T. J. WHITEHEAD.

Combined Cooking-Stoves and Hot-Air Furnaces.

No. 147,029. Patented Feb. 3. 1874.

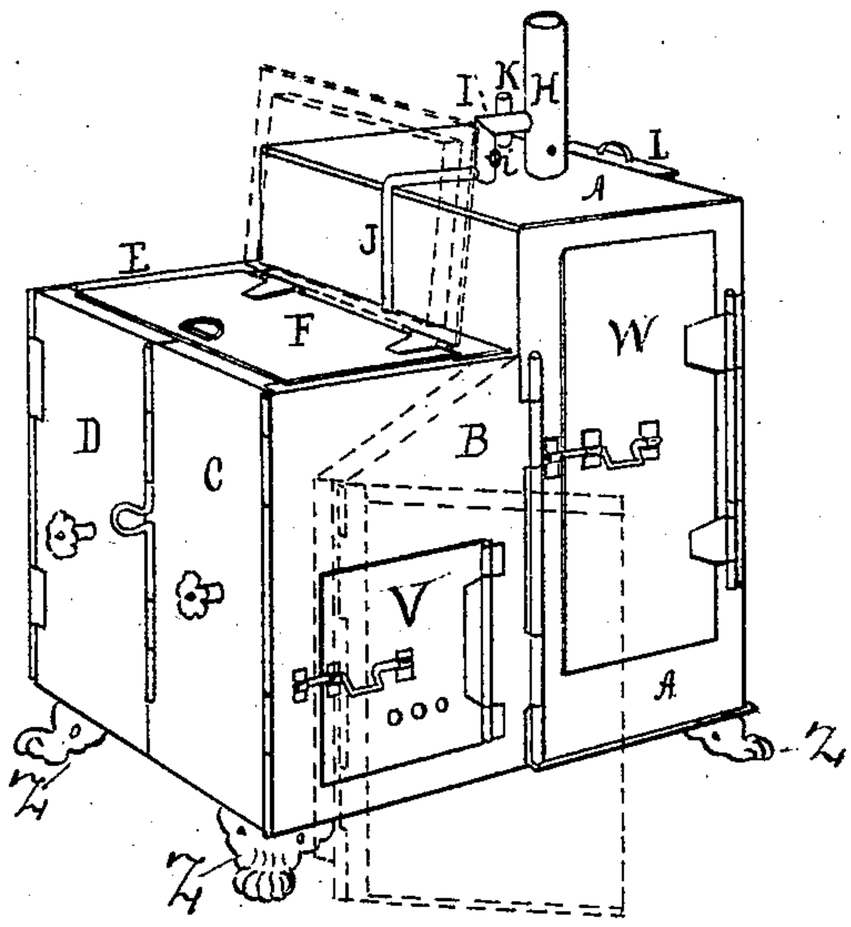

Fig. 1

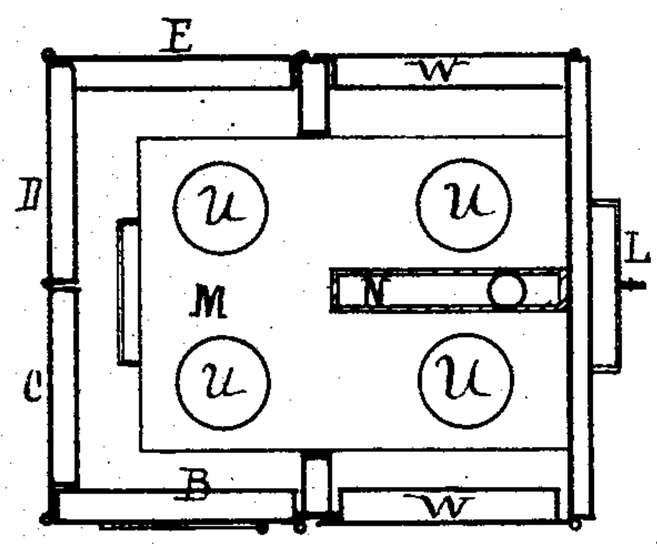

Fig. 3

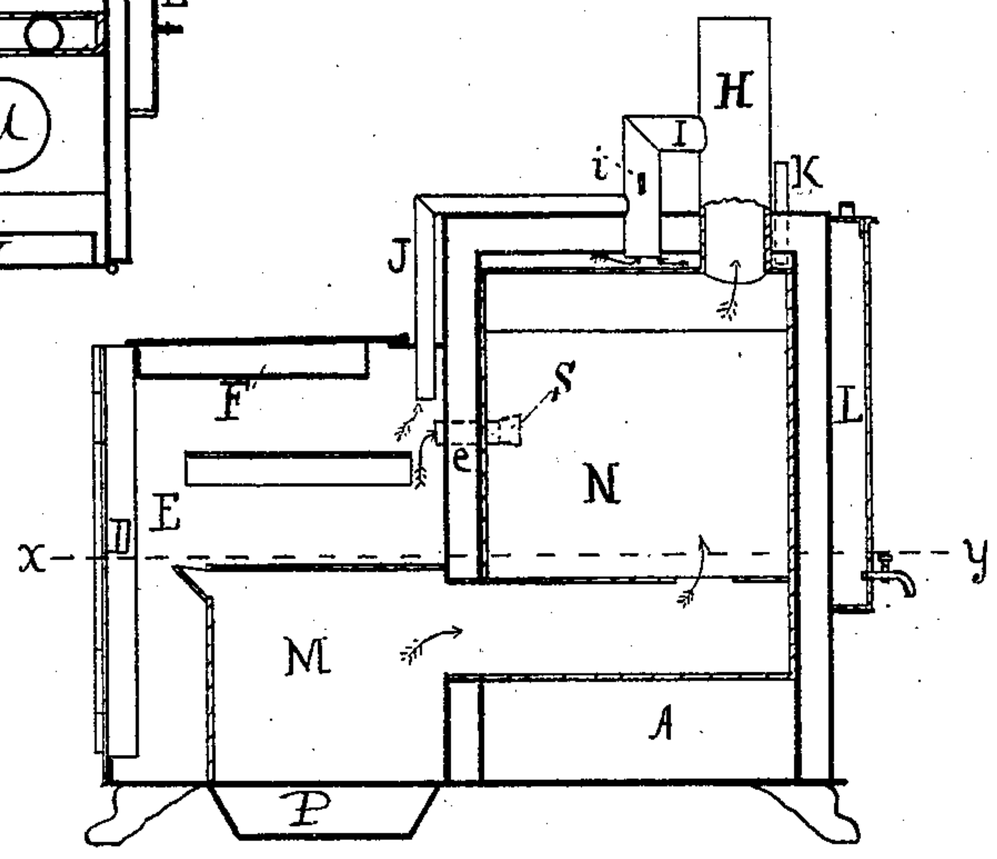

Fig. 2

Witnesses

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THOMAS J. WHITEHEAD, OF SOUTH PARIS, MAINE.

IMPROVEMENT IN COMBINED COOKING-STOVES AND HOT-AIR FURNACES.

Specification forming part of Letters Patent No. **147,029**, dated February 3, 1874; application filed November 3, 1873.

To all whom it may concern:

Be it known that I, THOMAS J. WHITEHEAD, of South Paris, in the county of Oxford, State of Maine, have invented a new and useful Improvement in Combined Cooking Stoves and Hot-Air Furnaces; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an isometrical perspective view of my improved combination cooking-stove and hot-air furnace. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a transverse sectional view taken at the line *x y*, Fig. 2.

Like letters refer to like parts in the different figures of the drawing.

My invention relates especially to that class of stoves which are inclosed in a double-walled casing or air-chamber; and consists in a novel construction and arrangement of the parts of the same, as hereinafter more fully described, the object being to furnish a more economical cooking-stove and hot-air furnace combined, than has heretofore been produced.

It is well known that with the ordinary portable cooking-stove a comparatively small proportion only of the heat is utilized, the larger part being either radiated, or passing off with the smoke and other products of combustion. This radiation causes not only great loss of fuel, but frequently raises the temperature of the apartment in which the stove is located, so as to render it exceedingly uncomfortable, and sometimes unbearable, where the cooking-room is of limited capacity.

