Feb. 19, 1957 R. W. GLATT 2,782,007

BASEBOARD RADIATOR

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FIG. 1.

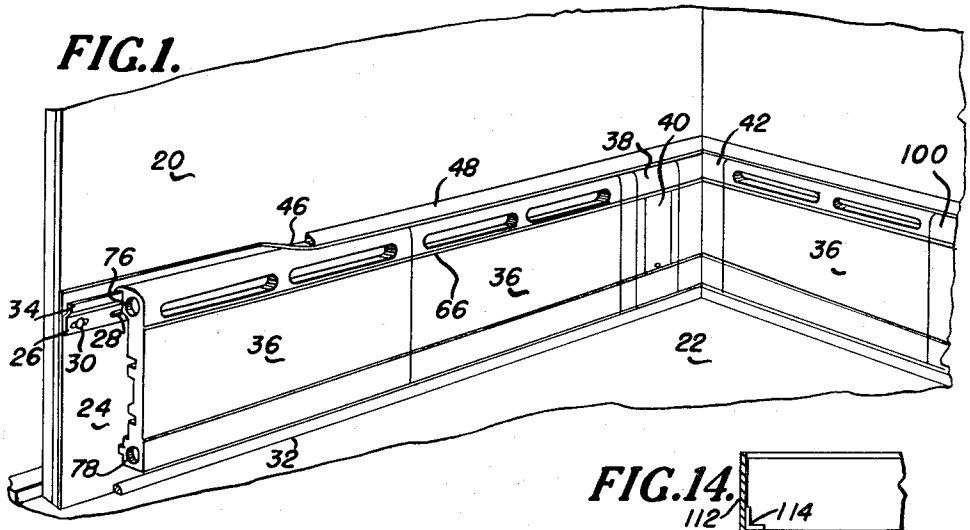


FIG. 14.

FIG. 5.

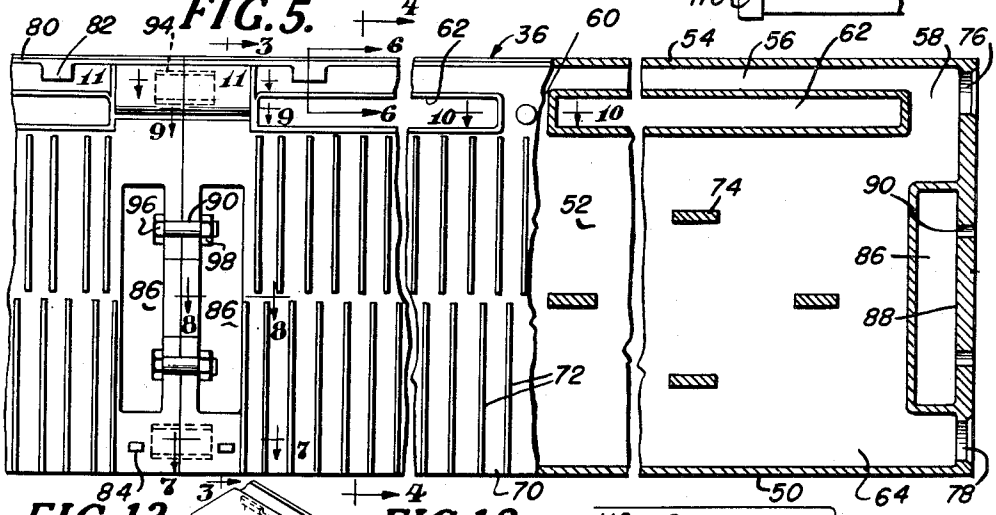


FIG. 13.

