C. A. HAMLIN.

STOVE.

No. 189,557. Patented April 17, 1877.

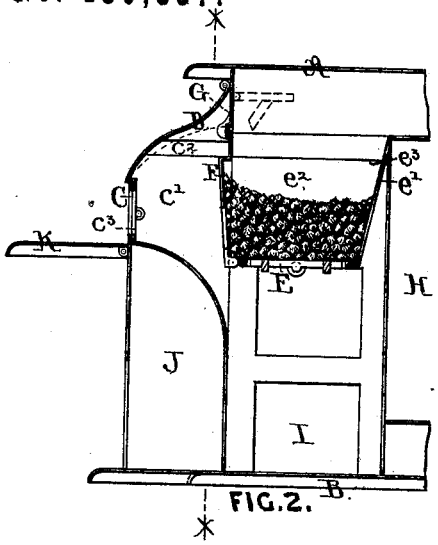

FIG. 2.

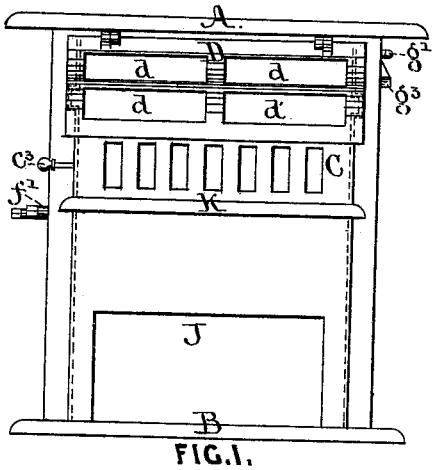

FIG. 1.

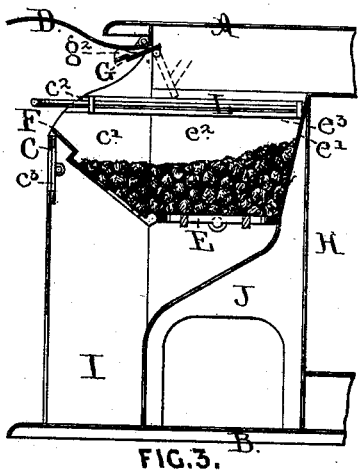

FIG. 3.

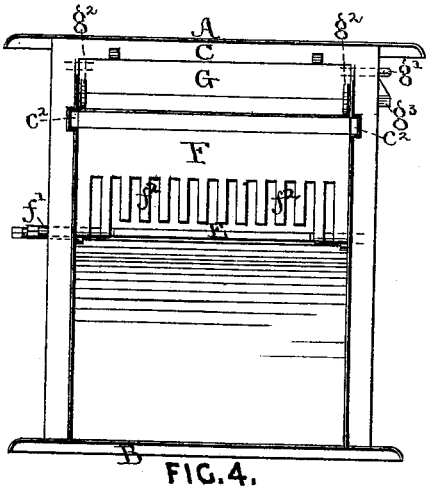

FIG. 4.

Witnesses.

E. F. Burnett

William H. Low

Inventor.

Charles A. Hamlin.

UNITED STATES PATENT OFFICE.

CHARLES A. HAMLIN, OF ALBANY, NEW YORK, ASSIGNOR TO S. H. RANSOM & CO., OF SAME PLACE.

IMPROVEMENT IN STOVES.

Specification forming part of Letters Patent No. **189,557**, dated April 17, 1877; application filed January 22, 1877.

To all whom it may concern:

Be it known that I, CHARLES A. HAMLIN, of the city and county of Albany, and State of New York, have invented certain new and useful Improvements in Cooking and Heating Stoves, of which the following is a full and exact description, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a front elevation of a cooking-stove; Figs. 2 and 3, longitudinal sections of the front end of the same, and Fig. 4 a transverse section at the line *x x*.

