

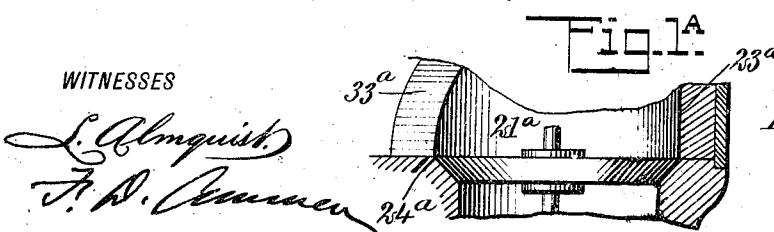
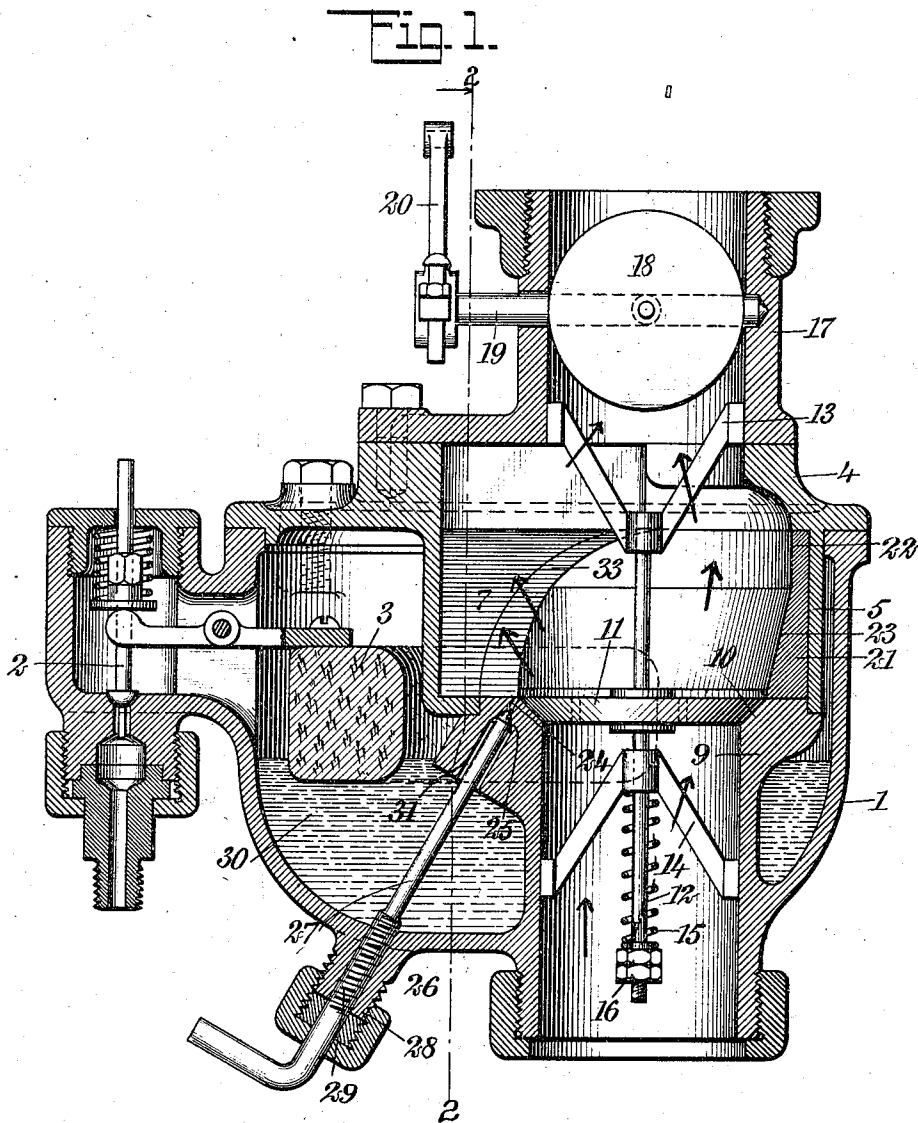
P. J. DASEY.
CARBURETER.

APPLICATION FILED JAN. 2, 1909.

950,278.

Patented Feb. 22, 1910.

