No. 793,498. PATENTED JUNE 27, 1905.

J. L. ASH.

CARBURETER FOR HYDROCARBON ENGINES.

APPLICATION FILED FEB. 1, 1904.

Fig. 1.

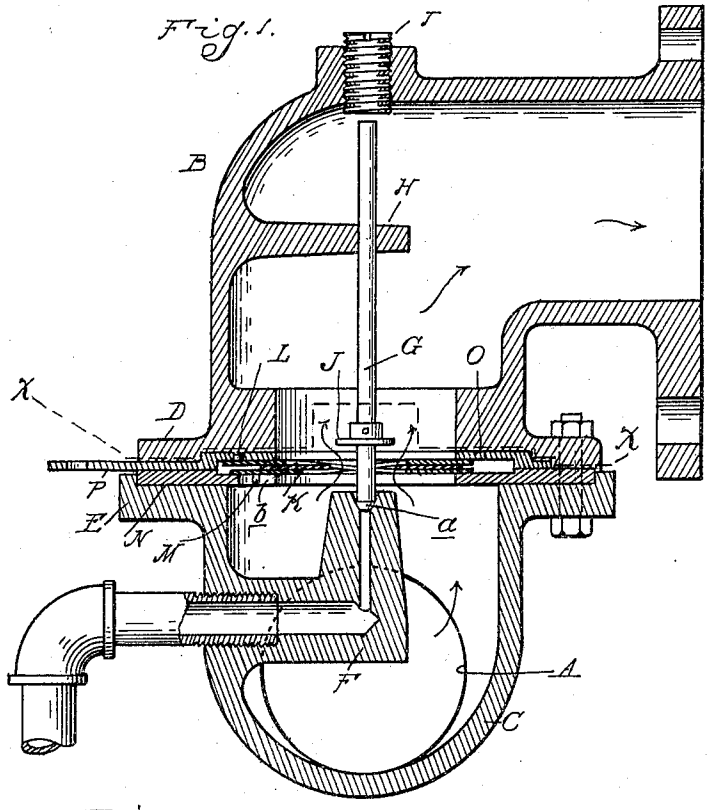
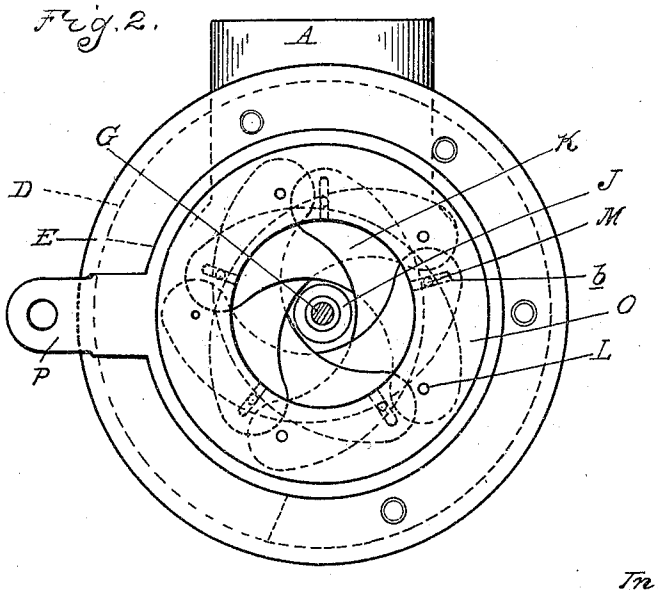


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

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CARBURETER FOR HYDROCARBON-ENGINES.

SPECIFICATION forming part of Letters Patent No. 793,498, dated June 27, 1905.

Application filed February 1, 1904. Serial No. 191,608.

To all whom it may concern:

Be it known that I, JACOB LAGRANGE ASH, a citizen of the United States, residing at Lansing, in the county of Ingham and State of Michigan, have invented certain new and useful Improvements in Carbureters for Hydrocarbon-Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to carbureters more particularly designed for use in connection with explosion-engines, where it is desired to govern the speed and power of the engine by varying the quantity of explosive charge.

It is the particular object of the invention to provide means for accurately proportioning the quantity of oil or liquid hydrocarbon to different charges of air and also to produce a uniform commingling of the same.

