

Aug. 18, 1925.

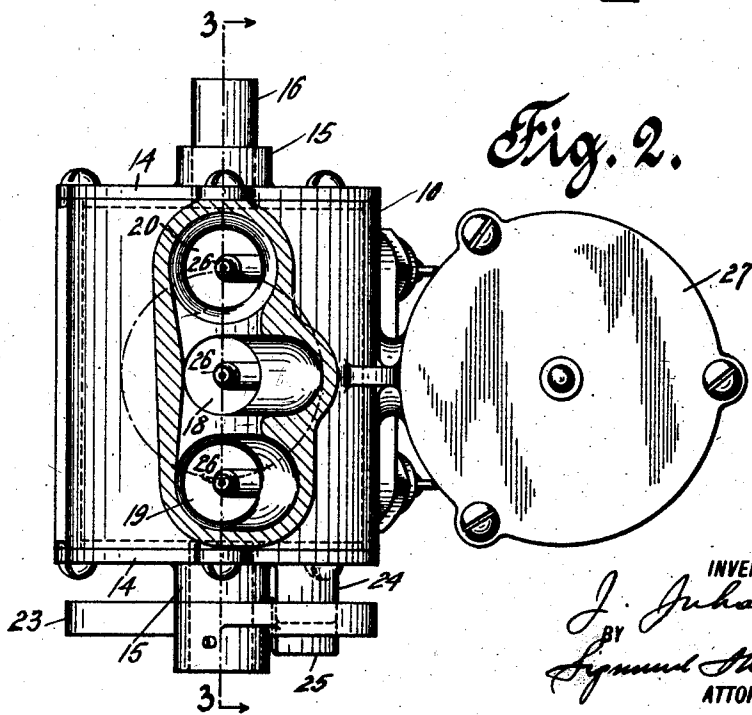
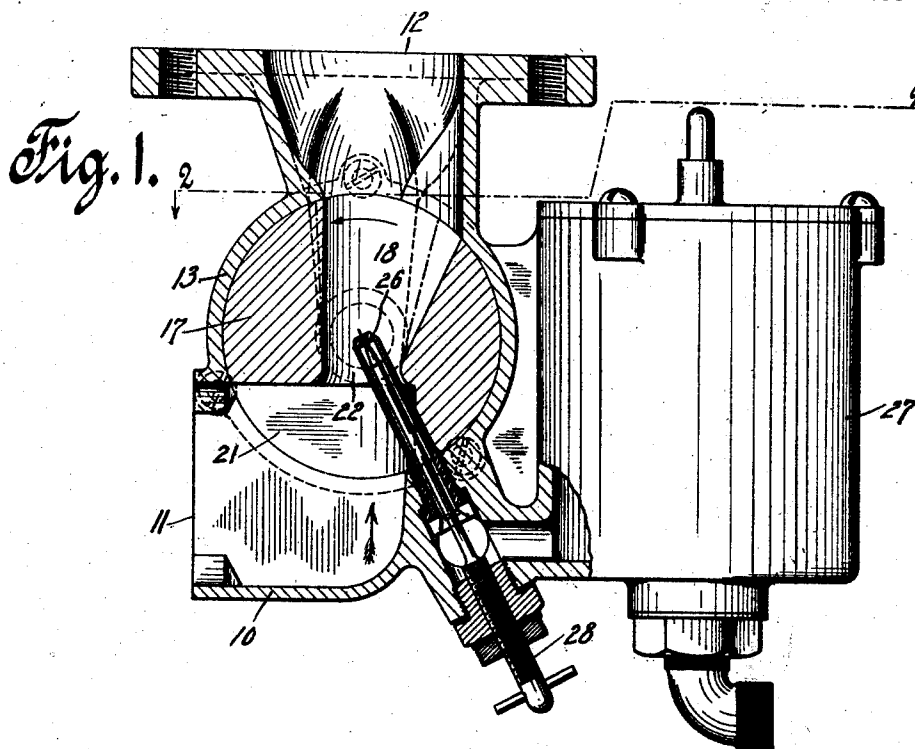
J. JUHASZ

1,550,076

CARBURETOR

Filed June 27, 1919

2 Sheets-Sheet 1



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Fig. 3.