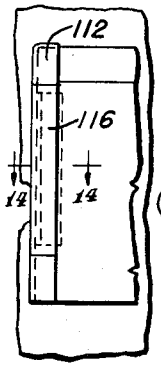
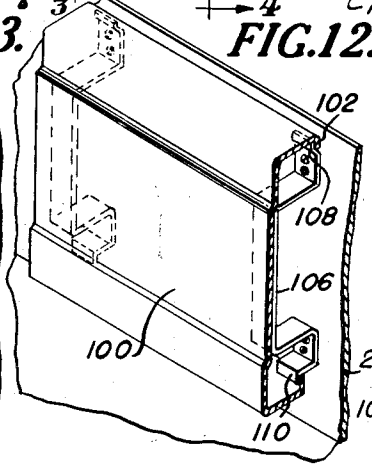


FIG. 12.



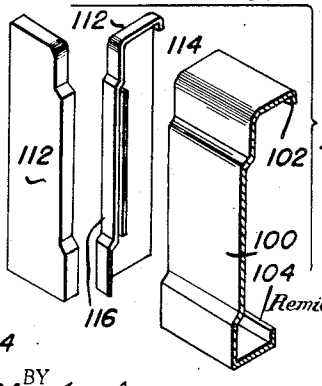


FIG. 15.

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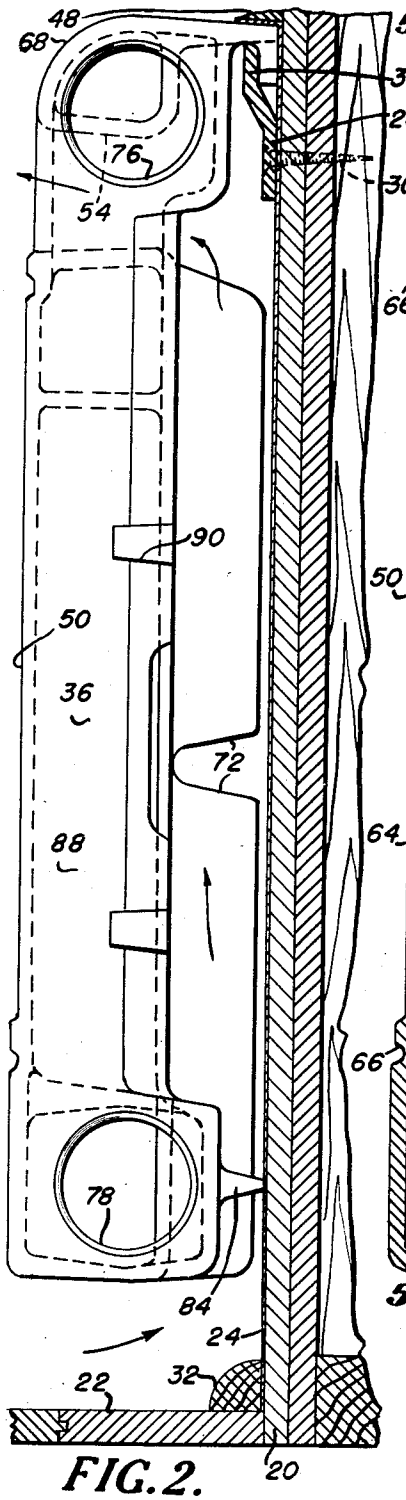


FIG. 2.

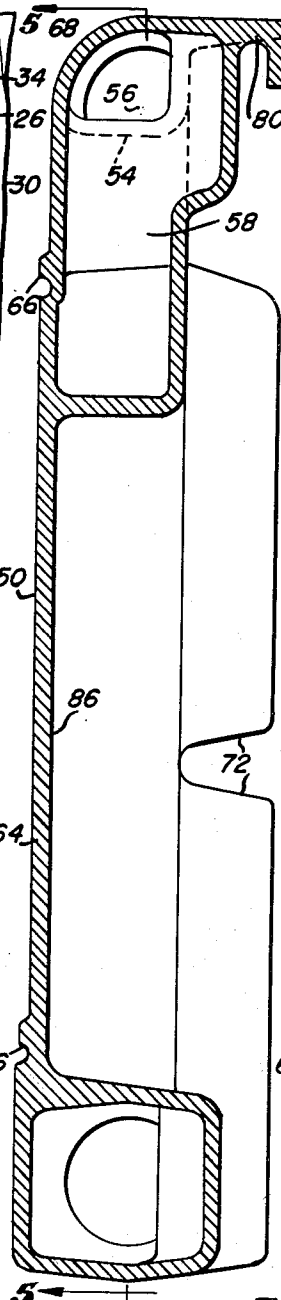


FIG. 3.

