H. BINGHAM.

CARBURETER.

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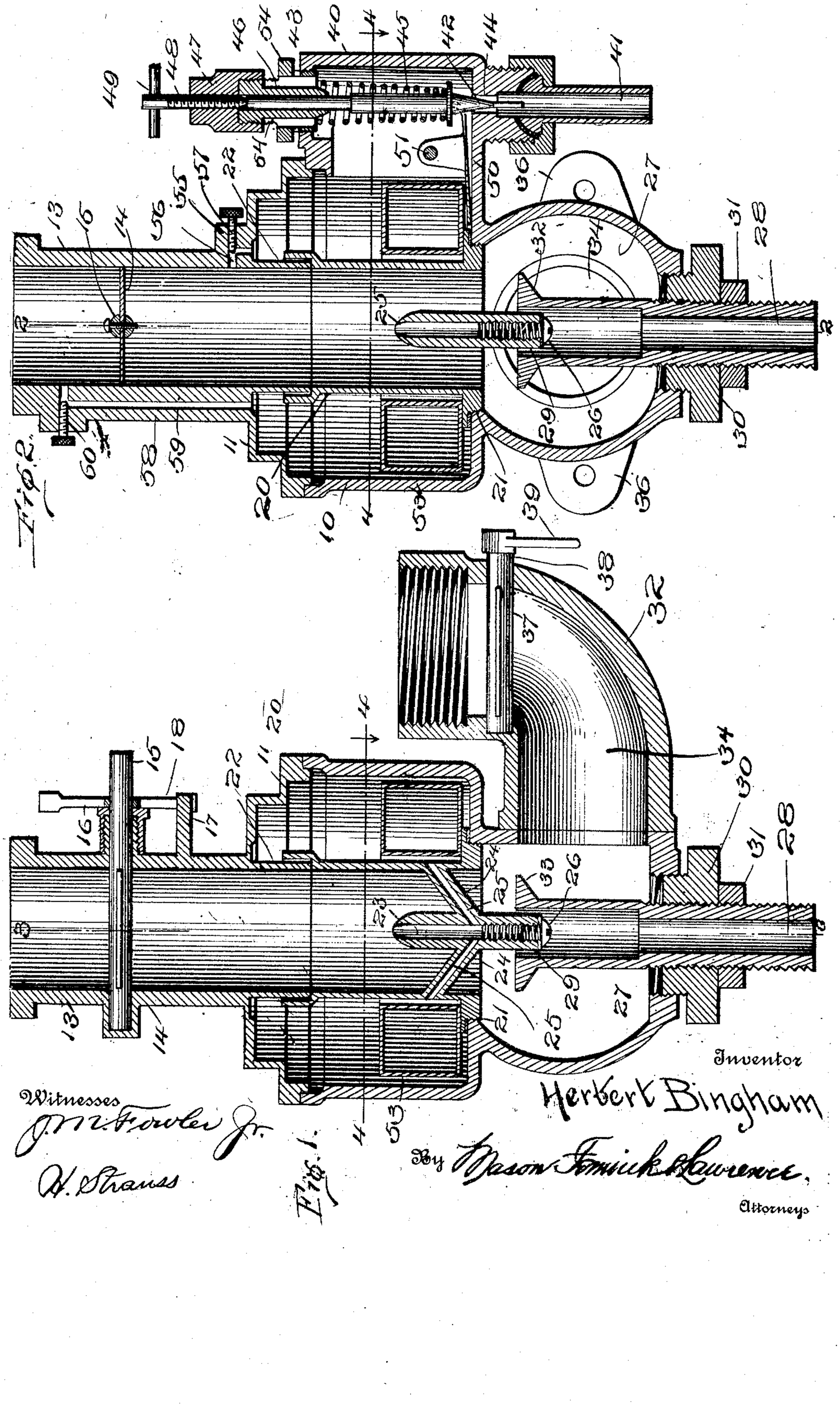
998,457.

Patented July 18, 1911.



Witnesses

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To all whom it may concern:

Be it known that I, HERBERT BINGHAM, a subject of the King of Great Britain, residing at Lakewood, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Carbureters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to carbureters, and has for an object to provide a carbureter with improved atomizing means and improved means for equalizing the exhaust between the mixing chamber and the fuel chamber, and also between the fuel chamber and the outlet port.

A further object of the invention is to provide a fuel chamber having the usual and ordinary float controlling the fuel supply valve with the mixing chamber and alined outlet port contained concentrically within the fuel chamber, and with adjustable passages leading from the outlet port to the fuel chamber, and from the mixing chamber to the fuel chamber.

A further object of the invention is to provide improved interacting air and fuel inlet ports with means for controlling the air inlet.

A further object of the invention is to provide improved means for controlling the admission of fuel to the fuel chamber.

A further object of the invention is to provide improved means for controlling and regulating the supply of air into the fuel chamber.

With these and other objects in view the invention comprises certain novel constructions, combinations and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawings: Figure 1 is a view of the improved carbureter in side elevation. Fig. 2 is a vertical diametrical sectional view taken on line 2—2 of Fig. 1. Fig. 3 is a diametrical sectional view taken at right angles to the section of Fig. 2 and as indicated by line 3—3 of Fig. 2. Fig. 4 is a horizontal sectional view taken on line 4—4 of Figs. 1, 2 and 3 looking downwardly and showing position lines for Figs. 2 and 3. Fig. 5 is a view in side elevation of the orificed nut employed for controlling the admission of air into the fuel chamber. Fig. 6 is a view in inverted plan of the nut shown at Fig. 5 as seen along arrow 6.

