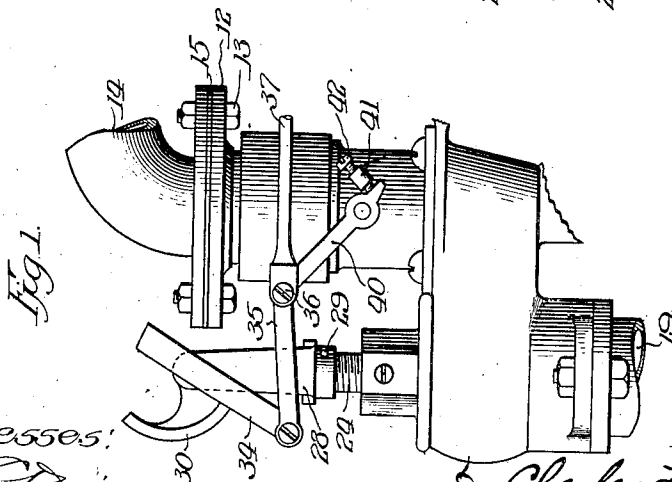
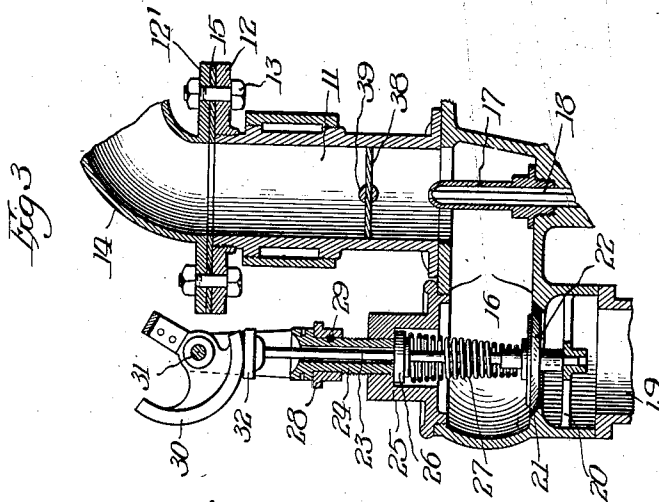
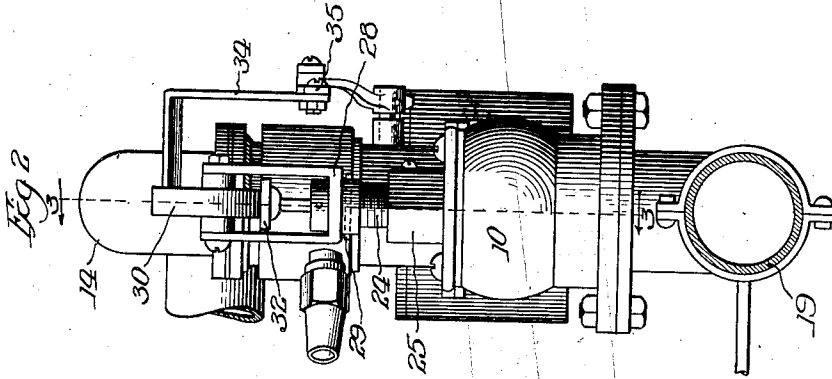


C. L. BASTIAN.
CARBURETER.
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UNITED STATES PATENT OFFICE.

CHARLES L. BASTIAN, OF CHICAGO, ILLINOIS.

CARBURETER.

1,062,688.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES L. BASTIAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

This invention relates to carbureters, and aims to provide certain improvements in the general arrangement and construction of carbureters, and to produce a simple and efficient device of this character adapted to operate satisfactorily and produce a properly proportioned mixture regardless of the speed of the engine.

One of the objects of this invention is the provision of mechanism under the control of the throttle for automatically regulating the admission of air to the carbureting chamber so that the proper relation between the amount of air and liquid drawn into the chamber will be maintained to produce a properly proportioned combustible mixture under all circumstances.

