

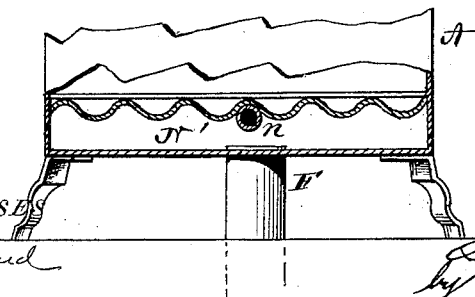
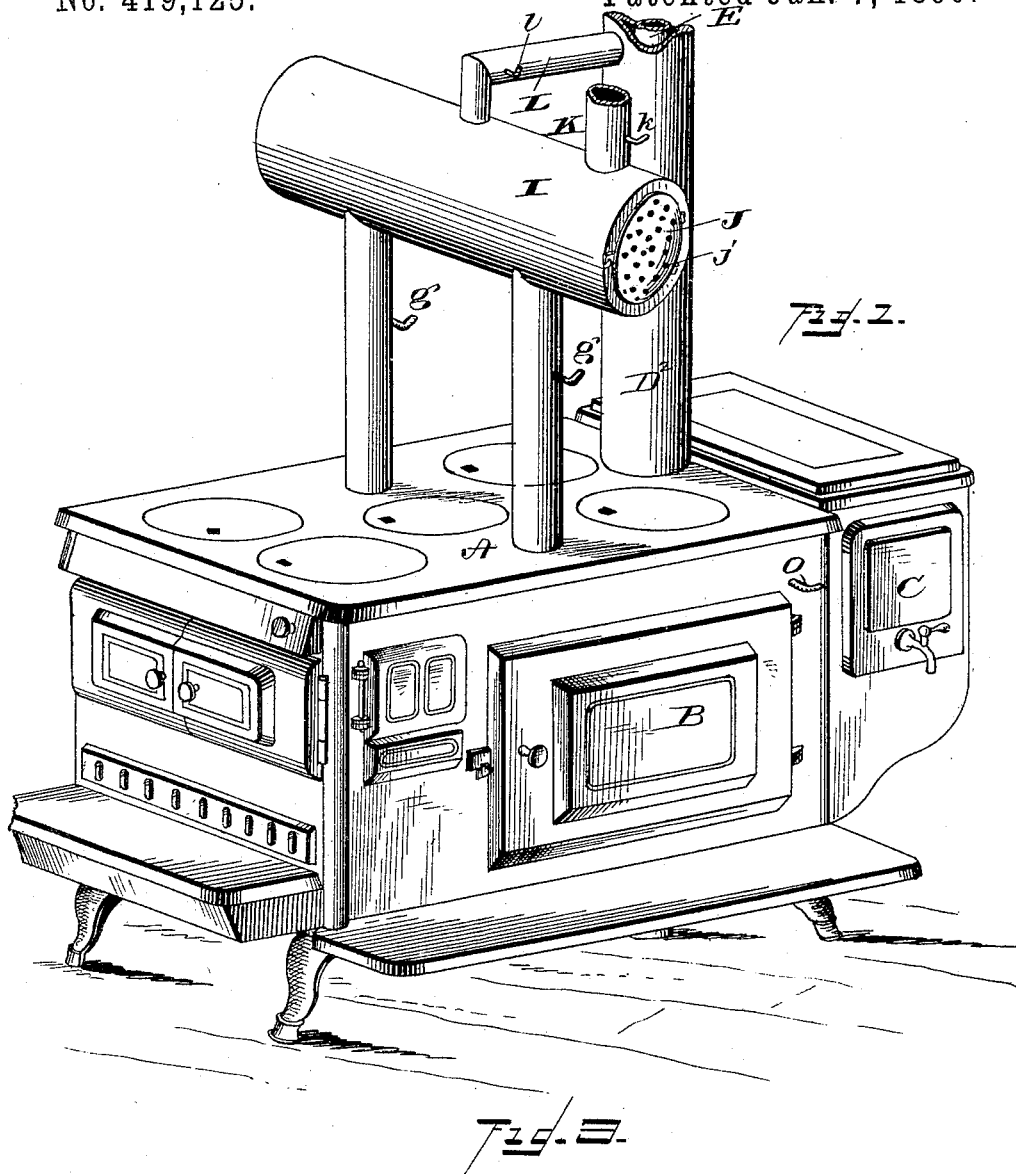
(No Model.)

2 Sheets—Sheet 1.

H. HOWE.  
HEATING AND VENTILATING RANGE.

No. 419,125.

Patented Jan. 7, 1890.



WITNESSES

F. L. Oursaud  
Geo. A. Wooster

INVENTOR

Hughes & Howe  
by James C. Rogers & Co.  
Attorneys.

