

(No Model.)

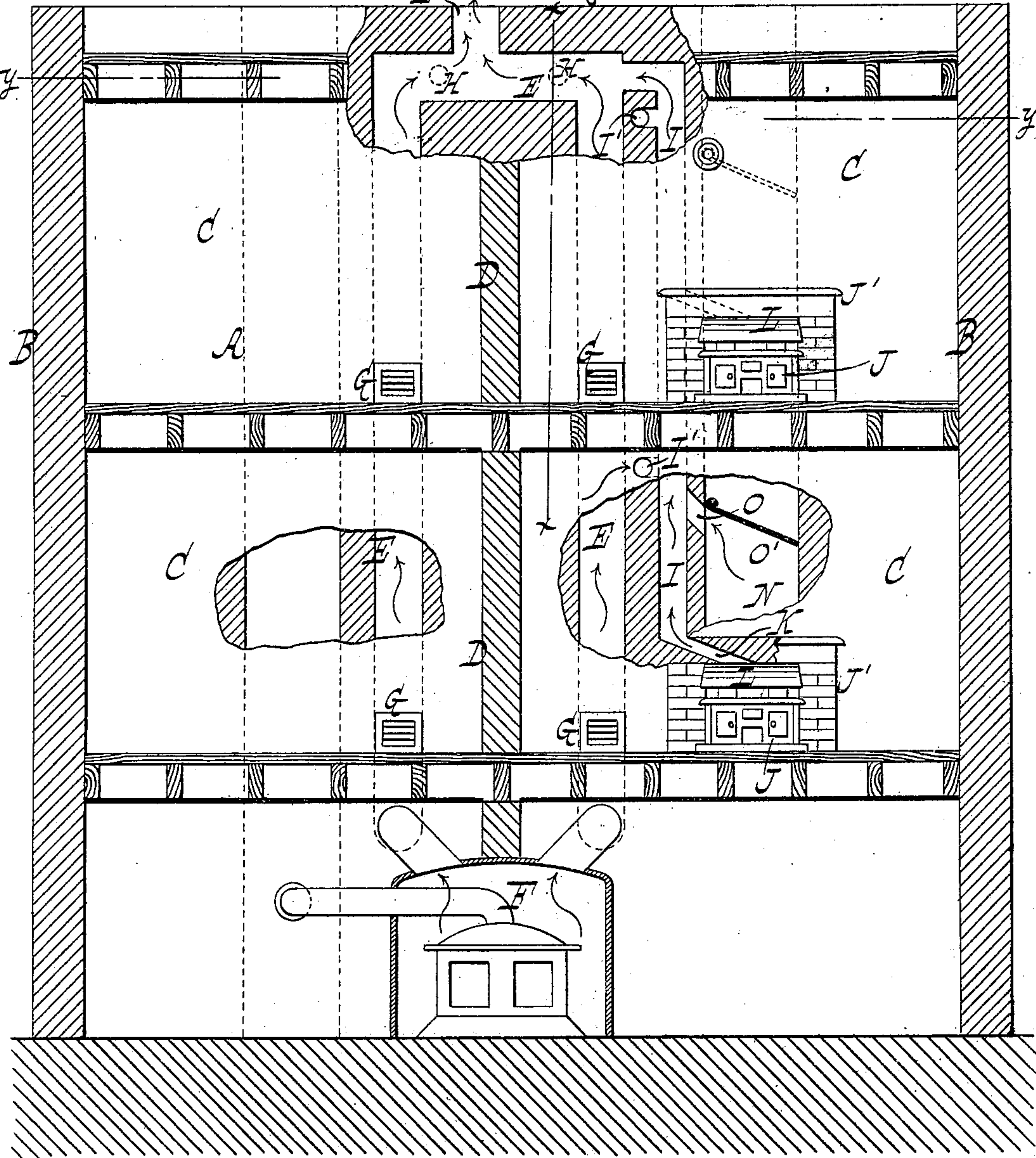
2 Sheets—Sheet 1.

