(No Model.)

W. T. COTTIER.

VENTILATOR.

No. 243,760. Patented July 5, 1881.

Fig. 1.

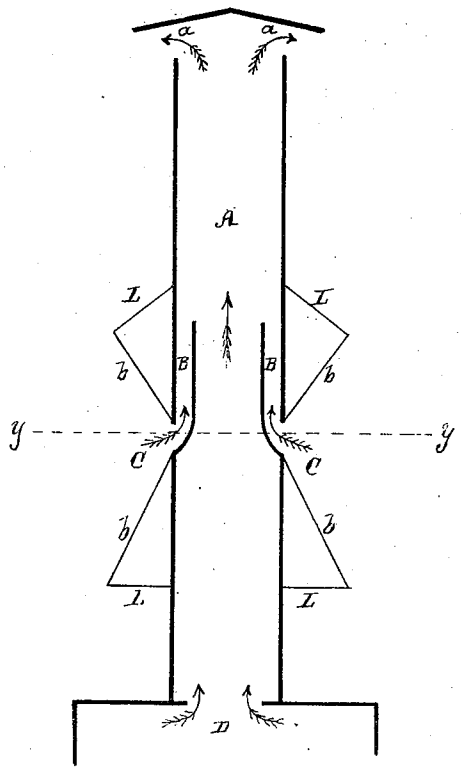
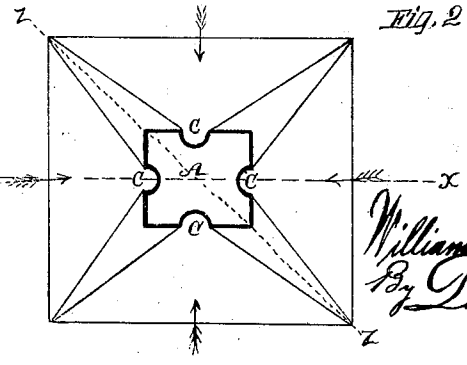


Fig. 2



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UNITED STATES PATENT OFFICE.

WILLIAM T. COTTIER, OF NAPA, ASSIGNOR OF ONE-HALF TO JOSEPH FAUNTLEROY MONTGOMERY, OF SACRAMENTO, CALIFORNIA.

VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 243,760, dated July 5, 1881.

Application filed June 10, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. COTTIER, of the city and county of Napa, and State of California, have invented an Improvement in Ventilators; and I hereby declare the following to be a full, clear, and exact description thereof.

The object of my invention is to provide a means of ventilation for chimneys, vaults, water-closets, rooms, buildings, urinals, cars, ships, sewers, or any places where impure air or foul gases are liable to generate or accumulate.

It consists in providing a chimney, tube, or shaft with supplemental induction-tubes, the openings to which communicate with peculiarly-formed air-concentrators, by which the currents of air are directed into the said induction-tubes inside the chimney, stack, or tube without the use of movable directors, whatever be the direction of the wind. The currents of air entering these induction-tubes and passing upward tend to draw up by induction the gases or foul air below, and ventilate the space or chamber with which the chimney, flue, or tube is connected. This space I term the "vomitorium," and it is adapted to receive the foul air from the sewer, room, or other place to be ventilated and deliver it into the flue, as will be more fully described by reference to the accompanying drawings, in which—

Figure 1 is a vertical section taken through *x x*, Fig. 2. Fig. 2 is a transverse section through *y y*, Fig. 1.

Let A represent a chimney, tube, or shaft, which may have a surmounting-cap of any desired pattern to induce a draft, the lower end of this tube or chimney opening into the fireplace, vault, sewer, apartment, or other place which is to be ventilated through an intermediate collecting and expansion chamber at its base. At any convenient point below the upper opening, *a*, of the tube or chimney are placed the two series of flanges or projections L. These flanges are secured so as to project outwardly from the tube or chimney upon each of its sides, and they serve to support and strengthen the inclined and tapering sides *b*, which concentrate the currents of air to the center holes or openings, C, communicating with the upwardly-pointing induction-tubes B. The position and shape of these directing-pieces with relation to the openings C and the flanges L are such as to convey any current of air from any direction into one or the other of the tubes C. The draft of air passing through the holes C upward through the induction-tubes has a tendency to create a vacuum around and below said induction-tube, which the impure air or gases below the openings C, in obedience to well-known laws of nature, endeavor to overcome. This foul gas or impure air is therefore drawn up from below and directed upward and outward through the stack or chimney. A constant steady draft is thus induced through the chimney-flue, and the apartment or space in which the impure air or gas is generated, connected with the chimney or tube, is thereby ventilated. The peculiar shape of the flanges, with the inclined and directing concaves, is such as to direct the air into one or more of the openings. The flanges do not revolve, nor is any revolving apparatus necessary to maintain a draft. The draft from below is caused by the air entering the induction-tubes. The holes leading to each of these tubes are in the center of the incline of the directing-concave, and all the air touching these portions is directed by them into the chimney, as described.

I have shown my directing-concaves applied to an ordinary square chimney or flue, and it will be seen that the inclined faces *b*, which form the sides of the concaves or air-concentrators extend outward from the respective openings C until they meet in a line which would be formed by a plane passing diagonally through the two opposite angles of the flue or chimney, as shown at Z Z, Fig. 2. By this construction a draft through the openings C and passages B will take place, whatever may be the direction of the wind, since the angle formed by the meeting of the outer edges of the plates B serves as a guide or director for any wind which may blow from that direction, while any other wind would be received more or less fairly by the opening C facing it.

The lower part of the flue A shows an enlargement or chamber, D, which is intended

to act as a receiver and expansion-chamber for the air or gases which reach it from below. This chamber, besides collecting the air or gases from the various passages, ready to be discharged into the flue or chimney, acts also as an equalizer and distributer of pressure, so that when any air-currents may be forced down the flue the pressure is received and distributed within this chamber, and is thus prevented from forcing the air or gases back into the chambers below. This arrangement of directing-concaves and the induction-tubes may be placed on any sort of shaft, chimney, or tube, to ventilate any spaces where foul air or gases may generate. It will aid the draft to a fire-place, and may be put on said shaft or tube at any convenient point.

I am aware that a chimney or flue has been constructed having a curved partition extending upward through the center, and having openings to the exterior of the flue upon opposite sides, and having, also, certain curved directing-plates, by which currents of air blowing down the flue will be caused to escape through these openings, and not impede the draft of the flue. I do not claim, broadly, this construction, nor any construction in which diaphragms or plates are used.

My invention contemplates the employment of a series of concave air-concentrators leading to openings upon each side of the chimney, these concentrators meeting at their outer angles, so that currents of air from any direction will be led into one or more of a series of vertical passages connecting with the openings, so as to induce a draft up the chimney without impeding or choking it with plates or partitions.

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

1. A ventilating apparatus consisting of a tube or chimney, A, provided with the flanges L, with their inclined sides and directing-plates or concaves *b* entirely surrounding the chimney, as shown, the openings C, and induction-tube B, whereby the air is directed into said induction-tubes and an upward draft maintained, whatever may be the direction of the wind, substantially as herein described.

2. In a vertical flue or chimney having openings upon the four sides, and directing-pipes leading upward from these openings within the chimney, the exterior air-concentrators or concaves communicating with each of the openings, and having their exterior angles united, so that currents of air from any direction will be led into one or more of the openings, substantially as and for the purpose herein described.

In witness whereof I have hereunto set my hand.

WILLIAM T. COTTIER.

Witnesses:
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