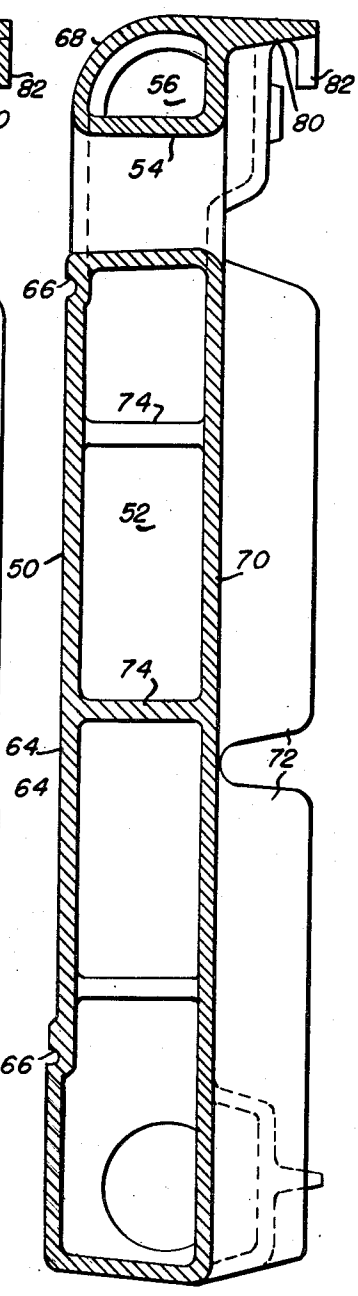


FIG. 4.

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FIG. 6.

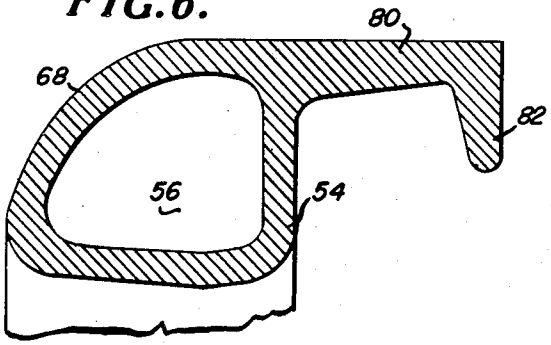


FIG. 7.

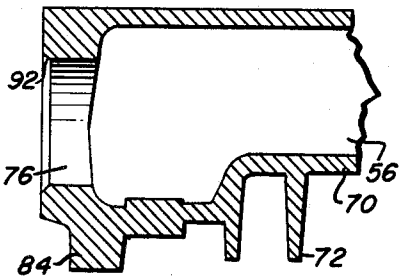


FIG. 8.

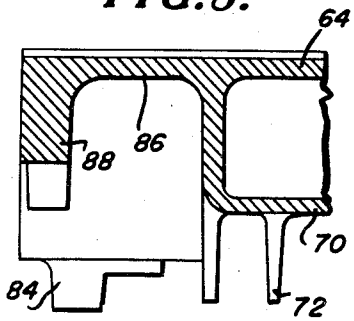


FIG. 9.

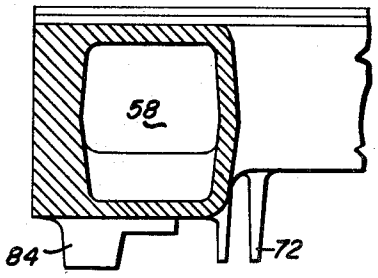


FIG. 10.

