(No Model.)

J. W. TATEM.

COMBINED FIREPLACE AND VENTILATOR.

No. 529,972. Patented Nov. 27, 1894.

Fig. 1

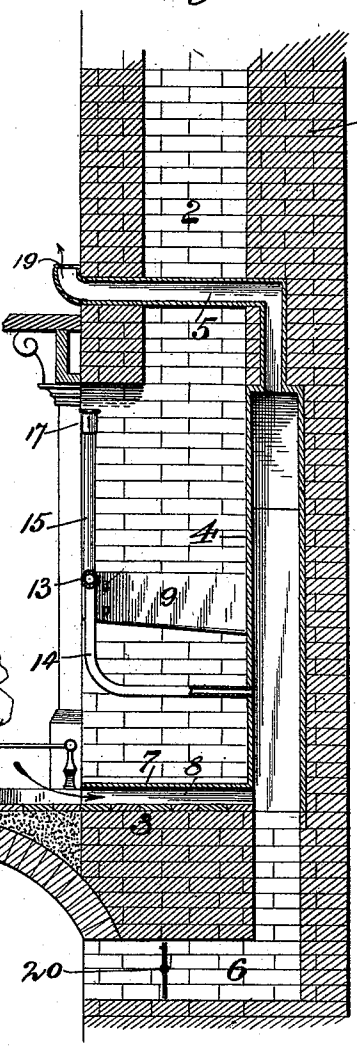


Fig. 2.

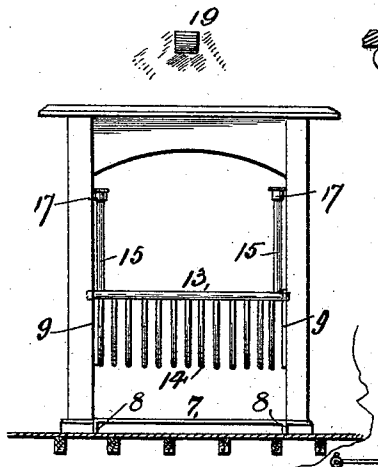


Fig. 3.

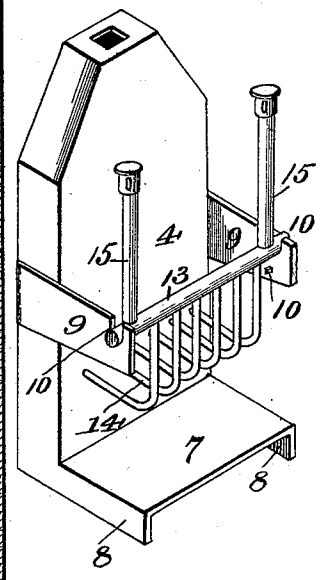
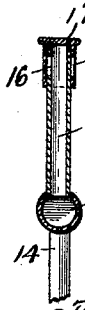


Fig. 4



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UNITED STATES PATENT OFFICE.

JAMES W. TATEM, OF DURHAM, NORTH CAROLINA, ASSIGNOR OF ONE-HALF TO W. H. ROWLAND AND W. R. COOPER, OF SAME PLACE.

COMBINED FIREPLACE AND VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 529,972, dated November 27, 1894.

Application filed March 13, 1894. Serial No. 503,499. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. TATEM, a citizen of the United States and a resident of Durham, in the county of Durham and State of North Carolina, have invented certain new and useful Improvements in a Combined Fireplace and Ventilator; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in combined fire places and ventilators, of that class or description in which what is known as an open grate is employed, in contradistinction to a stove or closed heater.

The object of the invention is to provide an improved construction of fire-place, in which a current of pure air from the exterior of the building or rooms is conducted through a flue, passing through an opening to a fire-back located in rear of the grate wherein it it is heated and discharged through a flue in the upper end into the room.

It is also an object to provide means whereby the foul air in the room will be carried underneath the ash plate into the fire-back, where it is subjected to a high degree of heat, which will destroy all disease-breeding germs. The air thus heated and purified will then escape through the flue in the top into the room and a constant circulation be kept up.

It is also an object to provide an improved construction of grate or basket, the bars of which consist of tubes or pipes communicating with the fire-back and with each other and the grate at each end provided with an upwardly extending pipe provided with valves for a purpose hereinafter explained.

The invention consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings: Figure 1 is a central longitudinal sectional view of a fireplace and ventilator constructed in accordance with my invention. Fig. 2 is a front view of the same. Fig. 3 is a perspective view of the fire back and grate; and Fig. 4 is a detail perspective view of one of the upwardly extending pipes.

In the said drawings the reference numeral 1 designates an ordinary chimney, 2 the flue thereof, and 3 the hearth. Above the hearth are the usual fire-place opening, and a recess to receive the fire-back 4. This fire-back consists of a hollow casting, the sides of which are beveled or tapered at their upper ends, and provided with an L-shaped flue 5 communicating with the interior of the fire-back and with the room. The lower end of the fire-back is open and communicates with a flue 6, passing through an opening in the hearth and leading to the exterior of the room. At its lower front side the fire-back is formed with an outwardly extending ash plate 7 provided at its sides with downwardly extending side flanges 8, so that when placed on the hearth there will be a space between the latter and the ash plate for the passage of air from the room to the fire-back. The fire-back is also formed with outwardly extending arms 9, provided at their ends with slots 10, for supporting the grate or basket 12.

The grate or basket consists of a transverse tube 13, to which is secured a number of curved tubes 14, forming the grate bars. The other ends of these tubes pass through apertures in the front wall of the fire-back, communication thus being established between said transverse tubes and the fire-back. At each end the transverse tube is provided with an upwardly extending pipe or tube 15, provided near its upper end with an opening 16. Fitting over these tubes or pipes are rotatable sleeves 17, having corresponding openings 18, which may be thrown into and out of coincidence with openings 16, thus acting as valves for opening and closing said openings 16. The purpose of these pipes is to cool off the hollow pipes or tubes of the grate which can be done by turning said valves or sleeves so that their openings will register with the openings in pipes 15, so that the cold air from the lower part of the fire back will circulate through the hollow grate bars or tubes.

The operation will be readily understood. The fire is built in the grate in the usual manner, heating the fire-back to a high degree, and the products of combustion pass

up around the upper end of the fire-back into the flue 2. Cold air will enter the fire-back through the flue in the hearth which is provided with a damper 20, where it will become highly heated and ascending upward will escape through the flue 5, into the room. This flue is provided with a register 19 at its outer end. While this is taking place the heavy foul air at the lower part of the room will be drawn through the passage-way between the ash plate and hearth into the fire-back and will be highly heated therein by which all living organisms and germs will be destroyed. The air thus purified will escape into the room through the L-shaped flue at the top of the fire-back. This passage is provided with a damper 21 so as to cut off or regulate the admission of the air. Air can be admitted to the fire-back both from the interior or exterior of the room at the same time by means of the dampers, or either or both of the passage-ways closed if desired.

Having thus described my invention, what I claim is—

The combination with the hollow fire back having a flue at its upper end adapted to communicate with the interior of a room and an opening at its lower end adapted to communicate with the exterior of the room, the arms formed with said fire back and the lugs at the ends thereof and the horizontal ash plate having downwardly exte ıding flanges forming a ventilating flue, communicating with the fire back, of the hollow grate bars the lower ends of which communicate with the fire back above the ventilating flue, the hollow transverse tube connected with the upper ends of said grate bars, the upwardly extending pipes at each end of said tube having openings at their upper ends, and the rotatable sleeves having openings therein corresponding with the openings in said pipes, substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

JAMES W. TATEM.

Witnesses:

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