

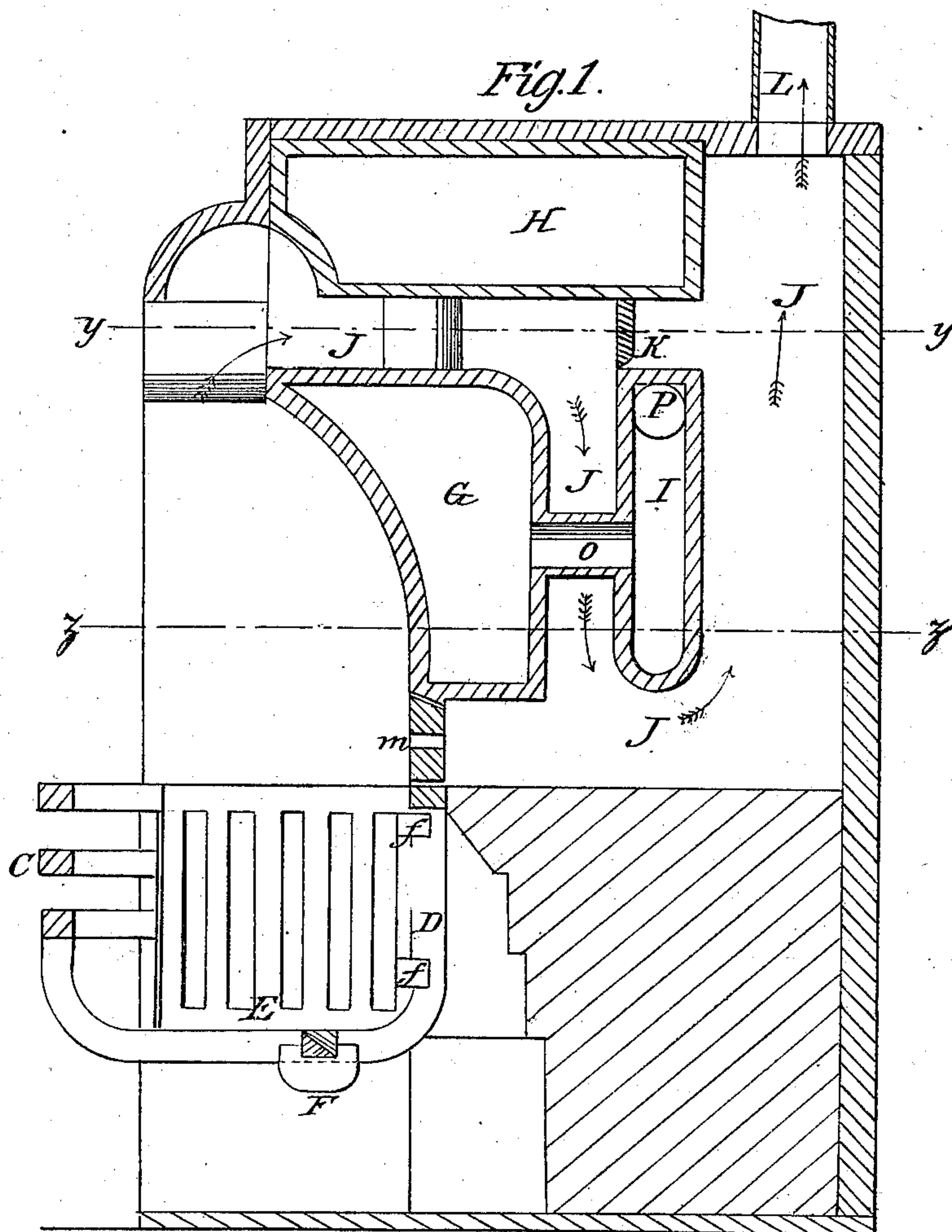
G. H. McELEVY.

2 Sheets--Sheet 1.

Fire Place.

No. 81,389.

