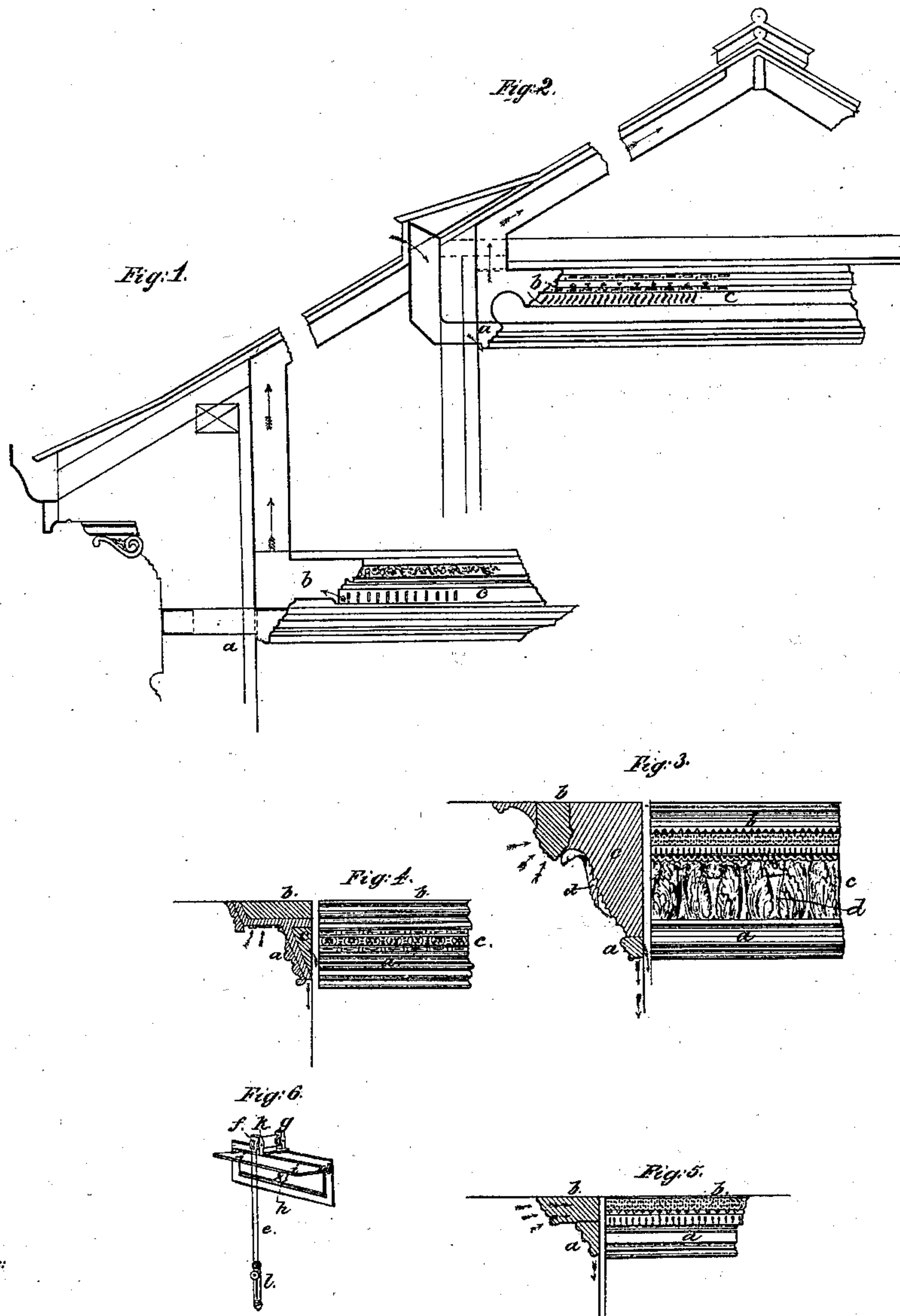


W. Potts,
House Ventilator,

No 78,894.

Patented June 16, 1868.



