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G. A. PICKETT

2,101,477

GAS MIXER

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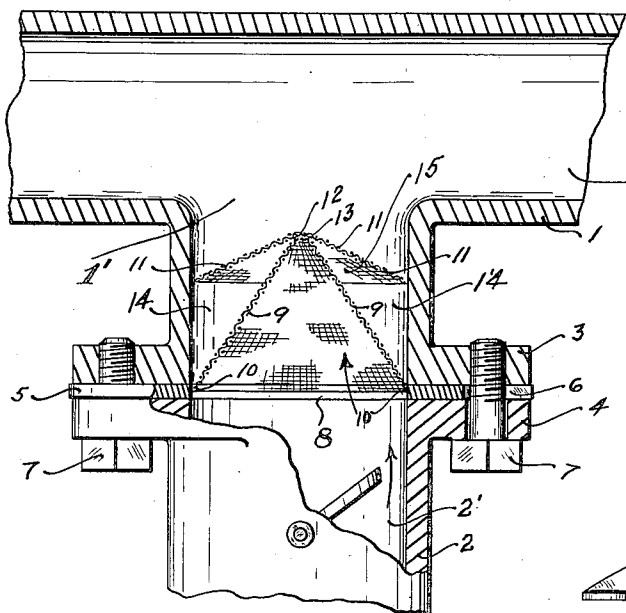


Fig-1

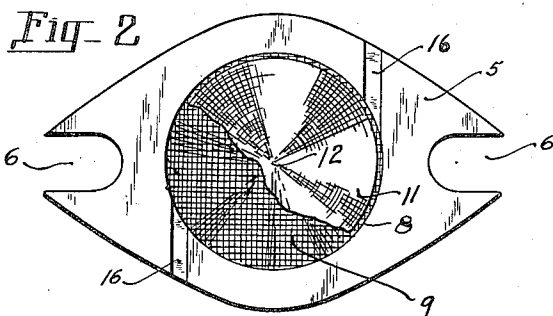


Fig-2

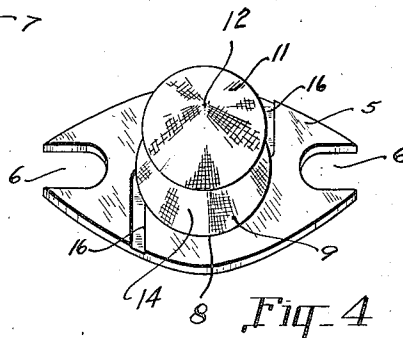


Fig-4

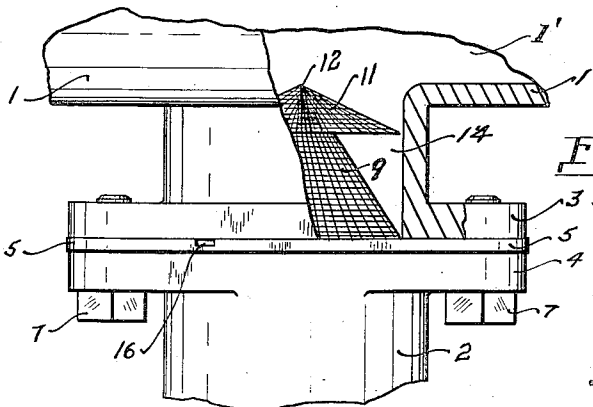


Fig-3

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UNITED STATES PATENT OFFICE

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1 Claim. (Cl. 48—180)

My invention is designed to be employed in conjunction with carburetors in explosive engines. The prime purpose thereof is to provide a device which will aid in vaporizing explosive fluids coming from the carburetor and still in a liquid state. In the carburetion of explosive fluids difficulty has been encountered in the fact that portions of said fluid have been incompletely vaporized. These fluids still in a liquid state are carried along the walls of the passageway leading from the carburetor to the engine; this feature is objectionable, as is well known in the art.

The object of my invention is to catch and collect the liquid and transform it into a vaporous state wherein it may be employed in running the engine.

Preferably, my invention consists of a connection to be introduced between the carburetor and the inlet manifold of an explosive engine. In conjunction with such connection there are two superposed screen members conical in shape. The base of the lower screen member is co-extensive with the passageway in the connection. The upper screen member is positioned with its apex upon the apex of the lower screen member; however, its taper is greater than that of the lower screen member and consequently there is provided between the two screen members exteriorly of the lower and interiorly of the upper a region for collecting and diffusing the explosive fuel still in a liquid state. These screen members when the connection is in place are disposed within the inlet passageway of the inlet manifold. Also, the connection is provided with one or more passageways from the exterior communicating with the interior passageway, which passageways are arranged tangentially with regard to said interior passageway. Air is introduced through such passageway and by reason of their position causes a swirling or rotation of air and gas mixture within the interior passageway, thus thoroughly mixing the motor fluid still in a liquid state and diffusing it and vaporizing it as it passes through the conical screen members.

