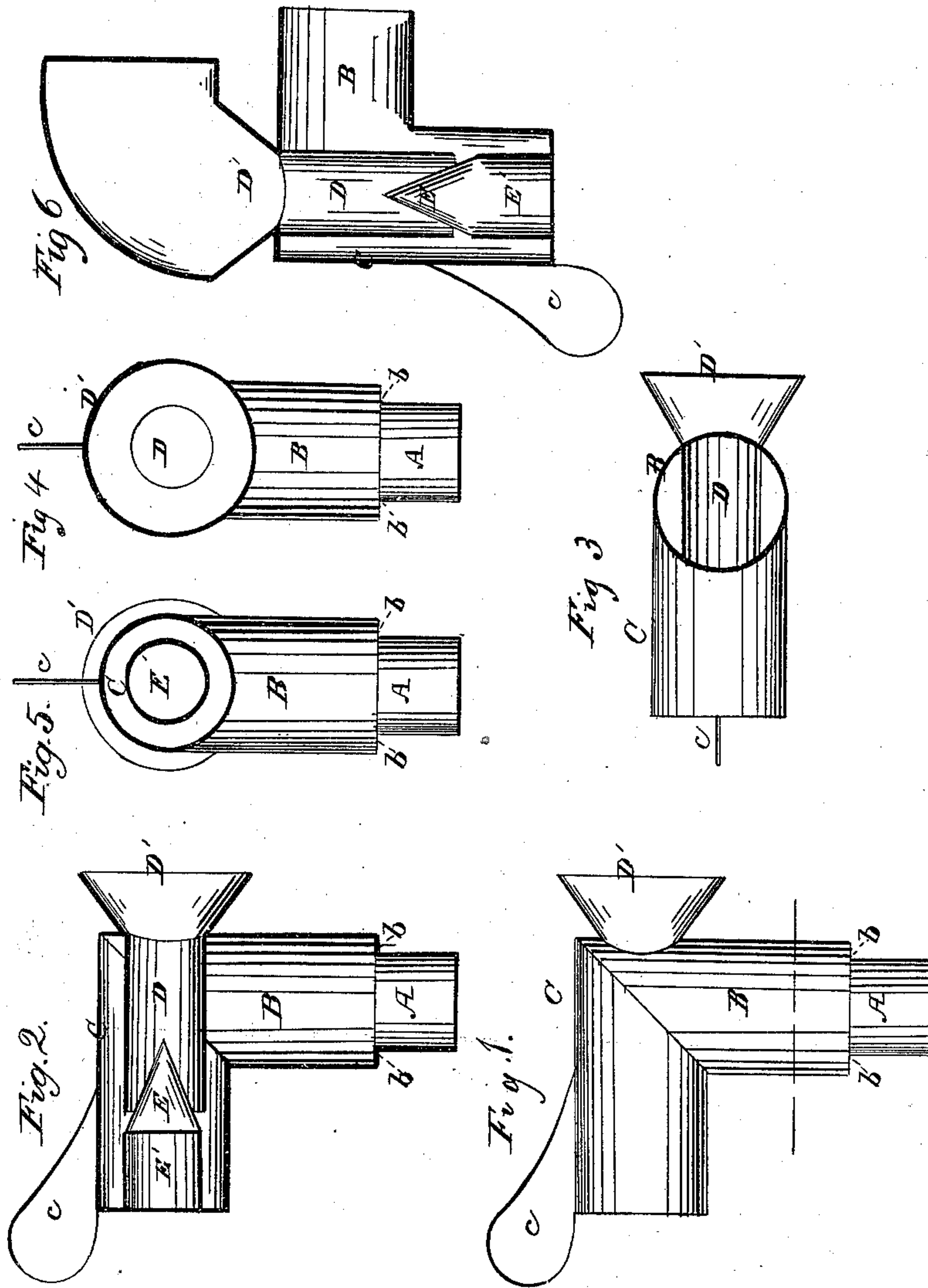


H. S. DECKER.

Chimney Cowl.

No. 81,609.

Patented Sept. 1, 1868.



Witnesses.  
W. C. Dey,  
J. J. Livings

Signature.  
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# United States Patent Office.

HENRY S. DECKER, OF NEW YORK, N. Y.

*Letters Patent No. 81,609, dated September 1, 1868.*

## IMPROVEMENT IN CHIMNEY-COWLS.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, HENRY S. DECKER, of the city and county of New York, in the State of New York, have invented certain new and useful Improvements in Ventilators, applicable also to other uses, where it is desired to induce currents in fluids; and I do hereby declare that the following is a full and exact description thereof.

