

(No Model.)

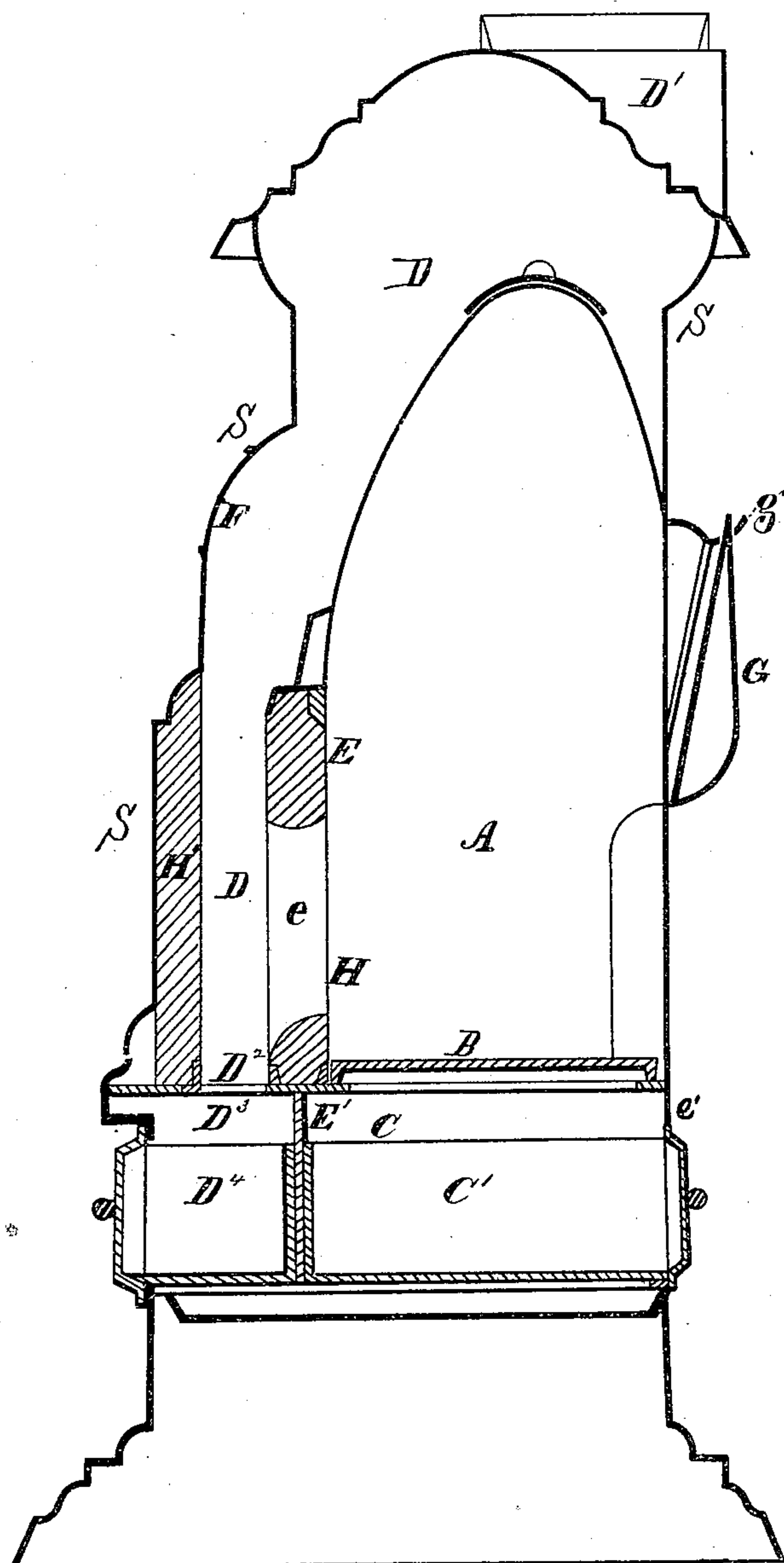
2 Sheets—Sheet 1.

G. W. HERRICK.

HEATING STOVE.

No. 248,650.

*Fig. 1.* Patented Oct. 25, 1881.



WITNESSES.

*Samuel C. Thomas,*  
*Henry S. Quetch*

*George W. Herrick* INVENTOR.  
*By W. W. Leggett,*

ATTORNEY.

(No Model.)

