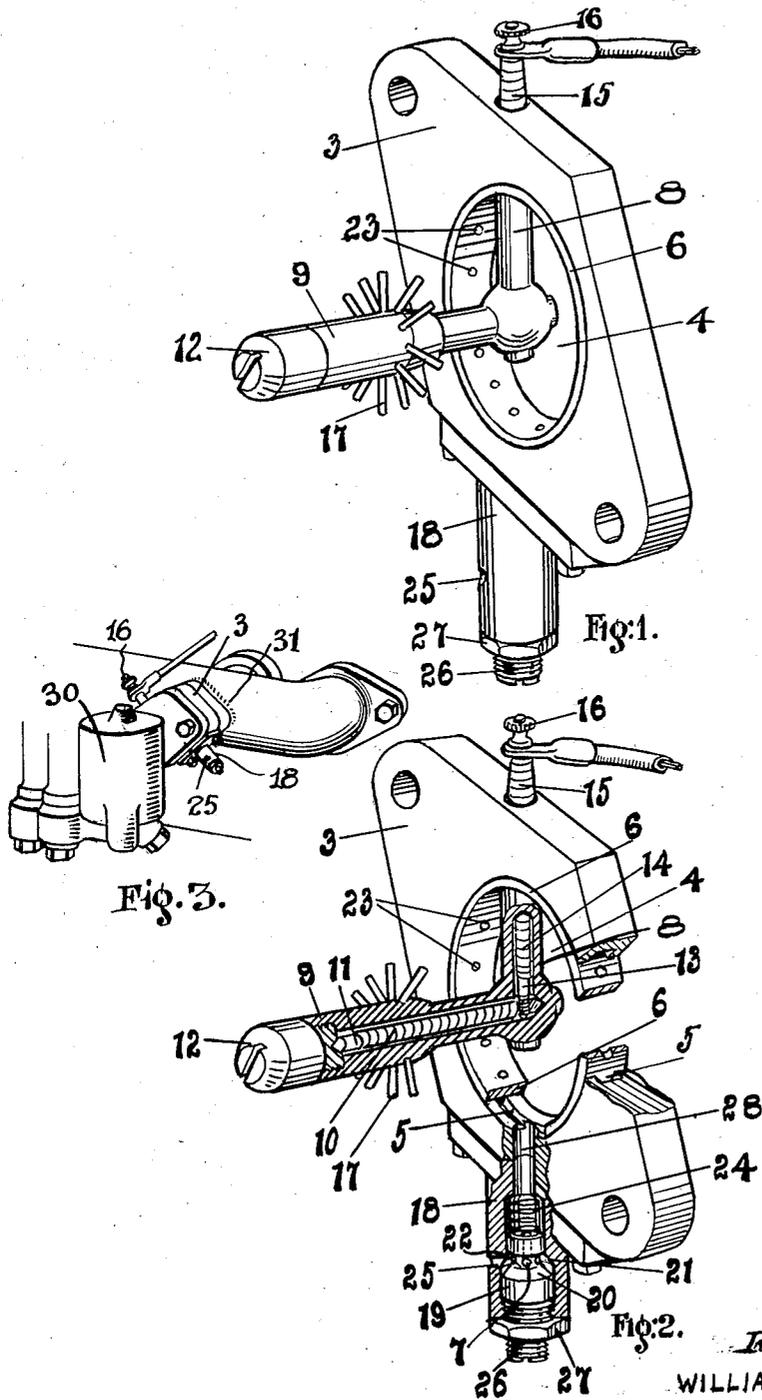


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GAS MIXER AND VAPORIZER  
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## GAS MIXER AND VAPORIZER

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1 Claim. (Cl. 48—180)

This invention comprises improvements in gas mixers and vaporizers for internal combustion engines and has for its object to provide for the more efficient mixing of the charge and for facilitating the use of heavy hydrocarbon fuels.

