

S. W. DIXON.
Fire-Place.

No. 202,419.

Patented April 16, 1878.

Fig. 1.

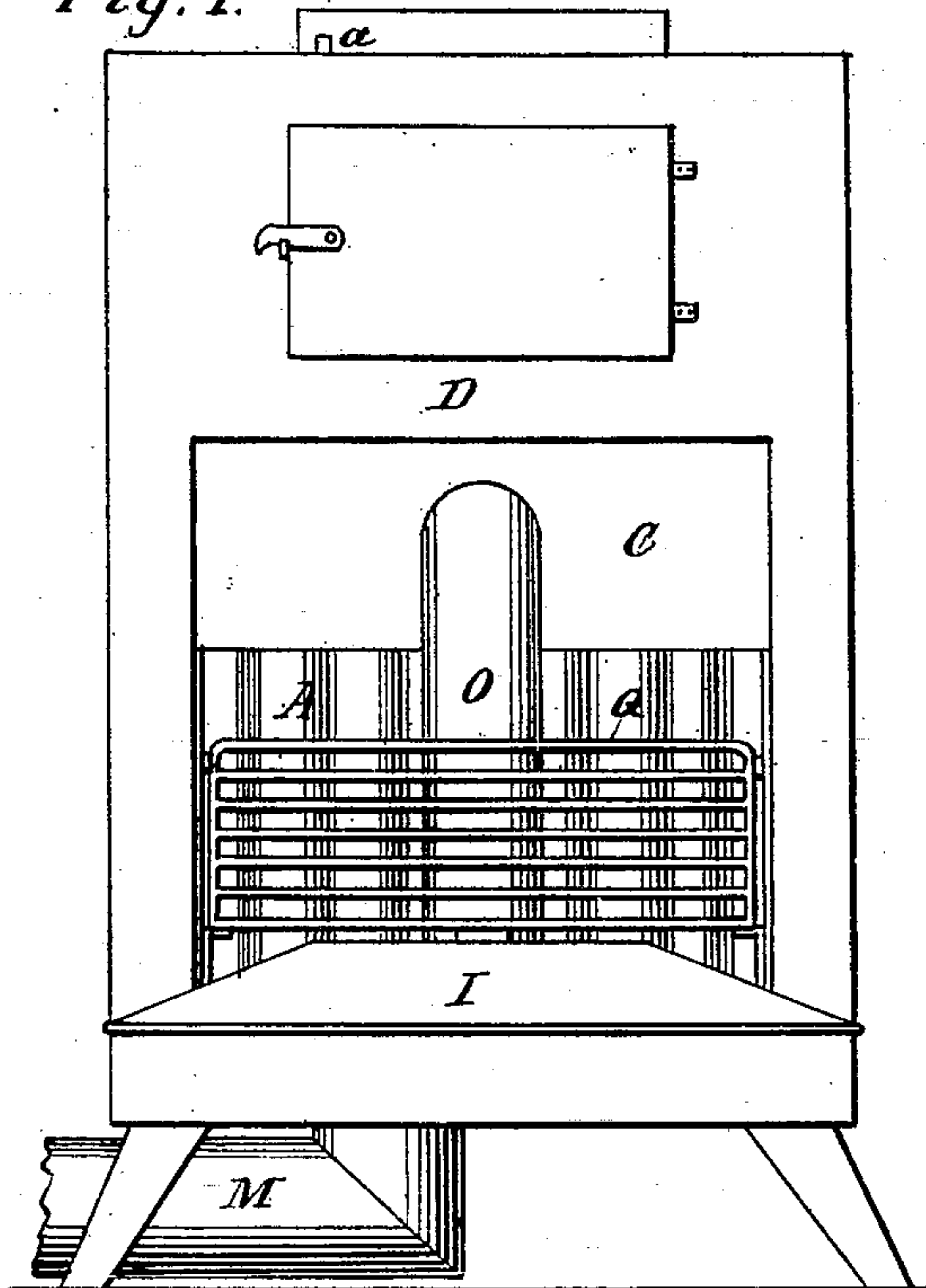


Fig. 2.

