C. POHL.

AUXILIARY INLET DEVICE FOR INTERNAL COMBUSTION ENGINES.

APPLICATION FILED AUG. 10, 1920.

1,421,554. **Patented July 4, 1922.**

Fig. 1

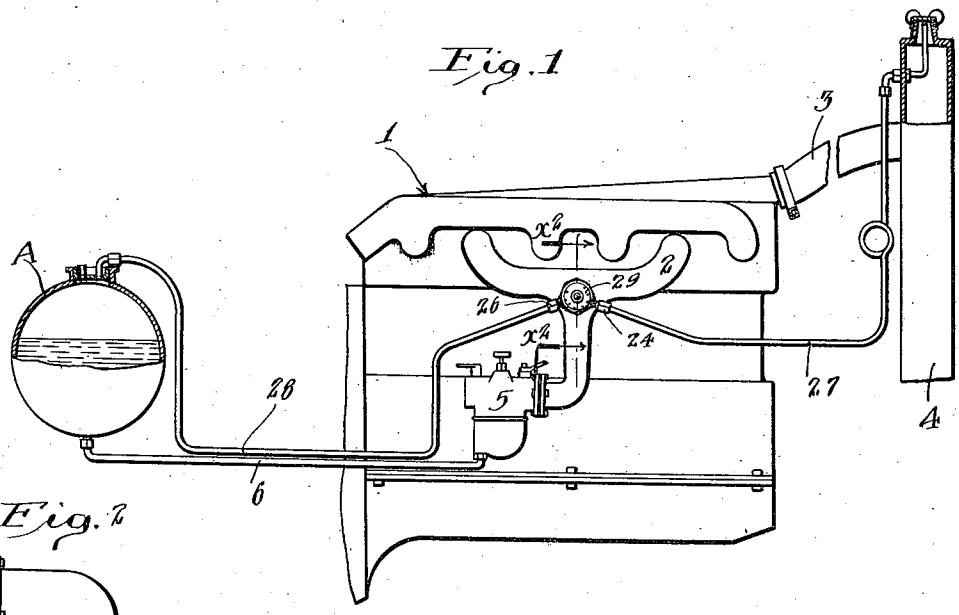


Fig. 2

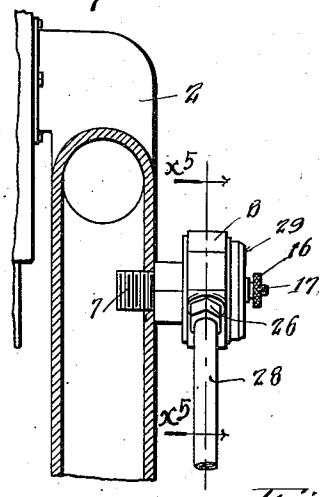


Fig. 3

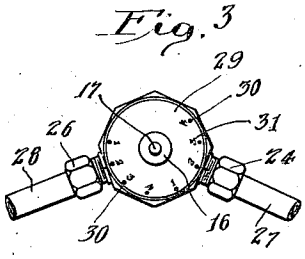


Fig. 4

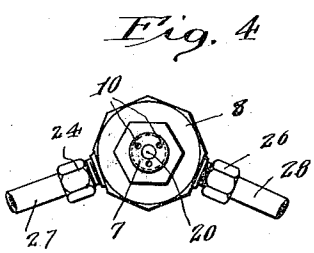


Fig. 5

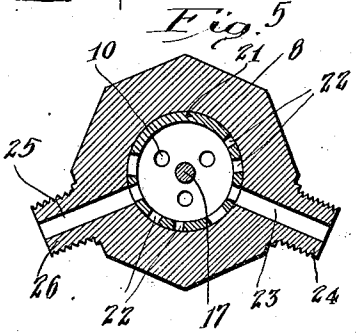
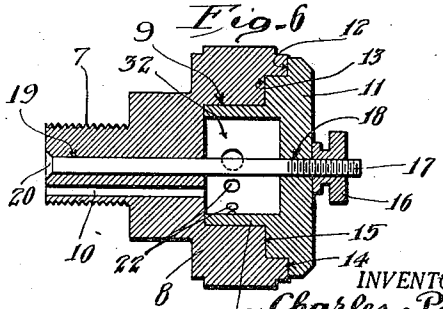


Fig. 6



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AUXILIARY INLET DEVICE FOR INTERNAL-COMBUSTION ENGINES.

