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A. H. FORGAR

2,233,523

CARBURETOR

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Fig. 1.

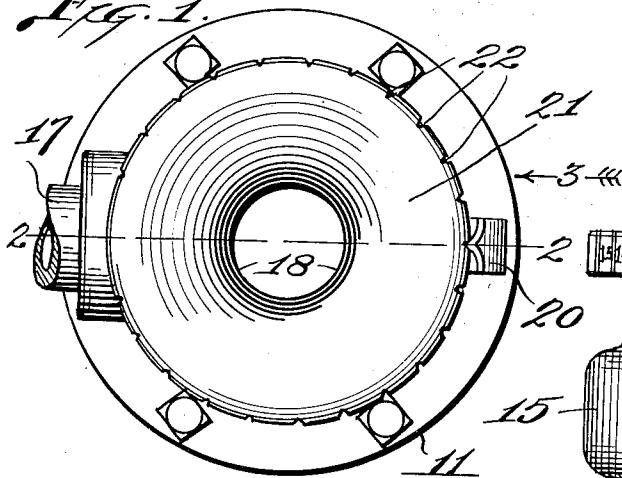


Fig. 3.

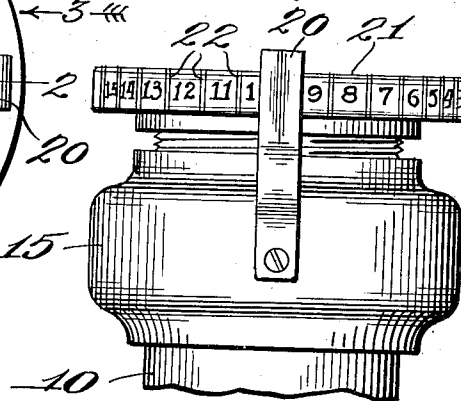


Fig. 2.

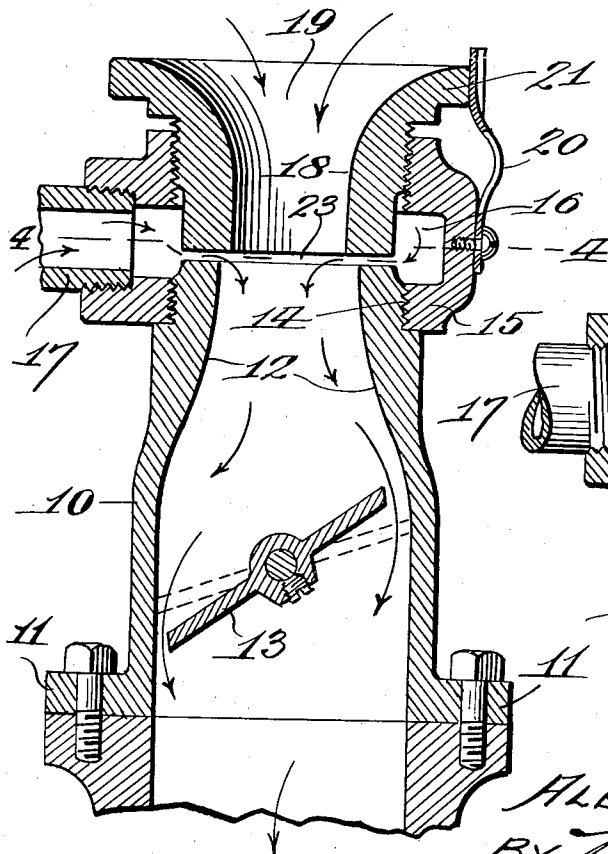
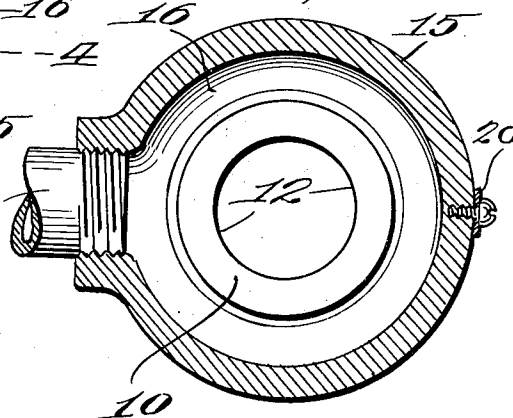


Fig. 4.



