

T. A. McFARLAND.
HEATING APPARATUS.

No. 64,993.

Patented May 21, 1867.

Fig. 1.

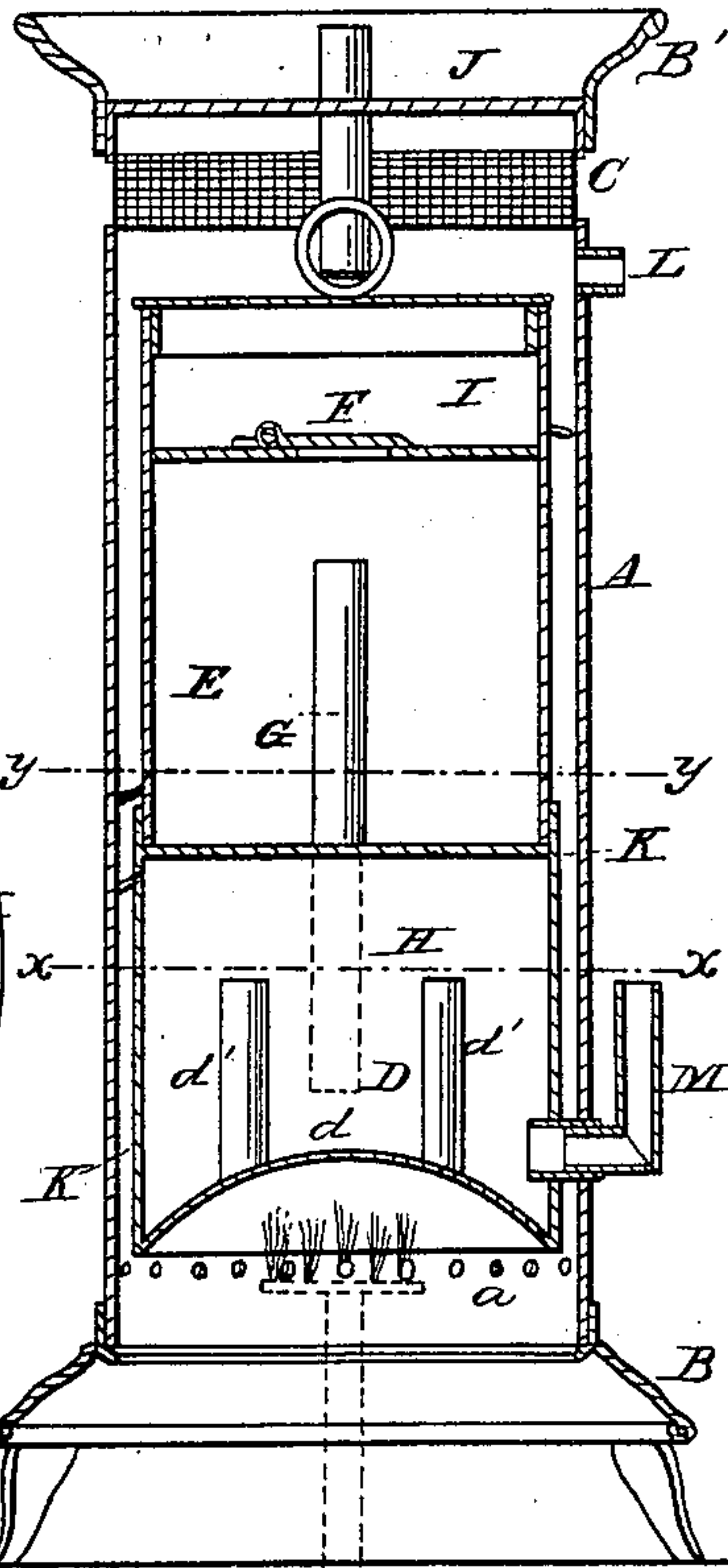


Fig. 2.