2 Sheets—Sheet 2.

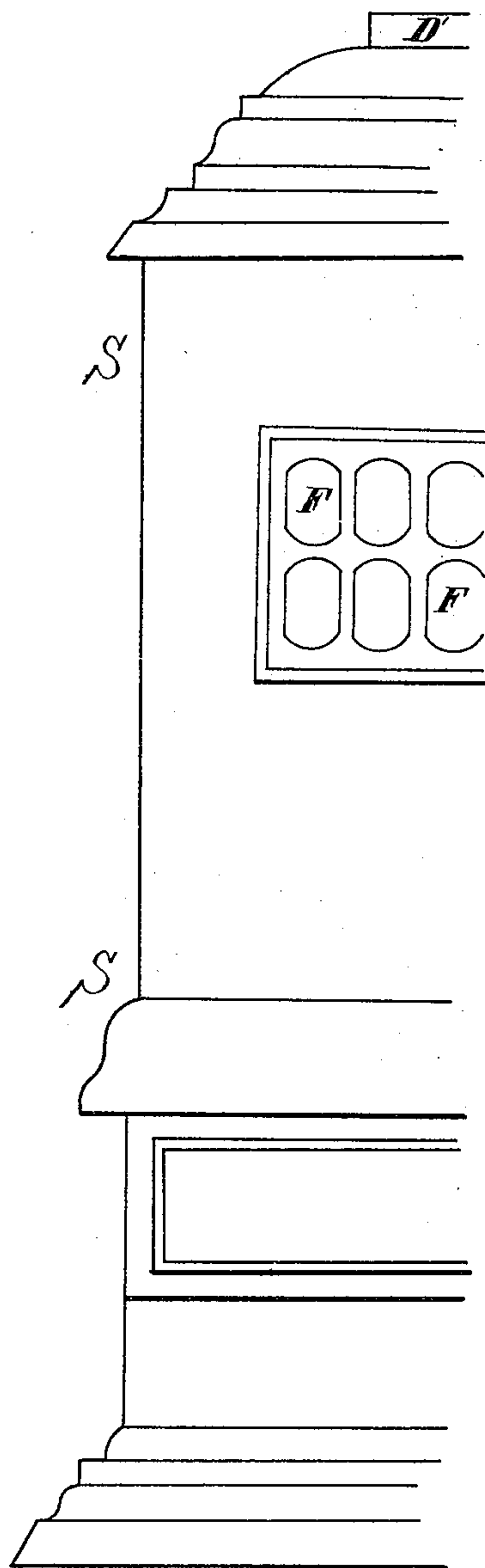
G. W. HERRICK.

HEATING STOVE.

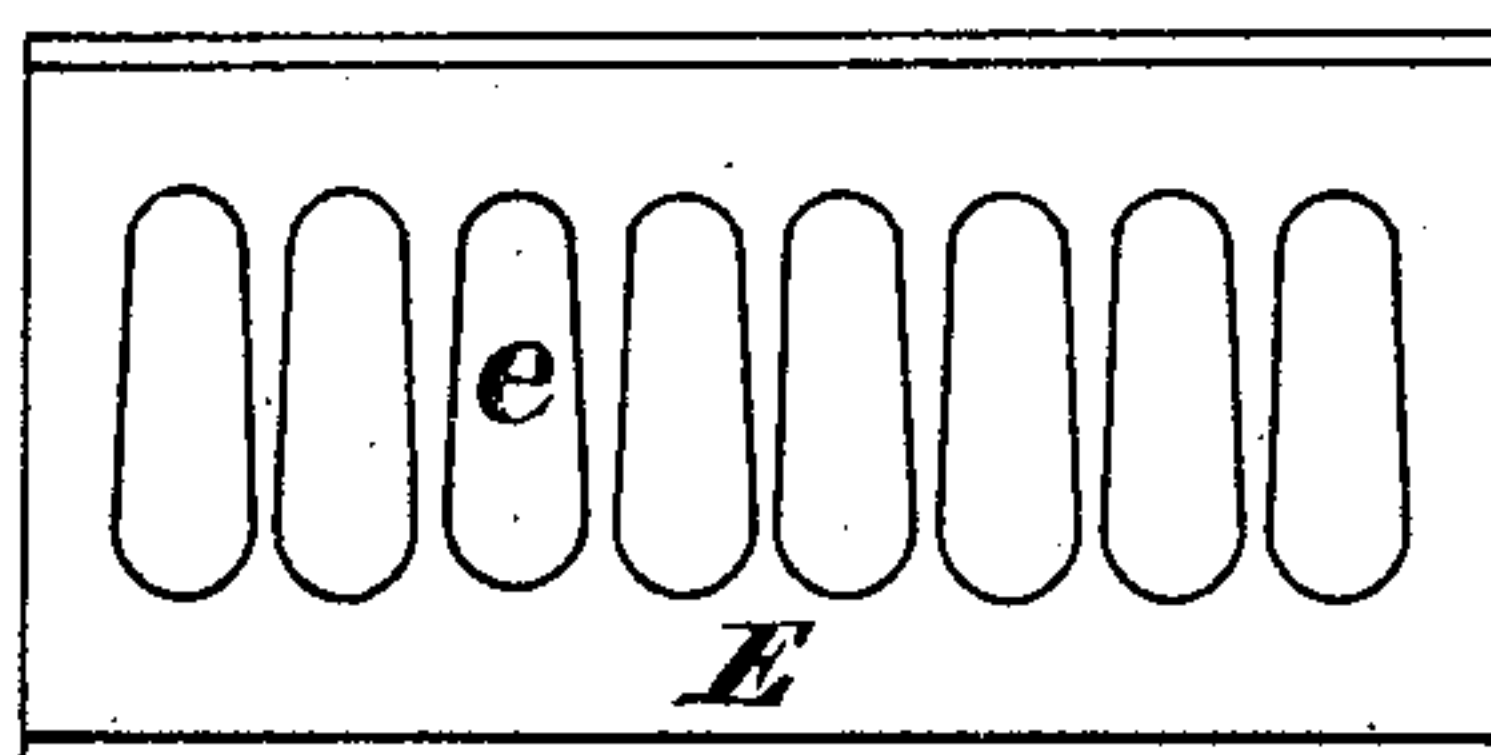
No. 248,650.

