June 26, 1928. 1,674,643

W. G. HARTWIG

VESTIBULE HEATER

Filed April 26, 1924

Fig. 1.

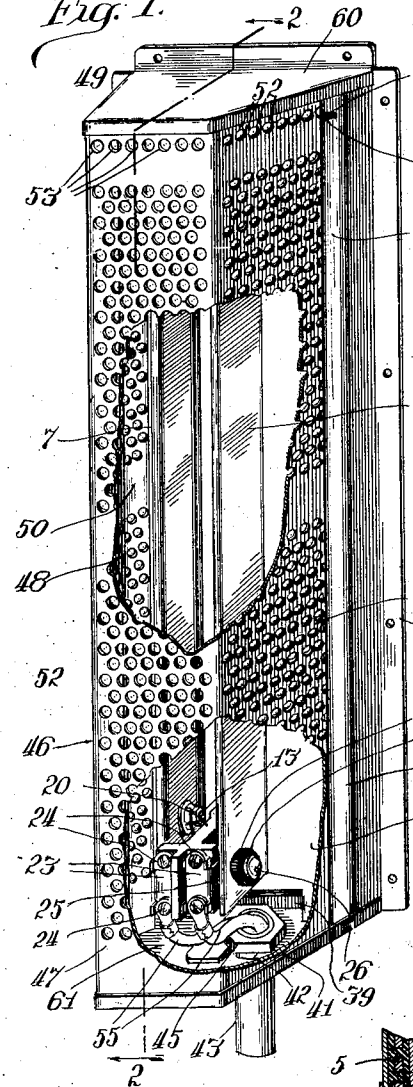


Fig. 2.

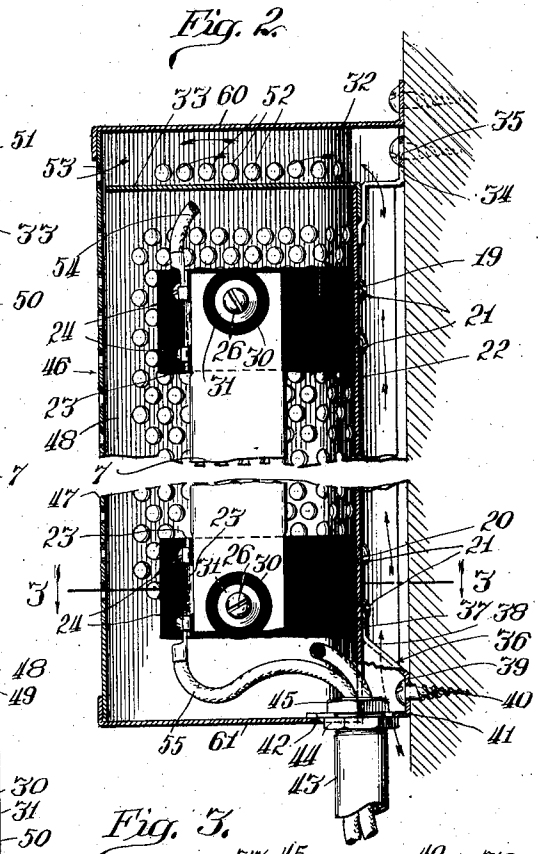


Fig. 3.

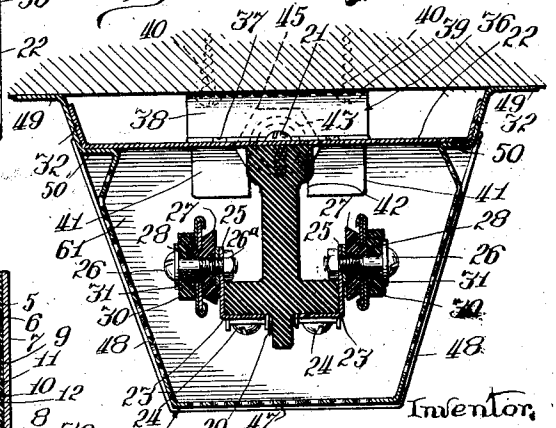
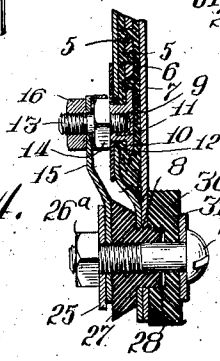


Fig. 4.



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UNITED STATES PATENT OFFICE.

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VESTIBULE HEATER.

Application filed April 26, 1924. Serial No. 709,087.

My invention relates to electric heaters for use in the vestibules of street cars and the like and has for its object to provide a mounting and casing for the electric heating elements employed to maintain a proper temperature in the vestibules of cars which is sightly, relatively inexpensive to manufacture, efficient in delivering heat to the car or other enclosure in which it is mounted and safe.

In the drawings accompanying and forming a part of this specification Fig. 1 is an isometric view of a vestibule heater embodying my invention; Fig. 2 a vertical section on the plane of the line 2—2 of Fig. 1, partly broken away to save space; Fig. 3 a transverse horizontal section on the line 3—3 of Fig. 2 and Fig. 4 a vertical section of a detail.