My invention relates to the construction of cooking and heating stoves, more especially to their fire-boxes and the parts lying contiguous thereto; and it consists, first, in constructing said fire-boxes in such manner that the area of the upper portion of the burning fuel may be greatly extended beyond the area of the horizontal grate-surface, which extension may be made either permanently, by means of stationary plates, or temporarily, by means of adjustable plates, so that a greater surface of the incandescent fuel will be utilized for increasing the radiating capacity of the fire when used for the purposes of broiling, heating, or illumination, and the economic effect produced by a given quantity of fuel greatly enhanced; secondly, in constructing the fire-chambers, when used for the purpose of broiling, in such manner that the gridiron for holding the material to be cooked will be held and supported intermediately between the surface of the fire and the top plate of the stove, thereby dispensing with the necessity for removing any portion of the top plates of the stove while broiling, leaving it intact for carrying on the functions properly pertaining thereto; thirdly, in extending the projecting portion of the front plate of the stove, so as to adapt it for receiving the extension of the fire-surface, in the manner herein set forth, thereby greatly increasing the capacity of the stove at this point for illumination and radiation.

My invention remedies several well-known defects in the operation of stoves, as commonly constructed, among which may be named the following: Fire-chambers in which the surface of the burning fuel is so contracted that a large percentage of the radiant heat and light is either lost or rendered comparatively useless, and the process of combustion greatly impeded; where, for the purpose of broiling, portions of the top of the stove are necessarily removed, the air that is admitted through the holes over the fire checks the combustion and cools down the burning fuel, the top of the stove is rendered useless for other purposes, and the disagreeable smoke and odor from the fire and broiling food escapes and circulates through the house, and, by mingling with the air of the apartments, renders it noisome.

As shown in the drawing, which represents my improvements as applied to cooking stoves and ranges, A is the top of the stove, which is provided with the boiler-holes commonly formed therein; B, the bottom plate; C, the front plate, having an enlarged projection, c^1, extending outward therefrom, the side pieces of which are provided with grooves c^2, or any equivalent device, for receiving and supporting a gridiron; it is also provided with a register or damper, c^3, for regulating the supply of air to the fire-chamber. The upper part of the projection is cut away, as shown in the drawing, and, as I preferably construct it, so formed as to receive the ogee door D in an inclined position. The increased size of the projection c^1, and the inclined position in which the door is placed, admits of it (the door) being made unusually large, thereby securing a corresponding increase in the size of the mica windows *d*. By this means, and by the increased fire-surface, an unusual degree of illumination is secured at this point. The fire-box is formed by the grate E, back piece e^1, end pieces e^2, and the adjustable front plate F. The back and end pieces may be made of fire-brick, or any other substance that will resist the destructive action of the fire. The two end pieces are provided with shoulders e^3, cor-

responding with the grooves c^2, for the support of the gridiron, as shown in Fig. 3. The adjustable front plate F is provided at its lower edge with trunnions f^1, one of which projects through the side of the stove, where, by being provided with the usual appliances for the purpose, it serves as a means for turning the plate on its trunnions. It is also provided with the bars f^2, by which a grated opening is formed for the admission of air to the front part of the fire. A portion of these bars are cut off at their lower ends, thereby forming an elongated opening for the purpose of removing the clinkers and other impurities from the grate E. Above the front plate F of the fire-box an opening is left in the front plate C, extending across the entire width of the projection c^1, and upward as far as the top of the opening for the door D. This opening (which is closed by the rolling damper G) affords ample space for the introduction of the gridiron, and the food placed thereon, to its place over the fire. It also affords (when the damper is partially raised) greater space for the passage of the rays of light and heat to and through the mica windows of the door D. The damper G is provided with trunnions, upon which it turns. One of these trunnions, g^1, projects through the side of the stove, and is formed into a handle for operating the damper. The projecting ears g^2 on the damper bear against the door D when the damper is raised, and serve the purpose of opening the door, and retaining it in an open position when the handle of the damper is caught by the catch g^3, as indicated by the dotted lines in Fig. 3.

The oven H is made in the usual manner, and the flues around it may be arranged in any way most desirable. As my invention does not pertain to these parts of the stove, a more elaborate description of them is unnecessary.

