H. WALTHER.

FUEL MIXER.

APPLICATION FILED JULY 8, 1915.

1,178,891.

Patented Apr. 11, 1916.

Fig. 1.

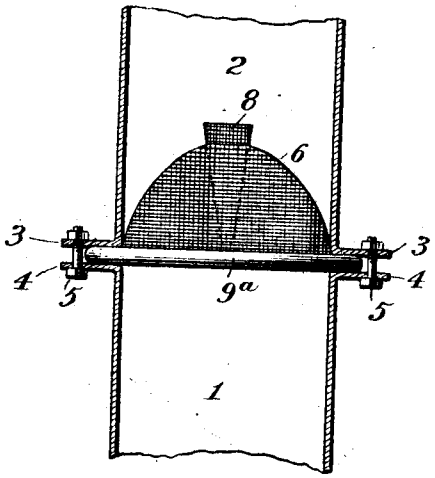


Fig. 2.

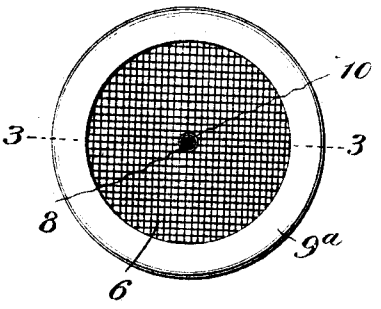


Fig. 3.

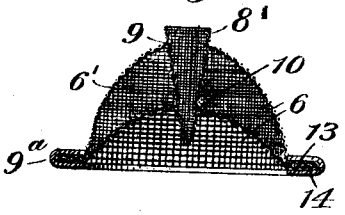


Fig. 4



Witnesses:

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HERMAN WALTHER, OF DAVENPORT, IOWA.

FUEL-MIXER.

1,178,891. Specification of Letters Patent. Patented Apr. 11, 1916.

Application filed July 8, 1915. Serial No. 38,700.

To all whom it may concern:

Be it known that I, HERMAN WALTHER, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Fuel-Mixers, of which the following is a specification.

This invention relates to improvements in fuel mixers of the type which are interposed in the gasolene vapor and mixture pipe leading from the carbureter to the manifold or supply port of an internal combustion engine.

The object of the present invention is to provide an improved device of this nature capable of effecting a more complete, thorough, and uniform mixture of the gas and air, increasing the efficiency of the charge and minimizing the consumption of fuel.

Another object of the invention is to provide an improved device of this character which will prevent back firing from the cylinders through the mixture pipe into the carbureter.

A further object of the invention is to provide an improved device of this nature which will be simple and inexpensive in construction and that can be readily applied to the mixture pipe.

The invention broadly comprehends the use of a plurality of sieves adapted to be disposed transversely of the mixture pipe with portions of the respective sieves spaced from each other and a foraminous member disposed centrally and longitudinally of the mixture pipe and bridging the space between the transverse sieves, said member being adapted to intercept the more rapid and unbroken globule bearing stream of the mixture along the central part of the conduit, dividing, breaking up and deflecting the same laterally to the outer portions of the transverse sieves and into the mixing space therebetween, said member coöperating with the transverse sieve to effect a very complete, thorough and uniform mixture of the gas and air.

The invention will be understood from the following detailed description when considered in connection with the accompanying drawings, forming part thereof, and wherein I have illustrated by way of example a preferred embodiment of the invention and a slight modification thereof.

In the drawings: Figure 1 is a section taken through the adjacent portions of the discharge pipe of a carbureter and the delivery pipe that leads therefrom to the manifold or supply port of an internal combustion engine; Fig. 2 is a bottom plan view of the mixing device; Fig. 3 is a section on the line 3—3 of Fig. 2; and Fig. 4 is a detailed view of a slightly modified construction of the longitudinally extending member of the mixing device.

Referring to a detailed description of the drawings, wherein like reference characters designate corresponding parts throughout the several views, 1 designates the discharge pipe of a carbureter and 2 the delivery pipe leading therefrom to the engine manifold. The pipes 1 and 2 are provided with the usual coupling flanges 3 and 4 connected by bolts 5. Interposed in the mixture conduit thus formed, conveniently at the point of connection of the pipes 1 and 2 is the fuel mixer comprising a plurality of transverse sieves 6 and a central longitudinally extending intercepting member 8 bridging the space between the sieves 6. The transverse sieves, two of which are employed in the present instance are preferably cup-shaped, of varying depth and arranged in nested relation as shown with a mixing space 6′ therebetween. The sieves are preferably constructed of wire mesh and the front sieve or the one nearest the carbureter of larger mesh than the other. The member 8 consists of a relatively small cone of fine wire gauze secured to and supported by the transverse sieves 6, said cone extending through and snugly fitting openings 9 and 10 provided for this purpose in the transverse sieves or screens, the cone being supported near its apex by the front screen or the one nearest the carbureter, and at its base by the other screen and being suitably secured at these points to the respective screens by soldering or in any other desired way.