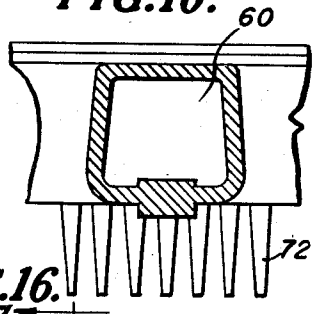


FIG. 11.

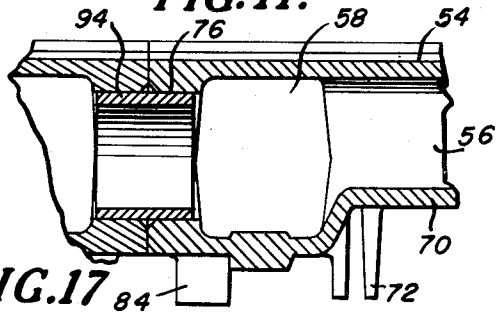


FIG. 16.

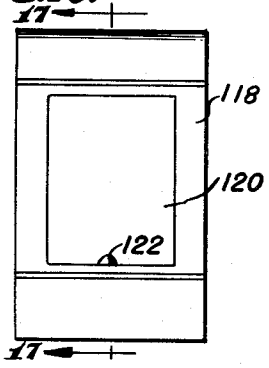
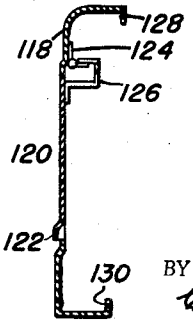


FIG. 17



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2,782,007

BASEBOARD RADIATOR

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Application May 14, 1954, Serial No. 429,717

3 Claims. (Cl. 257—133)

This invention relates to heating equipment, and particularly to baseboard radiators adapted for forced hot water or two pipe steam heating systems.

It is a principal object of the invention to provide a novel and improved unitary, cast baseboard radiator section of high efficiency and capacity. The radiator section is fully backed by fluid, and designed for efficient air flow, to achieve effective convection heating as well as radiation.

Another object of the invention is to provide a novel radiator unit comprising a plurality of sections, joined in fluid communication by nipples and maintained in proper alignment and adjacency by bolts or similar fastening elements.

A further object is to provide a novel radiator assembly adapted for wall mounting adjacent a floor, including a heat reflecting lining and a continuous hanger strip, which supports the radiator sections in spaced relationship to the lining and to the floor. The radiator unit is supported above the floor solely by the wall mounted hanger strip, which is adapted to accommodate expansion and contraction of the radiator unit without stress.

Yet another object is to provide a radiator section and assembly designed for ease of assembly and installation. The radiator sections are adapted for the end mounting of various accessories, which may be merely clipped on, without use of screws or bolts. The radiator sections are provided adjacent their ends with novel tool wells, by means of which they may be assembled in fluid-tight communication, and then bolted together. The radiator sections comprise integral lugs by means of which they may be hung on the hanger strip provided therefor, and thereby readily positioned in suitably spaced relationship to the wall and to the floor below. Since the radiator sections are wall mounted merely and out of contact with the floor, they may be mounted with the aid of a level, and uneven floors present no problem.

Still another object of the invention is to provide a radiator assembly of inconspicuous and pleasant appearance. The radiator assembly may be surmounted by a finish molding, and may incorporate horizontal shadow lines to give a pleasing architectural effect. The assembly is readily cleaned externally, and since it is mounted above the floor, cleaning thereunder is possible. Since the assembly presents a substantially smooth outer surface, it may be readily painted with the room in which it is mounted.

General objects are to provide a durable, efficient radiator assembly occupying little floor space, which may be installed on a finished wall, or recessed therein. Further objects will be in part evident and in part pointed out hereinafter.