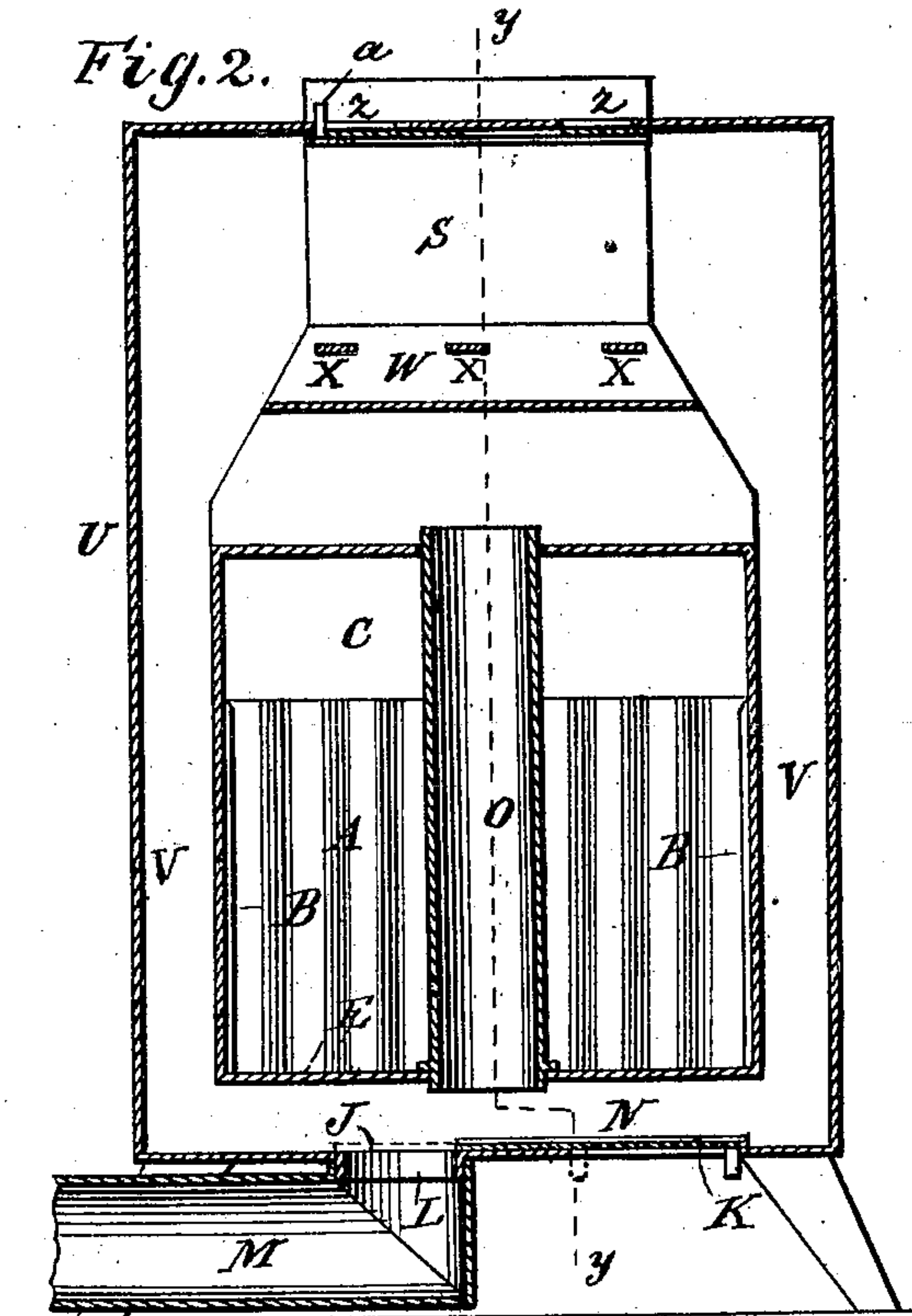


Fig. 3.

