A. DE CLAIRMONT.

COMBINED PRIMER, DECARBONIZER, AND AIR VALVE.

APPLICATION FILED APR. 9, 1915.

1,164,931. Patented Dec. 21, 1915.

Fig. 1.

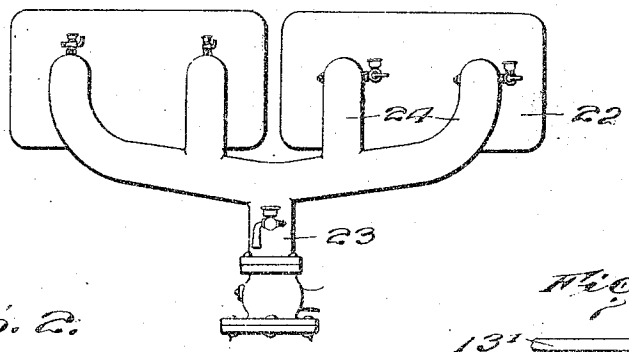


Fig. 2.

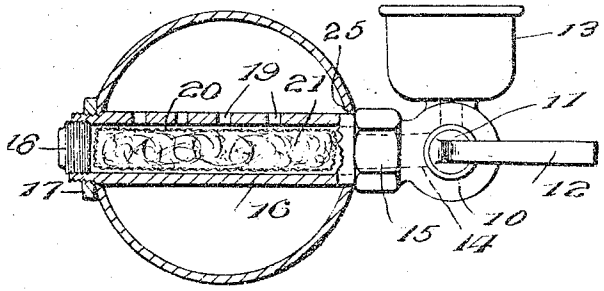


Fig. 4.

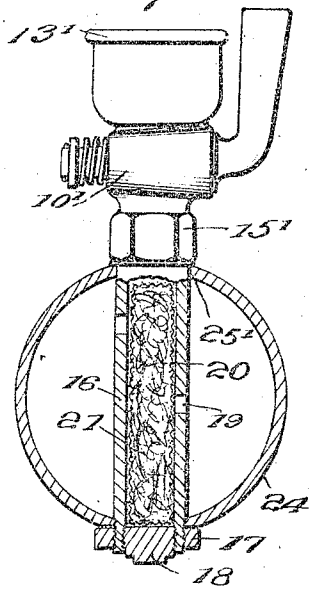
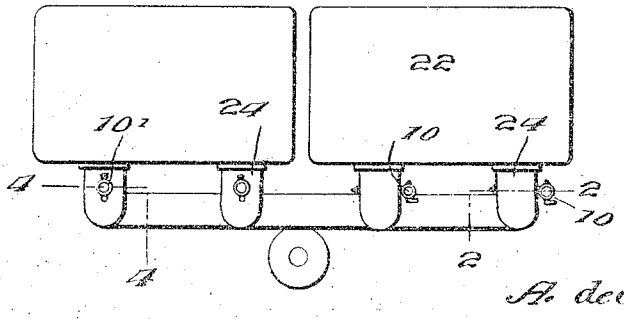


Fig. 3.



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COMBINED PRIMER, DECARBONIZER, AND AIR-VALVE.

1,164,931. Specification of Letters Patent. Patented Dec. 21, 1915.

Application filed April 9, 1915. Serial No. 20,226.

To all whom it may concern:

Be it known that I, ADOLFO DE CLAIRMONT, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Combined Primers, Decarbonizers, and Air-Valves, of which the following is a specification.

My invention relates to new and useful improvements in valves for supplying added air to the manifolds of internal combustion engines, the primary object of my invention being the provision of a valve of the above described type which may also be employed for priming the engine or for supplying a decarbonizing fluid to the engine while the latter is running.

I am well aware that many air valves are now in use for supplying air to engine manifolds and that such valves have been used for priming purposes, but these valves, to the best of my knowledge, merely provide a means for supplying crude or liquid gasolene to the engine cylinders, with the result that the engine must be turned over a number of times in order to vaporize or mix the gasolene so supplied with air.

