2 Sheets—Sheet 1.

T. OWENS.

Ventilator.

No. 209,506. Patented Oct. 29, 1878.

Fig. 1.

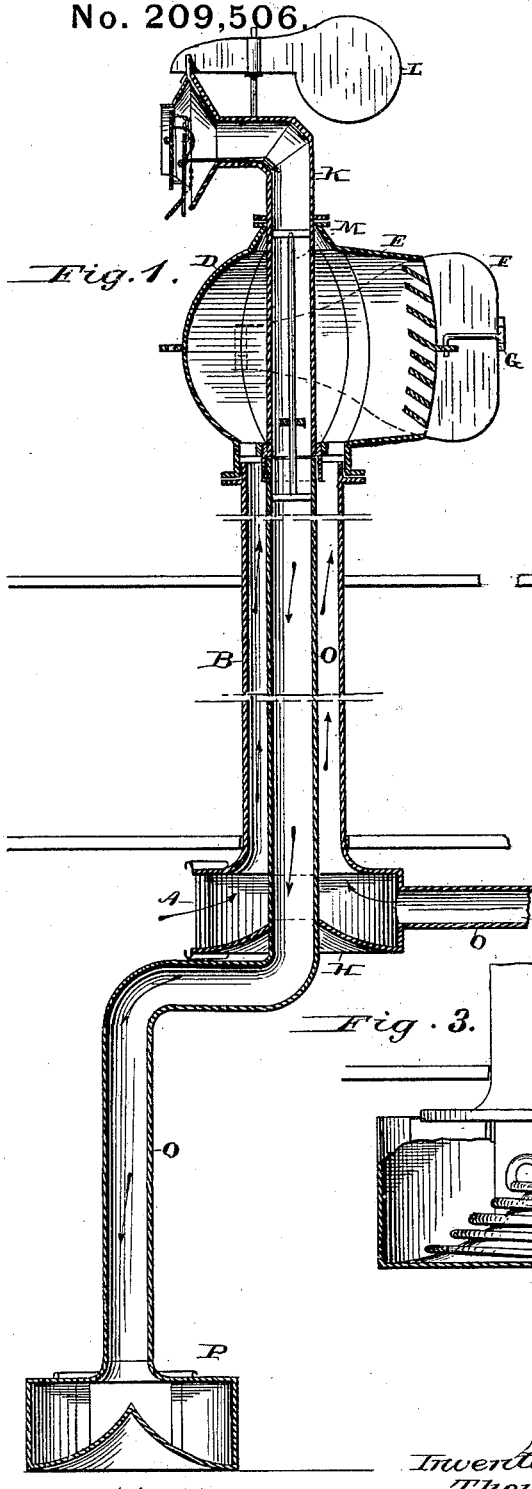


Fig. 2.

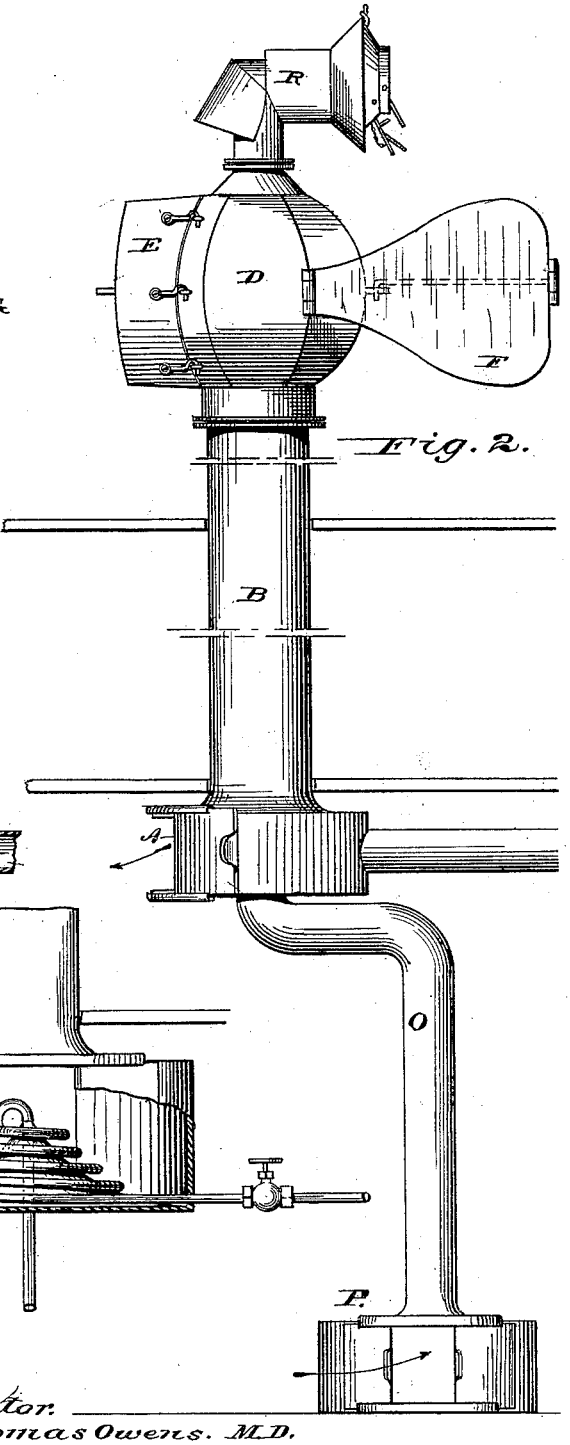
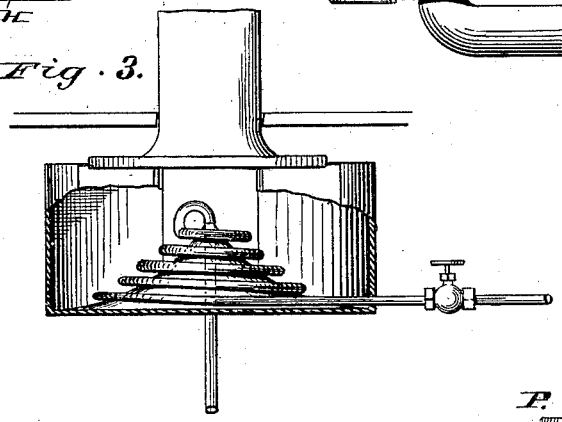