Patented Oct. 25, 1881.

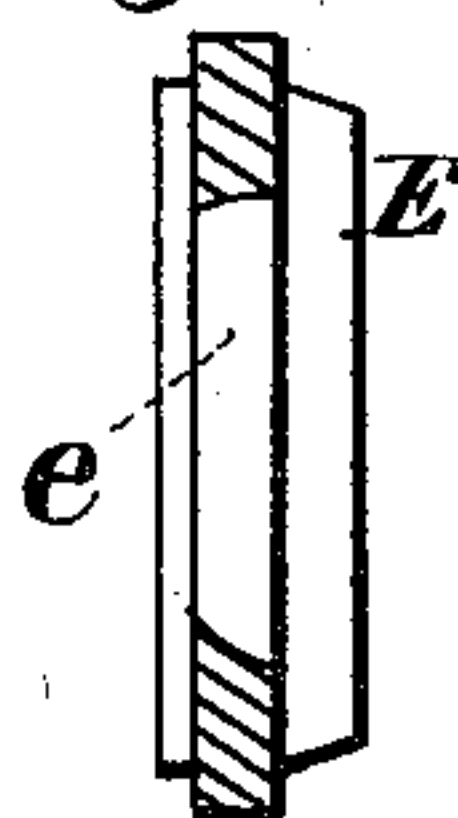
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



WITNESSES.

*Samuel E. Thomas*  
*Henry P. Zuehl*

*George W. Herrick* INVENTOR.  
*By W. W. Leggett*  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

GEORGE W. HERRICK, OF DETROIT, MICHIGAN.

## HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 248,650, dated October 25, 1881.

Application filed July 12, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. HERRICK, of Detroit, county of Wayne, State of Michigan, have invented a new and useful Improvement in Heating-Stoves; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings; which form a part of this specification.

My invention consists, essentially, in making a heating-stove with an inner chamber for containing fuel, having at its base a grate or fuel-bed, and adjacent thereto, and extending from about the grate-level upward and communicating with the pipe or chimney, a combustion chamber or flue separated from the fuel-chamber by a division-wall having slots or openings through that portion which extends from a point a few inches above the grate upward to a point near the level of the upper surface of the fuel, said combustion-chamber being open at its bottom or lower end, and its wall constituting the main outer shell of the stove, and the construction being such that, the fuel being confined wholly within its chamber, air is admitted to the top of the fuel, and by the draft is caused to dive down through the fuel and out through the openings into the combustion chamber or flue, causing the gaseous combustible matter to burn strongly within the said flue or chamber.

My invention consists, further, in other minor features of construction.

In the drawings, Figure 1 is a central vertical section from front to rear. Fig. 2 is a front view on the side of the combustion-chamber. Fig. 3 is a separate view of the grated partition-wall. Fig. 4 is a section of the said grated partition-wall.

The letter S designates the main outer shell of the stove.

A is the fuel-chamber; B, its grate or fuel-bed; C, its ash-pit; C', the ash-pan for removing ashes.

D is the combustion flue or chamber; D', the pipe or chimney; D<sup>2</sup>, a grate at the base of the combustion-chamber; D<sup>3</sup>, an ash-pit, and D<sup>4</sup> an ash-pan.