A more complete understanding of the construction, operation and objects of the invention will be attained upon reading the description thereof following, aided by the several views thereof in the accompanying drawing, wherein

Figure 1 is a fragmentary side-sectional elevation of an inlet manifold to an explosive engine and the outlet passageway leading from a carburetor and connecting to the inlet passage-

way to such manifold, and shows my invention being employed in conjunction therewith, said invention being shown in like sectional view.

Figure 2 is a plan view of the invention with portions broken away to show the construction.

Figure 3 is a fragmentary side elevation of portions of an inlet manifold and the outlet portion of a carburetor with portions broken away to illustrate the mounting of my invention.

Figure 4 is a perspective of the mixing device.

In the drawing, similar characters refer to similar parts throughout the several views, and the numeral 1 indicates a portion of an inlet manifold where it connects with the outlet portion of a carburetor, respectively indicated by the numerals 1 and 2, and provided with internal passageways likewise respectively indicated by the numerals 1' and 2'. The inlet to the manifold and the outlet to the carburetor are provided with flange connections 3 and 4 respectively, of a type well known in the art.

My device is designed to be introduced between the inlet of the manifold and the outlet of the carburetor, and basically consists of a plate or connection 5, having bolt slots 6 to receive the bolts 7 connecting the flanges 3 and 4 together, as is well known in the art. The plate 5 is provided with an interior passageway 8, corresponding in size to the passageway in the outlet and inlet of the aforesaid. Mounted to the plate 5 is a conical diffusing screen 9 having its base 10 co-extensive with the walls of the passageway 8 in plate 5 to which it is secured. Above the screen member 9 is another conical screen 11 supported by having its apex 12 affixed to the apex 13 of member 9. Screen 11, though conical, has a greater taper than the preceding screen which construction provides a spacing 14 between the inside of the upper screen and the outside of the lower screen. The base 15 of the upper screen is preferably co-extensive with the diameter of the passageway 1'. Within the plate 5 and connecting with passageway 8 and leading from the exterior or outer periphery of member 5 are slots 16 which constitute passageways tangentially arranged with regard to passageway 8.

Figures 1 and 3 show how the present invention is mounted with regard to the inlet manifold and the outlet of a carburetor, these elements being respectively indicated by numerals 1 and 2 as heretofore indicated. The plate 5 is mounted between the two members as heretofore indicated; in this position the conical members 9 and 11 project into the interior of the passageway 1'. In operation the motor swirl travels from the car-

buretor and follows the path indicated by the arrows. It is, or a majority thereof, in a vaporous state and passes through the screens 9 and 11. However, as it passes through the perforations of such screen members the action of the screen or perforate members tends to prevent the vapor from breaking down into a fluid state. Motor fuel still in a liquid state may be withdrawn from the carburetor through passageways 1' and 2'.
10 This liquid fuel has a tendency to creep along the walls of such passageways and into the motor; however, the purpose of the present conical members is to collect or catch such liquids and to cast it against their screened surfaces, thus thoroughly breaking up and transforming it into a vaporous state.

To aid in this transformation, air is drawn through the passageway 16 by the action of the motor, and this air by reason of the tangential disposition of such passageway is caused to swirl rapidly about the passageway 1, aiding in the collection of the liquid fuel from the walls of such passageway. By reason of the position of the screen members 9 and 11 such air flow is to a cer-

tain extent counteracted thereby, thus breaking up such flow and to a great extent even entirely transforming the liquid fuel into a vaporous state, thus insuring that the fuel when it reaches the engine is in condition to provide suitable explosive power.

While a specific form of the invention has been described and illustrated herein, it is desired to be understood that the same may be varied within the scope of the appended claim, without departing from the spirit of the invention.

Having described my invention, I claim—

In a gas mixer, a connection provided with a passageway, a conical screen having its base mounted to the walls of the passageway in the connection and having its apex positioned above the connection, a second conical screen extending upright from its base and mounted upon the first apex, and said second screen having greater taper than its sides spaced from the sides of the first and having its basal perimeter substantially equal to that of the first screen.

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