

(No Model.)

W. T. SUGG.
VENTILATING APPARATUS.

No. 464,204.

Patented Dec. 1, 1891.

FIG:2.

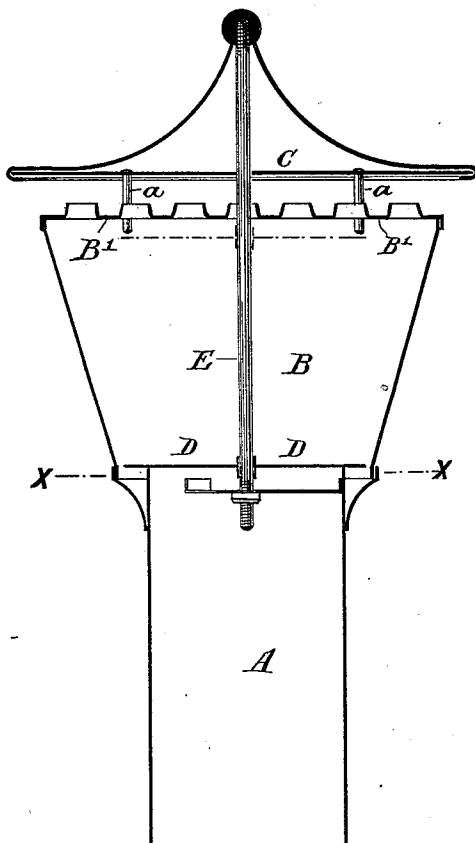


FIG:1.

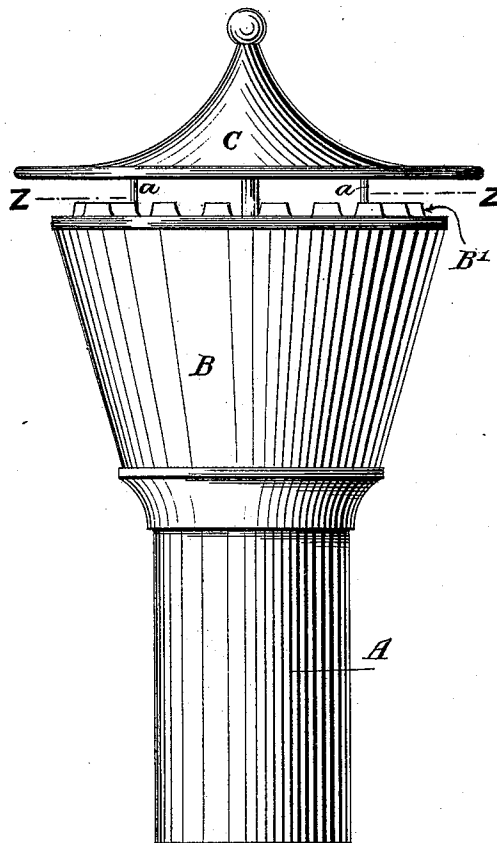


FIG:3.

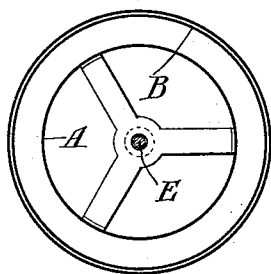
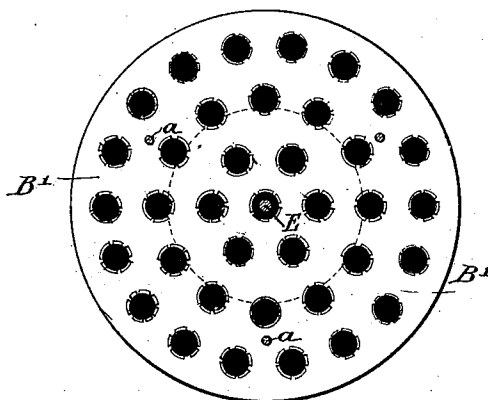


FIG:4.



Witnesses:

H. C. Pembleton,
C. Sundgren

Inventor:

William T. Sugg
by attorneys
Brown & Howard

UNITED STATES PATENT OFFICE.

WILLIAM T. SUGG, OF LONDON, ENGLAND.

VENTILATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 464,204, dated December 1, 1891.

Application filed October 7, 1890. Serial No. 367,332. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM THOMAS SUGG, of Vincent Works, in the city of Westminster, England, have invented certain new and useful Improvements in Ventilating Apparatus, of which the following is a specification.

