Aug. 2, 1966 F. W. BECHER ETAL 3,263,746

BASEBOARD-TYPE HEATING UNIT

Filed March 10, 1964

FIG. 1

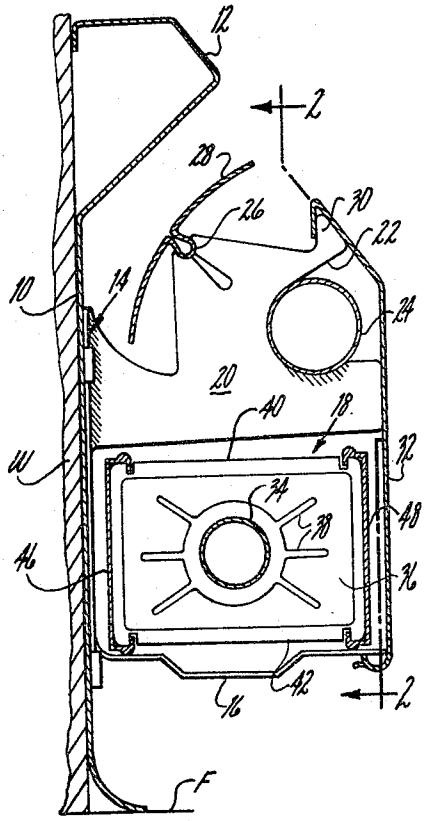


FIG. 2

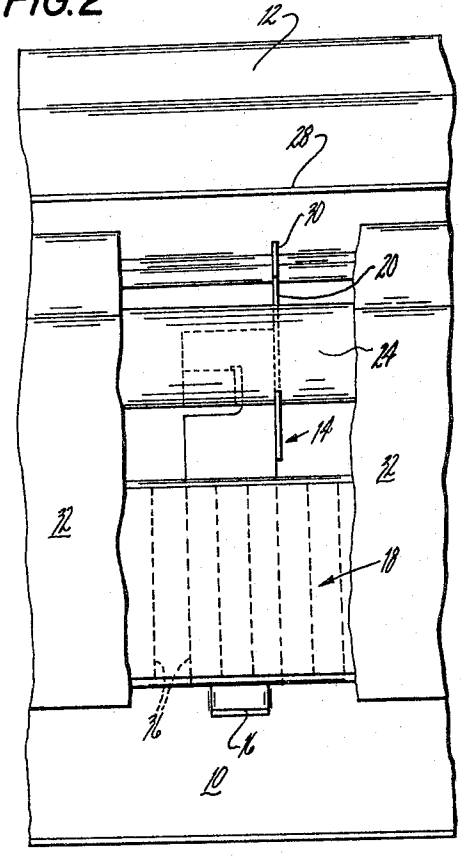
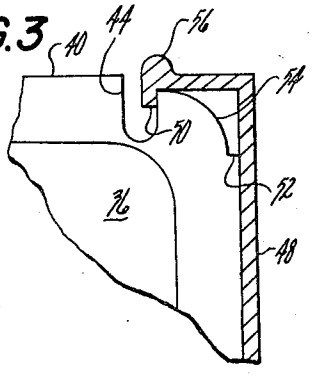


FIG. 3



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BASEBOARD-TYPE HEATING UNIT

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This invention relates to an improved heating unit and, more particularly, to an improved finned tube type baseboard heating unit.

Baseboard heating units of this type generally comprise a back panel that is adapted to be fastened to the wall, generally the exterior wall, of the room to be heated, and a plurality of longitudinally spaced apart hanger brackets are mounted on the panel and project into the room therefrom to support a front baseboard panel, a damper, and the elongated finned tube heating element.

It is the general object of the present invention to provide a baseboard heating unit of the aforementioned type which will produce a lower temperature for the back panel and thus reduce heat loss through the outside or exterior wall of the room and which will reduce the expansion of the back panel so as to diminish the noise accompanying such expansion and to diminish the possibility of the back panel fasteners being loosened as a result of such expansion. Still in keeping with the general object of the invention, the heating unit provided will have a more rigid finned tube heating element that will permit the use of thinner gauge sheet metal for the fins so as to provide for more rapid heating of the fins to their rated capacity. Further, the heating unit provided in accordance with this invention will be better able to withstand damage from handling and installation than the more conventional units, and the finned tube element will be less apt to cause injury to installers and others handling the unit. Additionally, the heating unit provided in accordance with the present invention will reduce the tendency of dirt to collect adjacent the unit on the wall to which it is secured.

The drawing shows a preferred embodiment of the invention and such embodiment will be described, but it will be understood that various changes may be made from the construction disclosed, and that the drawing and description are not to be construed as defining or limiting the scope of the invention, the claims forming a part of this specification being relied upon for that purpose.

Of the drawing:

FIG. 1 is a vertical cross-sectional view taken through a heating unit provided in accordance with the present invention;

FIG. 2 is an elevational view of a portion of the heating unit with parts thereof being shown in section as indicated by the line 2—2 of FIG. 1; and

FIG. 3 is an enlarged cross-sectional view taken at one corner of a fin on the finned tube element.