In Fig. 1, A A is a casing or heat-insulator, standing on the legs Z, and provided with the doors W, B, and E, and lid F. The doors B E are jointed, or constructed with wings D C, and are also provided with smaller doors V, opening outwardly, through which fuel is introduced to the fire-pot or furnace of the stove. The walls of the casing A are double, having a dead-air space between their outer and inner surfaces, and are constructed of galvanized iron, or other non-radiating material. In Fig. 2, M is an ordinary cooking-stove, provided with the usual fire-pot or grate, a smoke-pipe or funnel, H, an ash-pan, P, having the proper dampers and grates, and also with the usual aperture for cooking-utensils U, Fig. 3. This stove is arranged within and supported by the heat-insulating case A, the construction and arrangement of the same in reference to the stove being such as to form two ovens or hot-air chambers, when its doors are closed, as in Fig. 1. These ovens I designate as the front and rear ovens; and, for the purpose of heating the latter more effectually and rapidly than could otherwise be done, a chamber, N, is arranged so as to divide the same into two smaller ovens or compartments. This chamber is a part of the stove M, and is connected directly with the funnel H, but does not extend to the top of the rear oven, there being a small air-space between the top of the chamber and the interior wall of the casing A. I is a hot-air or gas pipe, connecting the rear ovens with the funnel H, and is provided with a damper, *i*. Leading into the pipe I is a steam-pipe, J, connecting the front oven, (which is formed by closing the doors B E V D C, and lid F, Fig. 1,) through said pipe I with the smoke-pipe or funnel H. Between the front and rear ovens there is a hot-air pipe, *e*, provided with a plug or damper, S. A hot-air pipe, K, also connects the rear oven with any room or compartment which it is desired to heat. L is a hot-water tank, which I sometimes construct so as to extend through the outer to the inner walls of the casing A, so as to more readily heat the water which it is designed to contain.

