United States Patent

England

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[54] BAFFLE FOR ELECTRIC BASEBOARD HEATER UNITS

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[52] **U.S. Cl.**.....**219/368,** 165/55, 219/363, 219/364, 219/375, 337/1, 337/324

[51] **Int. Cl.**.....**F24h 3/04,** F24h 9/10, H05b 1/02

[58] **Field of Search**.....219/363, 364, 365, 366–368, 219/374–376, 342, 359, 377, 530, 513; 165/55; 337/321, 324, 327, 377, 1

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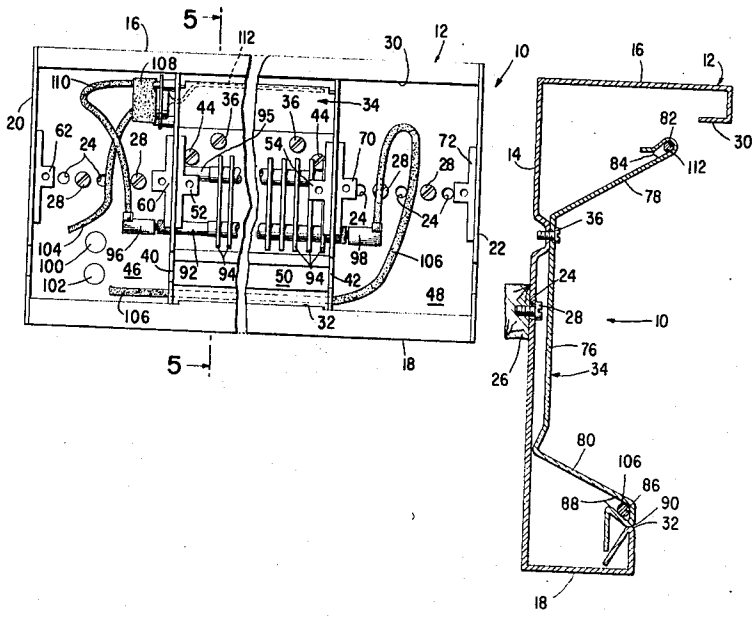
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[57] **ABSTRACT**

The baffle of an electric baseboard heater is formed with necked elongated passages, one to house and maintain in place the capillary tube of a thermal-switch and another to house and maintain in place a wire lead connected to one terminal of a heating element for which the baffle serves as a heat reflector.

