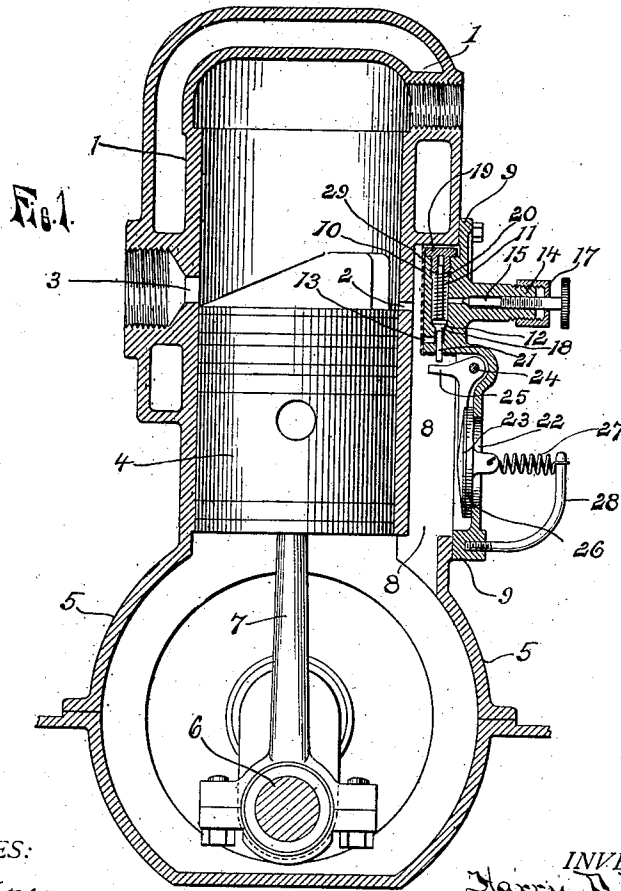
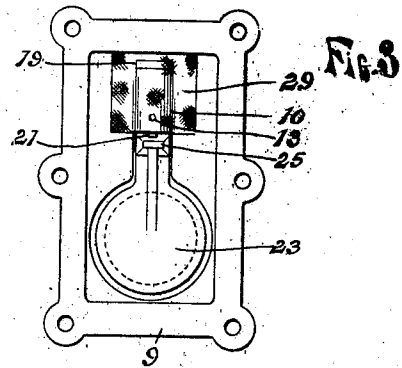
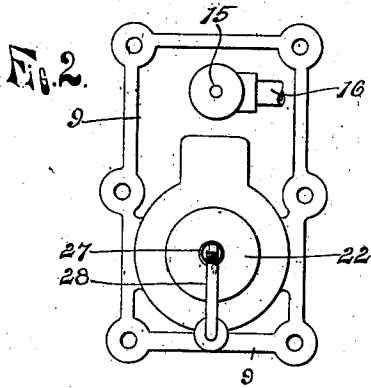


No. 874,822.

PATENTED DEC. 24, 1907.

H. D. BAIRD.
CARBURETER.

APPLICATION FILED FEB. 14, 1907.



WITNESSES:

Anna M. Dore.
Anna M. Mayet

INVENTOR.
Harry D. Baird.
BY *Richard C. Smith*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

HARRY D. BAIRD, OF DETROIT, MICHIGAN, ASSIGNOR TO SAINT CLAIR MOTOR CO.,
OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

CARBURETER.

No. 874,822.

Specification of Letters Patent.

Patented Dec. 24, 1907.

Application filed February 14, 1907. Serial No. 357,323.

To all whom it may concern:

Be it known that I, HARRY D. BAIRD, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Carbureters, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to an improved carbureter for gasolene engines and the object of the invention is to provide a very simple, cheap and efficient device in which the suction or up-stroke of the engine piston is utilized to draw a charge of air and gasolene into the passage leading to the intake port and in which the down-stroke of the piston forces the charges through the inlet port into the cylinder.