Like characters of reference designate corresponding parts throughout the several views.

A fuel chamber 10 is provided open at the top and closed by means of a head 11 secured thereon in any usual and ordinary manner, as by the screws 12. The head 11 is integral or rigidly connected with the outlet port 13 connected with the cylinders of the explosive engine in the usual and ordinary manner, and controlled by means of a flap valve 14 mounted upon a rotatable shaft 15 and controlled by means of a lever 16, the movement being limited by means of a lug 17 outstanding from the port member 13, and with arms 18 and 19 carried by the lever 16 engaging such lug.

Removably mounted within the fuel chamber 10 is a mixing chamber member 20, such removability being provided by the screw threaded connections 21 with the bottom of the mixing chamber 10. The upper end of the mixing chamber 20 receives the sleeve 22 which forms the lower end and continuation of the outlet port member 13, so that the inner bore of such mixing chamber member 20 and the outlet port member 13 are substantially continuous and coaxial.

Concentrically within the mixing chamber member 20 is a fuel nozzle 23 supported therein by means of braces 24 which are tubular to form passages 25 for the passage of fuel from the fuel reservoir 10 into the fuel nozzle 23. For convenience of production the longitudinal bore of the fuel nozzle 23 is continued throughout the member, and is closed at the lower end by screw 26. The lower end of the fuel nozzle member extends downwardly below the mixing chamber member 20 into the air chamber 27, which receives a constant supply of air through the pipe 28 passing through an annular passage 29 upwardly about the fuel nozzle 23. This air inlet 28 is positioned by means of the nut 30 and jam nut 31, and is provided at its upper end with an outwardly flaring baffle head 33. The main or relief supply of air is admitted directly to the chamber 27 by an elbow pipe 32 forming an inlet passage 34, which elbow pipe is secured to the air chamber in any approved manner, as by the screws 35 through the ears 36. Within the supply passage 34 an air controlling valve 37 is

mounted upon a rotatable shaft 38 controlled by the lever 39 from any source.

Communicating with the fuel chamber 10 is an offset chamber 40 connecting by means of the pipe 41 with the source of fuel supply not shown, and providing a valve seat 42. Vertically reciprocatable within the offset chamber 40 is a valve stem 43 carrying a conical or needle valve 44 adapted to close the valve seat 42, and actuated by means of a spring 45 which serves to hold the valve 42 yieldingly to seat. The valve stem 43 extends upwardly through an adjustable nut 46, upon which is secured a second nut or cap 49 screw threaded to receive a screw 48 controlled by a cross head or other means of applying power to adjust the screw to serve to lock the nut 47. To lift the valve 44 a lever 50 is fulcrumed as at 51, and bifurcated to form arms 52 embracing the mixing chamber 20, and upon which rests the float 53. The nut 46 is provided with passages or orifices 54 whereby communication is established between the offset chamber 40 to the atmosphere.

At one side of the discharge port member 13 a lug 55 is constructed having an angle passage 56 formed therethrough communicating at one end with the outlet port member and at the other end with the fuel chamber, and controlled by a knurled screw 57. At some other point shown at the opposite side, the outlet port member is provided with a rib 58 also provided with an angle passage 59 communicating at one end with the outlet port member above the valve 14, and its opposite end with the fuel chamber, and also provided with a similar knurled screw 60 whereby the passage is controlled.

In operation the parts assembled as shown at Figs. 2 and 3 will permit the entry of fuel by the valve 44 into the offset chamber 40 and fuel chamber 10, and the rise of fuel within such chamber will lift the float 53 until the proper height is obtained, when the valve 44 will be closed by the spring 45. The proper height for the fuel within the fuel chamber is, of course, just below the line passing through the upper extremity of the fuel nozzle 23. If now the valve 14 is opened and the engine "turned over" air will be admitted through the passage 28 to atomize and draw fuel from the fuel nozzle 23 in the usual well-known manner, which passes upwardly through the mixing chamber and through the outlet port to charge the cylinder. When the cylinder has been charged and the engine is running the exhaust will of course be greater, and it will then become necessary to admit air as may be required by manipulating the valve 37. The closing of the valve 37 will of course not cut off entirely the supply of air as air is at all times admitted through the passage 28, but the proportion of the air may be increased by opening such valve 37. It is well known that it is desirable to control the pressure within the fuel chamber to correspond with the pressure within the mixing chamber and the outlet port. To accomplish this, the angle passages 56 and 59 are provided whereby the pressure within the fuel chamber is constantly maintained equal to that within both the mixing chamber and the outlet passage. It will be noted that these passages are entirely independent so that by manipulating the screws 57 or 60 the passages may be controlled and pressure regulated as may be found necessary or desirable. Particular emphasis is also laid upon the separability of the several parts which permits interchangeability in case of breakage or other damage, and also permits the removal of parts for cleaning as may be found desirable.

What I claim is:—

1. In a carbureter, a fuel chamber, a head adapted to close the top of the fuel chamber and carrying an outlet port, a valve disposed within the outlet port, and independent relief conduits both communicating with the fuel chamber, one communicating with the outlet port below the valve and the other communicating with the outlet port above the valve, and independently adjustable.

2. In a carbureter, a fuel chamber, an outlet passage extending upwardly from the fuel chamber, a carbureting chamber forming a continuation of the outlet passage, a valve disposed within and adapted to close the outlet passage, independent conduits communicating with the fuel chamber, one communicating with the carbureting chamber and the other with the outlet passage above the valve, and means to independently regulate the passages through the conduits.

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

HERBERT BINGHAM.

Witnesses:
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