My invention is shown in connection with a pair of flat strip heating elements of a kind found upon the market, a brief description of which will suffice for the present purpose. It comprises a zig-zag or serpentine resistor strip 5 embedded in insulating material 6 and surrounded by a sheet metal sheath 7, the ends of which are bent together and perforated as at 8 to form an attaching lug. The ends of the heating strip or resistor 5 are soldered or otherwise secured to terminals 9, one of which is shown in Fig. 4 and which comprise each a flat disk 10 embedded in insulating material and a screw socket 11 which projects through an opening 12 in the wall of the sheath but is insulated therefrom. A double-ended screw bolt 13 provided with a nut 14 intermediate its ends is screwed into the socket and forms a binding post to which the end of the connector 15 is secured by a nut 16. A pair of such heating elements is preferably mounted in each vestibule heater casing upon upper and lower insulating supports 19 and 20. These supports are attached by screws 21 to the base member 22 of the casing as presently described. The supports 19, 20 are identical and T-shaped in cross-section, the cross member of the T receiving at opposite ends thereof sheet metal brackets 23 which are screwed to the support at 24 and project upwardly therefrom at 25. The heater elements are secured to these brackets by screw bolts 26, each bracket being perforated to receive its screw bolt and the latter provided with an insulator 27 which is formed with a flat flange and a sleeve 28, the latter of which projects through the above mentioned perforation in the end of the heater element which it supports. A mica or other insulating washer 30 surrounds the sleeve of the insulator and bears against the outer side of the heater element and the metal washer 31 is interposed between the head of the screw and said mica washer. The screw 26 likewise extends through the perforated end of the connector 15 above mentioned which bears upon the bracket 25 against which it is tightly clamped by the screw bolt and nut 31. Thus the heater elements are firmly supported at their respective ends independently of the electric terminals thereof. One of the two screws 24 by which each bracket 23 is supported may be used as a binding post for connecting the corresponding lead wire to the bracket from which electric connection is made through the connector 15 to the terminal 9.

As heretofore stated the supports 19, 20 are secured to the base plate 22 of the housing. The edges of the base plate are bent rearwardly and with a flare as at 32, Fig. 3, and the upper end of this base plate is bent forwardly or provided with an extension 33 for a purpose which will presently appear. The upper end of the base plate is provided with a pair of feet or attaching lugs 34 provided with holes 35 for the reception of screws by which it may be attached to the panel in the vestibule. The lower end of the base plate is supported from the panel by means of a bracket 36, the upper end of which is spot-welded as at 37 to the base plate and which is bent rearwardly below the point of attachment as at 38 and then vertically at 39 to form a seat through which the attaching screws 40 are inserted. At the lower end of the vertical portion the bracket is bent forwardly as at 41 and bifurcated or notched at 42 to receive the pipe 43 through which the lead wires are drawn. The end of the pipe is threaded and nuts 44, 45 on the threaded portion engage and clamp the edges of the bifurcated portion 42 of the bracket. The brackets 34, 36 support the base plate away from and parallel to the panel to which it is attached so that air currents may pass upwardly between the two and thus utilize the heat absorbed by the base plate and prevent its transmission to the supporting panel.

The casing or housing 46 is preferably of the shape indicated in Figs. 1 and 3 comprising a front wall 47 and inclined or flaring side walls 48, which latter at their rearward edges fit upon the flaring flanges 32 of the base plate as best seen in Fig. 3. Beyond said flanges the edges of the side walls of the housing are bent outwardly as at 49 to form flanges which are pierced for screws for attachment to the supporting panel independently of the base plate. In the preferred construction shown the side walls are inwardly bent at 50 to form shoulders resting upon the front face of the base plate. These re-entrant portions of the side walls are slit as at 51 to receive and brace the forwardly projecting baffle 33 which is attached to said base plate and fits snugly at its edges against the housing. The housing is provided with rows of perforations 52, 53 above said baffle through which the heated air ascending between the base plate and the supporting panel may escape to the interior of the vestibule, thus materially contributing to the heating effect. The upper and lower lead wires 54, 55 connected to the respective heating elements are carried out through the piping 43. The end walls 60, 61 of the casing may be formed of sheet-metal spot-welded or otherwise secured to the side walls thereof, the lower end being perforated as shown for the passage of the pipe or conduit 43.

I claim:

1. A heater of the class described comprising a vertical perforated casing adapted to be attached to a vertical support, a base plate therein terminating short of the upper end of the casing, a heating element mounted on the base plate, brackets for attaching the base plate to the support so formed and arranged as to support the base plate from and spaced away from the support, there being openings in the upper and lower ends of the casing adapted to communicate with the space between the base plate and support.

2. In a heater of the class described, a vertical casing adapted to be attached to a supporting panel, a base plate therein terminating short of the upper end of the casing, a heating element mounted on the base plate, brackets for supporting the base plate away from the panel on which the heater is mounted, and a baffle projecting forwardly from the upper end of the base plate, there being openings in the walls of the casing above the baffle and below the base plate.

3. In a heater of the class described, a casing having perforated walls and adapted to be secured to a vertical panel, a vertical base plate within the casing terminating short of the upper end of the casing, a baffle extending forwardly from the upper end of the base plate, a heating element mounted on the base plate, brackets for mounting the base plate on the panel and spacing it therefrom, there being perforations in the walls of the casing above the baffle and at the lower end of the casing, and means for attaching the casing to the panel independently of the base plate.

4. In a heater of the class described, a base plate, brackets for mounting the base plate on an upright panel and spacing it therefrom, a casing surrounding the base plate and formed above and below with openings communicating with the space behind the base plate, said base plate terminating short of the top wall of the casing, said casing formed with reentrant portions resting upon the face of the base plate, and flanges for attaching the casing to a support.

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