C. WARREN.

STOVE.

No. 169,390. Patented Nov. 2, 1875.

Fig. 1.

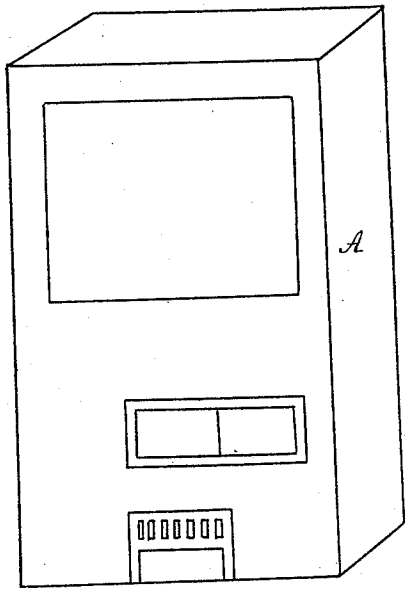
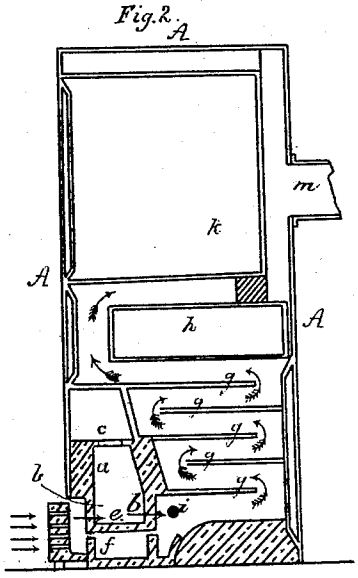


Fig. 2.



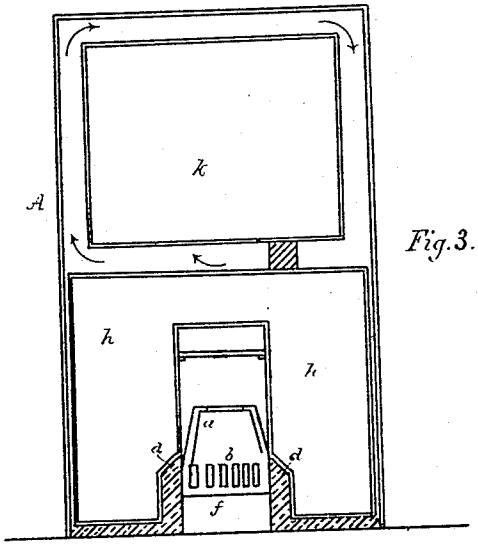


Fig. 3.

Witnesses.
Baltis de Long
H. H. Young

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by his Atty
W. W. Baldwin

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES WARREN, OF SHOEBURYNESS, ENGLAND.

IMPROVEMENT IN STOVES.

Specification forming part of Letters Patent No. **169,390**, dated November 2, 1875; application filed September 11, 1874.

To all whom it may concern:

Be it known that I, CHARLES WARREN, Captain Royal Engineers, of Shoeburyness, in the county of Essex, England, a subject of the Queen of Great Britain, have invented or discovered a new and useful Improvement in Stoves; and I, the said CHARLES WARREN, do hereby declare the nature of the said invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof—that is to say:

The object of this invention is to construct a stove in such a manner that more perfect combustion of the fuel consumed therein may be obtained than in ordinary fire-places or stoves. For this purpose, in place of the inlet to the flue or chimney being above the fuel, as is for the most part customary, I form it at the back of the fire-place, just above the fire-bars or surface on which the fuel rests, and in line with or opposite the front fire-bars. The supply of coal for keeping up the fire is thrown on at the top, in the ordinary manner, and is covered over by a close-fitting plate, which may be used as a hot plate. The greater part of the air for supporting combustion is admitted between the front fire-bars, and, passing horizontally among the burning fuel, is consumed, and escapes at the outlet-flue at the back of the fuel-holder, partly in the state of carbonic oxide. Near this point a fresh supply of air is, by a suitable passage, admitted to it to complete its combustion as it passes away. Thus the production of smoke is entirely avoided. As the fuel at the lower part of the fire is thus being consumed the coals above descend and take its place, and, as they descend, become gradually coked, the gases given off being, by means of the chimney-draft, drawn downward among the ignited fuel and there consumed.

Figure 1 represents a perspective view of a large-sized cooking-stove. Fig. 2 represents a vertical section of the same, and Fig. 3 represents another vertical section at right angles to Fig. 2.

In these figures, A is the stove casing or body, and *a* is a box head or hopper of a magazine or holder for containing the fuel. This box or hopper is cast or framed with front and back gratings *b b* near the bottom. The air for supporting combustion passes in through the front grating, and the products of combustion pass out through the back grating. In the top of the hopper is an opening, through which the fuel is introduced, provided with a closely-fitting lid, *c*. *d d* are fire-bricks, which form the sides of the fire-box, and *e* is a grating upon which the fuel rests. *f* is an ash-pit. *g g* are deflecting-plates for the purpose of retarding the escape, and thus aiding in securing the complete combustion, of the gases. *h* is a boiler, and *k* is an oven. The products of combustion which escape through the back grating are partly composed of carbonic oxide, and to effect the combustion of this substance a further supply of air is admitted in rear of this grating through the pipe *i*. The products of combustion are then, as shown by the arrows, conducted to and fro in a zigzag course by the deflecting-plates *g g*, which overlap one another in the center of the saddle-shaped boiler, and finally either around the oven *k*, or directly, as is usual in stoves, off through the flue or chimney *m*.

By this organization a continuous feed and a complete combustion of the fuel are accomplished.

I am aware that a continuous feed, such as I have adopted, is not new, and that a horizontal draft through the fuel in a fire-box is not new, and that deflecting-plates are not new, and that to supply air to the products of combustion in rear of a fire-box is not new, and I not claim to have invented any one of these things; but what I have invented is the particular organization of all of these elements which I have described and shown; and

What I claim, and desire to secure by Letters Patent, is—

The combination, in a stove, of a box or hopper, cast or framed with front and back gratings near its bottom, through which a continuous feed and a horizontal draft are obtained, and air-supply pipe in rear of said box or hopper, and deflecting-plates arranged behind the box or hopper, on opposite sides of the flue, one overlapping another, so as to drive the products of combustion from side to side in a zigzag course, thus greatly retarding them, substantially as described, for the purpose specified.

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Captain R. E.

Witnesses:
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