

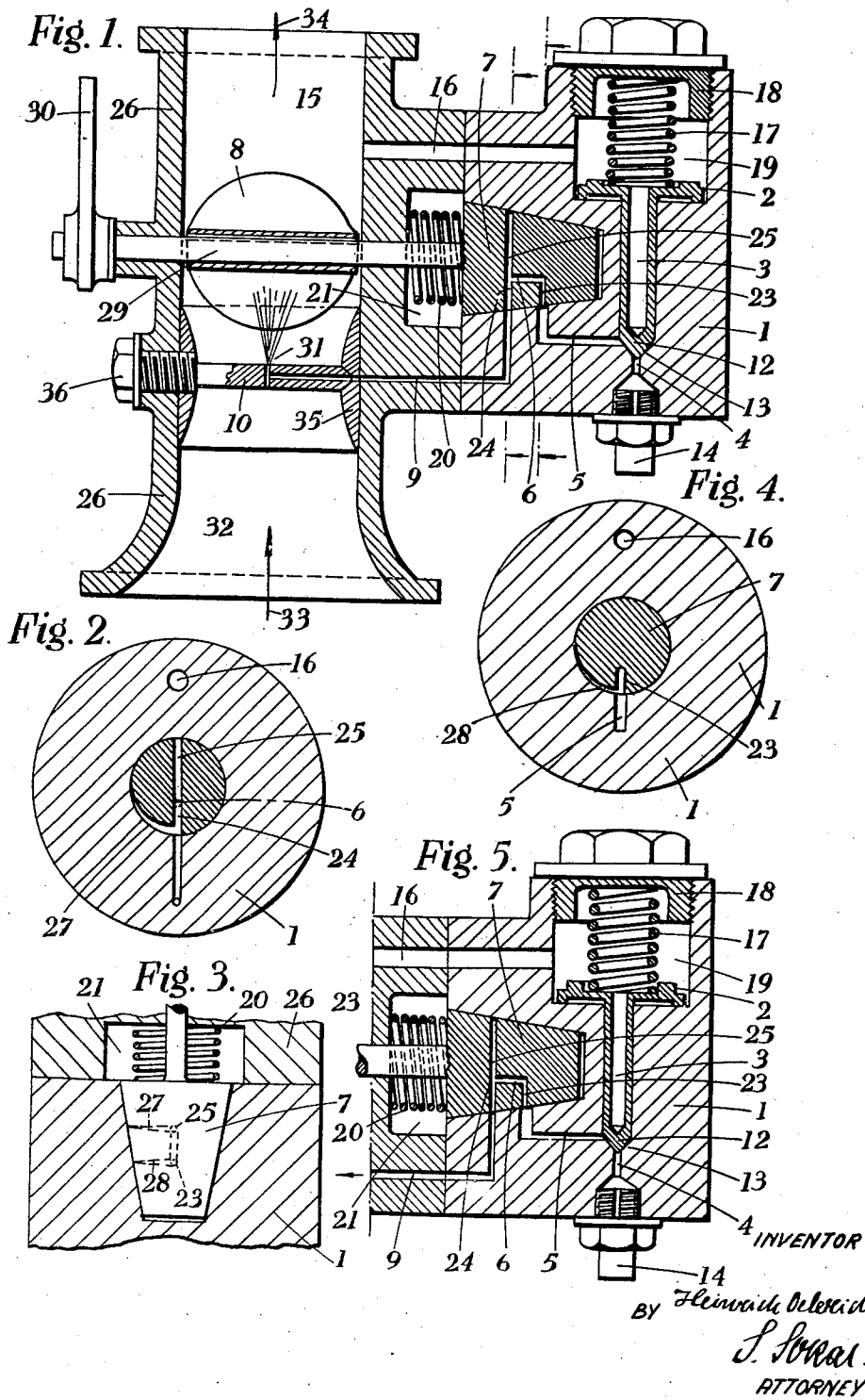
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H. OELERICH

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CARBURETOR

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UNITED STATES PATENT OFFICE

HEINRICH OELERICH, OF GAUTZSCH, NEAR LEIPZIG, GERMANY, ASSIGNOR TO HEINRICH HOFMANN, OF LEIPZIG, GERMANY

CARBURETOR

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There are known carburetors for internal combustion engines in which the regulation of the fuel supply to the carburetor is effected by floats or automatically controlled members. In the last named type of construction, floats and members pertaining thereto are entirely dispensed with, whereby not unimportant sources of failure and before other things stores of benzene which constitute a great danger of fire are avoided. The floatless carburetor consequently possesses certain advantages which are a favourable factor both as regards manufacture owing to the simple construction, and also, later on, in operation.

