(No Model.)

C MÜLLER.

VENTILATOR.

No. 301,258. Patented July 1, 1884.

Fig. 1.

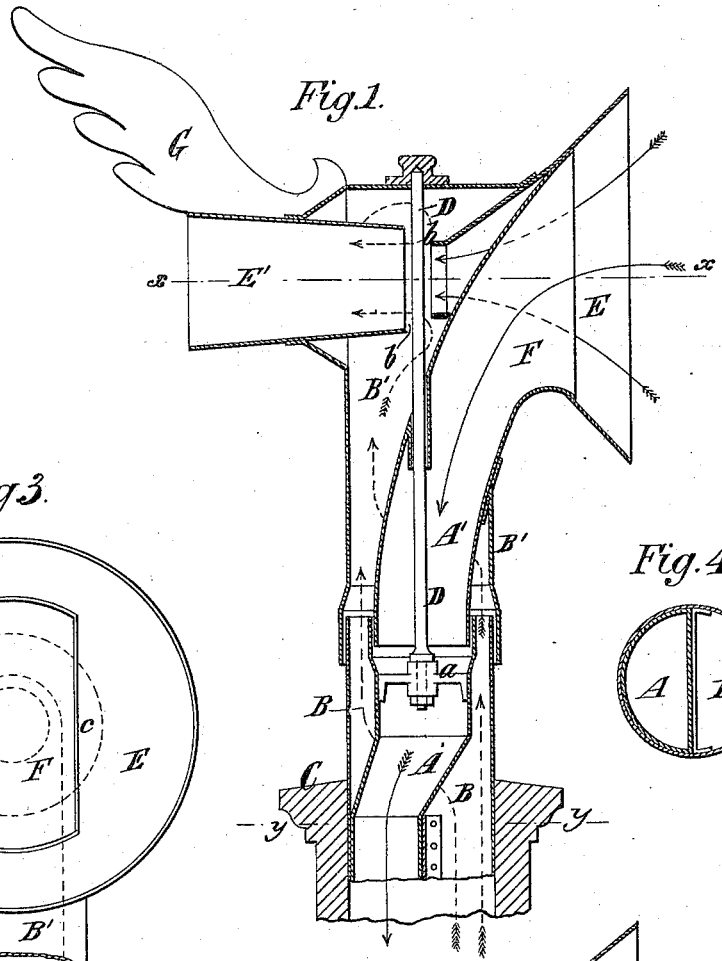


Fig. 3.

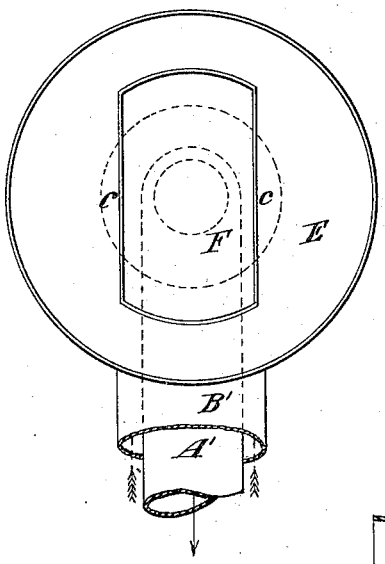
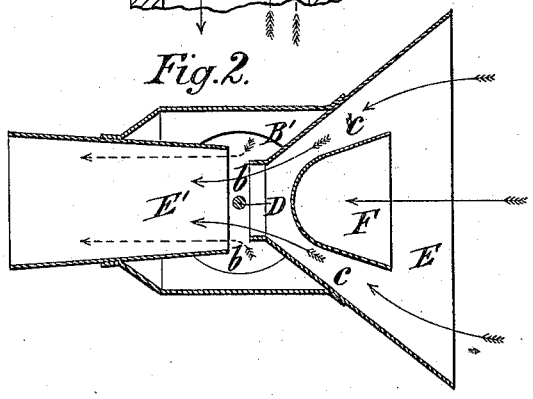


Fig. 4.

