April 20, 1926. 1,581,365

J. THAVENET

VENTILATING SYSTEM

Filed July 31, 1924

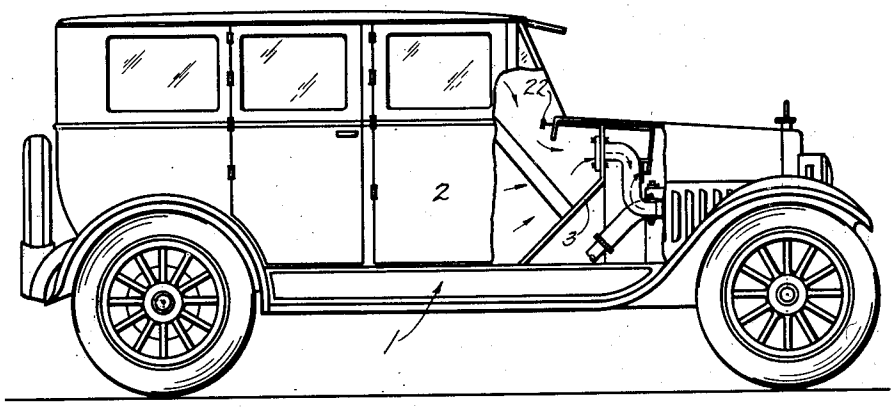


Fig. 1.

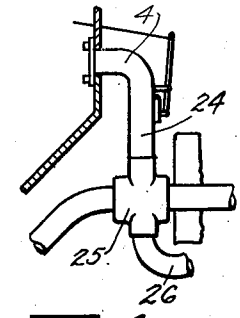


Fig. 4.

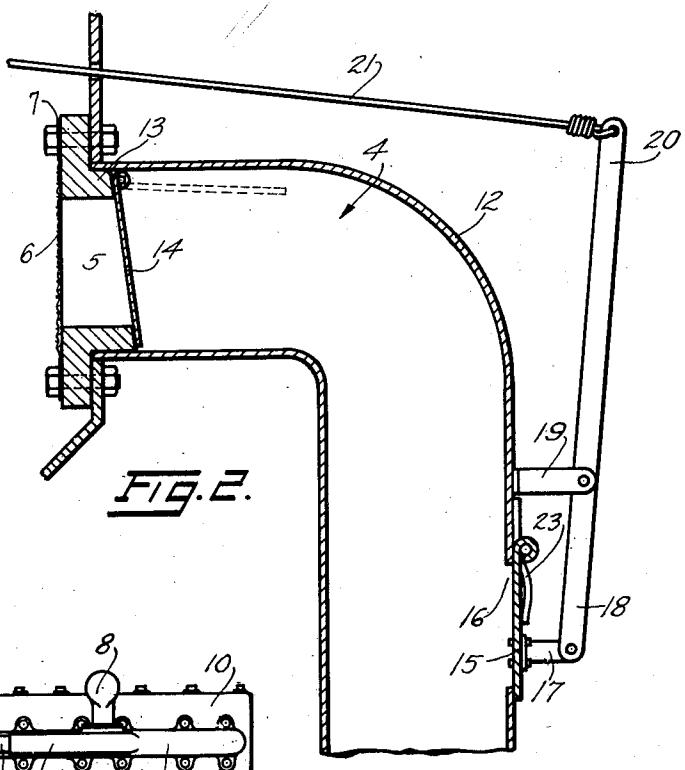


Fig. 2.

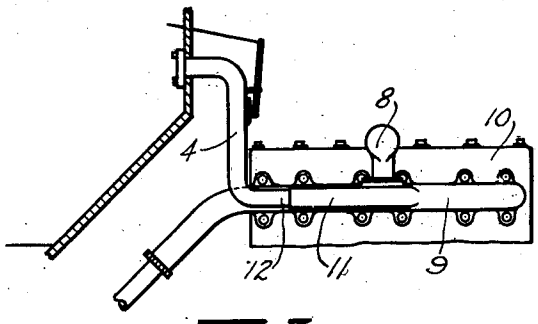


Fig. 3.

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UNITED STATES PATENT OFFICE.

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VENTILATING SYSTEM.

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To all whom it may concern:

Be it known that I, JOHN THAVENET, a citizen of the United States, residing at Stonington, in the county of New London and State of Connecticut, have invented new and useful Improvements in Ventilating Systems, of which the following is a specification.

This invention relates to improvements in a ventilating system for a closed automobile, wherein a useful function is derived from the foul air drawn from said car.

Among the objects of the invention, it is aimed to provide ventilating means for drawing the foul air from the tonneau of the closed car, a passageway communicating directly with the ventilating means and located within the tonneau, means in association with said ventilating means for conducting the foul air into the carburetor of the engine for forming a gas-air mixture therein, and means in the passageway cooperating with the ventilating means for preventing any backfire of the engine from contaminating the atmosphere of the tonneau by the movement of the gas combustion products through the ventilating passage.

Specifically it is aimed to provide a passageway in or adjacent the instrument board for conducting the foul air developed in the tonneau away therefrom.

Further it is aimed to utilize the foul air from said passageway by conducting it along the exhaust chamber for preheating the same, and subsequently mixing the air with gasoline in the carburetor to form a combustion mixture.

Still further it is aimed to limit the flow of air in the ventilating passage to one direction for preventing an inadvertent backfire from causing disagreeable combustion products to pass into the tonneau.

It is still further contemplated to cause the foul air to be withdrawn from the tonneau by the suction developed in the carburetor.

Still further it is contemplated to provide means positioned along the ventilating passageway for affording a relief valve for the backfire combustion products which are directed into the ventilating passageway and simultaneously by the connection of the same with hand control, for furnishing an additional opening in the passageway to provide air for use in the carburetor and combustion chambers.