2 Claims, 5 Drawing Figures



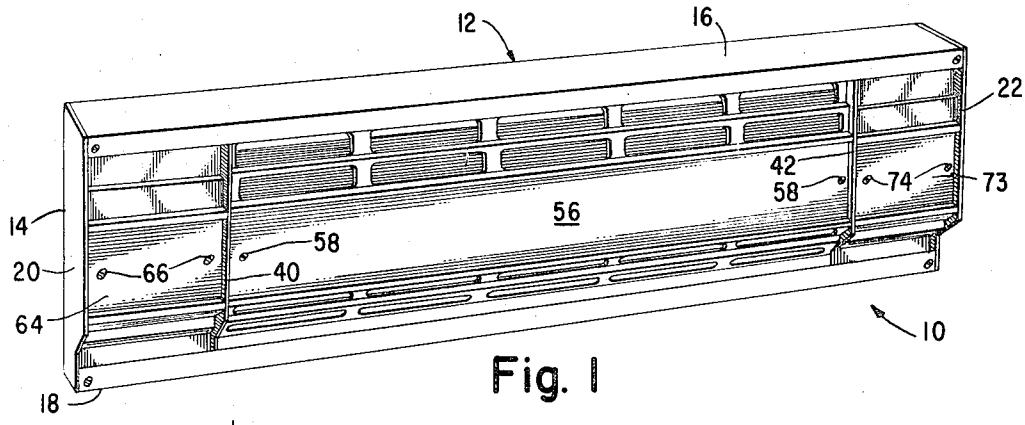


Fig. 1

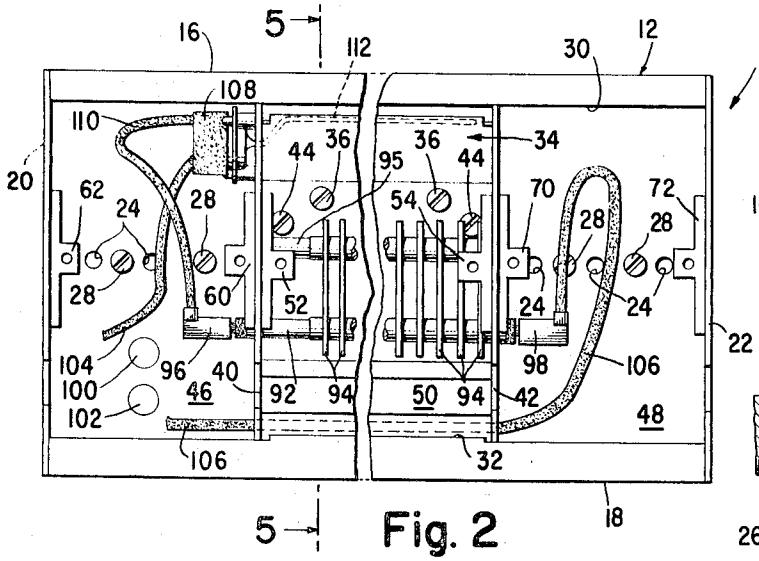


Fig. 2

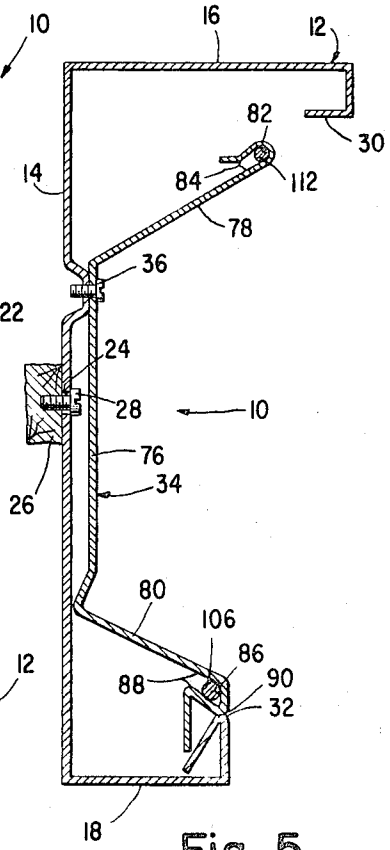


Fig. 5

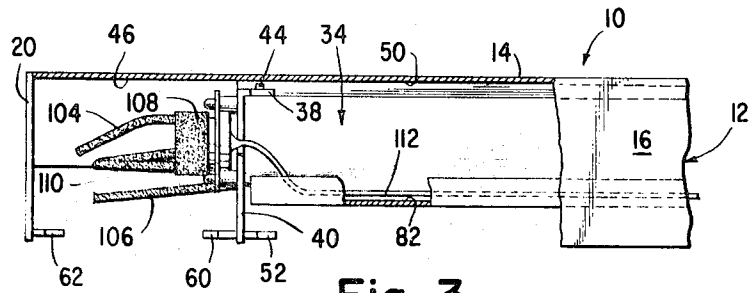


Fig. 3

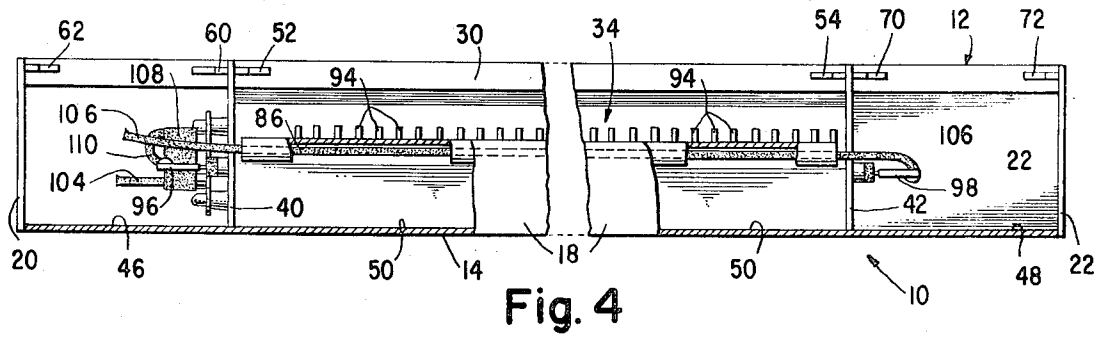


Fig. 4

BAFFLE FOR ELECTRIC BASEBOARD HEATER UNITS

BACKGROUND OF THE INVENTION

The invention relates to electric baseboard heaters and more particularly is directed to the heat-deflecting baffle of such a heater.

DESCRIPTION OF THE PRIOR ART

It has been the conventional practice in electric baseboard heater units to attach internal wires and an elongated capillary tube of a thermal-switch to clips affixed at spaced intervals in the units. However such conventional practice has unnecessarily added to the cost of the heater units because of the cost of the clips, the assembly operation involved in affixing the clips to the heater units and the time required to insert the wires and capillary tube into the individual clips.

SUMMARY OF THE INVENTION

In accordance with the invention the heat deflecting baffle of an electrical baseboard heating unit providing upper, rear and lower heat deflecting surfaces for a finned heating element has its upper and lower heat deflecting portions formed to define elongated necked passages therein. A reverse bend in the upper deflecting surface defines one passage and a reverse bend in the lower deflecting surface defines another passage. A wire lead from the heating element is retained in one of the passages and a capillary tube for a thermal-switch is retained in the other passage.

It is an object of the invention to reduce the cost and simplify the manufacture of electrical baseboard heaters.

It is another object of the invention to provide an electrical baseboard heater with a heat deflecting baffle having necked elongated passages formed therein to house and retain a wire lead and the capillary tube of a thermal-switch.

Other objects and advantages of the invention will become apparent during a reading of the specification taken in connection with the accompanying drawings.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an electrical baseboard heater unit incorporating the features of the invention;

FIG. 2 is a front elevational view of the heater unit of FIG. 1 with the front covers removed;

FIG. 3 is a fragmentary top view of the heater unit of Figs. 1 and 2;

