Nov. 14, 1933. D. F. STAHLKNECHT 1,934,998

VENTILATOR LANTERN

Filed Sept. 2, 1931 2 Sheets-Sheet 1

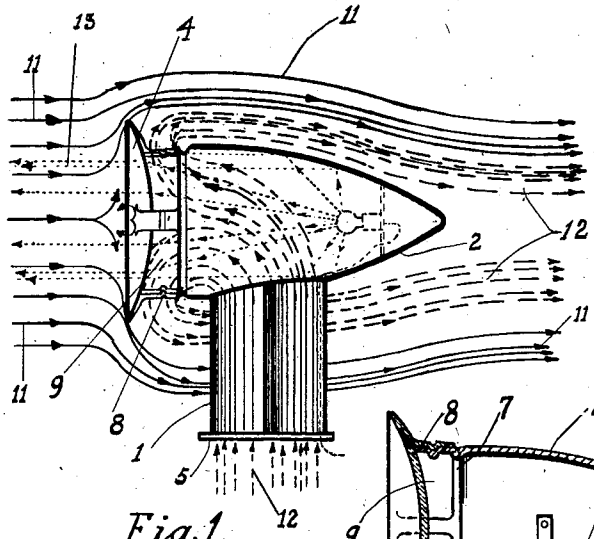


Fig. 1.

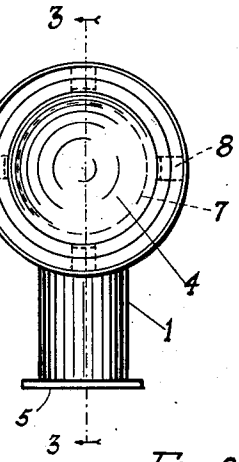


Fig. 2.

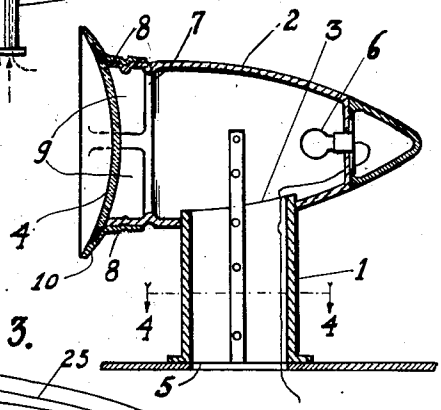


Fig. 3.

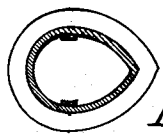


Fig. 4

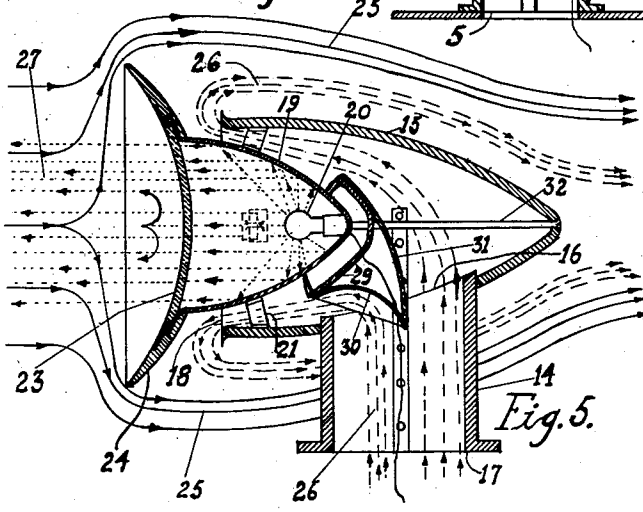


Fig. 5.

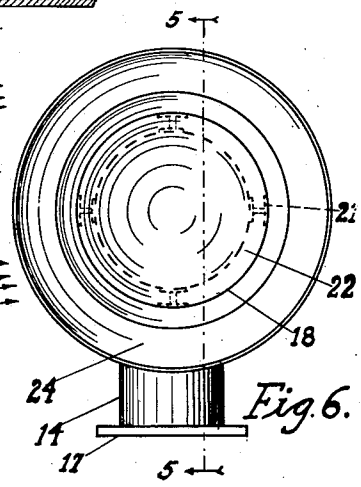


Fig. 6.

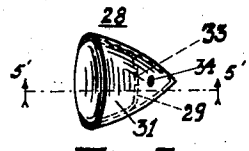


Fig. 7.

