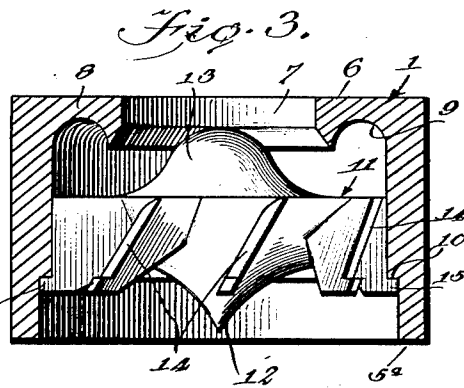
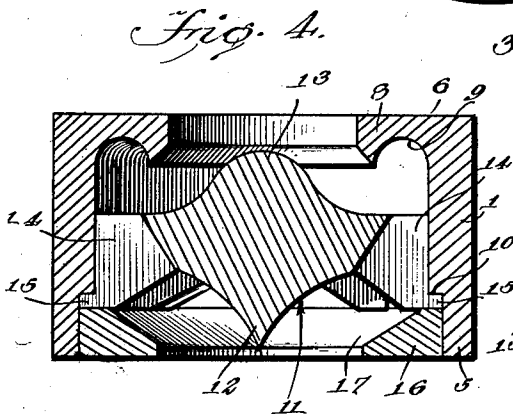
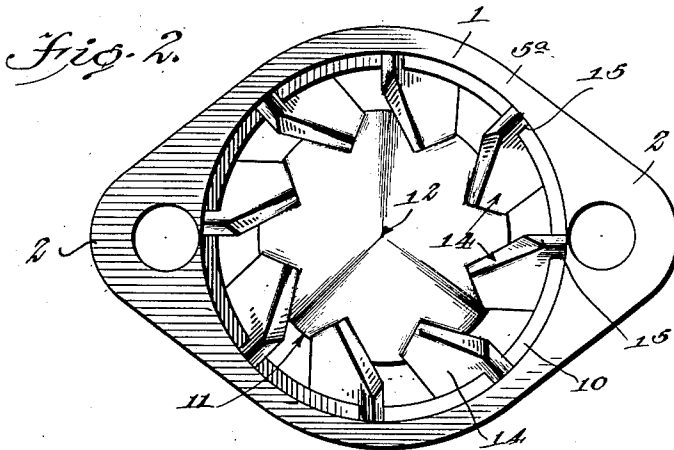
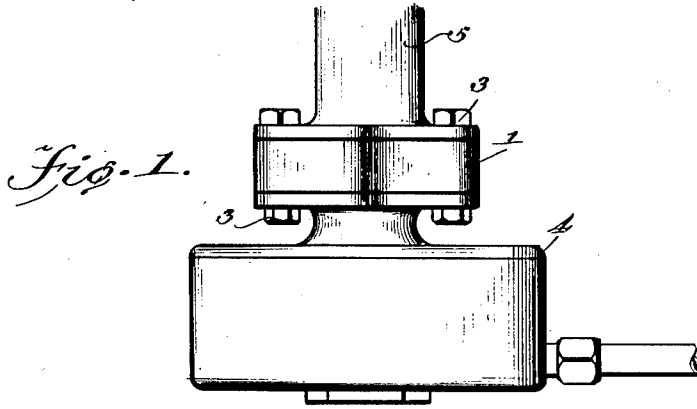


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J. R. HALTERMAN
CENTRIFUGAL VAPORIZER

Filed Oct. 27, 1924



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UNITED STATES PATENT OFFICE.

JAMES RAYMOND HALTERMAN, OF CAIRO, ILLINOIS.

CENTRIFUGAL VAPORIZER.

Application filed October 27, 1924. Serial No. 746,150.

To all whom it may concern:

Be it known that I, JAMES R. HALTERMAN, a citizen of the United States, and a resident of Cairo, in the county of Alexander and State of Illinois, have invented certain new and useful Improvements in Centrifugal Vaporizers, of which the following is a specification.

This invention is an improvement in centrifugal vaporizers.

The general object of this invention is to improve combustion in automobile motors.

A further object of the invention is to provide a device for this purpose which violently whirls and agitates the mixture of air and fuel, after it leaves the carbureter, in such a manner that the less volatile portions of the fuel will be reduced to a fine mist and uniformly mixed with the air, thus producing a mixture which will burn rapidly and completely in the combustion chambers.

With these and other objects in view, as will appear as the description proceeds, this invention consists of the novel features of construction, combinations of elements and arrangements of parts hereinafter to be fully described and claimed.

A full and complete understanding of the invention may be obtained from a consideration of the following detailed description, taken in connection with the accompanying drawing forming a part of this specification, it being understood that while the drawing shows a practical form of the invention, the latter is not to be confined to strict conformity with the showing thereof, but may be changed or modified, so long as such changes and modifications mark no material departure from the salient features of the invention specifically pointed out and claimed.

In the accompanying drawing wherein similar reference numerals designate similar parts throughout the several views,

Figure 1 is a plan view illustrating the device of this invention operatively associated with the carbureter and manifold,

Figure 2 is a bottom plan view of the device with the retaining ring removed,

Figure 3 is a sectional view taken on the line 3—3 of Figure 2, and looking in the direction of the arrows, the inner body being shown in side elevation to illustrate the details of its construction, and

Figure 4 is a similar view completely in section and showing the retaining ring in position.