Witnesses:

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United States Patent Office.

WILLIAM POTTS, OF HANDSWORTH, ENGLAND.

Letters Patent No. 78,894, dated June 16, 1868.

IMPROVEMENT IN VENTILATING-APPARATUS.

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

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Be it known that I, WILLIAM POTTS, of Handsworth, in the county of Stafford, England, manufacturer, a subject of the Queen of Great Britain, have invented or discovered new and useful "Improvements in Apparatus for Ventilating Rooms and Buildings;" and I, the said WILLIAM POTTS, do hereby declare the nature of the said invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof; that is to say—

My invention consists in constructing and arranging, in the manner hereinafter described, the cornices of rooms or buildings, so as to effect the removal of the hot and vitiated air of the room or building, and the introduction of fresh air by means of the said cornices.. The cornice may be made of any suitable material, due provision being made to secure separate channels for the hot and cold air.

The upper part of the cornice is perforated throughout its whole length, the perforations having, by preference, an ornamental character, but I prefer to cover so as to close the perforations for a suitable distance opposite or beyond each exit-valve, to prevent downward currents from entering the room. At the bottom of the cornice, and at its back, and at the greatest convenient distance from the last-described perforations, another series of perforations is furnished by fixing perforated zinc, or other gauze-like material, to the cornice, the said zinc or gauze being let into the plaster or wall, and extending the whole length of the cornice, excepting that necessary distance beyond the valve-width which shall insure that the cold air does not get access till it has received a direction along the cornice.

A partition or diaphragm, extending the whole length of the cornice, separates that part of the cornice into which the upper perforations open from that into which the lower perforations open. The cornice thus constitutes two independent channels, into which the two series of perforations described open respectively.

I will call that compartment into which the top perforations open, the upper channel, and that into which the lower perforations open, the bottom channel.

The upper channel is put into communication with the chimney of the room, or with any flue with an adequate draught, and the lower channel is put into communication with the external air, either directly or through any convenient corridor or passage, or with a hall or lobby, to provide a change of air. Either or both of the said channels may be provided with a valve, to which a cord or chain is attached, and capable of being fixed in various positions, so as to open, more or less, the said valves, as required.

The action of the apparatus is as follows:

By opening the valve or valves, the hot and vitiated air which accumulates at the upper part of the room or building passes into the upper channel, and from thence to the chimney or flue, while an equal quantity of fresh air enters the room or building through the lower channel, and ventilation to the required extent is thereby effected. In large rooms or buildings where there is no chimney, the channels described are made to communicate with the atmosphere by means of passages.

My invention is especially applicable to the ventilation of the rooms of dwelling-houses, but is also applicable to the ventilation of workshops, offices, and large public buildings.

Figure 1 represents, in vertical section, an arrangement of my invention, suitable for a bed-chamber or other room having no chimney, and where the cornice is below the line of the wall-plate.

Figure 2 represents, in vertical section, my invention applied to a room where the cornice is above the wall-plate.

In the arrangements, figs. 1 and 2, the hot-air channel opens between the ridge-tiles at the summit of the roof. In both the figures the letters *a* and *b* show, respectively, the cold and hot-air passages. The cornice, in the upper and lower parts of which the said channels *b* and *a* open, is marked *c*.

The separate figures, 3, 4, and 5, show elevations and sections of different ways of carrying my invention into effect.

In fig. 3, the hot-air channel *b*, at the top of the cornice *c*, is separated from the cold-air channel *a* by the

intermediate ornamental work *d*. In fig. 4, the hot-air channel *b* and the cold-air channel *a* occupy nearly the whole of the cornice *c*, and are covered with the plaster or other ornamental work of the cornice. In fig. 5, the hot-air channel *b*, and the cold-air channel *a*, together, make up the cornice, the sectional figure of the said channels being ornamental, and requiring no ornamental addition to complete the cornice. In all cases the perforations or openings in the channels *a* and *b*, by which the said channels communicate, respectively, with the air of the room, consist of small ornamental or other perforations, or of openings in which wire gauze or perforated metal or material is inserted.