P. W. NOLAN.

HEATING AND VENTILATING APPARATUS.

No. 297,434.

Fig. 1. Patented Apr. 22, 1884.



WITNESSES:

Char. Wahlers.

William Miller

INVENTOR,

Patrick W. Nolan

BY *Van Santvoord & Hauff*

ATTORNEYS

(No Model.)

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Fig. 2.

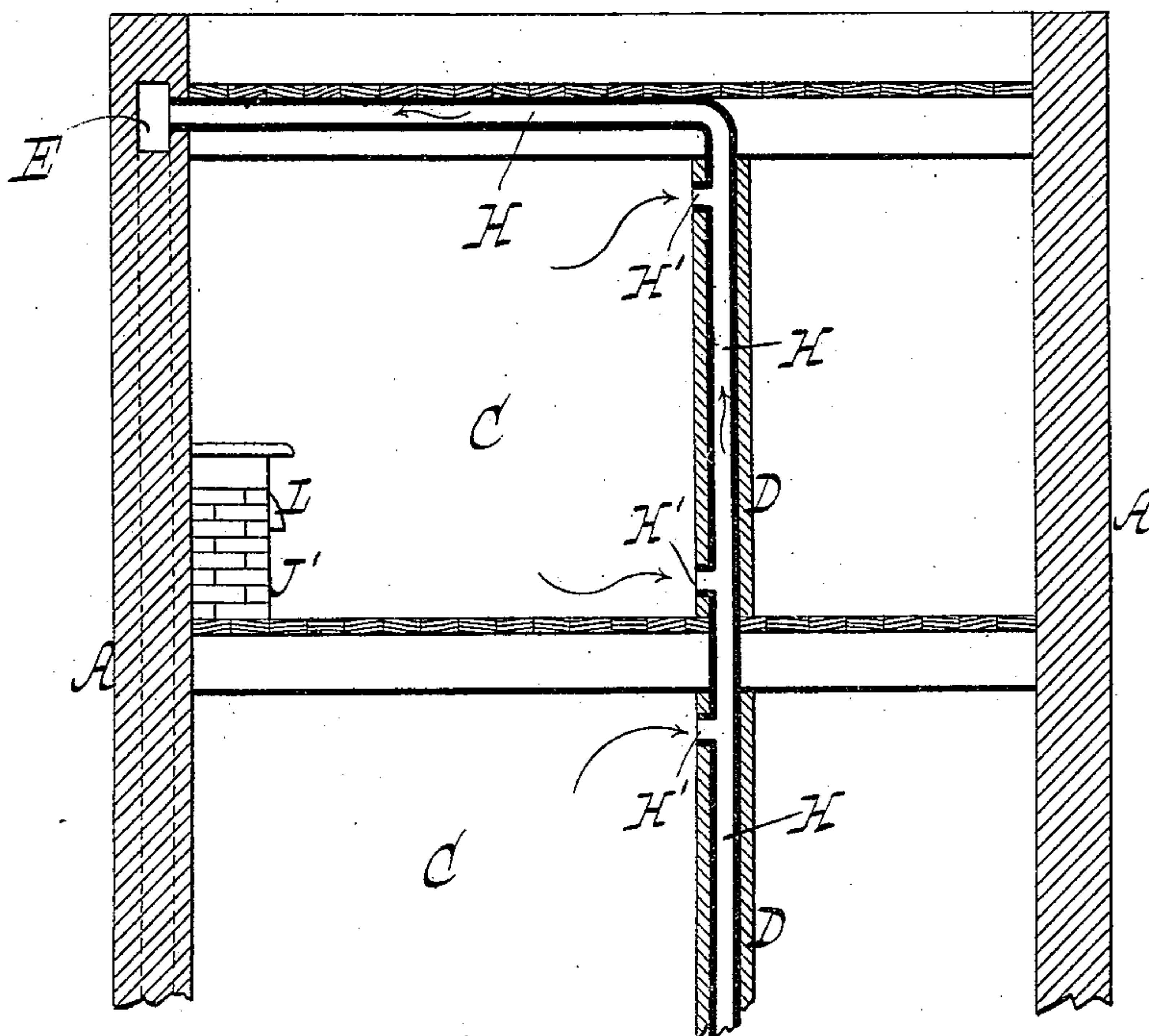
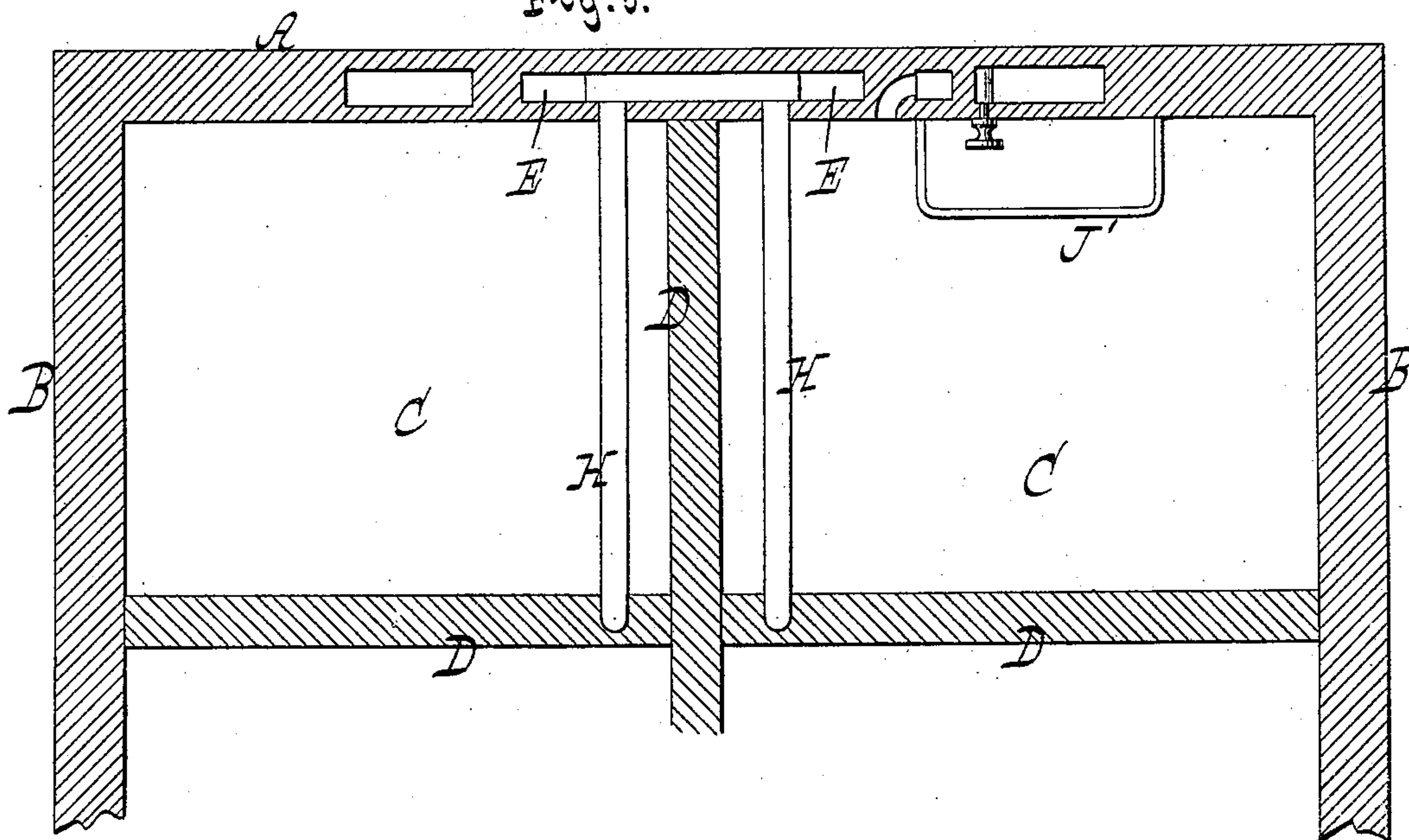


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

PATRICK W. NOLAN, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF, AND
CARLOS BARDWELL, OF LAKEWOOD, NEW JERSEY.