Fig. 3.



Inventor.
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Attest:
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By A. J. Abbot. Atty.

2 Sheets—Sheet 2.

T. OWENS.

Ventilator.

No. 209,506. Patented Oct. 29, 1878.

Fig. 4.

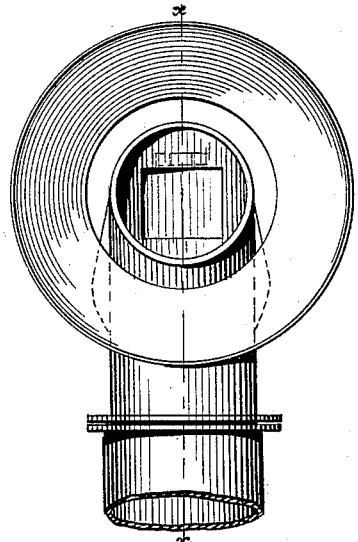


Fig. 5.

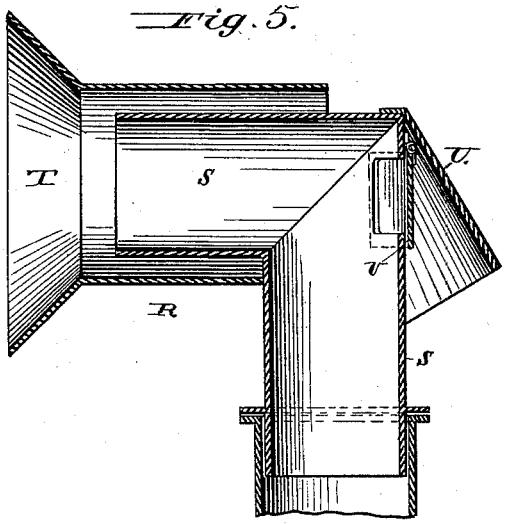


Fig. 6.

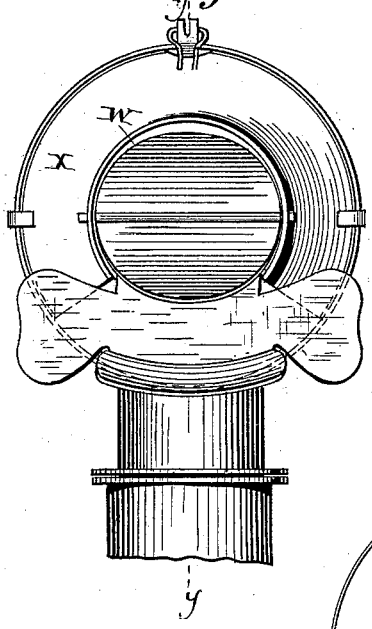


Fig. 7.

