United States Patent

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[54] **BASEBOARD HEATER**
5 Claims, 4 Drawing Figs.

[52] **U.S. Cl.** **219/367,** 165/53, 165/129, 219/368, 219/374
[51] **Int. Cl.** **F24h 9/08,** H05b 1/00
[50] **Field of Search** ..... 219/366-—368, 365, 377, 374, 375, 342, 367; 237/79; 165/53—56, 128, 129, 55

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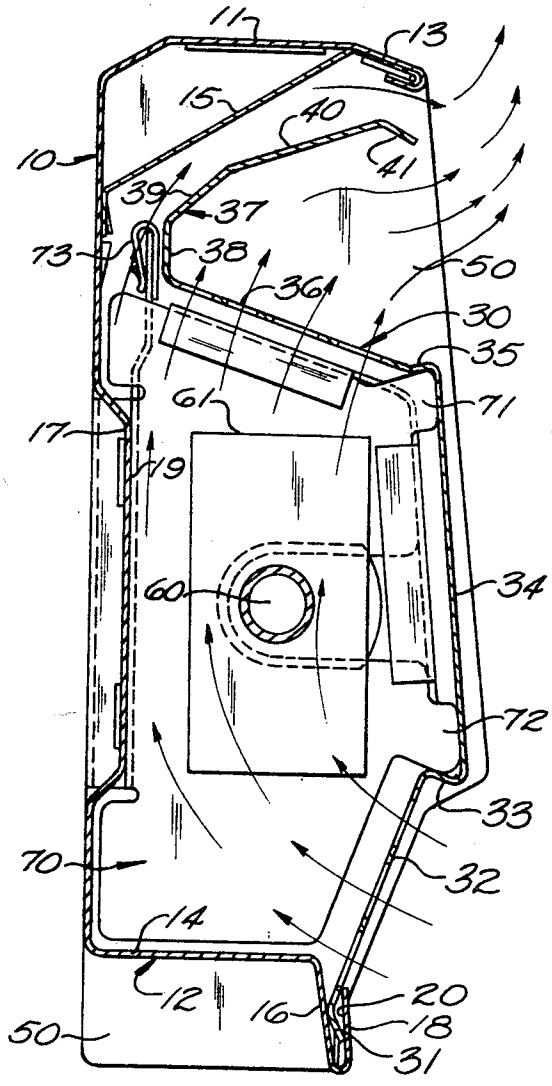
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ABSTRACT: A baseboard heater has a laterally narrow elongated finned electric heater positioned in a common airflow passage defined between the front wall and backwall of a baseboard convector housing. The airflow passage extends past the heater from a common air inlet below the heater to a main hot air outlet above the heater. An auxiliary airflow passage is provided, communicating at one end with the common airflow passage behind and above the heater, and opening at its other end above the main hot air outlet and forwardly of the heater. The auxiliary airflow passage is defined between a baffle integral with the front wall and having a forwardly and downwardly directed mouth section and a wall behind the baffle extending in forwardly and upwardly diverging relation to the baffle. A forwardly extending embossment, coextensive in height and length with the heater is provided on the backwall to narrow the main airflow passage.



