

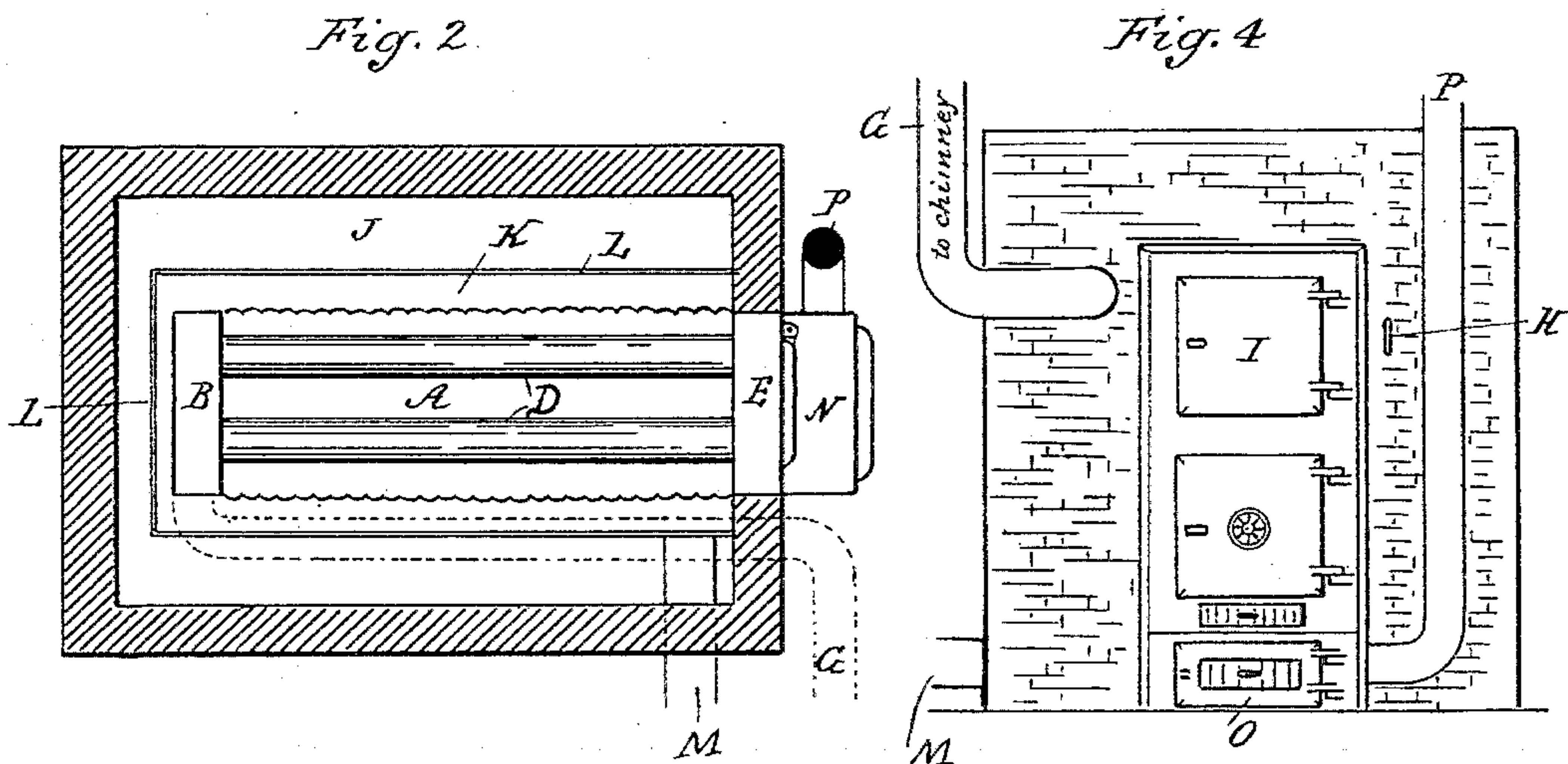