Additional objects and advantages of my invention will become apparent as it is better understood by reference to the following description when taken in connection with the accompanying drawing, throughout the various views of which like reference characters refer to similar parts.

On the drawing:—Figure 1 is a partial side elevation of a carbureter showing a preferred embodiment of my invention; Fig. 2 is an end elevation looking toward the right of Fig. 1; and Fig. 3 is a partial sectional view on the line 3—3 of Fig. 2.

The carbureter is designated generally in Fig. 1 by the reference character 10, and has a carbureting chamber 11 provided with a radial flange 12 adapted to be connected by bolts 13 with the flange 12' of a mixture supply pipe 14 which constitutes a mixture outlet for the carbureter, and for the purpose of insuring a tight fit between the flanges a packing ring 15 is usually inserted between them. The carbureter bowl 16 is disposed beneath the carbureting chamber. A spray nozzle 17 of any preferred type is mounted in the carbureter bowl, and a needle valve 18 projects into the nozzle for regulating the size of the discharge opening therein.

An air intake supply pipe 19 is connected with the lower side of the carbureter bowl

16, and a spider 20 is disposed across the intake to the bowl. Above the spider a valve seat 21 is provided against which the valve disk 22 is adapted to seat to close the air intake and shut off the supply of air. The valve disk is loosely mounted on a stem 23 which is guided at its lower end in the spider 20, and is guided above the valve disk by the sleeve 24 which is threaded into a cap 25 of the bowl. An annular shoulder or disk 26 is rigidly secured upon the valve stem within the cap 25, and an expansion spring 27 surrounds the stem between said shoulder and the valve disk, and normally maintains the disk against its seat 21. The sleeve 24 is capable of longitudinal adjustment by threading it in or out of the cap 25 to adjust the position of the annular shoulder 26 to thereby adjust the tension of the spring 27.

In carbureters heretofore employed an adjustment similar to the adjustment of the sleeve 27 as above described has been employed to regulate the tension of the air intake valve controlling spring for the purpose of supplying air to the carbureter. It has been found, however, that the constant tension upon the air valve controlling spring when an engine is running at various speeds does not give satisfactory results for the reason that when the throttle is opened wider to admit a larger quantity of explosive mixture to the cylinders at each reciprocation of the pistons the air intake valve will be opened wider against the constant force of the controlling spring because of the increased vacuum in the carbureter chamber resulting from the opening of the throttle. The obvious result of increasing the supply of air to the carbureter as the engine speeds up while the liquid supply remains constant is to increase the proportion of air in relation to the amount of liquid in the mixture thereby producing an inefficient mixture and a consequent reduction of power in the engine. I have obviated this objectionable feature heretofore present in carbureters of this type by the employment of mechanism for increasing the tension of the valve controlling spring proportionately to the opening of the throttle thereby maintaining the air supply constant and securing at all times a mixture of the proper proportions regardless of the speed at which the engine may be running. This mechanism as shown on the

drawing comprises a bracket or standard 28 which is secured in position on the sleeve 24 by a pin 29, the said standard being forked as shown in Fig. 2. A cam 30 is pivotally mounted on a bolt 31 in the upper end of the forked standard. This cam is adapted to engage a bearing cap 32 mounted upon the upper end of the valve stem 23. A lever 34 secured to the cam extends outwardly and downwardly, and is attached at its lower end to one end of a link 35, which is connected at 36 with an operating rod 37. This operating rod 37 is the usual throttle valve controlling rod and may be manipulated by the operator by any suitable or preferred type of controller. It will be evident that as the operating rod is moved longitudinally the cam 30 will be oscillated on its pivot to force the valve stem carrying the shoulder 26 downwardly to increase the tension on the spring 27.

