(No Model.)

M. HECKEL.

COMBINED HEATER AND VENTILATOR.

No. 265,802. Patented Oct. 10, 1882.

Fig. 1

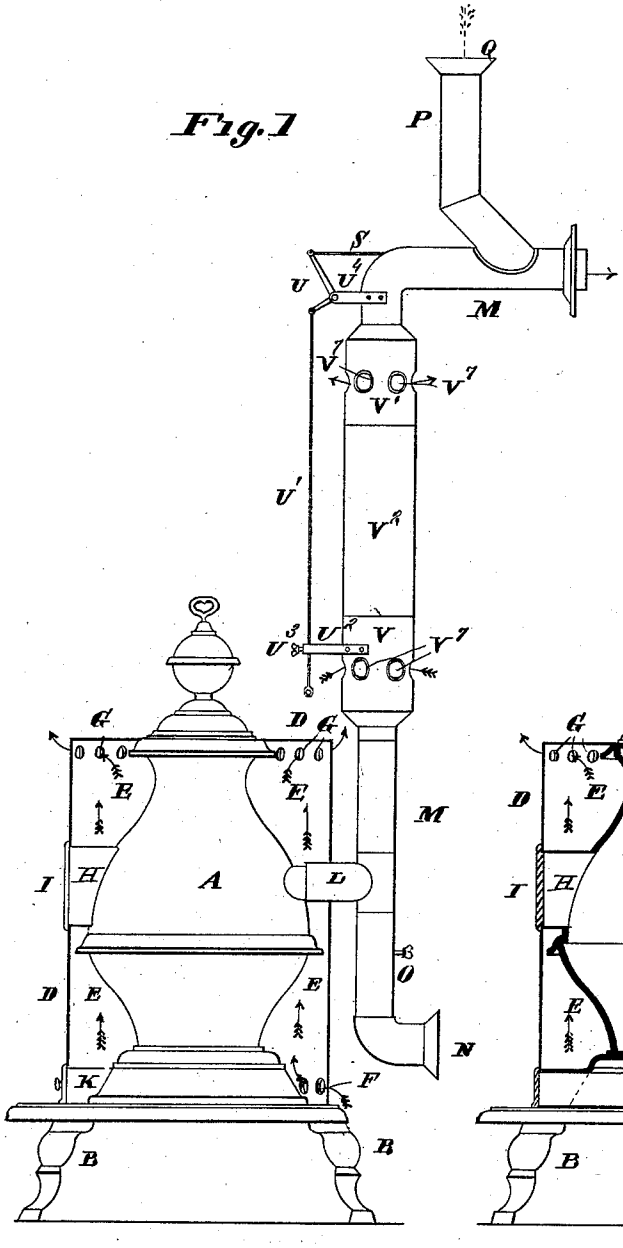


Fig. 2.

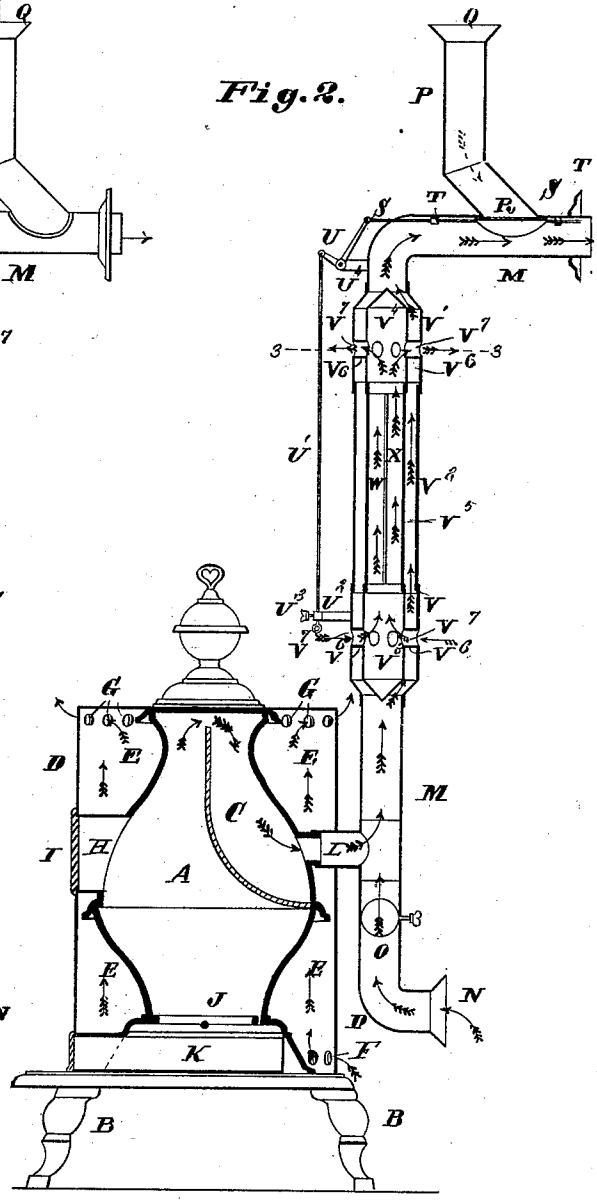
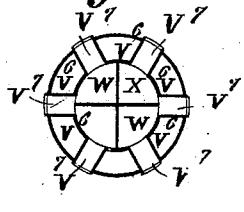


Fig. 3.