Patented Aug. 25, 1868.



Witnesses.  
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Wm. A. Morgan.

Inventor.  
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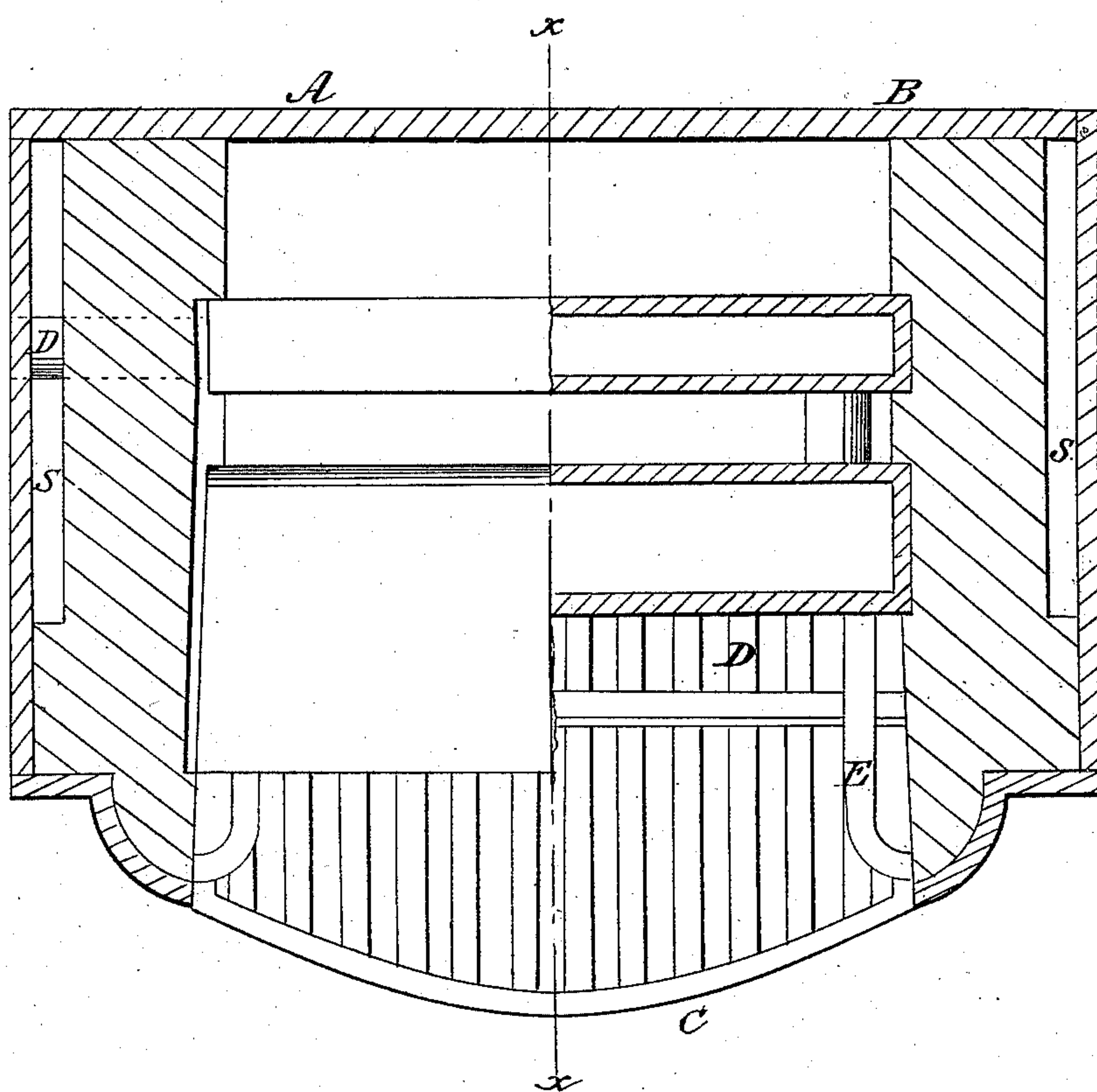
2 Sheets—Sheet 2.