As shown in FIG. 1, the heating unit of the present invention is of the baseboard type and includes an elongated rear panel **10** which is adapted to be secured to the wall W of a room adjacent the floor F thereof. The back panel **10** is elongated to extend along the wall, and said panel is bent as indicated at **12** near its top longitudinal edge to direct convection air currents rising along the panel inwardly toward the interior of the room.

In the installation of a heating unit, a plurality of hanger brackets, such as the bracket **14**, are secured in longitudinally spaced apart relationship to the back panel **10**. A bracket **14** of the type that can be used is generally L-shaped and has its longer leg secured to the

panel **10** with its shorter leg **16** projecting generally horizontally forwardly therefrom to support a finned tube heating element **18**. Preferably, the bracket also includes and integrally formed plate **20** which projects forwardly from the upper end portion of the bracket and which is provided with a notch **22** in its front edge to provide support for a horizontally disposed return tube **24**. The plate **20** is also provided with a snap-in notch **26** to pivotally support a damper **28**, and the said plate is provided with a hooked portion **30** to receive the inturned upper longitudinal edge portion of a front panel **32** which can be snapped into place by engaging the inturned bottom edge portion thereof under the horizontal arm or leg **16** of the bracket **14**. Thus, the bracket **14** provides support for a return tube **24**, a damper **28** and a front panel **32** as well as the finned tube heating element **18**. It will be noted that the damper **28** is disposed to control or modify the flow of convection currents rising from the heating element **18** and passing through the space between the top edge of the front panel **32** and the inwardly bent portion **12** of the back panel **10**.

What has been thus far described is conventional, and it will be understood that many other specific forms of back panels and hanger brackets can be used to support a finned tube heat exchanger that extends longitudinally and which is supported by such brackets.

In accordance with the present invention, the finned tube heating element **18** comprises an elongated metal tube **34** having a plurality of substantially rectangular fins **36** radiating therefrom. The fins are constructed with reinforcing ribs **38, 38**, and the fins are arranged along the tube in regularly spaced relationship to each other. As best shown in FIGS. 1 and 3, the top and bottom edges **40** and **42** of each fin are provided with a pair of notches. That is, there is a notch **44** cut into each of the fin edges **40** and **42** adjacent to but nonetheless spaced from each side edge thereof.

In further accord with the present invention, an elongated substantially rectangular baffles **46** is secured in the notches **44, 44** of the fins **36, 36** at the back thereof, and a similar baffle **48** is secured in the notches **44, 44** at the front of the fins. As will be seen in FIG. 3, each baffle has an inturned longitudinal edge **50** adapted to be engaged in the notches **44, 44** of the longitudinal series of fins at the top thereof and a similarly inturned longitudinal edge is adapted to engage in the notches at the bottom thereof. Thus, the baffle **46** extends along and covers the back edges of the fins **36, 36**, and the baffle **48** extends along and covers the front edges of the said fins.

In order to facilitate assembly of the baffles on the fins, each corner of each fin **36** is cut back as indicated at **52** in FIG. 3 and is then rounded as shown at **54**. The cut back and rounded corners of the fins permit assembly of the associated baffles by snapping them into place. When snapped into place, the front and rear baffles extend around the fin corners and extend partially over the top and bottom edges of the fins. A bead **56** is formed to extend longitudinally along each baffle at the top and bottom thereof adjacent the inturned longitudinal edges of each baffle. The beads **56, 56** provide bearing support for the finned tube heating element in that the beads rest upon the horizontally extending legs **16, 16** of the various brackets **14, 14**.

Obviously, the baffles **46** and **48** can be made of metal or plastic. Either material used in the construction of the back baffle **46** will reduce the heating of the back panel **10** by convection and this, obviously, will reduce the heat loss through the wall W. Reducing the temperature of the back panel **10** has the additional advantage in that its expansion and contraction with temperature

change will be reduced to a minimum so as to diminish the noise caused thereby and to reduce the possibility of loosening the fasteners which secure the back panel to the wall.

Further, whether made of metal or plastic, the baffles **46** and **48** will provide greater rigidity for the heating element **18** so that the fins **36**, **36** of said element can be made in lighter gauge metal than is usually the case. The thinner gauge metal will heat up more rapidly to the rated capacity so as to provide quicker heating response for the element **18**.

Obviously, with the provision of the back baffle **46**, the air adjacent the wall W and the back panel **10** will be cooler than is ordinarily the case. This cooler air will have greater density and will rise with less velocity than the main column of heated air over the heating unit **18**. Since the cooler air adjacent the wall rises with less velocity than in conventional constructions, it will carry less dust with it in suspension, and this means that less dust will settle on the wall W to cause undesirable streaking thereof.

Another obvious advantage of the aforedescribed construction is that when the baffles **46** and **48** are provided in either metal or plastic, the fins **36**, **36** of the unit **18** are protected from damage, and those who handle the heating elements or install them are protected from injury by being cut with the sharp edges of the fins.