Referring to the specific embodiment of the invention illustrated in the drawing, the numeral 1 designates the main body or casing which has the laterally extending apertured ears 2 for receiving the bolts 3 which secure it in operative position between the carbureter 4 and the inlet duct 5 of the manifold of a gas engine.

The body 1 is centrally bored from its bottom 5^a to a point adjacent the top 6 which is apertured as at 7 to define the inwardly extending annular flange 8. The inner surface of flange 8 is machined to provide the semi-circular annular groove or deflecting surface 8. The bore of the body 1 adjacent the bottom 5 is of greater diameter than the upper portion and terminates at the shoulder 10. This shoulder acts as a stop for the inner breaker section 11 about to be described.

The breaker section 11 is circular in horizontal cross section and its sides taper somewhat irregularly from an intermediate point toward each end, the lower portion 12 being substantially conical in form and terminating in a point at the center while the sides of the upper portion 13 are substantially S-shaped and meet to form a substantially hemispherical center.

To the lower portion of the conical bottom 12 are rigidly secured a plurality of spaced parallel and radially extending fins or vanes 14 having projections 15 at their lower ends for engagement with the shoulder 10 to properly position the breaker section 11 within the body 1.

An annular ring 16 is forced within the enlarged portion of the body 1 or is otherwise secured thereto and in engagement with the top of the vanes 14 and prevents movement of the breaker section 11 relative to the body 1. The inner upper edge of the ring 16 is chambered, as at 17, to aid in directing fluid passing through the body toward the vanes 14.

The operation of the device is as follows: In internal combustion engines the fuel and air is drawn into the cylinders by reason of the partial vacuum formed therein when the engine is running. This device being located between the carbureter and manifold will have all of the fuel and air used by the engine forcibly drawn through it.

The conical bottom 12 serves to spread the incoming mixture outwardly where it encounters the radially extending vanes 14,

which, by reason of the fact that they are disposed at an angle to the axis of the breaker section 11, cause the mixture to travel in a circular direction about the bore of the body 1. This circular motion continues until the mixture strikes the outer edge of the semi-circular groove 9 when it is thrown back against the curved sides of the lower portion 13.

10 The unvaporized particles of the fluid will, by reason of their momentum, be thrown back against the incoming mixture and will again whirl around in the groove 9 in contact with the incoming mixture while the vaporized portion of the fuel and the air being much lighter will be drawn inwardly toward the engine.

From the foregoing description, it will be evident that this device, by supplying a uniform mixture at all speeds will make it possible for the motor to idle smoothly and to accelerate quickly, without any tendency of the motor to load or choke and also eliminate the tendency of the motor to load when running under heavy load with the throttle wide open.

The more perfect vaporization of the fuel obtained by the use of this device will decrease the tendency of the fuel to condense before ignition is effected and thus prevent to a great extent, the dilution of the lubricating oil in the crank case.

Less heating of the air going into the carbureter being required, a greater heat range in combustion will be obtained and greater economy of fuel will be effected by the more perfect combustion.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent:

1. A device of the class described, comprising a casing adapted to be operatively mounted between the carbureter and manifold of a gas engine, said casing being provided with an inwardly opening annular groove at one of its ends and an annular shoulder spaced from its other end, an inner circular breaker section having its sides tapering from an intermediate point toward each end, a plurality of spaced parallel vanes extending at an angle from said breaker section, projections on said vanes for engagement with the shoulder, and an annular ring fitting tightly within the casing and engaging the vanes to maintain said breaker section in fixed position within the casing.

2. A device of the class described, comprising an open ended casing, a breaker section operatively mounted within the casing,

60 vanes extending at an oblique angle from said section for causing the gaseous mixture to whirl around in the casing about the longitudinal axis thereof, means for directing fluid entering the casing past said vanes, and means for causing the heavier particles of the fluid to travel in a circular path within the casing about an axis at right angles to the longitudinal axis of the casing and while the vaporized portions pass out of the body.

3. A device of the class described comprising a casing adapted to be mounted between the carbureter and manifold of a gas engine, said casing being provided with a semi-circular inwardly facing annular groove around the exit end of its inner periphery, a breaker section having sides tapering from an intermediate point toward each end, and a plurality of spaced vanes extended at an angle from the breaker section, said vanes being located around the intermediate portion of the breaker section and terminating short of its ends.

4. A device of the class described comprising a casing adapted to be mounted between the carbureter and manifold of a gas engine, said casing being provided with a semi-circular inwardly facing annular groove around the exit end of its inner periphery, a breaker section having sides tapering from an intermediate point toward each end, and a plurality of spaced vanes extended at an angle from the breaker section, said vanes being located around the intermediate portion of the breaker section and terminating short of its ends, the breaker section merging to a point at the inlet end of the casing and having a rounded end at the exit end of the casing.

5. A centrifugal vaporizer comprising a casing, an opening for inlet at one end and for exit at the other end and provided at the exit end with an annular inwardly facing gutter around its inner peripheral wall and a breaker section in the casing and having angled vanes below said gutter designed to set the incoming gases into a whirling motion about the longitudinal axis of the cylinder, the heavier particles being thrown against the inner peripheral wall of the casing by the action of centrifugal force and being further whirled around in the gutter about an axis extending at right angles to the longitudinal axis of the casing, said breaker section having a rounded end disposed to be impinged by the particles deflected from the gutter.

JAMES RAYMOND HALTERMAN.