HEATING AND VENTILATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 297,434, dated April 22, 1884.

Application filed March 17, 1883. (No model.)

To all whom it may concern:

Be it known that I, PATRICK W. NOLAN, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Heating and Ventilating Apparatus, of which the following is a specification.

This invention relates to heating and ventilating apparatus for buildings; and it consists in the novel construction and arrangement of parts hereinafter described, whereby the purpose of the apparatus may be effected in a superior and economical manner.

This invention is illustrated in the accompanying drawings, in which—

Figure 1 shows a building in vertical longitudinal section constructed in accordance therewith. Fig. 2 is a vertical cross-section of the upper portion of the building, taken on the line *x x*, Fig. 1. Fig. 3 is a horizontal section thereof, taken on the line *y y*, Fig. 1, and omitting the floor-beams.

Similar letters indicate corresponding parts.

The letter A designates the side walls, and B the front and rear walls, of a building; and C, its apartments, divided from each other by the partition-walls D.

In one of the side walls, A, are vertical flues E, which are on opposite sides of the transverse partition-wall, and both connect at the lower end with a hot-air furnace, F, of any usual or suitable construction, they also connecting with the proper apartments, as through orifices G, so that the heat ascending in the flues may be admitted to the apartments in the usual manner. Said hot-air flues E are open to the exterior of the building, as at E', and by this arrangement a continuous and uninterrupted draft is created in such flues, for the purpose hereinafter explained, and also for permitting the escape therefrom of surplus heat, or all the heat when the registers are closed, together with the impurities—such as dust—that may float in the air in the flues. In the example shown the outlet E' is common to both hot-air flues, and is through the roof of the building.

In order to insure the proper entrance of heat from the flues E to the apartments, it is desirable or necessary to provide the orifices

G with registers such as described in Letters Patent No. 270,832, granted to me and Carlos Bardwell, January 16, 1883.

The letter H designates two ventilating-flues, and I a third ventilating-flue, each of which opens at the upper end into the hot-air flues E, so that by the draft created in the hot-air flues, as before stated, an artificial draft or current is created and maintained in the ventilating-flues. The flues H are arranged, like the hot-air flues, on opposite sides of the transverse partition-wall, and they extend vertically through the longitudinal partition-wall and through the upper floor of the building to the hot-air flues, as shown in Fig. 2, while they connect with the proper apartments through orifices H', Fig. 2, near the top and bottom of the apartments. The point at which the ventilating-flues H open into the hot-air flues E is above the last upper apartment-orifice, G, of the latter, and hence the gases received in the hot-air flues from the ventilating-flues is not liable to enter the apartments through the apartment-orifices of the hot-air flues; or, in other words, the air admitted to the apartments is not liable to be contaminated with such gases. The ventilating-flue I extends through the side wall containing the heating-flues E, and connects with the proper apartments through orifices I', which, as well as the flue-openings, are preferably furnished with registers, while it opens into the flues H. Said flue I, moreover, connects with a kitchen-range, J, on the different floors of the building—asthrough inclined channels K—so that the waste heat from the range passes into the flue I, and thence into and through one of the heating-flues to the outlet thereof, whereby such heat is not only afforded an opportunity to escape, but is utilized to create a draft in the ventilating-flues, it acting directly on the flue I and through the heating flue or flues on the flue H. This connection of the ventilating-flues is very advantageous, because, when, as in summer, the furnace F is not used, the ventilating-flues continue to perform their functions whenever a fire is made in the range, while the heating-flues, moreover, are thereby converted into ventilating-flues, due to the fact that the heat escaping by the

outlet E' acts on all the flues. Said range J is set up in a fire-place, J', in the usual manner, and the heat entering the flue I is taken from the fire-place, it being caught by a hood, L, suitably arranged therein. The products of combustion from the range pass into a chimney, N; and, if desired, they may be caused to pass thence into the flue I, to increase the draft therein, this flue being connected with the chimney by an orifice, O, which is provided with a damper, O', for opening and closing it.