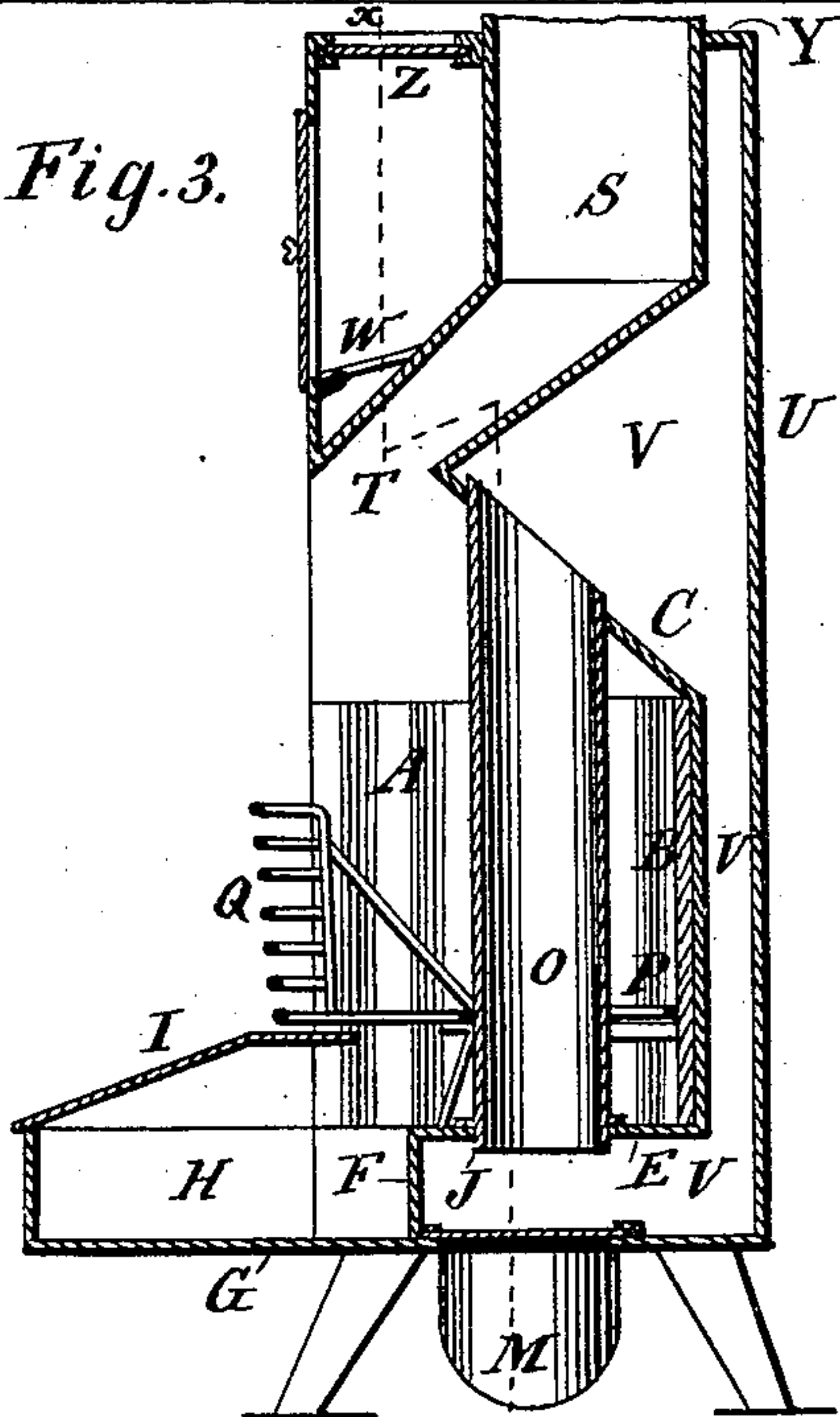
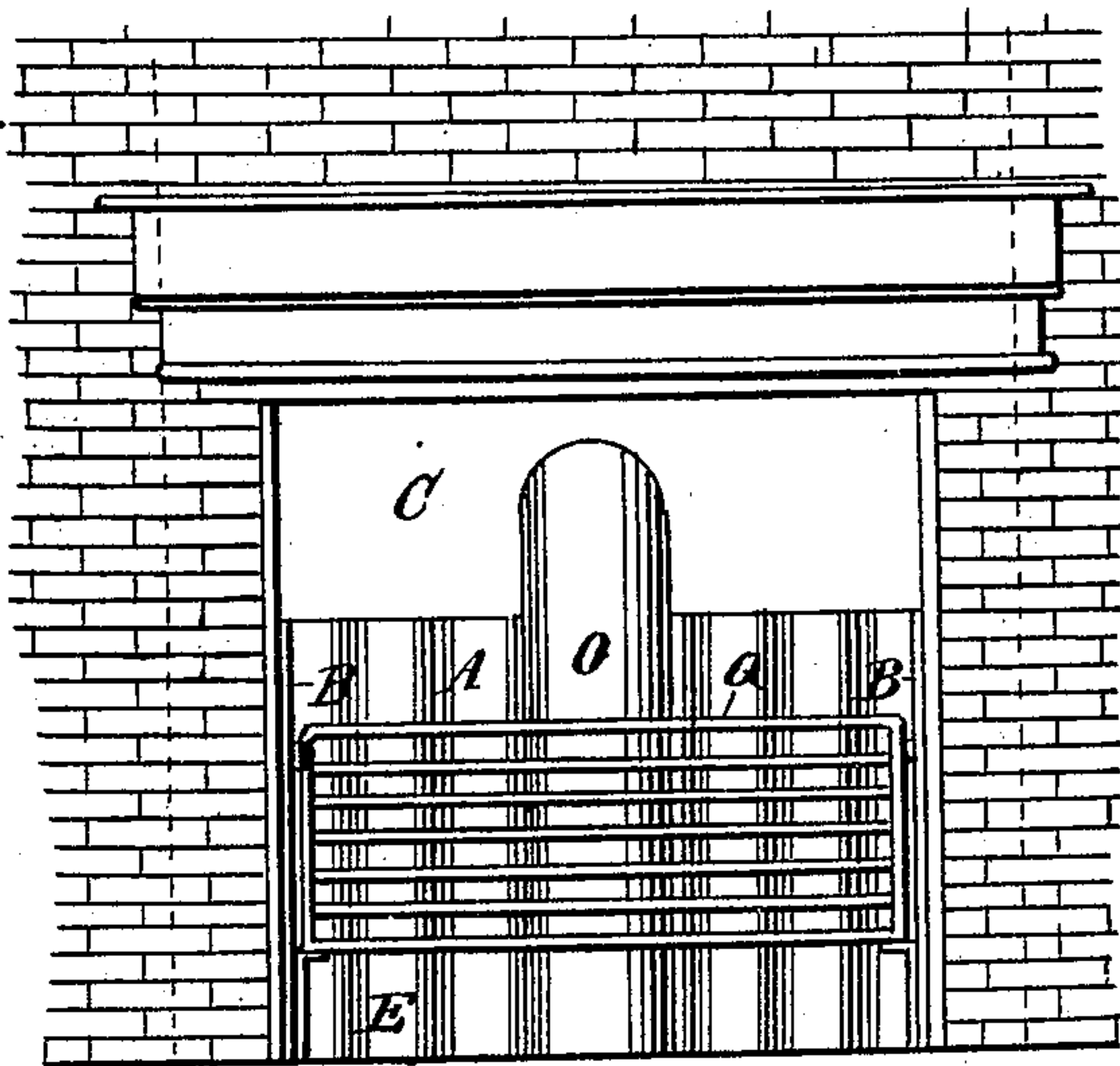


