A. BARNUM.

Ventilating-Cap for Chimneys, &c.

No. 199,399. **Patented Jan. 22, 1878.**

FIG. 2.

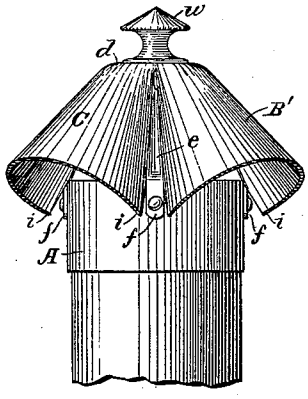


FIG. 3.

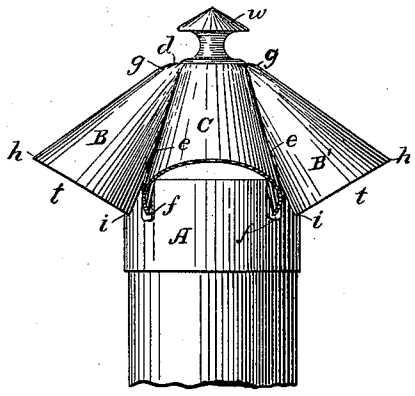


FIG. 1.

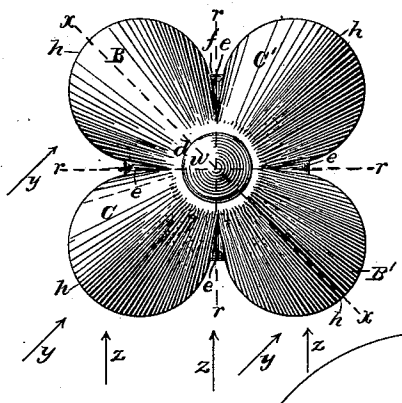


FIG. 4.

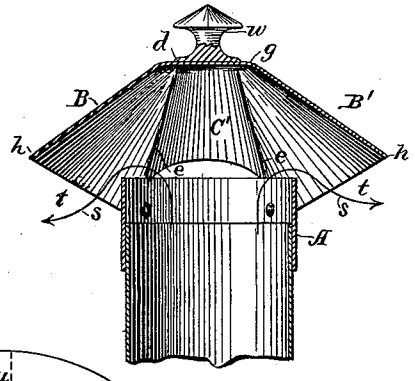
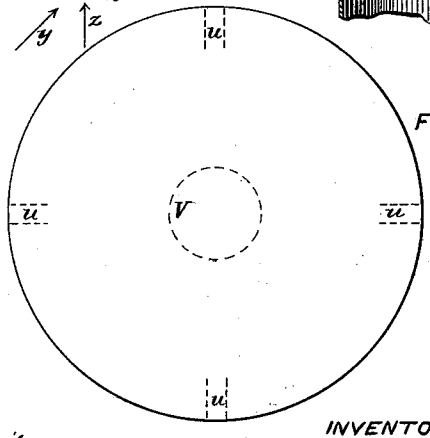


FIG. 5.



WITNESSES:

James N. Slade.
James T. Goodfellow.

INVENTOR:

Ashbell Barnum
by Austin F. Park,
Attorney.

UNITED STATES PATENT OFFICE.

ASHBELL BARNUM, OF GREEN ISLAND, ASSIGNOR OF ONE-HALF HIS RIGHT TO GILBERT GEER, JR., OF TROY, NEW YORK.

IMPROVEMENT IN VENTILATING-CAPS FOR CHIMNEYS, &c.

Specification forming part of Letters Patent No. **199,399**, dated January 22, 1878; application filed January 5, 1878.

To all whom it may concern:

Be it known that I, ASHBELL BARNUM, of Green Island, in the county of Albany and State of New York, have invented a new and useful Improved Ventilating-Cap for Chimneys and Draft-Pipes, of which the following is a specification, reference being had to the accompanying drawing, in which—

Figure 1 is a plan, Fig. 2 an elevation viewed in the direction indicated by the arrows *z*, Fig. 3 an elevation seen in the direction pointed by the arrows *y*, and Fig. 4 a vertical section in the plane *x x*, all of one of my improved ventilating-caps; and Fig. 5 is a plan of a disk of sheet metal, from which all the hooded portion of the cap can be formed in one piece.

