(No Model.) 2 Sheets—Sheet 1.

J. R. WEBB.

COOKING STOVE.

No. 324,055. Patented Aug. 11, 1885.

Fig. 1.

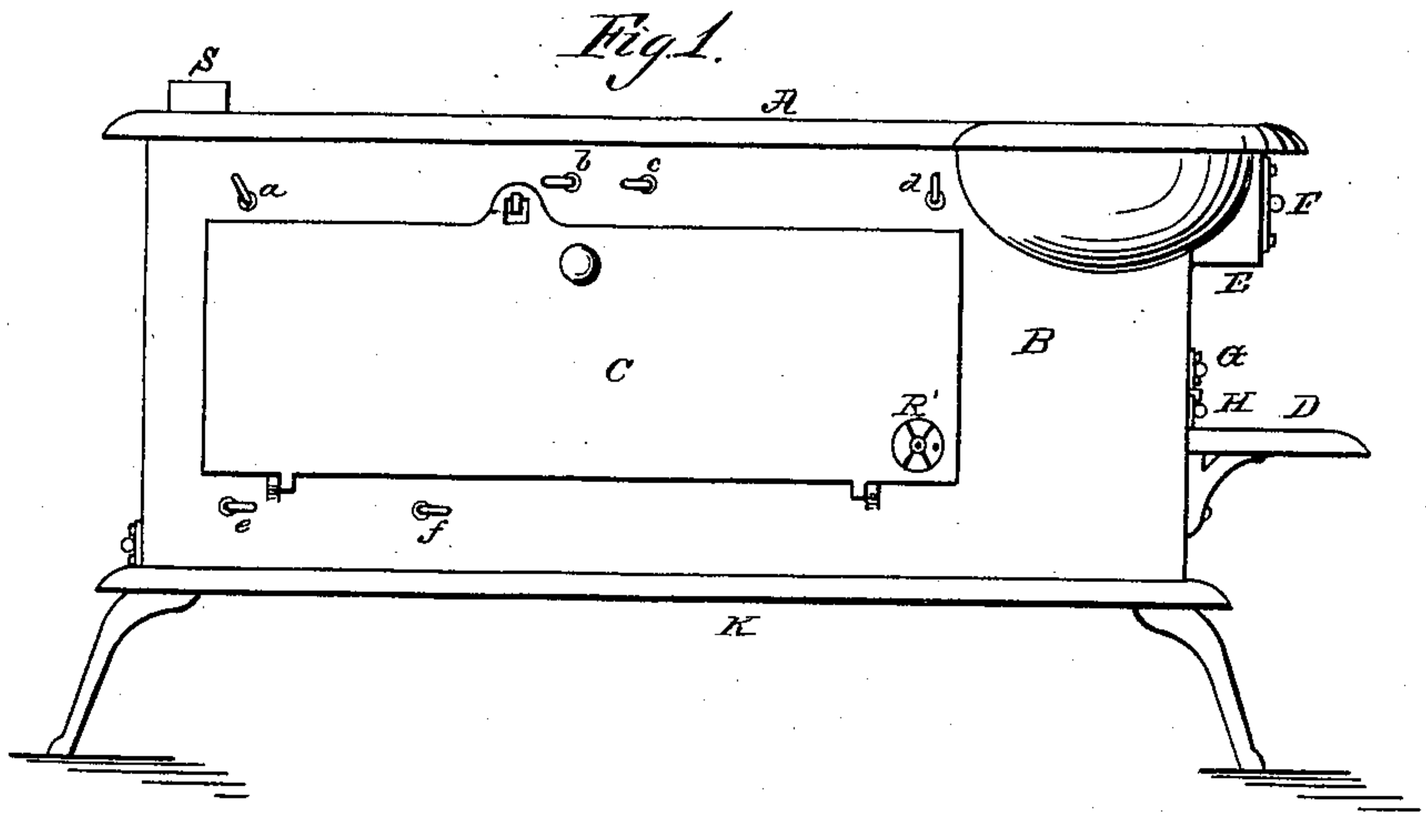


Fig. 2.