DETMAR Fr. STAHLKNECHT
INVENTOR.

BY Frank H. Wisch

ATTORNEY .

Nov. 14, 1933. D. F. STAHLKNECHT 1,934,998

VENTILATOR LANTERN

Filed Sept. 2, 1931 2 Sheets-Sheet 2

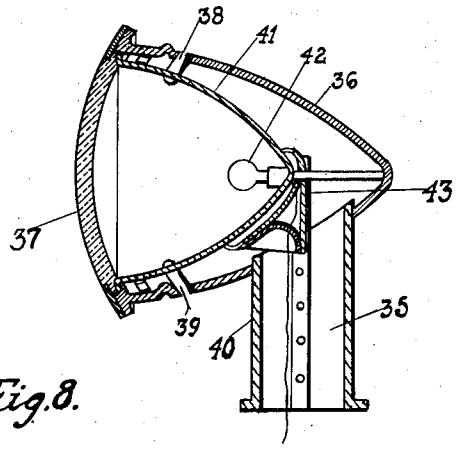


Fig. 8.

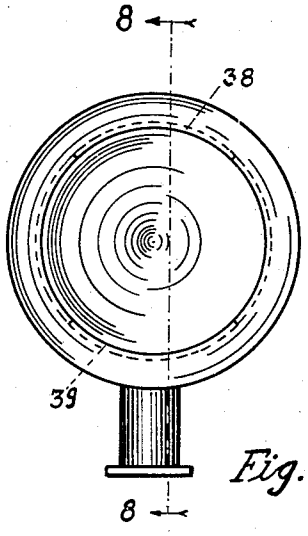


Fig. 9.

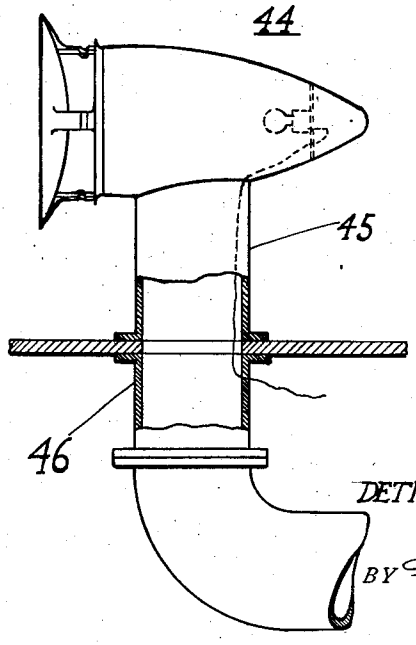


Fig. 10.

DETMAR Fr. STAHLKNECHT
INVENTOR.
BY Frank H. Wisch
ATTORNEY.

Patented Nov. 14, 1933 1,934,998

UNITED STATES PATENT OFFICE

1,934,998

VENTILATOR-LANTERN

Detmar Fr. Stahlknecht, Pittsburgh, Pa.

Application September 2, 1931. Serial No. 560,700

3 Claims. (Cl. 240—7.1)

This invention relates to ventilator-lanterns and more particularly to unitary means which serve both as lights and ventilators for automobiles, omnibuses, ships, airplanes, airships, street cars, railway vehicles, and in any case where a lamp is exposed to gaseous currents.

My combined ventilator and lighting means considerably reduces wind resistance that exists when separate ventilating and lighting means are used. There results a lessening in power consumption and cost of fuel. My device is compact and adds to the beauty of design. It is also less expensive to manufacture than separate units for lighting and ventilating.

The present invention comprises a combination of means for housing a lamp in an air passage and a light transmitting means adjacent one end of the passage whereby a suction is created by air currents impinging on the light transmitting means. The light transmitting means may include any transparent or translucent material adapted to be rigidly placed at or adjacent the said end of the passage, and the lamp is preferably so placed in the passage that the light rays pass or are projected directly through the light transmitting means.

One end of the air passage is connected to the chamber or enclosure to be ventilated and the other end is provided with the above light transmitting means. This latter end is preferably placed so that the light transmitting means serves to bring about suction of the air from the chamber or enclosure through the air passage.

