July 24, 1923.

1,462,750

G. M. HART

FUEL MIXING DEVICE

Filed Jan. 9, 1922

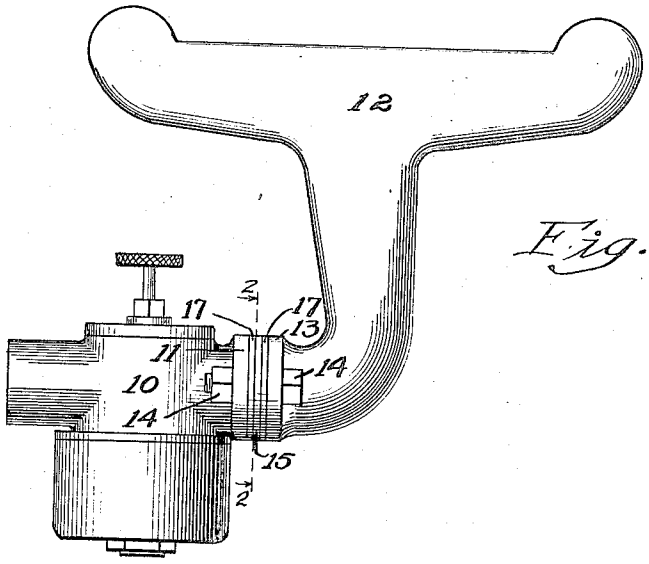


Fig. 1

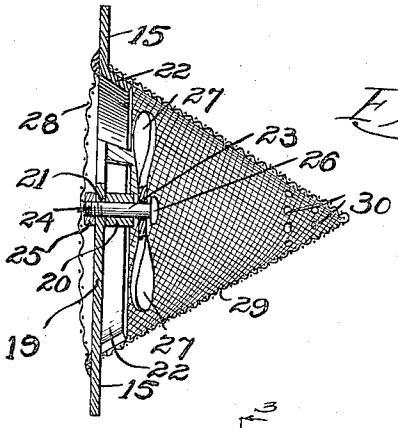


Fig. 3

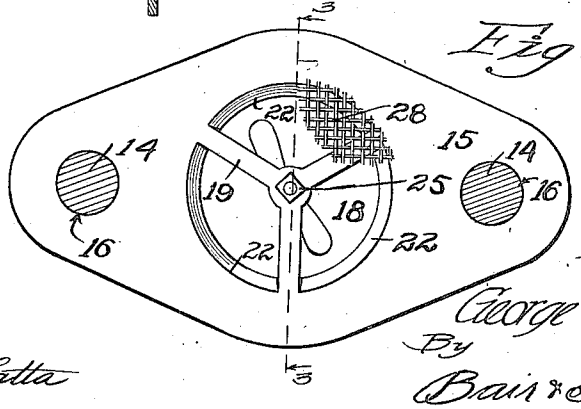


Fig. 2

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UNITED STATES PATENT OFFICE.

GEORGE M. HART, OF DES MOINES, IOWA.

FUEL-MIXING DEVICE.

Application filed January 9, 1922. Serial No. 527,936.

To all whom it may concern:

Be it known that I, GEORGE M. HART, a citizen of the United States, and a resident of Des Moines, in the county of Polk and State of Iowa, have invented a certain new and useful Fuel-Mixing Device, of which the following is a specification.

The object of my invention is to provide a fuel mixing device adapted to be interposed in the path of travel of the fuel mixture from the carburetor to the engine, the attachment being of simple, durable and comparatively inexpensive construction.

More particularly, my invention relates to an attachment arranged to be interposed between a carburetor and an intake manifold in the path of travel of the fuel mixture and provided with a fan blade member capable of rotary movement for thoroughly mixing and breaking up any of the particles of gases or fuel which have not been thoroughly vaporized.

Still another object is to provide a funnel shaped passage way, in my attachment for tending to direct the flow of fuel mixture towards the center of the passage way of the intake manifold, and keep it away from the walls thereof.

Still another object is to provide a cone shaped screen member on one side of the attachment, so that the fuel mixture must pass therethrough.

Still another object is to provide a web for forming a bearing member for a fan blade, which is operated, due to the suction, from the intake manifold.

The funnel shaped passage way of my device, is particularly designed to carry the heavier particles of gases, which ordinarily cling to the walls of the manifold towards the center and towards the fan blade, so that the revolving fan blade will thoroughly mix the fuel.

Figure 1 is a side elevation of an intake manifold and carburetor, with my improved attachment, installed therebetween.

