

No. 680,364.

Patented Aug. 13, 1901.

I. D. SMEAD.
RADIATOR.

(Application filed Mar. 23, 1901.)

(No Model.)

Fig. 1.

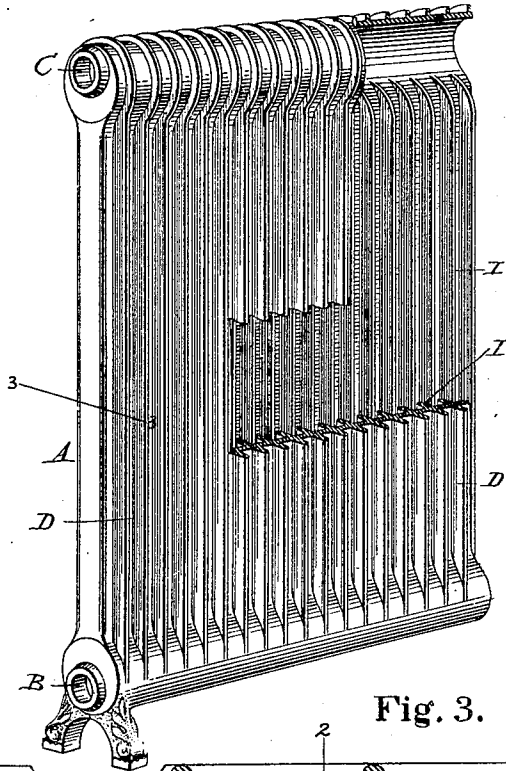


Fig. 2.

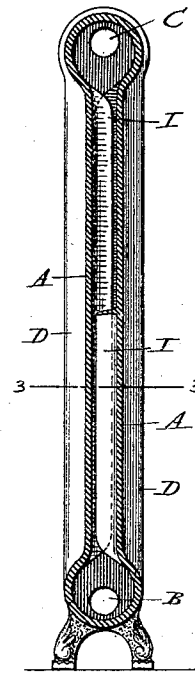
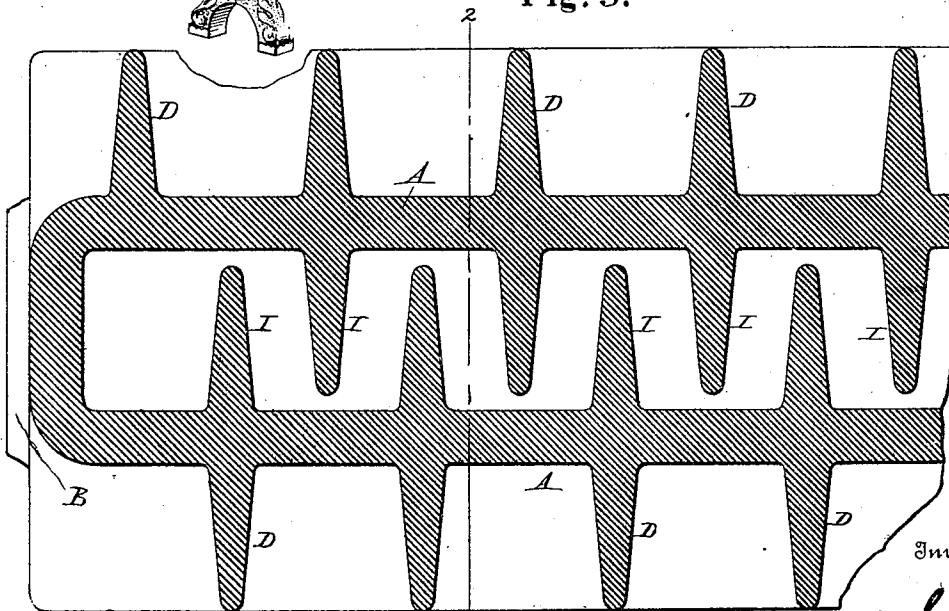


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

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RADIATOR.

SPECIFICATION forming part of Letters Patent No. 680,364, dated August 13, 1901.

Application filed March 23, 1901. Serial No. 52,599. (No model.)

To all whom it may concern:

Be it known that I, ISAAC D. SMEAD, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

My present invention relates to radiators for heating rooms by means of hot water or steam; and the invention consists in a novel construction of the radiator whereby its efficiency is increased and the cost of its construction and its liability to leak are greatly decreased.

Figure 1 is a perspective view of a radiator made on my plan, with a portion broken away to show the interior. Fig. 2 is a transverse vertical section on the line 2 2 of Fig. 3; and Fig. 3 is a horizontal section on the line 3 3 of Figs. 1 and 2, the same being enlarged to the full size.

