

May 5, 1925.

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C. M. WILCOX

MOTOR HUMIDIFIER

Filed April 6, 1922

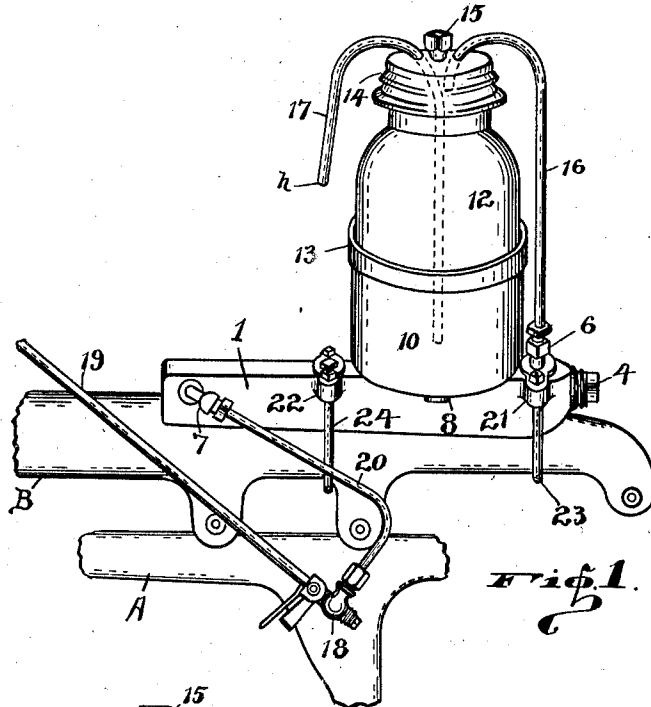


Fig. 1.

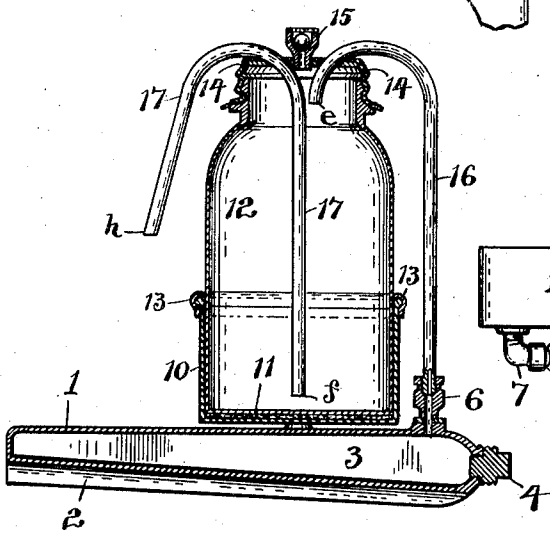


Fig. 2.

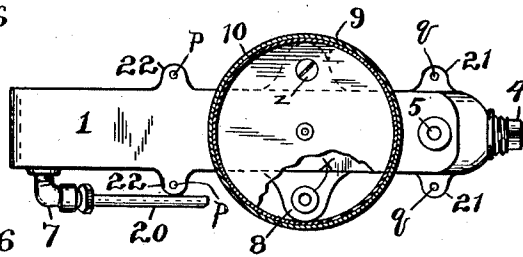


Fig. 3.

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UNITED STATES PATENT OFFICE.

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MOTOR HUMIDIFIER.

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To all whom it may concern:

Be it known that I, CHARLES M. WILCOX, a citizen of the United States, residing at Cedarville, in the county of Green, in the State of Ohio, have invented a new and useful Motor Humidifier, of which the following is a full, clear, and comprehensive specification and exposition, the same being such as will enable others to construct and install the same with exactitude.

The object of my present invention is to provide a motor humidifier which is simple in character, automatic in operation, easily and quickly applied or installed, durable in construction, efficient in practice, and which can be manufactured and sold at a comparatively low price.