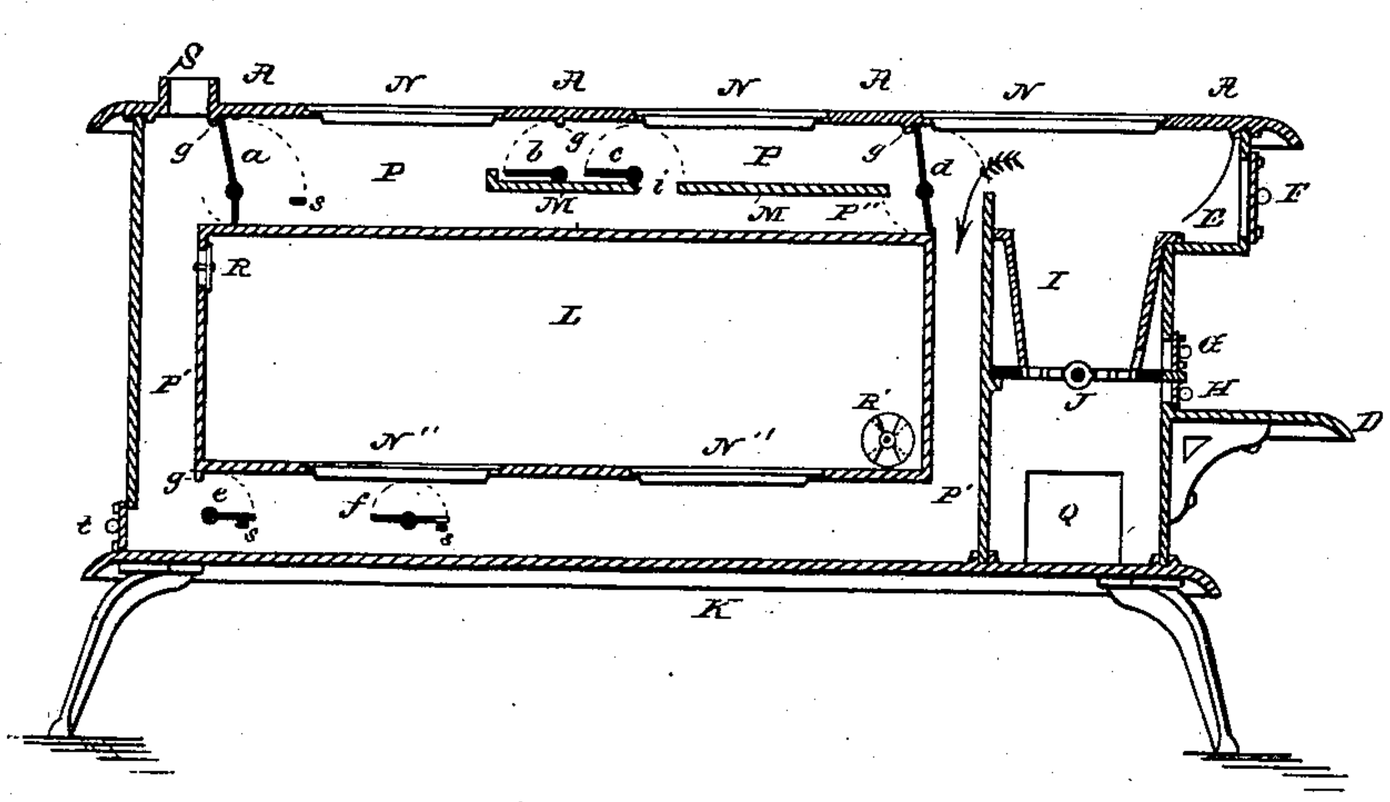
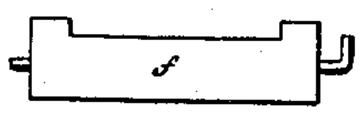


Fig. 3.



