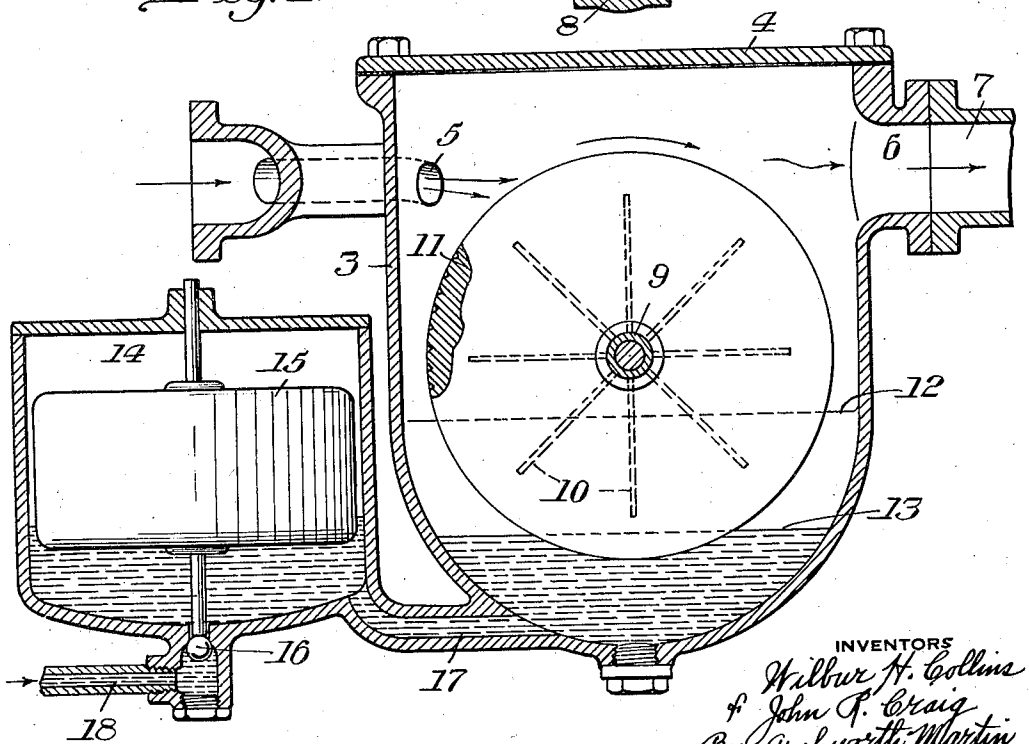


Fig. 2.



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CARBURETOR

Application filed April 22, 1927. Serial No. 185,772.

Our invention relates to carburetors, and particularly to those especially suitable for use in connection with internal combustion engines of motor vehicles and the like, and also as an atomizer or vaporizer for burners.

One object of our invention is to provide a carburetor mechanism of such form that the fuel is more effectively vaporized than in some of the forms of the devices heretofore employed, and wherein the amount of fuel is automatically proportioned to the speed of the engine with which the carburetor apparatus is associated.

Another object of our invention is to simplify and improve generally the structure and operation of vaporizing devices.

One form which our invention may take is shown in the accompanying drawing, wherein Figure 1 is a sectional plan view of a carburetor and certain associated parts, and Fig. 2 is a view, taken on the line II—II of Fig. 1.

The carburetor is shown as provided with a casing 3 having a cover 4 and having air inlet ports 5 and an outlet port 6. The air is drawn in through the ports 5 directly from the atmosphere or through suitable screening apparatus (not shown) as may be desired. The port 6 is connected through a conduit 7, with the intake side of an explosive motor (not shown).

Bearings 8 are provided in the sides of the casing 3 for supporting a shaft 9, and are removable to permit convenient insertion and removal of the shaft. Vanes or fan blades 10 are secured to the shaft 9 adjacent to each end thereof, with their upper ends in position to be impinged upon by air which is drawn through the inlet ports 5 by reason of suction created in the conduit 7 during operation of the motor.