In this connection, a still further object of my invention consists in providing a valve of such a type that when gasolene or a decarbonizing fluid is poured into it, such fluid will be held from direct passage into the engine cylinders as a fluid, being drawn in only in the form of a vapor or in a mechanical mixture with air drawn through the carbureter.

A still further object of my invention consists in the provision of a novel means for securing my improved air valve in place in a manifold. In this connection, in order to prevent the gasolene or decarbonizing fluid from passing from the valve to the engine cylinders as a fluid, I provide a perforated tubular body portion which extends from the valve into the manifold and which is filled or partially filled with a packing of absorbent material to absorb the gasolene or decarbonizing fluid and hold it until drawn into the engine cylinders by the suction of the engine.

In this connection, a still further object of my invention consists in so applying and constructing the valve and tubular body portion that this packing may be withdrawn and renewed at any time without removing the device from the manifold.

With these and other objects in view, my invention will be more fully described, illustrated in the accompanying drawing, and then specifically pointed out in the claims which are attached to and form a part of this application.

In the drawing: Figure 1 is a fragmentary side elevation, showing the methods of applying both forms of my improved air valve to a vertically disposed intake manifold; Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 3; Fig. 3 is a fragmentary top plan view of the structure shown in Fig. 1; Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 3.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawing by the same reference characters.

Referring first to the form of my air valve illustrated in Figs. 1 and 2 of the drawing, it will be noted that I provide a valve body proper 10 of the globe valve type provided with a conical cut-off valve 11 operable by the usual handle 12. This valve body or casing, at one side, is provided with a cup 13 which communicates with the valve passage 14 and at right angles to this cup with an internally threaded nipple 15 which also communicates with the valve passage 14 when the latter communicates with the cup 13. A tubular body member 16 has one end externally threaded for engagement within the nipple 15 and its other end externally threaded to receive a nut 17 and internally threaded to receive a plug closure 18. The tubular body portion 16 is provided with a plurality of perforations 19 and located interiorly of this tubular body is a cylindrical container 20 of foraminous material or perforated sheet metal filled with a light packing 21 of cotton, wool, asbestos fiber, felt or any other suitable absorbent material.

In order to illustrate the application of this air valve, I have shown, in Fig. 1, a conventional form of internal combustion engine 22 having an intake manifold 23 which extends vertically and is provided with branches 24 leading to the various engine cylinders. The walls of the horizontal portions of certain of the branches of the manifold 23 are provided with diametrically disposed horizontally alined openings 25 to closely receive the tubular body portion 12 of my air valve and priming device and this body portion, as shown in Fig. 2 of the

drawing, is of such length as to extend completely through the manifold in a transverse direction. When so positioned, the body member is turned until the priming cup is vertically disposed with its open end uppermost and the nut 17 is then applied to clamp the device in place.

In Figs. 3 and 4 of the drawing, I have illustrated a slightly modified form of my invention in that the priming cup 13′ and nipple 15′ are formed at diametrically opposite sides of the valve casing 10′. In other respects, the device is identical in construction with the device previously described and its corresponding parts bear like reference characters. This latter device is intended for use in horizontal position where the other form could not be conveniently used in the manner shown in Figs. 1, 3 and 4, in which case the upper and lower sides of the horizontal branches 24 of the manifold, are provided at diametrically opposite vertically alined points with openings 25′ to snugly receive the body portion 19 of the device and the device is clamped in place in the position best shown in Fig. 4. When the device is used merely as an auxiliary air valve for admitting air to the intake manifold of the engine, the valve is opened by means of the handle 12 to the desired extent, depending upon the richness of the mixture furnished by the carbureter, the size of the engine, and the average speed at which the engine is to operate. It will, of course, be clear that the suction in the engine cylinders will draw air through the cup 13 and valve, through the absorbent material 21 in the body of the device, and through the perforations 19 of such body into the manifold.

