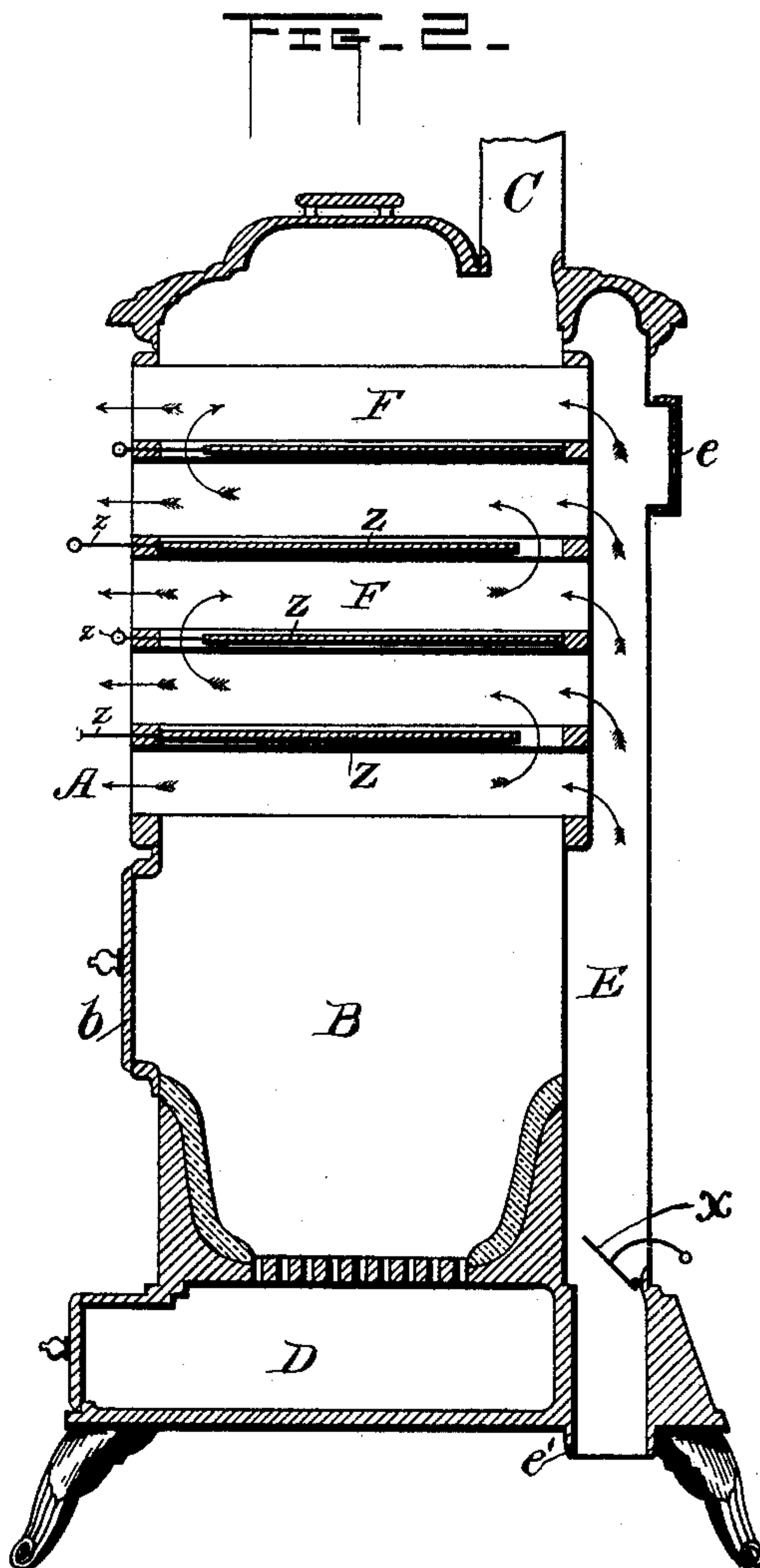
