No. 894,225. PATENTED JULY 28, 1908.

L. R. O'NEILL.

EXPLOSIVE ENGINE.

APPLICATION FILED JUNE 2, 1906.

2 SHEETS—SHEET 1.

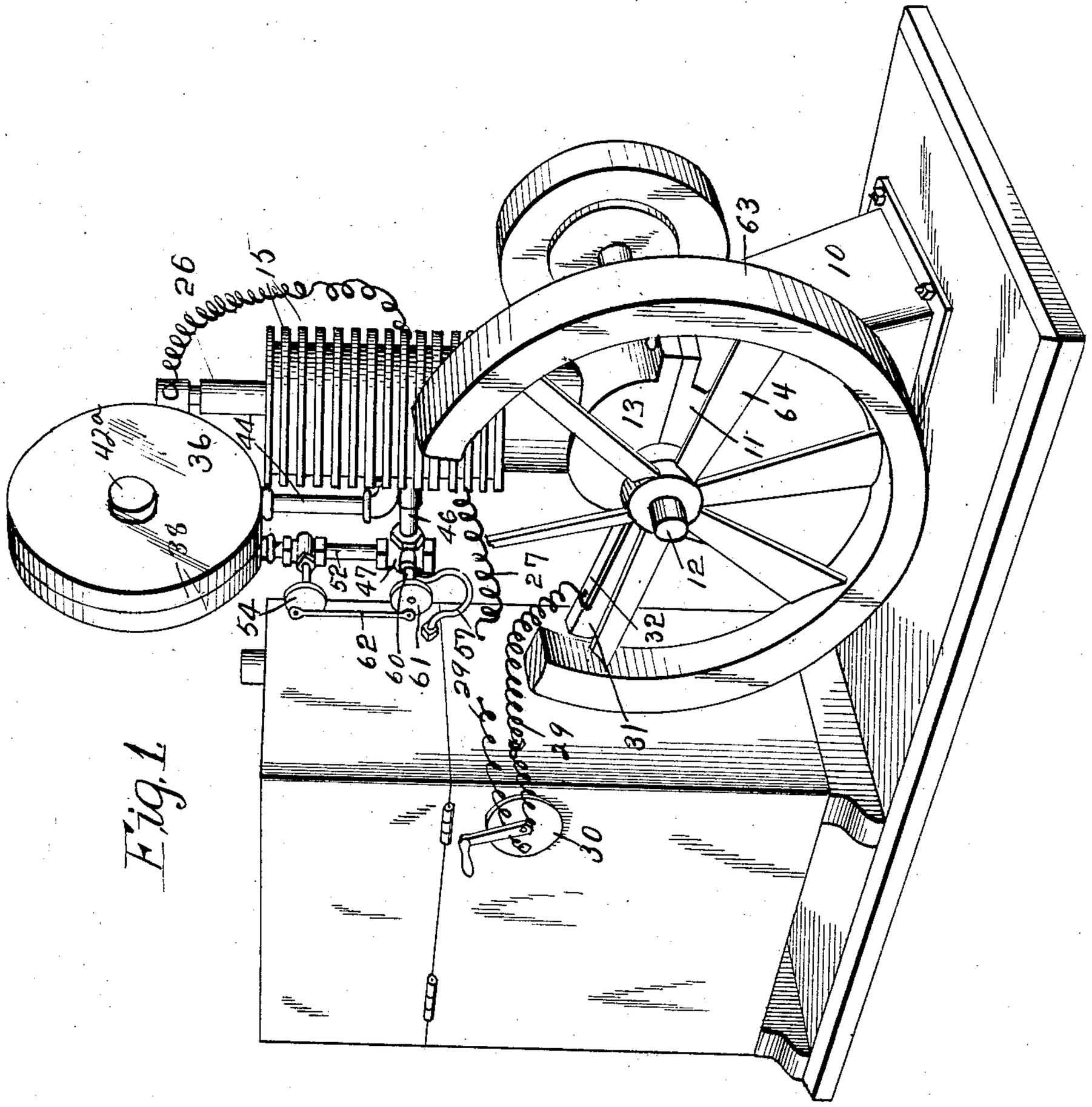

Fig. 1.

Witnesses
A. G. Hague.
J. B. Smutney.