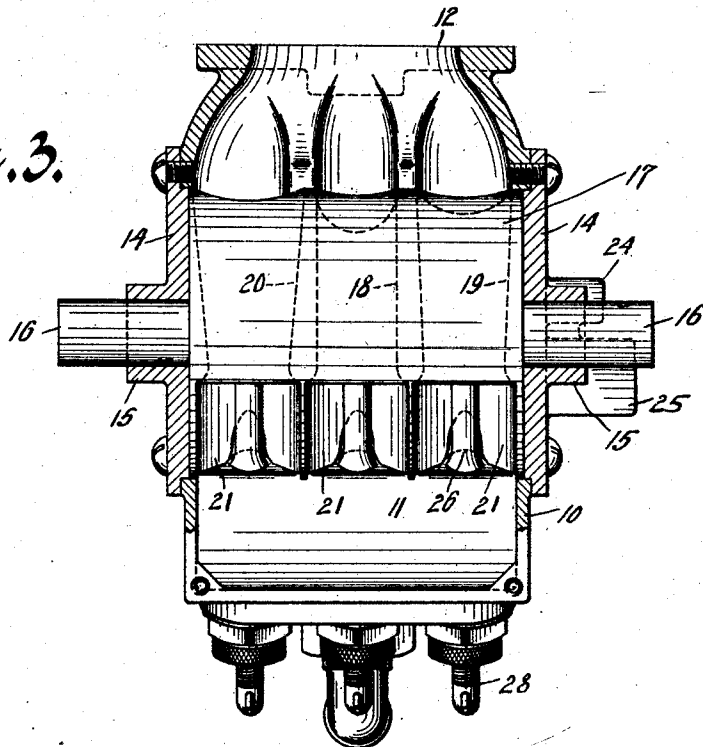
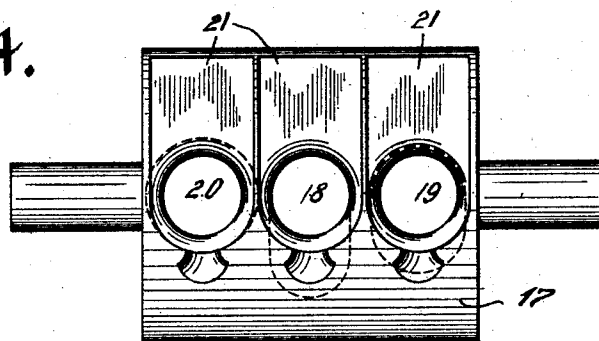


Fig. 4.



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UNITED STATES PATENT OFFICE.

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CARBURETOR.

Application filed June 27, 1919. Serial No. 307,145.

To all whom it may concern:

Be it known that I, JOHN JUHASZ, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Carburetors, of which the following is a specification.

The present invention relates to a carburetor for use in connection with internal combustion engines. The invention relates more particularly to that type of carburetors, in which air is caused to flow at high velocity past the discharge end of a permanently open liquid hydrocarbon supply-conduit, whereby the liquid hydrocarbon is entrained and atomized and sprayed, the resultant combustible mixture being composed of air and liquid hydrocarbon gasified or vaporized in part and in part sustained in liquid form. More specifically, the invention pertains to multi-jet carburetors of the type, wherein each jet is disposed within an individual carburetor chamber, all chambers communicating with a single carburetor outlet, the communications being controlled by a valve common to all of said chambers, adapted to establish gradually and in succession said communications.

With carburetors of this type, considerable difficulty has been experienced heretofore for the reason that the valve interposed between the carburetor chambers and the carburetor outlet greatly decreases the efficiency of the device, it causing the formation of pockets, in which the mixtures from the several carburetor chambers stagnate, whereby the fuel is apt to condense. The uniformity of the mixture is thus materially affected.

The main object of the present invention is to provide a carburetor overcoming these objections, in that its valve constitutes the carburetor chambers, each chamber being in the form of a Venturi passage, within which the hydrocarbon supply nozzles are so disposed that effective carburation is obtained, irrespective of the position of the valve.

Another object of the invention is to provide a carburetor, which is adapted to furnish a predetermined mixture to an engine for the several speeds at which the latter may be running without readjustment of the carburetor parts.

A further object of the invention is to

produce a carburetor, which requires no further attention than the manipulation of the throttle.

A still further object of the invention is to provide a device of this character which is efficient in operation, simple in construction and which can be manufactured on a commercial scale, or in other words one which is not so difficult to produce as to be beyond the reasonable cost of such an article.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter described, pointed out in the appended claims and illustrated in the accompanying drawings.

The invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a vertical central section taken through a carburetor, constructed in accordance with the present invention; Fig. 2 is a section taken on line 2—2 of Fig. 1; Fig. 3 is a section taken on line 3—3 of Fig. 2; and Fig. 4 is an elevation of the valve or throttle, looking in the direction of the arrow shown adjacent the same in Fig. 1 of the drawings.