This invention consists in the combination, with the tubular part A, of a cap composed of the pairs of opposite-inclined hoods B B′ C C′, of approximately semi-conical form, and arranged radially in a circle around a common center, and connected together and closed at their tops by the plate or part *d*, and united along their inturned side parts *e*, and all shaped, proportioned, and arranged together, and in respect to the said tubular part, substantially as shown in the aforesaid drawings, and hereinafter described, the ornamental piece *w* being not essential to the invention.

The whole cap, composed as above specified, can be molded or cast in one piece of cast-iron or other suitable metal or plastic material; and it can be made of suitable pieces of metal or other material, properly united together. I however commonly prefer to construct the cap from one circular piece, V, Fig. 5, of metal, by bending or swaging the same into the proper shape, (shown in the other figures,) and slitting the outer end parts of the inwardly-turned portions *e*, or of the parts to be turned inward, as indicated at *u* in Fig. 5, and bending the same downward, so as to form lugs *f*, which are to be riveted or otherwise fastened to the tube A of the chimney or draft-pipe, substantially as indicated in the drawing.

In that case I commonly prefer to have the diameter of the disk V about twice and one-half the diameter of the tube A with which the cap is to be combined; and I generally prefer to have the length of the upper side *g h* of the inclined part of each semi-conical hood about equal to the diameter of that tube, and to have the top parts *g h* and inturned parts *e* of the pairs of hoods inclined at such angles in respect to each other, and arranged and secured upon the top of the tube A in such position, that the outer ends of all the hoods shall project equally in radial directions beyond the circumference of that tube, and that the highest end parts *h* shall be about on a level with, or somewhat above the level of, the top of the tube A, while the lowest parts *i* of the outer ends of the hoods shall be considerably below and outside of the top of the tube, all substantially as shown in the drawing.

The improved ventilating-cap above described is, even when formed of thin sheet metal, very stiff, strong, and durable, to resist the force of wind and rain, and will effectually prevent rain and sleet from falling or beating into the draft-tube.

The blowing of the wind downward, either vertically or in any inclined direction, upon the cap produces a partial vacuum under the overreaching outer end parts of the hoods B B′ C C′, as at *t*, and thereby causes a strong upward draft through the pipe A, and thence outward under the hoods, as indicated by the arrows *s*, Fig. 4.

The blowing of the wind horizontally against the cap in the lengthwise direction of either one of the pairs of opposite hoods, as B B′, and across the other pair, C C′, as indicated by the arrows *y* in Fig. 1, will also produce a very strong upward draft through the tube A; but the blowing of the wind horizontally against the cap in a direction parallel with the plane *r r*, Fig. 1, of either one of the two pairs of opposite inturned parts *e* between the hoods, as indicated by the arrows *z*, will produce only a moderate upward draft through that tube.

This improved ventilating-cap is, therefore, suitable for use on chimneys and draft-pipes which are liable, by reason of some adjacent building or structure, to have the natural upward draft therein impeded or overcome by winds blowing downward or in some particular horizontal direction; and it is especially adapted for use on the exit-pipes of the stoves and ventilators of railway-cars.

In applying this improved ventilating-cap to the exit-pipe of a stove or ventilator of a railway-car, the draft therein can be rendered very much greater while the car is running than when it is at rest by simply arranging and securing the cap on the exit-pipe with the plane *x x* of one pair of the opposite hoods, as B B′, in the lengthwise or running direction of the car, while the plane of the other pair of hoods, as C C′, is at right angles to that direction.

In case it shall be required that the draft in the exit-pipe of the car shall not be very materially greater while the car is running than while it is at rest, this ventilating-cap, to secure that result, is to be arranged and fastened on the exit-pipe with the plane *r r* of one of the pairs of opposite inturned parts *e e* in the direction of the length and movement of the car, while the plane of the other pair of in turned parts is at right angles thereto.

What I claim as my invention is—

In combination with the tubular part A, the improved ventilating-cap consisting of the pairs of opposite inclined semi-conical hoods B B′ C C′, connected and closed at their tops by the part *d*, and united at their inwardly-turned parts *e*, and proportioned and arranged together, and in respect to the top of the said tubular part, substantially as shown and described.

In testimony whereof I hereunto set my hand in the presence of two subscribing witnesses this 2d day of January, 1878.

ASHBELL BARNUM.

Witnesses:

AUSTIN F. PARK,

JAMES T. GOODFELLOW.