H. J. WINTHERLICH.

Stove.

No. 164,789. Patented June 22, 1875.

Fig. 1.

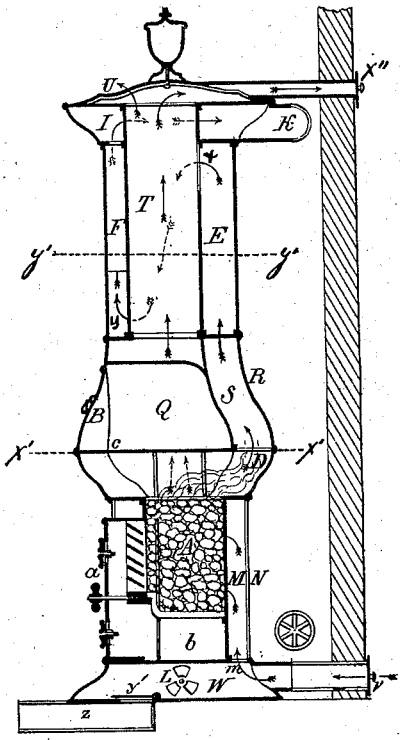


Fig. 2.

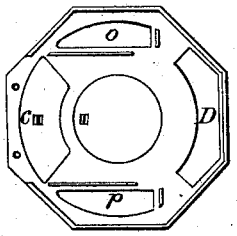
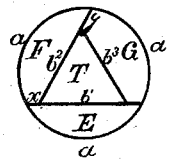


Fig. 3.



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UNITED STATES PATENT OFFICE.

HANS JULIUS WINTHERLICH, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN STOVES.

Specification forming part of Letters Patent No. **164,789**, dated June 22, 1875; application filed March 13, 1875.

To all whom it may concern:

Be it known, that I, HANS JULIUS WINTHERLICH, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Combined Cooking, Heating, and Air-Circulating Stoves; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

My invention consists, first, in the construction and arrangement of the hot-air flues, so that they may be used not only for heating but also for ventilating purposes; second, in so arranging said flues that two different rooms may be heated or ventilated alternately; and, third, in so constructing and arranging the cooking-chamber that it shall be surrounded on the sides and top by the hot air and products of combustion, all as hereinafter more fully shown and described.

On the drawing, Figure 1 represents a vertical section of my improved stove; Fig. 2 is a horizontal section, in the plane indicated by the line x' x' in Fig. 1; and Fig. 3 is a horizontal section of the top part of my improved stove, in the plane indicated by the line y' y' in Fig. 1.

Similar letters of reference indicate corresponding parts in all the figures.

A is the magazine, or fire-chamber, which is provided with a door, *a*, in front, by which the draft is regulated, and is surrounded, on the sides and back, by a closely-fitting screen, N, by which the intermediate air-chamber M is formed. It will be observed that this air-chamber surrounds the magazine, where the combustion takes place on all sides, except the front side, where the door is. Air is admitted into the air-chamber M from the receiving-chamber W, located under the bottom of the magazine, through an opening, *m*, back of the magazine. From M the air ascends, through the openings *o* and *p*, (see Fig. 2,) up into an air-chamber which surrounds the cooking-chamber Q on the sides, and then passes up through the triangular hot-air flue T, from which it is emitted out into the room where the stove is placed through the valve or register U, which is operated by turning the vase on the top of the stove. The magazine A is supplied with fuel through a door, B, opening into the cooking-chamber Q, by removing a plate or cover, denoted by *c*, which is replaced when the magazine is full. The chamber Q is provided with one or more pot-holes in the bottom-plate, into which pots, pans, or kettles may be placed, and the door B may be left open or closed at will. The products of combustion (smoke, &c.,) pass through the flue D up into the flue S, back of the cooking-chamber, and then up into the flue E. This part of my improved stove is constructed by inserting three metallic plates vertically through the cylindrical top, thus forming three flues surrounding the central triangular air-flue as shown in Fig. 3. In this figure, *a* represents the outside casing or cylindrical body of the stove. b^1 b^2 b^3 are the plates, inserted vertically through the body. E, F, and G are the smoke-flues, and T is the central triangular air-flue, which is surrounded on all sides by the heated plates b^1, b^2, and b^3. From S the smoke passes up into the flue E, then through an opening in the top of the plate b^1 (at x) into the flue F, then through an opening in the bottom of plate b^2 (at y) into the flue G, and then up through that flue and out into the smoke-chamber on the top of the stove. By this arrangement the heat carried off in the products of combustion is utilized for heating the air in T, besides warming the surrounding outside cylinder; and no heat is lost in heating up surface or parts that do not come in direct contact with the air to be heated. The smoke, after passing up through G, emerges out into the smoke-chamber I, and then passes out through the stove-pipe K into the chimney.

I have already stated that the air to be heated is taken from the receiving-chamber W, under the ash-pit *b*. It finds its way into this reservoir through three different channels. In the first place, if it is desired to heat the air of the room in which the stove is placed without introducing new air from without, the valve L (see Fig. 1) is opened, and the valves y' and *v* (the latter in another room) are closed.

The cold air in the room, which is always near the floor, enters W by L, then passes through the hot-air chamber M, as already described; then up and round the chamber Q, by way of the openings *o* and *p* (Fig. 2,) then up through the triangular flue T, and again out into the room through U.

When the room has been heated sufficiently, and it is desired to heat the neighboring room, (or any other room with which the requisite communication, by pipes &c., is made,) the valves L and U are closed, and *v* and *x''* (the latter corresponding to U) opened. Cold air now enters from the other room, and, after passing through the heater, comes out at *x''* as heated air. When the air in either room is bad, and it is desired to renew it, the valves L and *v* are both closed; but *y'* is now opened, by which, through a pipe, *z*, fresh air from the outside enters the reservoir W. After being heated, this air may be let out in either room, by opening either at U or at *x''*; or the valves on the top may be so regulated that it may be emitted, simultaneously into both rooms. Suitable arrangements are made for carrying off the bad or cold air in the room or rooms thus supplied with fresh air from without.

It will readily be perceived that my invention, in its several bearings, is susceptible of modifications, and I do not, therefore, limit myself to the precise form of stove shown in the drawing; but—

What I claim, and desire to secure by Letters Patent, is as follows:

1. The combination of the reservoir W, for the reception of cool air, with the heating-chamber M, and hot-air flues *o*, *p*, and T, substantially as and for the purpose shown and described.

2. The combination of the triangular hot-air flue T, with the surrounding smoke-conducting heating-flues E, F, and G, formed by the plates b^1, b^2, and b^3, having perforations at *x y*, substantially in the manner and for the purpose specified.

3. In combination with the triangular hot-air flue T, surrounded by the smoke-conducting heating-flues E, F, and G, the valves or registers U *x''*, arranged and operating substantially as and for the purpose specified.

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

HANS JULIUS WINTHERLICH.

Witnesses:
C. H. HANSON,
H. S. BROWN.