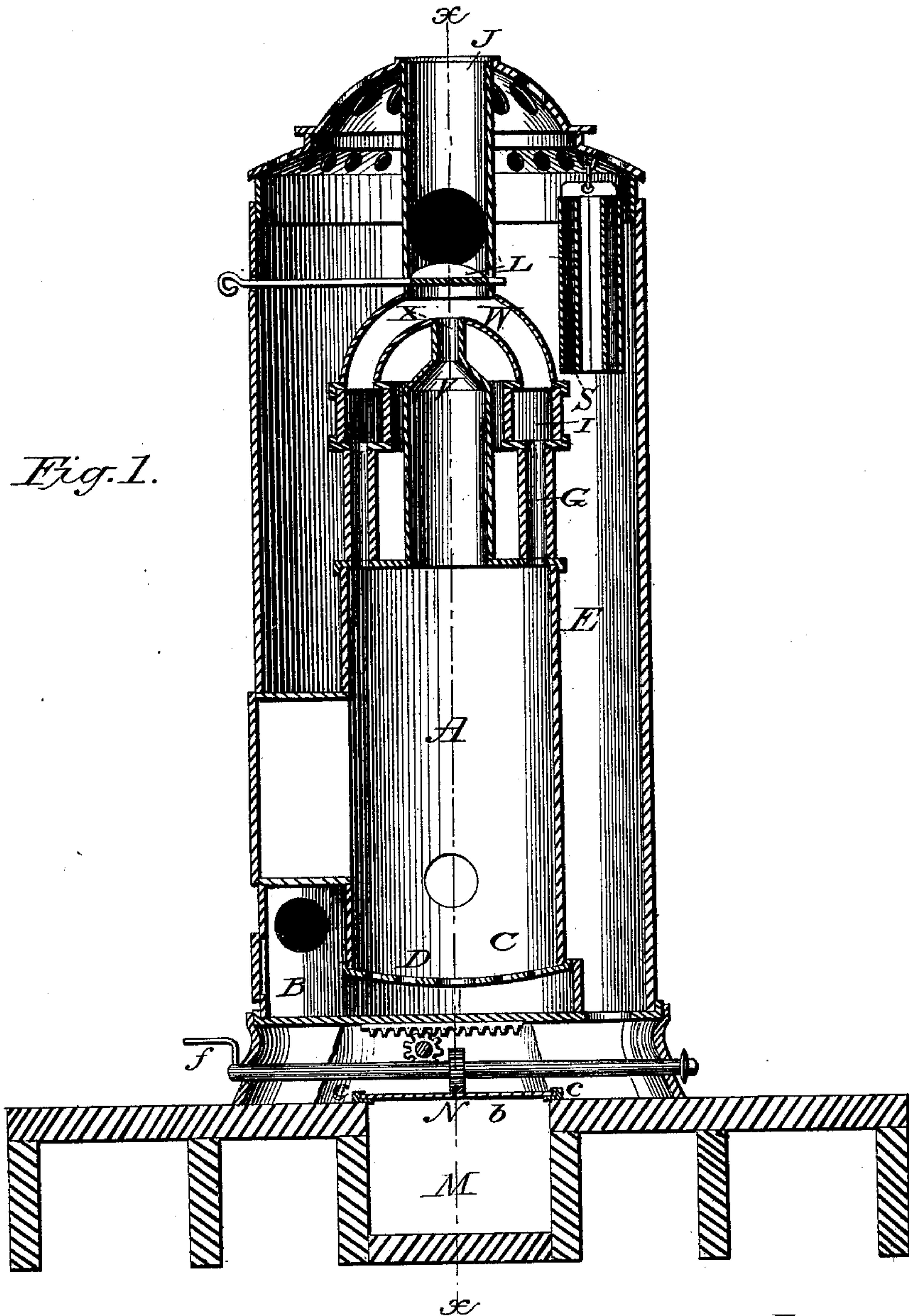


A. C. RIDEOUT.
Warming and Ventilating.

No. 229,842.

Patented July 13, 1880.