20 A further object of the invention is to so construct and arrange the device that it forms a part of the engine, it being mounted upon a plate which forms one side of the passage leading to the intake port from the crank chamber, said passage forming the mixing chamber for the air and gasolene.

25 It is also an object of the invention to prevent, in such an arrangement, the gasolene from going into the crank chamber, and to provide certain other new and useful features, all as hereinafter more fully described, reference being had to the accompanying drawings, in which

35 Figure 1, is a transverse vertical section of an engine with a device embodying the invention attached thereto; Fig. 2, is a front or outside elevation of the carbureting device, detached; and Fig. 3, is an elevation of the same showing the inner side thereof.

40 In the drawing is shown an ordinary vertical cylinder engine of the base compression type, 1 representing the cylinder provided with an inlet port 2 at one side and an exhaust port 3 at the opposite side, 4 the piston in said cylinder, 5 the air-tight crank case in which is the crank 6 connected to the piston by the connecting rod 7, and 8 is a passage leading from the crank case at one side of the cylinder, to and a short distance beyond the inlet port. One side of the passage 8 is left open and this open side is closed by a detachable plate 9 secured in place by bolts. A boss 10 on the inner side of said plate projects into the upper end of the passage and this boss is bored vertically inward from its

upper end to form a chamber 11 therein having a valve seat 12 at its lower end from which seat a discharge passage 13 leads out through the side of the boss.

Extending horizontally outward from the 60 outer side of the plate opposite the boss is a stud 14 having an axial bore leading into the chamber 11 and in this bore which is screw-threaded and formed with a valve seat near its inner end, is a needle valve 15 and gasolene supply pipe 16 communicates with said bore through a lateral passage in the stud. A stuffing box 17 is provided on the outer end of the stud to prevent leakage around the stem of the needle valve which extends outward therethrough and is provided with a hand wheel on its outer end by means of which said stem may be turned to regulate the flow of gasolene. In the chamber 11 is a valve 18 engaging the seat 12 to prevent the 75 flow of gasolene from said chamber and said valve is provided with an upwardly extending stem guided at its upper end in a socket provided therefor in a cap 19 screwed into and closing the upper end of said chamber. 80 The valve is normally held to its seat by a coiled spring 20 sleeved on the stem between it and the said cap and a stem 21 on the lower side of the valve, extends downward through the lower end of the boss 10 and projects 85 therefrom some distance.

In the plate 9 directly below the boss thereon is an opening 22 which is closed by an inwardly swinging valve 23 pivoted to the plate at 24 by an upwardly extending arm 90 thereon, and from said pivot an arm 25 extends horizontally inward beneath the lower projecting end of the valve stem 21 so that when said air valve 23 is opened by the suction stroke of the engine said arm 25 will engage the stem and raise the gasolene inlet valve from its seat to admit a charge of gasolene at the same time. A facing 26 of leather or other suitable material is provided on the air valve so that it will close the opening tightly, and in the axis of the valve is an outwardly extending ear to which is attached one end of a coiled spring 27 to normally hold the valve to its seat, the opposite end of said spring being secured to an arm 28 projecting 105 outward from the plate.

To catch the gasolene as it is admitted by the inlet valve 18 and hold it in suspension to prevent its passing downward with the incoming air into the crank chamber, the boss 10 110

is inclosed within a cage or chamber 29 formed of wire gauze or other suitable material secured at its edges to the plate at a distance from the sides of the boss and extending across beneath the lower end thereof.

The vacuum in the crank-case caused by the up-stroke of the piston will open the air valve 23 and the inward swinging of said valve will bring the arm 25 thereon in contact with the stem of the gasolene inlet valve 18 and open the same, thus admitting a charge of air into the crank case and a charge of gasolene into the gauze cage where it will be held in suspension by the gauze and spread out on the surface thereof. Upon the down stroke of the piston the air will be compressed in the crank-case until the inlet port opens, when the air will rush up the passage 8 and through and over the gauze cage, vaporizing the gasolene and carrying it into the cylinder through the inlet port.

