

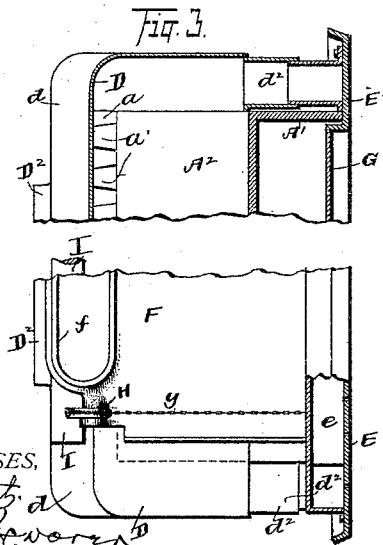
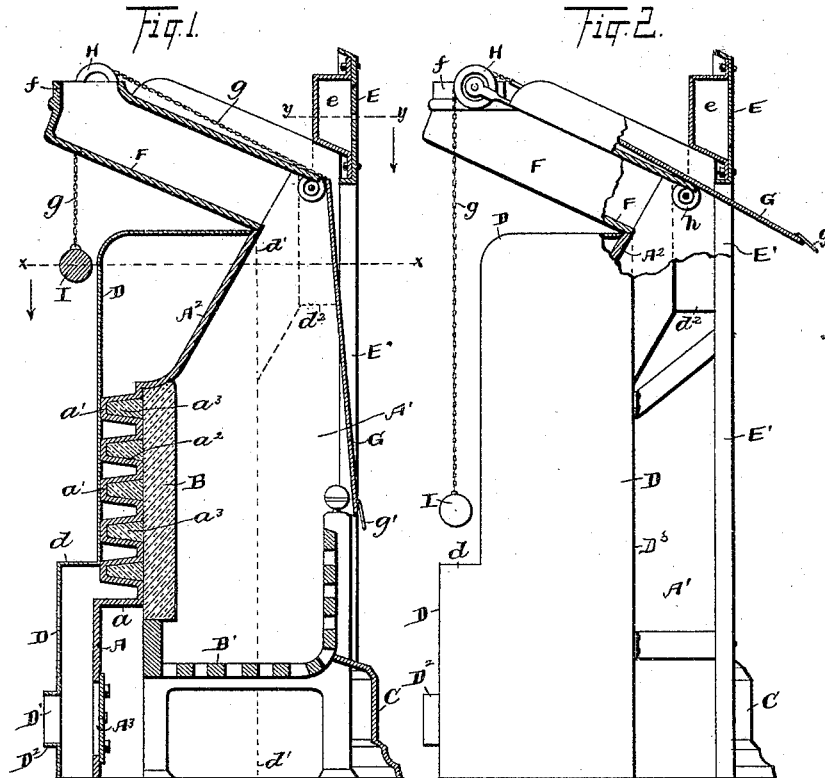
(No Model.)

2 Sheets—Sheet 1.

P. MILLER.
VENTILATING GRATE.

No. 422,887.

Patented Mar. 4, 1890.



WITNESSES,
W.S. Amstutz,
Lucas

INVENTOR.
Peter Miller
By
Siggett & Siggett
ATTORNEYS.

