April 12, 1927. 1,624,565

E. J. STODDARD

RADIATOR

Filed Nov. 26, 1923 3 Sheets-Sheet 1.

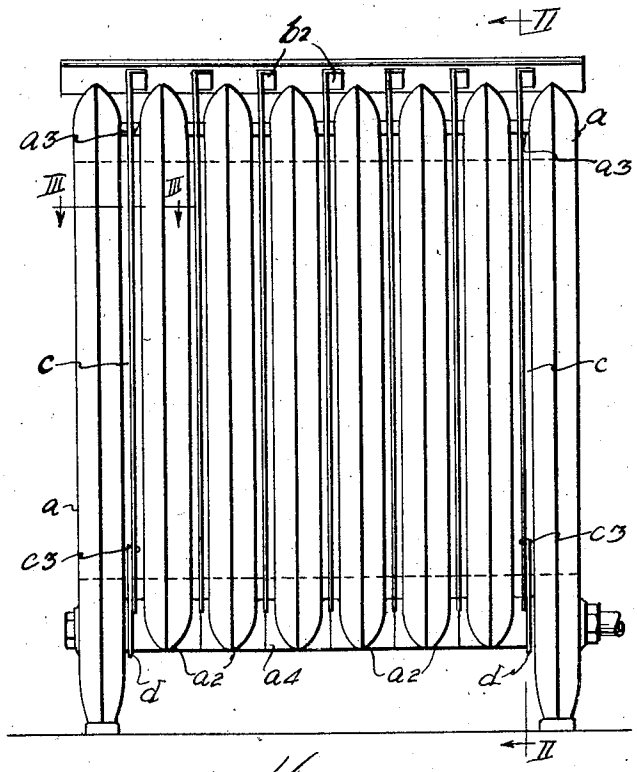


Fig. 1

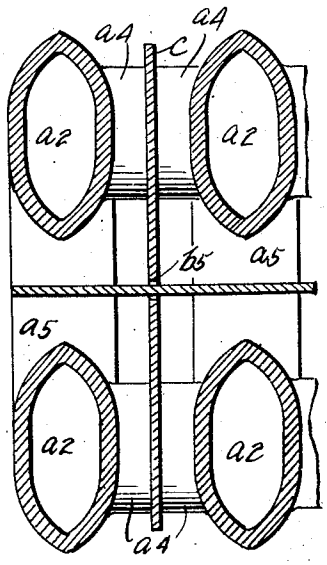
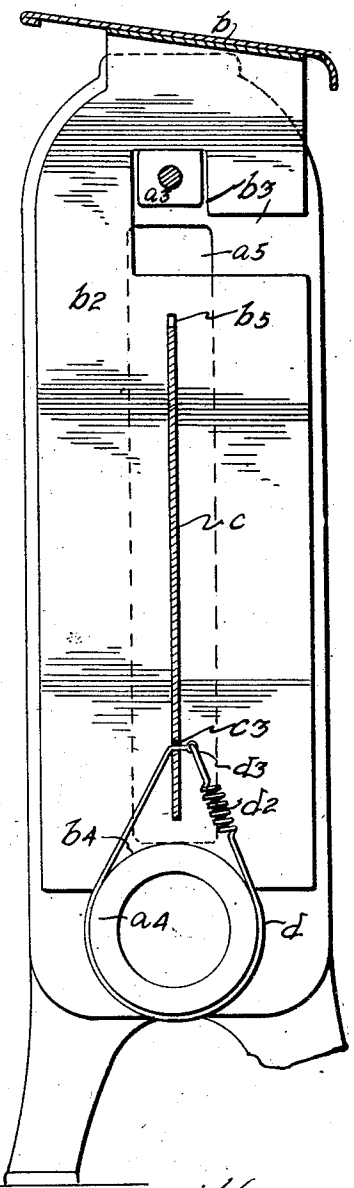


