W. W. S. ORBETON.

Combined Parlor and Cooking Stove.

No. 110,389. Patented Dec. 20, 1870.

Fig: 1.

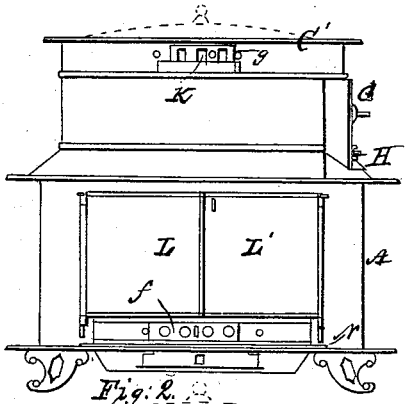


Fig: 3.

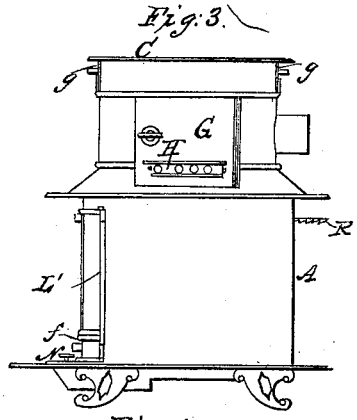


Fig: 2.

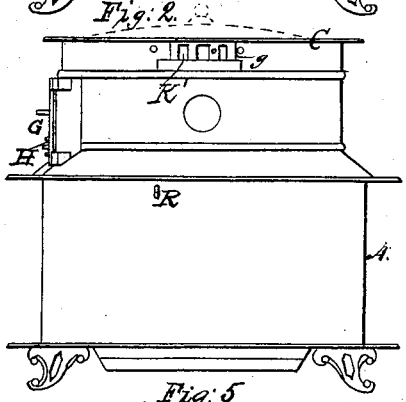


Fig: 4.

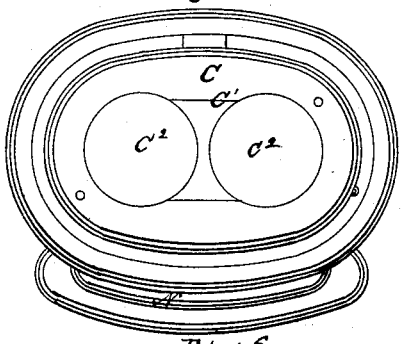


Fig: 5

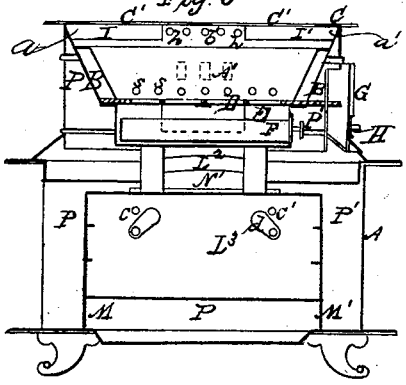
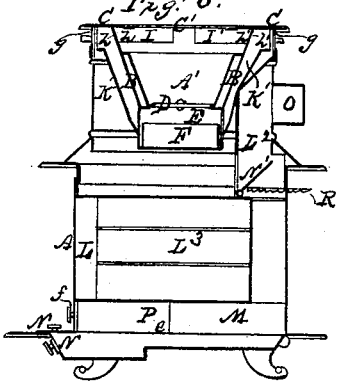


Fig: 6.



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Letters Patent No. 110,389, dated December 20, 1870.

IMPROVEMENT IN COMBINED PARLOR AND COOKING-STOVES.

The Schedule referred to in these Letters Patent and making part of the same.

To all persons to whom these presents may come:

Be it known that I, WILLIAM W. S. ORBETON, of Bradford, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Combined Parlor and Cooking-Stoves; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, of which—

Figure 1 denotes a front elevation;

Figure 2, a rear elevation;

Figure 3, an end elevation;

Figure 4, a top view;

Figure 5, a vertical and longitudinal section; and

Figure 6, a vertical and transverse section of a stove constructed in accordance with my invention.

Figs. 1 and 2 show in dotted lines the stove as surmounted by a dome.

