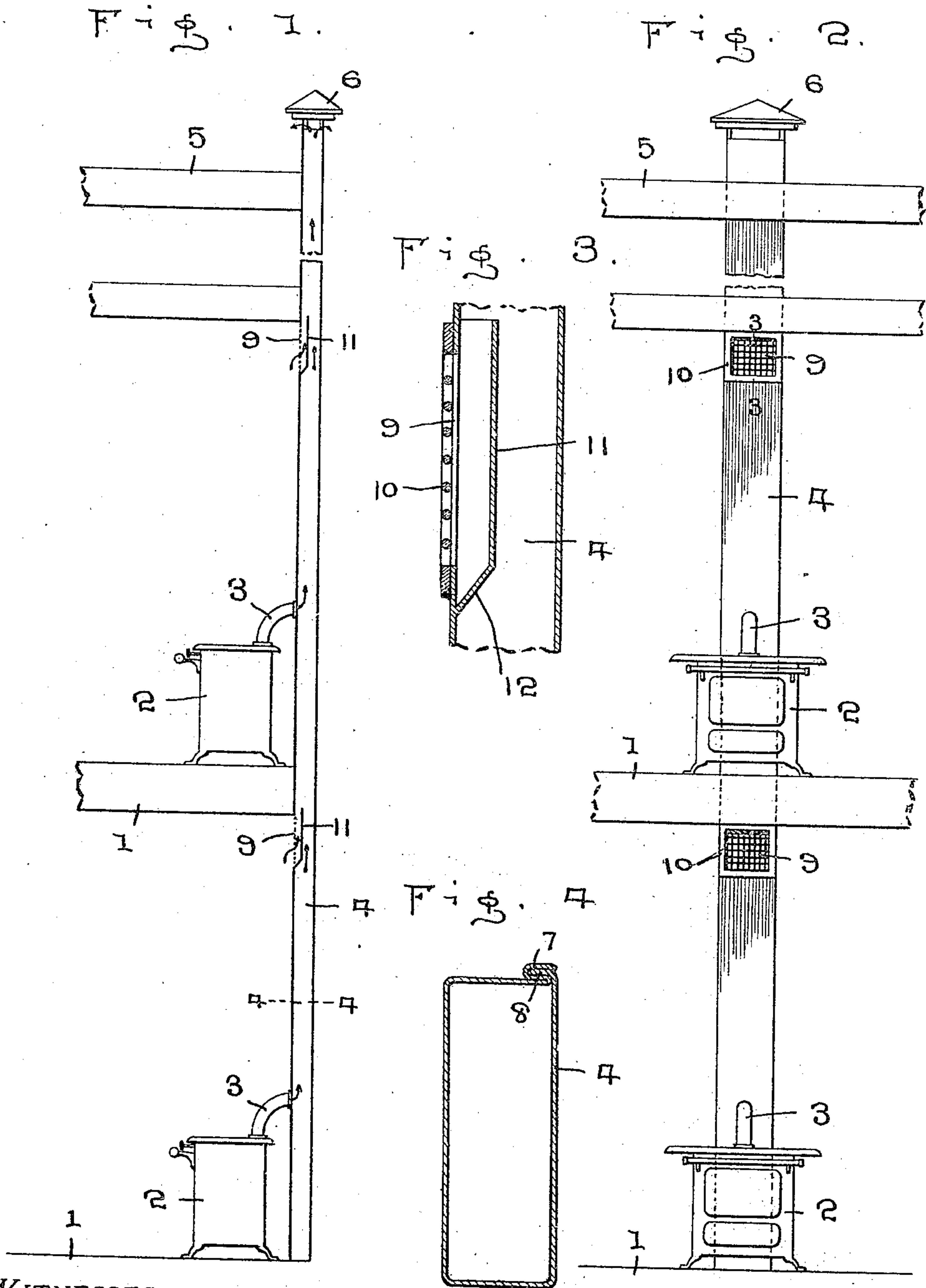


A. S. JOHNSON.
VENTILATING SYSTEM.
APPLICATION FILED MAY 19, 1909.

951,761.