1,421,554. Specification of Letters Patent. Patented July 4, 1922.

Application filed August 10, 1920. Serial No. 402,587.

To all whom it may concern:

Be it known that I, CHARLES POHL, a citizen of the United States, residing at Los Angeles, county of Los Angeles, State of California, have invented a new and useful Auxiliary Inlet Device for Internal-Combustion Engines, of which the following is a specification.

In my Patent No. 1,397,780 for fuel feeding system, granted November 22nd. 1921, I disclose a valved device attached to the intake manifold of an engine and connected by tubing to the top of the radiator and to the top of the fuel tank for inducting watery vapor and hydrocarbon vapor into the engine, said device also having a valve-controlled air inlet port to admit auxiliary air to the manifold between the carburetor and the engine.

Also in my patent for system of supplying a combustible mixture to an explosive engine, No. 1,381,331 issued June 14, 1921, there is disclosed a valved device connected by tubing with the upper portion of the fuel tank and with an air heating chamber mounted on the exhaust manifold for inducting hydrocarbon vapor and hot air into the manifold between the carburetor and the engine cylinders.

This present invention comprises a device devoid of suction-opened valves and it may be connected up in the manner disclosed in either of the above mentioned patents or in any other desired manner. In the drawings the invention is shown connected with the radiator and fuel tank after the manner disclosed in the above first mentioned patent, but it is to be understood that such showing is merely illustrative and that it is for the purpose of making clear how the invention operates.

An object of this invention, as distinguishing from the invention disclosed in the hereinbefore mentioned prior patents, is to make provision for definite adjustments to different engines and carburetors, so that the device will be of universal application.

Another object is to provide for ease of adjustment of the device in accordance with the conditions arising from using the device with different types of engines and carburetors.

Other objects and advantages will appear hereinafter.

The accompanying drawings illustrate the invention.

Figure 1 is an elevation of a conventional automobile engine, radiator and fuel tank, together with the invention which is shown connected up ready for operation.

Figure 2 is an enlarged elevation partly in section, on the line indicated by X^2—X^2, Fig. 1.

Figure 3 is a front face elevation of the device looking toward the left in Fig. 2.

Figure 4 is an elevation of the invention looking at the rear face thereof.

Figure 5 is an enlarged sectional elevation on the line indicated by X^5—X^5, Fig. 2. the tubes being omitted.

Figure 6 is an enlarged sectional elevation on the line indicated by X^6—X^6, Fig. 3.

The engine is indicated in general by the character 1, and is provided with an intake manifold 2. The engine, in this instance, is waterjacketed in the usual manner and the water jacket is connected by a pipe 3 with a radiator 4. Connected with the manifold 2 is a carburetor 5 of any desired construction, said carburetor receiving its supply of fuel through a tube 6 from a fuel tank A.

The invention is constructed as follows: Into the intake manifold 2 is screw-threaded the nipple 7 of a chambered body 8, the chamber being indicated at 9. The chamber 9 communicates with the manifold 2 through a port or ports 10, which extend through the nipple 7.

Rotatively mounted in the chamber 9 is a cylindrical chambered valve 11 having a pair of annular shoulders 12, 13 adapted to seat against corresponding annular shoulders 14, 15, respectively, inside of the member 8. The valve 11 is held in place by a nut 16 screw-threaded onto a stem 17 which passes through holes 18 in the valve 11 and through a hole 19 in the body 8, the holes 18, 19 being axially aligned. The chamber of the valve is indicated at 32.

The stem 17 is provided at the end opposite that engaged by the nut with a head 20 adapted to bear against the outer end of the nipple 7 when the nut 16 is tightened against the outer face of the valve 11. When it is desired to turn the valve 11 the nut 16 will be turned slightly so as to loosen it.