Fig. 4.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN FIRE-PLACES.

Specification forming part of Letters Patent No. **202,419**, dated April 16, 1878; application filed March 7, 1878.

To all whom it may concern:

Be it known that I, SAMUEL W. DIXON, of Findlay, in the county of Hancock and State of Ohio, have invented certain new and useful Improvements in Fire-Places; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a front elevation of the fire-place. Fig. 2 is a vertical sectional view taken through line *x x* in Fig. 3. Fig. 3 is a vertical sectional view taken through line *y y* in Fig. 2, and Fig. 4 shows the fire-place when located in the wall instead of being set out into the room.

It is a well-known fact that by the use of an open coal-grate a room cannot be thoroughly warmed, although it may be partially ventilated; further, that by the use of an incased heater, although a room may be very thoroughly warmed, yet, from lack of ventilation, the air necessarily becomes impure and unwholesome; and that, to be conducive to the health of the inmates, the room should have sufficient warmth and proper ventilation. To obviate these defects, and to obtain the results described, are the objects of this invention; and to these ends, it consists of a fire-place having an open grate and a hot-air chamber provided with a fresh-air communication, in combination with a removable cast-iron pipe, having a portion of the grate-bars cast therewith, said pipe being passed vertically through the fire-place proper near its center, in order that a portion near its lower end may be entirely surrounded by the incandescent coal in the grate, as will hereinafter be more fully described, and particularly pointed out in the claim.

In the accompanying drawing, similar letters of reference indicate like parts in the invention.

In this heating device the fire-place proper has the removable back and sides A B B, made of ribbed cast-iron, and the top C of Russia iron, inclining upward and forward to quite near the front D, which is also of cast-iron.