A disc or drum 11 is secured to the mid portion of the shaft and is provided with indentations or knurls on its periphery. The disc 11 is disposed between partitions or walls 12 that confine a pool 13 of gasoline, so that the vanes 10 will be out of contact with the main body of gasoline within the casing 3, although under some conditions, we may find it suitable to have the lower ends of the vanes 10, when in their lowermost position, dip into the gasoline slightly to carry the same into the line of air flow.

It will be seen that during operation of the engine, air is caused to flow in the direction indicated by the arrows and that a portion of such air will impinge upon the upper ends of the fan blades 10, to effect rotation of the shaft 9 and the disc 11. The knurls carry small quantities of the gasoline to the upper portion of the casing, where such gasoline is caught in the stream of air and carried through a conduit 7 to the motor. The gasoline so carried up, is, of course, small in quantity relative to the volume of air and is broken up or vaporized by the air currents. The centrifugal force, by reason of the rotation of the disc 11 tends to throw the gasoline off the periphery of the disc, thus still further facilitating the breaking up thereof by the air currents. The speed of the disc, and hence the amount of gasoline carried upwardly from the pool, is dependent upon the rate of air flow which is in turn proportional to the engine speed.

The amount of gasoline drawn from the pool at a given rate of air flow, will depend upon the number and depth of knurls in the periphery of the disc 11 and may be readily varied by regulating the depth of the gasoline pool 13. The pool lever 13 is automatically maintained by a float chamber 14 which may be of the usual form and is provided with a float 15 that controls an intake valve 16, the chamber 14 being connected to the casing 3 by a conduit 17. Gasoline, or other fuel is supplied to the float chamber 4, through a pipe 18, from any suitable source. The float 15 may be adjusted on the stem of the valve 16 in any well known manner, to regulate the height of fuel within the chamber 14 and hence the fuel level within the casing 3.

The vapor or atomized fuel produced through rotation of the drum or disc 11 need not necessarily be employed as a fuel supply for internal combustion engines, but may be supplied to a fuel burner through the conduit 7 or in any other suitable manner. It is also to be noted that the shaft 9 may be

mechanically driven from any suitable source of power, instead of depending on the flow of air against the fan blades 10. In that case, the fan blades 10 could be dispensed with, or their movement, through rotation of the shaft could be utilized to assist in creating a flow of air, as when the device is employed in connection with the burner. If the device is employed in connection with oil burning furnaces, there may be sufficient flue draft to rotate the shaft 9.

Any other suitable means may be provided for insuring a desired fuel level in the casing 3, as for instance, the automatic feed device shown in our application Serial No. 172,883, filed March 4, 1927.

We claim as our invention:—

1. A carburetor comprising a casing having a plurality of inlet passages and an outlet passage forming air paths, adjacent the top thereof, a cover for said casing to constitute the latter an enclosed mixing chamber, a float chamber communicating with the lower end of said mixing chamber, a rotatable member journalled in said casing, between said inlet passages, and adapted to carry liquid fuel into the air path at the outlet passage, and impellers mounted for rotation with said member and adapted to actuate the latter responsive to air passing from the inlet to the outlet passages of said mixing chamber.

2. A carburetor comprising a casing having a fuel inlet passage and having air inlet passages and an outlet passage at its upper end, an impeller having vanes in spaced relation projecting into the air paths formed by the upper passages, and a rotatable member actuated by the impeller for carrying liquid fuel from the bottom of the casing to the air path, the said rotatable member being located mainly out of the line of air-flow.

3. A carburetor comprising a casing having a fuel inlet passage at its lower end, a rotatable member journalled in said casing, a plurality of impellers carried by said rotatable member in spaced relation, and a connection forming divergent air passages corresponding to the spacing of said impellers.

4. A carburetor comprising a casing having a fuel inlet passage at its lower end and having air inlet passages and an outlet passage at its upper end, a rotatable disc-like member for feeding fuel, and a pair of impellers for said disc coaxially mounted and journalled in said casing in the path of air through said inlet passages.

5. A carburetor as set forth in claim 4, in which the rotatable member is provided with depressions in its peripheral surface.

In testimony whereof we, the said WILBUR H. COLLINS and JOHN R. CRAIG have hereunto set our hands.

JOHN R. CRAIG.
WILBUR H. COLLINS.