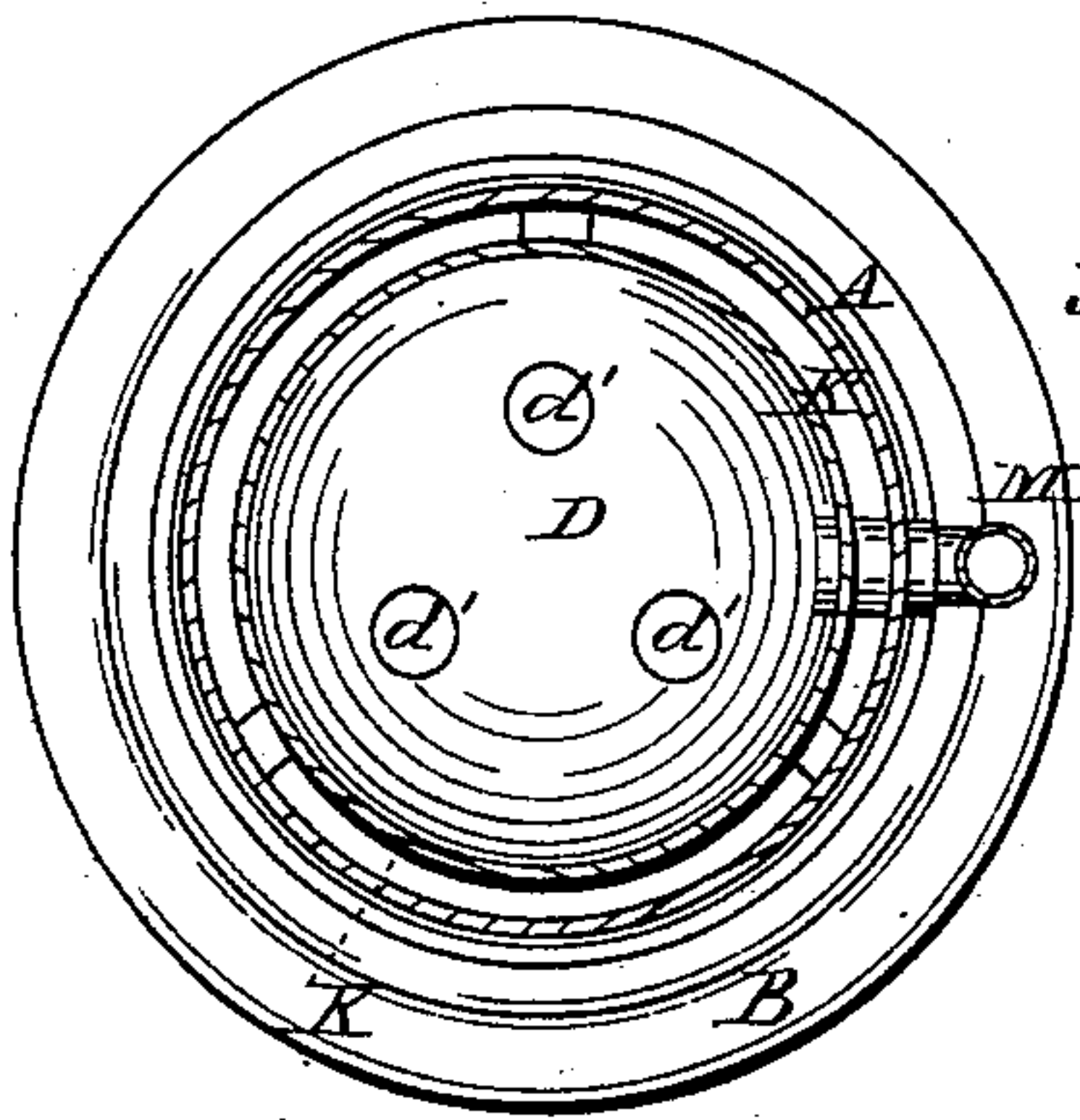
