July 25, 1961 H. D. STERICK 2,993,489

OVERHEAD HEATING UNIT

Filed July 11, 1956

Fig.1.

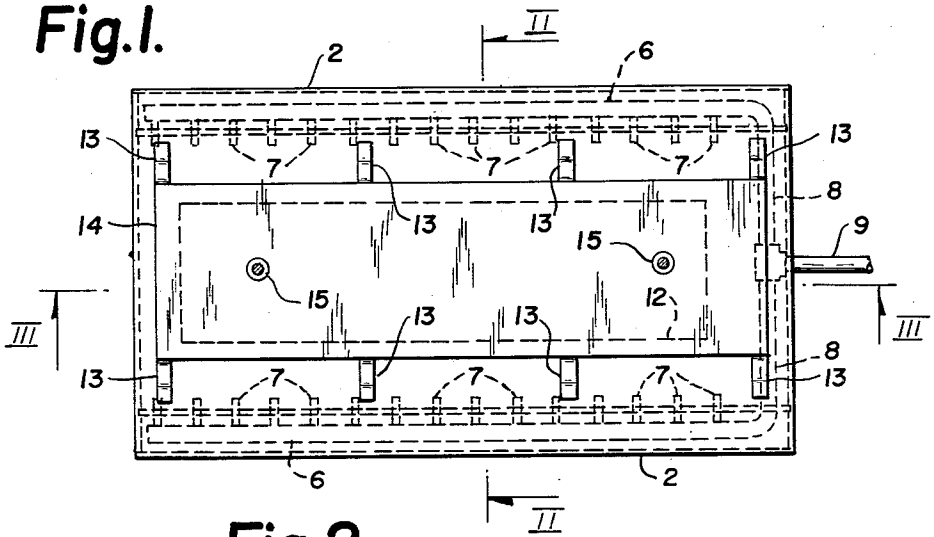


Fig.2.

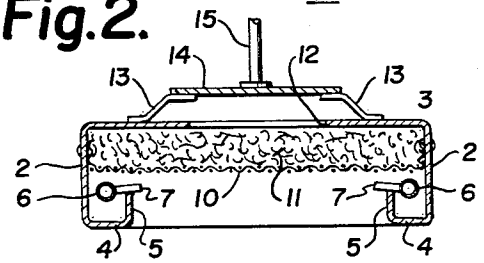
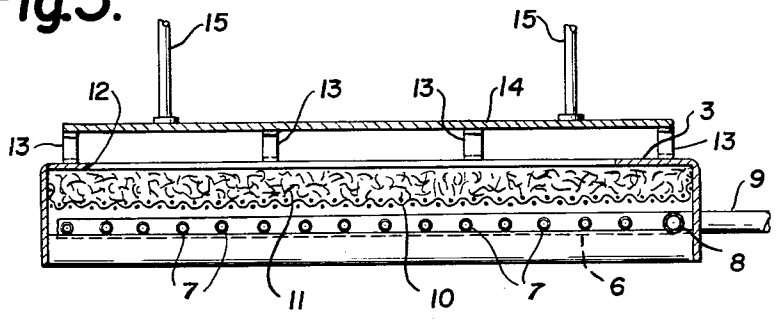


Fig.3.



INVENTOR.
Harrison D. Sterick

BY
Christy, Parmelee & Strickland

his ATTORNEYS

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OVERHEAD HEATING UNIT

Harrison D. Sterick, Pittsburgh, Pa., assignor to Union Chill Mat Company, Saxonburg, Pa., a corporation of Pennsylvania

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1 Claim. (Cl. 126—92)

This invention pertains to heaters of the type designed to be suspended from an overhead support and to radiate heat to the floor space beneath. Heaters of this kind are designed primarily for use in places where the area is too large or too open to be heated in the conventional manner by space heaters, as for example shops and mills and like locations where salamanders are frequently employed at the present time. The advantage of overhead heaters is that they do not occupy floor space and that the heat being radiated downwardly warms the floor and objects and persons standing on the floor below the heater, whereas a salamander radiates heat only toward objects which are facing it and give little warmth to a person or to the hands or feet of a person working in the vicinity of the salamander.

The present invention is for an improvement in heaters of the type disclosed in my application Serial No. 450,873, filed October 19, 1954, now Patent No. 2,822,-799. In my said application there is disclosed a heater in the form of a dome-like shell which is open at the bottom. Inside this shell at the top is a layer of stainless steel wool retained in place by a screen, and below this there is a plate burner. The flames from the burner impinge against the steel wool heating it to incandescence, and the heat is radiated from the steel wool downwardly. A drawback to this arrangement is the fact that the burner itself constitutes an obstruction to the radiation of heat.

