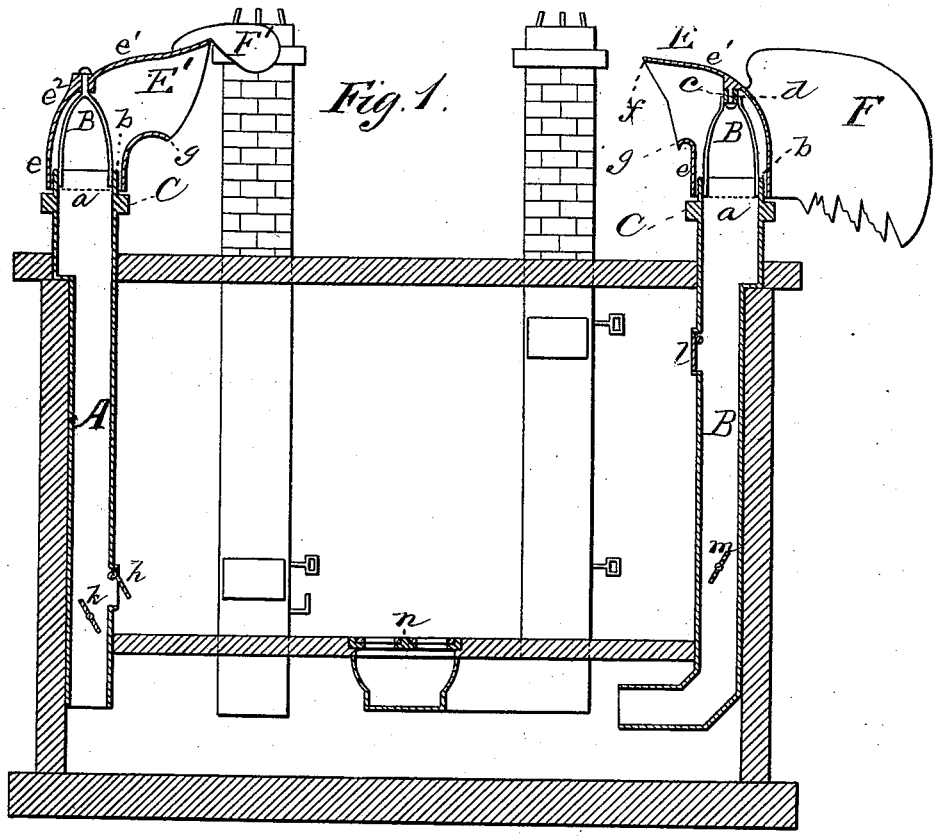
J. C. MORGAN.

Ventilators for Mines, Cellars and Buildings.

No. 199,091. Patented Jan. 8, 1878.



WITNESSES

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JOHN C. MORGAN, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN VENTILATORS FOR MINES, CELLARS, AND BUILDINGS.

Specification forming part of Letters Patent No. **199,091**, dated January 8, 1878; application filed June 23, 1877.

To all whom it may concern:

Be it known that I, JOHN C. MORGAN, of Philadelphia, in the county of Philadelphia, and State of Pennsylvania, have invented a new and valuable Improvement in Ventilators; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, making a part of this specification, and to the letters and figures of reference marked thereon.

The drawing is a representation of a vertical section of my invention applied to a house.

This invention has relation to improvements in means for ventilating buildings, cellars, the galleries of a mine, excavations, and other analogous places that are liable to the accumulation of foul air and mephitic or explosive gases.

The nature of my invention will be fully understood from the following description.

In illustrating my invention I have selected a two-story building, as presenting the most eligible form for showing its advantages.

This building is provided in any suitable position, but preferably at opposite ends, with two or more flues, A B, that extend through the floors, ceiling, and roof, and terminate at their upper ends in a coping-plate, C, having a central opening, *a*, surrounded by a raised annular flange, *b*. B represents a tripod-frame, the ends of which are rigidly secured to the flange *b*. This frame has at its upper end a vertical bearing, *c*, for the spindle *d* of a preferably metallic hood, E. This latter rotates freely in relation to the flue, and its lower end is passed over the collar-flange *b* aforesaid, with its lower edge bearing against the coping-plate. This hood consists of an upright portion, *e*, and a horizontal portion, e^1, connected therewith by an elbow, e^2, of curved form, and it is maintained with its open end facing the wind by means of a wing, F, secured in a vertical position to its back. This wing will be kept by the force of the wind in the line of its course, and, being at the rear of the hood, the latter will necessarily face the wind, whatever be its changes of direction.

As shown at *f* in the drawing, the upper edge of the mouth of the hood overhangs the opening of the same, after the manner of a penthouse, and the lower edge thereof, *g*, is bent down, so as to prevent rain carried into the hood by the wind from penetrating into the flue.

The hood E′, at the upper end of the flue A, is of precisely the same construction as hood E, except that its wing F′ overhangs the opening of the hood, and maintains the said hood with its mouth out of the wind.

The flue A is the educt for foul air and gases, while the flue B is the induct for pure air. The former is provided with a valve or register, *h*, near the floor of each room through which it extends, and below each valve with a damper, *k*, each operated by a suitable handle. The induct-flue B has a similar valve or register, *l*, near the ceiling of the building, and a damper, *m*, below it.

When the valve *l* is opened and the damper *m* below it closed, air will be forced down hood E and flue B into the room; and the valve *h* being open and the damper *k* of the educt-flue closed, the heavy foul air at the bottom of the room will be forced out of it into the said educt, and carried by the draft into the open air. The upward movement of the foul air is greatly accelerated by the position of the mouth of the hood E′—that is, by its being out of the wind—as the rush of the wind past it creates a partial vacuum and considerable draft.

Sometimes the induct-flue will have branch pipes extending under the floor and opening into a register, *n*, set therein.

It is evident that ordinary chimney-flues, when not otherwise employed, may be used in precisely the same manner as the flues A B, above described; and that by extending the latter to any desired depth, an excavation or mine may be as effectually ventilated as a building.

I may sometimes, when the depth at which the fresh air is to be delivered and the foul air removed is very great, use an exhaust-fan in the educt, or at its mouth, to form a more powerful upward current.

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

1. The combination, with the building, of the educt-flue A, having valve *h*, damper *k*,

and a revolving hood, E′, with its mouth out of the wind, the induct-flue B, having valve *l*, damper *m*, and a rotating hood or cowl, E, facing the wind, as and for the purpose set forth.

2. The hood or cowl E, having an overhanging penthouse, *f*, and a down-turned lower edge, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JOHN C. MORGAN.

Witnesses:
ALLEN H. GANGEWER,
GEO. C. SHELMERDINE.