The gauze cage holds the gasolene in suspension in the path of the ingoing air where it will be readily taken up and also divides it into fine globules to more thoroughly carburate the air, and by arranging the gasolene inlet valves and the air valve upon one plate which is readily removable, the parts are made very accessible for cleaning or repair.

Having thus fully described my invention, what I claim is:—

1. The combination with an engine of the base-compression type having a passage leading from its base to its inlet port, of a valve for admitting charges of gasolene to said passage, a valve for admitting air operated by the suction stroke of the engine piston and the movement of which valve opens the gasolene valve, and a gauze cage within the passage to receive and hold the gasolene through which the air passes on its way to the inlet port.

2. The combination with an engine of the base-compression type having a passage leading from its base to its inlet port, a valve operated by the stroke of the engine piston for admitting air to said passage, a valve for admitting charges of gasolene to said passage having a stem adapted to be engaged by the air valve to open the gasolene valve, and a foraminous cage within the passage surrounding the gasolene nozzle to receive the gasolene.

3. The combination with an engine of the base-compression type having a passage leading from its base to its inlet port and one side of which passage is open, of a plate to close said opening, means for admitting charges of gasolene to said passage carried by said plate, and a valve carried by said plate to operate by the stroke of the engine piston for admitting air to the passage and operating to actuate said means.

4. The combination with an engine of the

base-compression type provided with a passage leading from its base to its inlet port, said passage having an open side, of a plate to close said open side of the passage formed with a gasolene inlet passage, a valve to control said gasolene passage, and means operated by the suction stroke of the engine piston for admitting air to the passage and operating the gasolene valve.

5. The combination with an engine of the base-compression type provided with a passage leading from its base to its inlet port, said passage having an open side, of a plate to close said open side formed with an opening and with a gasolene passage, a valve to close the opening in the plate operated by the stroke of the engine piston to admit air to said engine passage, a valve to control the gasolene passage, and a stem on said valve operated by the opening of the air valve.

6. The combination with an engine of the base-compression type provided with a passage leading from its base to its inlet port, said passage having an open side, of a plate to close said open side having a gasolene inlet, a valve to control the gasolene inlet, a valve pivotally attached to the plate adapted to be opened by the suction stroke of the engine piston, a spring to hold said valve to its seat, and an arm on the said valve adapted to operate the valve controlling the gasolene inlet.

7. The combination with an engine of the base-compression type provided with a passage leading from its base to its inlet port, said passage having an open side, of a plate to close said open side having an opening, a valve to close said opening adapted to be opened by the suction stroke of the engine piston, a boss on the plate formed with a chamber having a valve seat in its lower end and a discharge passage leading from said seat, and a valve on the valve seat having a stem extending through the boss and adapted to be engaged and operated by the other valve.

8. The combination with an engine of the base-compression type provided with a passage leading from its base to its inlet port, said passage having an open side, of a plate to close said open side provided with a gasolene inlet adapted to discharge into the said passage, an air valve operated by the suction stroke of the engine piston, a valve controlling the inlet and operated by the air valve, and a chamber into which the inlet opens in said passage formed of material through which air will pass freely.

9. The combination with an engine of the base-compression type provided with a passage having an open side leading from the engine crank-case to its inlet port, of a plate to close said open side formed with an opening, an air valve pivoted to the plate to close said opening and adapted to be operated by

the suction stroke of the engine piston, a
spring to normally hold the valve to its seat,
an inwardly projecting boss on the plate
formed with a chamber having a valve seat
5 in its lower end and a discharge passage lead-
ing from said seat, a valve engaging said seat,
a stem on the valve extending downward
through the boss and projecting therefrom,
an arm carried by the air valve to engage and
10 operate the valve stem, a stud on the plate

opposite the boss formed with an axial bore
opening into the chamber in the boss, a nee-
dle valve in said bore, and a chamber formed
of wire gauze inclosing the boss.

In testimony whereof I affix my signature 15
in presence of two witnesses.

HARRY D. BAIRD.

Witnesses:

HARRY M. LICK,
OTTO F. BARTHEL.