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per W. E. Dayton
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

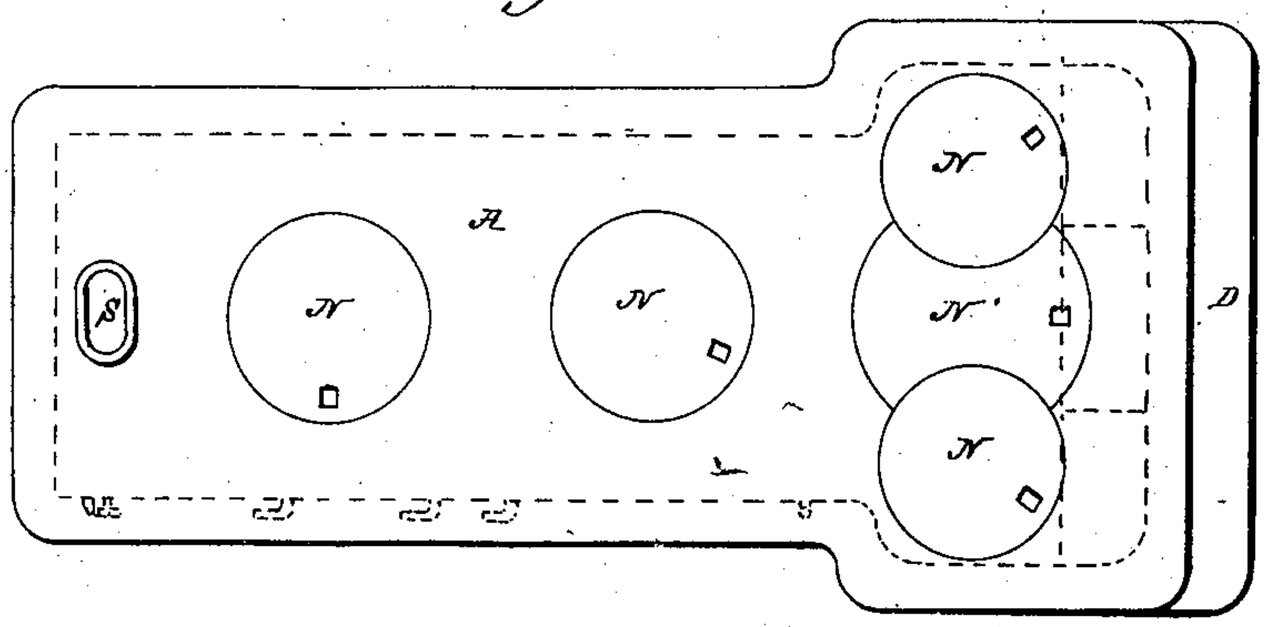


Fig. 5.