Instead of the kitchen-range, I can use any other suitable form of heater; but the range is well adapted to the purpose.

I am aware that in a combined chimney and ventilator a smoke-flue has been extended vertically through a chimney from a grate, the products of combustion from the grate passing through the flue to heat external air introduced into the space in the chimney which surrounds the flue, the heated air from such space entering the apartments through registers near the ceiling, ventilating-registers being arranged near the floors and connecting with passages leading upward and opening into the hot-air space surrounding the flue extending through the chimney, whereby external atmosphere is heated in its passage upward through the chimney and is delivered into the apartments near the ceilings, the air in the apartments descending to give place to the warmer air that follows it, such descending air displacing the cooler and impure air near the floor, and causing the same to pass off through the ventilator-register. Such, however, does not constitute my invention.

In practice each of the openings H' or I' will be provided with a register capable of closing automatically by a back draft in the flues, so that the smoke or gas passing through the flues is effectually prevented from entering the apartments.

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

1. In a building, the combination, with a hot-air flue leading from a furnace, communicating with an apartment of the building, and opening at the upper end to the exterior of the building, of a ventilating-flue, also communicating with said apartment and opening into the hot-air flue at a point above the apartment-orifice thereof, whereby an artificial draft may be created in the ventilating-flue from the hot-air flue, without contaminating the air admitted to the apartment with the gases entering the hot-air flue from the ventilating-flue.

2. In a building, the combination of a hot-air flue leading from a furnace, communicating with an apartment of the building, and opening at the upper end to the exterior of the

building, a ventilating-flue, also communicating with said apartment and opening at the upper end into the hot-air flue at a point above the apartment-orifice thereof, and a second ventilating-flue leading from a kitchen-range or other heating medium and opening into the other or main ventilating-flue, whereby an artificial draft can be created in the main ventilating-flue, either from the hot-air flue or from the second ventilating-flue.

3. In a building, the combination of a hot-air flue, E, leading from a furnace, communicating with an apartment of the building and opening at the upper end to the exterior of the building, a ventilating-flue, H, also communicating with said apartment and opening into the hot-air flue at a point above the apartment-orifice thereof, a ventilating-flue, I, opening at its upper end into the hot-air and ventilating flues E and H, and a channel, K, connecting the flue I with a kitchen-range, J, or other heating medium, substantially as described.

4. In a building, the combination of a hot-air flue, E, leading from a furnace, communicating with an apartment of the building, and opening at the upper end to the exterior of the building, a ventilating-flue, H, also communicating with said apartment and opening into the hot-air flue at a point above the apartment-orifice thereof, a ventilating-flue, I, opening at its upper end into the hot-air and ventilating flues E and H, a channel, K, connecting the flue I with a kitchen-range or other heating medium, a chimney, N, receiving the products of combustion from the range, and having an orifice, O, connecting it with the ventilating-flue from the range, and a damper, O', serving to open and close said orifice, substantially as and for the purpose described.

5. In a building, the combination of a hot-air flue leading from a furnace, communicating with an apartment of the building, and opening at the upper end to the exterior of the building, a ventilating-flue, I, leading from a kitchen-range, connecting through an orifice with a chimney receiving the products of combustion from the range, and opening at its upper end into the hot-air flue, and a damper for opening and closing the orifice between the chimney and the flue, substantially as described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

PATRICK W. NOLAN. [I. S.]

Witnesses:

W. HAUFF,
CHAS. WAHLERS.