Fig. 2.



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UNITED STATES PATENT OFFICE.

CONRAD MÜLLER, OF HAMBURG, GERMANY.

VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 301,258, dated July 1, 1884.

Application filed January 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, CONRAD MÜLLER, of Hamburg, in the Empire of Germany, have invented a new and useful Improvement in Ventilators, of which the following is a specification.

My invention relates to that class of ventilators in which are employed inlet and outlet air-tubes, and a cowl constructed with funnels which induce a current of pure air downward through the inlet-tube into the apartment to be ventilated, and a current of impure and vitiated air upward through the outlet-tube.

The invention consists in a novel combination of the funnels of the cowl with the inlet and outlet tubes and with each other, as hereinafter described, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a vertical section of a ventilator embodying my invention. Fig. 2 is a horizontal section on the plane of the dotted line *x x*, Fig. 1. Fig. 3 is a front view of the cowl; and Fig. 4 is a horizontal section of the inlet and outlet tubes on the line *y y*, Fig. 1.

Similar letters of reference designate corresponding parts in all the figures.

A B designate, respectively, the inlet and outlet tubes. At their upper ends they are concentric, the inlet-tube A being arranged within the outlet-tube B; but below the top they take a semicircular form, as shown in Fig. 4, and are arranged side by side. They may, however, be concentric and arranged one within the other throughout their entire length.

C designates a chimney in which the ventilator is placed; but the ventilator is applicable to ships and other places to be ventilated, as well as to buildings.

The cowl consists, essentially, of a cylindric shell or casing, B′, which constitutes a passage, forming a continuation of the outlet-tube B, and an inner tube or passage, A′, which communicates with and forms a part of the inlet-tube A.

D designates a rod or spindle, which is fast in a bridge or spider, *a*, in the inlet-tube A, and on which the cowl may turn freely, so that its funnels, hereinafter described, may be presented to the wind.

E designates a funnel, the axis of which is about horizontal, and which enters the outlet-passage B′ and extends transversely across to about the center thereof. In line with this funnel E is an outlet pipe or nozzle, E′, and the inner ends of said funnel and nozzle E E′ are slightly separated from each other, leaving a space, *b*, for the entrance of air. As here shown, the inner or delivery end of the funnel E is smaller than the inner end of the nozzle E′, so that all air issuing from the funnel is delivered directly into the pipe or nozzle. The said pipe or nozzle E′ also flares outward from its inner end, which shape conduces to a rapid current through said pipe or nozzle E′.

F designates a second funnel, which conducts air to the inlet-passage A′ and tube A, and which is presented horizontally at the side of the casing or passage B′. In this example of my invention the funnel F is arranged within the funnel E, and fills the same vertically; but horizontally the funnel F is considerably narrower than the funnel E, and consequently passages *c* are left on each side of the funnel F in the funnel E, as shown most clearly in Fig. 2.

Attached to the cowl is a vane, G, which tends to hold the funnels toward the wind. The wind entering the funnel passes down the inlet passage and tube A A′ to the room or apartment to be ventilated, and displaces the impure and vitiated air, which is forced up through the tube B. The wind entering the passages *c* of the funnel E blows through the pipe or nozzle E′, and, in passing over the space *b*, produces a suction, which induces the current of impure air up through the tube B and passage B′, and thence through the space *b* into and through the pipe or nozzle E′.

From the foregoing description it will be understood that the inductive action of the air through the funnel and pipe or nozzle E E′ and the pressure produced by the constant inflow of pure air through the funnel F and inlet-passage and tube A A′ both combine to produce an outward current of im-

pure air, and hence the ventilation is very effective.

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

The combination, with inlet and outlet tubes A B, of the cowl comprising the passages A′ B′, the funnel and outlet-nozzle E E′, separated by the induction-space *b*, and the inlet-funnel F, made narrower than the funnel E, so as to leave air-spaces *c c* between said funnels, all substantially as herein described.

CONRAD MÜLLER.

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