G. W. DEMOND.

Chimney Cap.

No. 47,525. Patented May 2, 1865.

Fig. 1.

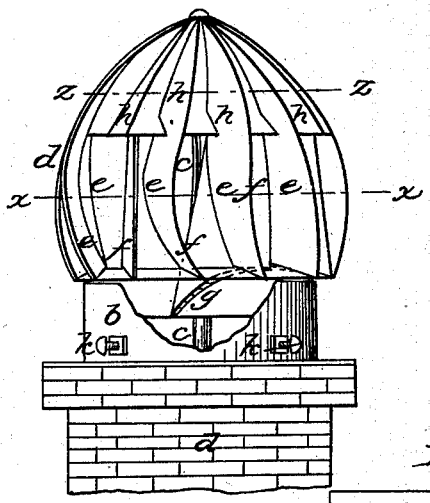


Fig. 3.

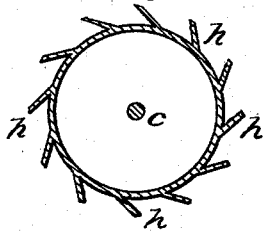


Fig. 2.

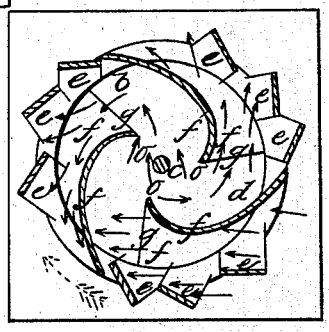
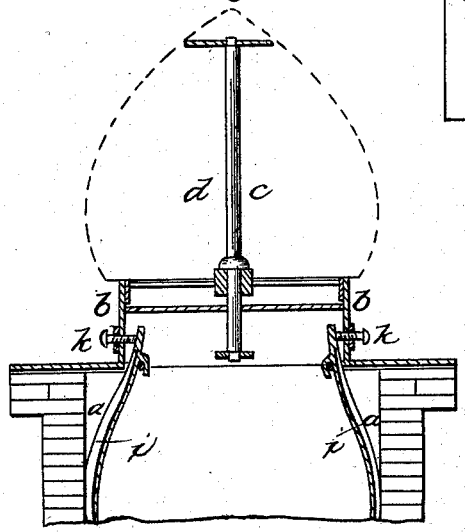


Fig. 4.



Witnesses:
Francis Gould
W. B. Gleason

Inventor:
George W. Demond
by his Atty
W. B. Crosby.

UNITED STATES PATENT OFFICE.

GEORGE W. DEMOND, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN CHIMNEY-CAPS.

Specification forming part of Letters Patent No. 47,125, dated May 2, 1865.

To all whom it may concern:

Be it known that I, GEORGE W. DEMOND, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Ventilator; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

This invention relates to the construction of chimney caps or ventilators which rotate by the action of the wind, and by their rotation create or increase the upward draft in the chimney or ventilator-pipe. A chimney-cap for this purpose was patented by W. Chadwick, May 28, 1860, employing in connection with wind-vanes by which the cap was rotated, a screw blade or blades within the cylinder below the cap, which blade or blades, rotating with and by the rotation of the cap, created an upward draft through the chimney or pipe.

By my invention I dispense with the screw-blades in the cylinder and construct the cap with broad blades answering with the narrow wind-vanes to form buckets, one part or edge of each of these blades being inclined down into the cylinder and operating, as will be hereinafter more fully set forth.

My invention consists therefore in the combination, with narrow wind-vanes, of broad vanes, having such construction with reference to said narrow vanes as to increase the wind-propelling surface, and at the same time increase the draft in the chimney.

A chimney-cap embodying my invention is seen in the drawings, Figure 1 representing the same in elevation; Fig. 2, a horizontal section on the line *x x;* Fig. 3, a horizontal section the line *z z;* Fig. 4, a vertical section taken diagonally through the chimney *a*.

b denotes the cylindrical cap surmounting the same. Within this cap is a vertical spindle, *c*, centrally supported with respect to the chimney and bearing upon its upper end the rotary ventilator *d*. This ventilator has three or any other suitable number of series of narrow vanes, *e*, extending outward beyond the space over the cylinder, and between every two series of these vanes is a broad blade, *f*, which extends outwardly about the same distance as do the vanes *e*, but inwardly is carried over the cylinder *b*. Each blade has a direction not radially toward the spindle, but so as to go partially around the same, leaving an open space, *o*, between each blade and the spindle, the curvature or direction given to each blade creating, in connection with the vanes adjacent to and inclined toward it, wind-buckets, each of which are closed from the cylinder below as far as the inner edge of the blade, but are open between the inner edge of the blade and the vanes and between said edge and the spindle. The bottom of each blade *f* has a downward inclination into the space in the cylinder *b*, as seen at *g* in Fig. 1. The wind strikes upon the inner surfaces of the vanes, impinges against the surface of the blade *f* beyond, and aids materially in the propulsion of the ventilator-cap, and the separation of the space at which the wind enters from the space below prevents a downward current into the chimney of the wind blowing against the vanes. The blades upon the opposite side of the cap, where the vanes are turned from the wind by their inclination down into the cylinder, cause the rotation of the ventilator, an upper current through the chimney, and out by and through the vanes, as indicated by the arrows in red in Fig. 2. The wind acts to propel the ventilator, as denoted by the arrows in black.

In the ventilator known as the "Emerson ventilator," straight blades have sometimes been extended from the cap-piece to the cone-piece at the bottom thereof, said pieces acting as vanes for rotation of the ventilator, but not extending over the opening of the cylinder beneath, and having no function of creating an upward draft in the chimney.

Straight blades running radially toward and up to the spindle have also been applied to a ventilator in connection with narrow wind-vanes, (though not, I believe, before my invention;) but these blades do not operate to improve the draft of the chimney, as the air from the chimney cannot pass between the inner edges of the adjacent blades, and they have no inclination into the space below; but, by my construction, the blades, while forming with the narrow vanes wind-buckets on the side from which the wind acts, offer no impediment to the free egress of the air upon the opposite side and increase the upper current by their inclination into the cylinder beneath.

The propelling surface of the ventilator may be increased by adding to the top thereof a closed case from which vanes *h*, continuous of the vanes below or independent thereof, may project, as seen in Fig. 4.

To confine the cylinder *b* upon a chimney-top I employ stay-pieces *i*, which depend loosely from the cylinder when it is placed upon the top of the chimney, a stay-piece, *i*, extending into the angle at each corner of the chimney. Each stay-piece is hung loosely in a staple on the inner side of the cylinder, and a set-screw, *k*, by acting on the upper end of the stay, causes the lower end to impinge against the inner surface of the chimney and securely fastens the ventilator in position. By these means no access has to be had to the interior of the chimney or of the ventilator, after it is placed upon the chimney, to fasten it in position, the cap and cylinder being connected together before application to the chimney.

It will be obvious that any person of ordinary skill can apply these ventilators, the services of a mechanic not being required, an object of much importance where these articles are sent into interior towns at very considerable distances from the places of manufacture or sale.

I claim—

Combining with the vanes *e* the blades *f*, extending down into the cylinder and having open spaces between their inner edges, substantially as herein set forth.

In witness whereof I have hereunto set my hand this 7th day of March, A. D. 1865.

GEO. W. DEMOND.

Witnesses:

FRANCIS GOULD,

J. B. CROSBY.