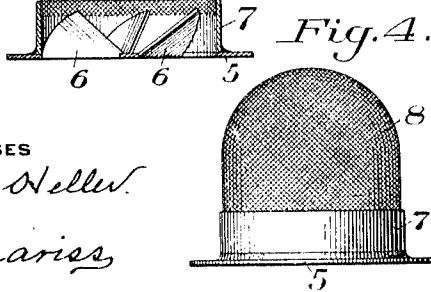
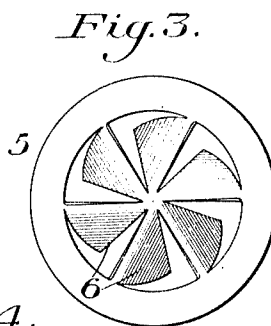
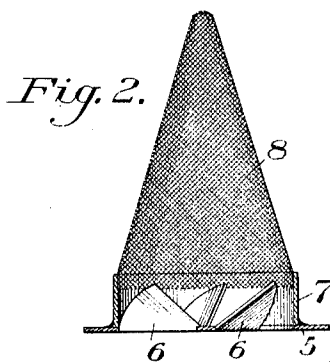
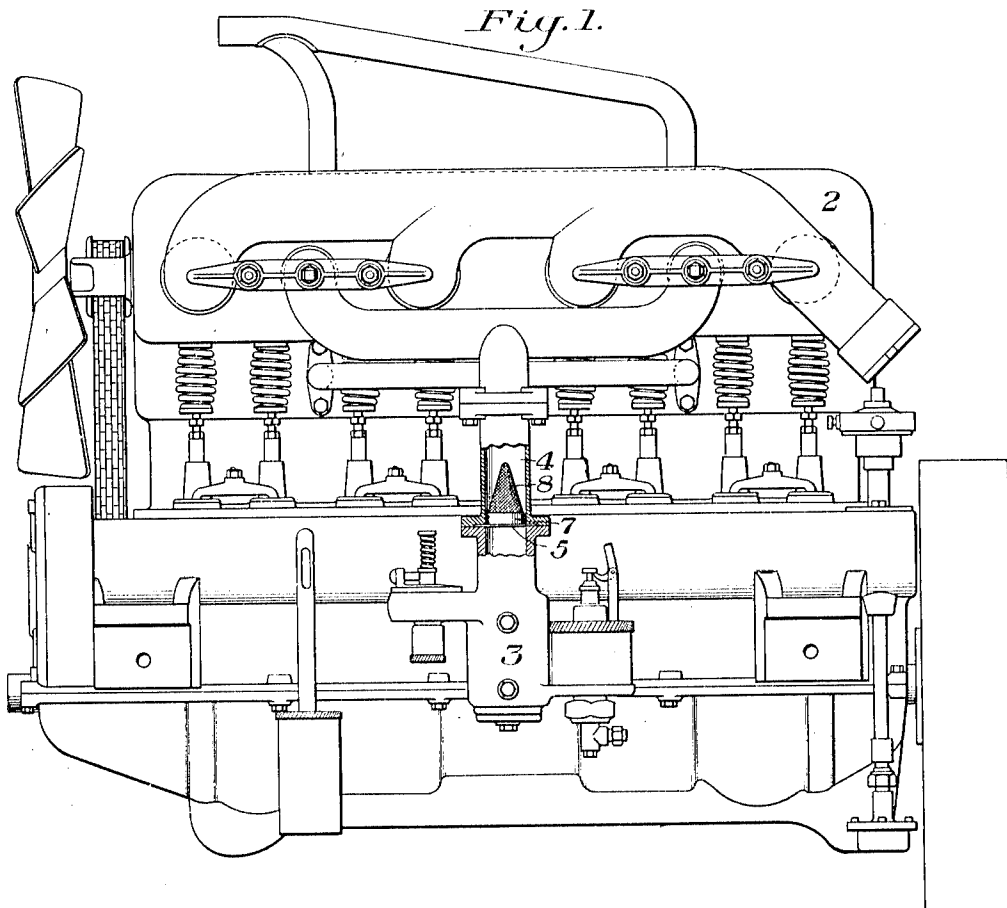


F. E. BACHMAN.
MIXER FOR GASEOUS FUEL.
APPLICATION FILED OCT. 9, 1911.

1,061,655.

Patented May 13, 1913.



WITNESSES

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UNITED STATES PATENT OFFICE.

FRANK E. BACHMAN, OF PORT HENRY, NEW YORK.

MIXER FOR GASEOUS FUEL.

1,061,655.

Specification of Letters Patent.

Patented May 13, 1913.