It has been definitely determined that the ordinary gasoline explosion motor operates better and more economically when the atmosphere is damp, as during a rain, than in dry weather. It is also scientifically determined that if the proper amount of moisture be taken into the motor with the fuel that the various parts of the motor will function more accurately and will not collect carbon or develop smoke or soot, as the moisture carrying an excess of hydrogen will cause the fuel to be entirely consumed in the explosion chambers of the motor and therefore applied to producing power and a consequent saving of fuel.

Therefore the primary object of this invention is to supply the motor with the conditions enumerated above in a positive and a scientific manner, regardless of the conditions of the weather or of the atmosphere outside of the motor.

The above results I am able to attain with the construction as shown in the accompanying drawings, in which—Figure 1 shows a side elevation of my complete construction as applied to the intake and the exhaust manifolds of an explosion motor. Figure 2 is a vertical central section taken through the main portions of the invention alone. And Figure 3 is a top plan view of the body member of the invention.

Similar indices denote like parts throughout the several views. In order that the construction, the operation, and the advantages of the invention may be more fully understood and appreciated I will now take up a detailed description thereof in which I will set forth the several features thereof as fully and as clearly as I may.

Referring now to the drawings in detail: Letter A denotes a portion of an intake manifold of an explosion motor, and letter B denotes a portion of the exhaust manifold of the same.

The invention proper comprises the elongated body member 1 whose under side is curved, as at 2 in Fig. 2, whereby it will fit on top of the manifold B and correspond with the curvature thereof in cross section. The member 1 is formed hollow to provide the chamber 3 therein, as shown in Fig. 2.

Numeral 4 denotes a plug which closes the clean out opening in one end of the member 1, however the primary object of the opening closed by the plug 4 is for the removal of the sand core in the manufacture thereof.

Formed through the top of the member 1, and near one end thereof, is a threaded aperture 5, Fig. 3, which aperture leads into the chamber 3, in which aperture may be threaded the fitting 6.

Also in the front side or face of the member 1 there is an aperture leading into the chamber 3 into which is threaded the elbow fitting 7. The last mentioned aperture being located near the end of the member 1 opposite to that of the aperture 5. Extending out from the sides of the upper edges of the member 1 are the ears 8 and 9, each having a bolt aperture x therein to receive a bolt z , for the purpose hereinafter stated.

Numeral 10 denotes a sheet-metal cup-like member having a flat bottom and vertical wall, there being apertures formed through the bottom thereof to receive bolts z , by which the cup member may be rigidly secured to the ears 8 and 9 whereby it will be carried by the member 1.

After the cup member 10 has been secured in place as shown then an asbestos mat 11 or the like is provided which covers the bottom of the cup member, and therefore covers the heads of the bolts or screws z , and acts as a cushion for the jar.

Numeral 12 denotes a glass-jar, or any other suitable container may be substituted therefor, said jar being slightly less in cross section than that of the cup-member 10. A rubber band 13 is disposed, under tension, around the lower portion of the jar 12. Said band extends from the bottom of the jar upward for a considerable distance in contact with the wall thereof, that is to a height greater than the height of the cup member

10. The rubber band 13 is first placed around the lower portion of the jar 12 after which the jar is pressed down into the cup member, the rubber causing a tight fit therein, and after the bottom of the jar is in contact with the mat 11 then the projecting upper portion of the rubber above the top of the cup member should be turned down or back upon the upper portion of the cup, thereby making a finish as is shown in Figs. 1 and 2, and also protecting the edge of the cup member. The mat 11 and the rubber 12 cushions the jar, holding it in place, still permitting expansion and contraction without danger of injury to the jar.

The jar 12 has a sealed top 14 which is adapted to be tightly secured in place thereon. Located in the center of the top 14 is an escape valve 15 which is adapted to permit egress but preventing ingress, with relation to the interior of the jar 12.

Numeral 16 denotes a U-shaped outlet pipe whose lower end is secured in said fitting 6, from which it extends upward and then curves over and downward, entering the interior of the jar 12 through a sealed aperture in the top 14, the inner end of the pipe 16 being denoted by the letter *e*, the same being located near the top 14, substantially as shown.

