

W. BICKEL.
Heating Stove.

No. 36.639.

Patented Oct. 14, 1862.

FIG. 1

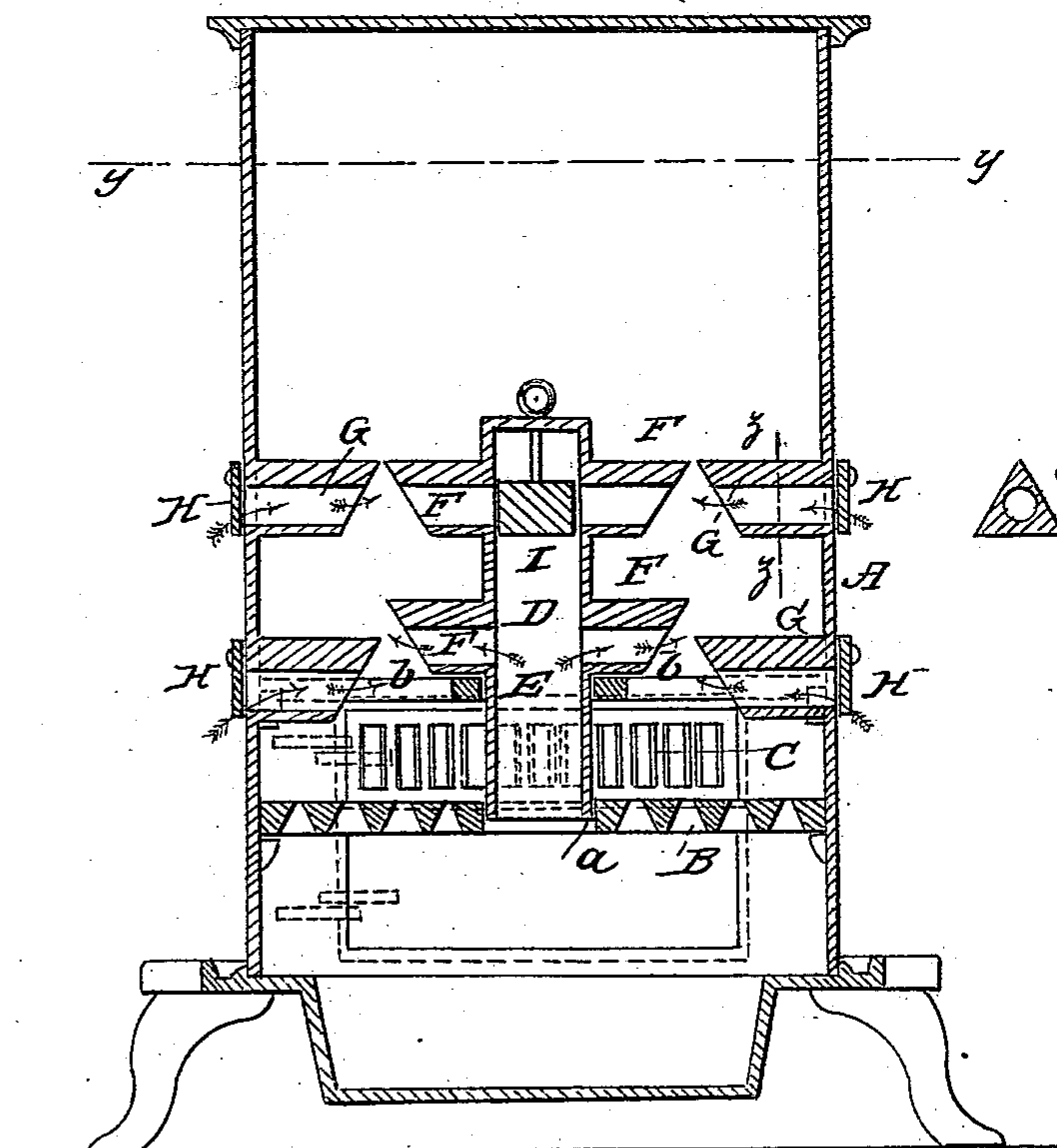
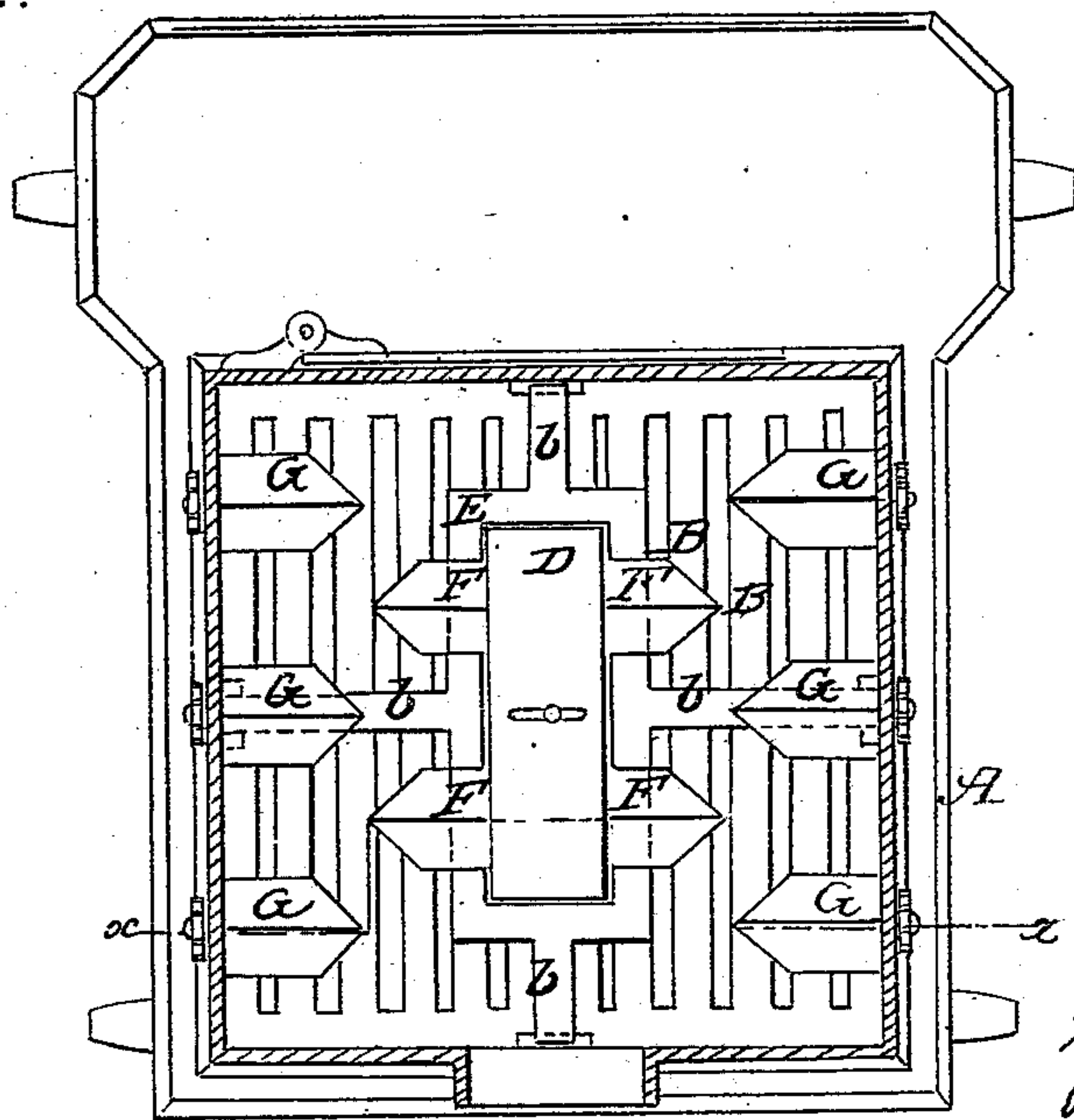


FIG. 2.