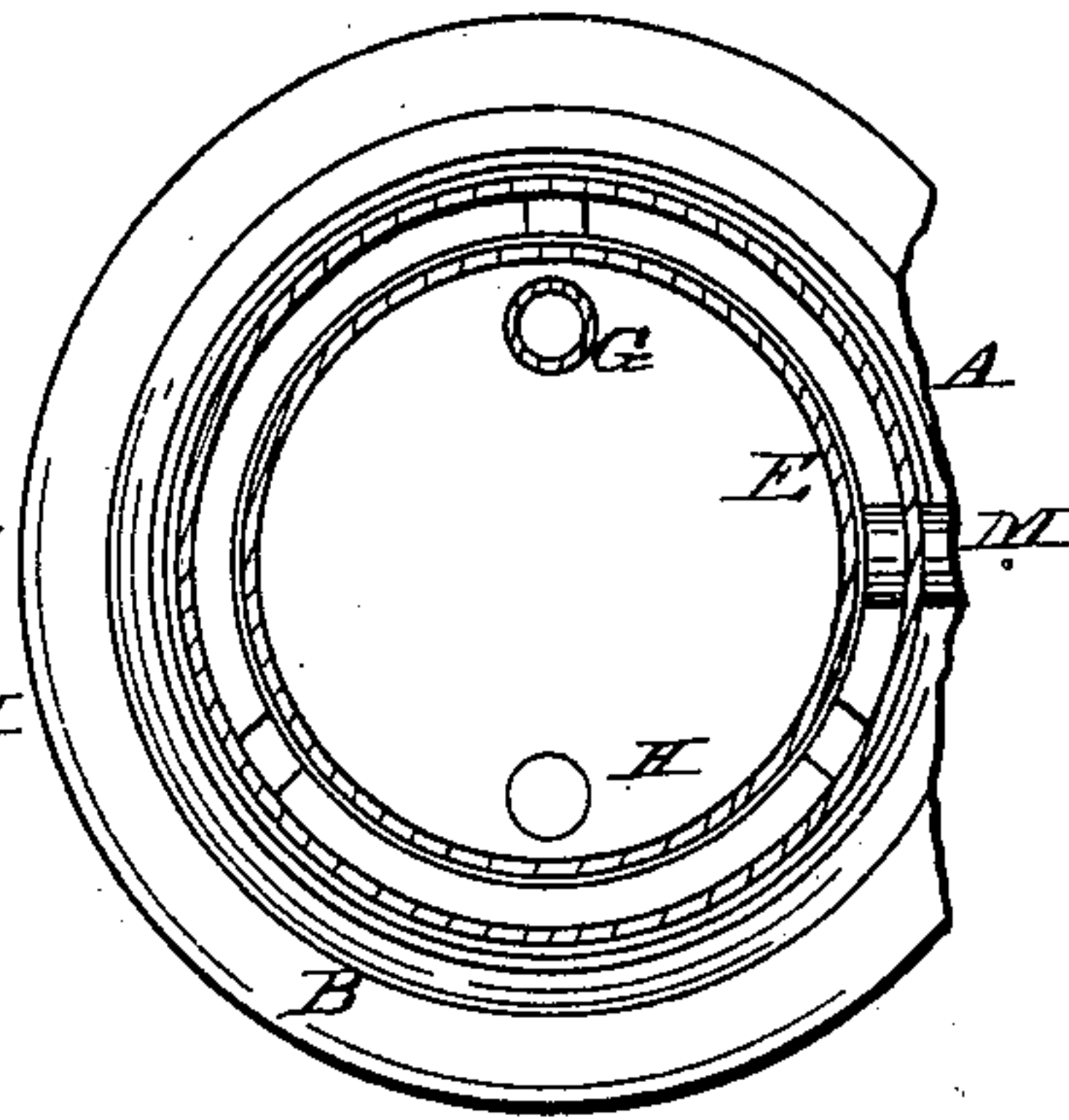


