

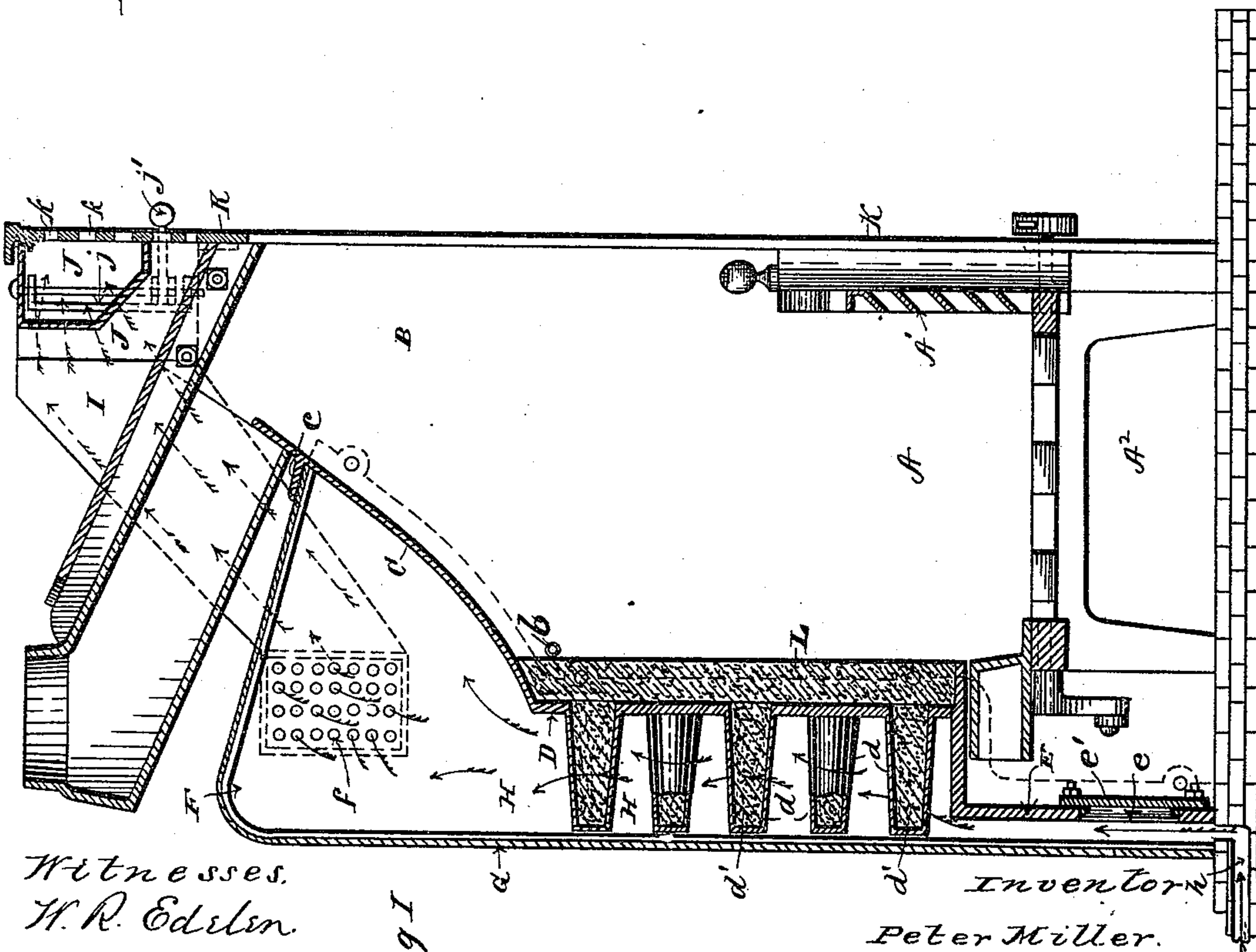