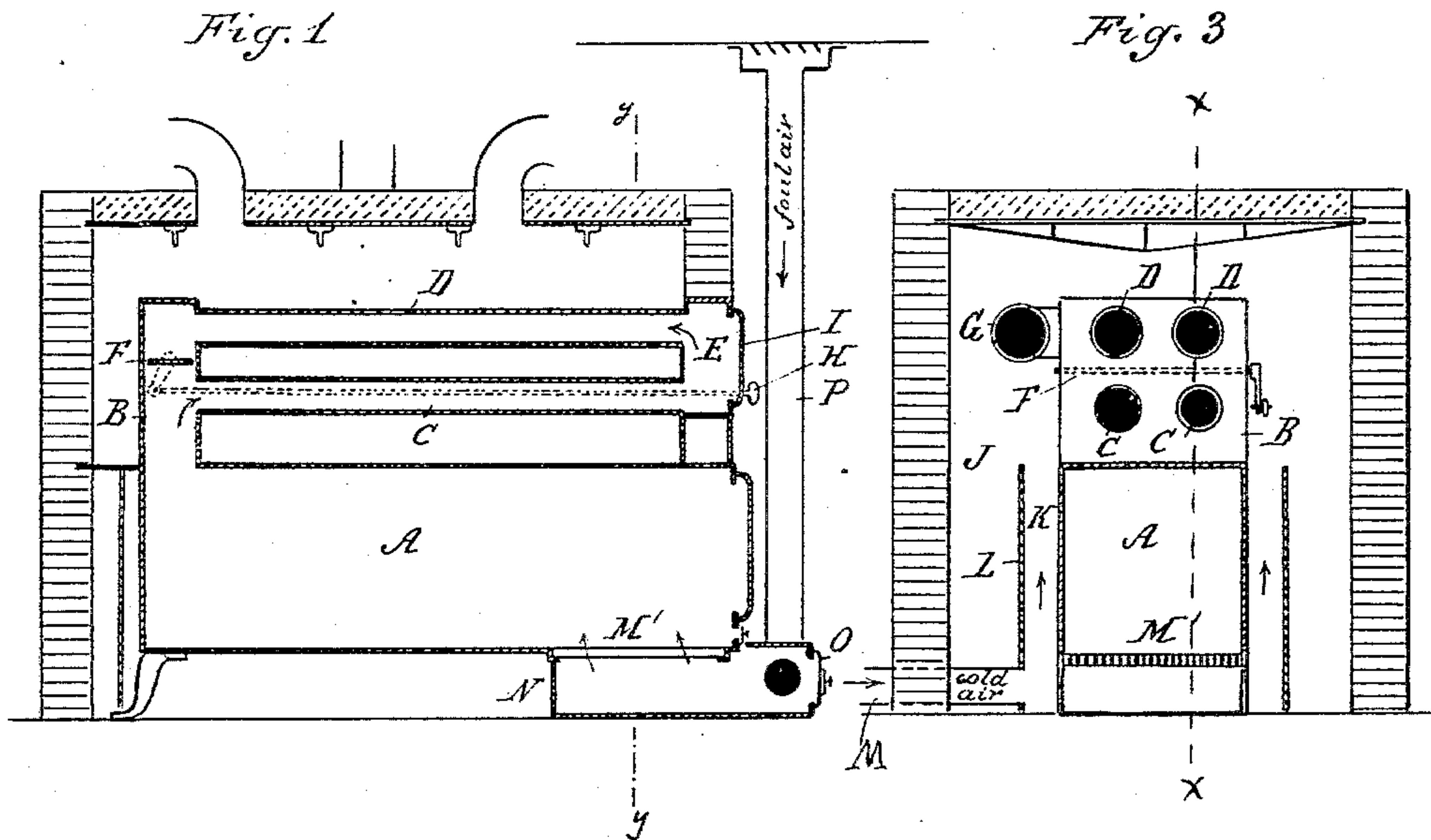
(No Model.)