Various modifications of my device are shown in the accompanying drawings, in which

Figure 1 is a side elevational view of one form of my device;

Fig. 2 is a front elevational view of the device shown in Fig. 1;

Fig. 3 is a vertical cross-sectional view on the line 3—3 of Fig. 2;

Fig. 4 is a cross-sectional view on line 4—4 of Fig. 3;

Fig. 5 is a cross-sectional view of another form of my device which view is taken on line 5—5 of Fig. 6;

Fig. 6 is a front elevational view of the form shown in Fig. 5;

Fig. 7 is a plan view of a portion of the device shown in Fig. 5;

Fig. 8 is a vertical cross-sectional view of still another form of my device which view is taken on line 8—8 of Fig. 9;

Fig. 9 is a front elevational view of the form shown in Fig. 8; and

Fig. 10 is a side elevational view partly in cross section showing a mode of attaching my device.

The modification shown in Figs. 1 to 4, comprises a tubular member 1, a casing 2 connected to one end 3 of the tubular member 1, and a light transmitting means or lens 4. The other end 5 of the tubular member 1 is adapted to be connected to a chamber or enclosure to be ventilated. The casing 2 is shaped to house the lamp 6 and forms with the tube 1 a continuous passage for air, said tube 1 serving as a support for the device. The lamp 6 may be mounted anywhere in the casing 2 and the lens 4 is placed across the opening 7 of the casing 2. The lens 4 is mounted adjacent the opening 7 by means of spaced supports 8 so that air may pass through the spaces 9. The diameter of the lens 4 including the supporting structure 10 extending around the edge of the lens, is greater than the diameter of the opening 7 of the casing 2. The lens 4 is so placed that the axis thereof passes through the center of the opening 7 and at right angles to the plane of the opening.

When the above described form is in use, the wind blows against the lens 4 and assumes approximately the path shown by the full lines 11. The wind current upon passing over the edge of the lens structure creates a low pressure region in back of the lens 4 at the spaces 9 and along the casing 2 whereby suction is created at the opening 7 and gases are withdrawn through the tube 1 and the casing 2 from the enclosure to which the tube 1 is connected at the open end 5. The current of gas withdrawn from the enclosure is indicated by the dashed lines 12. The light rays passing through the lens 4 are indicated by dotted lines 13. The casing is so shaped as to produce a stream-line effect and to prevent wind from disturbing the low pressure region and from entering the low pressure region. The tube or support 1 is also preferably shaped to produce stream-line effect and its cross section may be formed as shown in Fig. 4.

The modification shown in Figs. 5–7 comprises a tubular member 14 which corresponds to the tubular member 1 of the modification described above, and a casing 15 connected to one end 16 of the tubular member 14. The other end 17 of the tubular member 14 is adapted to be connected to the enclosure from which air is to be withdrawn. The casing 15 is of the same general shape as the casing 2 shown in the first modification and is provided with an opening 18 in which is mounted a lamp casing 19. The inner surface of the lamp casing serves as a reflector for light rays from the

lamp 20. The lamp casing 19 is spaced from the inner surface of the casing 15 and is held in position by spacing means 21 so as to form an annular opening 22 for the passage of air.

Supported by the casing 19 and placed in front of the lamp 20 is a lens 23. The lens and the structure which supports its edge may be so shaped and is of such size that it serves to deflect the wind so as to create a low pressure region in back of the lens at the opening 18 and along the casing 15. For this purpose the supporting structure for the lens 23 may comprise an annular member 24. Any suitable well known means may be used to attach the lens to the member 24.

In the application of the modification shown in Fig. 5, the wind current upon impinging against the lens 23 and the annular member 24, assumes approximately the paths shown by the full lines 25. The gases exhausted from the enclosure to which the end 17 of the tube 14 is connected assume approximately the paths shown by the dashed lines 26. The rays are indicated by the dotted lines 27.

Various means may be employed to prevent the entrance of snow or rain into the enclosure to which my ventilator-lanterns are connected. Means are provided in the casing 15, for example, for the purpose of deflecting water and to prevent its passage into the tubular member 14. One form of such deflecting means combined with means for deflecting air currents is shown in cross-section in Fig. 5 and a top view thereof is shown in Fig. 7 indicated by the numeral 28. The cross-section of the means 28 in Fig. 5 is taken on line 5'—5' of Fig. 7 which corresponds to line 5—5 of Fig. 6. This means 28 comprises a metal sheet 29 spaced from the outer surface of the casing 19 and bent so as to guide the water which may enter the opening 18, particularly the upper portions thereof, between the outer surface of the casing 19 and the sheet 29. The lower edge of the sheet 29 is extended forwardly so that it conducts the water past the upper end 16 of the tube 14.

