

T. H. GARLAND.
VENTILATOR.
APPLICATION FILED MAY 22, 1911.

1,037,890.

Patented Sept. 10, 1912.

Fig. 1.

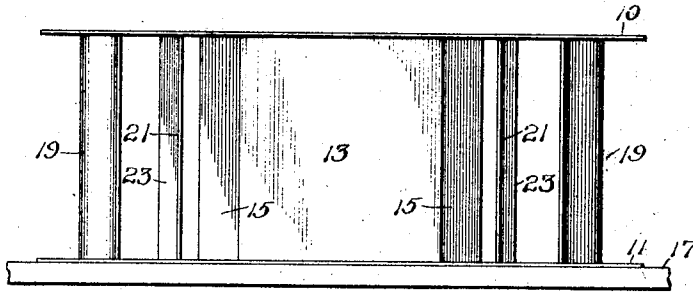


Fig. 2.

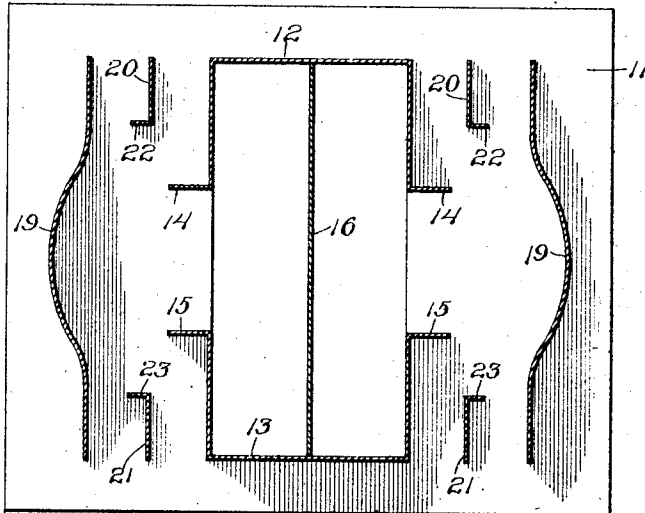
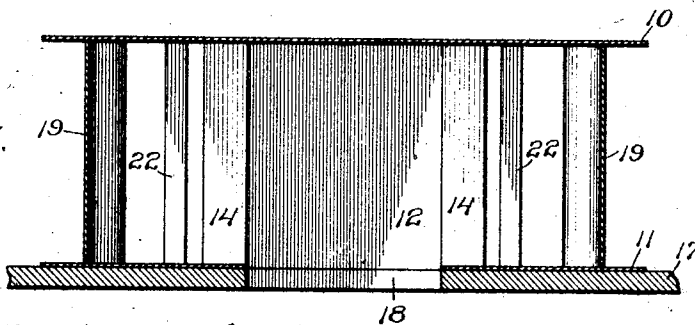


Fig. 3.



WITNESSES

Harry S. Gauthier
Caroline Weber

INVENTOR

Thomas H. Garland,
by Pliny B. Smith.
H.C.4

UNITED STATES PATENT OFFICE.

THOMAS H. GARLAND, OF CHICAGO, ILLINOIS.

VENTILATOR.

1,037,890.

Specification of Letters Patent.

Patented Sept. 10, 1912.

Application filed May 22, 1911. Serial No. 628,755.

To all whom it may concern:

Be it known that I, THOMAS H. GARLAND, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ventilators, of which the following is a specification.

The present invention relates to exhaust ventilators and more particularly to ventilators without moving parts which draw off the air from rooms, cars, or other confined spaces by the action of air currents upon the exterior of the ventilator.

The present invention is a modification of that disclosed in my prior Patent No. 904,125, granted November 17, 1908.

One object of the invention is to provide a ventilator of the class referred to, which will effectively draw out the air from the space to be ventilated without admitting outside air through the ventilator; another object is to provide a sensitive device—that is to say, one which will produce a ventilating action upon the slightest action of the external air upon it; and a third object is to provide a device which may be readily and cheaply manufactured.