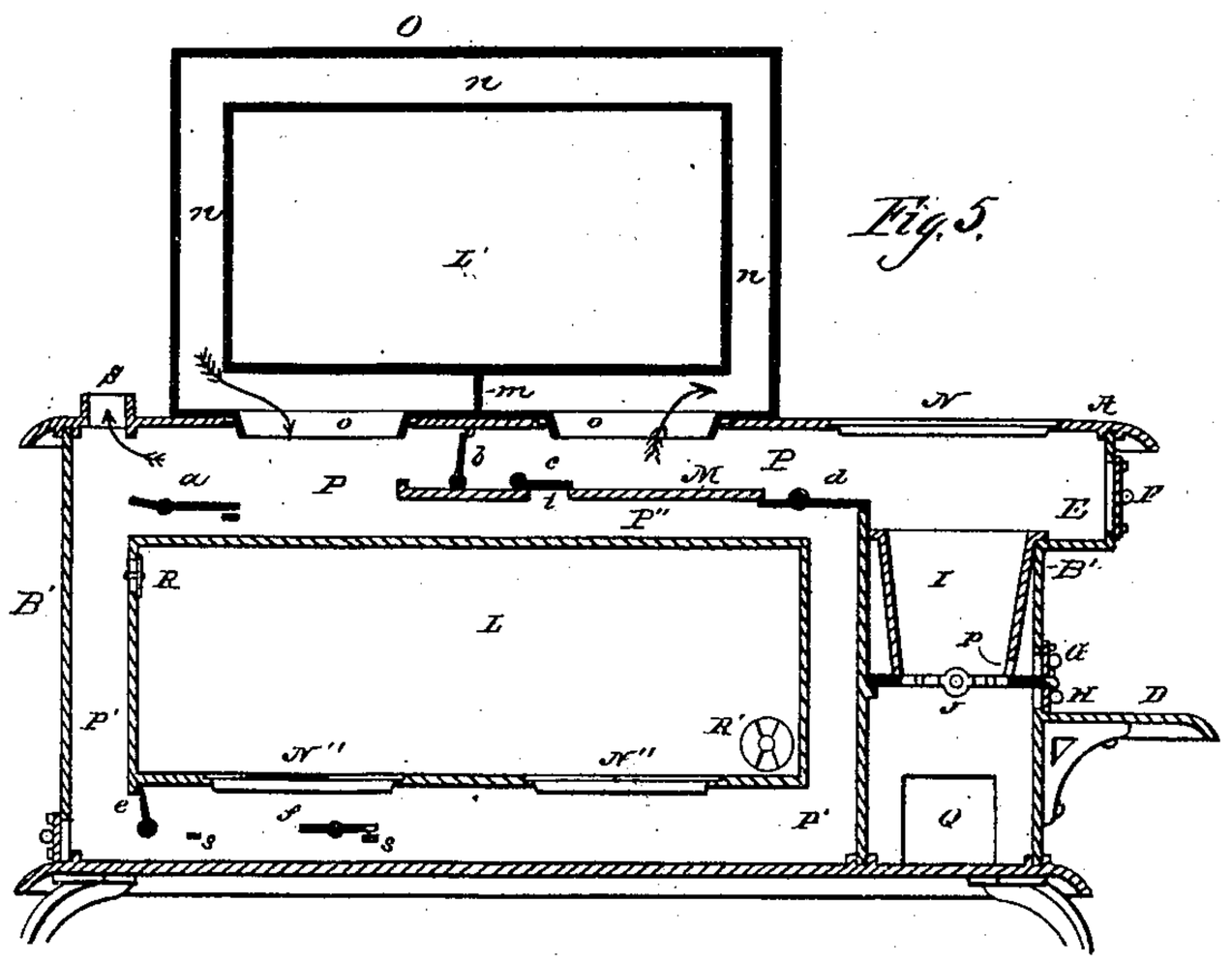
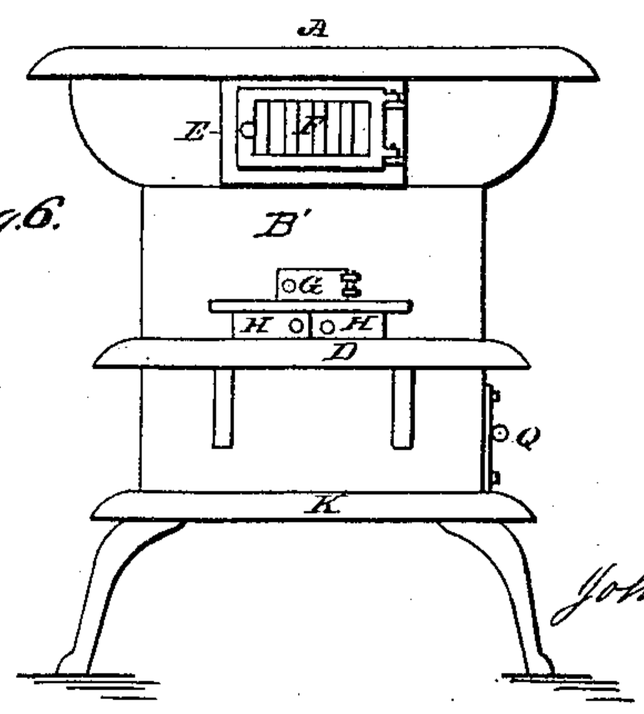


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN RUSSELL WEBB, OF ST. JOSEPH, MICHIGAN.

COOKING-STOVE.

SPECIFICATION forming part of Letters Patent No. 324,055, dated August 11, 1885.

Application filed June 24, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOHN RUSSELL WEBB, of St. Joseph, in the county of Berrien and State of Michigan, have invented certain new and useful Improvements in Cooking-Stoves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to the interior construction of cooking-stoves, mainly with reference to the variable direction of the currents of products of combustion, with the object of better utilization of the fuel and of greater efficiency and capacity in a stove of given size or cost.

It consists in the several features of construction hereinafter set forth and pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a small stove provided with my improvements. Fig. 2 is a central vertical longitudinal section of the same. Fig. 3 is a full view of one of the dampers shown in Fig. 2. Fig. 4 is a top view of the stove herein made the subject of illustration. Fig. 5 is a vertical longitudinal section of the stove with a removable oven applied to the top, and Fig. 6 is a front end elevation of the stove.