Fig. 3.



Witnesses.
J. I. Peyton
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Inventor:
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by his Atty.
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United States Patent Office.

T. A. McFARLAND, OF MEADVILLE, PENNSYLVANIA.

Letters Patent No. 64,993, dated May 21, 1867.

STEAM HEATING APPARATUS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, T. A. McFARLAND, of Meadville, in the county of Crawford, and State of Pennsylvania, have invented a certain new and useful apparatus for Warming Buildings; (which I call a Steam Stove,) of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which make part of this specification, and in which—

Figure 1 is a vertical central section through my improved apparatus.

Figure 2, a horizontal section through the same, at the line *x x* of fig. 1; and

Figure 3 a similar section at the line *y y* of fig. 1.

It is the object of my invention to provide a simple, portable, and effective heating apparatus, and one readily adaptable to use with either gas, oil, wood, or coal as fuel, and to this end my invention consists in a novel method of using both the heat given off by direct radiation from the heated metal, and that given off by steam or hot water generated in the same vessel.

In the accompanying drawings, which show one convenient way of carrying out the objects of my invention, a cylindrical body or casing, A, is shown as supported upon an open base, B, having perforations *a* near the bottom for the admission of air, and a wire-gauze screen, C, near the top for the escape of heated air. B' is the top piece of the stove. A water-chamber or boiler, D, is arranged within the casing, with its bottom just above the air-holes *a*. This chamber has an arched bottom, *d*, forming a fire-chamber, and is provided with a series of tubes, *d'*, extending through the bottom of the casing, and being open at bottom and closed at top. These tubes serve to increase the heating surface of the boiler. Above the boiler or water-chamber I arrange a steam-chamber, E, provided with a safety-valve, F. A steam pipe, G, leads from the water-chamber and discharges the steam near the top of the chamber, while a return pipe, H, conducts the waste water back to the water-chamber. As this pipe extends below the water-level, no steam can pass up it into the steam-chamber, and yet, as both pipes are open, the pressure on the two chambers is equalized. The steam which is not condensed escapes into a chamber, I, whence it may be led by a pipe, J, to another heating apparatus, or may even be used to warm other rooms. It will be noticed that I have so arranged the several heating-chambers as to leave an annular space, K, between the chambers and casing. This forms a flue for the escape of the products of combustion. My invention may readily be adapted for use with either coal, gas, gasoline, petroleum, wood, or coal, or other fuels. When used as a gas or vapor-stove, the products of combustion may be allowed to escape into the room through the wire gauze C, but when preferred an ordinary escape pipe, L, may be used and the wire gauze closed. The water enters through a pipe M. Of course the grate or fire-chamber must be adapted to the fuel. When gas is used a pipe and burner may be used, as shown in red, in fig. 1. When using petroleum, it may be burnt on the surface of water, or on a bed of fire-brick or other porous material, and the supply be regulated by a stop-cock in the supply pipe.

The operation is as follows: The water is boiled in the boiler D by applying heat to its under side, as described. The steam passes through pipe G into the steam-chamber E. That portion which is condensed re-enters the boiler through pipe H. When the pressure rises, the valve F lifts and permits the steam to pass into the chamber I, whence it may be led off to warm other parts of the building. The water of condensation formed in this chamber will run down through the valve F, when lifted, and pass into the boiler again through pipe H. The products of combustion escape through the annular flue K, and may be led off by a smoke pipe, L.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, substantially in the manner described, of the fire-chamber, the water-chamber, and the steam-chamber, with the casing or body of the stove, for the purposes set forth.
2. Connecting the water and steam-chambers by the steam and waste-water pipes, arranged as described, for the purposes set forth.
3. The valve F, arranged to operate as a safety-valve for the boiler and as a return-valve for the condensed waste steam, as described.

In testimony whereof I have hereunto subscribed my name.

T. A. McFARLAND.

Witnesses:

JAMES HORNER,
D. S. CLARK.