This invention has a twofold object—that is to say, first, to prevent a downdraft in ventilating shafts, flues, or chimneys, or soil-pipes, or through apertures in the ceilings of apartments, and, second, to create an up-draft whereby the ventilation of apartments, halls, ships' cabins, sewers, and other places is insured without the inconveniences hitherto experienced.

In the accompanying drawings, Figure 1 is a side elevation of a ventilating-shaft with the invention applied thereto. Fig. 2 is a sectional elevation. Fig. 3 is a transverse section on the line *xx*, Fig. 2; and Fig. 4 is a section on the line *zz* of Fig. 1.

A represents a ventilating-shaft, to the outer end of which is adapted an inverted conical-shaped chamber B. The top of this chamber, or the base of the cone, is closed by a perforated plate or cover B', the perforations of which may be punched up from the under side, so as to leave a burr, forming a short tube, as seen in the drawings; or the holes in the cover B' may be bored out and small tubes inserted in the holes, which arrangement is specially suitable to use on ship-board, as the tubes may be of considerable length, to prevent the entrance of sea-water into the chamber. The chamber B may also be made with vertical sides and may be simply an enlargement of the shaft; but the conical shape is preferred, because the cover B' will then have a greater surface area, and the larger the area the more powerful is the action obtained.

Above the plate B', secured by stays *a*, and parallel with the plate, is a flat plate or deflector C, of larger area than the plate B', and this deflector may be surmounted by a dome of an ornamental character. The object of the deflector is to make the currents of air move horizontally across the holes or tubes in the cover, and thus produce a partial vacuum in the chamber B.

In the chamber B and closing the outlet end

of the shaft A is a valve D, which may be a disk of talc or other suitable material sliding freely on a central rod E, as shown, or loose in a cage, or hinged to one side of the shaft A, and the valve may be provided with a counter-weight, if desired; or the valve may consist of a sheet of leather or other flexible material secured at several points in its circumference to the walls of the chamber B above the outlet of the shaft A. Whatever may be the form of the valve it will have its seat on or at the outlet end of the shaft A, and its normal tendency will be, by its own specific gravity, to close the end of the shaft.

The operation of the various parts will now be described: The valve, as before stated, will, when in its normal position, be seated on the end of the shaft A and therefore the passage of currents of air down the shaft will be prevented. The air in the shaft (the entrance of cold and damp air from above being prevented) will be comparatively warm, so that directly the valve is raised an upward current will be established and perfect ventilation of the apartment with which the shaft is connected will be assured. The raising of the valve may be caused by the upward rush of the warm air being assisted by the counter-weight before mentioned, if such be employed. To insure the raising of the valve—that is to say, to create an up-draft and maintain it irrespective of the warm-air current the arrangement at the top of the chamber B is employed. The flat deflector C causes the wind-currents to pass horizontally across the top of the tubes on the plate B', (instead of blowing down through the holes, as would be the case were a dome-shaped top used,) and a vacuum is thereby created in the chamber, which causes a considerable up-draft in the shaft. A similar effect will be produced by the wind striking downward on the top of the deflector C. The wind, when passing between the deflector C and the cover B', will not pass through the holes or tubes in the latter because their area will be too small.

For the ventilating-apertures in ceilings the apparatus exactly as shown may be used, but in most cases it would be desirable (as there may be many apertures in one ceiling)

to adapt the valve arrangement only to each aperture, providing a smaller number of what may be termed the "cowls" and adapting them to the roof of the building independent of the valve arrangements.

The above-described arrangement of ventilating apparatus will be very useful on shipboard, as it will be found to act under almost any circumstances, and it is not open to the objection of presenting a free passage to water as in other ventilators. In fact the chamber B may be filled with water without any passing down the shaft. When intended for shipboard, an opening will be provided in the chamber B to allow of the discharge of any water that may by chance enter the chamber, which opening may be closed by an automatic or other valve, or a cock. For large ventilating-shafts it may be preferred to use two semicircular hinged valves, set either horizontally on the top of the shaft or at an inclination just within the mouth of the shaft.

Having now described my invention, I claim—

1. In a ventilating apparatus, the combination, with a ventilating-shaft, of a cowl secured to the shaft and having a perforated cover, an automatic valve within the cowl having its seat upon the top of the shaft, and a deflector above the perforated cover of the cowl, substantially as set forth.

2. In a ventilating apparatus, a ventilating-shaft, a cowl secured to the shaft, a cover to the cowl, said cover provided with tubes or tubular projections, a flat deflector above and parallel with the cover, and an automatic valve having a free vertical sliding movement within the cowl and seated upon the end of the shaft, substantially as set forth.

WILLIAM T. SUGG.

Witnesses

H. K. WHITE,

H. F. C. GOLBY.