I will first describe what I consider the best means of carrying out my invention, and will afterwards designate the points which I believe to be new therein.

The accompanying drawings form a part of this specification.

Figure 1 is a side elevation.

Figure 2, a central vertical longitudinal section.

Figure 3, a view from below.

Figure 4, a view from the side against which the wind strikes, and

Figure 5 a view on the side from which the smoke or foul air is discharged.

Figure 6 shows a form into which the above may be changed; with little labor, to serve a different purpose. Similar letters of reference indicate like parts in all the figures.

B is the continuation of the flue of the chimney, and C is a portion turned in a horizontal position, and connected thereto, with one end partially closed.

D is an internal pipe, mounted centrally in the part C, and open at both ends.

D' is the flaring continuation of the pipe D, adapted to receive the wind or the natural circulation of the atmosphere, to induce an active current of air from this cause through the pipe D.

The whole device being mounted in the ordinary manner, on a central pivot, so that it may turn, and being provided with a vane, *e*, it presents always the flaring mouth D' in the direction from which the wind blows. The current of wind through the pipe D tends to induce a flow of the air from the open end of the horizontal part C, such end being always turned from the wind.

So far, my device is old, or does not differ in any very important point from ventilators which have been before known and used.

E is a cone, mounted in the position represented, and E' is a cylindrical casing, soldered or otherwise fixed to the large end thereof. The diameter of the casing corresponds with the large end of the cone, and also agrees, either exactly or very nearly, with the diameter of the pipe D, before described. The current of wind blowing through the pipe D is spread by the cone E, and flows along, in an extended and thin sheet, in the interior of the annular space between the exterior casing E' and the interior part C.

The diameter of the part B is about equal to that of the part C. I believe that an exact coincidence of the diameters in this respect is the best possible condition. The pipe B extends down, in the full size which is represented, but a little distance—just sufficient, in fact, to give the proper condition at the juncture of the pipes B and C. Below this, at a point, say, about equal to the diameter of the pipe B, it is contracted, as represented, an annular piece of metal, *b*, being introduced, forming a junction between the pipe B and a smaller pipe, A. The area of the cross-section of this smaller pipe A should be just equal to the area of the cross-section of the annular space between the casing E' and the interior of the pipe or chamber C.

It will be readily understood that my invention will operate very nearly the same whether the contracted part A turns with the ventilating-device, or is fixed stationary on the chimney. I prefer, however, to make the loose junction between the stationary part and the rotating part in the contracted part A, rather than in the enlarged part B.

What I have termed the contracted part A may be of the same area of cross-section as the flue in the chimney below. I do not consider it essential that it should be smaller, though I prefer to have it of less area than the passage below. I have tried the ventilator thus conditioned, and its success is so satisfactory that I esteem the contraction, and the matching of the contracted part A to the enlarged part B, and the relative



proportions of the several parts above described, very important conditions to be understood and provided for in applying my invention. My theory of the action of the currents, in flowing from the contracted part A into the larger part B, and from this into the horizontal part C, may not be important. I find, by experiment, that there is an advantage in the relation above described. I do not, as above explained, insist on the part A being contracted into less area than the flue of the chimney below. It is, perhaps, better to say that the parts B and C are larger than the flue A, leaving the relation of the flue A to the flue below indeterminate.

In cases where a blast of steam, or any vigorous current other than wind, is available to produce an exhausting effect, it will be readily understood that such current is to be applied through the pipe or passage D. The relations of all the other parts should be the same as here described, except that in case high-pressure steam is available, the area of the pipe D, and particularly of the space between it and the cone E, should be very much contracted. The vigorous blast escaping from a very narrow orifice will induce a very active current of air out of the open end of the chamber C, and, consequently, up through the parts A and B.

It is practicable, by modifying the arrangement here described, to pour air into a building, instead of drawing it out. Fig. 6 indicates the outline of a suitable arrangement for that purpose. The principles involved are very nearly the same as above described. The action is simply an exhausting, so to speak, of the open atmosphere into a building or other receptacle, instead of exhausting out of the building into the open atmosphere. The relations and proportions of all the parts should be the same in either case. It is simply necessary to modify the mouths which receive the air, and radically change the position of the device.

I claim the ventilator herein described, having an interior cone enclosed within the exterior walls of the ventilator, so as to provide an annular space between its exterior and the interior of the enclosing-shell, which may be extended by a cylindrical attachment to the inner cone, as represented, the several parts being combined and arranged relatively to each other, and to the passage or pipe for distributing fresh air by the force of the wind upon the cone, substantially as shown and described, for the purposes set forth.

HENRY S. DECKER.

Witnesses:

W. C. DEY,

C. C. LIVINGS.