The invention and the novel features thereof may best be made clear by reference to the following description and the accompanying drawings, in which:

Figure 1 is a perspective view of a radiator assembly according to the invention, mounted on a finished wall;

Figure 2 is an end view of the assembly, greatly enlarged;

Figure 3 is a vertical sectional view of a radiator section according to the invention, taken on the line 3—3 of Figure 5, and showing the tool receiving well;

Figure 4 is a vertical sectional view through a radiator section, taken on the line 4—4 of Figure 5, and showing the full fluid backing of the section;

Figure 5 is a rear elevational view of a radiator unit, partly in section, showing the manner in which adjacent units are joined together;

Figure 6 is a fragmentary sectional view taken on the line 6—6 of Figure 5;

Figure 7 is a fragmentary sectional view taken on the line 7—7 of Figure 5;

Figure 8 is a fragmentary sectional view taken on the line 8—8 of Figure 5;

Figure 9 is a fragmentary sectional view taken on the line 9—9 of Figure 5;

Figure 10 is a fragmentary sectional view taken on the line 10—10 of Figure 5;

Figure 11 is a fragmentary sectional view taken on the line 11—11 of Figure 5, showing the nipple joining adjacent sections;

Figure 12 is a perspective view, partly in section, illustrating an extension panel adapted for use with the assembly, and means for mounting the panel;

Figure 13 is a fragmentary elevational view illustrating an extension panel and end cap, and Figure 14 is a fragmentary sectional view taken on the line 14—14 of Figure 13;

Figure 15 is a perspective view of the extension panel and end cap;

Figure 16 is a front elevational view of another radiator accessory including a valve access door, and

Figure 17 is a sectional view taken on the line 17—17 of Figure 16.

Referring to the drawings in detail, in Figure 1 is illustrated a radiator assembly according to the invention, mounted on a finished wall 20 immediately above the floor 22. The assembly comprises a heat reflecting lining 24 positioned against the wall, and a hanger strip 26 secured outside the lining, adjacent its upper edge. The hanger strip is provided at spaced intervals with slots 28, through which it may be secured to the wall as by means of screws 30 positioned in the slots and extending through the lining into the wall (see Figure 2). Besides mounting the hanger strip, the screws 30 may also serve to fasten the lining to the wall, and the lower edge of the lining may be secured in place by means of a shoe molding 32, positioned against the wall and the floor, or against the wall and floor carpeting.

As shown in Figures 1 and 2, the hanger strip 26 is struck out along its length and above the screw slots 28 to form an upwardly facing lip 34, which is spaced outwardly somewhat from the lining 24 when mounted thereon. On the hanger strip lip 34 are mounted a plurality of joined radiator sections 36. As will appear in more detail hereinafter, the assembly may also include accessory elements adapted to extend from the ends of the radiator sections, some of these being illustrated in Figure 1. In particular, the radiator sections shown are adjoined by a valve enclosure box 38, including an access door 40, which box is in turn adjoined by an inside corner piece 42. The element 42 is joined on its other side to another radiator section 36, which at its far end carries an extension panel 100. With the radiator sections and accessories in place on the hanger strip, the upper edge of the lining 24 may be bent over the top thereof, as at 46, and the bent over portion then covered by a molding 48, giving the assembly a finished appearance.

An outstanding feature of the invention is the radiator

section 36 provided for use therein. Each radiator section is unitary and integrally cast, and, as best shown in Figures 2 to 5, comprises a substantially rectangular body 50 defining an internal chamber 52 extending substantially throughout the length and width of the body, whereby the section is fully fluid backed. Above the section body 50 is formed a member 54 of co-extensive length but minor width, said member having a hollow passage 56 extending therethrough and communicating with the body chamber 52 by means of passages 58 at the ends thereof. The passage 56 may also communicate with the body chamber 52 between its ends, as by means of the central passage 60. The member 54 being spaced somewhat from the body 50, air slots 62 are defined therebetween.