A throttle valve or disk 38 carried by a shaft 39 is mounted in the mixing chamber 11, and is adapted to control the supply of mixture to the cylinders. The throttle lever 40 (Fig. 1) is rigidly secured to the outer end of the throttle shaft and is attached to the throttle operating rod at 36. The casing of the mixing chamber is provided with a laterally extending stud 41 into which is threaded an abutment screw 42 by means of which the ultimate closing position of the throttle valve may be regulated.

The operation of the air intake valve regulating mechanism is as follows: When the throttle operating rod 37 is moved to the right viewing Fig. 1, the throttle disk will be rotated toward a vertical position and simultaneously through the link 35 and the lever 34, the pivoted cam 30 will be rotated in a counter-clockwise direction looking at Figs. 1 and 2, thus depressing the valve stem 23 carrying the shoulder 26 and increasing the tension of the intake valve controlling spring 27. As the throttle disk is moved more nearly to a vertical position the tension on the spring 27 is proportionately increased so that the volume of air drawn into the mixing chamber past the intake valve at each reciprocation of the piston will be maintained constant to produce a combustible mixture of proper proportions regardless of the rapidity with which the pistons reciprocate.

While I have described in detail the particular embodiment of my invention which I have selected for the purposes of illustration in this application, it will be understood that the invention is capable of considerable variation in the construction and arrangement of the various parts without departing from the essence of the invention or in any way sacrificing any of the material advantages thereof.

What I desire to claim is:

1. In a carbureter, the combination of a throttle disk disposed across the mixture outlet of the carbureting chamber, an air-intake valve disk, a stem upon which said disk is loosely mounted, a shoulder on said stem, a spring surrounding said stem between said shoulder and said valve disk, and connections between said valve stem and the throttle disk whereby the tension of said spring will be increased proportionately to the opening of said throttle disk.

2. In a carbureter, the combination of a throttle disk disposed across the mixture outlet of the carbureting chamber, an air-intake valve disk, a stem upon which said valve disk is loosely mounted, a shoulder on said stem, a spring interposed between said shoulder and said valve disk, a pivotally mounted cam disposed outside the valve chamber, and a connection between said cam and said throttle disk whereby said cam will be actuated to depress the valve stem and increase the tension of the air-intake valve disk controlling spring proportionately to the opening of the throttle valve disk.

3. In a carbureter, the combination of an air-intake valve disk, a valve stem upon which said disk is loosely mounted, a shoulder on said stem, a spring interposed between said shoulder and said valve disk, an adjusting screw for adjusting the normal tension of said spring, a cam pivotally mounted in position to engage the outer end of said valve stem, a throttle disk, and operating means connected to said throttle disk and to said cam for simultaneously opening the throttle disk and increasing the tension of said spring.

4. In a carbureter, the combination of a carbureting chamber, an air-intake valve, a mixture outlet, a throttle valve disposed in said mixture outlet, and means for increasing the resistance to the opening of the air-intake valve proportionately to the amount of opening of the throttle valve.

5. In a carbureter, the combination of an air-intake valve, a mixture outlet, a spring pressing the said air-intake valve on its seat, a throttle valve disposed in said mixture outlet, and means for increasing the pressure of the said spring on the said air-intake valve proportionately to the amount of opening of the throttle valve.

6. In a carbureter, the combination of an air-intake valve, a mixture outlet, a spring pressing said air-intake valve upon its seat, a throttle valve controlling the admission of the mixture to said outlet, and means for simultaneously opening said throttle valve and increasing the pressure of the said spring upon the said air-intake valve.

7. In a carbureter, the combination of an air-intake valve, a mixture outlet, a spring

pressing said air-intake valve upon its seat,
a throttle valve controlling the admission of
the mixture to the said outlet, manually
controlled means for operating said throt-
5. tle valve, connections between said means
and said spring whereby the pressure of the
said spring upon the air-intake valve is in-

creased in proportion to the amount of
opening of the throttle valve.

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