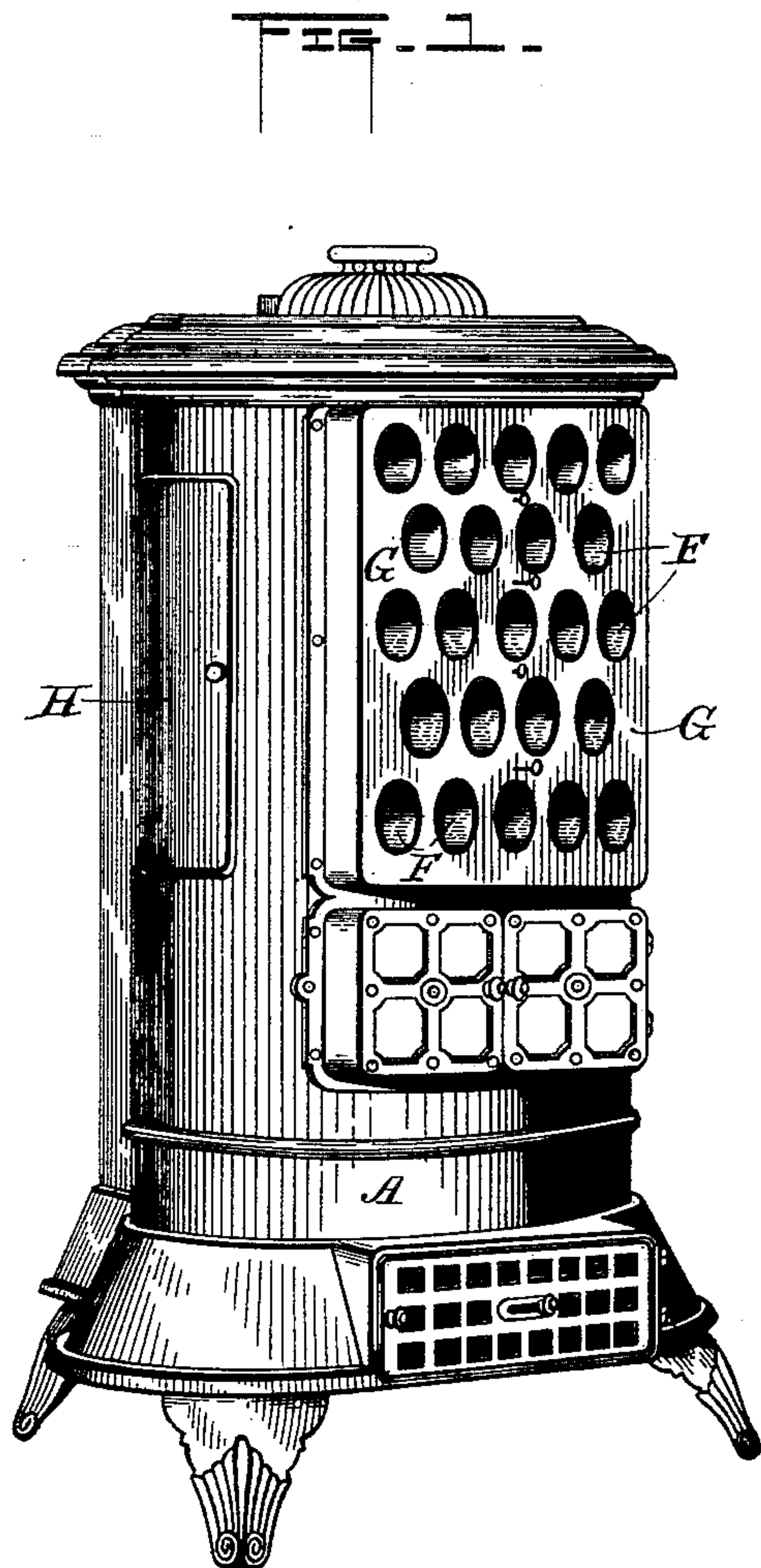