According to the present invention the supply of fuel to the carburetor is regulated by a device such as a rotary valve, plug, disc, or the like positively connected with the throttle valve, the quantities of fuel required for the production of a homogeneous gas mixture being supplied positively in accurately determined quantities to air amounts regulated by the throttle valve. It is immaterial whether the internal combustion engine works at high, medium or low number of revolutions. The passages provided in the control device are so constructed that according to their position they supply a determined quantity of fuel to the carburetor.

Such a carburetor has, in addition to its simple and reliable construction the great advantage that the fuel supply is less in comparison with the known constructions, and that owing to the above described fixation of the quantities supplied, a homogeneous mixture is produced which has a high explosive force, and consequently increases the efficiency of the power engine.

The accompanying drawings show by way of example one construction embodying the features of the invention.

Fig. 1 is a sectional elevation showing the improved fuel supply regulating device directly combined with the throttle valve.

Fig. 2 is a cross section through the fuel supply regulating valve.

Fig. 3 is an axial section through the valve casing.

Fig. 4 is another cross section through the fuel supply regulating valve, and

Fig. 5 is a sectional elevation showing the fuel supply regulating valve and the fuel inlet valve.

In the valve body 1 is arranged a fuel inlet valve comprising a piston valve 2 working in a valve chamber 19 closed by means of a screw cap 18. The valve is moved in the downward direction by a spring 17 and is moved upwards by the suction created in the suction pipe 15 leading to the engine. The suction pipe 15 communicates with the chamber 19 through a passage 16. The valve 2 is guided in the casing 1 by means of a stem portion 3 which is formed at its lower end so as to constitute a conical valve 12 resting upon a seat 13 and controlling a fuel admission passage 4 which communicates through a union 14 with the fuel supply vessel (not shown in the drawings).

When the valve 12 is raised the fuel supply passage 4 communicates with the passage 5 which communicates with a further passage 9, the end of which is formed in a rod 10 by means of which the usual air guide 35 is fixed in the casing 26. The lower end 32 of the casing 26 is, as usual widened at the air admission end. The rod 10 is fixed from the outside by means of a screw 36. The device which regulates the amount of fuel passing from the passage 5 into the passage 9 may be constructed in any desired manner and consists in the construction shown of a rotary plug valve 7, having a transverse passage 24, 25 co-operating with the passage 9 and a transverse passage 23 co-operating with the passage 5, the passages 23 and 24 being connected by a passage 6. The valve 7 is loaded by a spring 20 and is directly connected with the throttle valve 8, the latter being fixedly mounted upon a valve spindle 29 adapted to be operated from the outside by means of a lever 30. It may be seen from Figs. 2, 3 and 4 that the plug body is provided with peripheral grooves 27 and 28 extending from the ports of the passages 24 and 23. These grooves extend over one quarter of the periphery of the plug and have a depth diminishing towards the ends of the grooves, so

that when the plug is turned from the position shown in the drawing in Figs. 1, 2 and 4 in the anti-clockwise direction, the cross sectional area of the passage through which the fluid has to pass between the passages 5 and 9 is gradually reduced. On turning the valve plug 7 through 90° the throttle valve 8 is at the same moment turned from the fully open position shown in Fig. 1 to the fully closed position, so that the amount of fuel issuing at 31 will always correspond exactly with the amount of air drawn through the suction tube in the direction of the arrows 33 and 34.

It will be understood that at the first suction stroke of the engine, the valve 2 is raised by the suction produced in the passage 16, whereupon the fuel will flow from the passage 4 to the passage 5 through the plug 7 and passage 9 and will issue at 31 as shown.

I claim:

1. In a carburetor for internal combustion engines the combination of: a casing provided with an air passage; a fuel atomizer in the said air passage; a throttle valve behind said fuel atomizer in the air passage; an axle on which said throttle valve is mounted; a regulating valve in said casing for the supply of fuel to said atomizer, the regulating valve being arranged on the axle of said throttle valve and a spring pressing said regulating valve on to its seating.

2. In a carburetor for internal combustion engines the combination of: a casing provided with an air passage; a fuel atomizer in the said air passage; a throttle valve behind said fuel atomizer in the air passage; an axle on which said throttle valve is mounted; a regulating valve in said casing for the supply of fuel to said atomizer, said regulating valve being arranged on the axle of the said throttle valve; a spring pressing said regulating valve on to its seating; and a fuel inlet valve within the casing adapted to be operated by the suction produced in the said air passage any leakage of fuel being prevented by the said casing enclosing all regulating means.

Signed at Leipzig, Germany, this 10th day of July, 1929.

HEINRICH OELERICH.