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1,446,086

H. R. GREEN

GAS MIXER

Filed Mar. 30, 1921

Fig. 1

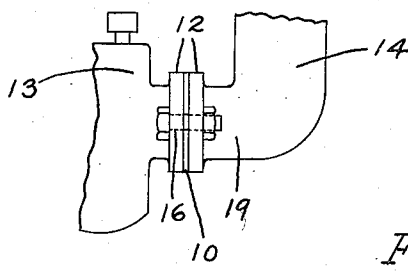


Fig. 2

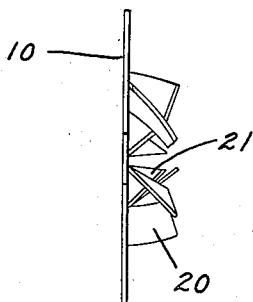


Fig. 3

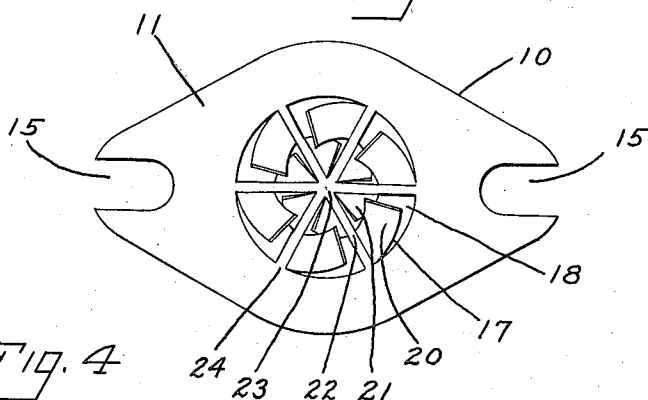


Fig. 4

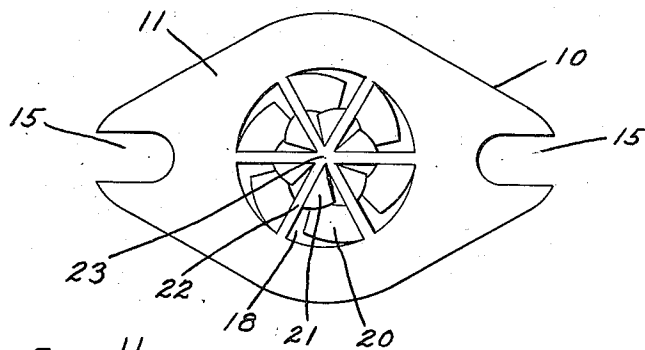
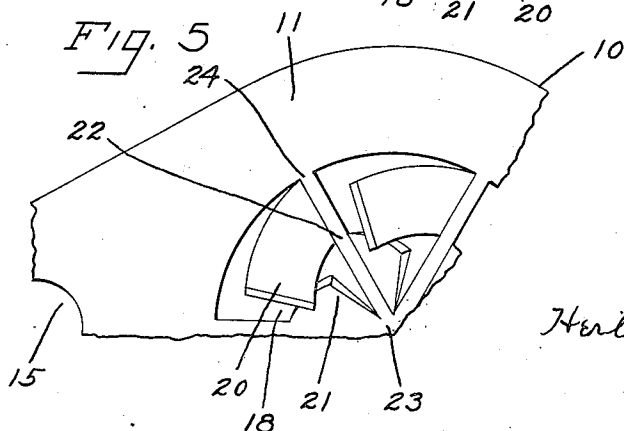


Fig. 5



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UNITED STATES PATENT OFFICE.

HERBERT RAYMOND GREEN, OF NEW BRITAIN, CONNECTICUT.

GAS MIXER.

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To all whom it may concern:

Be it known that I, HERBERT RAYMOND GREEN, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Gas Mixers, of which the following is a specification.