By an examination of the drawing, it will be seen that the hot-air channel is always situated at the highest convenient point of the cornice, and the cold-air channel at the lowest. The cornice made according to my invention extends, by preference, all round the room, and the entrance of fresh air and the exit of hot and vitiated air take place simultaneously all round the room. Where, however, for any reason, it is inconvenient to construct the cornice all round the room, as described, the ventilation of the room may be satisfactorily effected by making the cornice on one or two or three sides of the room only.

In figs. 3, 4, and 5, the arrows indicate the respective directions of the two currents of air, the arrows directed towards the cornice indicating the path of the hot and vitiated air, and the arrows directed away from the cornice indicating the path of the fresh and cool air.

Although I prefer to make the two independent channels in or form the cornice, as hereinbefore described, and illustrated in the drawing, yet I do not limit myself thereto, as two independent tubular channels, of the construction hereinbefore described, may be placed outside the cornice, or at the highest convenient part of the room or building; that is to say, the tubular channels, placed relatively to each other, as hereinbefore described, and provided throughout their length with wire gauze, or a series of perforations, shall extend along one, two, or more sides of the room, in order to take up at all points the vitiated air, and to discharge the fresh air, not at one point, but throughout the length of the fresh-air channel, and in a divided state, so as to prevent the draught consequent upon the drawing off or the entrance of air at one point only.

Figure 6 represents, in perspective, one of the valves which I employ at the entrance of the cold-air and at the exit of the hot-air channels, for the purpose of regulating the amount of cold air admitted and of the hot air escaping.

The endless cord *e* passes over the pulleys *f g h* to the flap or valve *i*, to which it is fastened; from thence over the pulley *k*, and underneath the wall-pulley *l*, to the pulley *f*. The wall-pulley *l* has a screw at the bottom of it, by turning which the cord may be tightened or loosened. The valve remains in any position in which it may be placed.

In ventilating underground railways, and other underground buildings, according to my invention, I provide, along the highest line of the arch of the sub-way, a separate channel for collecting the vitiated air. I make the said channel of a perforated tube, of any convenient form, which said tube is connected with vertical tubes opening to the external air at any convenient situation. These vertical tubes are covered by an inclined roof, under which there is sufficient space for the escape of the vitiated air. The said vertical tubes are situated in vertical shafts, between which shafts and the vertical tubes the cool and pure air may descend. The bottom of the annular space between the two tubes, that is, the space where the cool and fresh air enters the tunnel, may be closed by wire gauze, or other perforated material, to prevent the incoming or descending air causing draughts.

In order to establish a sufficient draught in the vertical tubes, gas-flames are kept burning in the said tubes near their lower ends. In order that the incoming cool air may not cool the hot-air funnel, and thereby retard the removal of the hot and vitiated air, I prefer to provide the said hot-air funnel with a casing, to protect it from the said cool air. A flap or door may be hinged to the hot-air tube under the gas-burners, to gain access to them, which flap or door may be glazed to light beneath it.

Having now described the nature of my invention, and the manner in which the same is to be performed, I wish it to be understood that I do not limit myself to the precise details herein described and illustrated, as the same may be varied without departing from the nature of my invention; but

I claim as my invention—

1. The improved method, herein described, of ventilating rooms and buildings, by constructing and arranging, at the highest convenient part of the room or building, two independent or separate channels, extending at different levels along one or more sides of the room or buildings, and provided throughout their length with ornamental or other perforations, or wire gauze, through which the vitiated air is drawn into the upper channel, and the fresh air passes from the lower channel in the manner specified, whereby the room may be ventilated without creating a perceptible or injurious draught.

2. The arrangement, in the cornices of rooms or building, of two independent and separate ventilating-channels, and the ornamental or other perforations or wire gauze with which the same are provided, for dividing and distributing the air drawn from and discharged into the place to be ventilated, in the manner and for the purposes shown and set forth.

WILLIAM POTTS.

Witnesses:

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