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SHEET 1 OF 2

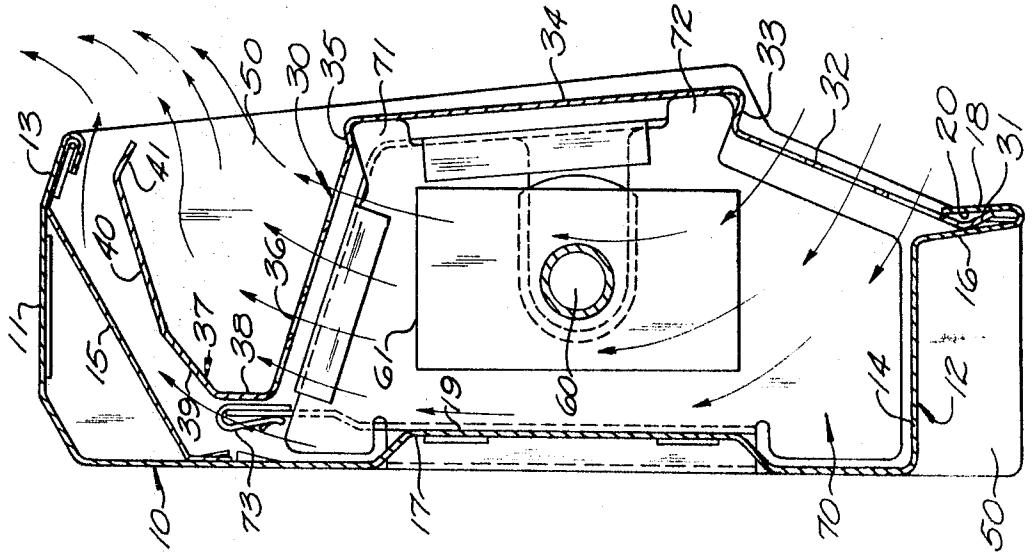


Fig 2

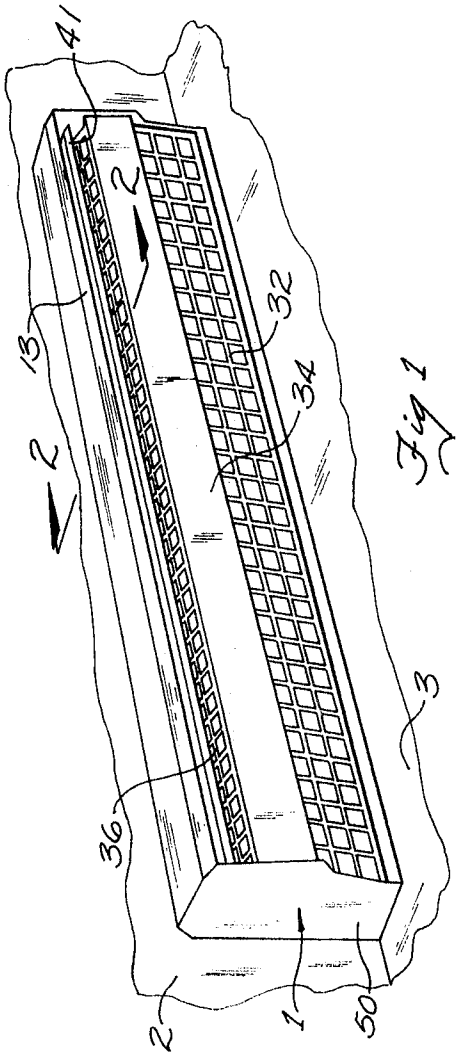


Fig 1

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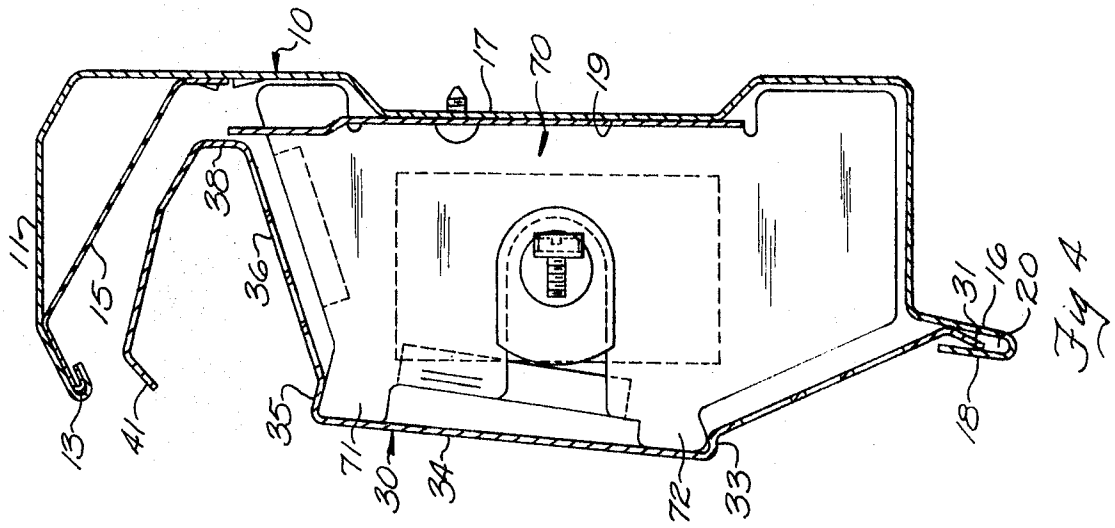