Fig. 3



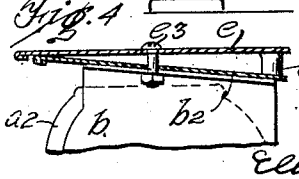


Fig. 4

Fig. 2

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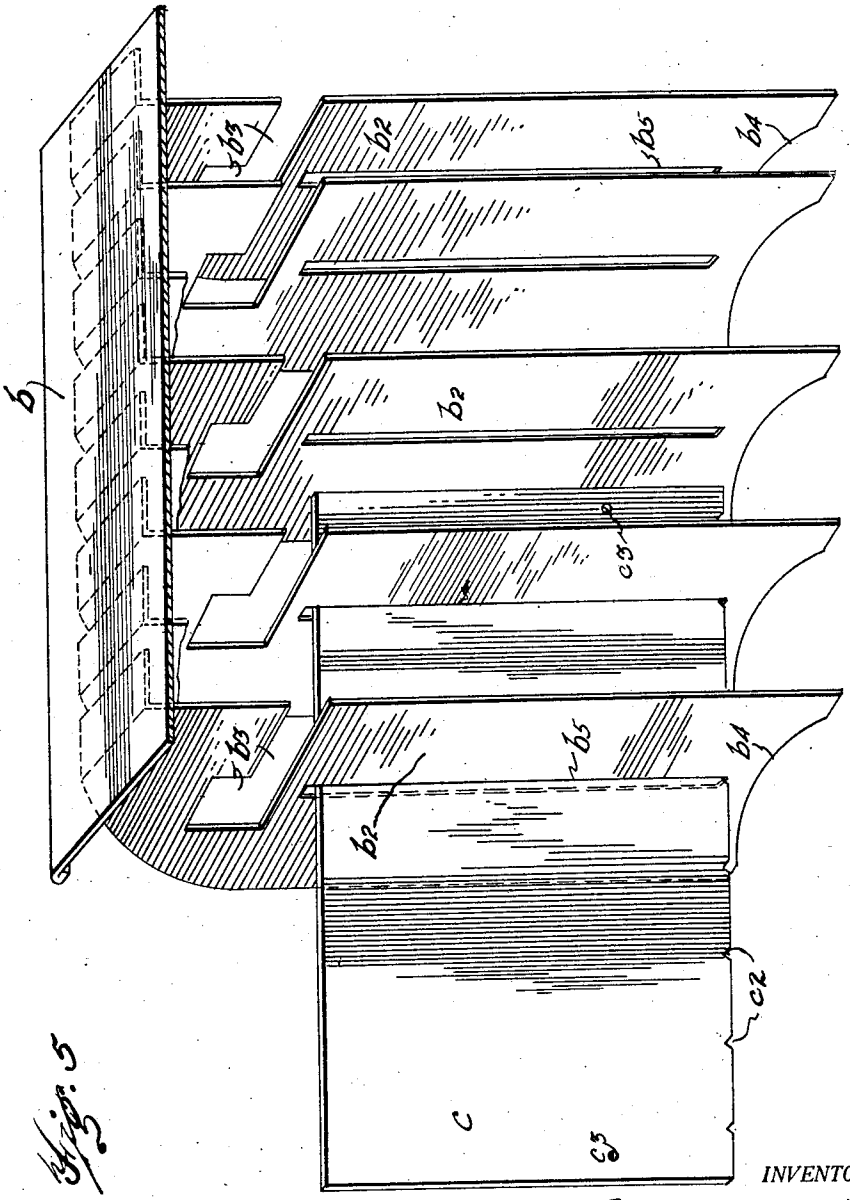


Fig. 5

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April 12, 1927. 1,624,565

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RADIATOR

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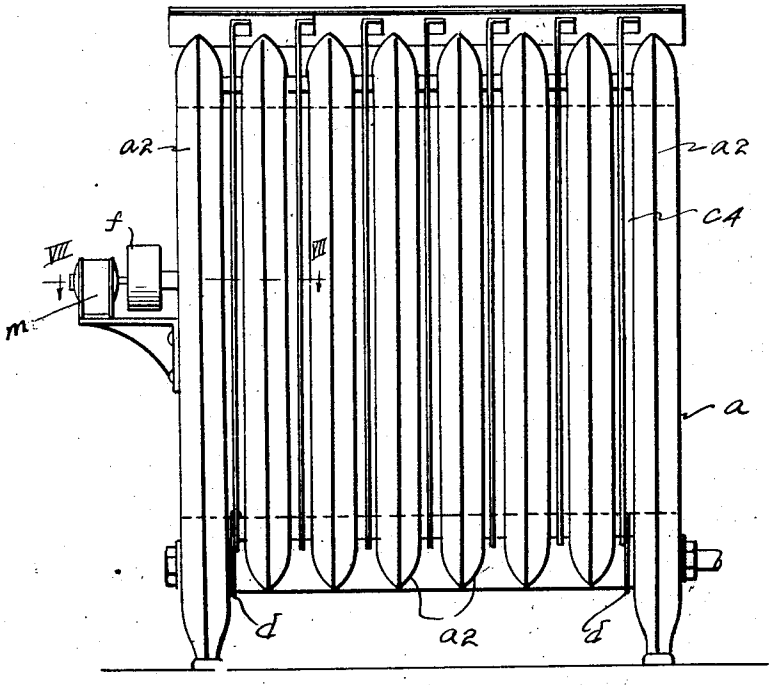


Fig. 6.

