

(No Model.)

R. PUGH.
HEATING DRUM.

No. 502,999.

Patented Aug. 8, 1893.

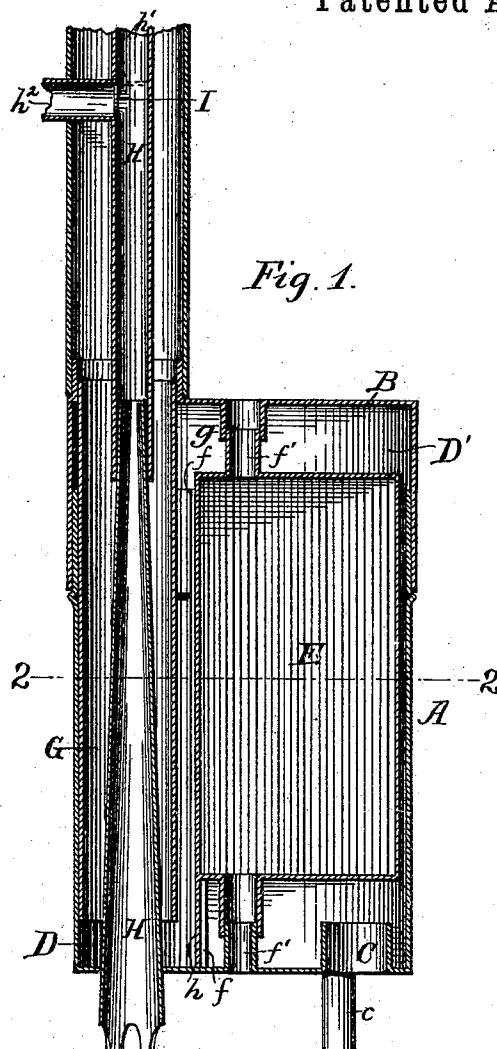
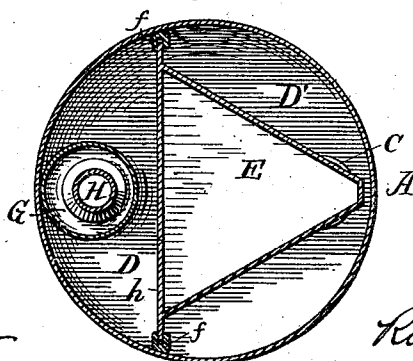


Fig. 2.



Witnesses.

Chas. W. Parker
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Inventor.

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by J. S. Baxter
his atty.

UNITED STATES PATENT OFFICE.

ROBERT PUGH, OF CASSELTON, NORTH DAKOTA, ASSIGNOR OF ONE-HALF
TO WALLACE GROVENOR, OF SAME PLACE.

HEATING-DRUM.

SPECIFICATION forming part of Letters Patent No. 502,999, dated August 8, 1893.

Application filed March 24, 1893. Serial No. 467,453. (No model.)

To all whom it may concern:

Be it known that I, ROBERT PUGH, a citizen of the United States, residing at Casselton, in the county of Cass and State of North Dakota, have invented certain new and useful Improvements in Heating-Drums, of which the following is a specification.

My invention has for its object to improve the heating and ventilating drum shown in my Patent No. 459,413, dated September 15, 1891, in certain particulars to be hereinafter pointed out, whereby its heating capacity is increased, and it is otherwise made more effective. To this end I increase the size of the casing, which is situated within the drum and which incloses the air-heating chamber, as compared with the size of this casing as shown in my aforesaid patent; and in order to accommodate the casing of such increased size, the interior arrangement of the parts of the drum is changed. I also improve the arrangement of the foul-air duct or pipe so that it can be made to serve, not only to carry off the foul air from the lower portion of the apartment, but also act as an air-heating and circulating device.

My invention is clearly illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section through a drum embodying my improvements. Fig. 2 is a cross section of the same on the line 2—2 of Fig. 1.

Referring to the drawings A represents the drum through which the products of combustion are conducted, and which may be of any preferred shape, being preferably cylindrical, and provided with a removable top B, and with the legs *c, c*.