WITNESSES

Woburns
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UNITED STATES PATENT OFFICE.

WILLIAM BICKEL, OF POTTSVILLE, PENNSYLVANIA.

IMPROVEMENT IN STOVES.

Specification forming part of Letters Patent No. 36,639, dated October 14, 1862.

To all whom it may concern:

Be it known that I, WILLIAM BICKEL, of Pottsville, in the county of Schuylkill and State of Pennsylvania, have invented a new and useful Improvement in Fire-Boxes for Stoves and Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section of my invention, taken in the line $x x$, Fig. 2; Fig. 2, a horizontal section of the same, taken in the line $y y$, Fig. 1. Fig. 3 is a section of a portion of the same, taken in the line $z z$, Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to facilitate the burning of very fine coal in stoves and furnaces; and it consists in introducing air into the body of coal in the fire-box in such a manner as to insure a circulation of air through the entire mass and the perfect combustion of the whole.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it with reference to the drawings.

A represents the body or main portion of a stove, which may be of rectangular, cylindrical, or any proper form, and B is a grate which is fitted horizontally in the lower part of the body A. This grate is constructed of parallel bars of V form, in their transverse section, as shown in Fig. 1, and in the front of the body A there is placed an upright grate, C.

D represents a vertical chest or box, which may be of rectangular or other suitable form. The lower end of this chest is open and it passes through or into an opening, a , in the grate B, and is supported by a horizontal frame, E, which encompasses it and is attached to arms b , the ends of which are connected to the inner sides of the body A in any proper manner. The chest D extends upward as high as the coal, and it is provided with horizontal tubes F, which communicate with it and the interior of the fire-box or body A. The tubes F are of tri-lateral form in their transverse section, and their internal diameter is cylindrical, the tubes

being so placed or having such a position that an angle of two sides will be uppermost, as shown clearly in Fig. 3. The outer ends of these tubes have a slanting or an oblique position, the upper edges projecting considerably beyond the lower surfaces, as shown in Fig. 1. The chest D may be provided with any suitable number of these tubes.

G represents tubes, which are attached to the inner surfaces of the sides of the body A, and project horizontally inward.

The tubes G are constructed in precisely the same way as the tubes F, and the former communicate with the external air, and are provided at their outer ends with covers or slides H, by which the passage of air through them may be regulated as desired. The tubes F G are not in line with each other, those, G, of the body A being in line with the centers of the spaces between the others F of the chest D, as shown in Fig. 2.

In the upper part of the chest D there is placed a valve, I, which is simply a rectangular bar made to fit snugly within the chest. By lowering this bar or valve the upper tubes, F, of the chest may be cut off when required, as shown in Fig. 1.

From the above description it will be seen that air is admitted into the body or mass of coal within the fire-box, the air passing through the ash-box and up into the chest D, and out through the tubes F, and also passing through the tubes G into the fire-box. The inclined inner ends of the tubes F G prevent the coal from passing into the ends of the tubes and choking up the same. The arrangement is extremely simple and efficient, may be applied to either stoves or furnaces, and admits of very fine coal, even coal-dust, being burned with facility, as the air is admitted directly into the center of the same.

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

1. The employment or use of an air-chest, D, placed centrally in the fire-place, of a stove or furnace communicating with the ash-box thereof and provided with horizontal tubes F, in combination with tubes G, attached to the sides of the body of the stove or furnace and

communicating with the external air, substantially as and for the purpose herein set forth.

2. The valve I, placed within the air-chest D, and the covers or slides H, applied to the outer ends of the tubes G, for the purpose of regulating the admission of air into the fire-box, as specified.

3. The triangular form of the tubes F G, and the inclined ends when used, as and for the purpose herein set forth.

WM. BICKEL.

Witnesses:

MYER STROUSE,
I. WRIGHT.