

C. A. HAMLIN.
Stove.

No. 205,743.

Patented July 9, 1878.

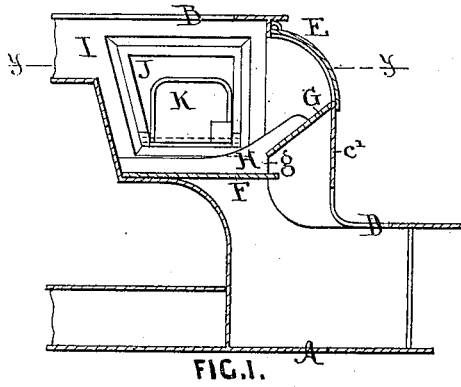


FIG. 1.

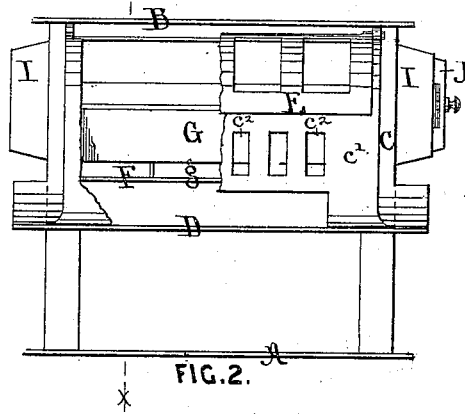


FIG. 2.

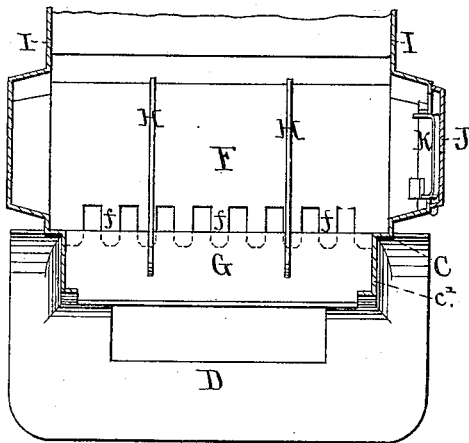


FIG. 3.

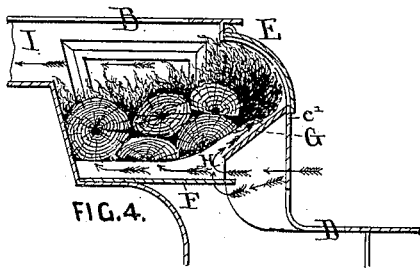


FIG. 4.

Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES A. HAMLIN, OF GREENBUSH, ASSIGNOR TO THE RANSOM STOVE WORKS, OF ALBANY, NEW YORK.

IMPROVEMENT IN STOVES.

Specification forming part of Letters Patent No. **205,743**, dated July 9, 1878; application filed March 26, 1878.

To all whom it may concern:

Be it known that I, CHARLES A. HAMLIN, of Greenbush, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements on Cooking and Heating Stoves, of which the following is a full and exact description.

My invention relates to stoves and other apparatus in which wood is used for fuel; and it consists in constructing the fire-box with an opening near the central line of the plane of the fuel-chamber and fuel-supports, forming air-passages therein, as herein shown and described, so that the air for supporting combustion will be admitted to the fire at or near the central line thereof for intensifying the combustion, as herein set forth.

The object of my invention is to increase the effectiveness of the combustion of a wood-fire in producing heat and illumination.

In the accompanying drawings, which illustrate the fire-box portion of a cooking-stove, Figure 1 is a vertical section at the line *x x*; Fig. 2, a front elevation, with a portion of the front plate broken away to show the internal parts of the fire-box; Fig. 3, a horizontal section at the line *y y*; and Fig. 4, a vertical section of the fire-box, showing the burning fuel.

As shown in the drawings, A is the bottom, and B the top, plate of a cooking-stove; C, the front plate, which, for the purpose of increasing the capacity of the fire-box, is provided with the projection *c'*, extending from or near the top plate B down to the hearth D. This projection is provided with a door, E, in which mica lights are placed, for the purpose of illumination. It is also furnished with openings *c''*, for the admission of air for supporting combustion, and which may be governed by the dampers or registers commonly used for that purpose.