FIG. 4 is a bottom view of the heater unit of FIGS. 1, 2 and 3; and

FIG. 5 is a cross sectional view taken on the plane of the line 5—5 of FIG. 2 showing the housing and the baffle of the heater unit of FIGS. 1, 2, 3 and 4.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, reference Character **10** designates an electrical baseboard heater unit including a rectangular open faced housing **12** which supports other elements of the unit. The housing **12** includes a rectangular rear of back wall **14**, a top wall **16** which is integral with the back wall, and extends outwardly from the back wall, a bottom wall **18** which is also integral with the back wall and extends outwardly from the back wall, and identical oppositely disposed side walls **20** and **22** suitable secured to the back, top and bottom walls of the housing. The depth of the bottom wall **18** is less than that of the top wall **16**, and the side walls corresponding in depth to the top wall **16** to a point near the lower end of the side walls where a segment thereof is cut out to reduce the depth to that of the bottom wall **18**. A plurality of holes **24** in the back wall **14** allow the housing to be secured to a house wall **26** by screws **28**.

The free end segment of the top wall **16** of the housing is turned downwardly and inwardly to form a lip **30**, and the free end segment of the bottom wall is turned upwardly and then rearwardly at an acute angle to the upturned portion to form the lip **32**. A heat deflecting baffle **34** is secured to and within the confines of the housing **12** as by screws **36** and is secured to a tab **38** on end plate **40** and to a similar tab (not shown) on end plate **42** as by screws **44**. The end plates **40** and **42** divide the housing into equally sized end sections **46** and **48** and a central section **50** which is substantially longer than the end sections. End plated **40** and **42** include tabs **52** and **54** to which a cover **56** for the central section **50** may be attached by screws **58**. End plate **40** and side wall **20** include tabs **60** and **62** respectively to which a cover **64** for the end section **46** may be attached by screws **66**, and the other end plate **42** and the side wall **22** include tabs **70** and **72** respectively to which a cover **73** for the end section **48** may be attached by screws **74**.