A represents the top plate, B and B′ the side and end plates, respectively, and K the bottom plate, of the stove.

I is the fire-box, and J is a grate.

H is a damper for the supply of air beneath the grate, and G is a small door in the front plate, through which and the aperture *p* in the fire-box a poker may be inserted for the purpose of raking out the ashes and clinkers or agitating the fire without shaking the grate. Beneath the grate J is an ash-space, accessible through the door Q. Said door may be of proper size to admit a pan of the full width of the chamber, if desired. D is a hearth, located at the front end at a convenient height.

The body of the stove is illustrated as being relatively long and narrow. The front end is preferably broad enough to give suitable space for two pot-holes at N N, side by side, with the usual provision in the center piece, N′, and corresponding lunes for a larger center hole. The remaining pot-holes are in the line of the direct passage P beneath the top plate, A, and the width of the passage is such that the heated current is nearly wholly directed beneath said pot-holes or into contact with any vessels set in the pot-holes.

L is an oven, the top, bottom, and end walls of which are supported from the side walls of the stove.

M is a horizontal plate or partition, arranged above and parallel with the oven-top, as shown, dividing the space above the oven into the passages P and P″. Said plate M reaches preferably about to the rear pot-hole, as indicated, but may be varied as required. It has a transverse opening, *i*, at the rear of the first pot-hole over the oven. A passage, P′, leads from the fire-space downward at the front of the oven, backward beneath it, and upward at its rear to the escape S. A number of dampers or deflectors, *a*, *b*, *c*, *d*, *e*, and *f*, are arranged in the passages, as indicated, to operate in connection with said passages, as will now be described. At the point of divergence of the passages P and P′ near the fire-space is placed the damper *d*, which, when turned up, directs the products of combustion through the passage P′, and when turned down sends the products of combustion backward into the passage P, contiguous to the top plate, A. When the damper *d* is down, the dampers *a* and *b* being also down, the products of combustion pass directly to the escape-flue S; but if *a* be closed, they pass over the rear end of the plate M (or through the opening *i*, according as the latter is open or closed by the damper *c*) through the passages P″ and P′. This direction of the products-of-combustion current produces contact thereof with practically all points of the transverse walls of the oven L, and insures rapid and uniform baking therein. It also at the same time makes the principal part of the stove-top available for other cooking or heating purposes. A modification of this effect will be produced by also closing the dampers *b*, allowing the products of combustion to pass down through the opening *i*. and out through P″ and P′ beneath the oven, thus shutting the heat off from the back pot-hole.

The more especial object of the damper *b* is, however, separately illustrated in Fig. 5, wherein O is a supplemental removable oven having a double shell, forming a passage, *n*, about the oven proper or baking-space L′. Said passage is divided by the central transverse plate, *m*, at the bottom, and opens through the two flanged openings *o o*, one on each side of the plate *m*. The flanges of openings *o* set into the two rear pot-holes of the stove, as seen, like the bottom of a clothes-boiler. When this oven is used, the damper *b* is closed, the opening *i* is closed, and dampers *a* and *d* are open. The combustion products are consequently directed through the passage *n* of the oven O, entering through the forward pot-hole and returning through the rear one. If damper *a* be also closed, the same current may be sent around the oven L after leaving the oven O. The permanent oven L has the holes N″ located in the bottom thereof and the registers R and R′. By directing the current of products of combustion wholly or in large part beneath the oven L, articles may be cooked over these pot-holes N″ as well as on the stove-top. When this is done, the registers R and R′ should usually be opened, by which means any unpleasant odor from the article being cooked is carried off by the flue S and prevented from escaping into the room. This use of the oven L is found of great advantage in warm weather, since the heat radiated from the stove is much reduced by the direction of the products of combustion through the passage P′. Pot-holes N and N″ may be simultaneously used, if desired, to the great increase of the boiling capacity of the stove by closing damper *a*, with *d* horizontal and *c* open or closed, according as one or both of the rear holes N are required. The efficiency of the rear pot-hole N″ is increased by the damper *f*, which is cut away, as seen in Fig. 3, so as to deflect the air-current upward into contact with the griddle or vessel sitting over the hole. The registers R and R′ serve also to regulate the heat of the oven, causing it to bake either fast or slow, as desired.