Witnesses:
Lorenza P. Reynolds.
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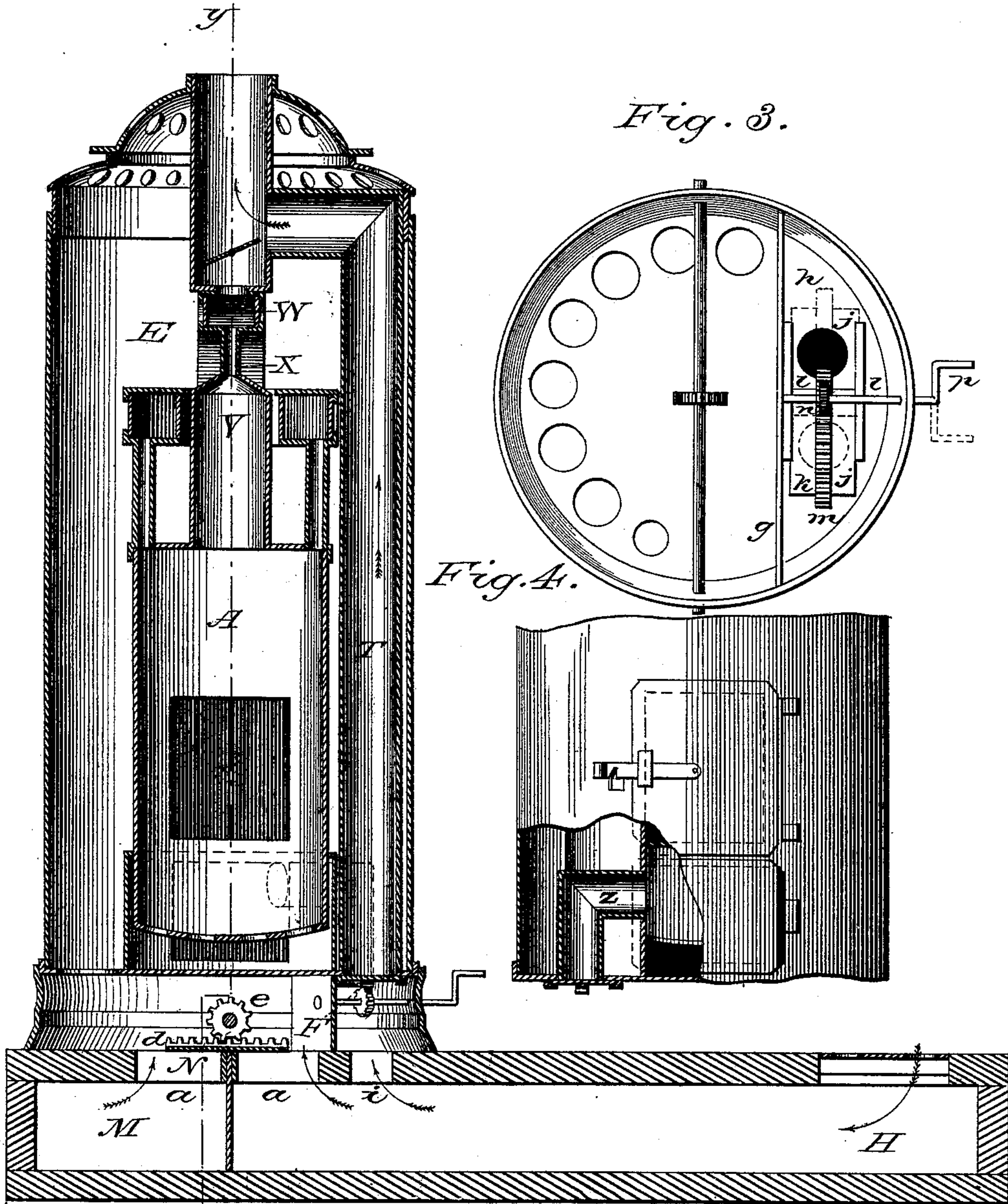
Inventor:
Alexander C. Rideout.

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Fig. 2.



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UNITED STATES PATENT OFFICE.

ALEXANDER C. RIDEOUT, OF HILLSDALE, MICHIGAN.

WARMING AND VENTILATING.

SPECIFICATION forming part of Letters Patent No. 229,842, dated July 13, 1880.

Application filed February 6, 1880.

To all whom it may concern:

Be it known that I, ALEX. C. RIDEOUT, of Hillsdale, in the county of Hillsdale and State of Michigan, have invented a new and useful Improvement in Warming, Equalizing, and Ventilating, of which the following is a specification.

The object of this invention is to warm air and produce a proper circulation of the same in a room or in a series of apartments, giving at the same time suitable ventilation. By thus distributing pure warm air throughout a room or series of apartments, without the admission of cold air, economy of fuel and a pleasant and healthful condition of temperature are readily secured.

The following is a full, clear, and exact description of the construction and operation of my heater, equalizer, and ventilator, reference being had to the accompanying drawings, and to the letters of reference marked thereon, the same constituting a part of this specification.

Figure 1 represents a transverse vertical section of the heater and floor below, showing the duct leading to the open air as viewed from the right; Fig. 2, the rear half vertical section and floor, showing ducts leading to open air and distant part of apartment, respectively; Fig. 3, a view of the base of hot-air chamber inverted; Fig. 4, a fragmental view of the lower part of front vertical section.