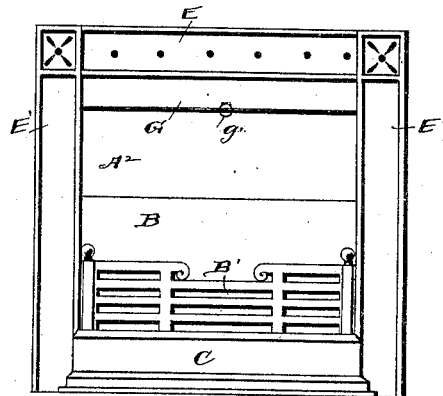
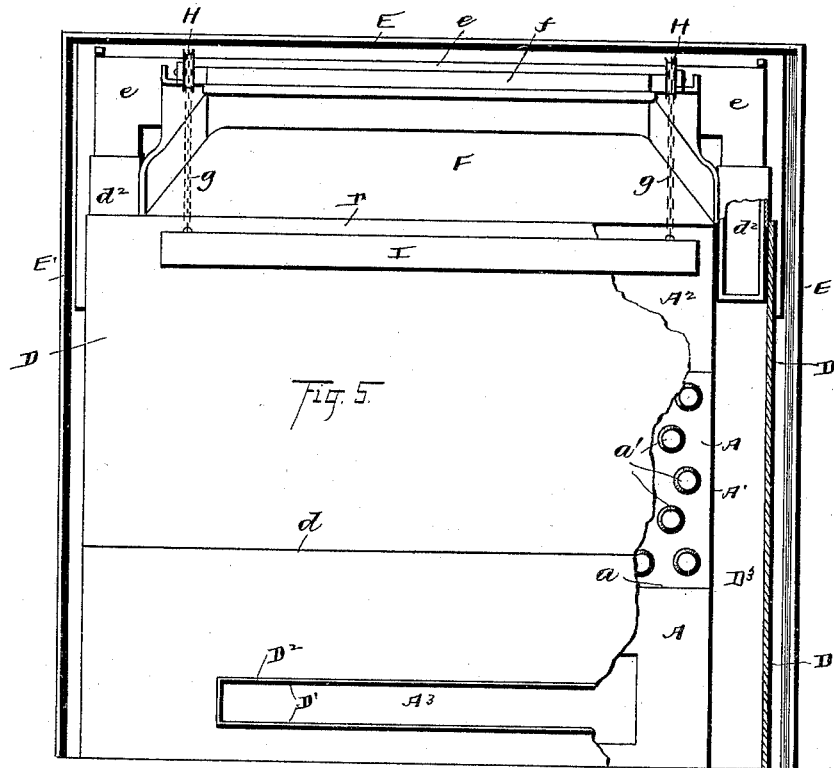
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W. S. Amstutz
James W. Davis

Fig. 6.

Peter Miller INVENTOR.

By
Siggitt Siggitt

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. 422,887, dated March 4, 1890.

Application filed September 29, 1888. Serial No. 286,799. (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
5 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.

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

15 In the accompanying drawings, Figures 1 and 2 are corresponding elevations, the former being in section through the center of the device, and the latter having only portions broken away to show the construction.

20 Fig. 3 is a plan, partly in section. Fig. 4 is a rear elevation in detail. Fig. 5 is a rear elevation, partly in section. Fig. 6 is a reduced front elevation.

The walls of the fire-place or fire-box—to wit, back wall A, side walls A', and sloping wall A²—are usually of cast-iron and integral. The lower section of wall A is offset rearward at *a*, as shown in Fig. 1, and above the offset the wall is integral with a series of hollow
30 lugs *a'*. The rear ends of these lugs are solid, the chambers *a*² thereof opening only forward. These chambers *a*² are packed, preferably, with fine soapstone filling *a*³, although doubtless fire-clay, and, perhaps, other filling, would answer the purpose. If anything further than
35 hard tamping were necessary to hold the filling in place, such want is supplied by the presence of lining B, the latter consisting, preferably, of a slab of soapstone placed flatwise against the front side of the upper section of plate A, as shown in Fig. 1.

B' is the grate, and C the ash-screen, sometimes called the "crown-screen."

D is a casing, usually of galvanized iron, the same inclosing the rear portion of the fire-place walls aforesaid. Casing D has a flanged opening D' for connecting with the cold-air pipe or duct. (Not shown.) This casing is offset at *d*, the latter being located some
45 distance above offset *a*, and from offset *d* upward

ward the casing abuts the rear end of lugs *a'*, by reason of which air entering through opening D' and passing up along the back of wall A must necessarily pass between the different lugs *a'*, such air being heated by contact with
55 the lugs. The top portion of the casing extends forward and engages plate A², near the upper edge of the latter. Casing D is considerably wider than the fire-box or fire-place walls aforesaid, and the casing is provided 60 with jambs D³, that engage the sides of walls A' along the lines *d'* *d'* and on either side of the fire-place. The heated air from between the casing and fire-place passes out through side ducts *d*², that discharge into the lateral
65 chamber *e*, from whence the heated air is discharged into the room through the open-work in plate E. This latter plate, together with the vertical plate E', constitutes what is known as the "grate-frame," the same being more or
70 less ornamented usually, and chamber *e* extending the length of plate E, the latter forming the front wall of such chamber. These ducts *d*² are provided with dampers; but as they are of ordinary construction they are not
75 shown.