The front wall 64 of the radiator section body 50 is substantially smooth, but preferably is interrupted for aesthetic reasons by horizontal shadow lines 66. The front surface of hollow member 54 is generally coplanar with the front wall 64, but curved as at 68 to form a smoothly rounded upper edge. The back wall 70 of body 50 is flat and parallel to front wall 64, and provided with a multiplicity of fins 72 extending outwardly and rearwardly therefrom. As best shown in Figure 5, the fins are vertically disposed, and preferably staggered for efficient heat transfer.

Inside chamber 52, the front wall 64 and back wall 70 may be joined by a number of suitably spaced and staggered stays 74, which are horizontally extended to provide minimum resistance to fluid flow longitudinally through the chamber. At the ends of hollow member 54 are provided horizontal openings 76, in free communication not only with passage 56, but also through passages 58 with the body chamber 52. Similar horizontal openings 78 are provided in the ends of the body 50, adjacent the bottom thereof, opening directly into body chamber 52.

From the top of member 54 a continuous flange 80 extends rearwardly beyond the confines of the body fins 72, and extending downwardly from the rear edge of flange 80 are provided a pair or more of suitably spaced integral hanger lugs 82, adapted to engage the hanger strip lip 34. From body 50, preferably adjacent the lower corners thereof, spacer lugs 84 project rearwardly beyond the confines of the body fins, preferably to an extent corresponding to the outer edge of flange 80.

Adjacent each end thereof, each radiator section is provided with a suitably dimensioned rearwardly facing tool well 86 (see Figures 3, 5 and 8) bounded by an outer wall 88. As shown in Figures 2 and 5, each outer wall 88 is correspondingly and horizontally slotted at 90, to accommodate bolts or similar fastening elements. Corresponding pairs of end openings 76 and 78 of a radiator section may be interiorly threaded to receive threaded pipe ends, but where sections are to be joined to each other the involved openings are smooth walled, and preferably provided at their outer edges with a chamfer 92, as shown in Figure 7.

Formed and constructed as above described, a plurality of radiator sections may be readily and quickly joined together. For this purpose, the sections may be disposed front wall down on a floor or other level surface, adjoining openings 76 and 78 generally aligned, and a tightly fitting nipple 94 (see Figures 5 and 11) placed in one opening 76 and one opening 78 of each adjoining pair. The nipples may be suitably lubricated with graphite paste or pipe joint compound. The sections may then be forced into abutment by means of a special tool (not shown) engaging the wells 86, and acting against the walls 88 to force them together. Joining of the sections may be assisted by striking them alternately with a rawhide mallet, and serves to tightly seat the nipples 94 in openings 76 and 78, whereby leak-proof fluid communication is established between the adjoining sections. When the sections are in firm abutment, they may be secured in such relationship by means of bolts 96 (Figure 5) placed in the outer wall slots 90 and engaged by nuts 98. Suitable tightening of the bolts 98 will assure retention of the sections in abutment and proper alignment.

Installation of the radiator assembly is simple and quick. The assembly may be mounted on a finished wall as shown, or on the back wall of a suitable recess provided therefor. A continuous strip of lining 24 is first positioned against the wall, with its lower edge contacting or very near the floor. If desired, the lining may be tacked or nailed in place. Next, a hanger strip 26 is applied outside the lining at proper height above the floor, the hanger strip screws 30 serving to secure both the hanger strip and the upper portion of the lining. The hanger strip may be a continuous piece or a plurality of suitably sized sections joined end to end, to function as a continuous strip. If the floor is too uneven to serve as a reference, the hanger strip may be mounted with the aid of a level.

The radiator sections being assembled in units as previously described, and in some cases carrying accessory elements on the ends thereof, they may be easily mounted on the hanger strip, merely by lifting each unit to such position that the radiator section hanger lugs 82 thereof overhang the hanger strip lip 34, and then lowering the unit so that the lugs engage and rest upon the lip. Proper disposition of the hanger strip relative to the floor is such as to space the bottom of the radiator sections slightly from the floor, about one inch being required. With the radiator unit so supported, its spacer lugs 84 will bear laterally against the lining, as shown in Figure 2, and serve to suitably space the radiator sections therefrom, and the radiator fins 72 slightly therefrom. So mounted, the radiator sections define a convection passage to the rear thereof. Air may freely enter below the radiator sections, move upwardly through and about the fins 72, being heated meanwhile, and exit outwardly through slots 62, as indicated by arrows in Figure 2. In this manner, effective and efficient convection heating is achieved, supplementing the radiator radiant function.