The invention consists in the construction as hereinafter set forth.

In the drawings, Figure 1 is a longitudinal section through the carbureter. Fig. 2 is a section substantially on line *x x*, Fig. 1.

A is an inlet-conduit of a carbureter adapted to be connected with a cylinder of an explosion-engine, which, as shown, comprises the angle-fittings B and C. The adjacent ends of these fittings are preferably provided with the flanges D and E, which are recessed to receive a diaphragm, as will be hereinafter set forth.

F is an oil-discharge nozzle which is arranged within the fitting C and projects upward therein into adjacence to the plane of the diaphragm.

G is a valve-stem having a tapering lower end *a* for seating on the nozzle F and closing the oil-port therein. This stem is guided by loosely passing through a bearing H, and the movement of the stem is limited by an adjustable stop I, preferably a screw passing through a threaded aperture in the fitting B.

J is a disk or flange secured on the stem G slightly above the plane of the diaphragm.

Heretofore carbureters have been constructed substantially as above described, so as to form an air-conduit, through which a current of air is passed on the instroke of the piston and is commingled with oil drawn by suction from the oil-nozzle. These constructions have also been provided with valves for variably restricting the air-conduit, so as to change the quantity of the explosive charge; but difficulty has been experienced in obtaining a uniform commingling of the oil and air in different positions of adjustment of the valves. In the present invention I provide means for not only variably restricting the air-conduit, but for enlarging or contracting said conduit in relation to the oil-discharge nozzle, so that the latter is always directed substantially into the center of the orifice. This annular contraction of the air-conduit is preferably accomplished by the use of an iris-diaphragm—that is, a diaphragm formed of a circular series of overlapping pivoted plates—together with means for relatively moving said plates toward or from the center of the series.

As shown, K represents plates of segmental form provided at opposite ends with pins L and M, projecting from opposite sides thereof.

N is an annular disk or plate arranged between the flanges D and E and having formed therein a series of radial slots *b*, corresponding in number to the plates K. O is a second annular disk arranged within a recess in the flange D and having a projecting handle P extending outward through a slot in said flange. This disk O is apertured to receive the pins L of the segmental plates K, while the pins M thereof engage with the radial slots *b*. Thus by rotating the disk O through the medium of the handle P the segmental plates K may be swung toward or from the center of the conduit A. The plates K are arranged in a recess formed between the inner edges of the disks M and O, and the width of this recess is such as to completely receive said plates when swung to their outward limit, so as to leave an unobstructed air-passage through the conduit.

From the description above given it will be understood that the air-conduit may be annu-

larly enlarged or contracted in a plane but slightly in advance of the oil-nozzle F, so that when contracted all of the air passing through the orifice is in equal proximity to the oil-nozzle, and will thus be uniformly carbureted. On the other hand, when the orifice is enlarged the oil-discharge will still be in the center, so that a uniform commingling will take place before the mixture reaches the cylinder of the engine. The force of the air-current impinging against the flange J will lift the valve-stem G and open the port in the nozzle.

What I claim as my invention is—

1. In a carbureter the combination with an air-conduit having an oil-discharge nozzle therein, of means pivoted within a recessed portion of the conduit-casing for annularly contracting said conduit in relation to said oil-nozzle.

2. In a carbureter, the combination of two angle-fittings forming an air-conduit and having recessed abutting flanges and an iris-diaphragm adapted to be withdrawn into said recess to leave an unobstructed conduit and to be moved inward to annularly contract said conduit.

3. In a carbureter, the combination with a casing having an internal annular recess therein, of means normally resting within the recess adapted to be projected into the path of the current for annularly contracting said conduit.

4. In a carbureter, the combination with a casing having a conduit therethrough and an internal annular recess therein, of means normally resting within the recess adapted to be projected into the path of the current for annularly contracting said conduit.

5. In a carbureter, the combination with a sectional casing forming a conduit therethrough, the contiguous edges of said casing having complementary annular recesses, of means for annularly contracting said conduit, said means normally resting within the recesses and offering no obstruction to the passage through said conduit.

In testimony whereof I affix my signature in presence of two witnesses.

JACOB LAGRANGE ASH.

Witnesses:
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