Fire Place.

No. 81,389.

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Fig. 2.



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# United States Patent Office.

G. H. McELEVY, OF NEWCASTLE, PENNSYLVANIA.

*Letters Patent No. 81,389, dated August 25, 1868.*

## IMPROVEMENT IN FIREPLACES.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, G. H. McELEVY, of Newcastle, in the county of Lawrence, and State of Pennsylvania, have invented a new and useful Improvement in Fire-Grate; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The object of this invention is to so construct and arrange a fire-grate, and the plates and fixtures connected therewith, that the fuel shall receive a supply of oxygen from the back and ends, as well as from the front and under side of the grate, and so that the heat generated shall be utilized instead of being passed directly to the chimney from the throat of the grate, as is ordinarily done.

And the invention consists in the construction and arrangement of the grate, and in connecting air-heating chambers therewith, whereby a current of air is heated and discharged into the apartment, or conducted to any part of the house, for heating purposes, as will hereinafter be more fully described.

Figure 1 represents a sectional elevation of the arrangement, through the line *x x*, of fig. 2.

Figure 2, sheet 2, represents two semi-sections, A and B.

A is through the line *y y*, and B is through the line *z z*, of fig. 1.

Similar letters of reference indicate corresponding parts.

C represents the front of the grate, and

D the back.

The back is an open grate, as are also the ends E, so that the air has free access to the fuel on all sides, producing thereby a much clearer fire and a much more perfect combustion than can be obtained in the ordinary grate.

The grate (back and front) is supported by lugs or hooks on the jambs, as seen at F, and by other lugs on the jamb, not seen in the drawing, over which the front part hooks.

The end-pieces of the grate lock on to the outside bars of the back grate, as seen at *ff*, fig. 1.

G, H, and I are chambers for heating air.

J represents the flue through which the smoke and products of combustion pass on their way to the chimney.

K is a pivot-damper, operated from the outside, for regulating the draught.

By opening this damper it will be seen that the draught to the chimney-flue L will be direct.

*m* is a lift-door, used to close an aperture for cleaning the fire-flue of ashes.

This aperture may also be used for diverting and altering the direction of the draught, if desired.

The air-heating chambers have an inlet-tube for admitting fresh air, either from the apartment where the grate is located, or from the outside.

The chambers G and I are so arranged that they are nearly surrounded by the heated products of combustion, and the chamber H is exposed to the heated current of gases on two sides, against the bottom of which the current impinges.

In passing around and in contact with these chambers, nearly all the heat is abstracted, or absorbed and utilized.

The air is first admitted into the chamber I through the pipe P, from whence it passes into the chamber G through the tube *o*.

From the chamber G it passes upward into the chamber H, from whence it is taken into the apartment or room in a heated state.

The chamber H forms a close cover over the vertical fire-flue, and forces the smoke and escaping products of combustion over and around the other chambers, as seen in the drawing.

As represented in the drawing, the grate is formed of four parts or pieces, but it may be cast in one single piece, if desired.

S S, fig. 2, represent ash-flues.

The course of the smoke and products of combustion is indicated by the arrows.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent—

1. The described arrangement of the air-heating chambers G H I and their connecting-flues, the supply-flue P, the fire and smoke-flue J, and the exposed grate E, as herein described for the purpose specified.
2. The arrangement of the slide-damper *m* and damper K with relation to the air-heating flues, G, H, and I, whereby the products of combustion are either directed to the flue J, between the chamber G and fire-grate, or over the chamber G, between the same and the chamber H, or over the chamber I, or over the chamber G, and downward around the chamber I, as herein described for the purpose specified.

Witnesses:

G. H. McELEVY.

E. I. AGNEW,

M. J. JACK.