In carrying out my invention, I preferably provide a central chamber, or chambers, which are in communication with the space to be ventilated and from which lateral openings communicate with transverse channels which are formed by walls extending the full height of the chamber and which have deflected members within them. I also preferably allow the top and bottom plates, between which the several walls of the device extend, to overhang the other parts so as to provide channels for the passage of the air upon the sides and ends of the device. These various features, however, will be best understood upon reference to the following detailed description taken in connection with the accompanying drawing, and the scope of the invention will be particularly pointed out in the appended claims.

In the drawing, Figure 1 is an elevation of the preferred embodiment of my invention; Fig. 2 is a central horizontal section of the same; and Fig. 3 is a central vertical section of a modified form of the invention, which differs from the preferred embodiment only in having a single central chamber instead of a plurality of chambers. Throughout these figures, like characters refer to like parts.

Referring to the drawing in detail, 10 designates the top plate of the ventilator, and 11 the bottom plate. These plates are composed of any suitable material such as sheet metal and, in the forms of the invention illustrated, are of equal size. Plate 11, however, is provided with a central inlet opening formed by cutting out a portion of the center of the plate. Walls 12, 13 extend between the plates 10 and 11 and form the ends and sides of a central chamber, or chambers, having lateral openings between the deflected ends 14, 15. The space within the walls 12, 13 may be left in a single chamber, as illustrated in Fig. 1, or divided into two chambers by a partition 16, as illustrated in Fig. 2. This partition, like the walls, extends between the plates 10 and 11. In some classes of service, it may be desirable to use this partition, and in others not. Its function, when used, is to prevent the exhaust on one side of the ventilator from pulling air through the openings on the opposite side, instead of from the space to be ventilated. This might occur with certain directions of the wind, or in other conditions of service. When put in position for use, the chamber, or chambers, within the walls 13 communicate with the space to be ventilated. This communication may be established in any suitable way.

In the particular embodiments illustrated, 17 designates the wall or ceiling of a room, car, or the like, which is to be ventilated, and 18 is an opening therein by which communication is established with the chamber, or chambers, of the ventilator.

The outlet openings between the deflected ends 14, 15 of the walls 12, 13, communicate with channels, or passages, formed by walls 19, which also extend between the plates 10 and 11. These walls are preferably provided with an outward distention, as illustrated, which forms an increased width of channel opposite the outlet openings. In addition to the walls 12, 13 and 19, the ventilator is also provided with short walls 20, 21, which likewise extend between the top and bottom plates 10 and 11. These walls, like the walls 12 and 13, are provided with deflected ends 22, 23, which are preferably parallel to the deflected ends 14, 15, and, like the latter, extend at right angles to the main portions of the walls of which they are parts. These several deflected ends, therefore, extend at right angles to the axis of

the channels formed between the upper and lower plates of the ventilator. The several walls 12, 19, 20, 21, the top plate 10, the bottom plate 11, and the partition 16, may be soldered together at their joints, or secured in any other suitable manner.

In operation, the ventilator is preferably placed so that the exterior air will strike the outwardly curved portion of one of the walls 19. For example, if the deflector be used upon a railway coach, it would be positioned so as to bring the curved portions of the walls 19 lengthwise of the coach. When so positioned, the air, striking the wall 19, will be deflected around the ends of the wall and pass along the ends of the channels and, in so doing, will produce the well known inductive action by which the substantial flow of air from the space to be ventilated, through the central chamber, or chambers, and the channels to the outside, will be established.

When the ventilator is positioned at right angles to the position just considered, that is, with its channels in line with the direction of the exterior currents of air, then the passage of the air through the channels formed by the walls 12, 13, 19, 20, 21, is abruptly deflected away from the openings into the chamber, or chambers, by encountering the deflected ends 14, 15, 22 and 23. This outward deflection of the air currents in their passage through the channels tends to cause a vacuum between the ends 14 and 15, which induces a strong exhaust of air from the space to be ventilated to the outside.