Application filed October 9, 1911. Serial No. 653,683.

To all whom it may concern:

Be it known that I, FRANK E. BACHMAN, a resident of Port Henry, in the county of Essex, State of New York, have invented a new and useful Improvement in Mixers for Gaseous Fuel, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation of a gas engine showing my invention applied thereto, the pipe leading from the carbureter to the engine being partly broken away; Fig. 2 is a sectional view of the device embodying my invention; Fig. 3 is a bottom plan view of the same; and Fig. 4 is a side elevation of another form of screen.

My invention has relation to improvements in mixers for gaseous fuel, and is designed to provide a simple and efficient device capable of being placed in the intake pipe of an engine between the carbureter and the intake valves, for the purpose of producing more perfect vaporization of the liquid, such as gasoline, alcohol and the like allied substances used for fuel and carburation of the air mixed with them. The more nearly the fuel approaches its molecular size, the more closely will each particle be associated with the oxygen necessary for its combustion and the more rapid and complete will be its combustion when ignited. Rapid combustion is necessary for the development of the maximum initial pressure in an internal combustion engine; and high initial pressures and perfect combustion together produce the highest engine efficiency. Complete combustion also prevents fouling of the engine cylinders with carbon deposits.

My invention is designed to produce a more perfect vaporization of the fuel employed and its admixture with the air, thereby minimizing and very largely obviating the formation of carbon deposits in the engine which result in preignition, back-firing, leaky outlet valves, etc., and the power losses resulting therefrom; also to provide for a more even power development in the several cylinders of a multi-cylinder engine.

One feature of my invention consists in the employment of fixed baffle plates placed in the intake pipe of an internal combustion engine, between the carbureter and the intake valve, and which are arranged to change the direction of the gas flow, whereby the globules of liquid fuel are broken up

by the cross currents produced. I have further found that the best form of fixed baffle for such use is one which will give the gas a swirling motion. I have also found that when liquid fuel, such as alcohol or gasoline, flows on to a screen or wire gauze having small openings, its surface tension causes it to spread across the openings in an extremely thin film, similar to the walls of a soap bubble; and further, when gas or air passes through the openings of a screen so covered with the fuel film, the fuel is completely vaporized. I have further found that the efficiency of the gauze or screen is very greatly increased by causing the liquid fuel to flow on to the screen at any angle other than a right angle to its direction of flow, and that the particles of fuel and the carbureted air which strikes the screen should have a swirling motion. To be effective, the screen openings should be small enough to allow the formation of a film by surface tension, and they should be of sufficient number to allow the free passage of the gas. A dome-shaped or conical screen placed with its base toward the carbureter apparently best fulfils the conditions, but other forms may be provided which will give satisfactory results.

In the accompanying drawings, the numeral 2 designates an internal combustion engine of the multi-cylinder type and 3 the carbureter.

4 designates the intake pipe leading from the carbureter. 5 designates the baffle which is placed in said pipe and which has a plurality of oblique fixed vanes or wings 6. The frame 7 of the baffle is shown as constituting a support for the wire gauze screen 8, having its base toward the carbureter. The wings or blades 6 act to change the direction of the gas flow, the cross currents produced breaking up the liquid fuel and the gas being given a swirling motion. The screen acts in the manner above described.

While the device is conveniently formed, as shown, by making the baffle or deflector act as a support for the screen it will be obvious that the baffle and screen need not be structurally combined.

I claim:

1. A device for use in the intake pipes of internal combustion engines, comprising a hollow fixed screen open at one end, and a series of obliquely placed fixed baffles located adjacent to the open end of the screen, said

baffles acting to change the direction of the air currents passing through the intake pipe and causing cross-currents which tend to break up drops of liquid fuel and to impart a swirling motion to the mixture of air and fuel within the body of the screen; substantially as described.

2. A device for use in intake pipes of internal combustion engines, comprising a supporting member having therein a series of fixed oblique vanes or baffles, and an elongated hollow screen closed at one end and having its open end secured to the supporting member, said screen having at least a portion of its surface at an angle to the longitudinal axis of the intake pipe; substantially as described.

3. A device for use in the intake pipe of

internal combustion engines, said device being located between the carbureter and the engine and acting upon the explosive mixture passing to the engine, and comprising a fixed screen surface at an oblique angle to the normal direction of travel of the mixture, and a plurality of fixed oblique baffle members arranged to act upon the mixture adjacent to the screen and to impart a swirling motion to the mixture, substantially as described.

In testimony whereof, I have hereunto set my hand.

FRANK E. BACHMAN.

Witnesses:

JNO. J. RING,
E. T. STOKES.