Both forms of my device operate in the same manner, both when employed as air valves and when employed as priming or decarbonizing devices, as will now be explained. When the device is employed for priming purposes, a suitable quantity of gasolene, alcohol, or a mixture of gasolene and alcohol, is poured into the priming cup 13 or 13′, as the case may be, and the valve opened to allow the liquid to run into the body portion of the device and be absorbed by the absorbent material located therein. The valve may then be closed to prevent an undue supply of air and the engine turned over in the usual manner. The suction of the engine then draws the air from the carbureter through the manifold and through the perforations of the body portion of the device and the absorbent material therein, the air so passing taking up the gasolene or other priming liquid and carrying it to the engine cylinders in proper form to provide an explosive mixture.

When the device is employed for decarbonizing purposes, the valve is opened, while the engine is running idly, and the priming cup kept filled with any suitable decarbonizing fluid until a sufficient quantity, to properly clean the engine, has been drawn in, after which the valve is preferably closed. It will be clear that the decarbonizing fluid will be drawn into the engine cylinders in combination with the explosive mixture of the carbureter and in finely divided form. For this reason, it will be far more effective than when poured directly into the cylinders by priming cups now in use. At this point, it should be noted that the liquid, whether a priming liquid or a decarbonizing liquid, passes to the absorbent material of the device by gravity. Furthermore, because of the peculiar manner in which the device is connected to the manifold, it will be clear that the absorbent material may be removed and cleaned or replaced without removing the device itself from the manifold, removal of the plug 18 permitting ready access to and subsequent withdrawal of the foraminous holder 20 and inclosed absorbent material. Furthermore, after the absorbent material and its container have been drawn from the body of the device, the valve, if clogged up, may be cleaned by inserting a wire through the free end of the body portion 16 and outwardly through the valve into the priming cup, any foreign matter being forced into the priming cup, instead of into the body portion and so into the manifold.

Having thus described the invention, what is claimed as new is:

1. A device of the character described including a valve having a fluid passage, a cup communicating with one end of the passage, a tubular body communicating with the other end of the passage and adapted to extend completely through the intake manifold of an engine and transversely thereof, said body being perforated, a threaded closure for the free end of the body, and means applicable to the free end of the body to secure the body against removal from the manifold.

2. A device of the character described including a tubular cylindrical body provided with perforations and externally threaded at both ends and internally threaded at one end, said body being adapted to extend transversely through the intake manifold of a gas engine, a plug closing one end of the body, a valve having an internally threaded nipple engaging the other end of the body, a priming cup communicating with the valve, and a nut threaded upon the other end of the body and adapted to engage against that side of the manifold opposite the valve to clamp the body against movement.

3. A device of the character described including a tubular cylindrical body provided with perforations and externally threaded at both ends and internally threaded at one

end, said body being adapted to extend transversely through the intake manifold of a gas engine, a plug closing one end of the body, a valve having an internally threaded nipple engaging the other end of the body, a priming cup communicating with the valve, a nut threaded upon the other end of the body and adapted to engage against that side of the manifold opposite the valve to clamp the body against movement, and absorbent material located in the body.

4. A device of the character described including a tubular cylindrical body provided with perforations and externally threaded at both ends and internally threaded at one end, said body being adapted to extend transversely through the intake manifold of a gas engine, a plug closing one end of the body, a valve having an internally threaded nipple engaging the other end of the body, a priming cup communicating with the valve, a nut threaded upon the other end of the body and adapted to engage against that side of the manifold opposite the valve to clamp the body against movement, a foraminous container located within the body, and absorbent material in the container.

5. A device of the character described including a perforate tubular body adapted to extend transversely through the intake manifold of an internal combustion engine, means co-acting with the ends of the body for clamping it against movement through the manifold, one end of the body being closed, and means for admitting fluid to the other end of the body.

6. A device of the character described including a tubular cylindrical body provided with perforations, said body being adapted to extend transversely through the intake manifold of a gas engine, means engaging the ends of the body for clamping it against movement through the manifold, a valve communicating with one end of the body, a foraminous container filled with absorbent material removably positioned in the body, and a plug closing the opposite end of the body.

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

ADOLFO DE CLAIRMONT, M. D. [L. S.]

Witnesses:
E. M. KEINATH,
M. LEROUX.