Inventor L. R. O'Neill
by Orwig Lane Atty's

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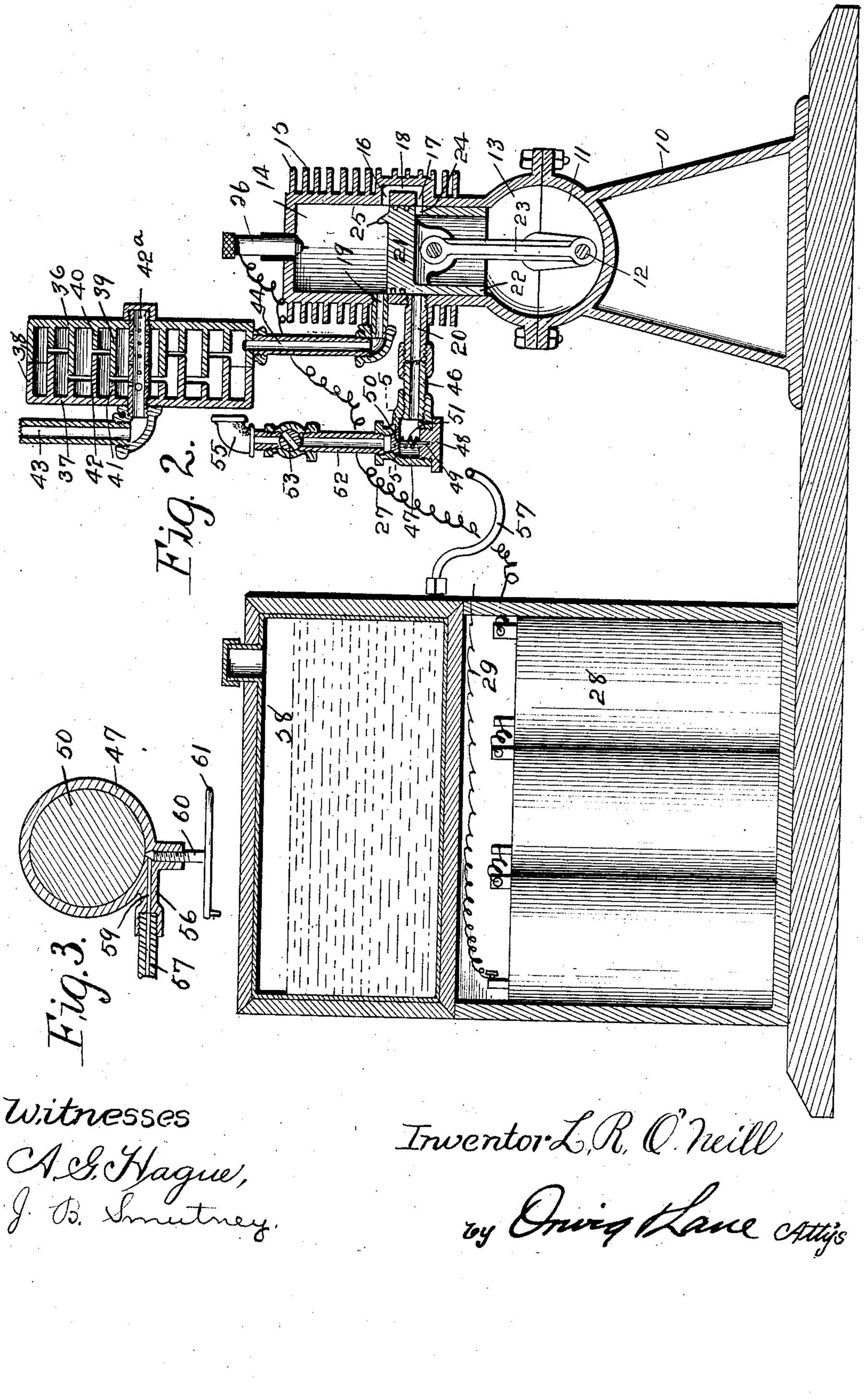

Fig. 2.

Fig. 3.

Witnesses
A. G. Hague,
J. B. Smutney.

Inventor: L. R. O'Neill
by Owing Lance Attys

UNITED STATES PATENT OFFICE.

LEWIS R. O'NEILL, OF DES MOINES, IOWA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO EMPIRE CREAM SEPARATOR CO., OF BLOOMFIELD, NEW JERSEY.

EXPLOSIVE-ENGINE.

No. 894,225. Specification of Letters Patent. Patented July 28, 1908.

Application filed June 2, 1906. Serial No. 320,201.

To all whom it may concern:

Be it known that I, LEWIS R. O'NEILL, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented a certain new and useful Explosive-Engine, of which the following is a specification.

This invention relates to carbureters for explosive engines.

The object of this invention is to provide a simple, durable and inexpensive engine.

There is the usual air inlet, liquid fuel inlet and mixing chamber; the passage connecting these inlets with the mixing chamber is provided with a valve for each inlet and means is provided for causing these valves to move synchronously by connecting them together outside the passage in which they operate. I also provide a straight line reciprocating valve to coöperate with said valves.

The accompanying drawings illustrate the invention:

Figure 1 is a perspective view of the complete engine. Fig. 2 is a vertical, central, sectional view of the engine. Fig. 3 is an enlarged detail sectional view on the line 5—5, Fig. 2.

