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2,669,508

FUEL MIXER

Filed March 6, 1951

2 Sheets-Sheet 1

Fig. 1.

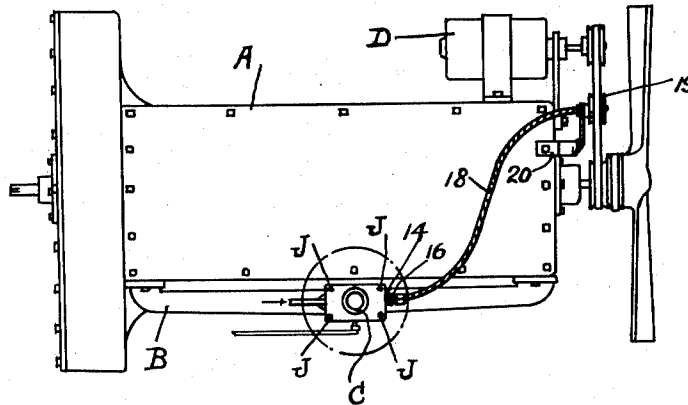
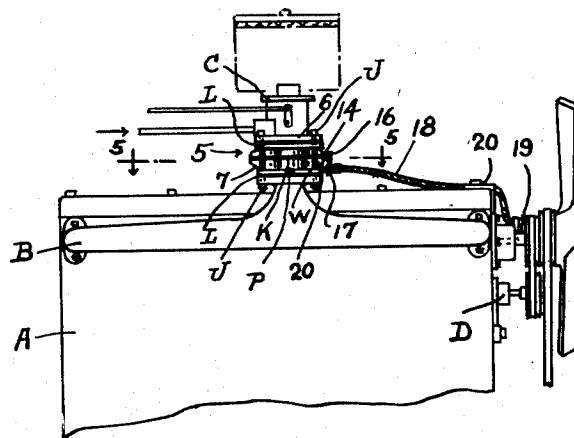


Fig. 2.



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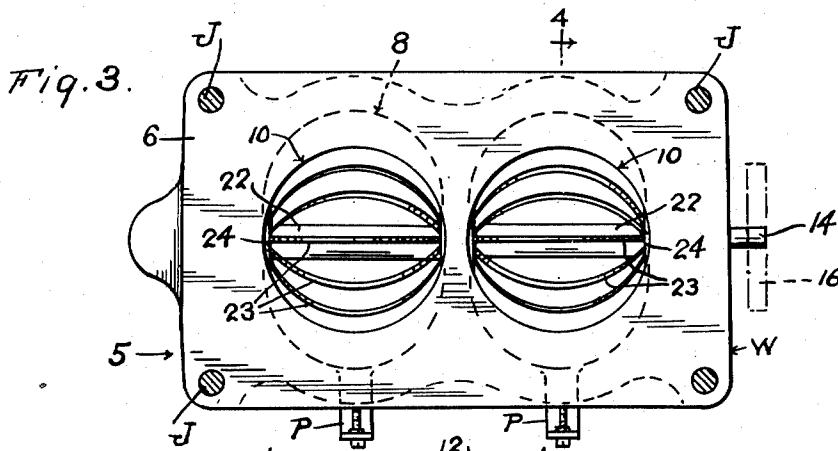
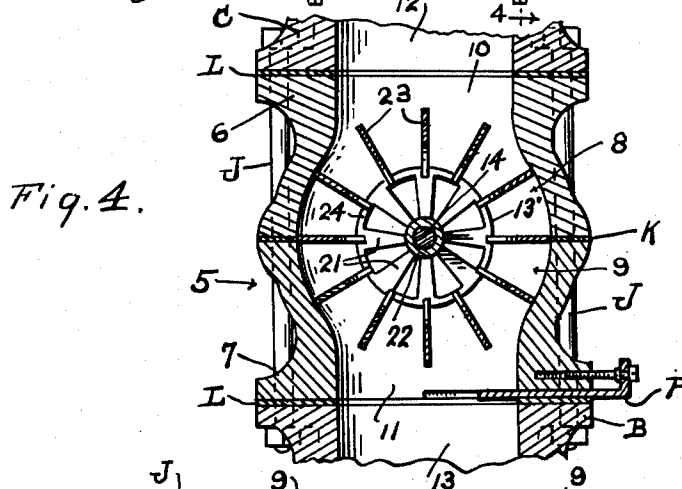
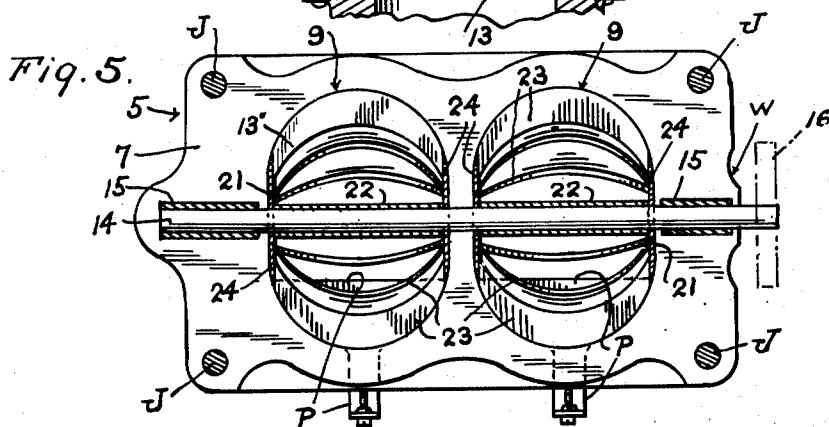
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UNITED STATES PATENT OFFICE

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FUEL MIXER

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1 Claim. (Cl. 48—180)

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This invention relates to the official class of fuel mixers and more particularly a new and novel liquid fuel mixer for internal combustion engines.