A further important consideration is that the front baffle **48** protects the front panel **32** in that the temperature thereof is reduced. This permits a higher heating unit temperature without overheating the front panel.

The invention claimed is:

1. A baseboard type heating unit comprising an elongated back panel adapted to be mounted on a wall, a plurality of hanger brackets secured to said back panel in longitudinally spaced apart relationship and having support portions projecting forwardly therefrom, a heating element including an elongated metal tube having a plurality of longitudinally spaced apart rectangular metal fins radiating therefrom, the said element being provided to extend between the hanger brackets and to rest on the support portions thereof, and each of the fins of the heating element being provided with a pair of notches in its bottom edge and a pair in its top edge, as viewed with the element supported on the brackets, with each such notch adjacent to but nonetheless spaced from a side edge, and a pair of baffles of generally elongated rectangular shape having inturned longitudinal edges engaged in the notches on said fins whereby one such baffle is snapped into place at the front and another at the rear of the heating element to cover respectively the front and rear edges of the fins and the corners thereof, each said baffle having a longitudinally extending bead adjacent to each longitudinal edge thereof to provide bearing support for the heating element on the hanger brackets.

2. A baseboard type heating unit comprising an elongated back panel adapted to be mounted on a wall, a plurality of hanger brackets secured to said back panel in longitudinally spaced apart relationship and having support portions projecting forwardly therefrom, a heating element including an elongated metal tube having a plurality of longitudinally spaced apart rectangular metal fins radiating therefrom, the said element being provided to extend between the hanger brackets and to rest on the support portions thereof, and each of the fins of the heating element being provided with a pair of notches in its bottom edge and a pair in its top edge, as viewed with the elements supported on the brackets, with each such notch adjacent to but nonetheless spaced from a side edge, and a pair of baffles of generally elongated rectangular shape having inturned longitudinal edges engaged in the notches on said fins whereby one such baffle is snapped into place at the front and another in the rear of the heating element to cover respectively the front and rear edges of the fins and the corners thereof, each said baffle having a longitudinally extending bead adjacent to each longitudinal edge thereof to provide bearing support for the heating element on the hanger brackets, and wherein the corners of each fin are cut back and rounded to facilitate the assembly of the baffles thereon.

3. A baseboard type heating element adapted to be supported by resting on longitudinally spaced apart support members and comprising an elongated metal tube having a plurality of longitudinally spaced apart rectangular fins radiating therefrom, each of the fins having a pair of notches in its top edge and in its bottom edge, as viewed when resting on the support members, with each such notch adjacent to but nonetheless spaced from a side edge of the fin, and a pair of baffles of generally elongated rectangular shape having inturned longitudinal edges engaged in the notches on said fins whereby one such baffle is snapped into place at the front and another at the rear of the heating element to cover respectively the front and rear edges of the fins and the corners thereof, each said baffle having a longitudinally extending bead adjacent to each longitudinal edge thereof to provide bearing support for the heating element on the support members.

4. A baseboard type heating unit comprising an elongated back panel adapted to be mounted on a wall, a plurality of hanger brackets secured to said back panel in longitudinally spaced apart relationship and having support portions projecting forwardly therefrom, a heating element including an elongated metal tube having a plurality of longitudinally spaced apart rectangular metal fins radiating therefrom, said element being provided to extend between the hanger brackets and to rest on the support portions thereof, and each of the fins of the heating element being provided with an upper edge and a bottom edge, and a pair of baffles of generally elongated rectangular shape having inturned longitudinal edges engaging said upper and bottom edges of said fins, attaching means associated with said fins and said baffles whereby one such baffle is secured into place at the front and another at the rear of the heating element to cover respectively the front and rear edges of the fins and the corners thereof, each said baffle having a longitudinally extending bead adjacent to each longitudinal edge thereof to provide bearing support for the heating element on the hanger brackets.

5. A baseboard type heating element adapted to be supported by resting on longitudinally spaced apart support members and comprising an elongated metal tube having a plurality of longitudinally spaced apart rectangular fins radiating therefrom, and each of the fins of the heating element being provided with an upper edge and a bottom edge, and a pair of baffles of generally elongated rectangular shape having inturned longitudinal edges engaging said upper and bottom edges of said fins, attaching means associated with said fins and said baffles whereby one such baffle is secured into place at the front and another at the rear of the heating element to cover respectively the front and rear edges of the fins and the corners thereof, each said baffle having a longitudinally extending bead adjacent to each longitudinal edge thereof to provide bearing support for the heating element on the support members.

6. A heating element as set forth in claim **3** wherein the corners of each fin are cut back and rounded to facilitate the assembly of the baffles to the element.

References Cited by the Examiner

UNITED STATES PATENTS

2,200,527	5/1940	Young	165—134
2,932,489	4/1960	Young	165—182
2,963,276	12/1960	Nelson	165—55

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