(No Model.)

E. W. RIDER.
HEATING STOVE.

No. 406,955.

Patented July 16, 1889.



WITNESSES:
Everance
L. F. Whiting.

INVENTOR:
Ebenezer W. Rider,
By *L. Deane.*
his Attorney.

UNITED STATES PATENT OFFICE.

EBENEZER W. RIDER, OF RACINE, WISCONSIN.

HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 406,955, dated July 16, 1889.

Application filed June 30, 1888. Serial No. 278,636. (No model.)

To all whom it may concern:

Be it known that I, EBENEZER W. RIDER, a citizen of the United States, residing at Racine, in the county of Racine and State of Wisconsin, have invented certain new and useful Improvements in Heating-Stoves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Figure 1 is a perspective view of this device. Fig. 2 is a vertical central section of the same.

This invention belongs to that class of devices known as heating-stoves; and the novelty consists in the construction of the several parts and their combination as a whole, as will be hereinafter more fully described, and pointed out in the claims. While many attempts have heretofore been made to provide pipes open at one or both ends and passing into or through the fire-box or the chamber of combustion contiguous thereto or the flues by which the volatile products of combustion escaped, there have been so many objections either to the cost of construction or the difficulty of keeping in repair or of cleaning them, so as to fully radiate or properly conduct the heat, that this class of devices has not, so far as I am informed, come into any general use. My aim therefore in the present instance is to construct a stove that not only shall be simple in structure and of reasonable cost, but also one in which ready access shall be had to the pipes at all times for cleaning their exteriors or to replace or repair any of them.

This stove A, except as modified by the points of novelty to be hereinafter claimed, may be any usual or ordinary kind of heating-stove. The fire box or chamber is designated by B, the front door entering into said chamber by b, the escape-pipe by C, and the ash-pan by D. At the end of this stove is a broad vertical air-flue E, extending from the lower plate, where it is open to the top, where it is closed. The horizontal air-pipes F, open at both ends, extend from the front of the stove to the rear flue E, so that there is a continuous passage for the air from the bottom

of flue E and out through said pipes. These pipes are located over the fire-chamber B and directly in the space between it and the stove-top, and arranged, as clearly shown in the drawings, at right angles with said rear air-flue. Thus, while these pipes are exposed to almost the intensest degree of heat in the fire-chamber, they are not so located as to be easily damaged thereby. Thus they will in the use of the stove become intensely heated and adapted to carry the greatest quantity of heat into the room.

The front ends of the pipes F are secured in the plate G, which is detachably fastened in any desirable way upon the outside of the stove-body. The connection of these pipes at the rear, where they communicate with the flue E, is detachable, and by this structure the plate G and the pipes which are fixed to it can be at any time readily removed from the stove (as for repairing or renewing the pipes) by removing the screws or rivets that form the connection of said plate with the stove; also by this construction, at any time it is desired, any of said pipes F can be easily reached by merely detaching and removing the plate G, whereby all the pipes are exposed for repair or for being replaced. When the stove is in use, or after it has been used, by means of the door H in the sides of the stove and opening into the space above the fire-chamber, in which the pipes F are located, access may be had to these pipes for cleaning their outsides, and thus keeping them in good order for being readily and most effectively heated; also, through this door the dirt or ashes can be cleared off the plates Z, and thus they can always be kept in good working order. These plates Z are located in the spaces between the horizontal air-pipes, and can be slid back and forth by means of the rod z, each of which extends through the outer wall of the stove and has a handle. These plates are of less width than the spaces, and by means of the rods can be arranged so as to provide a zigzag flow for the smoke, &c., as it moves from the fire-box to the exit-pipe, or be arranged to provide a direct exit for the volatile products of combustion.

The cap e on the side of the flue E, near its upper end, covers a flanged opening, to which

a pipe may be fitted when it is desired to carry the heat from the stove to an upper apartment or to another room. So also at the lower end of said flue the flange *e'* can be
5 used when desired to make a pipe-connection with the external air. At the lower end of the air-flue *E* is a damper *x*, for the purpose of regulating the inflow of air or cutting it off entirely.

10 The operation of this stove will be readily understood from the foregoing description. It will be also noted that provision is made for the most effective radiation or delivery into the room of all the heat generated by fire
15 in the stove.

Having now described my invention, what I consider new, and wish to secure by Letters Patent, is—

20 1. In a stove, as described, having a vertical air-flue at the rear, horizontal air-pipes detachably connected at their rear ends with said flue and open at the front ends, and the

plate *G*, said pipes being secured at this point to the said plate, whereby they can be easily attached to or removed from the stove for re- 25 pair.

2. In a stove, horizontal air-pipes *F*, located over the fire-chamber, and movable plates *Z* between the said flues and the rear vertical air-pipe *E*, provided with the damper *x*, and 30 communicating with said horizontal air-pipes, substantially as and for the purposes set forth.

3. In a stove, substantially as described, a series of open-ended air-pipes placed over or above the fire-chamber and combined with 35 movable plates located between said flues, whereby a direct or zigzag passage for the volatile products of combustion is afforded.

In testimony whereof I affix my signature in presence of two witnesses.

EBENEZER W. RIDER.

Witnesses:

JOHN W. KNIGHT,

ALBERT L. ANDERSON.