The protruding handles of the several dampers are, as is common, made in the plane of the dampers, so as to indicate the position of the latter. All of said dampers being readily seen through the neighboring pot-holes, their unusual number is found to occasion no confusion, and their uses and effects are soon learned.

It should be noted that the damper *d* may be partially turned, so as to send heat directly from the fire-space into both upper and lower passages, if desired, said damper being properly balanced or otherwise constructed to remain in any position given it, as is commonly done.

The damper *e* is preferably constructed and mounted as shown, to always leave a passage beneath it. The use and effect of the damper is therefore to retard and not to wholly arrest the current of products of combustion beneath the oven. Giving escape to said current at the bottom of the passage P′, the cooler portion of the said products therein is constantly being drawn off, while the hotter portion, rising to the top of the passage, is restrained until its heat is expended upon the oven-bottom, the pot-holes N″, or vessels therein placed.

In place of the rotating damper *e*, a vertical stationary plate may be employed, having a passage beneath it, as shown beneath said damper *e*, with the same effect as is obtained by said damper when in a vertical position.

I am aware that a horizontal plate has been employed to divide the passage above the oven, and that dampers have been variously arranged with reference to such dividing-plate, so that I do not claim said plate and dampers, broadly.

I am also aware that an oven has been constructed to sit over a single pot-hole of a stove, and that a flap or deflector has been attached to the oven, and also that a deflector has been mounted in the stove midway of the pot-hole, or in position to direct the products of combustion through or about the oven. My construction differs from this in the adaptation of the oven to two adjacent pot-holes and in the location of the deflector in the stove beneath the plate dividing said holes.

I am aware that it has been heretofore proposed to construct a portable oven with double walls, forming a flue or passage leading around the oven proper or baking-chamber, for use over a single aperture in a stove-top, the exterior wall of the bottom of the oven being provided with an aperture opposite the aperture in the stove-top, and with a deflecting-plate extending from the bottom of the baking-chamber through the stove-aperture, and across a smoke-passage of the stove beneath the said aperture. This construction is objectionable for several reasons, the principal one being that in order to make the oven readily detachable the said deflector must be made adjustable in area or otherwise constructed so that it may be inserted through the aperture of the stove-top and fitted at its margins to the side walls of the smoke-passage when put in place.

In the construction herein proposed no valve or damper is used upon the portable oven, and a damper permanently located in the stove is used to deflect the products of combustion around and over the baking-chamber of the oven. When the parts are made in this manner, the portable oven may be readily and quickly applied without the necessity of any accurate adjustment of a damper or other part to the stove in putting it in place, and the form of the oven itself is at the same time made exceedingly simple.

Having thus described my invention, I claim—

1. In combination with the passages P, P′, and P″, arranged as shown with reference to

the oven L and the fire-space I, the plate M and the dampers *a* and *d*, substantially as and for the purposes set forth.

2. In combination with the passage P′, leading beneath the oven, and with the pot-hole N″ in the oven-bottom, the deflector *f*, Fig. 3, arranged in said passage and beneath said pot-hole, substantially as and for the purposes set forth.

3. The detachable oven O, adapted to set over two neighboring pot-holes of a stove in the line of the air-passage from the fire-pot to the escape-passage of said stove, said oven having a passage, *n*, around the baking-chamber L′, and having also openings *o o*, coincident with the stove pot-holes, and a dividing-plate or partition, *m*, in the said passage between the said holes *o o*, combined with the stove having a deflector, *b*, located as shown, to close the direct passage beneath the top plate of the stove between the pot-holes, and to deflect the products of combustion through the passage *n* of the oven, substantially as described.

4. In combination with the plate M, arranged as described, to divide the passage P from the passage P″ over the oven L, and provided with the opening *i*, the dampers *b* and *c*, arranged as shown, and for the purposes set forth.

5. The stove described, combining the fire-box I, the escape S, the oven L, the passages P, P′, and P″, and the dampers *a d* and deflector *e*, all arranged and operating substantially as shown and described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

JOHN RUSSELL WEBB.

Witnesses:

JAS. B. SUTHERLAND, Jr.,

O. O. JORDAN.