

L. WEGLEIN, Jr.

DEVICE FOR MOISTENING AND HEATING THE AIR SUPPLY FOR INTERNAL COMBUSTION ENGINES.
APPLICATION FILED JULY 7, 1913.

1,097,380.

Patented May 19, 1914.

Fig. 1.

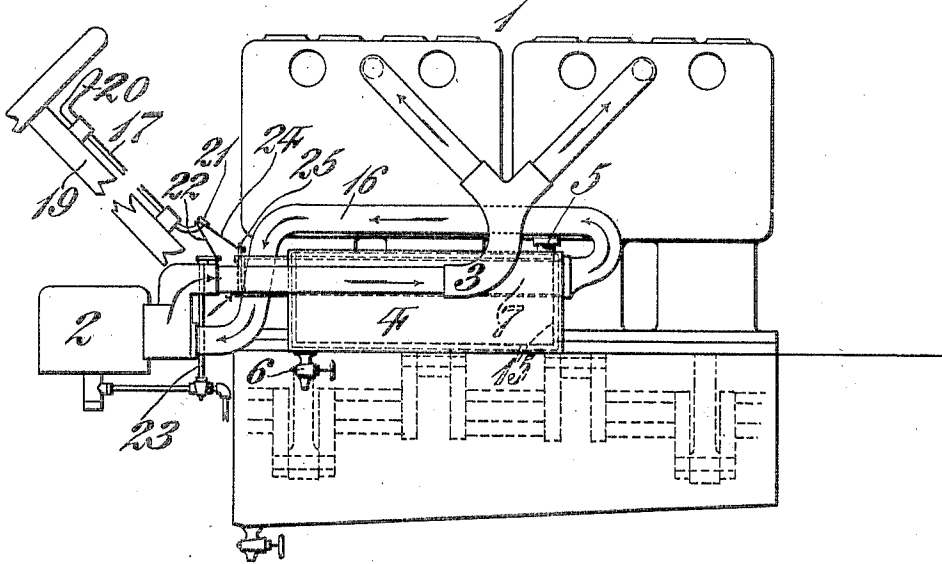


Fig. 2.

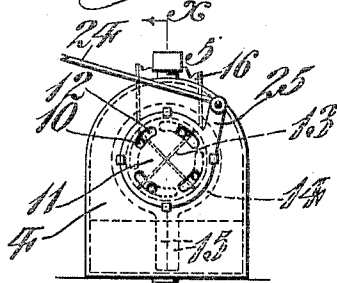


Fig. 3.

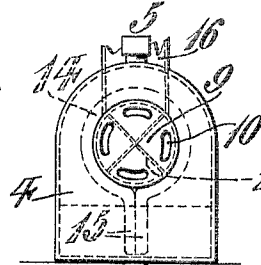


Fig. 4.

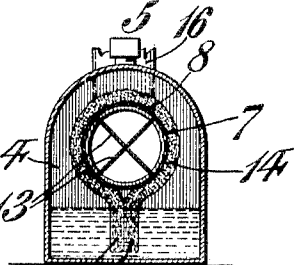


Fig. 5.

WITNESSES
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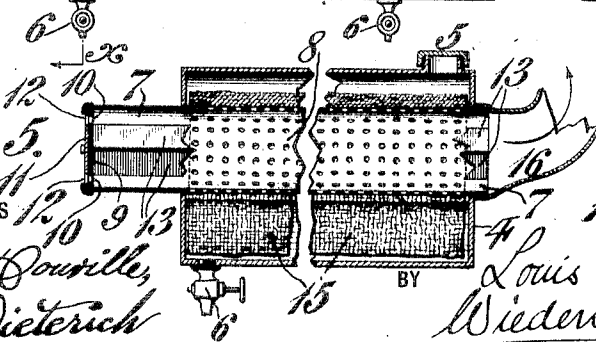


Fig. 6.



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DEVICE FOR MOISTENING AND HEATING THE AIR-SUPPLY FOR INTERNAL-COMBUSTION ENGINES.

1,097,380.

Specification of Letters Patent.

Patented May 19, 1914.

Application filed July 7, 1913. Serial No. 777,682.

To all whom it may concern:

Be it known that I, LOUIS WEGLEIN, JR., a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Device for Moistening and Heating the Air-Supply for Internal-Combustion Engines, of which the following is a specification.

My invention consists of an improved device for moistening and heating the air-supply for internal combustion engines.

It further consists of such improved device in which means are provided for preventing particles of the moistening water entering the air-duct.

It further consists of means for simultaneously controlling the supply of the liquid hydrocarbon fuel and moistened and heated air.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

