

A. COSTA.
CARBURETER.
APPLICATION FILED OCT. 18, 1916.

1,293,348.

Patented Feb. 4, 1919.

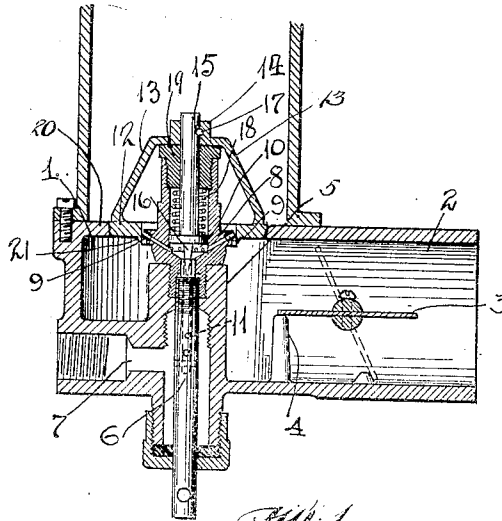


Fig. 1

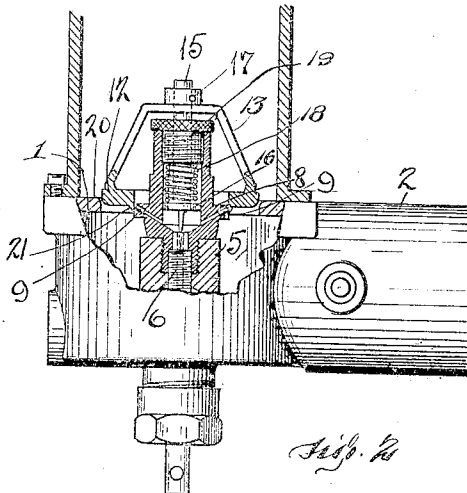


Fig. 2

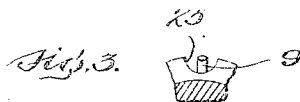


Fig. 3

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UNITED STATES PATENT OFFICE.

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CARBURETOR.

1,293,348.

Specification of Letters Patent.

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Application filed October 13, 1916. Serial No. 136,814.

To all whom it may concern:

Be it known that I, ANTHONY COSTA, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Carburetors, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The present improvements, relating as indicated to carburetors, have more particular regard to an improved form of air valve shown in my co-pending application Serial No. 64,911, filed December 3, 1915. In such application I have shown and claimed connected throttle and air valves which operate in unison with a certain degree of lost motion, and can be adjusted to regulate the time of opening of each. To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—

Figure 1 is a vertical, central section through the mixing chamber of the carburetor in which my invention is used, showing the air valve in its closed position; and Fig. 2 is a side elevation partially in section, showing the air valve only partially open; and Fig. 3 is a partial plan view of the disk carrying the fuel nozzles.

In Fig. 1 there is shown a mixing chamber 1 of the carburetor, provided with a lateral extension 2 serving as an air inlet conduit, and having therein an adjustable air throttle or valve 3 which may be set at any desired position, and may be held wide open by means of the stop 4. Disposed centrally in the chamber 1 is an upright boss forming a conduit 5 in which there is adjustably mounted the fuel supply conduit 6, fuel being admitted to the conduit 5 by means of a lateral opening 7 thereinto. Mounted in the top of the conduit 5 is a disk 8 provided with a plurality of radially disposed and upwardly inclined fuel nozzles 9, all of which

lead to a central chamber 10 formed in the disk and connected with a passage 11 in the fuel conduit 6, which is provided with lateral apertures leading to the interior of the chamber 5. The disk 8 is circular in horizontal cross-section, and is disposed opposite to an internally extending flange 20 on the top of the mixing chamber, so that a circular passage is formed between this flange and the disk, and all of the air passing through the mixing chamber must pass across the ends of the fuel nozzles 9. Each of the fuel nozzles 9 terminates in a semi-circular recess 25 formed in the side of the disk as shown in Fig. 3.

This passage between the flange 11 and the disk 8, is normally substantially closed by means of a ring valve 12, although this ring does not enter the recess about the nozzles, and hence a number of small openings exist at this point, through which the air can pass. The ring 12 is provided with upwardly extending arms 13 between which is mounted a collar 14 which is attached to a valve stem 15 on which is mounted a fuel valve 16, which normally closes the fuel conduit 6. A slight amount of lost motion is provided between the valve stem 15 and the collar 14, by means of a pin 17, mounted in the collar and extending across a narrow recess formed in the stem, the recess being slightly larger than the pin and permitting a slight amount of motion between the two. A spring 18 operating against a block 19 in the top of the hollow portion of the disk 8 serves to normally seat the fuel valve 16 which in turn seats the valve 12, although the latter will, by reason of its own weight, drop until the pin 17 is against the upper wall of the recess in the stem 15.

On the lower inner edge of the valve 12 there is formed a small flange or lip 21 which extends almost to the bottom edge of the disk 8 and is the chief point of distinction in the present carburetor over that shown in the aforesaid co-pending application. The function of this flange 19 is to prevent the passage of air across the fuel nozzles until the valve 12 has been initially lifted, as shown in Fig. 2. It is thus possible to permit the valve 12 to be opened by suction by the engine and to then suddenly open the fuel nozzles thus drawing out the fuel rapidly and making it possible for the engine to accelerate very much more quickly

than is possible with the former type of air valve. Another advantage of my improved air valve is that a greater fuel economy can be secured since the fuel is not drawn into the mixing chamber until it is actually required, and can be utilized by the suction of the engine. I have used the former type and the present type of carbureter on the same engine on the same automobile, and under the same conditions, and have secured an increase in the fuel economy of about 14 per cent. with no further change than that shown in the drawing, and consisting of the downwardly extending flange of the air valve 12.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I, therefore, particularly point out and distinctly claim as my invention:—

25 1. In a carbureter, the combination of a casing constituting a mixing chamber, a plurality of radial fuel nozzles therein, a ring

valve disposed between the wall of said casing and said nozzles and partially closing the passage therebetween, a valve normally closing said nozzles and connected to said ring valve to operate in unison therewith, and a flange on said ring valve on the side adjacent to said nozzles, said flange being adapted to delay the full opening of said nozzles. 30 35

2. In a carbureter, the combination of a casing constituting a mixing chamber, a plurality of radial fuel nozzles therein, a ring valve disposed between the wall of said casing and said nozzles and partially closing the passage therebetween, a valve normally closing said nozzles and connected to said ring valve to operate in unison therewith and a depending flange on said ring valve on the side adjacent to said nozzles, said flange being adapted to delay the full opening of said nozzles. 40 45

Signed by me, this 16 day of October, 1916.

ANTHONY COSTA.

Attested by—

D. T. DAVIES,

H. R. MEEHAN.