The device consists of an annular hot-air chamber, E, Fig. 1, having perforated top and a base in the form of an inverted flaring pan, the bottom having openings around the central part and side extension, forming the bottom of ash-pit B, Fig. 1, for the admission of air to the chamber. Said air-chamber contains a stove, A, Fig. 1, having ash-pit B, fire-box C, grate D, a perpendicular tubular section, G, over fire-box, terminating above and communicating with a hollow ring, I, surmounted by and communicating with a hollow arch, W, having at junction with smoke-pipe J a damper, L, with rod extending to outside of air-chamber. In the center of the tubular section G, Fig. 1, is a hollow dome, V, the base of which forms the central part of top of fire-box C, the top opening into arch W through the small vent-pipe X. Ducts M, from open air, and H, Fig. 2, from part or parts distant from the heater

or register for admission of hot air into apartment to be warmed and ventilated, constructed of any suitable material, size proportionate to space contained in the apartment, communicate with air-chamber E, Fig. 2, by means of double register N, consisting of two openings, a, Fig. 2, into said ducts M and H, respectively, having a sliding valve, b, Fig. 1, between two rabbeted guides, c, Fig. 1, so constructed and placed that said valve, when moved, will open one duct and close the other. Attached to said valve, and parallel with said guides, is a rack, d, Fig. 2, meshing with the pinion e, Fig. 2, mounted upon and revolved by the shaft with crank f, Fig. 1, having bearings in holes through the base of air-chamber E, Fig. 1. Duct H, Fig. 2, communicates with the ash-pit and the smoke pipe or chimney by means of pipe Z and ventilator T, Fig. 2. The supply of air is regulated by means of inverted double register F, Fig. 2, inclosed in the box h, Fig. 3, which is formed by attaching partition g, Fig. 3, to the base of air-chamber E, Fig. 3. This box communicates with duct H, Fig. 2, through the opening i, Fig. 2, and supplies air through openings j, Fig. 3, to ventilator T, Fig. 2, and draft-pipe Z, Fig. 4, respectively. These openings are provided with a sliding valve, k, Fig. 3, between two rabbeted guides, l, Fig. 3, so constructed and placed that when moved it will open one of said pipes and close the other. Attached to said valve parallel with said guides is a rack, m, Fig. 3, meshing with pinion n, Fig. 3, upon and revolved by the shaft with crank p, Fig. 3, having bearings in holes through the sides of box h, Fig. 3.

When ventilation is not required, but warming only is desired preparatory to the apartment being occupied, the valve of register F, Fig. 2, may be adjusted so as to close entirely the ventilator, taking only sufficient air from the room to sustain combustion in the fire-box, and the valve of register N, Fig. 2, be so adjusted as to nearly shut off from the air-chamber the current from outside, leaving the duct H, Fig. 2, which leads from a distant part of the apartment, wide open, so that the air may be rapidly drawn through it into the chamber, warmed, and returned to the room, thus securing vigorous circulation of the atmosphere and consequent equalization of temperature.

If rapid ventilation be desired, the valve of register N, Fig. 2, may be reversed, thus shutting off the inside duct and leaving that from outside wide open. At the same time the valve of register F, Fig. 2, should be sufficiently reversed to open wide the ventilator T, Fig. 2, thus allowing the chimney to act upon the room at its utmost capacity.

The ventilator T is so constructed as to make the distance through it from duct H to the smoke-pipe J greater than through the stove A, Fig. 2.

The use of the vent-pipe X is to obviate the tendency to form a vacuum in the dome V, Fig. 1, and thus retard the draft, also to permit the gas to escape into the smoke-pipe, thereby avoiding leakage of same.

Operation: When fire is started in the stove A the air to feed the same is drawn through the double register F and duct H from distant part of room. As the stove becomes hot the air in the chamber E is warmed and rises through openings in top into room, the supply being given to the chamber through the duct M from outside and duct H from inside, and is distributed to take the place of air drawn through duct H to feed the fire, carry off the smoke, supply in part the air-chamber E and the place of that which has escaped through the ventilating-flue T. The heat becoming too great, the closing of draft enlarges correspondingly the opening to ventilating-flue T, thus permitting the chimney to act constantly at its full capacity as a ventilator.

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

1. The within-described heater and furnace for warming and ventilating an apartment, consisting of a double register, N, connected with hot-air chamber E, located in and communicating with said apartment by means of a duct, H, which extends to a point in said apartment distant from the heater or register, for admission of air from room, and duct M extending to open air, and inverted double register F, connected with draft-pipe Z, and ventilator T, communicating with stove A and smoke-pipe J, respectively, substantially as set forth.

2. In a heater or furnace, the double register N, connected with ducts M and H, and the air-chamber E, for the purpose substantially as described and set forth.

3. In a heater or furnace, the inverted double register F, connected with duct H, draft-pipe Z, and ventilator T, for the purpose substantially as described and set forth.

4. In a heater or furnace, the combination, with the stove A and hot-air chamber E, the double register N, ducts M and H, inverted double register F, draft-pipe Z, ventilator T, and smoke-pipe J, substantially as described and set forth.

ALEXANDER C. RIDEOUT.

Witnesses:

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