My invention relates to that class of stoves termed "parlor cooking-stoves," in which the operations of heating, boiling, and baking may be carried on at the same time; or the stove may be employed simply as a heat-generator and radiator; or the stove may be used for heating purposes alone, as may be desirable; and

My invention consists—

First, in the peculiar combination and arrangement of the flues with respect to the oven, whereby they are caused to extend around the entire surface of five sides of the oven, and thus most effectively and evenly heat the same.

Second, in a peculiar construction and arrangement of the main air-supply inlets with respect to the chamber of combustion, whereby the inflowing currents are caused to so concentrate, impinge, or intermix in passing through the fuel as to produce a most rapid and perfect combustion of the fuel and the gaseous products thereof.

In the said drawing—

A denotes the body or casing of the stove, as supported upon legs, *o*, the said body being made in two or more sections, and united together by means of rods and screw-nuts in the ordinary manner.

A′ is the fire-pot or chamber of combustion, which is disposed near the top of the stove and extends centrally and longitudinally thereof.

The said fire-pot consists of a metallic frame, B, provided with a lining of fire-brick or other refractory material.

The lining, as shown in the drawing, is for the use of wood. It is made or cast of metal, and hollow, and is provided with a series of air-inlets, *s s*, &c., arranged horizontally around the same and near the bottom thereof, as shown in fig. 5.

Air-passages are made to open through the inner walls of the air-induction flues, K K′, as shown in dotted lines in fig. 5, and open communication with the space between the lining and the fire-pot frame the object of the inlets *s s*, &c., being not only to supply air for the combustion of the fuel, but to preserve the lining from being too greatly heated.

In winter, or when coal is used, I employ a solid lining of fire-brick, which, resting in contact with its frame, entirely closes the inlets *s s* in the inner walls of the ducts K K′.

The said frame is connected with the top-place C of the stove by means of metallic plates *a a′ b b′*, (the latter serving as deflectors for the purpose hereinafter described.)

The said plates are united to the top plate by means of screws or in any other suitable manner. Furthermore, the said top is provided with one or more boiler-openings, C, and covers C′.

The lower part of the said combustion-chamber is provided with a grate, D, suitably applied thereto, and so as to be capable of being shaken and dumped in the ordinary way.

Below the said grate is an air-supply reservoir or chamber, E, in the lower part of which is an ash-pan or drawer, F.

G is a door disposed in the end of the stove, the same being as shown in fig. 3, and being for the purpose of allowing the ash-pan to be removed and dumped and the grate to be manipulated as occasion may require.

The said door is provided with a register, H, by which air may be let in to regulate the heat on the top of the oven.

The fire-pot has two deflectors, *b b′*, arranged on opposite sides of and above it, the same being to deflect the flame and volatile products of combustion toward the ends of the fire-pot and into the educts I I′.

K K′ are two air-inducts, whose mouths are arranged directly underneath the top-plates of the stove, and are respectively provided with a register or slide-valve, by which the amount of air entering the same may be duly regulated.

The said inducts extend down against the outer walls of the fire-pot, and, concentrating, open into the air-chamber E, disposed underneath the grate. The said air-inducts are arranged opposite to each other on opposite sides of the fire-pot or chamber of combustion, as seen in fig. 6.

By this arrangement of the air-inducts the currents of inflowing air are not only heated in their course to the fuel and thereby caused to rush with increased force into it, but, the two currents concentrating or impinging, (like the two currents in the compound blow-pipe,) produce a most rapid and intense combustion of the fuel and gaseous products, far greater than takes place where the air for supporting combustion is admitted at one point only.

The said deflectors *b b'* serve a double purpose—first, to deflect the flame and products of combustion; and, second, as inner walls to the air-inducts K K'. Furthermore, there is a series of minute orifices or air-inlets, *h h*, &c., opening through the said walls or deflectors into the chamber of combustion, the same serving to permit small jets or currents of air to flow into the chamber and mingle with the flame and gases generated therein, and thereby produce a better combustion thereof.

L is the oven, which is disposed in the lower part of the stove, and is provided with two doors, L L'.