The bottom E of the fire-place proper, also of cast-iron, is elevated, and provided with a recess, F, which, together with the cast-iron bottom G, extending forward of the front D,

forms the ash-pit H, which latter is covered by the lid I, which serves as a fender. The cast-iron bottom G is provided with two holes, J and K, the opening J being provided with a collar, L, with which the cold-air pipe M is connected. A slide, N, is placed over the holes J and K, and is so constructed that when drawn to close one of the said holes it will leave the other open, and vice versa. A removable cast-iron pipe, O, leads from about the center of the bottom E of the fire-place proper through the center of the inclined top C of the same, so that in practice a portion of it near the bottom may be entirely surrounded by the incandescent coal in the grate.

The grate-bars P of the grate, directly in the rear of the removable pipe O, are cast with the latter. The balance of the grate Q is constructed in the ordinary manner, except that a recess is made to receive the removable pipe O, and the grate itself is removable. All the removable parts before described are made thus in order that they may be replaced when burned out or broken.

A large flue, S, leads from the space T near the front D upwardly, and is intended to be connected with the chimney-flue by a pipe properly constructed to fit said flue S.

An outer casing, U, of Russia iron surrounds the rear and sides of the fire-place proper to form a hot-air chamber, V. The front D and the casing U extend a sufficient distance above the top of the fire-place proper to form an oven, W, in the bottom of which are placed bars X, which do not interfere with the circulation of the hot air.

A door to the oven is placed in the front D. In the top Y of the casing U are made registers Z Z, governed by a slide, *a*, to permit them to be opened and closed at will.

This fire-place is provided with feet, and may be placed in any room where there is a chimney-flue.

On first building the fire the slide N should be drawn to close the hole J leading to the cold-air pipe M, which thus leaves the hole K open to draw the volume of cold air nearest the floor of the room into the hot-air chamber V, thence up through the pipe O, where it becomes highly heated in its passage, and discharged into the room. Another portion of

the cold air will escape through the fire-place proper, being drawn by the induced current over the grate and up into the chimney-flue. Thus it will be seen that in this fire-place there are two means provided for permitting the cold air to escape from the room, and that a room must necessarily be much more rapidly warmed by causing the cold air to leave the room and to be instantly replaced by hot air from the hot-air chamber through the registers Z Z than it could possibly be by the methods in ordinary use; but it frequently occurs that the air in a room becomes impure, and the volume of the same that is drawn through the hole K, heated and again discharged into the room is not so pure as if conducted from the outside of the house or room and treated similarly.

Such being the case, after the cold air has been expelled from the room in the manner before described, the slide N should be drawn to open the hole J, thus opening communication with the cold-air pipe M and supplying pure cold air to the pipe O, which, as it is surrounded by the incandescent coal in the grate, will quickly highly heat it; after which it will be discharged into the room.

When the air upon the outside of the house is very cold the rush of cold air through the pipe O will be so great that it cannot all be heated should the slide N be left entirely open; but by partially closing the opening between the pipes M and O, the admission of the air can be so regulated as to cause it to be thoroughly warmed before it is discharged into the room.

To heat the oven W it is only necessary to close the registers Z Z, when the hot air will be confined to the oven, and such a degree of heat will be obtained as will thoroughly cook or warm any article proper to be cooked or warmed in an oven. The casing U and the

oven W may be dispensed with, as in Fig. 4, when the fire-place is to be set into the wall and the hot-air chamber V is formed between the wall and the fire-place itself. The registers should then be made in the front of the wall. This, however, will be no departure from the invention, as it is immaterial whether the casing U be of Russia iron or other material, so long as the hot-air chamber V is produced.

When the fire-place is set into the wall the bottom E of the fire-place proper should be on a level with the hearth. The ash-pit, for convenience, may be then located in the cellar. In other respects the fire-place will be as hereinbefore described.

A system of hot-air flues may be connected with the fire-place, as is commonly done with furnaces, to heat adjoining rooms. The fire-place may be enlarged, and two removable pipes, O, may be employed without departure from the invention.

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

In a fire-place having an open grate and a hot-air chamber provided with a fresh-air communication, the removable cast-iron pipe O, having the grate-bars P cast therewith, said pipe O being passed vertically through the fire-place proper near its center, in order that a portion near its bottom may be entirely surrounded by the incandescent coal in the grate, substantially as and for the purpose set forth.

In testimony that I claim the foregoing improvements, as above described, I have hereunto set my hand and seal this 25th day of February, 1878.

SAMUEL W. DIXON. [L. S.]

Witnesses:

PARLEE C. TRITCH,
SCOTT W. PREBLE.