E is a partition-wall, closing off the fuel-chamber from the combustion-flue, and an ex-

tension, E', separates the two ash-pits. The partition-wall E is provided with slots or perforations e. This perforated zone begins at a point preferably four to six inches above the grate-level and extends up to near the level of the top of the fuel. If desired, a damper may be located at e', so that the fire may be started by direct draft, if preferred. This damper, however, may be dispensed with.

F are mica windows, by which a brilliant illumination may be effected, and these windows extend over a greater or less portion of the wall of the flue or combustion chamber D.

G is a door, through which fuel is admitted, although, if desired, a fuel-magazine may be provided, in the usual manner. The door G may have an air-register in its face for governing the supply of air to the fuel, and it may or may not be provided with a wire screen back of the register, distributing the air that enters, and to break up, in a measure, any tendency to particular lines of draft.

The operation of the device is as follows: The fire having been kindled in the fuel-chamber A and well started, either by direct or by descending draft, coal is filled in until it rests nearly up to the top of the perforations or slots e. A portion of the air entering above the fuel then dives down through the fuel, mixes with the products of combustion, and passes with them, through the slots or perforations e, into the combustion-flue, where they burn with an intense heat, and the fierceness of the flame will depend on the amount of air admitted through the door G. So, also, there will be a blue hot flame or a white and brilliant flame, according as the supply of air is graded to effect entire or partial combustion. By means of the mica windows a pleasing illumination is produced and no dead fuel or ashes are visible at any time, but only the flame due to the burning of the gaseous matter in the combustion-flue. The grate beneath the fuel serves to keep it free of ashes, yet admits no draft through it. Clinker cannot therefore collect upon it in such a way as to impede the proper draft. The grate at the base of the combustion-flue permits the ashes and dust which may be carried by the draft through the perforations or slots e to fall below into the dust-pan. If desired, no grate need be used at this point; but the space may be left entirely free. The object in terminat-



ing the lower ends of the slots or perforations *e* at a distance of several inches above the grate-level is to prevent burning from the surface of the grate, and thereby prevent the  
5 otherwise rapid destruction of the grate-bars.

I prefer to make the openings *e* in the form of elongated slots, as shown, diminishing in size at the top, so that they shall afford free draft along the body of the fuel, but will check  
10 it more or less near the surface. I prefer, also, that the slots in use shall extend a little above the fuel, so that a portion of air may pass directly through and supply, first, oxygen to the gaseous products in the flue D at this point,  
15 and insure a perfect combustion and steady flame.

It will be observed that this stove differs essentially from others, in the fact that the fuel is all confined to one chamber and nothing but  
20 inflammable gases enters the other chamber.

When it is desired to produce a very strong fire the coal may be filled in until it extends above the perforations or slots *e*, in which event all the air must pass through the fuel, thus  
25 creating a more effective draft.

H H' represent fire-brick for the protection of the stove-surfaces.

This device is not confined to a heating-stove alone, but is equally well adapted for any  
30 kind of stove whether for heating or cooking, and may be applied also to furnaces, such uses simply requiring the usual changes which adapt the device for use under these different conditions. The application to a heating-stove or par-  
35 lor-stove which is shown in the drawings is only one of many, and adapted for the purpose of illustrating the invention, and not as limiting

the same. It will be understood, therefore, that the term "heating-stove" in the specification and claims is meant to comprehend 40 such stoves, whether heating-stoves, heating-furnaces, or cooking-stoves, &c.

What I claim is—

1. The stove herein described, consisting, essentially, of the main outer shell, S, and the 45 inner fuel-chamber, A, having the wall E, provided with the slots *e*, and the combustion-chamber D, having its bottom or lower end open, and its lower portion above said bottom in communication with the fuel-chamber through 50 said slots, substantially as set forth.

2. In a stove, the combustion chamber or flue D, inclosed by a main outer shell and opening at its bottom into an ash-pit, and the fuel-chamber A, inclosed, also, by said outer shell, 55 and separated from the combustion chamber or flue by means of a slotted wall, E, and the ash-pit arranged below the grate of said fuel-chamber, and separated from the ash-pit of said combustion-chamber, substantially as de- 60 scribed.

3. The stove having the main shell S, provided with the protecting fire-brick wall H', the inner fuel-chamber having the slotted wall E, and the combustion chamber or flue D, 65 which is open at its bottom or lower end, and the lower portion of which lies between the said walls H' and E, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

GEORGE W. HERRICK.

Witnesses:

WILLIAM H. SEXTON,  
GEORGE H. BARBOUR.