June 21, 1927. 1,633,050

E. THORNTON

MIXING DEVICE FOR INTERNAL COMBUSTION ENGINES

Filed May 25, 1925

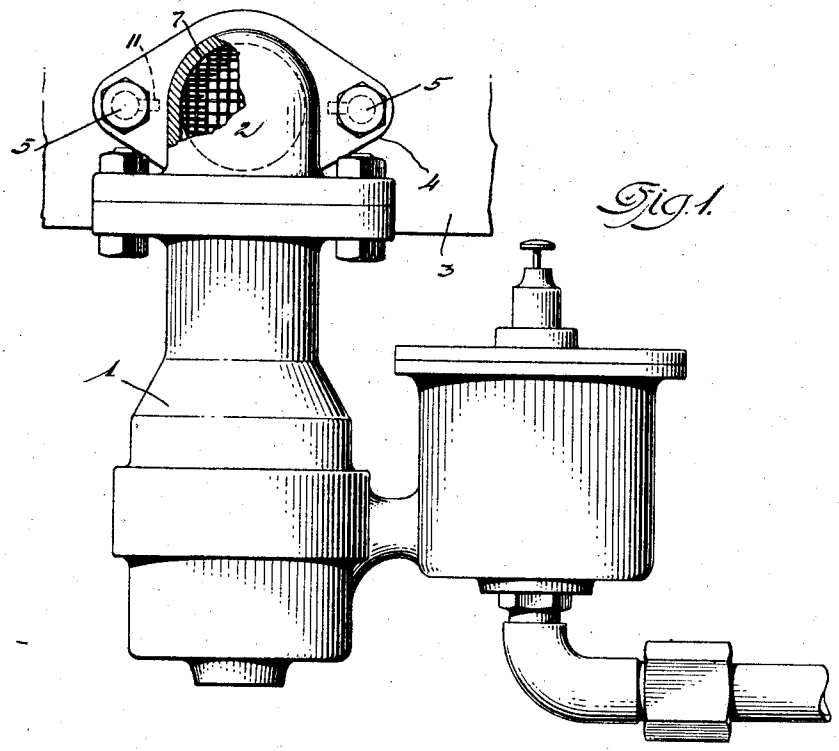


Fig. 1.

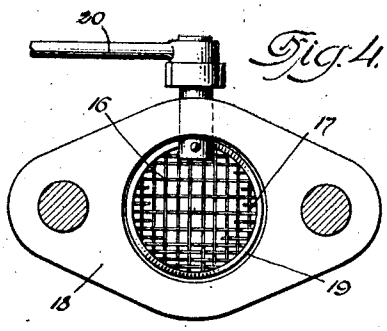


Fig. 4.

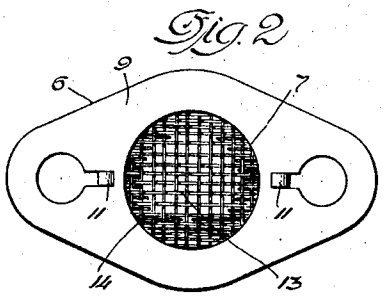


Fig. 2.

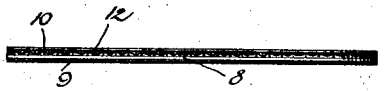


Fig. 3.

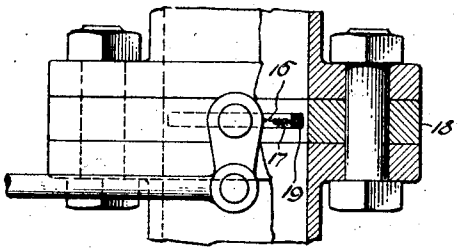


Fig. 5.

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UNITED STATES PATENT OFFICE.

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MIXING DEVICE FOR INTERNAL-COMBUSTION ENGINES.

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As a general rule in internal combustion engines carburetion is more or less imperfect with a consequent power loss and this is especially so in cold weather or when the engine has not been running long enough to become heated, a common fault being insufficient atomization which results in a very wet gas entering the cylinders of the engine, which gas is difficult to explode as well as being uneven in its explosion as is well known to those conversant with the action of explosive mixtures in internal combustion engines.

This invention therefore has as its object the provision of simple means tending to create a greater uniformity and a better atomized condition in the gases entering the cylinder of an internal combustion engine and to thereby increase the efficiency of operation of the engine.