These and other advantages, capabilities and features of the invention will appear from the subjoined detail description of embodiments therefor, illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, partly cut out, of an enclosed motor vehicle equipped with a ventilating system embodying my invention;

Fig. 2 is a sectional view of the conducting passageway forming part of the ventilating system;

Fig. 3 is a side elevation of the ventilating passageway in conjunction with the suction apparatus for carrying out the ventilation; and

Fig. 4 is a side elevation of a modification of the device shown in Fig. 3.

Referring now more particularly to the reference characters in the drawings, numeral 1 indicates a motor car having an enclosed body or tonneau 2 which in this case is that of a sedan, although my invention is by no means limited to the specific type of enclosed body. On a bracket or support 3 which in this illustration is a dash board, but may be any bracket within the enclosed portion of the automobile or even the flooring thereof, there is bolted the ventilating passageway 4. This passageway has at its exposed end portion 5 a screen 6 fastened to the end portion by a bolted ring 7 or any other desirable fastening means. See Figs. 1 and 2.

This ventilating pasageway 4 is preferably bent to a Z form or any other desired configuration so as to lead to the carbureting device 8, and at the same time come into contact with the exhaust passageway or tube 9 which is fixed to the cylinder head 10 of the power plant of the automobile. As shown in Figs. 1, 3 and 4, the ventilator passageway 4 is adjacent a portion 11 of the exhaust tube 9 whereby the hot gases of the combustion chamber impart heat to the casing 12 of the passageway by conduction from portion 11 for preheating the foul air passing through the passageway previous to the entrance thereof into the carburetor.

At the upper section 13 of the end portion 5 there is pivotally mounted a gate valve 14 preferably of stamped metal, but not limited to the metal, since any material having a stiff backing therein can suitably serve the purpose. This valve 14 is normally held upwardly inclined in open position as shown in dotted lines in Fig. 2 by the suction caused

by the carburetor action which feature will be described later.

Below the upper bend of the ventilating passageway 4 there is pivotally mounted a second gate valve 15 surrounding the exterior of the opening 16 in said passageway. See Figs. 1 and 2. This valve has fixed thereto by bolts or other fastening means, a lug 17 having a lever arm 18 pivoted thereto at its extremity. This lever arm 18 is further pivoted to a lug 19 fixed to the casing 12 of the passageway 4 at a position above the valve means 15. At its opposite end 20 the lever 18 has attached thereto a control wire 21 having a button 22 thereon for hand control to open the valve 15 when desired by the operator. The valve 15 is normally held in closed position by the leaf spring 23 fixed to the casing 12 at a position above the pivotal connection of the valves to the casing.

In the modification shown in Fig. 4, the ventilating passageway 4 is indicated as being formed of divisional segments or portions 24, 25 and 26, the portion 25 consisting of a large casing through which the foul air passing down the ventilating passageway is circulated and through the center of which the exhaust tube 9 passes. In this modification the foul air in the section 25 of the ventilating passageway is preheated in its circulation about the exhaust tube 9 by contact with the hot exterior surface of the tube.

Following is a detail of the operation of the device. When the engine of the automobile is running, the carburetor cooperating therewith is caused to suck in air simultaneous to the feeding thereto of gasoline, which latter operation is well known, and will not be described, since it forms no part of the invention. When the carburetor begins to function the suction caused thereby draws open the valve 14 after which the foul air in the tonneau of the automobile is drawn downwardly in the direction of the arrows of Fig. 1, through the screen 6 into the ventilator passageway 4. In this way while the engine is running the foul air within the tonneau is constantly being drawn down the ventilator passageway to be subsequently utilized as the air component of the gas-air mixture required by the carburetor for the production of a combustion mixture.

If the engine should suddenly backfire the velocity of the gases travelling back up the ventilator passageway will be so great as to immediately force the gate valve 14 against the end portion 5 to close the ventilating entrance and prevent the disagreeable odors of the gas produced by the products of combustion produced by the backfire, from entering into the tonneau of the automobile. When this gas is thus confined in the ventilator chamber, the only outlet is through the spring pressed gate valve 15 normally closed but forced open by the rush of the gases in the now closed ventilator passageway. This causes the lever 18 to move the control wire 21 towards the operator, which wire is pressed back by the spring 23 to close the valve 15 again and allow for the suction operation from the carburetor to proceed when the rush of gases caused by the backfire has subsided.

The positioning of the ventilator passageway within the exhaust tube, as shown in Figs. 1 and 3 and the reverse thereof shown in Fig. 4 merely illustrate the well known method of preheating the incoming air which is being directed towards the carburetor by the suction caused therein.

When the supply of air drawn through the ventilator at the end portion 15 is not sufficient for proper carburetion, the valve 15 may be opened at will by the operator who merely has to draw the wire or rod 21 outwardly.

It is obvious that various changes and modifications may be made to the details of construction without departing from the general spirit of the invention as set forth in the appended claims.

I claim:

1. In combination with an enclosed automobile having a dashboard, a ventilating device comprising a hollow casing, one end of which extends into the dashboard, a screen at said end of said casing, a valve normally closed within said casing and mounted for pivotal movement therein, suction means for opening said valve and drawing air from the interior of said automobile through said casing, and an escape valve in said casing for relieving air excess pressure developed in said casing.

2. The combination with an enclosed automobile housing, of a ventilating device comprising a hollow casing, one end of which extends into said housing, a screen at said end of the casing, a valve within said casing at said open end and normally closed to prevent air passing into said automobile housing through said casing, suction means for opening said valve and drawing air from the interior of said automobile housing through said casing, and an escape valve in said casing for relieving excess air pressure developed in said casing.

JOHN THAVENET.