The mounted radiator units may then be connected to the water or steam supply and to each other, connections being made preferably by means of both top and bottom openings 76 and 78, for optimum circulation between sections only. For the sake of appearance, a variety of accessory elements may be utilized to extend the assembly between radiator sections and units, to cover piping, valves and the like. The accessories are adapted to engage the radiator section end without the aid of fastening elements, such as screws or bolts. An exemplary accessory element, in the form of an extension panel 100, is illustrated in Figures 12 and 15. The extension panel, it will be noted, is formed to correspond generally to the size and shape of the radiator sections, and is provided with a downwardly extending lip 102 at the inner upper end thereof and with an upwardly extending lip 104 at the lower inner end thereof. The extension panel, then, may fit immediately over the end of a radiator section, the lips 102 and 104 serving to engage behind the flange 80 and the bottom of body 50 of the radiator secure, respectively, to firmly clamp the extension panel thereonto.

Long lengths of extension panel may be intermediately supported by special brackets 106 (Figure 12), adapted to be screwed or nailed to the wall or to the lining 24, and provided with an upwardly facing lip 108 and a downwardly facing lip 110 adapted to engage, respectively, lips 102 and 104 of the extension panel. In Figures 13, 14 and 15 is illustrated an extension panel end cap 112, formed correspondingly to the extension panel 100 but of slightly greater size, whereby it is adapted to enclose the end thereof. The end cap is provided internally with suitable means to frictionally engage the end of the extension panel. As shown, such means may comprise an angle 114 mounted inside the cap adjacent

the front wall **116** thereof, the free leg of the angle being spaced from wall **116** adequately to firmly engage the edge of the extension panel front wall when forced therebetween, as clearly illustrated in Figures 13 and 15. The end cap, as will be evident, enhances the finished appearance of the assembly.

Another accessory element is illustrated in Figures 16 and 17, in the form of a valve enclosure **118**. The valve enclosure includes an access door **120** having a finger hold **122** struck out at the lower end thereof. Preferably, the access door is mounted on a piano hinge **124** inside the enclosure, by means of a U-shaped bracket **126** secured to a leg of the hinge and to the inside of the door. The hinge and bracket mounting preserve the smooth outside appearance of the enclosure, and permit opening and closing of the door without encountering adjacent portions of the enclosure body, so that any finish applied to the exterior of the enclosure will not be marred or otherwise damaged. The valve enclosure is also provided with upper and lower lips **128** and **130**, to permit engagement to radiator sections, mounting on special brackets such as **106**, attachment to other accessories or the like. Other accessories ordinarily utilized are inside corner pieces such as that indicated by the numeral **42** in Figure 1, and similar outside corner pieces. These may be attached and mounted similarly to the extension panel and valve enclosure previously described.

A complete radiator assembly, previously made up and including all accessories, may be mounted on the hanger strip in one operation. Alternatively, radiator units may be individually mounted, connected by piping with the supply and each other, and the assembly then completed in place by the addition of accessories. The wall mounting of the radiator sections is highly advantageous for this purpose, in that the radiator sections or units may be freely moved laterally on the hanger strip to facilitate the attachment of piping, accessories and the like. This feature, it will be noted, also permits free accommodation of expansion and contraction of the assembly.

For the attachment of accessories to mounted radiator units, the screws **30** mounting the hanger strip **26** adjacent the ends of the radiator sections to be engaged by accessories may be loosened, or initially not tightened, to permit engagement of the accessories behind the end of the involved radiator sections, in the manner previously described. The screws may then be tightened through the air slots **62** of the radiator sections, the air slots being suitably located for such purpose.