Patented Mar. 8, 1910.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ALLEN S. JOHNSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

VENTILATING SYSTEM.

951,761.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALLEN S. JOHNSON, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Ventilating Systems; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as it appertains to make and use the same.

My invention relates to ventilating systems for houses and especially for ventilating the kitchens of houses and carrying off therefrom foul gases and the objectionable odors of cooking.

Where gas stoves are employed in modern houses and especially in the small kitchens of apartment houses the air becomes rapidly fouled both by the poisonous gases of combustion and the vaporous exhalations from cooking.

My invention consists in a novel system for disposing of both of these products of the gas stove in a simple and practical manner, as hereinafter more fully described with reference to the drawing.

In the accompanying drawings forming part of this application, Figure 1 is a vertical sectional elevation of the flue, showing the manner of connecting the gas ranges thereto. Fig. 2 is a front elevation thereof. Fig. 3 is a sectional view on an enlarged scale as seen on line 3—3, Fig. 2, and, Fig. 4 is a sectional view on an enlarged scale as seen on line 4—4, Fig. 1.

In the present instance, I have shown the ventilating system as applied to use in connection with an apartment, where a series of kitchens are arranged one above the other and to this end, 1 indicates the joists to which the floors and ceilings are attached, the floors being above said joists and the ceilings below the same.

Positioned upon the joints 1 are ranges 2, which may be constructed in the usual or any preferred manner, said ranges being preferably provided with pipes 3, which are adapted to convey heat from the ranges into my improved form of flue 4, said flue extending from the lower floor of the building upwardly and through the roof 5, the upper end of the flue being provided with

the usual or any preferred form of hood 6, a space being provided below the hood for the emission of the heat, etc., passing through the flue. The flue is preferably constructed of strips of sheet metal, the longitudinal free edges of the sheets being secured together after the sheet has been formed into a substantially oblong body, as shown in Fig. 4, by bending one of the edges substantially S-shaped to form a channel 7, while the opposite edge is extended at right angles to the wall of which it is a part, to form a flange 8 and by extending said flange into the channel and then forcing the walls of the channel against the flange, the edges of the sheet will be securely locked together and will form a substantially air tight joint. In this manner, the flue may be cheaply constructed as the ends of the various sections thereof may be readily secured together and the flue extended to any desired height. The pipes 3 will convey the major portion of the heat from the range into the flue, where it will pass to a point above the roof of a building, but in order to remove the odors from the room occasioned by the cooking foods or from other sources, the flue 4 is provided with a vent at a point immediately below the ceiling of the room, said vent being preferably covered by a perforate plate 10, which plate may be constructed in any preferred manner and attached to the outer face of the flue or otherwise positioned over the vent.

To prevent the possibility of the heat leaving the flue through the vent 9, and returning into the room, a by-pass 11 is formed, which by-pass forms a pocket-like space in the rear of the vent, the lower end of the by-pass being closed and the wall 12 thereof inclined so as to permit the heat to readily pass the by-pass without becoming choked at this point, while the upper end of the by-pass is preferably extended a short distance above the vent 9 and is left open so that the odors, heat, etc., in the room will readily enter the flue at the upper end of the by-pass, but it will be readily understood that the by-pass may terminate at its upper end at a point co-incident to the upper edge of the vent if preferred. By providing the by-pass, it will be readily seen that the heat

in ascending in the flue will cause more or less of a suction at the upper end of the by-pass and thereby tend to draw the odors, etc. in the room into the flue, thus thoroughly ventilating the room and at the same time removing the odors arising from the cooking foods. It will further be understood that even if the heat is not directed into the flue, the odors, etc., in the room will enter the flue and pass out at the upper end thereof, but the ventilation will not be as perfect as when the heat is entered into the flue at a point below the by-pass.