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CARBURETOR

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2 Claims. (Cl. 48—180)

My invention relates to a carburetor and has for its principal objects, to generally improve upon and simplify the construction of the existing forms of carburetors and particularly those types of carburetors that function to produce a combustible mixture of air and gaseous fuel, further, to provide a carburetor of the character referred to that comprises few parts, capable of being easily and conveniently adjusted so as to accurately regulate the flow of gaseous fuel into the column of air passing through the carburetor and further, to provide a carburetor having a Venturi throat or passage through which the gas and air passes so as to produce a thorough mixture thereof.

A further object of my invention is, to provide a carburetor having a Venturi passage through which the air is drawn and the carburetor being provided with means for providing an annular slot or opening that establishes direct communication between a chamber that is supplied with gaseous fuel and the Venturi passage, so that the column of air as it travels past the annular slot or opening that admits the gaseous fuel will meet and combine with said gaseous fuel throughout a circular zone immediately prior to the point where the air and gaseous fuel mixed therewith passes into that portion of the venturi that gradually increases in diameter.

A further object of my invention is, to provide a carburetor comprising three main parts, two of which have abutting ends that are connected by the third part and the latter being provided with an annular chamber that receives gaseous fuel from a suitable source of supply and one of the parts of the carburetor being adjustably connected to the intermediate member, so as to enable the annular slot through which the gaseous fuel passes into the Venturi throat or passage way to be very accurately regulated in width and, consequently enabling the carburetor to be adjusted so as to operate at maximum efficiency and in accordance with the gaseous fuel that is used in producing the combustible mixture.

A further object of my invention is, to provide a device of the character referred to that may be utilized as a fuel inlet and mixing device.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts that will be hereinafter more fully described and

claimed and illustrated in the accompanying drawing in which:

Fig. 1 is a top plan view of a carburetor constructed in accordance with my invention.

Fig. 2 is a vertical cross section taken on the line 2—2 of Fig. 1.

Fig. 3 is a side elevational view taken looking in the direction indicated by the arrow 3, Fig. 1.

Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 2.

Referring by numerals to the accompanying drawing which illustrates a preferred embodiment of my invention, 10 designates a short tubular body, one end of which is provided with a flange 11 or otherwise constructed so that it may be conveniently applied to an internal combustion engine or other structure with which the carburetor is associated. The opposite end of member 10 is constructed so that the opening therethrough gradually increases in diameter toward the intermediate portion of said member, thus forming a Venturi throat 12 of gradually increasing diameter.

Mounted for operation within member 12 just beyond the large end of the throat 12 is a conventional butterfly valve 13 which when actuated controls the flow of combustible mixture through the carburetor.

The end of member 10 opposite the end provided with the flange 11 is provided with an external thread 14 that receives the internally threaded end of the intermediate or connecting member 15 of the carburetor. This member 15 is in the form of a ring or collar having an internally arranged annular chamber 16 for the gaseous fuel and the latter being delivered to said chamber by a suitable pipe or duct 17.

This pipe or duct leads from a suitable source of gaseous fuel supply and a conventional pressure regulator and a valve or valves not shown may be associated with the tube 17, in order to control the flow of gaseous fuel therethrough.

The end of connecting member 15 opposite the end that is connected to member 10 is internally threaded for the reception of the third member 18 of the carburetor, said member being shaped somewhat similar to a funnel and having an inlet throat 19 that gradually decreases in diameter from its outer end to its inner end.

The threaded connection between members 15 and 18 is such that member 18 may be readily rotated so as to be screwed into or out of member 15 and, to retain the member 18 in its adjusted position the free end of a spring 20 that

is secured to member 15 engages the notched edge of a flange 21 that is formed on the outer end of member 18.

