P. J. GEORGESON.

CARBURETED AIR MIXER.

APPLICATION FILED JUNE 9, 1911.

1,002,670. Patented Sept. 5, 1911.

Fig. 1.

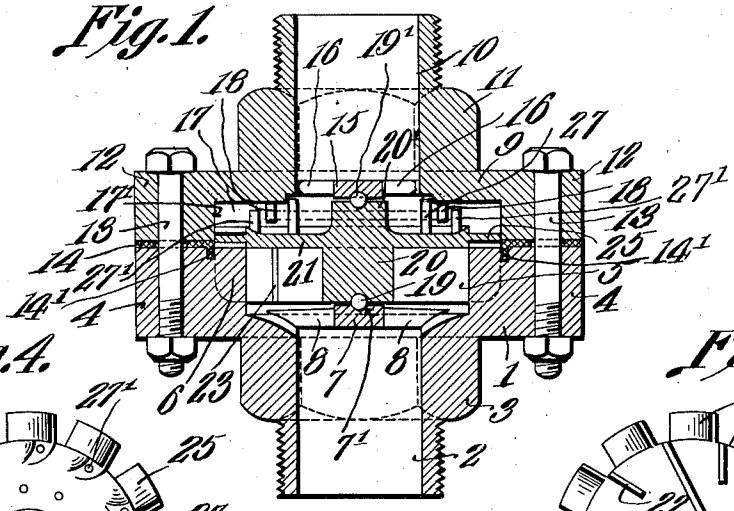


Fig. 4.

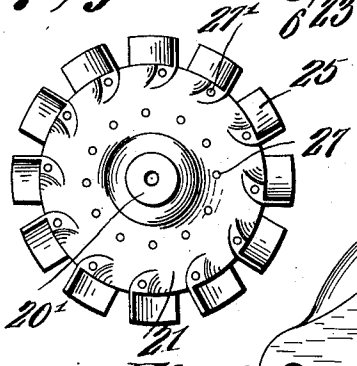


Fig. 5.

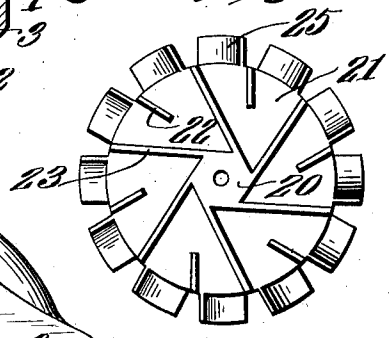


Fig. 6.

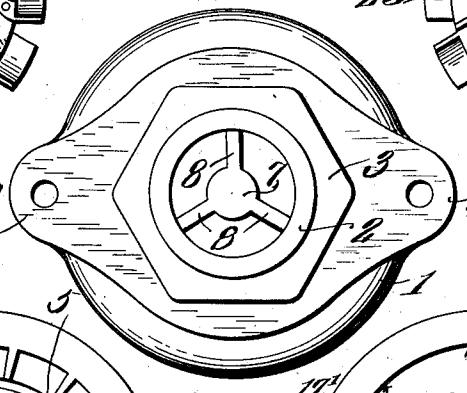


Fig. 2.

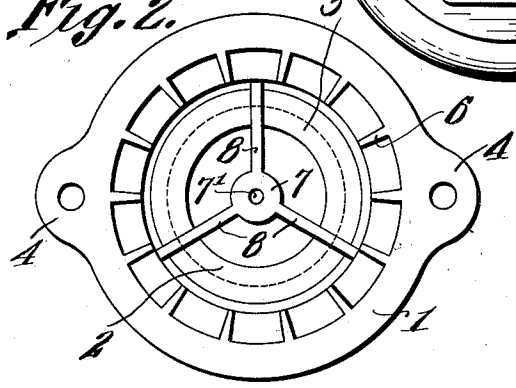
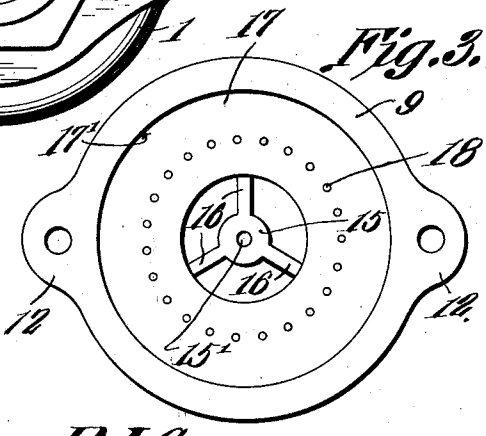


Fig. 3.