Figure 2 is a sectional view taken on line 2—2, Figure 1, a part of the screen being broken away to better illustrate the construction; and

Figure 3 is a sectional view taken on lines 3—3 of Figure 2.

In the accompanying drawings, I have used the reference numeral 10 to indicate generally a carburetor of ordinary construction, which is provided with a flange 11, at its discharge end. An intake manifold 12 of the ordinary construction, is provided, which has a flange 13 formed on its receiving end.

The flange 13 is substantially the same size and shape as the flange 11, and is designed to normally rest against the flange 11. Each of the flanges 11 and 13 are provided with a pair of openings (not shown), through which are extended the bolts 14, which securely hold the carburetor 10 to the intake manifold 12.

My attachment is substantially the outline of the flanges 11 and 13, and consists of a thin plate 15. The plate 15 is designed to be received between the flanges 11 and 13. The plate 15 is provided with a pair of openings 16, which register with the openings in the flanges 11 and 13, so that the bolts 14 may be extended therethrough for securely holding the plate 15 between the carburetor and manifold. Resting against each of the sides of the plate 15, are gaskets 17. The gaskets 17 are placed between the flanges 11 and 13, for forming a tight joint between the parts.

The plate 15 is provided with an enlarged opening or passage way 18. The opening 18 is in alignment with the discharge opening of the carburetor 10, and with the receiving opening in the intake manifold 12.

Extending across the opening 18, and formed integral with the plate 15, is the web or spider 19 and has fastened to it a sleeve 20. The web 19 is provided with an opening 21, registering with the opening in the sleeve 20.

It will be seen that the web 19 provides a bearing member, the purpose of which will be hereafter more fully set forth.

The edge of the opening 18, between the web 19, is formed with an inwardly extending flange 22. The flange 22 is inclined, so as to form substantially, a funnel shaped passage way through the attachment.

Received within the sleeve 20, and extending through the opening 21, is a spindle 23. The spindle 23 may be a bolt if desired. In my drawings I have shown the spindle with a screw threaded end 24, having a nut 25 thereon. One end of the spindle 23 is provided with a head 26.

Received between the head 26 and the sleeve 20, and on the spindle 23, is a fan blade 27. The fan blade 27 is capable of rotary movement on the spindle 23.

Fastened to one side of the plate 15 is a screen 28, of comparatively heavy mesh. On the opposite side of the plate a cone shaped screen member 29 is provided. The end of the screen member 29 is provided with a series of openings so as to prevent any possible collecting of gases within the screen member 29.

The screen member 29 completely encloses the fan blade 27. The cone shaped screen member 29 extends into the receiving end of the intake manifold 12.

The gases from the carburetor will first pass through the screen 28, and due to the flanges 22, will be directed towards a common center, and brought into the passage where the fan blade 27 operated.

The suction from the engine or vacuum, which draws the fuel into the engine will cause the fan blade 27 to revolve. The passing of the fuel through the revolving fan blade 27 will cause it to be thoroughly mixed up, and any particles of gases to become thoroughly vaporized. The gases, after passing through the fan blade 27, will then pass through the fine mesh screen 29 into the intake manifold.

It will be seen that I have provided a device, which causes the fuel or gases to be passed through a revolving fan, where they will be thoroughly broken up and thence, permitted to pass into the intake manifold.

In the form of device shown, I form the plate 15, the flange 22 and the web 19 of a single piece of material, by die stamping.

My attachment can readily and easily be secured to any carburetor, and is very efficient. My device will to a great extent prevent carbon from forming in the engine, and the power obtained from the engine will be increased, due to the fact that all the gases are utilized to the fullest extent.

Some changes may be made in the construction and arrangement of the various parts of my device, without departing from the essential features and purposes of my invention, and it is my intention to cover by my claim, any modified forms of structure or use of mechanical equivalents, which may be reasonably included within its scope.

I claim as my invention:

A fuel mixing device comprising a plate adapted to be interposed between a carburetor and the intake manifold of an engine, said plate having a pair of openings therein for attaching it in position and having an enlarged opening adapted to register with the openings in the carburetor and the intake manifold, an inwardly inclined flange formed on the edge of said last opening, said flange being designed to project into said intake manifold, a cone shaped screen secured to said plate and adapted to extend over said last opening, a second screen on said plate on the opposite side of said cone shaped screen, said screen being of different meshes, a web extended across said last opening, a fan blade rotatably mounted on said web and received between said screens, and revoluble by the suction for intake manifold, whereby full mixture will be drawn through the fan blade causing it to revolve and be broken up as stated.

GEORGE M. HART.