Fig 4

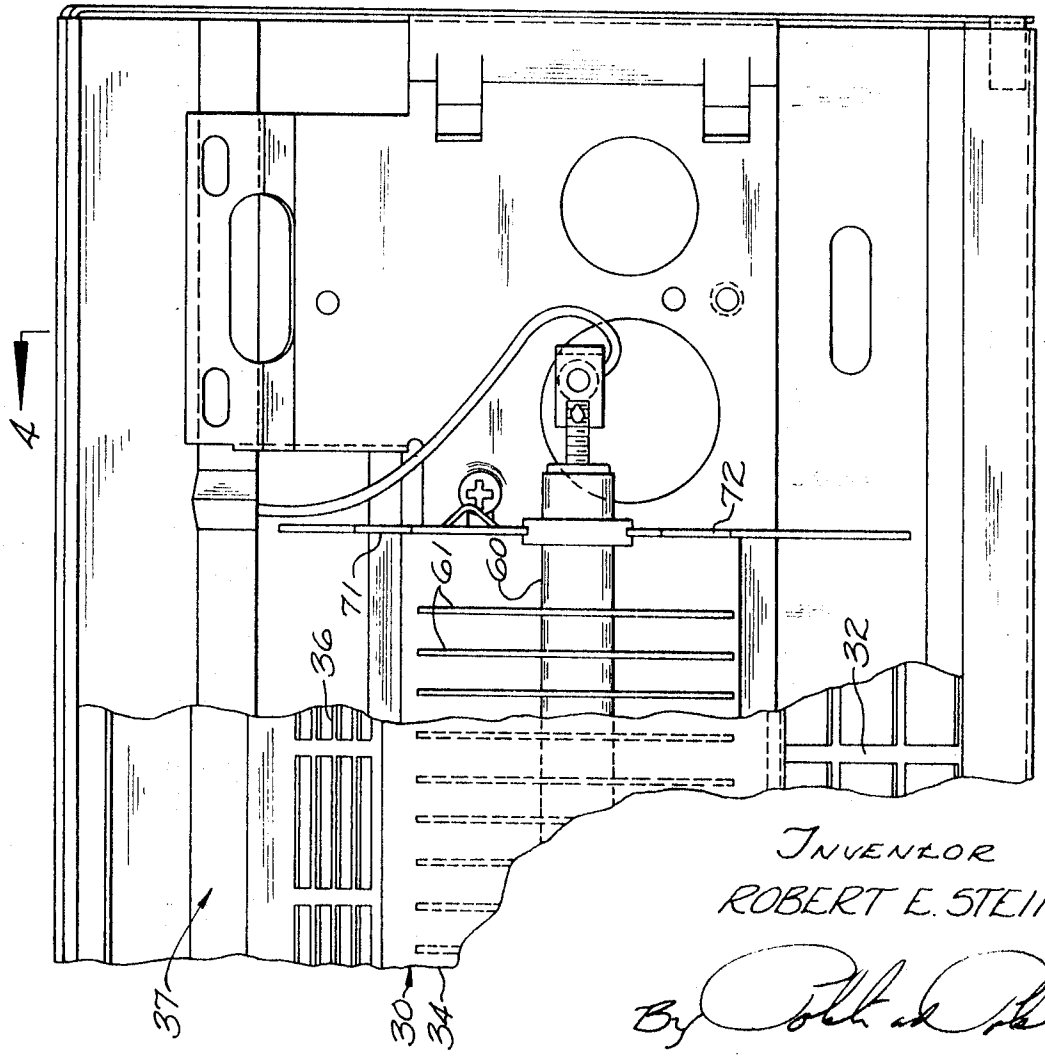


Fig 3

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BASEBOARD HEATER

BACKGROUND OF THE INVENTION

Baseboard heaters in common use have an elongated-rod-type electrical heating element, a channel-shaped front wall which shields the heating element from outside objects, and a top wall which is generally either perpendicular to the wall against which the heater is mounted or at a slight upward slant.