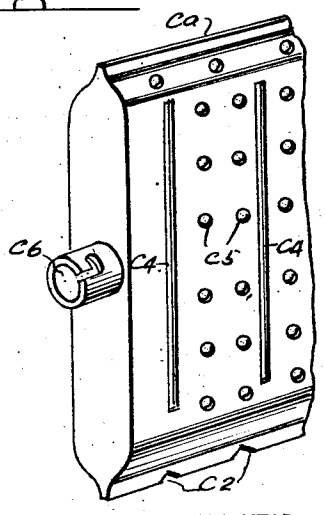


Fig. 8

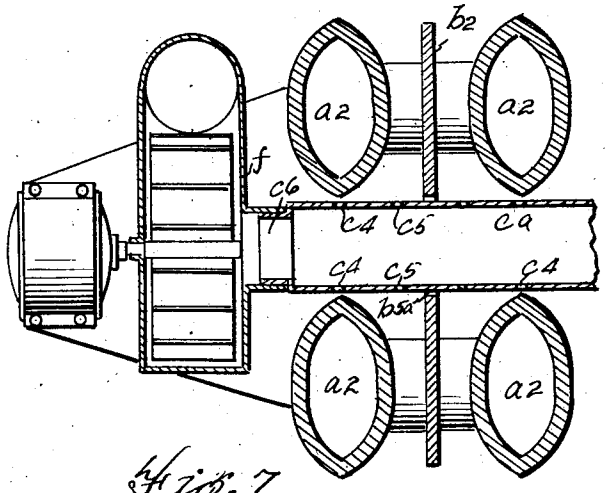


Fig. 7

INVENTOR.

Elliott J. Stoddard

Patented Apr. 12, 1927. 1,624,565

UNITED STATES PATENT OFFICE.

ELLIOTT J. STODDARD, OF DETROIT, MICHIGAN.

RADIATOR.

Application filed November 26, 1923. Serial No. 676,905.

My invention relates to radiators of the kind used for heating buildings, and objects of my improvements are to provide an apparatus which may be easily adjusted to radiators as now constructed, which will increase the heating effect, afford more radiating surfaces and provide a deflector.

I accomplish these objects in the apparatus illustrated in the accompanying drawings, in which,—

Figure 1, is an elevation of a radiator with an apparatus embodying my invention attached thereto.

Figure 2, is a section to an enlarged scale, on the line II—II, Figure 1.

Figure 3, is a detail section to an enlarged scale on the line III—III, Figure 1.

Figure 4, is a detail sectional elevation of the upper portion of the device, such as that illustrated in Figure 2, with means for presenting a level surface at the top thereof adjusted thereto.

Figure 5, is a perspective of the apparatus embodying my invention, partly disassembled and removed from the radiator; the back edge of the deflecting plate being broken away.

Figure 6, is a view similar to Figure 1, illustrating a modified construction.

Figure 7, is a detail section to an enlarged scale on the line VII—VII, Figure 6.

Figure 8, is a detail perspective.

a, indicates the radiator as a whole. This consists of a plurality of sections a^2 aggregated into a unitary structure, the sections being in line with each other and spaced from each other by spacing lugs a^3 at the top and a^4 at the bottom.

b, is a deflecting plate of the general description used to deflect the rising current of air out-ward into the room and away from the wall curtains or window just above the radiator. b^2, indicates steel plates secured at their upper ends to the deflecting plate b and extending downward therefrom parallel to each other. The plates b^2 are spaced apart so that each plate, when adjusted to the radiator shall come at the center of each of the air spaces between the sections a^2. Each of the plates b^2 has an L-slot b^3 towards its upper portion and is cut away at b^4 at its lower end.

The structure consisting of the deflector plate b and the downwardly extending plates b^2 is adjusted to position upon the radiator by moving it inward from the front so that the lugs a^3 shall enter the horizontal portion of the slots b^3. When the plates have been pressed inward so that the lugs a^3 come at the inner ends of the slots b^3 the plate b is directly above the sections a^2 of the radiator. The whole construction is now lowered so that the lugs a^3 enter and engage in the vertical portion of the slots b^3, while the cut away portion b^4 at the lower ends of the plates b^2 engage upon the upper surface of the spacing lugs a^4.

There are two rows of vertically extending portions of the radiator sections a^2, one at the back and one at the front, as shown in Figure 3. This leaves an opening a^5 through the radiator from end to end and located between the front and rear rows of uprights of the section.

The plates b^2 have elongated vertical slots b^5 therein at their portions which come at the center of the passageway a^5 and these slots b^5 in the various plates are in line with each other.

c (Fig. 5) is a locking plate of approximately the width of the length of the slots b^5. This plate is provided with inverted V-notches c^2 along its lower edge spaced from each other the same distance that the plates b^2 are located from each other. After the plates b^2 are adjusted to position on the radiator the plate c is placed endwise through the slots b^5 and is then allowed to fall slightly engaging the plates b^2 in the slots c^2 so as to hold the plates b^2 at their lower ends at their proper distance apart, so that they shall come accurately at the center of the air spaces between the sections a^2. c^3—c^3, are holes at each end of the plate c some distance above its lower edge.

d—d, (Figures 1 and 2) are wires around the lugs a^4 and engaging through the apertures c^3. d^2, (Fig. 2) is a spring interposed in the wire d. A considerable tension is put upon the wire d so as to hold the plates c and therethrough the plates b^2 and b firmly and rigidly in position.