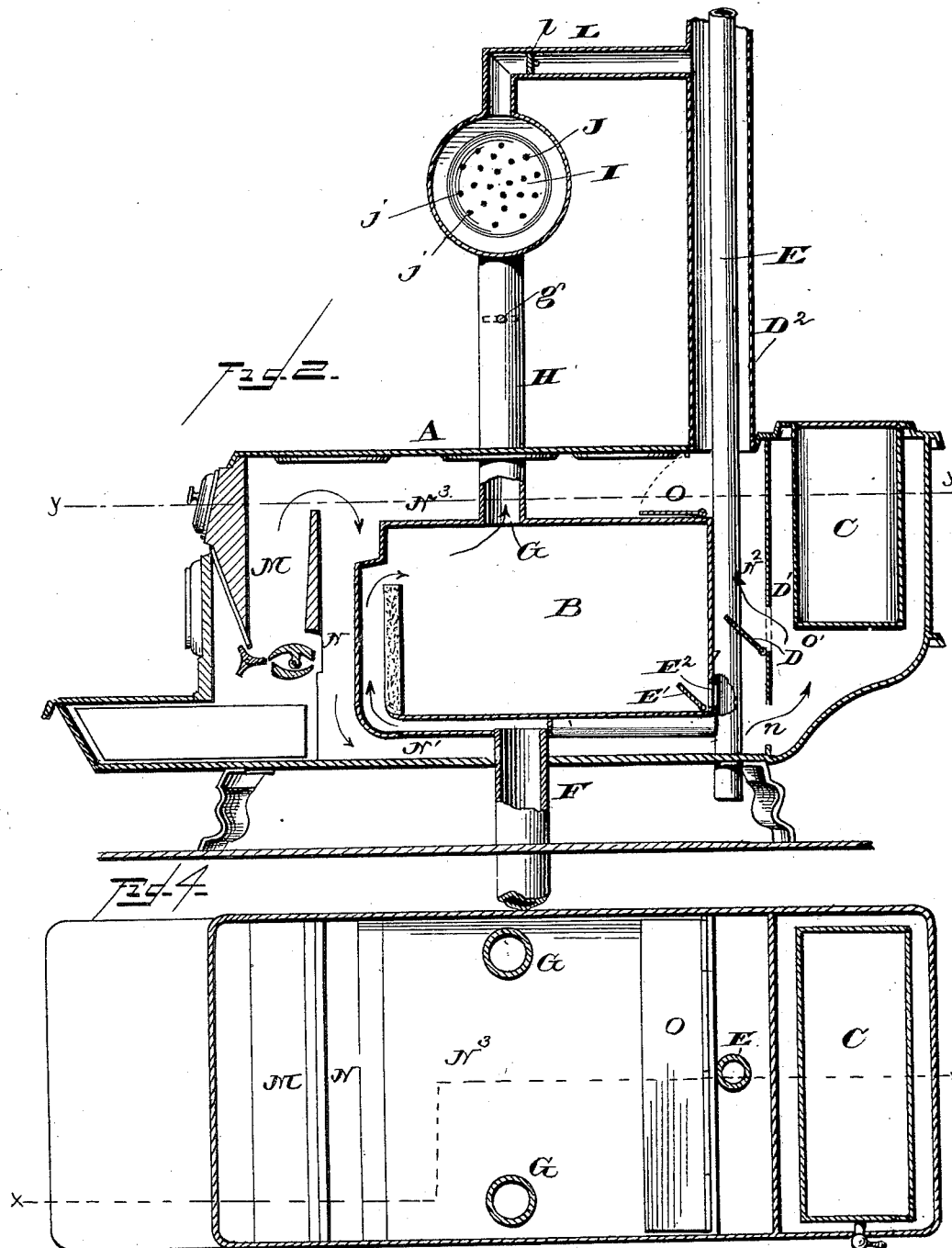
(No Model.)

2 Sheets—Sheet 2.

H. HOWE.  
HEATING AND VENTILATING RANGE.

No. 419,125.

Patented Jan. 7, 1890.



WITNESSES:  
J. L. Curand  
Geo. A. Wooster

INVENTOR:  
Hizckiah Howe  
By Louis Daggner & Co  
Attorneys

# UNITED STATES PATENT OFFICE.

HEZEKIAH HOWE, OF CORTLAND, NEW YORK.

## HEATING AND VENTILATING RANGE.

SPECIFICATION forming part of Letters Patent No. 419,125, dated January 7, 1890.

Application filed July 8, 1889. Serial No. 316,788. (No model.)

