(No Model.)

R. M. WEIR.

HEATER.

No. 261,884. Patented Aug. 1, 1882.

Fig. 1.

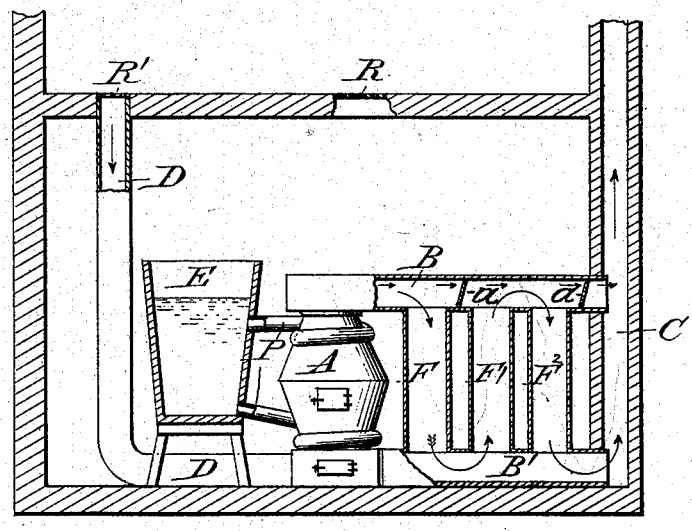


Fig. 5.

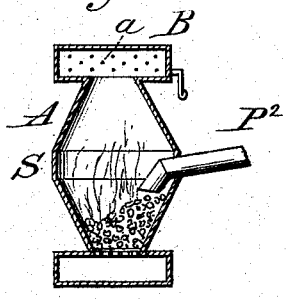


Fig. 2

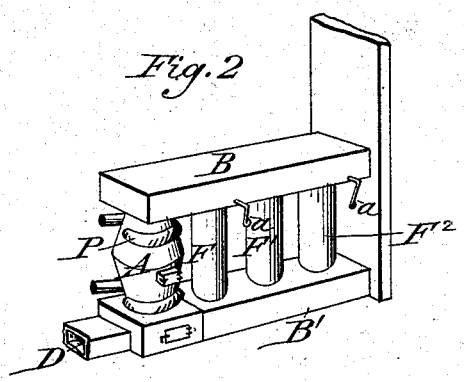


Fig. 3.

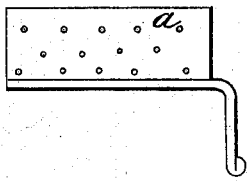
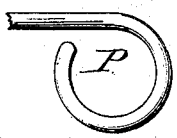


Fig. 4



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UNITED STATES PATENT OFFICE.

ROBERT M. WEIR, OF BOONE, IOWA.

HEATER.

SPECIFICATION forming part of Letters Patent No. 261,884, dated August 1, 1882.

Application filed March 13, 1882. (No model.)

To all whom it may concern:

Be it known that I, ROBERT M. WEIR, a citizen of the United States of America, residing at Boone, in the county of Boone and State of Iowa, have invented certain new and useful Improvements in Heaters, of which the following is a specification.

My invention relates to improvements in heaters.

The objects of my invention are, first, to secure, in a heating-furnace using anthracite or bituminous coal, the combustion of the smoke, and thus add to the heating qualities of said heater; second, to supply the heated air from the heater with the proper amount of moisture for wholesome respiration; third, to provide for removing the foul air from the house or apartments heated by the furnace by means of the draft of said furnace.

To this end my invention consists in the construction and arrangement of parts illustrated in the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a sectional elevation of my improved heater. Fig. 2 is a perspective view of the same. Figs. 3, 4, and 5 represent details referred to hereinafter.

Similar letters of reference represent similar parts throughout the several views.

In the drawings, A represents the furnace proper, in which the fire is maintained. This furnace may be made in the ordinary manner, of any convenient size and form, with the top opening directly into what I term a "flue-escape," B, which leads directly into the chimney C. Leading from the bottom of the flue-escape B are several vertical cylindrical flues, F, F′, and F^2, which extend downward and connect with a second flue-escape, B′. This I term the "lower" flue-escape, it being similar in form and size to the upper flue-escape, B, and also leads directly into the chimney C. Any desired number of the cylindrical flues F F′ F^2 may be used to connect the horizontal flues B and B′.

In the flue-escape B, just beyond each alternate cylindrical flue F, &c., is placed a perforated damper, *a*, (see Fig. 3 for detail,) provided with a suitable projecting handle, by which it may be operated to open or close the said flue-escape B, and thus furnish the means of securing a direct or indirect draft from furnace A through upper flue-escape, B, or through vertical cylindrical flues F, &c., and lower flue-escape, B′. By partially closing the flue-escape B by dampers *a a* the smoke from the furnace A is caused to descend through vertical cylindrical flue F′ and to ascend through flue F^2, &c., in the direction of the longer arrows in Fig. 1 by reason of the indirect draft, while the flames and heat, by reason of the direct draft, pass through the perforated dampers *a a*, as indicated by shorter arrows, and come into direct contact with and consume the smoke as it arises through the vertical cylindrical flue F′, &c., thus creating a great amount of heat, which is radiated from the outer surface of the flue-escape B and B′ and flues F, &c.

E is a vat containing water, from which lead two pipes, P, (see Fig. 4 for detail,) each of which is closed at one end and makes a turn around the furnace A, one of them being placed at the top and the other at the bottom of said furnace. The water in the vat is by this arrangement thoroughly heated and gives off vapor, which unites with and moistens the heated air given off by the heater. The whole is to be inclosed within a suitable chamber or room in the lower part of the building to be heated, from which the heated and moistened air arises to the apartments above through a register, R, or is conveyed through suitable pipes to any desired part of the building.

Instead of the furnace-door, the furnace A may be supplied with a feeder-pipe, P^2, as shown in Fig. 5. This pipe is to project to the outside of the room in which the heater is placed in order to avoid the necessity of going into said room to supply the fire with fuel. It is to be secured in a ring or furnace-section, S, which fits between the upper and lower sections of the furnace, and may be readily applied to the furnace or dispensed with, as desired. The outer end is to be supplied with a tight-fitting cover, while the inner extends downward to the surface of the fire to prevent the accumulation of gas therein. This pipe P^2 may be readily removed, when desired, for the purpose of cleaning the fire-pot.

D is a ventilating-pipe for the purpose of purifying the air in the heated apartments by removing the foul air therefrom, and to this

end it leads into the chamber below the fire in the furnace A, and a draft is created therein by the draft of the furnace, which removes the foul air from and thus effectually ventilates the apartments above.

It is evident that by suitable pipes a connection may be made from pipe D with any desired apartment, said pipe being controlled by suitable registers, as shown at R′, Fig. 1.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the furnace A, horizontal flues B B′, two or more connecting-flues, F F′, one or more perforated dampers, *a*, placed in the upper horizontal flue, the water-vat E, and the pipe P, leading therefrom to the furnace, substantially as and for the purpose described.

2. The combination of the furnace A, horizontal flues B B′, vertical connecting-flues F F′ F², dampers *a a*, water-vat E, pipe P, and ventilating-pipe D, all substantially as shown and described.

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

ROBERT McQUEEN WEIR.

Witnesses:

B. F. HOOD,

A. C. HOOD.