Witnesses

J. P. Tamin

L. H. Wilson

P. J. Georgeson, Inventor

by C. A. Snow & Co.

Attorneys

UNITED STATES PATENT OFFICE.

PETER J. GEORGESON, OF TUSTIN, WISCONSIN.

CARBURETED-AIR MIXER.

1,002,670. Specification of Letters Patent. Patented Sept. 5, 1911.

Application filed June 9, 1911. Serial No. 632,258.

To all whom it may concern:

Be it known that I, PETER J. GEORGESON, a citizen of the United States, residing at Tustin, in the county of Waushara and State of Wisconsin, have invented a new and useful Carbureted-Air Mixer, of which the following is a specification.

This invention relates to improvements in carbureted air mixers, the primary object of the invention being the provision of a mixing means, adapted to be inserted intermediate of a gas and air mixing device or carbureter in the manifold, leading to the intake of an explosive engine, whereby the air carbureted by the carbureter or other means beyond the mixer, may be thoroughly commingled and the streaks occasioned by the suction of the gas and air into the manifold, entirely obliterated, so that a better explosive mixture will be drawn into the engine, and thereby secure from said engine a greater unit of power with a minimum amount of gas consumption.

A further object of the invention is the provision of a carbureted air mixing device, which will mix the carbureted air passing therethrough, and be itself operated by the currents of the same passing therethrough, to thoroughly commingle the said carbureted air, thereby producing a better mixture of the gas and air and the consequent maximum amount of power therefrom.

A still further object of the invention is the provision of a casing or mixer having two stationary elements, in which is journaled a rotating element, said rotating element being provided with means which coact with projections in the other members of the casing, to provide a circuitous route within the casing and itself be rotated, so that the current of carbureted air passing from the gas mixer or carbureter through the manifold, will be acted upon so as to properly commingle and remove the streaks of gas and air, so as to produce a highly efficient explosive carbureted air, the current of said carbureted air passing through the mixing chamber producing the medium through which the fan or rotating member of the casing is rotated.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings—Figure 1 is a vertical central section through the carbureted air mixing device, Fig. 2 is a top plan view of the lower member thereof. Fig. 3 is a bottom plan view of the upper stationary member thereof. Fig. 4 is a top plan view of the rotating member. Fig. 5 is a bottom plan view thereof. Fig. 6 is a bottom plan view of the lower member of the casing.

Referring to the drawings, the numeral 1 designates the lower stationary member of the mixer, and is provided with the threaded inlet pipe 2, and the shoulder portion 3, whereby the device may be attached to the manifold of an explosive engine between the carbureter and the intake thereof. This stationary member 1 is provided with the oppositely extending eyed lug 4, the purpose of which will presently appear. A chamber 5 is provided in the casing 1 which is in communication with the inlet pipe 2, and upon the circumference or periphery of said chamber extending inwardly therefrom are a series of radial projections or stationary wings 6, while bridging the inlet of the casing 5 and supported centrally thereof, is a bearing disk 7, provided with the recess 7′, said bearing disk 7 being supported centrally through the means of arms 8 which form with said disk and the casing 1 a spider.

The upper stationary member 9 of the mixer, is provided with an outlet pipe 10, which is connected to the other section of the manifold and leads to the intake of the engine, the shouldered portion 11 being provided so that the said sections or member 9 may be secured to its proper member or section of the manifold. The upper stationary member 9 is provided with the oppositely extending eyed lugs 12, which are adapted to aline with the eyed lugs 4 of the stationary

member 1 and by means of eye bolts 13 passing through both of the corresponding lugs 4 and 12, securing the members 1 and 9 together, the gasket 14, being clamped thereby between the members 1 and 9 to form a gas tight joint between said members.