My invention relates to improvements in gas mixers of the form that is used for improving the mixing of the fuel and the air intermediate the carbureter and the intake manifold of an internal combustion engine, and the object of my improvement is to produce a device that can be interposed between the flanges on the carbureter and manifold that serve to inter-connect these parts; that is in the form of a unitary piece of sheet material that bridges the opening or passageway for the fuel and air mixture; that has a plurality of openings so as to serve to subdivide the said passageway into a corresponding number of individual fuel openings; the wall portion of each of which individual openings having one or more deflecting devices in the form of vanes for diverting the fuel and air stream to one side of the axis of the passageway; and, furthermore, which deflecting devices are constructed and arranged in a special manner for effecting a superior result as to such mixing, consistent with simplicity in construction.

In the accompanying drawing:—

Figure 1 is a side elevation of part of the connection for an internal-combustion engine with the opposed flanges for connecting the carbureter to the intake manifold, and having my improved gas mixer interposed between the said flanges.

Figure 2 is a side elevation on an enlarged scale of the gas mixer.

Figure 3 is a front elevation of the same.

Figure 4 is a rear elevation of the same.

Figure 5 is a fragmentary front elevation of a portion of the gas mixer, on a still further enlarged scale, showing the details of the deflecting vanes.

My improved gas mixer comprises a unitary structure 10 having a border portion 11 of suitable size and shape to be interposed between the opposed flanges 12 of the carbureter 13 and the intake manifold 14 of an internal-combustion engine; has openings 15 in the form of slots for admitting the bolts 16 that hold the parts in place; is made of sheet metal of appreciable thick-

ness; and has the middle portion, designated generally by the character 17, subdivided in a special manner so as to provide a plurality of individual fuel openings 18, which middle portion 17 serves generally to bridge the passageway leading from the carbureter 13 to the intake manifold 14; and, furthermore, each fuel opening 18, as shown, is provided with a pair of vanes or deflectors, comprising in each case an outer vane 20 and an inner vane 21.

The two vanes of each pair are directed towards opposite sides of the longitudinal direction of the passageway 19, and each is bent to an appreciable angle, and, furthermore each is of appreciable size, so as to be adapted to serve as a baffle or deflecting device for deflecting the stream of the fuel mixture to one side of the general longitudinal direction.

As a structural detail, the entire material of the blank to correspond to the size of the passageway 19 is utilized for forming the vanes 20 and 21, except such as is found necessary to provide a suitable support mechanically for the vanes.

The mechanical structure may be briefly described as comprising a plurality of radially directed spokes 22 that meet at the middle at a hub 23 and merge at the outer ends 24 with the material of the border portion 11. The material intermediate adjacent spokes 22 is utilized for forming the vanes, the part of such material adjacent the hub 23 being deflected to one side to form the inner vanes 20 and the part thereof adjacent the border structure 11 being deflected in the opposite direction.

As shown, there are six spokes 22 and a corresponding number of vanes.

All of the outer vanes 20 are deflected in the same direction, so that they are adapted to cooperate to provide a lateral direction to the fuel mixture in its passage through the gas mixer so far as applies to what may be designated as the outer zone of the general fuel passageway, the effect being briefly described as a whirling effect.

Similarly the inner vanes 21 produce a whirling effect on the fuel for the portion that travels along what may be designated as the inner zone, adjacent the longitudinal axis of the passageway 19.

The fuel would accordingly comprise an inner core portion that is whirling in one direction and that is surrounded by a skin

portion or border wall portion that is whirling in the opposite direction.

As these two portions move along the intake manifold they mingle and thereby serve to more thoroughly mix the fuel and the air, so as to enhance the efficiency of the combustion.

I claim as my invention:—

A gas mixer in the form of a single piece of sheet material having a general main opening that is enclosed by a border wall

of circular form, a plurality of spoke structures extending radially inwardly from said border wall and meeting at the middle of said opening, a set of vanes supported by the outer portions of said spoke structures and a second set of vanes supported by the inner portions of said spoke structures, and the two sets of vanes being deflected in opposite directions relatively to the line of the axis of said opening.

HERBERT RAYMOND GREEN.