

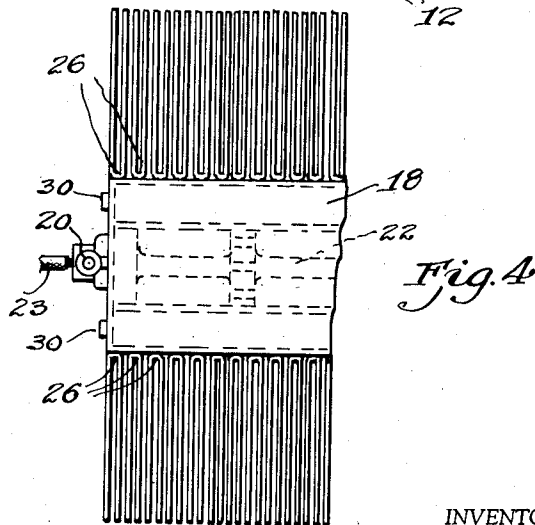
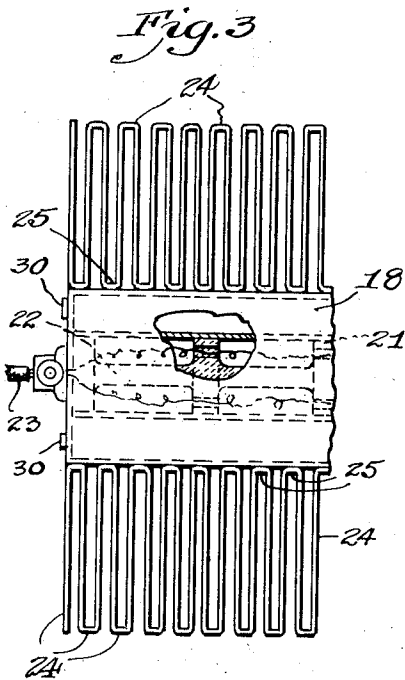
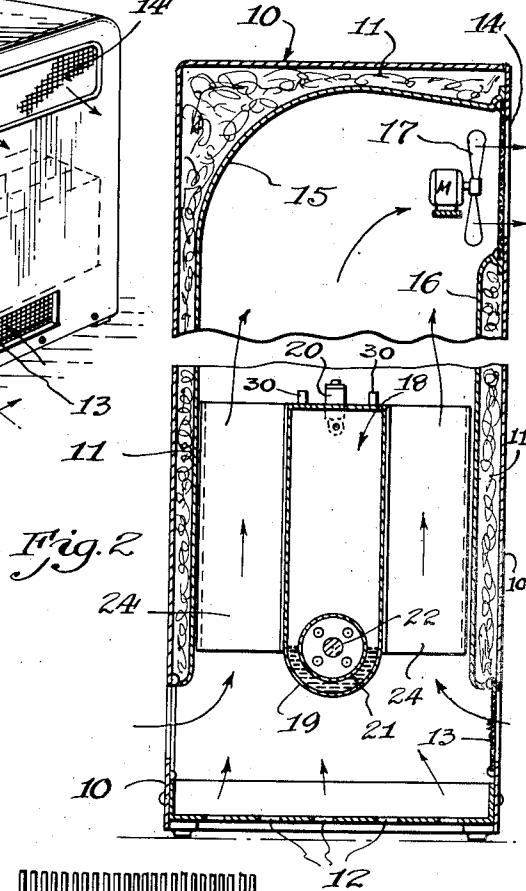
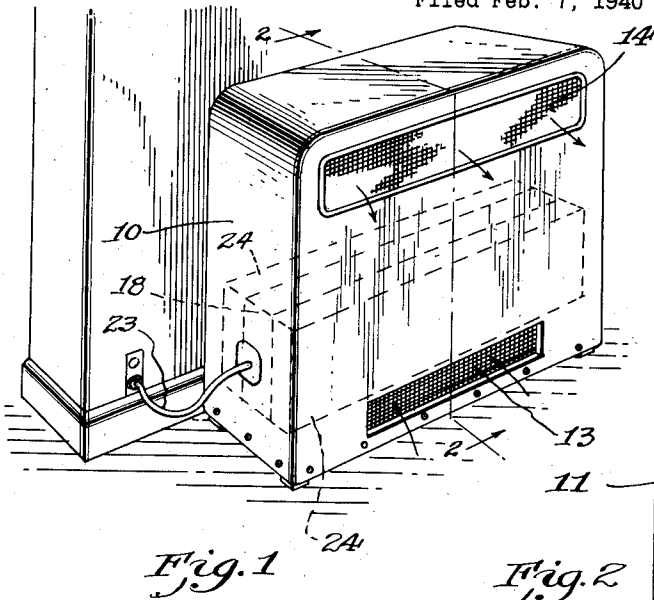
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R. R. FISHER

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CABINET RADIATOR AND HEATING UNIT

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INVENTOR.
Roy R. Fisher
BY
Barner, Kuehle, Laughlin & Kirsch
ATTORNEYS

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CABINET RADIATOR AND HEATING UNIT

Roy R. Fisher, Detroit, Mich.

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4 Claims. (Cl. 219—39)

This invention relates to a portable radiator of the cabinet type.

It is an object of the present invention to provide a novel cabinet design for a portable radiator for the heating of the atmosphere in homes and offices, and other places of abode. One object of the invention is to provide a cabinet which is so designed that it may be used without damage to walls against which it is placed either by direct heat or deposit of dust and dirt from currents of air.