G. STEPHENSON.

HOT AIR FURNACE.

No. 369,480.

Patented Sept. 6, 1887.



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE STEPHENSON, OF WINDSOR, ONTARIO, CANADA.

HOT-AIR FURNACE.

SPECIFICATION forming part of Letters Patent No. 369,480, dated September 6, 1887.

Application filed March 31, 1887. Serial No. 233,220. (No model.)

To all whom it may concern:

Be it known that I, GEORGE STEPHENSON, of Windsor, in the county of Essex and Province of Ontario, Canada, have invented new and useful Improvements in Hot-Air Furnaces; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in hot-air furnaces; and the invention consists in the improved construction and arrangement of different parts, all as more fully hereinafter set forth.

In the drawings which accompany this specification, Figure 1 is a vertical longitudinal section on the line *xx* of Fig. 3. Fig. 2 is a plan. Fig. 3 is a cross-section on line *yy* of Fig. 1. Fig. 4 is a front elevation.

A is a stove of the kind commonly termed a "box-stove," and designed for burning wood. This stove is provided at the rear end with a vertical extension or smoke-box, B, which communicates with a series of horizontal flues, C D. These flues extend forwardly and communicate into a smoke-box, E, which rests on the front end of the stove, but does not communicate therewith.

The smoke-box B is provided with a damper, F, which, when closed, as shown in Fig. 1, cuts off the direct communication between the stove and the upper set of flues, D, and passes the products of combustion through the lower set of flues, C, into the smoke-box E, and thence back through the flues D into the upper portion of the smoke-box B. From there an exit-pipe, G, forms a lateral outlet, which conducts the products of combustion again forward and out through the front wall of the heater into the chimney.

The damper F is pivotally secured, and can be opened or closed at will by means of a connecting-rod, H, which extends to the front of the heater for convenient operation. The front smoke-box, E, is provided with a door, I, which affords easy access to the flues C D for the purpose of cleaning them; and it will be seen that by opening the damper F the soot

and ashes in said pipes may be dropped into the stove.

If the damper F is kept open, a more direct draft into the chimney is obtained for starting the fire.

Around the heater is formed the usual air-heating space, J, by means of brick-work or other suitable inclosure, and between said inclosure and the stove is formed another air-heating space, K, by means of a partition, L, which surrounds the sides and rear end of the stove in closer proximity than the outer walls. This air-space communicates at the bottom with the cold-air inlet M, and at the top it is open and permits the hot air to flow into the heating-space J. By this means the cold air is brought into more direct contact with the hot sides of the stove, (which sides are preferably corrugated,) and the heated air is also less liable to escape through the cold-air inlet.

The heated air is taken off at the top through pipes in the usual manner.

The front end of the bottom of the stove is provided with a grate, M', and underneath this grate and projecting out in front I place a box, N, the front end of which is provided with the usual ash-pit door, O, and air-damper for admitting the necessary air for combustion. This air-damper, however, is to be used merely for contingencies, as I prefer to provide the box N with an air-feeding pipe, P, extending upwardly to the floor above, where it may be provided with a floor-register. By this means the foul air is carried away from the room above, and the hot air will be drawn into it more freely, while at the same time the regulation of the draft of the fire is attended to with the greatest convenience.

The grate M', I make removable, and provide an imperforate iron plate to be placed into the stove in place of the grate, so as to operate the stove in the usual manner and without the use of the air-feeding devices described.

What I claim as my invention is—

The stove A, having grate M', and the box N beneath said grate and projecting in front

of the stove, combined with the surrounding case forming an air-space surrounding the stove, the partition L within said space, the cold-air flue M, communicating with the space
5 between the partition L and the stove, the smoke-boxes B E, the horizontal flues C D, and the flue G, communicating with the smoke-box B and extended through said air-space, all substantially as shown and described, and for the purpose specified.

GEO. STEPHENSON.

Witnesses:

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