

Sept. 23, 1924.

1,509,718

J. A. DEPOTIE

MIXING DEVICE

Filed Dec. 10, 1923

Fig. 1.

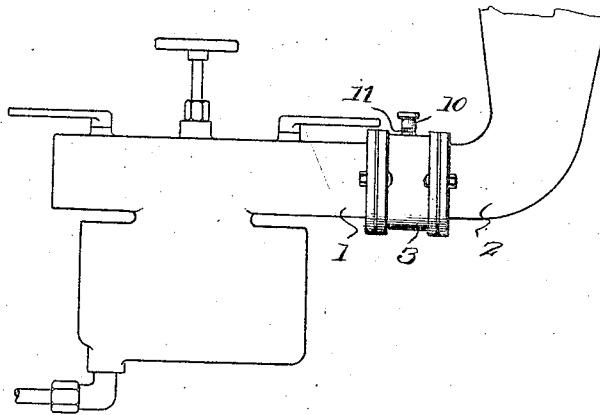


Fig. 2.

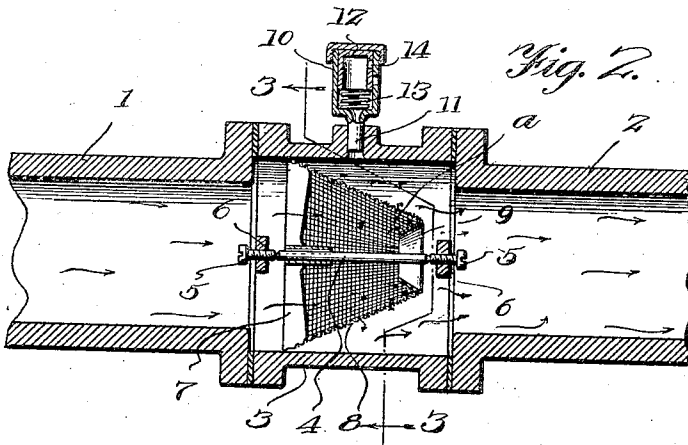
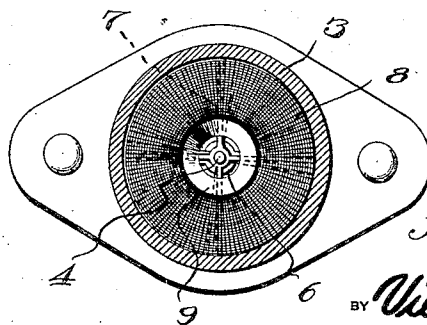


Fig. 3.



L. B. Middleton
WITNESS:

Joseph A. Depotie
INVENTOR

BY *Victor J. Evans*
ATTORNEY

UNITED STATES PATENT OFFICE.

JOSEPH A. DEPOTIE, OF CICERO, ILLINOIS.

MIXING DEVICE.

Application filed December 10, 1923. Serial No. 679,770.

To all whom it may concern:

Be it known that I, JOSEPH A. DEPOTIE, a citizen of the United States, residing at Cicero, in the county of Cook and State of Illinois, have invented new and useful Improvements in Mixing Devices, of which the following is a specification.

This invention relates to an attachment for internal combustion motors, the general object of the invention being to provide means for atomizing the explosive mixture before it enters the cylinders so as to render the same more combustible and thus increase the efficiency of the motor.

Another object of the invention is to provide an automatic air controlling device which will permit an additional supply of air to be mixed with the explosive charge when the engine is running at high speed.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a fragmentary view of an internal combustion engine showing my invention in use.

Figure 2 is an enlarged sectional view.

Figure 3 is a section on line 3—3 of Figure 2.

In these views, 1 indicates the outlet from the carbureter and 2 the inlet end of the intake manifold. My invention comprises a casing 3 which is located between the parts 1 and 2 so that the explosive mixture coming from the carbureter must pass through the casing in order to reach the intake manifold. A shaft 4 is journaled in the casing 3 by having its pointed ends engaging the recesses in the bearing pins 5 which are suitably supported by the cross pieces 6 in the casing. Propeller blades 7 are connected with the shaft and a screen 8 of frusto-conical shape has its large end connected with the outer ends of the blades so that the screen will rotate with the propeller. The small end of the screen is open and a ring 9 is suitably connected with the walls

of said opening and said ring extends within the screen, as shown.

From the above it will be seen that as the explosive mixture is drawn into the intake manifold by the suction created by the moving pistons the propellers will rotate and as the screen is connected therewith the screen will also rotate. The propeller blades tend to throw the explosive mixture through the screen though some of this mixture will pass through the opening at the small end of the screen. Some of the mixture will be caught between the screen and the ring 9 and this part of the mixture will be caused to circulate around the inner end of the ring, as shown by the small arrows *a*. This will produce a whirling action. This ring and parts of the screen act to slightly compress the gas, which action with the action of the screen, divides the mixture into such small particles that the fuel is thoroughly mixed with the air and the mixture has the highest combustible qualities.

I also provide an auxiliary air supply on the casing which consists of a cylinder 10 connected with the top of the casing 3 by the tubes 11 and having a piston 12 therein which is normally held in raised position by a spring 13. The spring normally holds the piston 12 in a position where the air inlet 14 of the cylinder is closed but when the speed of the engine reaches a certain point the suction created by the moving pistons will draw the piston 12 downwardly against the pressure of the spring 13 so as to open the air inlet 14 and permit an additional supply of air to enter the device which will be mixed with the combustible mixture passing through the same and thus act to make a leaner mixture. This device is wholly automatic and when the engine is run at low speed the spring will hold the piston 12 in raised position with the air inlet closed.

It is thought from the foregoing description that the advantages and novel features of my invention will be readily apparent.

I desire it to be understood that I may make changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:—

1. A mixing device of the class described comprising a casing adapted to be placed be-

tween the carbureter and intake manifold of an internal combustion engine, a propeller rotatably mounted in the casing and actuated by the vapors passing through the same, a frusto-conical shaped screen connected with the propeller for rotation therewith, said screen having its small end open and a ring member connected with the small end and extending inwardly for retarding the flow of some of the explosive mixture through the device.

2. A mixing device for an internal combustion motor comprising a casing adapted to be placed between the carbureter and intake manifold of an internal combustion

motor, a propeller rotatably mounted in the casing, a screen of frusto conical shape connected with the outer circumference of the propeller so as to rotate therewith, the small end of the screen being open, a ring member carried by the small end and extending inwardly, a cylinder connected with the casing and having an air inlet, a piston in the cylinder and a spring for normally holding the piston in position covering the inlet but permitting the piston to move to uncover the inlet when the speed of the engine reaches a certain point.

In testimony whereof I affix my signature.

JOSEPH A. DEPOTIE.