In Figs. 1, 2 and 3 of the drawings the central longitudinal intercepting member 8 is shown as consisting of a hollow cone of wire gauze. A slightly modified construction is illustrated in Fig. 4 of the drawing, in this instance, the cone being made up of a roll of wire gauze.

The sieves are connected by a gasket 9ª, U-shaped in cross section, the sieves being provided with marginal flanges 13 and 14 clamped or cast between the folds of the gasket. As illustrated in Fig. 1 of the drawing, the device is adapted to be positioned within the mixture pipe with the

gasket 9ª clamped between the coupling flanges 3 and 4 of the pipes 1 and 2, the gasket being formed of lead or other suitable material and serving additionally to provide a gas tight connection. As shown, the device is adapted to be arranged in the mixture pipe with the open ends of the transverse sieves 6 and the apex of the cone 8 presented to the discharge pipe of the carbureter. The mixture of air and vapor fuel passing from the discharge pipe of the carbureter impinges upon the wire of the transverse sieves and is broken up and commingled. The more rapid flow of the mixture along the central portion of the conduit bearing most of the unbroken gasolene or oil globules is intercepted by the centrally disposed longitudinally extending member 8, said member serving to break up the gasolene or oil globules carried by this main stream and to deflect the stream laterally toward the outer portions of the transverse screens or sieves and the outer portion of the mixing space therebetween, the member coacting with the transverse screens to produce a very fine division of the oil and a thorough and uniform commingling of the gas and air. In practice the device has been found to materially increase the efficiency of the charge and to greatly reduce the amount of fuel consumed. The device also serves as an effective guard against back firing from the cylinders through the mixture pipe into the carbureter, in such cases acting to break up the force of the gas and prevent the passage of the flame to the carbureter.

I desire it to be understood that modifications and minor changes in the particular construction illustrated in the drawings, as will appeal to those skilled in the art and properly falling within the scope of the appended claims may be made without departing from the spirit of the invention.

What I claim is:

1. A device for the purpose set forth, comprising a plurality of transverse screens arranged with portions of respective screens spaced from each other, and a relatively small gauze cone extending centrally and longitudinally of the transverse screens into the space therebetween.

2. A device for the purpose set forth, comprising a plurality of transverse screens arranged with portions of respective screens spaced from each other, and a relatively small foraminous cone disposed centrally and longitudinally of the transverse screens and bridging the space therebetween.

3. A device for the purpose set forth, comprising a plurality of transverse screens arranged with portions of respective screens spaced from each other, and a relatively small foraminous cone disposed centrally and longitudinally of the transverse screens and bridging the space therebetween, said transverse screens being provided with openings at their central portions and the cone fitting snugly within said openings and being supported by the said screens.

4. A device of the character described, comprising a plurality of transverse cup-shaped screens arranged in nested relation with a mixing space between central portions thereof, and a relatively small gauze cone extending centrally and longitudinally of the cup-shaped screens.

5. A device of the character described, comprising a pair of transverse screens having their central portions spaced from each other, and a relatively small gauze cone disposed centrally and longitudinally of the screens and bridging the space therebetween, said transverse screens serving to support the cone in position and being provided with openings at their central portions, the said cone near its apex fitting snugly in the opening of one of the screens, and near its base fitting within the opening in the other screen.

6. The combination with a carbureter and mixing pipe of a fuel mixer comprising a plurality of transverse screens arranged with central portions of respective screens spaced from each other, and a relatively small gauze cone extending centrally and longitudinally of the transverse screens into the space therebetween, said fuel mixer being adapted to be interposed in the mixture pipe with the apex of the cone presented toward the discharge pipe of the carbureter.

7. A device of the character described, comprising a plurality of transverse cup-shaped screens arranged in nested relation with a mixing space between central portions of respective screens, a relatively small gauze cone extending centrally and longitudinally of the cup-shaped screens, and a gasket U-shaped in cross section connecting said screens, said screens being provided with the marginal flanges clamped between the folds of the gasket.

8. A device for the purpose set forth, comprising a plurality of transverse screens arranged with central portions of respective screens spaced from each other and a relatively small hollow cone of wire gauze supported by said screens and extending centrally and longitudinally thereof into the space therebetween.

In testimony whereof I affix my signature in the presence of two witnesses.

HERMAN WALTHER.

Witnesses:
C. E. Adams,
Chas. S. Peyor.