It will be apparent that in carrying out my invention, certain alterations and modifications may be made in the size and arrangement of the parts and their relative dimensions without departing from the spirit and scope of the invention. I, therefore, do not wish to be limited to the specific disclosure contained herein, but aim to cover all such alterations and modifications by the terms of the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States is:—

1. A ventilator comprising substantially parallel upper and lower plates, the latter having a central opening adapted to communicate with the space to be ventilated; walls extending between said plates and forming a central chamber over said opening and having lateral openings in opposite sides; and walls extending between said plates at opposite sides of said chamber and forming with the adjacent walls of said chamber two channels passing respectively before said openings; said upper and lower plates overhanging said chamber and channel walls both at the sides and ends of the ventilator.

2. A ventilator comprising substantially

parallel upper and lower plates, the latter having a central opening adapted to communicate with the space to be ventilated; walls extending between said plates and forming a central chamber over said opening and having lateral openings in opposite sides; and walls extending between said plates at opposite sides of said chamber and forming with the adjacent walls of said chamber two channels passing respectively before said openings; said upper and lower plates overhanging the said chamber and channel walls at the ends of the said two channels passing before the lateral openings.

3. A ventilator comprising substantially parallel upper and lower plates, the latter having a central opening adapted to communicate with the space to be ventilated; walls extending between said plates and forming a central chamber over said opening and having lateral openings in its opposite sides; a partition in said chamber positioned with said lateral openings on either side; and walls extending between said plates at opposite sides of said chamber and forming with the adjacent walls of said chamber two channels passing respectively before said lateral openings, said chamber walls having deflected portions for deflecting the currents or air in said channels and toward said outer walls and the latter being outwardly distended at points opposite said deflecting portions.

4. A ventilator comprising a central chamber having an opening adapted to communicate with the space to be ventilated and oppositely disposed lateral openings; a partition in said chamber positioned with the said lateral openings on either side; and channels on either side of said chamber passing said lateral openings and being diverted outwardly away from said lateral openings at the points where they pass the same.

5. A ventilator comprising substantially parallel upper and lower plates, the latter having a central opening adapted to communicate with the space to be ventilated; walls extending between said plates and forming a central chamber over said opening and having lateral openings in its opposite sides; walls extending between said plates at opposite sides of said chamber and forming with the adjacent walls of said chamber two channels passing respectively before said lateral openings, said chamber walls having deflecting portions for deflecting the currents of air in said channels toward said outer walls and the latter being outwardly deflected at points opposite said deflecting portions; and intermediate walls located in the ends of said channels and having deflecting portions to deflect the air toward said outer walls.

6. A ventilator comprising substantially

parallel upper and lower plates, the latter having a central opening adapted to communicate with the space to be ventilated; walls extending between said plates and forming a central chamber over said opening and having lateral openings in its opposite sides; a partition in said chamber positioned with said lateral openings on either side; walls extending between said plates at opposite sides of said chamber and forming with the adjacent walls of said chamber two channels passing respectively before said lateral openings, said chamber walls having deflecting portions for deflecting the currents of air in said channels toward said outer walls and the latter being outwardly deflected at points opposite said deflecting portions; and intermediate walls located in the ends of said channels and having deflecting portions to deflect the air toward said outer walls.

7. A ventilator comprising a central chamber having an opening adapted to communicate with the space to be ventilated and oppositely disposed lateral openings; channels on either side of said chamber passing said

lateral openings and being diverted outwardly away from said lateral openings at the points where they pass the same; and means in the ends of said channels for increasing the outward diversion of the air flowing through said channels.

8. A ventilator comprising a central chamber having an opening adapted to communicate with the space to be ventilated and oppositely disposed lateral openings; a partition in said chamber positioned with the said lateral openings on either side; channels on either side of said chamber passing said lateral openings and being diverted outwardly away from said lateral openings at the points where they pass the same, and means in the ends of said channels for increasing the outward diversion of the air flowing through said channels.

In witness whereof, I hereunto subscribe my name this 19th day of May, A. D., 1911.

THOMAS H. GARLAND.

Witnesses:

L. M. ANDREW,
D. J. NORMOYLE.