*To all whom it may concern:*

Be it known that I, HEZEKIAH HOWE, a citizen of the United States, and a resident of Cortland, in the county of Cortland and State of New York, have invented certain new and useful Improvements in Heating and Ventilating Ranges; 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.

My invention relates to certain new and useful improvements in combined cooking and heating ranges; and it consists in the improved construction and combination of parts, as hereinafter more fully set forth, and pointed out in the claims.

Referring to the drawings forming a part of the application, Figure 1 is a view in perspective of a cooking-range provided with my improved supplemental heating-oven, and showing suitable flues for connecting the same with the baking-oven proper. Fig. 2 is a longitudinal sectional view taken on line *x* *x*, Fig. 4; Fig. 3, a detail view showing the longitudinally-corrugated bottom of the baking-oven; and Fig. 4 is a horizontal sectional view taken on line *y y*, Fig. 2.

Similar letters of reference are used to designate corresponding parts throughout the entire specification and several views of the drawings.

The letter A is used to represent the range proper, said range being provided with the usual grate, ash-pan, damper, fire-pot, griddles, and fuel-feed door, all of which parts, being of ordinary construction, call for no specific mentioning in detail.

B is the heating-oven, so situated within the range as to allow of a free heat-circulating flue to be formed so as to permit of the radiated heat and products of combustion to pass around the sides, bottom, and top thereof, which flue is represented by the letters N, N', N<sup>2</sup>, and N<sup>3</sup>.

The letter C indicates the usual reservoir situated at the rear of the range, and which is also adapted to have a heat-circulating space surrounding the same.

D represents a swinging damper secured to the downwardly-extending partition D', so as to allow when opened a free passage of

the retained heat surrounding the reservoir into the draft-flue N<sup>3</sup>, and the purpose of which will be more fully explained herein-  
after.

To the rear of the range I have shown, secured to the top and extending upward, the pipe D<sup>2</sup> for the exit of smoke and the products of combustion, and into which the foul air flue running upward from the bottom rear portion of the range extends. This flue is indicated by the letter E and has its end extending a little beneath the base of the range, so as to admit of the escape of the foul air contained in the room. A short flue extending from the heating-oven connects with the same and is adapted to permit of the escape of the impregnated air contained therein, as hereinafter described. This flue is represented by the letter E<sup>2</sup>. Said flue is provided with a damper E', adapted, when so desired, to entirely close the opening of the flue E<sup>2</sup>, leading into the heating-oven, and thus prevent the flowing of the heated air contained in the oven therein.

Leading from the outside of the room through the floor and bottom of the range is the atmospheric air-inlet flue F, which flue, after passing through the bottom of the range, runs crosswise with the bottom of the baking-oven within the draft-heating flue N' until the opposite side thereof is reached, whence it runs within the flue N perpendicular with the oven-wall until it reaches a height equal nearly to the top thereof, at which point it enters the oven, and into which it discharges fresh air passing therethrough.

Within the top of the baking-oven I provide openings G G, into which fit the vertically-extending flues H H for carrying off the heated air from within the oven B. The outward flow of the heated air is controlled by means of the dampers *g g*, located within the flues H H. The vertically-extending flues run for any suitable height, and have supported thereon the supplemental baking-oven I, into which said flues open, so as to discharge the heated air from the baking-oven B. Said supplemental oven is provided with a suitable door or doors J for permitting access to be obtained thereto, and is further provided at the ends thereof, or any other suitable portion, with outlets *j j j j*, for the

escape of the retained air for distribution into the room. In order to control such outflow of the heated air into the room, I provide the openings with dampers. (Not shown.)

5 I have shown in the drawings the supplemental oven as being provided at its top with an upwardly-extending flue K for conducting the heat from said oven into distant rooms. Of course, if so desired, this feature may be  
10 dispensed with, or a series of flues be connected with the same, in order to conduct the heat into different rooms at the same time, thereby causing general heating of the dwelling. Within the flue K is located a damper *k*  
15 for controlling the flow of the heat. In order that connection may be made between the supplemental oven and the exit-flue for products of combustion, I provide a short flue L and locate therein damper *l*; but, if so de-  
20 sired, the exit-pipe for the products of combustion may pass directly through the supplemental oven and connection be made therewith by means of suitable damper.

The bottom of the heating or baking oven  
25 is corrugated longitudinally with the draft of the radiated heat, which serves to add greater suction to the flow of heated air within the flue N', and at the same time to draw the circulating heat within or between the de-  
30 pressions formed by the corrugations, and thus increase the heating-surface of the oven-bottom. In order to gain access to the oven, I provide the usual door at the side thereof.

