

(No Model.)

A. WOLCOTT.

HEATING DRUM OR RADIATOR.

No. 394,899.

Patented Dec. 18, 1888.

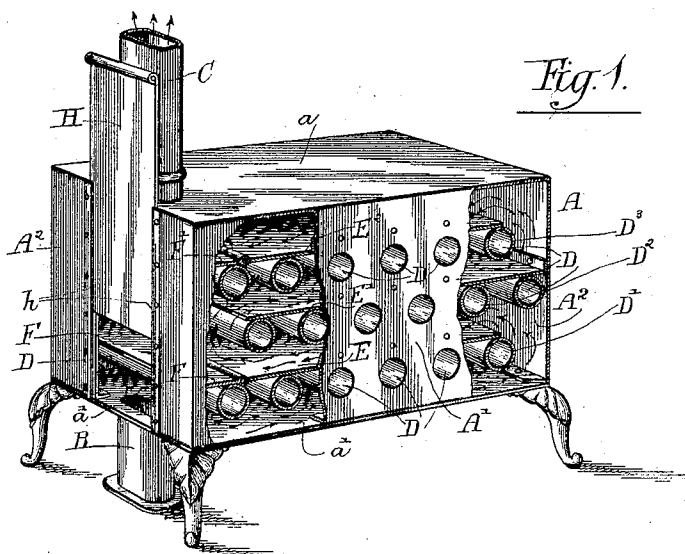


Fig. 1.

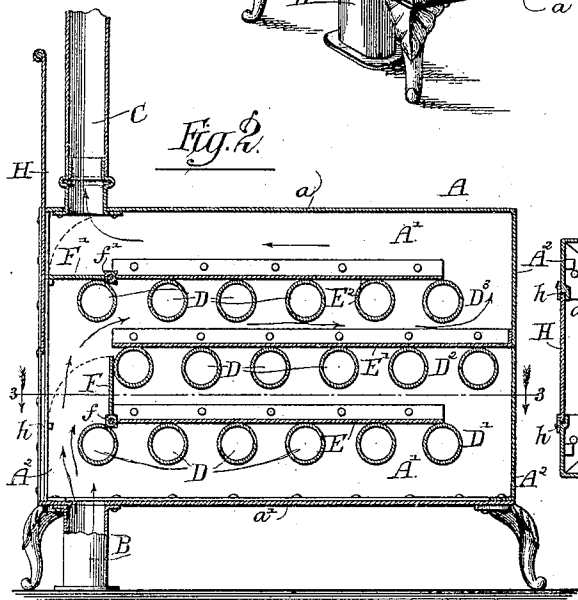


Fig. 2.

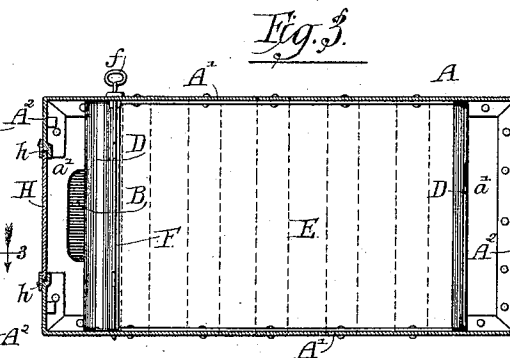


Fig. 3.

Witnesses:-

Louis M. Whitehead.

Wm. J. Fleming.

Inventor:-

Ansion Wolcott

by: Dayton, Pool & Brown

Attorneys:-

UNITED STATES PATENT OFFICE.

ANSON WOLCOTT, OF CHICAGO, ILLINOIS.

HEATING DRUM OR RADIATOR.

SPECIFICATION forming part of Letters Patent No. 394,899, dated December 18, 1888.

Application filed June 4, 1888. Serial No. 275,932. (No model.)

To all whom it may concern:

Be it known that I, ANSON WOLCOTT, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Heating Drums or Radiators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in heating drums or radiators of that kind consisting of an exterior shell or casing, through which pass the smoke and heated products of combustion from a stove, furnace, or other heating apparatus, and which is provided with a plurality of horizontal or nearly-horizontal diaphragms or partitions forming a tortuous passage for the flames and products of combustion leading from the inlet to the exit opening of the drum.

The invention consists in the matters hereinafter described, and pointed out in the appended claims.

In the accompanying drawings illustrating my invention, Figure 1 is a perspective view of a heating-drum embodying the same. Fig. 2 is a central longitudinal vertical section of the same. Fig. 3 is a sectional plan view of the same taken upon line 3 3 of Fig. 2.

In the accompanying drawings, Figs. 1, 2, and 3, A indicates as a whole the external casing of the drum or radiator, which consists, in the instance shown in the drawings, of two parallel side walls, A' A', two parallel end walls, A² A², a top wall, a, and a bottom wall, a'.

B is an inlet-pipe leading from the smoke-exit aperture of a stove, furnace, or other heating device in which fuel is burned, or which may connect with an apparatus employed for the especial purpose of supplying heated products of combustion, gases, or air to the radiator, or with a duct supplying live or exhaust steam.

C is an exit-pipe leading from the heating-drum to a smoke-stack, chimney, or other exit-duct. The inlet-pipe B is connected with and opens into the bottom of the heating-drum, and the pipe C opens out of the top thereof, the said pipe B in the particular con-

struction shown being connected with the top plate, a.