The usual method of constructing radiators is to make a series of hollow cast-iron loops of various forms and then connect a sufficient number of these loops to make a radiator of the size required. These loops are usually cast with annular bosses on their opposite sides at top and bottom, which have to be dressed off on their abutting faces to enable them to fit snugly together. In each of these bosses a screw-thread has to be tapped for the reception of threaded nipples or short sections of pipe of the proper size to unite the several sections. In some cases the sections are united without any nipples by using some sort of packing between the abutting bosses and then drawing them together by means of a rod extending through them from end to end and provided with nuts at its opposite ends. It will readily be seen that these methods of construction involve a large amount of labor, thereby rendering them expensive, and that owing to the large number of joints they are liable to leak, and when hot water is used this leakage is apt to produce much injury to the ceilings or walls of the rooms, often loosening the plastering and destroying the papering or other ornamentation. Another objection to radiators as usually made is that they fail to transmit the heat from the water or steam within them to the surrounding air as effectually or quickly as is desirable.

The object of my invention is to remedy these objections, and to accomplish these results I cast my radiator in a single piece and of the form shown in the accompanying drawings, in which A A indicate the two side walls, which stand parallel to each other and preferably from an inch to an inch and a half asunder, as shown in Fig. 3.

For the purpose of enabling the heat of the water or steam to be more effectually and quickly absorbed and radiated by the metal I form on the interior face of the walls a series of flanges I I, as shown, and directly opposite these on the exterior face a corresponding series of flanges D D.

As shown in Fig. 3, the interior flanges are made to project nearly across the interior space, leaving only sufficient room for the water or steam to pass between their edges and the wall opposite, the flanges on one wall projecting into the space between the flanges on the opposite wall, thereby forming a tortuous or zigzag space extending from end to end of the radiator.

It is obvious that the interior flanges may be used with advantage without those on the exterior, as they will absorb the heat and transmit it to the outer wall; but I prefer to use both the interior and exterior flanges together, because by so doing the heat is not only more readily absorbed, but also more readily radiated.

While I have shown the flanges arranged vertically, it is obvious that they may be arranged horizontally and produce the same result so far as absorbing and conducting the heat is concerned; but I prefer the vertical arrangement because the flanges thus arranged would be less liable to accumulate sediment on the interior and dust on the exterior than they would if arranged horizontally. These interior flanges being thus surrounded by or immersed in the heating medium, whether of water or steam, quickly absorb the heat and conduct it to the exterior flanges D much more effectually and rapidly than would a plain interior wall, and as the heat is thus more quickly absorbed the water or steam is correspondingly more quickly cooled, and hence the circulation, which in low-pressure steam and hot-water heating depends entirely upon the difference in gravity

between the ascending and descending currents from and to the boiler, is rendered more rapid. Being cast integral there are no joints to fit or to leak except at the bosses B and C at top and bottom for the reception of the pipes which convey the water or steam, and hence the cost of construction and the liability of leakage are reduced to the minimum.

In practice I make the radiator only about three inches in thickness, by which its projection from a wall into the room is reduced to from one-half to one-third of that of the ordinary radiators in common use, thereby saving much space and rendering their presence in a room far less objectionable.

As shown in Figs. 1 and 2, at the top and also at the bottom the side walls are curved outward as far as the outer edges of the exterior flanges, thereby forming an enlarged space or chamber which extends from end to end of the radiator at both top and bottom, so that the hot water, which enters at the upper opening C, has an unobstructed passage along the entire top, from whence it flows downward in the spaces between the inner flanges, and the cool water at the bottom has in like manner an unobstructed passage across the bottom to the outlet B.

It is obvious that by making the radiator of greater thickness or area transversely the inner flanges can be used with the same beneficial effects without overlapping, and where space is no particular object they may be so made; but for use in dwellings I prefer to make the radiator with the inner flanges overlapping, as shown, because by so doing the radiator will occupy less space while radiating the same amount of heat.

The exterior faces of the walls between the flanges will be ornamented with suitable figures or designs, thereby rendering them highly ornamental.

The advantages of a radiator thus constructed are too obvious to require further explanation or statement.

Having thus described my invention, what I claim is:—

1. A radiator composed of two substantially parallel walls with an intervening water-space, each of said walls being provided with ribs on both their inner and outer faces, the ribs on one inner face alternating with those on the opposing inner face and arranged to form a series of vertical channels extending from top to bottom, substantially as shown and described.

2. A radiator formed with two substantially parallel opposing walls with an intervening space for water, each wall being provided with a series of vertical ribs on their inner faces, the ribs on one face projecting into the spaces between the ribs on the opposing face, thereby forming a series of vertical channels and also a tortuous passage from end to end of the radiator, substantially as shown and described.

3. A radiator formed with two opposing walls, each provided with ribs or projections on their inner faces, the ribs or projections of one inner face extending into the spaces between those of the opposing inner face; and an enlarged chamber extending throughout the length of the radiator at both the top and bottom thereof, said chambers being in direct communication with the passages formed intermediate the ribs, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ISAAC D. SMEAD.

Witnesses:

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