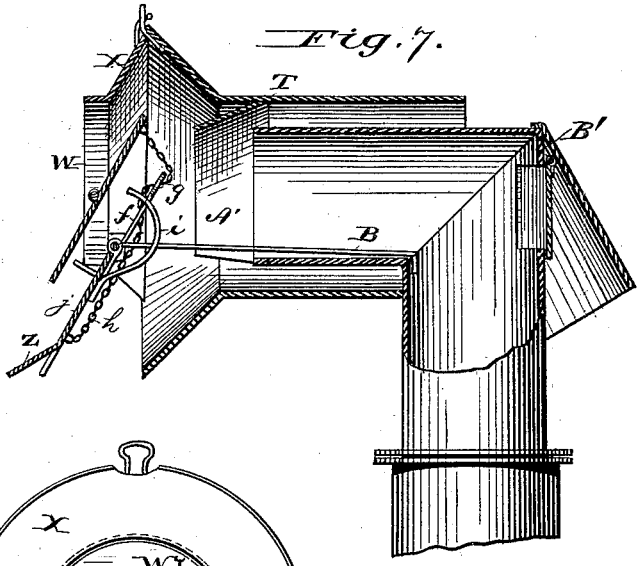
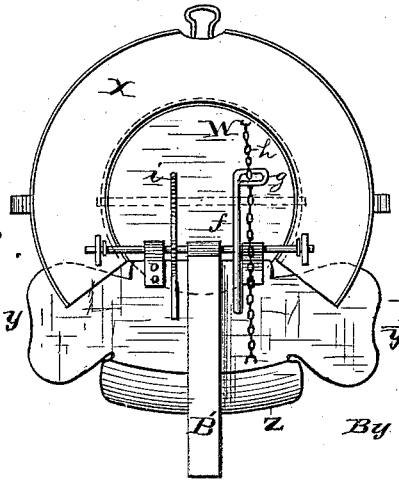


Fig. 8.



Attest:
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A. B. Brown

Inventor
Thomas Owens, M.D.
U. S. Navy.

By A. J. Abbott
Atty.

UNITED STATES PATENT OFFICE.

THOMAS OWENS, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN VENTILATORS.

Specification forming part of Letters Patent No. **209,506,** dated October 29, 1878; application filed March 16, 1878.

To all whom it may concern:

Be it known that I, THOS. OWENS, of Washington, in the county of Washington and District of Columbia, have invented certain new and useful Improvements in Ventilators; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention relates to certain improvements in ventilators, and is designed as an improvement on a ventilator for which Letters Patent No. 195,039 were granted to me September 11, 1877.

The invention consists more particularly in a series or system of pipes leading from a deflecting-box common to all, by means of which communication is established with various compartments and their ventilation provided for; also, in a "head" having a detachable "face" and a cowl of peculiar construction, and a detachable automatic valve; also, in the construction and combination of parts, hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a central vertical section, showing the face turned from the wind and the head provided with a cowl, from which extends a pipe passing down through an upper deflecting-chamber to and into a second deflecting-chamber. Fig. 2 is an external view of the device shown in Fig. 1, with the face turned to the wind and the cowl from the wind. Fig. 3 is a view of the lower deflecting-box with the outer casing removed, showing the deflecting-cone encircled with a coil of steam-heating pipe. Fig. 4 is an enlarged end view, looking through the flaring end of the cowl shown in Figs. 1 and 2, with the valve removed. Fig. 5 is a central vertical section of the cowl, taken upon the line *x x* of Fig. 4. Fig. 6 is an end view of the cowl, showing an automatic valve in place. Fig. 7 is a central vertical section of the cowl and automatic valve, taken upon the line *y y* of Fig. 6. Fig. 8 is a view of the automatic valve from the inner side.

D denotes the head, provided with a removable face, E, attached to the head by hooks or other suitable means, as shown in Fig. 2 of drawing.

The object in making the face removable is to provide for opening the entire front of the head, when desired, for the reception of air. The head is also provided with wings F on either side, which I have described and claimed in another application.

The head D rests and revolves freely upon the upper end of a pipe, B, which extends down through the roof of a house, floor, or deck of a vessel, as the case may be, to any compartment where ventilation may be required, where it connects with a deflecting-box, as shown in Figs. 1 and 2 of drawings, as I have heretofore described in Letters Patent granted to me. This box is usually placed in the center of the compartment, immediately beneath and attached to the ceiling; but when it is preferred the deflecting-box may be placed in other parts of the room. From the side of this deflecting-box one or more pipes, O, may extend to the other compartments, from which the air may be drawn or into which it may be conducted from the head D.