D D D indicate a series of horizontally-arranged pipes or tubes extending transversely through the drum and connected at their opposite ends with the side walls, A' A', thereof. The said several tubes are arranged in several different groups or rows, D' D² D³, each row consisting of a plurality of pipes located side by side and near each other. Between the rows of pipes are located one or more plates, partitions, or diaphragms, E E' E², forming a tortuous passage leading from the inlet to the outlet opening of the drum, and within which the said pipes are located. The several groups or rows of pipes in the particular drum illustrated are arranged horizontally and one above another, and the plates E E' E² are also horizontal, and said plates terminate short of the front and rear walls of the drum in alternation, so as to form a zig-zag passage leading back and forth between said front and rear walls. The several tubes or pipes D D D open at their ends through the side walls, A' A', and are secured in said side walls by having their ends inserted through and secured in circular apertures in the walls. The plates E E' E² may be secured in any suitable or preferred manner to the walls of the drum; but, as herein shown, they are provided with upturned flanges riveted to the side walls, A' A', and end wall, A², in the manner clearly illustrated in the drawings.

In the operation of the drum made as above set forth the heated products of combustion—gases, air, or steam—entering the inlet-opening of the drum flow through the tortuous interior passage thereof formed by the plates or diaphragms E E' E², and in so doing come in contact with and circulate around the several air-pipes. The air within said pipes is thus heated, and, passing from the ends of the same, escapes into the room. The said air-pipes thus afford a large additional heating or radiating surface, enabling a large proportion of the heat to be extracted from the air, gases, or steam passing through the drum or radiator.

The inlet-pipe B and exit-pipe C are located at that end of the drum at which the diaphragms E and E² are joined to the end

wall, A², and the parts of said diaphragms E
 and E² adjacent to said end wall are formed
 by valves or dampers F F', the opening of
 which allows the smoke and products of com-
 5 bustion to pass directly from the inlet-pipe B
 to the exit-pipe C, thereby affording a mini-
 mum amount of heating effect from the drum.
 The said dampers F and F' are shown as piv-
 10 oted at the adjacent margins of the dia-
 phragms E E², and as provided with handles
 f f', extending through the side walls of the
 drum for turning said dampers. By leav-
 ing closed one of said valves or dampers and
 opening the other the smoke and products of
 15 combustion may be sent through a part only
 of the drum, thereby enabling the quantity
 of heat given out to be conveniently regu-
 lated. In Figs. 2 and 3, for instance, the
 damper F is shown as open and the damper
 20 F' closed, so that the smoke and products of
 combustion pass around one set, D³, only of the
 air-heating pipes. By closing the damper F
 and opening the damper F' the smoke and
 products of combustion will obviously pass
 25 around the diaphragm E, and will thus be
 brought into contact with the two groups or
 rows D' D² of the air-pipes.

When the dampers F and F' are open, they
 rest in contact with or near the ends of the
 30 intermediate diaphragm above them, or the
 top of the drum in the case of the damper at-
 tached to the uppermost diaphragm, thereby
 preventing the passage of the products of com-
 bustion through the smoke-passage around
 35 the diaphragms, the ends of which smoke-
 passages are thus closed by the said dampers.

It will of course be understood that the
 heating-drum embodying my invention may
 have a greater or less number of rows of air-
 40 pipes and diaphragms than shown, and that
 a greater or less number of valves or damp-
 ers may be used, corresponding with the
 number of diaphragms. The air-pipes are
 not of course essential to the carrying out of
 45 my invention; but their use is preferred, in-
 asmuch as they add greatly to the heating
 capacity of the drum.

The main feature of my invention, as far as
 the employment of valves for regulating the
 50 heat is concerned, may be carried out when
 the diaphragms or partitions for giving tor-
 tuous course to the products of combustion

passing through the drum are made otherwise
 than in the manner shown, and my invention
 is not therefore limited to any particular con- 55
 struction in the diaphragms themselves.

As a further improvement in heating-drums
 of the character set forth, I provide in one of the
 end walls thereof a sliding door, H, extending
 from the top to the bottom of the drum, and
 60 adapted to be drawn out or opened for the
 purpose of cleaning or removing soot from
 the interior of the drum. The door is made
 to extend to the bottom wall, a', of the drum,
 in order that soot or other substances accu- 65
 mulated upon the said bottom wall may be
 readily removed through the opening. As
 herein shown, the door or slide H consists of
 a flat piece of sheet metal fitted at its side
 edges in grooves h h in the margins of the 70
 end wall, A². The said door H is shown as
 having its upper edge turned over a wire to
 form a ledge or flange by which said door
 may be grasped in opening it.

I claim as my invention—

1. In a heating-drum comprising an exter- 75
 ior shell having oppositely-arranged inlet and
 outlet openings and a plurality of parallel
 horizontal partitions or diaphragms forming
 a tortuous passage leading from said inlet to 80
 the outlet opening, one or more valves or
 dampers hinged to the ends of the alternate
 partitions or diaphragms in alignment with
 said inlet and outlet openings and arranged
 to close the passages between said diaphragms, 85
 substantially as described.

2. The combination, with a heating-drum
 comprising an exterior shell or casing pro-
 vided with inlet and outlet openings and with
 a plurality of horizontal parallel partitions or 90
 diaphragms forming a tortuous passage lead-
 ing from the inlet to the outlet opening, said
 shell or casing being provided with an open-
 ing at one of its vertical sides extending from
 its top to its bottom wall, of a door closing 95
 said opening, substantially as described.

In testimony that I claim the foregoing as
 my invention I affix my signature in presence
 of two witnesses.

ANSON WOLCOTT.

Witnesses:

C. CLARENCE POOLE,
 E. B. ELLIAS.