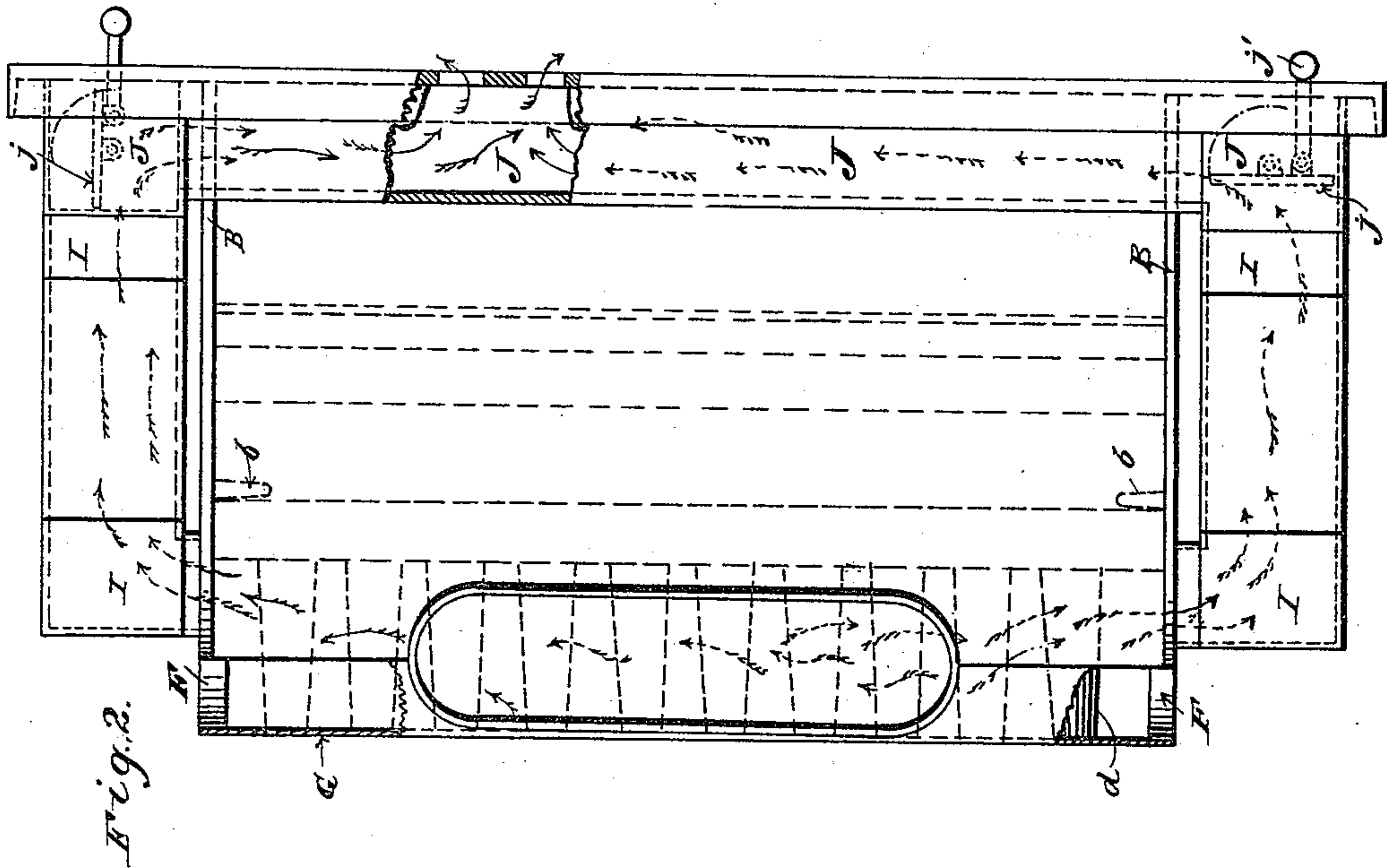
(No Model.)