For the purpose of deflecting air currents, coming up through the tube 14, sheets 30 and 31 may be attached to the sheet 29. Rod 32 is provided for focussing the lamp 20, and this rod may pass through the sheets 29 and 31 through the openings 33 and 34 respectively.

The modification shown in Figs. 8 and 9 comprises a tubular member 35 and a casing 36 to which the tubular member 35 is connected. The casing 36 is of parabolic or conoidal shape, and enclosing the open end thereof is a lens 37. Slots are provided in the casing in regions where low pressure areas exist when wind impinges on the lens 37. For this purpose slots 38 and 39 are provided in the portion of the casing 36 which portion lies in front of the forward portion 40 of the tube 35 and in back of the lens 37. Any number of slots may be provided and if desired slot 38 may be omitted.

A parabolic or conoidal casing 41 is provided within the casing 36 for housing the lamp 42. Means 43 for deflecting water which may happen to enter the casing 36 through the slot 38 and for deflecting gases coming up through the tube 35, may be provided, similar to means 28 in Fig. 7.

In all of the modifications electric current may be fed to the lamps by means of suitable wiring which, as shown, may pass through the supporting tubular members connecting the device to the enclosure to be ventilated.

In Fig. 10 my device, indicated by the numeral 44 is shown connected by the tubular support 45 to piping 46 which may be led to and connected to a chamber to be ventilated or evacuated. For use on automobiles, for instance, my device may be attached anywhere for example on the hood or front end and the piping 46 may be led to the rear and open into the passenger compartment at any convenient place. The suction produced by wind impinging on the lens is sufficient to withdraw air from the compartment.

The suction effect produced may be varied by varying the shape of the lens. Concave lenses as shown in Figs. 1 and 5 are particularly adapted to be applied to my device where it is used on relatively slower moving vehicles or transportation means. Convex lenses as shown in Fig. 8 are useful in cases where my device is applied to high speed transportation means. Flat-surfaced light transmitting means may be used in some cases.

As shown in certain instances the lamp may be entirely enclosed so that the reflector means is not contacted by the gases drawn through the device. In some instances a reflector may be omitted.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description and drawings, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the forms hereinbefore being merely the preferred embodiments thereof.

I claim:

1. A combination ventilator and lantern unit for exposure to wind currents, comprising a stream-line shell; a lamp mounted in the said shell; a solid, light transmitting means mounted at the front of the shell; solid annular means for supporting the said light transmitting means on the shell, the said annular means having its outer edge extending radially beyond the forward end of the said shell; a substantially annular opening adjacent the forward end of the shell; and means for forming a passage into the shell from a chamber to be ventilated whereby air from the chamber to be ventilated is withdrawn through the said passage, through the said shell and through the said opening when the said wind currents impinge on the said light transmitting means.

2. A combination ventilator and lantern unit for exposure to wind currents, comprising a stream-line shell having a front open end; a lamp casing mounted in the open end of the shell, the said lamp casing having its wall spaced from the inner surface of the shell and having its front end positioned forwardly of the front end of the shell; a solid light transmitting means mounted on the front of the lamp casing; a solid annular means extending radially from the front end of the lamp casing beyond the forward edge of the shell, the said annular means being spaced from the said forward edge of the shell to provide a passage between the edge and the said annular means; and means for connecting an opening in the wall of the shell with a chamber to be ventilated whereby air is withdrawn from the chamber through the shell and through the passage between the edge of the shell and the said annular means when the said wind currents impinge on the said light transmitting means.

3. A combination ventilator and lantern unit for exposure to wind currents, comprising a stream-line shell; a lamp casing mounted with its rear end projecting into the shell, the said

lamp casing having its wall spaced from the inner surface of the shell and having its front end adjacent the front end of the shell; a solid light transmitting means mounted on the front of the lamp casing; a solid annular means extending substantially radially from the lamp casing beyond the forward end of the said shell; a substantially annular opening adjacent the forward end of the shell; a tubular member connected to an opening in the wall of said shell whereby air from a chamber to be ventilated is withdrawn through the said tubular member, through the said shell and through the said annular opening when the said wind currents impinge on the said light transmitting means; and deflector means mounted in the shell to prevent the passage of materials including rain and snow into the said tubular member.

DETMAR FR. STAHLKNECHT.