The peripheral wall 21 of the valve chamber 32 is provided with ports 22 arranged, in this instance, in two series, the ports of each series being of different diameters. The ports 22 in one series are adapted to selectively register with a port 23 extending laterally through the body 8, the outer portion of said port 23 passing through a nipple 24 formed on the body 8. The ports in the other series are adapted to selectively register with a port 25 extending laterally in the body 8, the outer portion of the port 25 extending through a nipple 26 formed on the body 8.

In the position of the valve 11 shown in Fig. 5 ports 22 of like diameter are in registration with the ports 23, 25, but, if desired the valve may be rotated to a position in which ports 22 of different diameters may be caused to register with the ports 23, 25 so as to obtain a still different combination of active port areas.

The nipples 24, 26 may be connected to any suitable sources of hydrocarbon vapors and hot air, or hydrocarbon vapors and watery vapor in any desired manner, the invention not residing in the manner of connecting up the body 8. However, for the sake of clearness in describing the invention and its operation, in Fig. 1 of the drawings it is shown connected with the radiator 4 and fuel tank A, the nipple 24 being connected by tubing 27 with the radiator, and the nipple 26 being connected by tubing 28 with the fuel tank.

Preferably the outer face of the valve 11 forms a dial 29, provided with graduations 30 on its marginal portion corresponding in spacing and position with the ports 22, and the different graduations are distinguished from one another by suitable indicia 31. Thus when any two graduations are brought into alignment with the respective nipples 24, 26, the person making the adjustment will know that certain of the ports 22 are aligned with the ports 23, 25.

The manufacturer of the invention may issue suitable instructions, when selling the device, to instruct the purchaser thereof which graduations are to be aligned with the nipples 24, 26 for different makes of engines and carburetors. Thus, for a Ford car, with its regular equipment of carburetor, the valve 11 will be adjusted to one position, and when the device is placed on a Cadillac car having regular carburetor equipment the valve 11 will be adjusted to a different position. Of course other adjustments may be necessary, if the owner of the car changes the type of carburetor employed therewith.

As the invention is connected in Figure 1 of the drawings, it is clear that upon operation of the engine watery vapor from the upper portion of the radiator will pass through the tube 27 into the manifold 2, and that hydrocarbon vapor from the fuel tank A will pass through the tube 28 into the manifold 2 to there mix with the combustible mixture entering the manifold from the carburetor 5.

I claim:

1. In an auxiliary inlet device for internal combustion engines, the combination of a member containing a plurality of intake ports and having an outlet port adapted to communicate with the intake manifold of an engine, and a valve member having two series of ports, the ports of each series being of different diameters and the ports of one series corresponding in diameter with the respective ports of the other series, and said valve member being adjustable to different positions and the ports being spaced so that when the valve member is in some positions ports of like diameter will register with the intake ports and so that when the valve member is in a different position ports of different diameters will register with the intake ports.

2. In an auxiliary inlet device for internal combustion engines, the combination of a body having a cylindrical chamber therein, and a nipple at one end thereof, there being a port opening from the chamber and extending through the nipple, a chambered valve having a wall portion fitting the chamber of the body and having an annular shoulder fitting against the other end of the body, there being ports extending through the peripheral wall of the chamber and other ports in the peripheral wall of the valve adapted to register or not register with the last named ports according to the positions to which the valve is turned, a stem extending from the body through its chamber, and a nut screw-threaded onto the stem to releasably secure the valve against turning.

3. In an auxiliary inlet device for internal combustion engines, the combination of a body having a cylindrical chamber therein and a nipple at one end thereof, there being a port opening from the chamber and extending through the nipple, a chambered valve open at the end adjacent the port and having a wall portion fitting the chamber of the body, there being ports extending through the peripheral wall of the chamber and other ports in the peripheral wall of the valve adapted to register or not register with the last named ports according to the positions to which the valve is turned, a stem extending from the body through its chamber and through the valve, and means on the stem to retain the valve in place.

Signed at Los Angeles, California, this 2d day of August 1920.

CHARLES POHL.

Witnesses:
GEORGE H. HILES,
L. BELLE WEAVER.