2 Sheets—Sheet 1.

P. MILLER.
VENTILATING GRATE.

No. 438,274.

Patented Oct. 14, 1890.



Witnesses.
H. R. Edelen.
C. S. Lowrie.

Inventor
Peter Miller.

By Leggett & Leggett
Attys

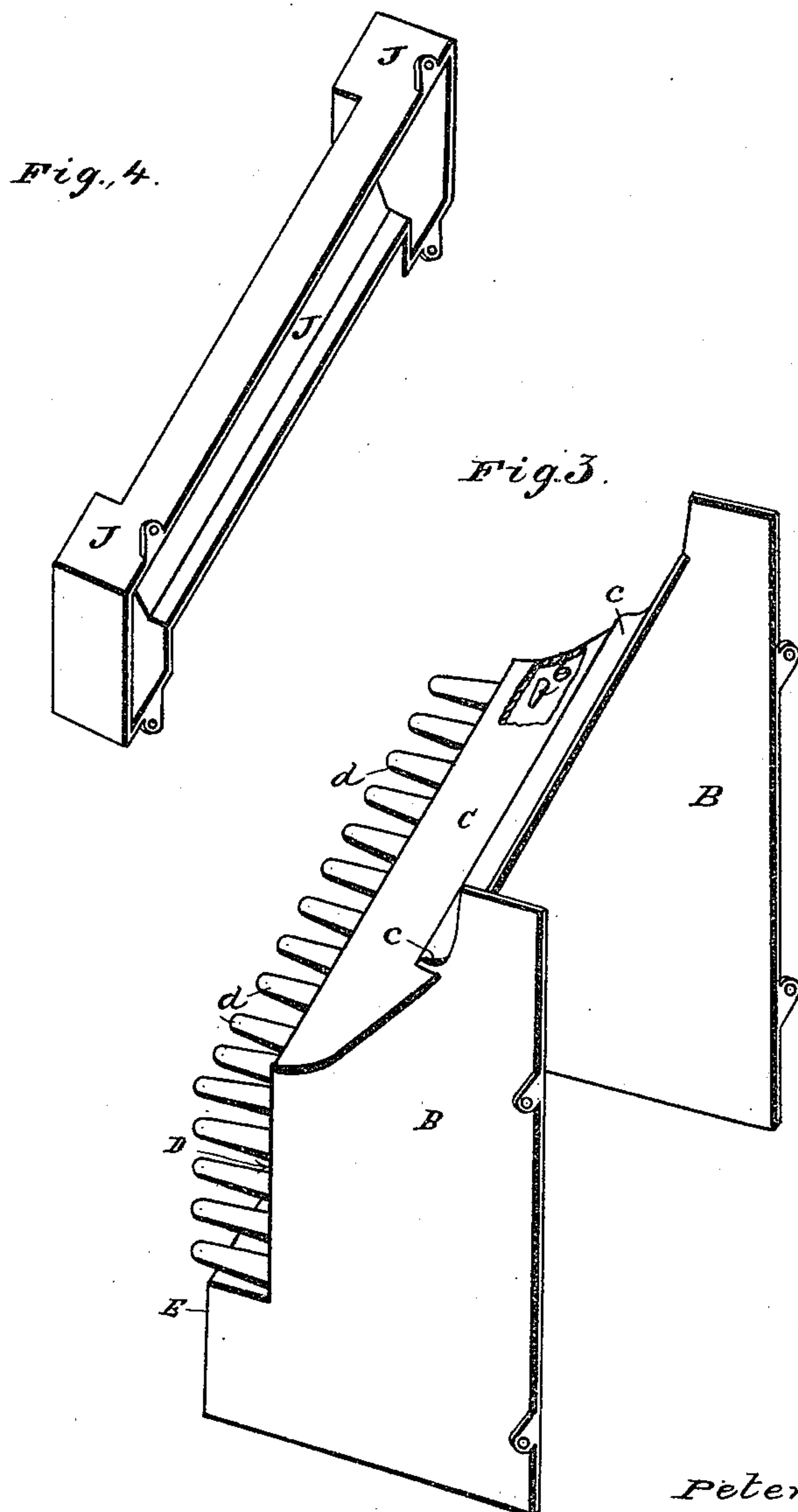
(No Model.)

2 Sheets—Sheet 2.

P. MILLER.
VENTILATING GRATE.

No. 438,274.

Patented Oct. 14, 1890.



Witnesses
W. R. Edelen.

O. S. Lowrie.

Inventor
Peter Miller.

By Leggett & Leggett
Attorneys.

UNITED STATES PATENT OFFICE.

PETER MILLER, OF CLEVELAND, OHIO, ASSIGNOR TO THE MILLER GRATE COMPANY, OF SAME PLACE.

VENTILATING-GRATE.

SPECIFICATION forming part of Letters Patent No. 438,274, dated October 14, 1890.

Application filed May 1, 1889. Serial No. 309,183. (No model.)

To all whom it may concern:

Be it known that I, PETER MILLER, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful

Improvements in Ventilating-Grates; 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 pertains to make and use the same.

My invention relates to improvements in ventilating-grates; and it consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is an end elevation in section. Fig. 2 is a plan, portions being broken away to show the construction. Figs. 3 and 4 are views in perspective in detail.

A represents the fire-space, A' the grate-bars, and A² the ash-pit. The body of the device, comprising end walls B, sloping wall or deflector C, vertical wall D, and rearwardly-offset section E, is cast integral. Cast integral with section D are a series or cluster of rearwardly-projecting hollow bosses or lugs d, the rear ends thereof being closed, wherefore the concavities thereof open only forward, and these cavities are packed, preferably, with pulverized soapstone. (Shown at d'.) Other packing—such, for instance, as cement or fire-clay—would serve a good purpose; but soapstone is considered preferable for such packing. By reason of the lug being cast hollow plate D is less liable to crack, and by reason of the filling the lugs maintain a more uniform temperature. As shown more clearly in Fig. 1, lugs d extend some little distance rearward of the line of member E.