C is the pipe through which the smoke or other heated products of combustion are delivered to the drum, and G represents the escape pipe or flue through which these products pass off. The inlet pipe, C, opens into the drum near its bottom, and the exit pipe, G, extends through the drum from the top down near to the bottom thereof where it has communication with its interior. The interior of the drum is divided into two parts or chambers, D, D', of unequal size, by a plate or partition, *h*, which extends to the bottom of the drum but not quite to the top thereof,

so that there is formed a passage-way or communicating space, *g*, between the chambers, D, D', in the upper part of the drum.

E represents a casing, preferably triangular in cross section, and adapted to be easily inserted into and removed from the drum. There is free communication between the interior of this casing and the air of the apartment through the tubes, *f', f'* so that the air enters the casing, is heated therein, and escapes again into the room. I prefer that the partition plate, *h*, should form one side of the casing, E, and that it be adapted to slide in the guides, *f*, and so hold the parts in proper position. The casing is of such size that it extends entirely across the chamber, D', and is situated directly over the upper, open end of the inlet pipe, C, so that the heated gases therefrom are delivered directly against the bottom of the casing and are compelled to travel upward along the sides thereof to the space, *g*, through which they enter the chamber D and pass downward to reach the open end of the escape pipe, G.

By constructing and arranging the casing, E, as described I am enabled not only to increase its size so as to present a larger area of surface to the heated gases, but I also direct these gases so as to increase their heating effect upon the air within the casing E, the result being that a greater volume of air is passed through the casing and heated, than it was possible to heat by means of the apparatus shown in my said patent.

H is the pipe which may be used as a foul-air duct, or as a circulating pipe, as may be desired. Its lower end extends through the bottom of the drum and opens into the compartment near the floor. This pipe extends lengthwise through the exit smoke flue G, preferably for some distance beyond the top of the drum, and at its upper end the pipe H is divided, and has one portion *h'* opening into the smoke flue, and another portion *h²* extending through the pipe G and opening into the apartment.

I is a valve arranged in the pipe H and adapted to direct the current of air, which passes through the pipe H, through one or the other of the pipes *h', h²*. By turning the valve so as to close the opening *h'* and uncover the

pipe or opening h^2 , the cold air from the lower part of the room is taken into the pipe H and heated and then discharged back into the apartment. This circulation of the air should
5 be maintained so long as the apartment is not occupied and the air therein is pure. When the air becomes foul, or it is desired to ventilate the apartment, the valve I is turned so as to direct the air which passes through the
10 pipe H into the exit flue G instead of back into the apartment. It will of course be understood that the branch h^2 of the pipe H could be extended so as to deliver into an apartment different from that in which the
15 drum is situated.

The heater which I have shown and described is adapted to take air from the apartment at different levels, and after heating the same deliver it back into the apartment.

20 It will be observed that when the heater is constructed as shown and described there is no smoke pipe extending through the chamber D' of the heater, which allows the casing E to fill the greater portion of the said chamber; and that the arrangement of the parts
25 within the drum A insures that there shall be no dead-air space, but rather causes a circulation to be maintained throughout all parts of the drum so that both it and the casing E
30 are heated on all sides.

What I claim as my invention is—

1. The combination of the drum, the partition dividing it into two chambers, between
35 of the drum, the smoke pipe entering the bot-

tom of one of the chambers, the air-heating casing situated in the said chamber directly over the said smoke pipe, and the exit pipe G opening into the other chamber near its bottom, substantially as set forth.

40 2. The combination of the drum, the air-heating casing situated within the drum and having one wall which forms a partition dividing the drum into two chambers of unequal size which communicate with each other
45 only near the top of the drum, the said air-heating casing extending across the larger of the said chambers, the smoke pipe entering the larger chamber directly below the casing, and the exit pipe opening into the smaller
50 chamber near its lower end or bottom, substantially as set forth.

3. The combination, with the drum A, the inlet pipe C, and the exit pipe G, of an air-heating casing within the drum having communication at its top and bottom with the air
55 of the apartment, and a pipe H extending longitudinally, for a portion of its length, through the exit flue, and opening into the apartment near the floor surface, and having
60 its upper end provided with an opening into the apartment and also with an opening into the smoke flue, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT PUGH.

Witnesses:

HORACE G. SCOTT,
JOHN R. HAMLIN, Jr.