The principal object of the present invention is to provide an overhead heating unit of this character in which the heating unit is so arranged as to offer a negligible impedance to the direct radiation of heat, whereby the efficiency of the structure is substantially increased.

My invention may be more fully understood by reference to the accompanying drawings, in which:

FIG. 1 is a top plan view of a heater embodying my invention;

FIG. 2 is a transverse section in the plane of line II—II of FIG. 1;

FIG. 3 is a longitudinal vertical section in the plane of line III—III of FIG. 1;

Referring to the drawings, and particularly FIGS. 1 to 3, there is disclosed an overhead heating unit in the form of a generally rectangular shell having vertical sides 2, and a flat top 3. The lower longitudinal edges of this shell are turned inwardly at 4 and upwardly at 5. This forms a trough-like enclosure along each side of the interior of the shell. A gas supply pipe 6 is mounted along each of these trough-like enclosures. These pipes are arranged at closely spaced intervals with small Bunsen burners 7 that may be inclined upwardly at a slight angle, and which are directed from the sides toward the center of the unit. The gas pipes 6 along each side of the unit are connected by cross pipes 8 with a common supply line 9. Within the shell above the plate of the burners is a metal screen 10 preferably formed of fine stainless steel wires. Above this screen 10 is a mat or pad of heat-resistant fibers, preferably stainless steel wool, 11. The screen may be retained in the housing in any suitable way as with sheet metal screws, cross rods, socalled Tinnerman fasteners, or by other means not shown, and the screen in turn supports the mat of stainless steel wool. Provision is made in the top of the shell for the escape of gases of combustion. For this purpose, I have shown the top of the shell as being provided with a rectangular central opening 12. Supported on the top of the unit by means of spaced brackets 13 is a baffle plate 14, the area of which is slightly larger than the area of the opening 12. This baffle plate is spaced above the opening so that burned gases after passing through the screen can pass out the opening 12 and escape under the edges of the plate 14 while the plate 14 provides a protection against down draft. One or more rods or hangers 15 may be attached to the plate 14 for suspending the structure from an overhead support such as the rafters of a building. Air vents or louvres may, if desired, be also provided in the sides.

When the unit is in the place where it is intended to be used, it is suspended ten or twelve or more feet above the floor. When the gas is turned on and the burners are lighted, the burners project flames across the under surface of the screen 10, causing the screen and the stainless steel wool above the screen to become heated and incandesce. This causes heat to be radiated downwardly in an expanding pattern. The heat is transmitted by radiation so that the air is not warmed, although objects in the path of the radiated heat will be warmed or heated.

The burners themselves are located above the bottom edges of the housing so that they are substantially protected from horizontally moving air currents. The trough-like enclosures below the pipe 6 serve to conceal the pipes and provide support in the structure for them and for the burners, and also provide a quiescent zone of secondary air for the Bunsen burners.

While I prefer to use individual Bunsen burners, each with its own mixing tube, I may supply a mixture of air and gas through the pipes 9, in which case the burners 7 may be simply burner tubes or nipples.

It will be seen that in this arrangement the burners themselves offer very little obstruction to the radiation of heat since the flames are projected horizontally from the ends of the burner tubes instead of the flames rising vertically as in the case of a plate type burner.

While I have shown and described one specific embodiment of my invention, various changes and modifications may be made within the scope of the appended claim.

I claim:

An overhead radiant gas heater comprising a rectangular metal hood having a top, depending side and end walls and an open bottom of substantially the same area as the top, the central area of the top of the hood having an opening therethrough extending lengthwise of the top of the hood for the escape of burned gases from inside the hood, a plate attached to the top of the hood extending over the elongated opening but in spaced relation to the top of the hood and which diverts the flow of gases from said opening in the hood laterally and reradiates heat through the opening back into the hood, means attached to the plate for suspending the heater from an overhead structure, a gas permeable mat of stainless steel wool in the hood under the top and spaced upwardly from the lower edges of the sides of the hood and coextensive in area with the interior of the hood, wire screening under the mat secured in the hood to retain the mat in place, and a gas burner inside the hood below the screening comprising a manifold extending lengthwise along each of the two side walls of the hood with burner nozzles at intervals therealong for projecting flames of burning gas horizontally across the under surface of the mat over substantially the entire area thereof, the burner nozzles of each manifold being directed toward the nozzles of the opposite one so that the flames

travel from the sides of the hood toward the longitudinal center line thereof.

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