F is a smoke-box located in the inclined position shown in Figs. 1 and 2, the chamber thereof at the front end opening directly over the fire-box for receiving the products of combustion that pass up through the chimney. The forward lower wall of the smoke-box connects with the upper end of plates A' and A², and the upper rear end of the smoke-box is provided with a flanged opening *f* for connecting with an upright smoke-pipe or chimney. (Not shown.)

G is a movable plate that serves as a blower, and also serves as a summer front, and may, if need be, serve as a hood to prevent the grate from smoking. The plate is usually decorated and fits easily between frame-sections E' and fills the space between plate E and the grate. (See Fig. 1.) To plate G are attached supporting-chains *g*, each chain extending over wheels H and *h*, and the rear end of these chains connecting, respectively, with bar I, near the ends of the latter, this bar serving as a counter-balance for the plate.

A ring *g'* or handle of some kind is attached 100

to the lower edge of the plate midway later-
ally, and by drawing forward and lifting on
such ring or handle plate G may be drawn up-
ward as it is tilted backward over pulley h
5 and brought into the inclined position shown
in Fig. 2, in which position the front section
of plate G may serve as a hood, and may be
left protruding more or less, as may be needed
for such purpose. With an old style of
10 blower that moves in a vertical plane either
the mantel had to be brought so far forward
that the pocket for receiving the blower could
be constructed at the rear of the mantel, or
else the mantel had to be of such elevation
15 that the blower-pocket could be built under
the mantel; also, the construction of such
pocket in such location was somewhat trou-
blesome and expensive. With my improved
construction the mantel can, if desired, rest
20 on top of the grate-frame, and the grate may
be brought forward or retired rearward, as
preferred, regardless of the mantel that may
be directly over the grate-frame. Usually a
recess is left in the brick walls, and the cast-
25 iron fire-place and the sheet-metal casing D
are fastened together and set into such recess.

Heretofore there has been some difficulty
in making a tight joint at the opening D'.
The pipe or duct that received flange D² nec-
30 essarily fitted loosely, and to make approxi-
mately a tight joint at this part a large quan-
tity of cement was poured in from above and
at the rear of casing D with more or less suc-
cess, according to circumstances.

35 As an improvement, I provide door A³ in
wall A, such door being located directly op-
posite opening D'. When therefore the fire-
place and casing are in position, access is had
through door A³ and opening D' to pack be-
40 tween flange D² and the pipe or duct-wall
around this flange, the amount of cement re-
quired for such purpose being quite insignifi-
cant, as compared with the practice aforesaid.
The lining B of course protects the iron-work;
45 but it, together with the filling in lugs a', per-
forms other important service. Heretofore
these lugs have been cast solid and the lining
B was dispensed with, in order that much heat
might be transmitted through the metal for
50 heating the air in the chamber at the rear.

With such construction heat was too readily
transmitted, so that the fire adjacent to the
iron wall was likely to be extinguished. Con-
sequently the air heated and discharged into
the room from such apparatus was subjected 55
to great fluctuations in temperature. With
my improved construction these lugs heat
slowly and retain their heat a long time.
During the day much heat is stored in these
lugs and lining B, and this heat is imparted 60
to the air passing through the chamber at the
rear, and by regulating the draft of air through
this chamber the room may be kept comfort-
able during the night. During the day, while
the fire is the hottest, the heat is being stored 65
in these lugs, and consequently the heat in
the room is not so oppressive as it would oth-
erwise be.

I make no claim in this application to the
arrangement of hot-air flues, the lugs project- 70
ing rearwardly from the fire-box, and door lo-
cated opposite the induction-opening in the
outer wall, as the same forms the subject-
matter of application, Serial No. 309,183, filed
May 1, 1889.

What I claim is—

1. In a parlor-grate, the combination, with
inclined smoke-box located above the fire-
box, substantially as indicated, of a tilting
plate serving in turn as blower, summer front, 80
and hood, the said tilting plate being adapted
to stand upright in front of the fire-place and
to tilt rearward over the smoke-box with the
elevation of the plate, substantially as set
forth.

2. In a parlor-grate, the combination, with
smoke-box, substantially as indicated, of a
plate or blower adapted to tilt back over such
smoke-box, chains connected with the plate
for supporting the latter, and wheels for the 90
chains to travel on, the parts being arranged
substantially as and for the purpose set forth.

In testimony whereof I sign this specifica-
tion, in the presence of two witnesses, this
20th day of June, 1888.

PETER MILLER.

Witnesses:

CHAS. H. DORER,
ALBERT E. LYNCH.