From the above it will be readily understood by all conversant with such matters, that when a fire is placed in the grate or pot M, and the doors W, B, V, C, and D, and lid F of the insulating-case A, are shut or closed, that a very large proportion of the heat which would otherwise be radiated or lost will be retained within the apparatus, and utilized for cooking purposes, or may be conveyed through the pipe K, and used for heating, thus greatly economizing fuel, and rendering the room or apartment in which the stove is located much more comfortable than is possible in the use of any other description of stove with which I am familiar. This feature of my invention

is of great value in hot climates, and also where stoves are used in very small rooms, or on shipboard.

It will also be seen that all the fumes or gases arising from cooking food can be readily conveyed from both the front and rear ovens to the smoke-funnel H, thus obviating one of the most objectionable features of the ordinary cooking-stove.

To convert the apparatus from a cooking-stove into a hot-air furnace, all that is necessary is to close the damper *i* and open the pipes *e* and K, first removing all food being cooked, or which may remain in either of the ovens. Whenever it is desirable to retain a part of the heat in the apartment where the stove is located, and at the same time heat another room at a distance without conveying to it, in combination with the hot air, any of the disagreeable odors or fumes arising from cooking, the doors and lid can be thrown open, as shown by the dotted lines in Fig. 1, at the same time closing the damper *i* and opening the pipe K, (which is provided with a proper damper,) and closing the damper S. The food can then be cooked at the front of the stove, while the rear oven, being disconnected from the other, can at the same time be used for furnishing pure hot air to the pipe K.

I sometimes construct the pipe J with a branch pipe leading into K, the two being provided with the necessary dampers therefor, so that, when food is cooking in the rear oven, the damper or plug S can be closed, and hot air conveyed from the front part of the stove to the pipe K without passing through the rear oven.

For use in restaurants, vessels, and hotels, I usually construct the doors B or W, as the case may require, with apertures, through which the faucet of a tea or coffee urn or pot can project, so that tea or coffee may be drawn from a vessel within or over the fire without opening the door.

I am aware that the oven-doors and some other parts of ordinary cooking-stoves have been constructed with linings or air-chambers, for more effectually retaining the heat; also, that non-conducting casings have been used to sit around or inclose the stove; but I claim none of these, in themselves considered or as heretofore used. Neither do I claim anything shown or described, and already secured to me in Letters Patent of the United States, bearing date March 29, 1859.

I am also aware that a patent for an improvement in stoves was granted to one Burnharn February 19, 1856, numbered 14,278; but the stove of said Burnharn, although having an air-chamber next the fire-plate, is not of the class of stoves having a double-walled casng or air-chamber entirely inclosing them on nearly every side, and is not provided with the jointed doors, lid, pipes, and dampers described and found in mine, and which, as there found, combined and arranged for the purposes specified, I hold to be very useful, and of my invention. I therefore lay no claim whatsoever to any part of the stove of said Burnharn, in itself considered.

I am also aware that a patent for an improvement in stoves was granted to one Driver, October 31, 1865, numbered 50,696; but the stove of said Driver has no jointed doors and lid, working in combination with a system of pipes and dampers, as in mine; and there is no arrangement of devices by which the stove can be used in two sections—to wit, the front section being used for cooking, and furnishing heat to the room in which the stove is situated, while the rear section is being used for furnishing hot air to another room or apartment, and vice versa—which is a special feature of my invention. I therefore make no claim whatsoever to anything found in the stove of said Driver, or any other stove, when in and of itself considered; but

What I do claim as of my invention is—

The combined cooking-stove and hot-air furnace described, consisting of a cooking apparatus arranged within a double-walled casing, which is provided with jointed doors, a lid, pipes, and dampers, substantially in the manner and for the purpose set forth and specified.

THOMAS J. WHITEHEAD.

Witnesses:

CHAS. A. SHAW,

CHAS. LETTS.