It has been found that by directing a stream of air which is cooler than the air which passes immediately over the heating element up along the wall along which the baseboard heater is mounted, the amount of dirt which is deposited on the wall is reduced. In one commercial baseboard heater, this is accomplished by spacing the entire heater a short distance above the floor and from the wall.

One of the objects of this invention is to provide a baseboard heater which may be mounted flush against a wall, and still provide more protection against the deposition of dirt on the wall than baseboard heaters known heretofore.

Another object is to provide such a heater which is simpler and more economical to produce than baseboard heaters known heretofore.

Other objects will become apparent to those skilled in the art in the light of the following description and accompanying drawing.

SUMMARY OF THE INVENTION

In accordance with this invention, generally stated, in a baseboard heater having a laterally narrow elongated heat source, a backwall extending behind the heat source, a front wall extending forward of the heat source, and a baffle extending above the heat source, the baffle has a forwardly, downwardly directed mouth section forward of the heat source. An air-passage-defining wall is provided behind the baffle.

Preferably, the air passage is defined by and between the backwall and the baffle and the backwall extends in forwardly diverging relation to the baffle above and forwardly beyond the baffle.

In the preferred embodiment, the front wall has a perforate lower and upper section, the upper section extending toward the backwall over the heat source and the baffle extends along and integral with the upper section.

Also in the preferred embodiment, the backwall is formed of sheet metal and has an integral forwardly extending channel on its rear surface and corresponding forwardly extending embossment on its front surface, the embossment extending along and vertically beyond the heat source, the baffle wall starting a short distance above the upper margin of the embossment.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawing, FIG. 1 is a view in perspective of one illustrative embodiment of baseboard heater of this invention;

FIG. 2 is a sectional view taken along the line 2–2 of FIG. 1;

FIG. 3 is a fragmentary view in front elevation, partly broken away, of the heater of FIG. 1; and

FIG. 4 is a sectional view taken along the line 4–4 of FIG. 3.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawing for one illustrative embodiment of this invention, reference numeral **1** indicates a baseboard heater mounted on a wall **2** contiguous a floor **3**. The heater **1** has a backwall **10**, a front wall **30** and end walls **50**. It also has an electric heating element **60** which is relatively small in diameter, i.e., laterally narrow, and long, and has fins **61** spaced along and tightly mounted on the element **60**. The element **60** and fins **61** are standard.

In the embodiment shown the backwall **10** has integral with it, and as an extension of it, a top wall **11**, and a bottom wall **12**. The top wall **11**, in this embodiment, has a forwardly, downwardly extending lip **13** with a turned edge forming a channel to receive a forward edge of a false wall **15**, a rear edge of which is mounted on a vertical section of the backwall. This arrangement is largely dictated by aesthetic considerations and ease of dusting, since functionally the backwall can be bent to form the slope of the false wall **15** from its rear edge to the rear edge of the downward slope of the lip **13**.

The bottom wall **12** has a horizontal section **14**, a downwardly extending apron section **16** and an upturned lip **18** defining between it and apron **16** a channel **20**, in which a foot **31** along a lower edge of the front wall **30** is mounted.

The backwall **10** extends vertically along, behind, and beyond the heating element **60**. Approximately through the height of the fins **61**, the backwall **10** is provided along its rear surface with a channel **17** which extends the full length of the backwall, and a corresponding embossment **19** on the forward surface of the backwall.