2 SHEETS—SHEET 1.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 2.

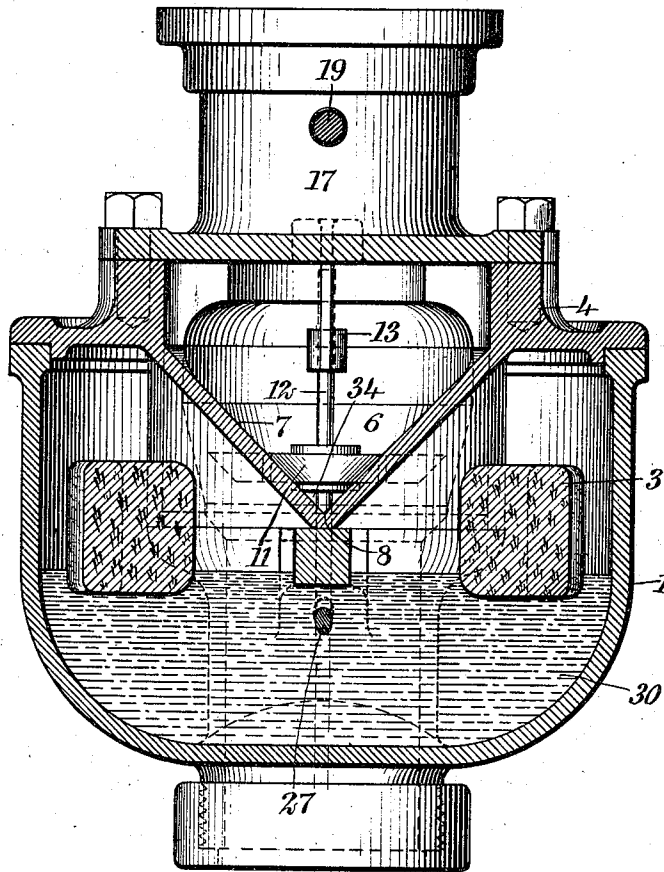
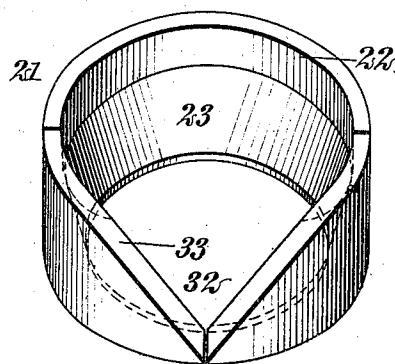


Fig. 3.



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UNITED STATES PATENT OFFICE.

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CARBURETER.

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To all whom it may concern:

Be it known that I, PERCY J. DASEY, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Carbureter, of which the following is a full, clear, and exact description.

This invention relates to carbureters such as used in connection with gas engines.

The object of the invention is to produce a carbureter having an improved construction which operates to draw the air in a concentrated current directly across the fuel opening from the admission valve. At this point a gap is provided through which the air flows, and the opening enlarges in an increasing ratio as the valve rises from its seat. In this way, a sufficient supply of air is assured, and an efficient carbureting is also assured, for the reason that an air current is always drawn over the fuel admission. In some instances, it may be desired to direct only a portion of the air across the admission point of the fuel, and the construction which I provide renders this possible, so that a certain proportion of the air admitted may escape through the valve without passing through the gap at the fuel inlet.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical section through a carbureter constructed according to my invention; Fig. 1^a is a fragmentary vertical section showing the construction when all the air flowing through the valve is drawn across the fuel inlet; Fig. 2 is a vertical section through the carbureter taken on the line 2—2 of Fig. 1 and looking toward the right as indicated by the arrow; Fig. 3 is a perspective of a valve ring which constitutes a feature of the invention, and Fig. 4 is a cross section through a portion of the carbureter just above the valve and taken in the plane of the line 4—4 of Fig. 1.