Mounted at the lower end of the outlet of the member 9, is a central disk 15 provided with a central recess 15′, said disk being supported centrally of the member 9 by means of the arms 16 which form a spider and provide a central bearing, as will presently appear. The member 9 is provided with the chamber 17, having a straight wall 17′, and depending from the upper portion thereof a short distance within the periphery or circumferential edge of the chamber 17, are a series of pins 18, which are arranged in a circle, as clearly shown in Fig. 3 of the drawings.

By means of the ball bearings 19 and 19′, which form the central axis of the rotating member, said rotating member is anti-frictionally supported between the disks 7 and 15 respectively, the hubs 20 and 20′ respectively, of the said rotating member being provided with recesses to receive the balls 19 and 19′, whereby the said disk is held in proper relation with the members 1 and 9. These hubs have extending therefrom the disk portion 21, which is provided upon its lower face, with the short peripheral and radially extending wings 22, and with the tangentially disposed wing 23, said wings having their inner ends connected to one of the hexagonal walls of the boss or hub 20 while their extreme ends extend to the periphery or circumference 21 of the rotating member, the said rotating member being provided upon its periphery or circumference at equal distances therearound, with a series of radiating and angularly disposed propelling and mixing blades 25. These mixing blades 25 are of such a length, when combined with the body of the rotating member to snugly pass within the ends of the stationary wings 6, of the lower member 1, and all of the said wings 6, 22 and 23, and the paddles or blades 25, are so disposed as to receive the carbureted air after leaving the lower end of the manifold into the chamber 5 of the member 1, where the current of carbureted air is given a mixing movement, the current of carbureted air acting upon the blades or paddles 25 to rotate the member so that the tangential wings 23 will impart a centrifugal action to the carbureted air and force the same toward the outer periphery or circumferential edge of the casing 5, where the stationary wings 6 and the angular blades 25 of the rotating member, will act upon the carbureted air and thoroughly commingle the same, the current of the carbureted air passing between the interstices of the stationary blades 6, rotating blades 25, to the upper chamber 17 of the member 9, where the circularly arranged and upwardly projecting pins 27 and 27′, arranged in two circular series, and adapted to straddle the depending pins 18 of the stationary member 9, will again impart a mixing action to the current of carbureted air, thus insuring a thorough mixing or commingling thereof, all of said carbureted air being drawn through the outlet 10 into the manifold and to the intake valves of the explosive engine.

From the foregoing, it is evident that a carbureted air mixing device is provided, which is very easily attached between the carbureter or gas mixer and in the manifold of an explosive engine, whereby any form of carbureter may be employed which will permit a carbureted air to be drawn to the explosive engine through this carbureted air mixing device, this carbureted air mixing device, being so constructed as to thoroughly commingle and wipe out the streaks of gas and air in the carbureted air as it leaves the carbureter, and which is often the case when the carbureted air is drawn through many forms of carbureters directly to the intake valves of an engine. By this means a too rich explosive mixture is prevented, and a thorough commingling of the gas and air is absolutely assured, and by this assurance the maximum amount of power is developed in the engine with the minimum amount of gas or gasolene consumption.

By constructing the mixing device of the two stationary members, each one of which carries the peculiar stationary mixing devices, the rotatable member disposed between said members and in the path of the current of carbureted air from the carbureter or gas mixer through the manifold of the engine to the intake valves of the explosive engine, the carbureted air is acted upon and it, itself provides a motor power for operating the rotating member of this device, the said rotating member of this device being provided with coacting means upon both sides and its periphery, whereby the thorough commingling of the gas and air is assured, thus producing a thoroughly commingled carbureted air for the engine consumption.

What is claimed is:

1. A mixer for carbureted air, having two stationary members forming a casing, each one of which is provided with a series of mixers projecting into the casing, and a rotating carbureted air propelled member having mixers upon the sides thereof to coact with the mixers in the casing.

2. A mixer for carbureted air, having two stationary members forming a casing, each

one of which is provided with mixing devices projecting into the casing, and a rotating carbureted air propelled member having mixers upon each side thereof to coact with the mixers within the casing, and having a series of peripheral radiating propelling blades.