The foot **31** of the front wall **30** is so bent as to make its insertion into the channel **20** easy, but to wedge it tight when the front wall is fully mounted. The front wall has a lower section **32** which is perforated to form a grille. When the front wall **30** is fully mounted, the lower section **32** slopes forwardly upwardly to a dogleg **33**. Above the dogleg **33** is an imperforate center section **34**, extending to a rearwardly extending ledge **35**. The ledge **35** ends at the forward edge of an upper section **36**, which is also perforate between the ledge and a lower edge of a baffle **37** which extends along and is integral with the upper section **36**. The baffle **37** is imperforate and has a substantially vertical section **38**, forwardly upwardly extending middle section **39**, a relatively long upper baffle section **40**, which slopes forwardly upwardly from the middle section **39** but at a less steep angle, and a forwardly downwardly extending mouth section **41**.

In the embodiment shown, the front wall **30** is mounted on the heater by means of brackets **70**, one at each end, which constitute part of the subject matter of my copending application, Ser. No. 779,849 filed Nov. 29, 1968. The brackets **70**, which are mounted on the backwall **10**, have ears **71** and **72**, the upper edges of which diverge forwardly. The dogleg **33** of the front cover and the ledge **35** are so spaced and arranged with respect to one another and with the foot **31** that the foot **31** can be slid into the channel **20** and the front cover snapped over the ears **71** and **72** to hold the front cover in place. A Tinnerman clip **73**, mounted on a projecting surface of the bracket **70** can be used, with a sheet metal screw, to anchor the front cover against removal, if desired.

It will be observed that the upward slope of the false wall **15** is slightly greater than that of the upper baffle section **40**, and the slope of the mouth section **41** of the baffle downwardly is greater than the downward slope of the lip section **13**. It will also be noted that the lip **13** projects forwardly beyond the front edge of the mouth section **41**.

It has been found that the downturned mouth section **41** of the baffle is of great importance, permitting the use of a shorter baffle, hence a narrower baseboard heater, and effectively inhibiting the deposition of dirt on the outer surface of the wall **2**.

The construction of the heater of this invention also permits, in its simplest form, a four-piece construction of the housing, i.e., backwall **10**, integral front wall and baffle **30** and **37**, and end walls **70**, which, as described in my copending application, are formed integrally with the brackets **70**. This makes for a neat, strong, simple, and economical construction.

It will also be noted that the embossment **19** serves an air-directing function, narrowing the space between the element **60** and the backwall through the height of the fins **61** and terminating at a distance below the baffle **38** sufficient to permit some of the air which has been following along the embossment **19** to pass through the air passage between the baffle and the backwall and between the baffle and the false wall **15**. The fact that the mouth section **41** of the baffle **37** terminates short

of the outer edge of the lip **13** has two consequences. First, the hot mouth **41** is physically shielded by the relatively cool lip **13**, and the flow of hot air past the mouth **41** tends to have an eductive effect. In any event, the hot air is thrown away from the wall, and a current of cooler air, between the wall and the hot air, appears to ameliorate the effect of the thermal force on the particles in the hot airstream toward the wall; at least it markedly reduces the amount of dirt deposited on the wall.

Merely by way of illustration and not by way of limitation, in a baseboard heater with an overall height of 6⅞ inches a depth of 2⅞ inches and a length of 4 feet, a 1,000-watt heating element and 2¼-inch × 1¼-inch fins, the angle of the upper section of the front wall from the horizontal may be 18°, the vertical height of the vertical section **38** may be five-sixteenths inches, the angle of the intermediate section **39** from the vertical may be 49° and its width one-half inch, the angle of the upper baffle section **40** from the vertical may be 71° and its length 1 inch, and the angle of the mouth section **41** from the vertical may be 53° (127°) and its width three-eighths inches. The angle of the false wall **15** (or top, if the false wall is omitted and the top given its configuration) may be 60° from the vertical and its length 2 inches. The angle of the lip **13** from the vertical may be 76° (104°) and its length one-half inch.