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UNITED STATES PATENT OFFICE.

MATHIAS HECKEL, OF ST. LOUIS, MISSOURI.

COMBINED HEATER AND VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 265,802, dated October 10, 1882.

Application filed August 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, MATHIAS HECKEL, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Combined Heaters and Ventilators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a side elevation, with the stove-casing in vertical section. Fig. 2 is a vertical section; and Fig. 3 is a transverse section taken on line 3 3, Fig. 2.

My invention relates to a device for heating and ventilating rooms; and it consists in the novel arrangement and construction of parts hereinafter described and claimed.

B represents legs supporting a stove, A, of the usual construction, except that it has a vertical diaphragm or partition, C, separating the fire-chamber and the exit of the escape-pipe, thus compelling the products of combustion to pass up to the top of the stove and back down on the other side of the partition to the exit before they can escape. The object of the partition is to give a greater amount of heating-surface to the stove. The stove is inclosed by a casing, D, forming a hot-air chamber, E, which has openings F at bottom and G at top, allowing the circulation of air through the chamber E, as shown by the arrows. The stove connects with the casing by a neck, H, for supplying the stove with fuel. The opening is closed by a door, I.

J represents the grate, and K the ash-pan.

L is a short length of pipe connecting the main escape-pipe M with the exit from the stove. The lower end of the main pipe terminates in an open bell-mouth, N, and it is supplied with a valve or damper, O, beneath the pipe L. By opening this damper O the foul air from the bottom of the room will be drawn into and escape through the pipe, as shown by the arrows.

On the top of the main pipe, close to the chimney or flue, is a pipe, P, with an open bell-mouth, Q, the communication between the two pipes being regulated by a valve or damper, R, by the opening of which the foul air from the top of the room will be drawn into and escape through the pipes. The damper is shown closed, supported by a rod, S, passing through lugs T, secured to the inside of the main pipe. The outer end of the rod S is secured to one end of a bell-crank lever, U, outside the pipe, to the other end of which is secured a vertical rod, U′, whose lower end passes through the outer end of an arm, U^2, secured to the main pipe.

U^3 is a set-screw passing through the arm U and jamming against the rod U′, to hold the damper R to any adjustment. The lever U is pivoted to the outer end of an arm, U^4, secured to the main pipe, as shown.

The main pipe M is in two portions, the lower portion connecting with a short section, V, somewhat larger in diameter than the main pipe, as shown, and the upper portion connecting with a similar section, V′, the two sections being connected by a length of pipe, V^2. Thus a communication is formed between the two portions of the main pipe. Within the sections V V′ are secured smaller sections, V^3 V^4, respectively, the section V^3 being closed at bottom and that V^4 at top, their open adjacent ends communicating by a length of pipe, V^5, and thus a warm-air chamber, W, is formed within the main pipe. The sections V and V^3 and those V′ and V^4 are connected by short open-ended necks V^6, which form openings V^7, through which air circulates, passing through the pipe V^5, as shown by arrows. I prefer to secure strips of metal, X, to the inside of the pipe V^5 to collect the heat and increase the heating-surface of the inside of the pipe. When the stove is removed in the summer time the section V′ can be disconnected from the main pipe.

I claim as my invention—

1. In combination, the stove A, the escape-pipe M, having a lower extension provided with an open bell-mouth, N, and damper O, and upper pipe, P, having open bell-mouth, Q, and damper R, all substantially as shown and described, for the purpose set forth.

2. In combination with the stove A, the escape-pipe M, consisting of two portions connected by duplicate sections V V′ and lengths of pipes V^2 V^5, the interior of the inner pipe communicating with the outer air by openings

V^7 in the sections V V′, substantially as shown and described, for the purpose set forth.

3. The combination of stove A, provided with diaphragm C, inclosing case D, provided with openings G at top and F at bottom, and escape-pipe M, made in two portions, connected by sections V V′ and pipes V^2 V^5, and having a lower extension, with an open mouth, N, and damper O, and an upper pipe, P, with open mouth Q, and a damper, R, secured to a rod, S, and operated by a bell-crank lever, U, all substantially as shown and described, for the purpose set forth.

MATHIAS HECKEL.

Witnesses:
GEORGE HECKEL,
GEO. H. KNIGHT.