Having first caused fire to be built in the  
35 fire pot or chamber M, the circulation of the products of combustion result in the following manner: The damper O, located within the flue N<sup>3</sup>, being closed, in order to prevent the direct suction into the exit-pipe D<sup>2</sup>, the  
40 heated products generated in the fire-pot will first arise and pass through the opening at the top of the back plate M of the fire-pot into and down the flue N, to and along the longitudinal flue N', circulating in its course  
45 between the depressions formed by the corrugated bottom of the oven-bottom, through the opening *n* into the chamber surrounding the reservoir C, outward through the open damper O' into the flue N<sup>2</sup>, and thence up-  
50 ward into flue N<sup>3</sup>, from whence it makes its escape into the exit-pipe. By closing the damper O' the circulation of the products of combustion is caused to flow directly from the flue N' into flue N<sup>2</sup> without passing into  
55 the reservoir-chamber. During the circulation of the heated air round the heating-oven fresh air is continually entering through the inlet-flue F and being discharged into the heating-oven B, and it is obvious that as  
60 the heated products of combustion surround this flue during the circulation thereof said air when it enters the heating-oven is at a high degree of temperature. After passing into the heating-oven the hot air circulates  
65 therethrough and passes out through the vertically-extending flues H H (the dampers *g g* having been previously opened) into the sup-

plemental heating-oven I, wherein it circulates, and finally finds an outlet either through the openings *j j j j*, formed therein, so as to  
70 cause the same to be distributed within the room, or into the flue K, through which it is conveyed into distant rooms. Of course this description, it will be understood, only ap-  
75 plies when the range is to be used for heating purposes. When it is desired that the oven shall be utilized for cooking purposes, the circulation of the heated air is somewhat  
80 changed, so as to finally find its outlet into the foul-air flue, through which it enters the exit-pipe for the heated products; but the circulation of the heated products of com-  
85 bustion remains the same as previously described. When the range is used for the purpose of baking, it becomes necessary, in-  
90 asmuch as the circulating air contained in the oven becomes highly impregnated with the deleterious vapors generated in cooking, that the heated air be carried off and not allowed to circulate through the several rooms. There-  
95 fore, instead of allowing this impregnated air to pass out through the flues H H, the dampers *g g* are closed and damper E, affording communication from the oven to the foul-air flue, is opened, thus causing the heated air, after  
100 circulating through the oven during baking, to pass through the same into the foul-air flue and thence into the exit-pipe, where it passes off with the products of combustion. In case  
105 the cooking is being done in the supplemental oven and not in the oven proper, the damper E', leading to the foul-air flue, is then closed and dampers *g g* opened, so as to permit of  
110 the ascending of the heated air through the flues H H into the supplemental oven. The exit-openings formed in this oven and the damper in the flue K are closed against the  
115 exit of the impregnated air and damper *l* is opened, thereby causing the same to pass through the flue L into the foul-air flue, whence it is carried off, as previously described, with the products of combustion. In case the exit-  
120 pipe D<sup>2</sup> passes through the center of this supplemental oven it is only necessary that the dampers affording communication thereto be  
125 opened, so as to allow of the direct passing of the impregnated air therein.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States is—

1. The combination, with a range provided with a suitable oven, of a supplemental oven arranged transversely above the range, said oven provided with end perforated doors, vertical flues connecting the lower and upper  
125 ovens, dampers located within said flues, a vertical flue extending from the transverse oven for conducting the air to upper apartments, an exit-flue passing from the rear of the range, a flue extending vertically and then  
130 rearwardly, so as to connect with the exit-flue, and a damper located within the rearwardly-extending portion, substantially as set forth.

2. In a range, the combination of an oven

having an air-space beneath and in front thereof, said air-space communicating with the oven at the upper front portion thereof and provided at its lower rear portion with an opening, a damper for closing said opening, a vertically-extending fresh-air pipe passing through the bottom plate of the range and communicating with the air-space beneath the oven, a foul-air pipe located to the rear of the oven, and a short flue connecting the lower end of said foul-air flue with the opening in the lower rear portion of the oven, substantially as set forth.

3. The combination, with a range provided with a suitable oven, of a supplemental oven arranged transversely above the range, vertical flues connecting the lower and upper ovens, dampers located within said flues, an exit-flue passing from the rear of the range, a flue extending vertically from the supplemental

oven and then rearwardly, so as to connect with the exit-flue, and a damper located within the rearwardly-extending portion, substantially as set forth.

4. The combination, with a range provided with a suitable oven, of a supplemental oven arranged transversely above the range, vertical flues connecting the upper and lower ovens, dampers located within said flues, a vertical flue extending from the transverse oven for conducting the air to upper apartments, and a damper located within the vertical flue, substantially as set forth.

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

HEZEKIAH HOWE.

Witnesses:

LOUIS BAGGER,  
WM. F. FOLKS.