When the completed assembly has been mounted, the upper edge of the lining may be turned down as before described, and a finish molding **48** applied if desired. To match or complement the wall finish, the radiator assembly may be painted or otherwise exteriorly finished. Being of cast iron construction, the radiator sections are not subject to damage, and the assembly affords an attractive, durable, inconspicuous heating means which occupies practically no usable floor space.

It will thus be seen that there has been provided by this invention a structure in which the various objects hereinbefore set forth, together with many practical advantages are successfully achieved. As various possible arrangements may be made of the mechanical features of the above invention, all without departing from the scope thereof, it is to be understood that all matter hereinbefore set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. A unitary, cast baseboard radiator section comprising a rectangular body defining an internal chamber extending substantially throughout the length and width of said body, said body having a substantially planar front wall and fins extending outwardly from the rear wall thereof, a hollow member of relatively small width disposed above said body and coextensive in length therewith and defining a secondary internal chamber, said member being spaced from said body to define an air slot therebetween, the interior of said hollow member communicating with said chamber at least at the ends thereof, a flange extending rearwardly from the top of said hollow member beyond the confines of said fins, lugs extending downwardly from the rear edge of said flange, spacer lugs extending rearwardly from said body beyond the confines of said fins, horizontal openings in the ends of said hollow member, horizontal openings in the ends of said body adjacent the bottom thereof, and rearwardly facing tool wells at the ends of said body, said wells having vertically extending end walls which are horizontally slotted for the reception of bolts.

2. A radiator unit including a plurality of unitary, cast baseboard radiator sections, each section comprising a rectangular body defining an internal chamber extending substantially throughout the length and width of said body, said body having a substantially planar front wall and fins extending outwardly from the rear wall thereof, a hollow member of relatively small width disposed above said body and coextensive in length therewith and defining a secondary internal chamber, said member being spaced from said body to define an air slot therebetween, the interior of said hollow member communicating with said chamber at least at the ends thereof, a flange extending rearwardly from the top of said hollow member beyond the confines of said fins, lugs extending downwardly from the rear edge of said flange, spacer lugs extending rearwardly from said body beyond the confines of said fins, horizontal openings in the ends of said hollow member, horizontal openings in the ends of said body adjacent the bottom thereof, and rearwardly facing tool wells at the ends of said body, said wells having vertically extending end walls which are horizontally slotted for the reception of bolts, unthreaded nipples joining adjacent radiator sections in fluid communication, and bolts in said horizontal slots maintaining adjacent sections in abutment and alignment.

3. A radiator assembly for mounting on a wall adjament the floor comprising a heat reflecting lining adapted to be fastened to the wall, a hanger strip mounted outside said lining adjacent the top thereof, said hanger strip being struck out adjacent its upper edge to present an upwardly facing lip, and a unitary, cast baseboard radiator section including a rectangular body defining an internal chamber extending substantially throughout the length and width of said body, said body having a substantially planar front wall and fins extending outwardly from the rear wall thereof, a hollow member of relatively small width disposed above said body and coextensive in length therewith and defining a secondary internal chamber, said member being spaced from said body to define an air slot therebetween, the interior of said hollow member communicating with said chamber at least at the ends thereof, a flange extending rearwardly from the top of said hollow member beyond the confines of said fins, lugs extending downwardly from the rear edge of said flange, spacer lugs extending rearwardly from said body beyond the confines of said fins, horizontal openings in the ends of said hollow member, horizontal openings in the ends of said body adjacent the bottom thereof, and rearwardly facing tool wells at the ends of said body, said wells having vertically extending end walls which are horizontally slotted for the reception of bolts, said flange lugs being engaged by said hanger strip lip and said spacer lugs contacting said heat reflecting lining, whereby said radiator section is supported solely by said hanger strip lip in spaced relationship to said lining and to said floor.

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