There is an engine base 10, a crank shaft chamber 11, 13, containing a crank shaft 12; the engine cylinder 14 has exterior radiating rings 15; cylinder 14 has two ports 16 and 17 connected by passage 18. On the opposite side of cylinder 14 is exhaust port 19 in a slightly higher plane than port 16; immediately below port 19 is an induction port 20. The piston head 21 has a cylindrical extension 22 open at its bottom, pitman 23 connects the piston head 21 and crank shaft 12. In the part 22 is a port 24 in position to communicate with port 17. On the top of the piston head 21 is a deflector 25 adjacent to port 16 when piston head 21 is at its lowest point. There is a spark producing device 26 of ordinary construction connected by conductor 27 with one pole of battery 28; conductor 29 connects the opposite pole of battery 28 with the engine frame. There are two switches in said circuit, a manual switch, and an automatic switch, consisting of the fixed contact 32 on an arm 31 in position to engage with a rotary contact fixed to the shaft 12.

There is a muffler and air heater formed of disks 37, each having a rim 38 in position to engage each other; on the inner face of each disk is a series of annular rims, like 39, 40, 41 and 42. A perforated pipe 42^a at the center of the muffler connects with discharging pipe 43 and pipe 44 connects exhaust port 19 with the muffler.

I have provided means for supplying gas to the cylinder as follows: Connected with the induction port 20 is a pipe 46 communicating with valve casing 47; the latter casing has a screw plug 48 supporting a valve stem 49 and valve 50 in position to close against a valve seat at the top of the casing. A spring 51 normally holds the valve against its seat. Communicating with the top of the casing above the valve is a pipe 52 containing cut off valve 53 having on its stem crank disk 54. At the upper end of pipe 52 is an elbow 55 opening adjacent to the muffler. On one side of valve casing 47 is an extension 56 (Fig. 3) and a pipe 57 connects said extension with tank 58 containing a liquid fuel, such as gasolene. Extension 56 is provided with a small passage 59 leading into a larger opening which connects with the interior of valve casing 47 at a point in line with the valve seat therein. Pointed screw 60 is mounted in this opening and its end so arranged that when adjusted to one position, it will cut off the supply of gasolene, and when adjusted to other positions will regulate and control the quantity of gasolene admitted. Mounted on screw 60 is crank disk 61 connected by rod 62 with crank disk 54 so that these disks and the valves they control are adjusted simultaneously or move synchronously.

In practical use, assuming that screw 60 and valve 53 are both set to admit gasolene and air in proper relative proportions, and assuming that suction produced by movement of the piston is sufficient to lower valve 50 then gasolene and air in proper proportions will be drawn into the chamber at the bottom of the cylinder.

If it is desired to introduce a greater quantity of gasolene and air then the rod 62 is manipulated to open valve 53 wider, and this will result in operating screw 60 to admit proportionally a larger quantity of gasolene, and in this way the proper proportion between air and gasolene is always maintained regardless of the volume of both required for the engine. Mounted on shaft 12 is fly wheel 63 having fan blade spokes 64 to force air over the cylinder to cool it.

It is to be noticed that valve 50 has a

straight line movement across the opening controlled by the rotating valve stem 60 and tends to keep the mouth of the passage scraped clean.

What I claim and desire to secure by Letters Patent is:

1. In a carbureter the combination of a source of liquid fuel, an air inlet, a mixing chamber, and means for controlling the passage of air and fuel consisting of an air valve opened and closed by a rotary movement, a fuel valve opened and closed by a rotary movement, a valve controlling the combined fuel and air supply, said valve reciprocating in a straight line across the fuel supply inlet, and a mechanical connection between the two first named valves whereby the adjustment of one produces a corresponding adjustment of the other.

2. In a carbureter the combination of a liquid fuel inlet, an air inlet, a mixing chamber, and means for controlling the passage of combined air and fuel, consisting of an air valve opened and closed by a rotary movement, a fuel valve opened and closed by a rotary movement, a separate valve reciprocating in a straight line across the fuel supply inlet, and means whereby the air valve and the fuel valve are caused to move synchronously.

3. In a carbureter the combination of a liquid fuel inlet, an air inlet, a mixing chamber, and means for controlling the passage of air and fuel consisting of an air valve opened and closed by a rotary movement, a fuel valve opened and closed by a rotary movement, a separate valve controlling both the liquid fuel supply and the air supply, said valve reciprocating in a straight line over the fuel supply inlet, and means whereby the air valve and the fuel valve are caused to move synchronously consisting of two crank disks and a rod having its opposite ends pivoted to said disks, respectively.

4. In a carbureter the combination of a mixing chamber, a supply pipe, an air inlet near the mouth of said pipe, a liquid fuel supply inlet at an intermediate point in said pipe, a valve opened and closed by rotary movement for the air supply, a valve opened and closed by rotary movement for the fuel supply, a spring actuated valve controlling the combined fuel and air supply, said valve reciprocating across the fuel supply inlet, and means for simultaneously adjusting the initial position of the air and fuel inlet valves.

LEWIS R. O'NEILL.

Witnesses:
S. F. CHRISTY,
JULIA B. SMUTNEY.