As illustrated in Fig. 3, the notches 22 that are formed in the outer edge of flange 21 may be suitably graduated and marked so as to assist in the adjustment of member 18 inwardly or outwardly with respect to member 10.

The inner end of member 18 is adapted to abut the adjacent end of member 10 and the diameter of the throat 19 at the inner end thereof is slightly less than the diameter of the adjacent end of throat 12 in member 10.

As a result of this construction, when member 18 is adjusted so as to position its inner end apart from the adjacent end of member 10 an annular slot 23 is formed between the annular fuel distribution chamber 16 and the Venturi passage through the carburetor.

The inner circumference of this slot communicates with the Venturi throat just beyond the inner end of the throat 19 in member 18 and with the slightly larger end of the throat 12 in member 10, so that the column of air passing through throat 19 will receive at all points throughout its circumference gas as it discharges from the inner circumference of slot 23 and, as a result a more uniform mixture of the gas and air is brought about. This effect is enhanced by reason of the fact that the smallest end of throat 12 is slightly larger in diameter than the small end of throat 19 in the air inlet member 18.

In the use of my improved carburetor, air inlet member 18 may be screwed into or out of member 15 so as to vary the width of slot 23 that admits gaseous fuel to the column of air flowing through the Venturi passageway and, thus the degree of carburation may be very accurately regulated.

After being set or adjusted, member 18 may be secured in such adjusted position by the engagement of the free end of spring 20 in one of the notches 22.

Thus, it will be seen that I have provided a carburetor that includes a pair of tubular members with the ducts or openings through said members contoured so as to form a venturi and said members being adjustably connected so that one member may be moved toward or away from the other member to provide a variable annular slot for the admission of gaseous fuel to the column of air passing through the carburetor and, said gaseous fuel inlet slot being located at the point in the Venturi passageway where there is the strongest suction so that the device will function advantageously even though the gaseous fuel is not under pressure above that of the atmosphere.

An especially desirable feature of my invention is, the provision of an adjustable annular slot that controls the admission of gaseous fuel to the column of air passing through the carburetor and the arrangement whereby the admitted gaseous fuel is delivered to the column of air at all points throughout its circumference, together

with the arrangement whereby the air and the gas admitted thereto are permitted to expand slightly at the point where the gas is admitted and further expansion and consequent mixture of the gas and air taking place as it passes through that portion of the venturi that gradually increases in diameter beyond the admission point of the gaseous fuel.

In some instances, it may be found desirable and advantageous to form the ring or collar 15 integral with the body member 10, with member 18 arranged to screw into the upper portion of said ring or, said ring may be formed integral with member 18 and screw on to the upper end of body member 10. The device thus constructed in two main parts would function the same as the construction herein illustrated and described or where the device comprises three parts.

Thus, it will be seen that I have provided a carburetor that is relatively simple in construction, strong and durable, capable of being readily adjusted so as to accurately control the degree of carburation and which carburetor without change may be advantageously employed as a fuel mixer and inlet for various purposes.

It will be understood that minor changes in the size, form and construction of the various parts of my improved carburetor, may be made and substituted for those herein shown and described, without departing from the spirit of my invention, the scope of which is set forth in the appended claims.

I claim as my invention:

1. A carburetor comprising a pair of tubular members arranged end to end, a member connecting said tubular members, which member is provided with an annular chamber that surrounds the adjacent ends of said tubular members, means for supplying gaseous fuel to said chamber, the opening through one of said members being contoured to form a venturi, the other tubular member being screw seated in the connecting member so as to be adjusted toward and away from the other tubular member so as to provide an adjustable annular slot that establishes communication between said annular chamber and the Venturi passage, said adjustable tubular member being provided with a throat that tapers toward its inner end and the inner end of which throat is smaller in diameter than the small end of the venturi in the other tubular member and a throttle valve arranged for operation within the tubular member having the venturi.

2. A carburetor as set forth in claim 1, with a flange formed on the outer end of the tubular member having the tapered throat, said flange being provided with a plurality of notches and a resilient member having one end fixed to the member that connects the two tubular members with the free end of said resilient member engaging said notched flange.

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