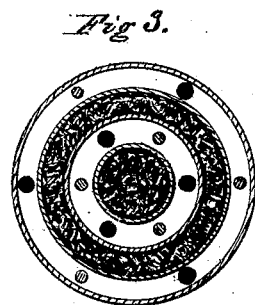
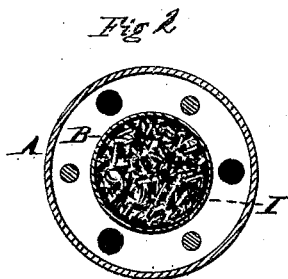
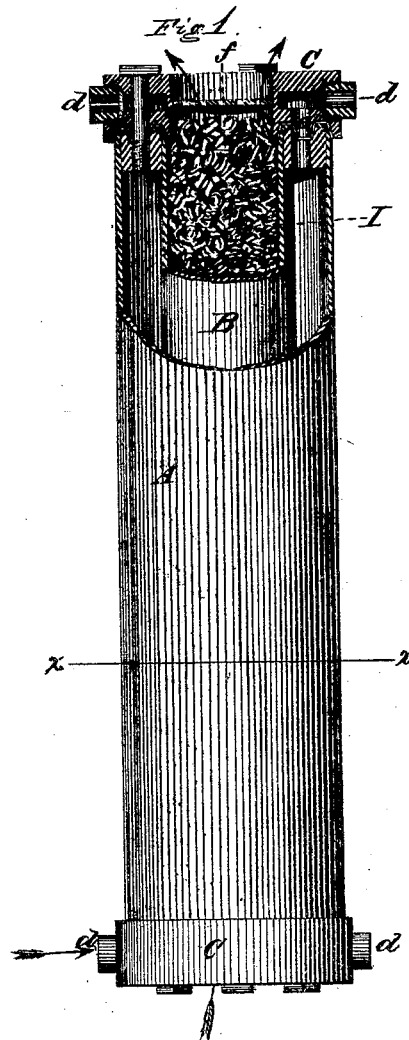


V. D. ANDERSON.

Improvement in Steam-Radiators.

No. 114,902.

Patented May 16, 1871.



Witnesses.

Harry King
Phil. S. Dodge

Inventor.

Valerius D. Anderson.
by Dodge & Munn.
Atty.

United States Patent Office.

VALERIUS D. ANDERSON, OF KEWANEE, ILLINOIS.

Letters Patent No. 114,902, dated May 16, 1871.

IMPROVEMENT IN STEAM-RADIATORS.

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, VALERIUS D. ANDERSON, of Kewanee, in the county of Henry and State of Illinois, have invented certain Improvements in Heat-Radiators, of which the following is a specification, reference being had to the accompanying drawing.

My invention relates to heaters for houses; and

The invention consists in a novel construction of a steam-radiator, as hereinafter explained.

Figure 1 is a side elevation of my improved radiator, with a portion broken away to show its interior.

Figure 2 is a transverse section of the same on the line *x x* of fig. 1.

Figure 3 is a similar view of the same in a modified form.

In constructing my radiator I make a sheet-metal cylinder, having an inner wall, B, and an outer wall, A, arranged concentrically, so as to form an annular steam-space or chamber between them, as shown in fig. 1.

When thus arranged an open space is left at the center within the inner cylinder B. This space I then fill loosely with iron turnings, bent or twisted pieces of sheet-iron, scraps of tin, or any other heat-conducting material, as represented at I, figs. 1 and 2, this material being secured therein by a perforated diaphragm, *f*, at top and bottom.

To each end of the cylinder is secured an annular head, C, which has within it a chamber or passage, connected by holes, *e*, with the steam-chamber, these holes or passages extending through the annular head or ring, secured between the inner and outer walls, as represented in fig. 1.

Steam-pipes *d* are tapped or screwed into the heads C, both at top and bottom, the latter for the steam to enter the chamber through, and the former for its escape therefrom.

The operation is as follows:

The radiator being located as desired within the room or building to be heated, it is then connected with the boiler or steam-generator, and steam admitted to the space between its inner and outer walls.

Air is brought by a suitable flue or pipe from outdoors, and passed up through the central space among

the heat-conducting material I, which, having become heated by the steam in the surrounding chamber, imparts heat to the passing air, which flows thence out at the top, through the perforated diaphragm *f*, as indicated by the arrows. At the same time, of course, the outer cylinder or wall A of the steam-chamber radiates heat direct into the room.

The great object gained by a radiator constructed on this plan is an immense heating surface in proportion to the size of the radiator, by which means a large quantity of air can be warmed without raising the temperature of the heating surfaces to a high degree, thereby keeping the air in a purer and more perfect state for breathing, and at the same time insuring good ventilation, both of which are requisite for health.

It is of course obvious that if desired the radiator may be made double by placing one steam-chamber within another, thus creating two steam-spaces, and two spaces for the heat-conducting material and the passage of air, as shown in fig. 3; or, if preferred, it may be made of any other form, as oval, rectangular, or otherwise, as fancy or the situation where it is to be located may dictate.

It is further obvious that the heating may be performed by means of hot water or heated air; but I prefer steam of a very low pressure as being best adapted to the purpose.

This radiator is more especially designed for use in connection with the steam-generating apparatus heretofore patented to me; but it may be used with any other.

Having thus described my invention,

What I claim is—

A radiator, consisting of a steam-chamber or chambers, and an air-heating space or spaces, filled with heat-conducting material, for warming the air as it passes through or among this material, substantially as set forth.

VALERIUS D. ANDERSON.

Witnesses:

PHIL. T. DODGE,
W. C. DODGE.