This improved form of ventilating device is designed more particularly to be built into the walls of the structure, as said structure is being erected, the flue 4 being such as to extend between two of the studding and between the plastering at the opposite edges of the studding, in which event the system can be installed at a very nominal expense and without marring the effects of the room or wall into which it is built, but it will be clearly understood that the system may be installed after the building has been erected by extending the flues through the floors and ceilings and placing the rear wall thereof against the plastering on the wall.

It will be seen that in my invention the upright ventilating flue connects directly with the outlet pipe of the combustion chamber of each gas stove with a tight joint and as there are a plurality of these stoves delivering into the same flue, this effects a stimulation of the updraft in the flue which causes a pronounced suction at the elevated outlet openings of each apartment which effectively draws out all the odors and vapors of cooking. When gas stoves are in service it frequently happens that if in the oven the flames be cooled by contact with the oven walls, or other cause, the gas, instead of burning completely, will by imperfect combustion form carbon monoxid. This is such a deadly poisonous gas that frequent fatalities have resulted from its escape into the room and into the air breathed, causing in some instances the death of the whole family. In my invention it will be seen that not only are the poisonous gases of combustion taken out of the room, but these hot gases in ascending from convection in the flue are made also to take away the vaporous exhalations of cooking and any gases which may have escaped from the burners. This avoids all objectionable smells in apartment houses and renders the air of the kitchen pure and sanitary.

It will be understood that the invention is not strictly confined to a gas cooking stove, but gives also advantageous results with gas heating stoves, water heaters, or any other

kind of gas heater. I would also have it understood that I do not confine my invention to the exact construction and arrangement of parts shown in the drawing as many modifications may be made within the limits of my claims.

In a separate subsequent application for a patent, filed Nov. 9, 1909 Serial No. 527,034, I have claimed the general features of my system in combination with the specific construction and arrangement of the ventilating opening in the flue having a partition plate arranged in said flue opposite said opening connected at the bottom to the wall of the flue below the opening and forming a chamber next to said opening in communication with the flue above said opening. I do not in this application make claim to this special construction of that ventilating outlet in that combination, but make claim broadly to my system of ventilation without regard to the particular form, place, or arrangement of the ventilating opening, or any specific means for preventing a back draft therethrough.

I am aware that ventilating flues have been provided with variously placed intake openings from an apartment and that the stimulation of a draft therein has been effected by means of heating coils, lamps and heaters placed in or adjacent the flue, but I do not know that a gas stove has ever been organized with a ventilating flue and intake opening so as to cause the hotter and more poisonous products of combustion (carbon monoxid and carbon dioxid) to be eliminated and to be themselves utilized as a means to carry away the sluggish and diffused cooking odors and gases arising from the exterior of the gas stove, both products of the gas stove being delivered into the same flue and intermingling therein.

What I claim is:

1. A ventilating system, comprising an apartment, a flue extending from said apartment to the outer air, said flue having an intake ventilating opening at an elevated point of said apartment, and a gaseous fuel heater having its combustion chamber connected to and communicating with said flue.

2. A ventilating system comprising an apartment, a flue extending from said apartment to the outer air, said flue having an intake opening at an elevated point of said apartment, a gas stove having its combustion chamber connected to and communicating with said flue and means for preventing a back draft through the elevated intake opening.

3. A ventilating system comprising a plurality of apartments arranged one above the other, a flue extending past all of said apartments and to the outer air, said flue having

elevated intake openings at the upper part
of each apartment, a plurality of gas stoves
having their combustion chamber outlet
pipes connected to the same flue and means
5 for preventing a back draft through the in-
take openings.

In testimony whereof I have signed my

name to this specification in the presence of
two subscribing witnesses.

ALLEN S. JOHNSON.

Witnesses:

C. S. FRYE,

C. E. FETZER.