Numerous variations in the construction of the heater of this invention, within the scope of the appended claims, will occur to those skilled in the art in the light of the foregoing disclosure. For example, the heating element need not even be electric, as long as it is laterally narrow and elongated. If it is electric, it can have various configurations. The front wall can be differently configured and mounted, and the backwall can also be differently configured, the top wall configuration being of less criticality than the configuration of the baffle. These are merely illustrative.

Having thus described the invention, what I claim and desire to be secured by Letters Patent is:

1. A baseboard heater having a laterally narrow elongated heat source including fins, a backwall extending behind said heat source, a front wall extending forward of said heat source and defining with said backwall a common airflow passage within which the heat source is positioned, said common airflow passage extending past said heat source from a common air inlet below said heat source and terminating in a main hot air outlet above said heat source, a baffle positioned entirely above said heat source and positioned above and extending over said main hot air outlet, said baffle having a lower edge portion spaced from the backwall and positioned above and to the rear of the heat source, said baffle having an upper edge portion positioned above and forwardly of the heat source, a main air outlet port being defined between the upper edge portion of the front wall and the upper edge portion of the baffle, a wall behind and extending above said baffle and defining with said baffle an open-ended auxiliary air passage located above and to the rear of the common airflow passage, communicating at one end with said common airflow passage behind and above said heat source and opening at its other end above said main hot air outlet and forwardly of said heat source, said baffle having a forwardly downwardly directed mouth section forward of said heat source, defining the upper edge portion of the baffle, the wall behind said baffle extending in forwardly diverging relation to an upper section and said upper edge portion of the baffle, and above and forwardly beyond the upper edge portion of said baffle.

2. A baseboard heater having a laterally narrow elongated heat source including fins, a backwall extending behind said heat source, a front wall extending forward of said heat source and having a perforate upper section extending toward the backwall over the heat source, said front wall defining with said backwall a common airflow passage within which the heat source is positioned, said common airflow passage extending past said heat source from a common air inlet and terminating in a main hot air outlet, defined by said perforate upper section, above said heat source, a baffle positioned entirely above said heat source and connected to, positioned above, and extending over said front wall perforate upper section, said baffle having a lower edge portion spaced from the backwall and positioned above and to the rear of the heat source, said baffle having an upper edge portion positioned above and forwardly of the heat source, a main air outlet port being defined between the upper edge portion of the front wall and the upper edge portion of the baffle, a wall behind and extending above said baffle and defining with said baffle an open-ended auxiliary air passage located above and to the rear of the common airflow passage, communicating at one end with said common airflow passage behind and above said heat source and opening at its other end above said main hot air outlet and forwardly of said heat source, said baffle having a forwardly downwardly directed mouth section forward of said heat source, defining the upper edge portion of the baffle.

3. The improvement of claim **2** wherein the front wall has a perforate lower section defining said air inlet, and the upper section is integral with the lower edge portion of said baffle.

4. A baseboard heater having a laterally narrow elongated heat source including fins, a backwall extending behind said heat source, said backwall being formed of sheet metal and having an integral, forwardly extending channel on its rear surface and a corresponding forwardly extending embossment on its front surface, said embossment being at least coextensive in height and length with said heat source, a front wall extending forward of said heat source and defining with said backwall a common airflow passage within which the heat source is positioned, said common airflow passage extending past said heat source from a common air inlet below said heat source, being narrowed by said forwardly extending embossment, and terminating in a main hot air outlet above said heat source, a baffle positioned entirely above said heat source and positioned above and extending over said main hot air outlet, said baffle having a lower edge portion spaced from the backwall and positioned above and to the rear of the heat source, said baffle having an upper edge portion positioned above and forwardly of the heat source, a main air outlet port being defined between the upper edge portion of the front wall and the upper edge portion of the baffle, a wall behind and extending above said baffle and defining with said baffle an open-ended auxiliary air passage located above and to the rear of the common airflow passage, communicating at one end with said common airflow passage behind and above said heat source and opening at its other end above said main hot air outlet and forwardly of said heat source, said baffle having a forwardly downwardly directed mouth section forward of said heat source, defining the upper edge portion of the baffle.

5. The improvement of claim **4** wherein the baffle begins a short distance above the upper margin of the embossment.