Baffle **34** includes a rear portion **76** extending parallel to the rear wall **18** of the housing **12**, an upper portion **78** extending at an acute angle with respect to rear wall **14** of the housing and into the vicinity of the lip **30** of the housing, and a lower portion **80** extending at an acute angle with respect to the rear wall **14**. As shown, the free end of upper portion **78** of the baffle is reversely bent to define an elongated passage **82** having a necked opening **84**, and the free end of lower portion **80** is reversely bent to define elongated passage **86** having a necked opening **88**. A lip **90** formed in the reversely bent free end of the lower portion **80** contacts lip **32** of the housing **12**.

An electric heating element **92** extends throughout the length of the central section **50** of the heater and is supported in the end plates **40** and **42**. A plurality of identical parallel heat conducting fins **94** are mounted on the heating element **92** and on a tubular support-member **95** which extends parallel to the heating element and is supported in the end plates **40** and **42**. The fins **94** extend transversely of the heating element **92** and support member **94**, at right angles to the rear portion **76** of the baffle and parallel to end plates **40** and **42**. As shown, the heating element **92** connects at one end with terminal **96** in end section **46** of the housing and connects at the opposite end with terminal **98** in end section **48** of the housing.

Knock-out discs **100** and **102** are provided in the end section **45** of the housing such that when the discs are removed house wires may be connected to the heater wires **104** and **106** through the housing. Heater wire **104** connects with a conventional thermal cut-off switch **108** and the cut-off switch connects through wire **110** with terminal **96** of heater element **92**. Heater wire **106** extends from section **46** of the housing through central section **50** and into section **48** to connect with terminal **98** of the heater element. The cut-off switch **108** is connected to a capillary tube **112** containing a fluid that expands as the heat to which the tube is exposed increases.

In accordance with the invention, heater wire **106** extending through the central section **50** is housed in the baffle passage **86** which is specially formed to retain the wire therein, the cross-sectional dimension of the passage being not greatly different from that of the wire **106**, and the necked opening **88**, having a cross-sectional dimension which is less than that of the wire but which may be temporarily enlarged to permit the wire to be introduced through such opening into the passage. The capillary tube **112** is securely retained in baffle passage **82** having a cross-sectional dimension substantially equal to that of the tube and an expandable necked opening **84** with a somewhat smaller cross-sectional dimension. During assembly of the heater, the wire **106** and capillary tube **112** may be rolled into position in the passages **86** and **82** respectively very quickly with the aid of a small wheel. Sheet steel or any other material not subject to destruction or marked distortion by heat and sufficiently resilient in the form indicated to permit the necked openings **88** and **84** to be expanded to the cross-sectional dimensions of the wire **106** and capillary tube **112** respectively may be used in the construction of baffle **34**.

While the invention has been described in its preferred form, it is to be understood that the words which have been used are words of description rather than of limitations, and that changes within the the purview of the offended claims may be made without departing from the true scope and spirit of the invention.

What is claimed is:

1. In an electrical heating unit, a finned tubular heating element having electrical terminals at opposite ends; a heat deflecting baffle extending parallel to the finned heating element and in close proximity thereto, the baffle including a rear portion extending behind the finned tubular member, an upper portion having a reversely rearwardly bent portion defining an elongated passage with a necked rear opening, and a lower portion having a rearwardly bent portion defining another elongated passage with a necked rear opening; a wire lead connected to one of the terminals of the heating element and housed in one of the said passages; a thermal-switch; and a capillary tube for the thermal-switch housed in the other passage for at least a substantial portion of the length of the baffle.

2. The combination as defined in claim 1 wherein said capillary tube is housed in the elongated passage of the upper portion of the baffle and said wire lead is housed in the elongated passage of the lower portion of the baffle.

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