F F are cast-metal plates, secured to the outside of members B, plates F extending rearward about flush with the line of the rear end of the lugs d. A sheet-metal plate G is bent to conform to the edges of plates F, to which latter plate G is secured, the upward forward end of plate G abutting member C, the end of plate G underlapping rib c of plate C, to which rib-plate G is also fastened. As shown in Fig. 1, plate G abuts or comes close to the rear end of lugs d, and the lower end of plate G is separated a short distance from

plate E. An air-chamber H is thus formed, connecting below with the cold-air duct h. Member E has a large hand-hole e, closed by a cap or plate e'. Before the grate-bars are in position, by removing cap e' access is had between plates E and G for cementing the joints around the cold-air ducts, after which plate e' is placed in position, and remains, closing the hand-hole. Plates F have each a cluster of small holes f, located about as shown, for the escape of the heated air from chamber H. The air in passing through these small holes is retarded to such an extent that chamber H is always filled with air, and consequently the air becomes heated to a considerable degree, more especially by coming in contact with plate C, the latter being always exposed to contact with the products of combustion, whereas if the air could escape easily through a large opening there would be a current of air direct from the cold-air duct, taking the shortest route to such discharge-opening, and consequently the air would circulate but little through the extremes of chamber H, and would almost entirely escape contact with plate C. The air in passing up through chamber H must necessarily pass up through the interstices of lugs d, by means of which considerable heat is imparted from the lugs to the air.

I I are conduit-pipes, usually square or rectangular in cross-section, the forward ends thereof being opened and the rear ends thereof closed, these conduit-pipes having, however, side openings adjacent their rear end, such side openings inclosing, respectively, the cluster of holes f. Each conduit-pipe is secured to a plate F outside thereof and discharges into box J, the latter extending laterally along at the rear of the top section of fire-place frame K, to which latter box J is fastened. This box consists of top, bottom, rear, and end walls, with rear openings for connecting the conduit I, the front of the box being open except as it is closed by a frame K. Frame K, opposite box J, has more or less open-work—for instance, as shown at k—through the interstices of which the heated air escapes into the room. At the extremities of box J, and located internally and opposite the ends of conduit I, are dampers j, pivoted

top and bottom, each damper having attached a handle *j'* for opening and closing the damper, whereby the discharge of heated air into the room is controlled at pleasure.

- 5 L is a slab of soapstone, constituting a lining for plate D. This slab rests below on a support near the grate-bars, and is held in position at the top by means of lugs *b*, the latter being cast integral with plate B, and by
10 means of such construction the lining-plate L can be placed in position or removed after the other parts are assembled.

What I claim is—

1. In a ventilating-grate, the combination,
15 with inner and outer walls extending from one side or end wall to the other behind the grate, forming a heating-chamber, of a series of lugs arranged over the inner wall and integral with the inner wall, such lugs project-
20 ing into such heating-chamber and having a suitable filling packed therein, substantially as set forth.

2. In a ventilating-grate, the combination,
25 with inner and outer walls extending from one side or end wall to the other behind the grate, forming a heating-chamber, the latter being connected with cold-air duct and discharging-conduits, of a series of lugs integral

with the inner wall, such lugs projecting into said heating-chamber and having a suitable
30 filling packed therein, and a lining covering the inner ends of said lugs, the interstices between the lugs forming air-passages, substantially as set forth.

3. In a ventilating-grate, the combination,
35 with inner and outer walls extending from one side or end wall to the other behind the grate, forming a heating-chamber, of a series of hollow lugs cast integral with the inner wall, such lugs projecting into the said heat-
40 ing-chamber and packed with a suitable heat-retaining filling, substantially as set forth.

4. In a ventilating-grate, the combination,
45 with inner and outer walls forming a heating-chamber, of metallic lugs integral with the inner wall, such lugs projecting into the heating-chamber, the cavity of the lugs being filled, preferably, with soapstone, substantially as set forth.

In testimony whereof I sign this specifica-
50 tion, in the presence of two witnesses, this 2d day of March, 1889.

PETER MILLER.

Witnesses:

CHAS. H. DORER,
ALBERT E. LYNCH.