C. A. VAILE.

VENTILATOR COWLS.

No. 181,880. Patented Sept. 5, 1876.

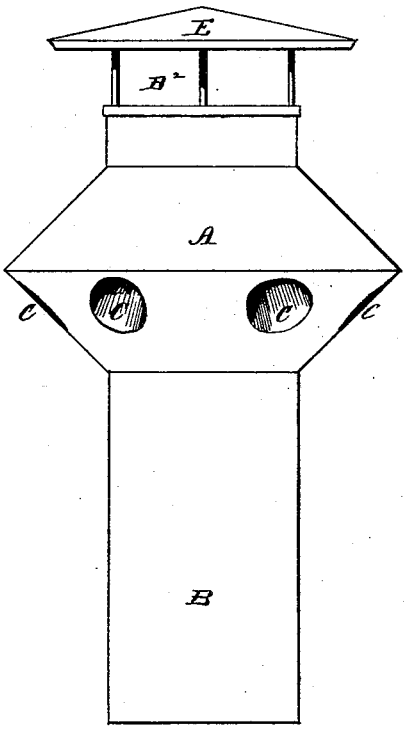

Fig. 1

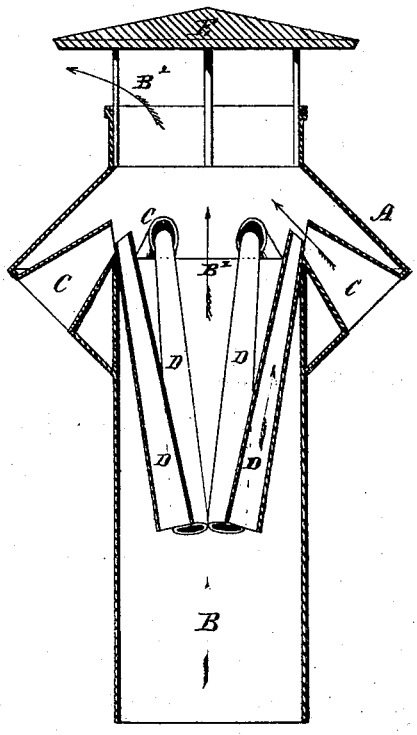

Fig. 2

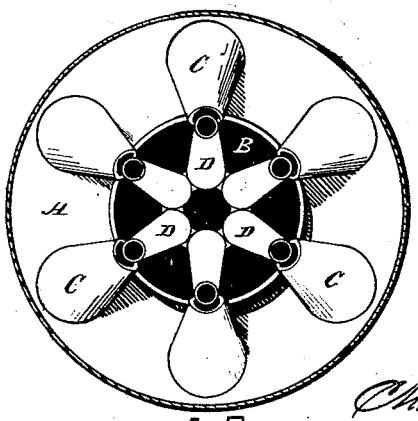

Fig. 3

Witnesses.

J. E. Barton

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UNITED STATES PATENT OFFICE.

CHARLES A. VAILE, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOSEPH MARCUS RICE, OF SAME PLACE.

IMPROVEMENT IN VENTILATOR-COWLS.

Specification forming part of Letters Patent No. **181,880**, dated September 5, 1876; application filed August 4, 1876.

To all whom it may concern:

Be it known that I, CHARLES A. VAILE, of the city and county of Worcester, and State of Massachusetts, have invented certain new and useful Improvements in Ventilator-Cowls; and I declare the following to be a description of my said invention sufficiently full, clear, and exact to enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 represents a ventilator cap or cowl embracing my improvements. Fig. 2 represents a central vertical section of the same, and Fig. 3 represents a horizontal section of the same.

This invention relates to that class of cowls or caps used on ventilating-flues and chimneys, wherein tubes or funnels are employed for admitting external air and imparting an up-current in the main flue by the action of the wind blowing against the exterior of the cowl and through said funnels.

My invention consists in the employment, in combination with a ventilating-flue or chimney, of a series of inlet and draft passages, constructed and organized for operation substantially as hereinafter explained.

In the drawings, A denotes the cowl or head, which may be made in conical or other suitable form. B indicates the main flue or foul-air passage, the casing of which is, in the present instance, extended up into the interior of the head A, as shown at B^1. C indicates the inlet funnels or passages arranged in the lower portion of the head A, and tapering inward and upward to a position near the upper extremity of the flue-casing, where they terminate with small openings, from which the air is discharged to the interior of the cowl. D denotes the draft tubes or passages which are arranged within the main flue B, the lower ends of said tubes opening into the flue B at some distance below the head, while the upper ends of said tubes D open directly in front of the inlet-passages C, so that the air entering the passages C is discharged across the upper ends of the tubes D.

The result of this operation is as follows: The air passing across the end of tube D, as indicated by the arrow, Fig. 2, tends to exhaust the air within said tube, and the vacuum, being filled by air from the lower end of the tube, tends to create a strong upward current within the flue B, the foul air of the flue passing up through, and also around, the tubes D, and escaping at the exit-opening B^2, which is protected by a suitable cap-plate or hood, E.

The draft-passages D are, in the present instance, made as tapered cylindrical tubes, and they are supported upon the upper end of the casing B^1, while their lower ends, which incline inward, are joined to each other in an annular group near the center of the main flue. I do not, however, confine myself to this particular form and arrangement, since both the passages C and D may be varied in size and shape to suit the requirements of different situations without departing from the spirit of my invention, the essential feature thereof being the organization of the parts in such manner that an up-current within the flue B will be effected or occasioned by the exhaustion of the air within the passages D, caused by the blast from the passage C across or past the upper end of the draft-tubes.

If it is desired to use my improved ventilator in low situations—such as for removing foul air from the holds of vessels, or for mines and other similar purposes—the air may be forced through the funnels C by mechanical or artificial means, instead of depending upon the wind for the force, in which case proper connecting-pipes would be carried from a suitable fan or blower to the outer ends of said funnels C. A greater or less number of funnels C and draft-tubes D may be employed, as preferred.

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination, in a ventilating or

chimney flue cowl, of one or more air-inlets and draft tubes or passages arranged with the main flue, substantially as set forth, whereby the external air entering said inlet-passages is delivered past or across the ends of the draft-passages, for effecting an upward current within the flue, in the manner described.

2. In combination, substantially as set forth, the head A, inlet passages or funnels C, draft tubes or passages D, and foul-air flue B, as and for the purposes set forth.

CHAS. A. VAILE.

Witnesses:

CHAS. H. BURLEIGH,

CHAS. H. PECK.