On top of the head D is placed a cowl, K, provided with a reversible vane, and revolving freely upon a rod extending down into the pipe O a suitable distance to be substantially braced from the sides of said pipe. The pipe O extends down through the center of the head-pipe B and deflecting-box to a lower deflecting-box, P, as shown in Figs. 1 and 2. After passing through the deflecting-box the pipe O may extend directly downward, or it may be conducted to one side of the compartment and then down, or it may be conducted to another compartment and the cowl trimmed, as desired.

When the pipe O is conducted to a deflecting-box upon the floor beneath the upper deflecting-box, it is used for the introduction and distribution of cool fresh air, while the pipe B, through the upper deflecting-box, simultaneously carries off the upper strata of heated and exhausted air and accumulated gases contiguous to the ceiling.

The order of induction and eduction of these pipes may be reversed, or both may be made

to act in the same manner, by the proper adjustment of the face and cowl with regard to the wind.

Around the cone of the deflecting-chamber, placed upon or near the floor, I may, if desired, coil a steam-pipe, as shown in Fig. 3 of drawings, for the purpose of reducing the rawness or cold of the air upon its first introduction into the compartment.

The cowl R is constructed in the following manner: The horizontal arm of the elbow S is provided with a skin, T, having one end flared and the other open, except where attached to the elbow, as shown. The vertical arm of the elbow is provided with a hood, U, under which, in the elbow, is placed a valve, V, arranged to be closed by gravity or in any other suitable manner.

A collar, X, (shown in Figs. 6, 7, and 8 of drawings,) is attached to the flared end of the cowl by any suitable means that will permit of a ready removal of the collar when an open cowl, as shown in Fig. 5, is desired. To the front and in the sides of this collar a rod is held, extending across the face, and bearing the valve W, that when shut closes the central opening of the collar. Below and a little back of the rod bearing the valve another rod is held in the sides of the collar, to which a wing, Y, is rigidly attached, which covers the space cut away from the lower section of the collar, and operates the valve by means of a chain, *h*, attached to the lower part of the wing, and passing upward through the eye of an arm, *f*, attached to the wing, to the upper edge of the valve, as shown in Figs. 7 and 8 of drawing. This chain passes from the wing first back of, then through, the eye, and then over the top of the arm. The chain should be made of links of a suitable size, so they will meet with a limited amount of resistance in passing through the eye.

A curved finger, *i*, is also attached to the inner side of the wing, and extends a suitable distance above the rod bearing the wing, and is curved forward in front of the plane of the wing, so as to strike the valve and close it when the wing is shut. A stop, *j*, is placed in the front side of the wings, to check the valve as it approaches a closed position and prevent its becoming jammed.

The lower part of the wing is curved outward, forming an apron, Z, against which the wind impinges in closing the valve. The ends of the wing protrude beyond the sides of the cowl, so as to be caught by the wind and held in the open position shown in Fig. 7 of drawings.

A bar, B′, with a hooked end, is attached to the rod bearing the wing, and extends back to the throat of the cowl, where the hook engages with the vertical side of the cowl, as shown in Fig. 7 of drawing.

In constructing this valve the form and proportion shown may not be followed exactly, but may be changed so long as the principle is not abandoned.

This valve and its operating devices are intended for use upon any cowl with a flared mouth turned from the wind and used to draw air from within outward, where it is desired to close the cowl upon the shifting of the wind and prevent a downward draft, which this device will do, for the moment the wind strikes the front part of the wing the valve will be closed. When the flared end of the cowl is thrown from the wind air enters under the skin T, and by the deflector A′ is thrown down in front of the elbow, creating a draft through the cowl. While this is taking place wind strikes the wing Y, throwing it out, as shown in Fig. 7, opening the valve by the arm *f* and chain *h*.

The valve V under the hood U is for the purpose of allowing any air to escape, when the cowl is used as an egress, that may enter the flared end on its being thrown around by any sudden shift of the wind.

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

1. A ventilator-head provided with a detachable face, substantially as shown and described.

2. A deflecting box or chamber, A, provided with a conducting pipe or pipes leading to other compartments, substantially as shown and described.

3. The cowl R, constructed with a skin, T, hood W, and wing V, substantially as described.

4. The combination of the collar X, valve-plate W, wing Y, provided with apron Z, and arm *f*, chain *h*, finger *i*, and arm B′, all constructed and operating substantially as shown and described.

5. In a ventilator, the combination of the head D, provided with adjustable wings F, pipe B, deflecting-box A, pipe O, and chamber P, substantially as described.

6. In a ventilator, the combination of the cowl R, substantially as described, with the head D, wings F, pipe B, deflecting-box A, pipe O, and chamber P, constructed and operating substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

THOMAS OWENS, M. D.

Witnesses:
H. L. PERRINE,
A. M. LONG.