The primary object of this invention resides in the provision of a liquid fuel mixer for internal combustion engines to crack and homogenize vaporized fuel flowing from their carburetors to their intake manifolds so as to increase the efficiency of the engines and reduce consumption of the fuel.

Another object of this invention resides in the provision of a liquid fuel mixer for internal combustion engines adapted to be operated by a rotating element of the engine.

A further object of this invention resides in the provision of a liquid fuel mixer for internal combustion engines adapted to be disposed between their carburetors and intake manifolds without altering the same.

A still further object of this invention resides in the provision of a liquid fuel mixer for internal combustion engines adapted to crack and homogenize vaporized fuel flowing from their carburetors to their intake manifolds and force it into the combustion chamber of the engines under predetermined pressures.

Aside from the foregoing objects, this invention resides in the particular construction of the liquid fuel mixer.

With these and other objects in view, this invention resides in certain novel features of construction and arrangement of elements to be hereinafter more particularly set forth in the specification, illustrated in the accompanying drawings and pointed out in the appended claim and, although this disclosure depicts my present conception of the invention, the right is reserved to resort to such departures therefrom as come within the scope of the claim.

In the accompanying drawings forming a part of this application;

Fig. 1 is a plan view of a portion of an internal combustion engine showing the liquid fuel mixer disposed thereon.

Fig. 2 is a side view thereof.

Fig. 3 is a plan view of the mixer per se.

Fig. 4 is an enlarged vertical sectional view taken approximately on line 4—4 of Fig. 3.

Fig. 5 is an enlarged horizontal sectional view taken approximately on line 5—5 of Fig. 2.

In the present illustration of this invention the letter A indicates the forward portion of an internal combustion engine which, among other well known elements, includes an intake mani-

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fold B, carburetor C and generator D driven by a belt E in the usual manner.

Secured between the outlet end of the carburetor and inlet end of the engine is a liquid fuel mixer 5, forming the subject matter of this invention, which consists of upper and lower sections 6 and 7 provided with substantially semi-elliptical bores 8 and 9 reduced in area at their outer ends to form circular ports 10 and 11 adapted to register with the outlet and inlet ports 12 and 13 of the carburetor and intake manifold when secured therebetween. Said semi-circular bores, when disposed in opposed relation, form fuel cracking and mixing chambers fans 13 secured to a shaft 14 rotatably seated in suitable bearings 15 formed between the opposed inner surfaces of the aforesaid sections with one end thereof extending outwardly through the front wall W of the mixer and provided with a gear 16 meshing with a gear 17 on a suitable power transmitting cable 18 operated by a pulley 19 or the like engaging the belt of the aforesaid generator. Said cable with the gear 16 and pulley 19 thereon is secured at one end to the generator and at its other end to the intake manifold or other convenient place on the engine by suitable brackets 20. The aforesaid bearings are preferably of the self lubricating type sealed between opposed sockets S formed in the inner surfaces of said sections.

The aforesaid fans 13 are preferably of the squirrel cage type herein shown as consisting of a plurality of suitably shaped spokes 21 extending radially from laterally spaced hubs 22 and connected by a plurality of circumferentially arranged arcuate blades 23 secured to and directed inwardly of rims 24 secured to the outer ends of said spokes. However, it is within the purview of this invention to substitute any well known type of fan for those set forth just so the salient features of this invention can be practiced.

In order to seal the sections of the mixer against leakage, a suitable gasket K is disposed between their opposed inner surfaces whereupon the sections so assembled form a unit to be tightly secured between the outlet end of the carburetor and inlet end of the intake manifold by suitable gaskets L and bolts J of the usual type used for such purpose.

Slidably disposed in the mixer in close proximity to the fans therein are pressure plates P adapted to control flow of the cracked and homogenized fuel to the intake manifold.

Although the fuel mixer is herein shown as provided to operate with carburetors and intake

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manifolds having companion fuel ports therein, it is to be understood that it may be constructed to fit any type of carburetor and intake manifold or, in fact, any fuel intake system of internal combustion engines.

With this invention fully set forth, it is manifest that a liquid fuel mixer is provided for internal combustion engines which will treat vaporized fuel flowing from their carburetors to their intake manifolds so as to break up all large particles of unvaporized fuel and homogenize them to form a unified combustible vapor to be used in operating all types of such engines wherever used.

Having thus described my invention, what I claim and desire to protect by Letters Patent is:

A liquid fuel mixer for internal combustion engines comprising companion sections with opposed inner surfaces and having fuel mixing chambers therein communicating with outlet ports, a gasket disposed between the opposed inner surfaces of said sections, squirrel cage type

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fans disposed in said chambers, a shaft journaled in opposed recesses between the opposed inner surfaces of said sections with one end thereof projecting through the mixer and its opposite end terminating inwardly of the adjacent walls of the sections, adjustable pressure plates extending laterally into the mixing chambers below the fans, a gear secured to the outer end of said shaft, and means securing said sections together into a unit.

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