In radiators, the heat is given off from the sections a^2 in two ways; first, by convection of the air which comes in contact with the hot surfaces in said sections, becomes heated and rises conveying away and distributing the heat through the room; second, by radiation by which the heat passes through the air without heating the same.

but is absorbed by solid material. Where the hot surfaces of the sections a^2 are placed opposite each other, the surface of each section radiates to the adjacent surface of the other section which absorbs the same and the radiant heat does not help to heat the room. When the plates b^2 are interposed between two sections, a hot surface of each of these sections radiates to that plate and heats the plate, and the air coming in contact with this plate is heated thereby, rises and is distributed in the room so that in this way the radiant heat is largely utilized.

The plate c passing between the two rows of uprights is heated by radiation from the adjacent surfaces of said uprights and acts to heat the air that comes in contact therewith. The plate c also serves as a locking plate for the entire construction and the notches in its lower edge accurately space the plates b^2 apart toward their lower ends.

In the construction of Figures 6, 7 and 8, the single plate c is replaced by a construction having front and back parallel walls spaced from each other and enclosing end plates. It is also provided with an opening c^6 at its end surrounded by an attaching flange. c^4 and c^5, indicate slots and holes in the side plates. f, is a means for creating a current of air through the construction C^a, shown for example as a fan having an enclosing casing, which casing is connected with the opening c^6 to the interior of the construction C^a. m, is a motor by which the fan may be operated.

By setting the motor m in operation, the fan f is made to produce a current of air through the construction C^a, which air is heated by contact with the hot surfaces in the radiator and distributed through the surrounding space.

The plates b^2 are provided with enlarged slots b^{5a} to permit the passage of the construction C^a.

What I claim is:—

1. A radiator having heating sections, a deflecting plate located above said sections, and a plate united to said deflecting plate and extending downward therefrom between two of said sections, said sections having a lug extending between them, said plate engaging said lug so as to be supported thereby.

2. A radiator having heating sections, a deflecting plate located above said sections, and a plate united to said deflecting plate and extending downward therefrom between two of said sections, said sections having a lug extending between them, said plate engaging said lug so as to be supported thereby, said downwardly extending plate being provided with a slot extending inward from one of its edges adapted to receive said lug.

3. In a radiator having sections, vertical plates extending between said sections, said plates being provided with vertical slots therethrough, and a second plate engaging through said slots at right angles to said first mentioned plates.

4. In a radiator having sections, vertical plates extending between said sections, said plates being provided with vertical slots therethrough, and a second plate engaging through said slots at right angles to said first mentioned plate, said second plate being provided with slots at its edge adapted to engage the first named plates.

5. In a radiator having a plurality of sections and lugs extending between said sections, a series of plates united together to form a unitary construction, said plates being provided with slots in their adjacent edges adapted to engage over said lugs to removably secure said construction to said radiator with said plates between said sections.

6. In a radiator having a series of heating sections having parallel rows of uprights, a series of plates extending vertically between said sections and provided with vertical slots between said uprights, and a plate extending through said slots between said rows of uprights.

7. In an apparatus of the kind described, in combination with a deflecting plate, a series of radiator sections having lugs extending between them, plates extending downward from said deflecting plate and having L-shaped slots adapted to engage said lugs, for the purpose described.

8. In an apparatus of the kind described, in combination with a deflecting plate, a series of radiator sections having lugs extending between them, plates extending downward from said deflecting plate and having L-shaped slots adapted to engage said lugs, said sections also having lugs extending between them at a point spaced from the first mentioned lugs, said downwardly extending plates being adapted to engage both of said lugs when adjusted to position.

9. In an apparatus of the kind described, in combination with a deflecting plate, a series or radiator sections having lugs extending between them, plates extending downward from said deflecting plate and having L-shaped slots adapted to engage said lugs, said sections also having lugs extending between them at a point spaced from the first mentioned lugs, said downwardly extending plates being adapted to engage both of said lugs when adjusted to position, said vertically extending plates being provided with vertical slots therethrough, and a plate extending through and engaging in said slots, and means for securing the last named plate to the radiator

sections so as to secure the first named plates in their position on said radiator.

10. In a radiator having a series of sections with parallel rows of uprights, a series of plates extending between said sections and provided with vertical slots between said uprights and a hollow plate extending through said slots, said plate consisting of an enclosed construction having foraminous walls and means for forcing air through said construction.

In testimony whereof, I sign this specification.

ELLIOTT J. STODDARD.