March 15, 1932. C. F. WOODHULL 1,849,563

GAS MIXER

Filed July 11, 1929

Fig. 1.

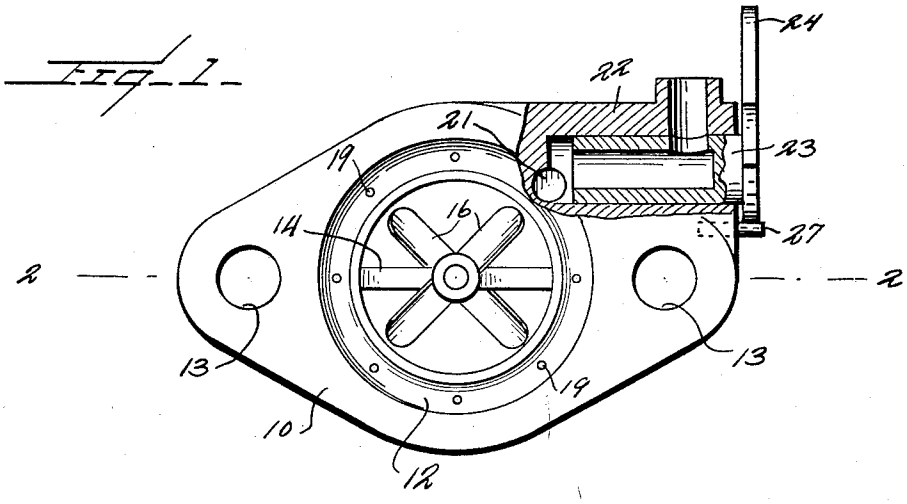
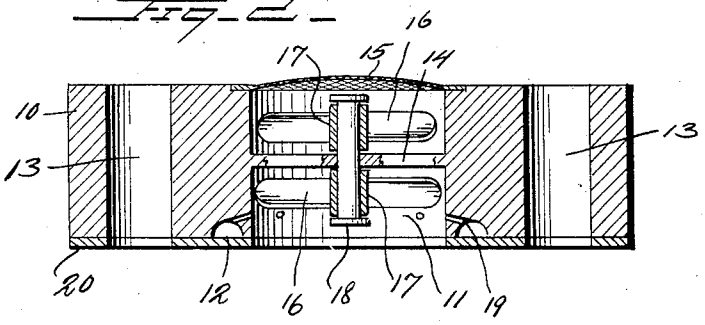


Fig. 2.



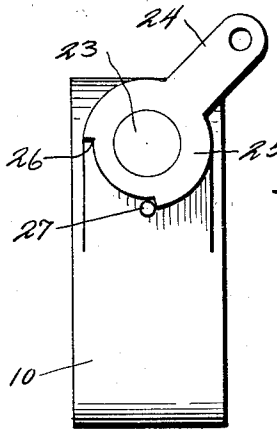


Fig. 3.

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UNITED STATES PATENT OFFICE

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GAS MIXER

Application filed July 11, 1929. Serial No. 377,472.

This invention relates to agitating and mixing devices such as are used on the gas lines of motor cars for the purpose of thoroughly mixing the fuel vapor with air and more particularly to a device of this character adapted to be disposed between the carbureter and the manifold and which admits air to the manifold and thoroughly mixes the fuel coming from the carbureter with this air so as to prevent any stratification of the fuel and consequent carbonizing.

The general object of my invention is to provide a very simple, compact and cheaply made device of this character which, as before described, is disposed between the carbureter and the manifold and which includes a plurality of rotatable mixing blades so formed that they will be rotated by the incoming current of air in reverse directions to thus thoroughly agitate and beat up the air and fuel.

A further object is to provide means whereby the incoming air may be distributed equally around the fan chamber of the mixing device.

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

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

Figure 1 is a face elevation partly in section of the agitator and mixer;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is an end elevation showing the valve controlling means.

Referring to these drawings, 10 designates the body of my device or main casting which is somewhat elliptical in form and formed to provide a central circular chamber 11, the annular groove 12 upon one face of the casting 10 and disposed exterior to the chamber 11 and the apertures 13 for the bolts holding the device in place between the carbureter and the manifold. A transverse bar 14 preferably cast with the body 10 extends across the opening 11 at right angles to the axis thereof. One end of the opening 11 is preferably closed by a screen 15. Disposed within the chamber 11 are a plurality of sets of rotatable blades 16, two sets being shown, the blades of one set having angular faces disposed in one direction while the blades of the other set have their angular faces disposed at a reverse angle to the faces of the first set. Thus when a current of fuel and air passes through the chamber 11 upon the suction stroke of the engine, the blades will be caused to rotate in opposite directions. Each set of blades is formed with a central sleeve 17 which turns upon a bolt 18 extending through the bar 14. This bolt has a steel washer at each end constituting a thrust bearing. Preferably the agitating blades are made from steel while the hub or sleeve of each agitating blade is made of brass tubing.

The annular groove 12 opens upon one face of the body 10 and leading in to one end of the chamber 11 are a plurality of apertures 19 extending from this groove 12. A gasket 20 is normally disposed over the grooved face of the body 10 so that when the gasket is in place, the groove 12 forms a closed duct having apertures leading therefrom into the interior of the chamber 11 at one end thereof. The body 10 is formed to provide a bore 21 which opens into the groove 12, this bore extending out through a valve casing 22 in which a valve 23 is disposed having a handle 24 so that the valve may be turned to reduce or increase or entirely cut off the supply of air passing through the bore of the valve casing 22. Preferably the flange 25 constituting the head of this valve is formed with shoulders 26 and a stop pin 27 limits the movement of the valve from a fully open position to a fully closed position.

The valve 23 is designed to be operated from the dash by any suitable mechanism.

It will be understood that this gas mixer goes between the manifold and the carbureter and is not disposed within the manifold. The manifold end of my device is made approximately three-sixteenths of an inch larger than the manifold so that there is no tendency to choke the free passage of fuel through the manifold. The air which comes in through the openings at the carbureter end of the body 10 is mixed with the gas or fuel vapors coming from the carbureter by the two sets of oppositely revolving fans. This

causes the gas to be whipped into a fine vapor and thus secures a thorough carburetion of the air.

This device may be used on all cars though I have found in actual experience that it very greatly decreases the amount of fuel used per mile.

This mixer does not cause an engine to heat nor does it cause any choking in the manifold.

I claim:—

A gas mixer of the character described, comprising a body flat on both sides and adapted to be disposed between a carbureter and the manifold, the body having a central chamber extending entirely through it and opening on opposite ends of the body, one end of the body being formed with an annular groove having openings communicating with the interior of the chamber, the body being formed with a valve chamber extending tangentially inward and having at its inner end a port opening into the annular groove, the valve chamber having an inlet opening adjacent its opposite end from said groove, a rotatable hollow valve disposed within the valve chamber and having a port communicating with the inlet opening when the valve is turned to a predetermined position and cut off by said valve when the valve is turned into another position, said valve having a handle, and a gasket extending over the grooved face of the body and closing said grooved face of the body.

In testimony whereof I hereunto affix my signature.

CHARLES F. WOODHULL.