The U-shaped intake pipe 17 has the terminal ends *f* and *h*, and it also is disposed through an aperture therefore formed through the top 14 where it is rigidly secured near its central portion. The inner end *f* of the pipe 17 terminates inside and near the bottom of the jar 12, while the end *h* is located outside the jar and to one side thereof as shown.

Numeral 18 denotes a cut-off valve or throttle, which is threaded into the wall of the intake manifold A. Connected to the core of said throttle valve 18 is the rod 19, which projects back and upward to where it may be within reach of the driver of the machine with which the device is connected.

The pipe 20 is attached at one end to the elbow fitting 7, with its other end turned at right-angles and secured in the cut-off valve 18. Now if the rod 19 be turned in one direction the core of the throttle valve 18 will be in such position that communication will be open from the pipe 20 into the manifold A, while if the rod 19 be given a quarter turn, for instance, said communication will be closed.

Extending from the upper corner portions of the member 1 are two pairs of ears 21 and 22, each having a bolt aperture, *p* and *q*, respectively, formed therethrough to receive the threaded ends of the respective U-bolts 23 and 24 therethrough. Said bolts 23 and 24 fit under the exhaust manifold B with their ends projecting up through the respective apertures *q* and *p* of the ears 21 and 22,

respectively, from which it is apparent that by placing nuts on both ends of each of said bolts and then tightening down on the same, that the device will be securely bound to the exhaust manifold in the position substantially as shown.

Operation.

Let us assume, for instance, that the throttle 18 is closed. The motor may be started and run in the usual manner and will of course function the same as if my invention were not attached thereto. Then when desired the rod 19 may be turned to open the throttle 18. It is manifest that the normal suction of the motor drawing the fuel gas upward through the manifold will now exert a pull which will draw outside air into the end *h* of the pipe 17, discharging it into the container 12, from which it will be drawn through the pipe 16, then through the chamber 3, from which latter it will pass through the pipe 20, and the throttle valve 18, into the manifold A where it will combine with the vapor fuel and be delivered into the various cylinders. There being four or more cylinders it is evident that this pull or suction will be practically continuous or unbroken.

If now a vessel of water be held at the side of the container 12 in such manner that the end *h* of the pipe 17 will be immersed it is evident that the suction, as just mentioned, will eventuate in drawing the water up and then discharging it in the container, this should be continued until the container is substantially half-full of water, or at greatest it should not rise higher than the end *e* of the pipe 16. It is evident that the water, as such, can not be drawn from the container, but only as a spray, or humidified air. Now as the air is drawn from the container, as previously stated, it will pass through the pipe 16 heavily laden with moisture. It is evident that the body member 1 will become heated by contact with the exhaust manifold, therefore as the humid air passes through the chamber 3 it will become heated, and will then pass on into the manifold A and from there into the cylinders in a heated condition and of course heavily laden with the various requisites to accomplish the results previously mentioned herein.

In the event of back pressure from the motor the container 12 might be broken or at least the water might be driven therefrom through the pipe 17, but this eventuality is taken care of by means of the valve 15 which acts as a safety valve, as it permits the escape of pressure from the container but does not allow air to be drawn down there-through.

The purpose of having the pipe 17 terminate near the bottom of the container is

to carry the incoming air to the bottom of the container, then as it rises violently on account of the suction it causes the water to be agitated, and by which the air becomes
5 laden with the requisite moisture.

Having now fully shown and described my invention, and the best means for its construction to me known at this time, what I claim and desire to secure by Letters Patent of the United States, is—
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In combination with the intake manifold and the exhaust manifold of an explosive engine, an elongated body member fitted around the upper portion of the exhaust manifold and extending parallel therewith
15 and having a chamber therein, means for detachably securing said body member to

the exhaust manifold, a water container secured on top of said body member, a removable closure for the top of said container, a pipe leading from the closure and communicating with the upper part of the interior of the container and extending to the interior of said chamber in the body, a
20 second pipe leading from the atmosphere through said closure and terminating near the bottom of the container, a pipe leading from said chamber in the body into the interior of the intake manifold, a throttle for controlling the flow through the last mentioned pipe, and a safety valve in said closure and communicating with the interior
25 of the container.
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