Referring to the drawing:—

Figure 1 is a perspective view of a gas mixer and vaporizer according to this invention.

Figure 2 is a perspective view partly in section of the gas mixer and vaporizer shown in Figure 1, whilst, Figure 3 is a diagrammatic perspective view of the gas mixer according to this invention shown inserted in a conduit between the carburetor and intake manifold.

In carrying the present invention into practice as shown upon the accompanying drawing, a flange 3 is provided, said flange being adapted to be disposed between the carburettor 30 and the inlet manifold 31 as shown in Figure 3. The flange 3 has the central opening 4 thereof formed with an annular recess 5, said recess being closed with the ring 6 in which is formed a series of holes 23 for the purpose hereinafter explained.

Mounted in the flange 3 is a radially disposed casing 8, whilst connected thereto and coaxial with the flange 3 is the tubular casing 9.

Disposed in the tubular casing 9 is the heating element 10 which is mounted upon the rod 11 and insulated therefrom, or if desired the heating element 10 can be disposed within the tubular casing 8. The outer end of the rod 11 is chamfered and the chamfered end is adapted to be located in the closure member 12 which is screwed into the tubular casing 9 and thereby centrally disposes the outer end of the rod 11. The inner end of the rod 11 is provided with a screwed hole into which is screwed the rod 13 which is disposed in the tubular casing 9 and insulated therefrom by means of the insulation 14. The exterior end of the rod 13 has mounted thereon the insulator 15, whilst the end of said rod is screw threaded to receive the terminal nut 16. The rods 11 and 13 act as conductors to the resistance of the heating element 10.

The tubular casing 9 has radially disposed around its periphery a series of projections 17 which become heated when the heating element 10 is in operation and form a series of hot points against which the mixture impinges, thereby raising the temperature of the mixture and improving vaporization, said projections 17 also facilitating the mixing of the gases or mixture as it passes to the cylinders.

Disposed at right angles to the axis of the flange 3 is a tubular extension 18 in which is pro-

vided the passage 28 which communicates with the annular recess 5. Mounted in the tubular extension 18 is a valve 19 which has formed thereon a seating 20, the valve 19 being adapted to seat on the seating 21 formed in the tubular extension 18. The valve 19 has provided around its periphery an annular recess 22 which has formed therein a series of holes 7 which communicate with the hollow centre of the valve 19; mounted on the top of the valve 19 is a compression spring 24 which normally retains the valve 19 off its seating 21. Provided in the tubular extension 18 is an aperture 25 which is adapted to register with the annular recess 22 thereby permitting air to be drawn through the extension 18 into the annular recess 5 of the flange 3 and thence through the series of holes 23 when it impinges against the tubular casings 8 and 9 which causes the air to be more efficiently mixed with the incoming fuel.

The tubular extension 18 is closed at its outer end by the screwed plug 26 which is adapted to regulate the tension on the spring 24 and to be locked in position by means of the lock nut 27.

The before described valve permits of an extra air supply which is automatically controlled by the speed of the engine, not shown.

The gas mixer and vaporizer according to this invention permits of heavy liquid fuels being used with existing internal combustion engines, furthermore it has been found possible to use a comparatively large percentage of paraffin or other heavy fuel oils mixed with the gasoline thereby reducing the fuel cost without detracting from the efficiency of the running of the engine.

I claim:

A fuel gas and air mixer and liquid fuel vaporizer, comprising in combination a flange having an annular recess around an opening in said flange, a ring which is adapted to close said recess and provided with a series of outlet holes therein, a tubular extension connected with said flange having an air passage therein which communicates with the annular recess around the flange opening, a spring controlled valve mounted in said tubular extension which is adapted to control the air flow, a member mounted on said flange which extends into the flange opening, an extension to said member which is coaxial to the flange opening, an electrical heating element disposed in said coaxial member, and projections arranged around the periphery of the coaxial member which are adapted to provide hot points for heating the fuel and air mixture.

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