Within the upper part of the oven, or on the back wall thereof, are two ventilating-orifices, *c c'*, which are provided with slides or valves, *d d'*.

The oven has a large hot-air space or flue extending entirely underneath its bottom, this chamber or space being furnished with a register, *f*, for cooling the bottom of the oven or checking the draught, as occasion may require.

M M' are two deflectors or partitions, which extend from the back of the bottom of the oven about three-fourths the distance along under the same, leaving openings, *e e*, through which the smoke and volatile products of combustion may pass, the object of these deflectors being to lead the heated products of combustion as far to the front as possible, in order to cause them to pass in contact with the entire surface of the bottom of the oven.

L^2 is a hot-air space or cross-flue, which extends from the main flues P P' across the entire top of the oven.

N is a door or slide arranged underneath the hearth of the stove, (the said hearth being made in either one or two parts, as may be desirable,) the same being for the purpose of allowing any soot or other matter to be removed from the space underneath the oven.

N' is a damper, which is hinged or pivoted to the side of the flue, extending up back of the oven, seen in fig. 6, the said damper being provided with means or mechanism by which it may be opened or closed, more or less, as may be desirable.

R is a lever, having one end affixed to the damper and its other end projecting through the rear part of the stove, as shown in fig. 3.

When the damper is open the smoke and volatile products of combustion pass down the two ends of the fire-pot, and thence by a direct course into the discharge-pipe O. When the damper is closed they make their longest circuit prior to entering the said discharge-pipe.

P P' are the main flues, which extend from the flame-educts I I', down each end of the fire-pot and ends of the stove, to the bottom of the oven; thence underneath the oven up its back and to the discharge-pipe O.

L^2 is a hot-air space or cross-flue, which extends from the main flues P P' across the top of the oven.

By my arrangement of the flues and the space above the oven the smoke and gaseous products, when the damper is shut, pass down the sides of the fire-pot and cold-air chamber; thence portions thereof across the entire top of the oven in counter-currents; next down the two ends of the oven and against the partitions on the bottom of the oven, (by which they are deflected and caused to pass toward the front and through the openings at the front of the oven;) thence sweeping across the entire bottom, they rush up the back of the oven and make their egress through the discharge-pipe.

From the above it will be seen that, by my construction of the stove and the arrangement of the flues thereof with respect to the oven, the heat is caused to pass entirely over five sides of the oven, whereby the greatest practical amount of the same is utilized and the oven most uniformly heated, the two registers, H and *f*, affording means by which the heat on the top and the bottom of the oven may be completely controlled. It will also be seen that the two operations of boiling and baking may both be carried on at the same time without interference with each other. It will further be seen that by my peculiar arrangement of the air-inducts with respect to the chamber of combustion I am enabled to obtain a most perfect combustion of the fuel and gaseous products thereof, and with the most economical expenditure of the fuel.

The above-described stove being made in the form of a parlor-stove, may be used with equal effect as a radiator of heat.

Having described my invention,

What I claim is as follows:

1. The combined parlor and cooking-stove, substantially as described, the same consisting of the fire-pot A, the air-supply inducts K K', the flame-educts I I', the oven L, the space or flue L^2, the main flues P P', and the discharge-pipe O, all constructed, combined, and arranged together and within a case A, and so as to operate as and for the purpose set forth.

2. A parlor cook-stove, composed of the fire-pot A', the flame-educts I I', the air-supply inducts K K', the air-reservoir or chamber E, the oven L^3, the main flues P P', the flue or space L^2, the damper N', and the discharge-pipe O, the whole being combined and arranged in manner and so as to operate as described.

3. In combination with the fire-pot A' and the oven L^3, the main flues P P' and the cross-flue or space L^2, when all the said flues are arranged with respect to the oven and so as to operate as and for the purpose set forth.

4. The registers *f* and H, when arranged with respect to the oven, as described, and so as to regulate the heat thereof, as set forth.

5. The guards or deflectors *b b'*, in combination with the fire-pot, when the former are provided with air-inlets *h*, as described and for the purpose set forth.

W. W. S. ORBETON.

Witnesses:

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MOSES DODD.