F is the bottom plate of the fire-box, the solid portion of which forms a dead-plate for receiving the ashes from the burned fuel, while the grated bars *f* on its front edge serve, in keeping a clear space free from ashes, for the admission of air through the opening herein-after described.

G is an inclined plate extending backward and downward from the front plate C, over-

lapping the front edge of the bottom plate F of the fire-box, and so arranged in relation to said bottom plate that an opening, *g*, will be formed by the vertical space between them for the admission of air into the fire-box at or near the central line of the fire, such central line being considered as lying about midway between the front and back of the fire-box, and extending lengthwise therein. Strips or bars H, extending across the bottom plate F, and thence over or partially over the inclined plate G, sustain the fuel clear from these plates. By adapting the inclined plate G to receive a portion of the burning fuel, as shown in Fig. 4, the capacity of the fire-box is largely increased, and the fuel is so distributed that the opening *g* is at the central line of the fire, or contiguous thereto.

After the fire is started the spaces between the strips H on the solid portion of the plate F become filled with ashes, which form a non-conducting bed to prevent the excessive radiation of heat into the oven at this point. This accumulation of ashes also prevents the circulation of air through the said spaces, from which cause the greater portion of the air that enters the fire-box through the opening *g* is forced to pass forward through the inclined channel-ways formed by the strips H on the plate G. In passing through these channel-ways the air becomes so highly rarefied by the heat that its velocity is so increased that it greatly intensifies the process of combustion of the fuel lying over and in front of the opening *g*. The fuel lying back of said opening, by reason of its receiving only a small portion of the air entering the fire-box, (its passage being impeded by the body of fuel through which it is obliged to pass,) burns more moderately. The rapid passage of the air through the channel-ways over the plate G intensifies the combustion, as above described, and the inclination of the channel-ways gives direction to the currents of flame, carrying them forward and causing them to impinge against the mica lights with sufficient violence to consume any sooty substance deposited thereon during any sluggish condition of the fire. In this way the mica is kept in a cleanly condition for the transmission of the light from the fire.

The heat reverberating from the extreme front of the fire-box is carried back in contact with the top of the stove, thereby creating an increased effect at that part.

The course pursued by the flames at the front part of the fire-box is shown in Fig. 4. The inclination of the channel-ways on plate G prevents an accumulation of ashes therein to impede the free circulation of air through them.

As the inclined plate G, from the effect of the superincumbent fire, becomes heated the radiant heat is absorbed by the air-currents passing into the opening e^2 , thereby virtually creating a hot blast for supporting combustion, while protecting the plate from the destructive effect of the heat.

In one of the side plates I of the stove an opening is made for introducing the fuel to the fire-box. This opening is provided with a door, J, hinged to the side plate in the usual manner.

A portion of the front plate C, beneath the plate G, may be omitted, so as to leave a part or the whole of the under side of the plate G exposed to the external atmosphere, and with a dampered opening in front of the opening g a modified effect of my invention will be produced; and, while I preferably construct my invention as herein shown and described, such a modification is included in its scope.

Another modification of my invention con-

sists in placing the plate G in a horizontal position in front and above the plane of the plate F, so as to form the opening g , and, while I prefer to fix it in an inclined position, my invention embraces such an arrangement.

I am aware that the fire-boxes of stoves have heretofore been constructed with openings for admitting air at or near the central line of the fire, and I do not broadly claim such a construction; but

I claim as my invention—

1. The air-opening g , formed at or near the central line of the fire by the plates F and G, provided with strips H, for sustaining the fuel during combustion, as and for the purpose herein specified.

2. The inclined plate G, provided with strips H, for forming channel-ways beneath the fuel on said plate, whereby the air admitted into the fire-box through the opening g is directed upward and forward, so as to force the flame from the burning fuel to the front of the fire-box in such manner that it will reverberate against the top of the stove, as herein set forth.

3. The combination of the plates F and G and the strips H, as and for the purpose herein specified.

CHARLES A. HAMLIN.

Witnesses:

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C. J. MATTISON.