3. A mixer for carbureted air, having two stationary members forming a casing, said casing being provided with an inlet and an outlet, a series of stationary mixing devices carried by each member and projecting into the casing, and a rotating carbureted air propelled member having mixers upon each side thereof adapted to coact with the mixing devices of the members within the casing.

4. A mixer for carbureted air having two stationary members, said stationary members forming a casing, with inlet and outlet ports, stationary mixing devices carried by each member and projecting into the casing and in the path of flow of carbureted air from the inlet to the outlet, and a rotating carbureted air propelled member journaled within the casing and having mixing devices carried upon both sides thereof adapted to coact with the mixing devices within the casing and be propelled by the current of carbureted air passing from the inlet through the casing and outlet.

5. A mixer for carbureted air having two stationary members forming a casing, and having an inlet and outlet leading therein and therefrom, one of said members being provided with circumferentially disposed inwardly extending stationary blades, the other section being provided with a series of downwardly projecting concentrically disposed mixing devices, and a rotating member journaled in the casing, and provided with coacting mixing devices.

6. A mixer for carbureted air having two stationary members forming a casing with an inlet and outlet adapted to be attached in the manifold of an engine; mixing devices mounted in the casing one series being at right angles to the other series, and a rotating member disposed within the casing and provided with coacting mixing devices to coact with respect to the mixing devices of the casing.

7. A mixer for carbureted air having two stationary members forming a casing with an inlet and outlet adapted to be connected intermediate of the ends of a manifold of an explosive engine, a series of circumferentially disposed stationary wings carried by one member within the casing, a series of concentrically arranged mixing devices carried by the other member intermediate of the axis and periphery of the chamber, a movable or rotating member journaled within the casing, and blades upon the periphery thereof adapted to be acted upon by the carbureted air to propel the rotating member and coact with the mixing devices within the casing to commingle and mix the carbureted air passing from the inlet through the outlet of the casing.

8. A mixer for carbureted air, having two stationary members forming a casing, said casing being provided with an inlet and outlet, a series of peripheral stationarily mounted wings carried in the lower member of the casing and projecting inwardly in the casing, a series of concentrically arranged downwardly projecting mixing devices carried by the upper member and within the casing, and a carbureted air propelled mixer journaled within the casing and operably disposed with relation to the wings and mixers of the casing.

9. A mixer for carbureted air, comprising a casing having an inlet and an outlet adapted to be connected to the manifold of an explosive engine, a series of stationary mixers mounted in the casing, a disk rotatably mounted within the casing and dividing the same into an upper and lower chamber, and coacting mixing means carried by the said rotating disk.

10. A mixer for carbureted air having a casing with an inlet and an outlet, two series of mixing devices mounted therein, a rotating disk mounted in the casing and dividing the same into an upper and lower chamber, mixing devices carried upon the respective sides of said disk, and angularly disposed propelling and mixing blades mounted upon the periphery of said disk.

11. A mixer for carbureted air, having a casing with inlet and outlet ports, a series of circumferential inwardly projecting stationary wings mounted in the lower portion of the casing, a series of concentrically arranged downwardly projecting pins carried by the upper section within the casing, a disk rotatably mounted within the casing and dividing the casing into an upper and lower communicating chamber, propelling blades upon the periphery of said disk, series of blades carried upon the lower side of said disk, and two series of concentric pins carried upon the upper side of said disk.

12. A mixer for carbureted air, having a chamber with inlet and outlet ports, a series of circumferentially disposed stationary wings mounted in the lower portion of the casing, a series of concentrically arranged downwardly extending pins carried by the upper wall of the casing and projecting downwardly therefrom, a rotating disk mounted in the casing and dividing the same into an upper and lower chamber, a series of propelling and mixing blades pe-

ripherally disposed and carried by said disk, a series of wings carried upon the lower face of said disk, and a double row of concentrically arranged pins carried by and projecting from the upper side of said disk and adapted to straddle the pins of the chamber.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

PETER J. GEORGESON.

Witnesses:

JAMES A. HOOLGOOD,

BEN. A. BARR, Jr.