Referring more particularly to the parts, 1 represents the bowl of the carbureter, which is provided at one side with a float

valve 2 through which the liquid fuel is admitted to the bowl, the flow through this valve being regulated by a float 3 of common form. On the upper edge of the bowl 1, a cover 4 is seated. The lower edge of this cover 4 is formed into a substantially cylindrical body 5, which projects down into the interior of the bowl, as shown. At one side, as indicated in Fig. 2, the wall of this body is not cylindrical, but is formed into an outwardly projecting V-shaped pocket 6 presenting an end wall 7^a and two inclined bottom faces 7 which incline upwardly and oppositely so that they form a V-shaped notch or angle 8 having its vertex at their meeting line. The inner portion of the bowl is formed into an upwardly extending tubular sleeve 9, through which the air passes upwardly. At the upper end of this sleeve, a conical seat 10 is formed for a disk valve 11, said valve being rigidly attached to a vertical stem 12 which slides vertically through guide brackets 13 and 14 arranged as shown. The bracket 14 is attached to the interior of the sleeve 9, and below it a coil spring 15 is provided, which thrusts downwardly against check nuts 16 placed on the stem, as shown in Fig. 1. This spring affords means for regulating the lifting force of the valve, and by increasing the tension of the spring, the force necessary to raise the disk valve from its seat is increased.

On the upper side of the cover 4, a throttle valve housing or case 17 is attached, the body of which is tubular, as shown, so as to direct the carbureted air upwardly. In this case 17, a throttle disk 18 is rotatably mounted, being attached to a transverse stem 19. To this stem 19 a throttle lever 20 is rigidly attached, as indicated.

On the upper end of the sleeve 9, a valve ring or regulator 21 is provided. This regulator consists of a ring having a notch or gap in its wall on one side adjacent to the fuel inlet, and having an annular wall, the form of which determines the distribution of air flowing through the carbureter. In Figs. 1 and 3, I illustrate a form of ring in which a portion of the air passes up around the valve without passing through the notch, the outer side of which ring fits against the inner face of the cylindrical portion of the wall of the body 5. The upper portion of the ring 21 presents a cylindrical bore 22, whereas the lower portion presents

a conical bore 23, the diameter of which increases in an upward direction; that is, in the direction in which the air is admitted through the valve.

Near the seat 10 of the air valve, a fuel inlet opening 24 is provided, and below this opening, a conical seat 25 is formed for a needle valve or spray valve 26, said valve having a stem 27 which extends outwardly from a stuffing box 28 through the lower portion of the bowl, as indicated. This stem 27 is provided with threads 29 in the usual manner, so that by rotating the stem, the position of its conical point with respect to the seat 25 may be regulated, in this way controlling the extent of opening through which the fuel may pass. The fuel 30 within the bowl passes upwardly to the opening 24 by a bore 31 which receives the inner end of the stem 27, but which is larger than the stem, as shown. On the side of the ring 21 which is disposed toward the V-pocket 6, the ring is formed with a deep V-shaped notch 32 presenting inclined edges or faces 33. These inclined faces 33 coincide with the inclined faces 7 of the V-shaped pocket 6, and guide the air out into the pocket.

As illustrated in Fig. 1^a, a ring 21^a is provided in addition to the ring 21; this ring has the same form as the ring 21 except that it has a cylindrical bore 23^a of substantially the same diameter as the disk. These rings are interchangeable, and when this ring is in position, there is no annular gap formed around the valve disk as it rises from its seat and all the air going to the engine passes through the notch 33^a across the fuel inlet 24^a.

From an inspection of Fig. 2, it will be observed that when the valve disk 11 rises from its seat, a triangular shaped opening 34 is formed, which permits the air to flow from the sleeve across the fuel opening 24, into the pocket 7, and it will be evident that as the valve disk rises farther from its seat, the area of this triangular opening becomes increased. It will be evident also that as the valve disk rises from its seat, a gap is formed between its edge and the conical bore 23 of the valve ring, and, furthermore, as the valve rises, the area of this annular gap becomes increased. I provide several rings similar to the ring 21, but having differently formed bores; the ratio of the air admitted around the edge of the valve to the volume which passes directly across the fuel inlet and through the notch, can be very nicely regulated, and different effects produced in the operation of the valve, by using the different rings. In using the carbureter with a certain engine that ring will be chosen which produces the best results. The air which passes across the fuel inlet 24 passes out into an enlarged upper chamber 4^a. This chamber presents a cir-

cular wall at one end conforming to the curvature of the valve housing 17. The other end of the chamber is of substantially rectangular form and the base of the valve housing is extended laterally so as to form a cover for the chamber as will be readily understood. From the chamber 4^a the carbureted air flows into the valve casing 17, where it mixes with the uncarbureted air which flows up around the valve disk. The air admitted in the annular gap around the valve disk, has the effect of relieving the pull or vacuum which is exerted by the pistons on their intake stroke. In other words, if the carbureter is "drawing" too hard for a given amount of opening at the V-notch, it may be made to "draw" easier by substituting a ring in which the conical bore is more inclined; that is, it may be relieved by increasing the relative area of the annular gap.