The annexed drawings and the following description set forth in detail one mechanical form embodying the invention, such detail construction being but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings Figure 1 represents a side elevation of an automobile engine and my improved device applied to the same. Fig. 2 represents an end-view of the moistener with the air-controlling valve or damper in position. Fig. 3 represents an end-view of the moistener with such valve or damper removed. Fig. 4 represents a transverse section of the moistener. Fig. 5 represents an axial section of the moistener, on the line $x-x$ in Fig. 2. Fig. 6 represents a perspective view of a portion of the air-moistening flue.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, the reference numeral 1 indicates an internal combustion engine, having a carbureter, 2, and a gas-pipe, 3, conveying the gas-mixture to the cylinders of the engine from said carbureter. A tank, 4, preferably of the shape illustrated, having a rectangular body and an arched top, is supported upon the vehicle frame or chassis (not shown) at the side of the engine, and has a filling opening in its top, covered by a cap or closure, 5, and a

cock, 6, at its bottom for drawing off its contents. A cylindrical flue, 7, is secured in the heads of the tank, preferably co-axial with the arched top, and that part, 8, of such flue which is within said heads, is foraminated. The intake end of said flue is covered by a plate or seat, 9, having an annular series of ports, 10, and a disk, 11, having a corresponding annular series of registering ports, 12, is supported to rotate upon said seat to form a valve or damper. Longitudinal partitions, 13, are secured within the flue to divide the same into ducts,—four of such ducts being illustrated, and the ends of said ducts each registering with a set of ports in the seat and damper. A covering, 14, of fibrous material, such as lamp-wicking or similar absorbent material, is wrapped tightly around the flue, and the depending flanges, 15, of such covering extend toward the bottom of the tank. A tube, 16, extends from the outlet end of the flue and is curved upward and then rearward to extend over the tank, and said tube or duct is connected to the air-intake of the carbureter. A shaft or rod, 17, is journaled to rock in bearings, 18, upon the steering rod tube, 19, and has a handle, 20, at its upper end for rocking it, and an arm, 21, at its lower end having movable connection, 22, to the fuel-controlling valve, 23, and movable connection, 24, to an arm, 25, projecting from the edge of the damper, so that opening or closing of the fuel-controlling valve will correspondingly open and close the air-damper.

In practice, the tank is filled with water up to a point below the flue in the same, and the covering is preferably also saturated. When the engine now is started, air is drawn into the flue at the damper, and, as the air passes through said flue, it absorbs moisture through the foraminated wall of the same from the absorbent covering, which is kept saturated by capillary action of the flanges depending into the water in the tank. The moistened air in the flue and air-tube is heated by radiation from the engine, and the heated and moist air mingles with the finely comminuted fuel in the carbureter. Besides drawing the water in the tank around the flue to envelop the latter with the absorbed water, the covering or envelop of absorbent fibrous material prevents water splashing in the tank during motion of the vehicle from entering the foraminated flue

in large particles. By moistening the air before taking it into the carbureter and partly heating it; lower grade fuel than otherwise may be used and better efficiency will be obtained with all fuel than when taking dry air into the carbureter. By subdividing the flue by the partitions into a plurality of ducts, a more equal distribution of the moisture is attained than by omitting said partitions, in which latter case the moisture is liable to be greater in the lower side of the flue on account of its greater gravity.

By the method of moistening and heating the air before admitting it into the carbureter, considerable economy in fuel and increase of efficiency is attained, combustion is perfected, and very slight, if any, smoke is exhausted.

Other modes of applying the principle of my invention may be employed for the mode herein explained. Change may therefore be made as regards the mechanism thus disclosed, provided the principles of construction set forth, respectively, in the following claims are employed.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. An internal combustion engine, a tank adapted to be arranged in close proximity to such engine and to contain water, an intake flue supported in said tank above the water-level in the same and having the portion within the tank foraminated, an absorbent covering secured around said foraminated portion and having a portion immersed in the water in the tank, and a gas pipe connected to the outlet end of the foraminated intake flue and carried alongside the engine and adapted to be connected to the intake of the carbureter.

2. An internal combustion engine, a tank adapted to be arranged along the engine and to contain water, an intake flue supported in said tank and above its water-level and having the portion within the tank foraminated and provided with radial partitions forming longitudinal channels in the foraminated portion, a valve seat having ports at the intake ends of such channels, a valve upon said seat and controlling said ports, and an absorbent covering secured around said foraminated portion of the intake flue and having a portion immersed in the water in the tank.

3. A device of the character stated; com-

prising a tank for water, a flue longitudinally arranged in said tank and having a seat formed with an annular series of ports at its intake end and its outlet end adapted to be connected to the air-intake of a carbureter and having a foraminated portion within the tank, a damper rotatably mounted upon said seat and having an annular series of ports corresponding to and registrable with the ports in the seat, and an absorbent covering for the foraminated flue and having a portion adapted to immerse in the water in the tank.

4. A device of the character stated, comprising a tank for water, a flue longitudinally arranged in said tank and having a seat formed with an annular series of ports at its intake end and its outlet end adapted to be connected to the air-intake of a carbureter and having a foraminated portion within the tank, longitudinal radiating partitions within said flue to form a plurality of ducts having their intake ends registering with the ports in the seats, a damper rotatably mounted upon said seat and having an annular series of ports corresponding to and registrable with the ports in the seat, and an absorbent covering for the foraminated flue and having a portion adapted to immerse in the water in the tank.

5. An internal combustion engine, a carbureter for the same, a fuel controlling valve for such carbureter, an air-moistener arranged alongside said engine and having its outlet adapted to be connected to the air-intake of the carbureter, a damper at the air-intake of said moistener, and controllable means connected to the fuel-valve and damper to simultaneously open and close the same.

6. An internal combustion engine, a carbureter for the same, a fuel-controlling valve for said carbureter, an air-moistener arranged alongside said engine and having an air-intake at one end, a damper controlling said intake, a tube extending from the opposite end of said moistener and carried over the same alongside the engine and connected to the air-intake of the carbureter, and manually operated means connected to simultaneously open and close said fuel-valve and damper.

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Witnesses:

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