In the drawings, the numeral 10 indicates a casing, in the side of which is formed an opening 11, forming the air inlet to the carburetor chambers, an opening 12 being provided in the upper face of the casing, constituting the outlet through which the charges, formed in the chambers, pass to the intake manifold of the engine. Between these two openings a horizontally extending hollow cylindrical portion 13 is formed on the casing, the ends of which are closed by heads 14, upon which are formed bearings 15 for the journals 16 of a cylindrical body 17, that is located within and snugly fits the cylindrical portion of the carburetor casing. In this body are formed a plurality of, in the present case three, Venturi passages, denoted by the numerals 18, 19 and 20. These passages extend radially through the cylindrical body from the peripheral portion of the latter toward and beyond the center of the same, where they each merge into a recess 21, that is in communication with the air inlet 11, irrespective of the position of the cylindrical body in the casing. The throats 22 of the

Venturi passages are all of the same size, while the outlet of the passage 19, measured circumferentially on the body 17, is larger than that of the passage 20, and the size of the outlet of the passage 18, measured in a similar manner, is larger than that of the passage 19. The cross-sectional areas of the three passages in any horizontal plane (Fig. 1) are the same, or in other words the sizes of the three passages are alike. The casing of the carburetor is so shaped immediately above the cylindrical portion thereof that it closely follows the contours of the outlets of the Venturi passages, as clearly appears from Fig. 2 of the drawings, so that, when the cylindrical body 17 is turned, the outlets of the said passages are decreased or increased, depending upon the direction in which the body is turned.

For turning the said cylindrical body, a lever 23 is fixedly attached to one of its journals; stops 24 and 25, formed upon one of the heads 14, limiting the movement of the said body.

The three Venturi passages form three independent carburetor chambers, into each of which projects a liquid hydrocarbon supply nozzle 26. These nozzles communicate with a float chamber 27 of any suitable construction, their discharge openings being controlled, for instance, by needle valves 28, as usual in constructions of this type. As above mentioned, the cylindrical body 17 is adapted to be rotated, the outlets of its Venturi passages being adjusted in size as its position in the casing is changed. From this it appears that the said cylindrical body not only forms the carburetor chambers, but acts also as a valve or throttle.

The operation of the carburetor is as follows:—When the throttle is in its closed position, that is to say when it is turned in the direction of the arrow shown in Fig. 1 of the drawings as far as the respective stop will permit, the Venturi passages 19 and 20 do not communicate with the carburetor outlet 12. The Venturi passage 18 is, however, not in its fully closed position, that is to say a minimum opening is always provided sufficient to permit of a flow of air past the supply nozzle in the middle Venturi passage to furnish the proper amount of combustible mixture for the motor, when running slow without load applied thereto, for instance if the engine is mounted upon an automobile and the latter is at full stop. In shifting the throttle to open it, first the Venturi passage 18 becomes effective, then the Venturi passage 19, and finally the Venturi passage 20, or in other words the Venturi passages are gradually and in succession opened. Inasmuch as the Venturi passages are not interconnected, the same

effect will be obtained as if a plurality of independent carburetors were provided. These carburetors, however, are caused to co-operate, inasmuch as they are controlled by a common throttle in such a manner that the second in the series starts its operation before the first becomes fully operative, and the third furnishes a combustible mixture before the second in the series is rendered fully operative. The quantity of liquid hydrocarbon and air drawn may thus be varied in proportion to the desired performance of the engine. From an inspection of the drawings and from the foregoing description it appears that, inasmuch as the liquid hydrocarbon supply nozzles extend into the throttle and the carburetor chambers therein are made in the form of Venturi passages, the formation of pockets, in which the combustible mixture is apt to stagnate, is effectively prevented, with the result that a uniform mixture is continuously obtained.

If the sizes of the discharge openings of the three fuel supply nozzles are once determined, no further adjustment of the parts is necessary, as appears from the foregoing.

It is to be observed that the recesses 21 in the cylindrical body 17 are so shaped that, in rotating the said body, the active cross-section of the air inlet 11 is varied in proportion to the uncovered areas of the Venturi passages therein. This feature is essential, in that at all times the proper amount of air is furnished to the carburetor.

What I claim is:—

1. A carburetor, comprising a casing having an air inlet and a combustible-mixture outlet, a cylindrical body interposed between said inlet and outlet provided with a plurality of Venturi passages through which communications are adapted to be established between said inlet and outlet, and a liquid hydrocarbon supply nozzle projecting into each of said passages, said passages being of varying shapes but having corresponding cross-sectional areas of the same size throughout the respective lengths of the same.

2. A carburetor, comprising a casing having an air inlet and a combustible-mixture outlet, a cylindrical rotatable body interposed between said inlet and outlet provided with a plurality of Venturi passages through which communications are adapted to be established between said inlet and outlet, and a liquid hydrocarbon supply nozzle projecting into each of said passages, said passages being of varying shapes but having throats and volumes of the same size.

Signed at New York, in the county of New York, and State of New York, this 26th day of June, A. D. 1919.

JOHN JUHASZ.