The invention further lies in the provision of a screen adapted to be located between the carburetor and the cylinder of an engine in such manner that particular screening effect is secured contiguous to the margins of the opening through which the intake gases pass to the cylinder and more especially the margin contiguous to the lower part of such opening.

A further object is the provision of a gasket incorporating such a screen and insertable between the abutting ends of the intake pipe of an internal combustion engine and the cylinder or manifold to which the said intake pipe is connected or between the said intake pipe and the carburetor; and still further objects subsidiary to or resulting from the aforesaid objects, or from the construction or operation of the invention as it may be carried into effect, will become apparent as the said invention is hereinafter further disclosed.

In carrying the said invention into effect, I may provide a gasket adapted to be inserted between the abutting faces of an intake pipe and any of its connections, said gasket having an orifice through which intake gases may pass to the cylinder and over which orifice is extended a wire screen, the meshes of which are substantially more open towards the center and contiguous to the margins of the opening of the said gasket, the open meshed portion of the screen being also offset or eccentric relative to the opening whereby a greater expanse of the finer mesh is provided contiguous to the lower margin of the opening than to the upper margin thereof.

All of which is more particularly described hereinafter, by way of example, having reference to the accompanying drawing, wherein

Figure 1 is an elevation showing the application of my improved device to the connection between the carburetor and cylinder of an engine;

Figure 2 is a detail elevation of the gasket removed;

Figure 3 is a plan of the same;

Figure 4 is an elevation of a modified form of the device;

Figure 5 is a plan, partly in section of such modified form.

Similar characters of reference indicate similar parts in the several figures of the drawings.

1 indicates a carburetor from which an intake pipe 2 leads to the cylinder 3 of an internal combustion engine, the said intake pipe being flanged at 4 and secured to the said cylinder by bolts 5; and between the flanged portion of the intake pipe and the said cylinder is inserted a gasket 6 having a central orifice 7, the said gasket being of any suitable material for the purpose such for instance as a layer of asbestos 8 secured between metal strips 9 and 10 as by means of tongues 11 formed on one of the metal strips and bent over the other of the said metal strips as shown.

Carried by the said gasket and extending over the orifice thereof is a screen 12, part of which is of open mesh 13 and part of which is of closer mesh 14, the closer meshed portions being contiguous to the margins of the said orifice 7.

When intake gases are admitted to the cylinder, the less completely vaporized portions of the gas have a tendency to flow contiguous to the walls of the intake pipe and are consequently interrupted by the finer meshed portions 14 of the screen, the better vaporized gas being admitted through the more open mesh of the screen towards the center of the orifice, and as the said poorly vaporized gas is heavier than that more completely vaporized it has a tendency to flow through the lower part of the orifice for which reason the finer mesh of the screen is extended to a greater distance from such margin than it is from the upper margin of said orifice.

The securing of a wider mesh in the central portion of the screen may be effected by clipping off and removing some of the strands from the screen as seen in Figure 2, or two screens may be used as shown in Figures 4 and 5, one screen 16 extending completely across the opening and the other screen 17 having its central portion cut away so that two thicknesses of screen are provided about the margins of the opening and only one thickness towards the center of the opening.

The arrangement in Figures 4 and 5 also provides for the movement of the screen so that it may be rendered inoperative, such as when the engine is idling, the gasket 18 in this case being in the form of a housing for a rotatable frame 19 which may be moved, in the manner of a butterfly valve, by means of an actuating rod 20.

This invention may be developed within the scope of the following claims without departing from the essential features of the said invention, and it is desired that the specification and drawing be read as merely illustrative and not in a limiting sense, except as necessitated by the prior art.

What I claim is:—

1. A mixing device insertable between the intake pipe and cylinder of an internal combustion engine for the screening of wet gases entering the said cylinder, comprising a gasket having an orifice for the passage of gases therethrough, and a vertically disposed screen carried by said gasket and extending across the orifice thereof, said screen being of closer mesh adjacent the margins of said orifice than towards the center thereof, and the wider meshed portion of said screen being disposed substantially towards the upper margin of said orifice.

2. A mixing device insertable between the intake pipe and cylinder of an internal combustion engine for the screening of wet gases entering the said cylinder, comprising a gasket having an orifice for the passage of gases therethrough, and a vertically disposed screen carried by said gasket and extending across the orifice thereof, said screen including an eccentric portion disposed towards the upper margin of said orifice of wider mesh than the surrounding marginal portion of said screen.

In testimony whereof I affix my signature.

ELIZABETH THORNTON.