In the operation of the carbureter, it will be seen that a higher engine speed will tend automatically to raise the valve higher from its seat, giving a greater opening or area across the fuel inlet.

From the foregoing it will be seen that the pocket 7 is disposed at the side of the space above the valve disk 11, and it is the function of the notch to guide the air from under the disk out into the pocket. If the regulator ring 21^a is employed no air will pass up around the edge of the valve disk and all of the air that passes through the carbureter to the engine will pass laterally through the notch and into the pocket 7; from the pocket the air will pass upwardly so as to pass by the throttle valve 18. With a regulator ring 21 such as that shown in Fig. 1, as soon as the disk rises from its seat it will not only produce an opening at the apex of the notch through which the air can escape from under the valve disk, but it will also produce an annular space around the edge of the valve disk. Under these circumstances a certain amount of air will escape through the notch into the pocket 7 and pass over the fuel inlet; this air will be thoroughly carbureted. The air passing up in the annular space around the edge of the valve at other points will not be carbureted but will mix with the carbureted air which comes through the notch. The flow of the air through the carbureter is fully shown by the arrows in Figs. 1 and 2.

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

1. A carbureter having a valve and a seat from which said valve may rise to admit air, a member adjacent to said valve and having an opening through which the air flows in passing from said valve, the edges of said opening diverging from each other and forming an angle widening in the direction

in which the valve moves in opening, and means for admitting a liquid fuel at the vertex of said angle in the path of the current of air flowing through said opening.

5 2. A carbureter having an annular valve-seat and a disk valve adapted to rise from said seat to admit air, and a member having a notch formed at one side thereof through which the air passes outwardly at said valve, said member at a point remote from said notch having a curved wall adjacent to the edge of said valve and means for admitting fuel in the course of the air directed through the notch.

15 3. A carbureter having a valve disk and a seat from which said disk may rise, a ring substantially encircling said disk when raised from its seat, said ring having a bore receding outwardly and having a notch in one side thereof, said notch being adapted to form an opening when said disk is raised, through which a portion of the air will pass, and means for admitting a liquid fuel in the vicinity of said notch.

25 4. A carbureter having a valve seat and a valve disk adapted to rise therefrom to admit air, and a removable ring having an annular wall surrounding said disk and having a notch in the edge thereof at one side, said carbureter having a fuel inlet near said notch, said notch opening communication with the space under said disk when the valve is open whereby an air current is directed across said fuel inlet.

35 5. A carbureter having a valve disk and a seat from which said disk may rise to admit air, a ring having a bore and having a notch in one side thereof through which notch the air may flow when said disk rises from said

seat, a cover having a pocket coinciding with said notch and into which the air may flow from said notch, said pocket leading the air to the outlet from said carbureter and means for admitting a liquid fuel in the vicinity of said notch.

45 6. A carbureter, having a bowl presenting a valve seat to admit air, a valve adapted to rise from said seat, a ring adapted to surround said valve when raised from its seat, presenting a conical bore and having a V-shaped notch at one side thereof, said V-shaped notch forming an opening through which a portion of the air may pass by said valve, means for admitting a liquid fuel adjacent said notch, and a cover seating on said bowl and having a V-pocket disposed opposite said notch, said pocket leading the air to the outlet from said carbureter.

70 7. A carbureter having a valve seat and a disk adapted to rise from said seat to admit air, said valve having a wall encircling the space above said seat lying adjacent to the path of the edge of said valve and receding therefrom in an upward direction, said carbureter further having a pocket at the side of said valve leading to the outlet, and a fuel inlet adjacent said pocket, said pocket being arranged to communicate with the space under said disk when said disk rises and affording means for directing an air current radially across said inlet into said pocket.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PERCY J. DASEY.

Witnesses:

F. D. AMMEN,
JOHN P. DAVIS.