I is the ash-pit, which in Fig. 2 is located directly beneath the fire-box, while in Fig. 3 it is placed directly behind the front plate of the stove. J is a warming-closet, arranged in Fig. 2 in front of the curved portion of the front plate C, and beneath the hearth-plate K, while in Fig. 3 it is located between the front plate of the oven and the back plate of the ash-pit.

Preferably I construct the stove containing these improvements in the form shown in Fig. 2, without the warming-closet J, which, from preference, I dispense with, leaving the front of the stove beneath the hearth-plate K as formed by the curved front plate, and cutting off the bottom plate B at the point indicated by the dotted line shown on that plate in Fig. 2. The changes from this form (shown in the drawings) are simply modifications of the general arrangement by which my improvements can be adapted to stoves of this class; and in all changes or modifications from the form shown in Fig. 2 I make use of the projection c^1 of the front plate for receiving the adjustable plate F, and for this purpose the said projection extends beyond the face of the front plate C, as determined by its line of junction with the top plates of the stove.

The hearth-plate K is hinged to the front plate C at the base of its projection, and in such position in relation to the gridiron that it serves to hold a dish or platter for catching the gravy from the broiling food. When not required for that purpose it can be turned down out of the way, leaving more space about the stove.

In operating my improvements, when the stove is only used for baking, boiling, or frying, the fire-box may be maintained in the form shown in Fig. 2, wherein the front plate F and damper G are both in an erect position, and the burning fuel is confined in a close, contracted area. To extend the radiating surface of the fuel, the front plate F is turned down, as shown in Fig. 3, which allows the burning fuel to fall forward sufficiently far into the projection c^1 to have its rays of light and heat to pass without interception through the mica windows of the door D, thereby creating a high degree of illumination and radiant heat. When required for broiling, the door D is raised and held by the damper G, as hereinbefore described. The gridiron L is then slid into the grooves c^2, as shown in Fig. 3, whereby it is held securely, and, from its close proximity to the fire, the broiling is accomplished in much less time than when the operation is performed over the opened boiler-holes, and the smoke and odors arising therefrom are carried off through the escape-pipe of the stove, and in this way the broiling is effected in a very expeditious and cleanly manner.

The front plate F can be restored to its vertical position at any time, when the gridiron is removed, by the application of a slight amount of force to its projecting trunnion.

It will readily be seen that this improvement in the construction of fire-boxes can be easily adapted to use in heating-stoves having open fire-places, so as to produce an extended fire-surface for the radiation of heat and light.

My invention embraces the construction of fire-boxes in which the front or rear plates, or both of them, are permanently fixed in an inclined position to the horizontal grate, for the purpose of greatly increasing the area of the upper surface of the burning fuel in its relation to the area of the grate-surface, for the purposes herein set forth.

I claim as my invention—

1. In a cooking or heating stove provided with a permanent projection, c^1, of the front plate C, a fire-box having an adjustable front plate, F, for extending the upper surface of

the burning fuel into said projection within the exterior casing of the stove, and beyond the area of the grate E, for the purposes of broiling, radiation, or illumination, in the manner herein specified.

2. The permanent projection c^1 of the front plate C, in combination with the inclined front plate F of the fire-box extending thereinto, as and for the purpose herein specified.

3. The combination, with the projection c^1 of the front plate C, having the grooves c^2, of the end pieces e^2, having the shoulders e^3, as and for the purpose herein specified.

4. The combination of the adjustable front plate F with the damper G, as and for the purpose herein specified.

5. The damper G and door D, combined and arranged to co-operate in the manner and for the purpose herein specified.

6. The combination, with the projection c^1 of the front plate C, provided with the means, substantially as herein described, for holding the gridiron L, of the hearth-plate K, arranged in relation to the gridiron in the manner and for the purpose herein specified.

CHARLES A. HAMLIN.

Witnesses:
E. J. BENNETT,
WILLIAM H. LOW.