A further object is to provide a novel heating unit for such cabinet arranged to conduct a maximum amount of heat to the air passing through the cabinet by induced circulation.

Other objects and features of the invention, having to do with details of design and operation including, for example, the positioning of the heating units and the formation of the heating fins, will be brought out in the following description and claims.

In the drawing:

Fig. 1 is a perspective view of the cabinet positioned adjacent a wall.

Fig. 2 is a vertical section on the lines 2—2 of Fig. 1.

Fig. 3 is a detail plan view of a portion of the preferred form of heating unit.

Fig. 4 is a view similar to Fig. 3 showing a modified type of fin.

The cabinet 10 is an attractively designed rectangular cabinet adapted to be positioned adjacent the wall of a home or any room to be heated. The back, front, top, and ends of the cabinet are insulated as at 11. Insulation of the back protects the wall against which the cabinet is located and insulation of the top permits it to be used for resting books, magazines or other articles without damage thereto. Insulation of the front and ends of the cabinet permits its use in places where young children are free to come in contact with the cabinet. Inlets for air to pass through the cabinet are provided in the bottom at 12. Opposed inlets 13 are provided in the back and front, and an outlet 14 is at the top and front. An inner back plate 15 cooperates with a front lining 16 to form a conduit through which air is passed and directed horizontally outward into the room. If desired, a small fan 17 driven by an electric motor, may be used to create an air current. Otherwise, the heat from the boiler unit causes an induced draft through the stack or conduit.

The heating unit consists of a liquid and steam retainer box 18 which has a vertical cross sec-

tion, as shown in Fig. 2, wherein the box is from three to four times as high as it is wide. The lower edge of the box is semi-cylindrical in shape, as shown at 19. Box 18 extends throughout the length of the cabinet. An air valve 20 permits the escape of air from the retainer or heating chamber and also serves as a safety valve.

Parallel and concentric with the semi-cylindrical bottom 19 of the boiler unit 18 is located a tube 21, the inside of which is sealed from the inside of the boiler unit and the outside of which is in contact with the liquid and fluid within the boiler unit. This tube is positioned adjacent, but spaced slightly from, the bottom so that there is a restricted passageway around it. Within the tube 21 is positioned a suitable electric heating element 22 connected to a lead wire 23. These heating elements are well known in the art and need not be described here.

On the long parallel sides of the boiler unit 18 are members arranged to conduct heat from the boiler to air passing through the cabinet. In the preferred form, these members consist of long strips 24 bent sinuously and welded in heat conducting relation at spaced points at the sides of the boiler unit as at 25. These members 24, in cooperation with the inner walls of the cabinet, form vertical passages through which air must pass to reach the outlet. By spacing the fins, as shown in Fig. 3, considerable contact surface is provided so that there will be a free transfer of heat. In Fig. 4, the heat passages at the sides of the boiler unit are formed by a U-shaped members 26 which are each welded in spaced parallel relation along the sides of the boiler unit.

By locating the cylindrical heating tube 21 directly adjacent the bottom 19, there is formed at the bottom a relatively thin wall of water around the lower portion of the heating tube. This makes it possible to heat the water very rapidly and transform it into steam so that the entire box 18 will be heated up. Only a small quantity of water is needed and, therefore, rapid heating is obtained. Due to the rapid conductivity of the metal used in forming the box 18 and the fins, the heat is transferred to the atmosphere in a very efficient manner.

The heating units are positioned in the cabinet by small brackets 30 which can be spot welded or bolted to the end walls of the cabinet 10. Other suitable supporting means may, of course, be used.

I claim:

1. A portable heating device for the heating of buildings and enclosures including a heating unit comprising a single longitudinally extending horizontal metal container having a height approximately three to four times its width, and formed with a semi-cylindrical bottom, a tube extending longitudinally of said container directly adjacent but spaced slightly from, the bottom thereof, an electrical heating unit within said tube for passing heat to liquid within said container, and heat exchange elements comprising sinuous metal strips fastened in heat conducting relation at spaced points along each side of said container whereby flues are formed for the passage of air being heated.

2. A portable heating device for the heating of buildings and enclosures including a heating unit comprising a horizontal longitudinally extending metal container having a height approximately three to four times its width, and formed with a semi-cylindrical bottom, a tube extending longitudinally of said container directly adjacent but spaced slightly from the bottom thereof, an electrical heating unit within said tube for passing heat to liquid within said container, and heat exchange elements comprising spaced parallel metal strips along the sides of said container arranged to form vertical passages for air being heated.

3. A heating device comprising a cabinet and

a heating unit in the lower portion of said cabinet comprising a box having rectangular cross sections extending longitudinally of said cabinet, a boiler unit directly adjacent the bottom of said box comprising a tube passing through the box and spaced slightly from the bottom, and an electrical heating unit within said tube for conveying heat to said tube and to water surrounding said tube within said box, and heat exchange elements comprising spaced parallel metal strips welded along the sides of said container and arranged to form vertical passages for air being heated, said box and said heat exchange elements being removably supported as a unit in said cabinet.

4. A heating device comprising a cabinet and a heating unit in the lower portion of said cabinet comprising an elongated boiler, a container mounted longitudinally within said boiler and spaced adjacent the bottom of said boiler, said container having electric resistance wires mounted therein, means to insert a relatively small amount of a volatile liquid within said boiler, said boiler and heating unit being adapted to receive said liquid between said container and the bottom of said boiler, a plurality of spaced parallel metal strips extending throughout substantially the entire height of said boiler and welded to the longitudinal vertical walls of said boiler.

ROY R. FISHER.