

July 19, 1932.

W. W. GUY

1,867,740

ELECTRIC FIREPLACE

Filed Dec. 31, 1928

Fig. 1

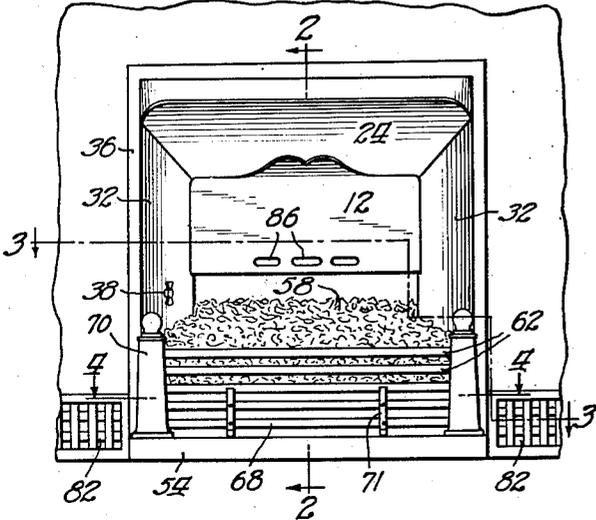


Fig. 2

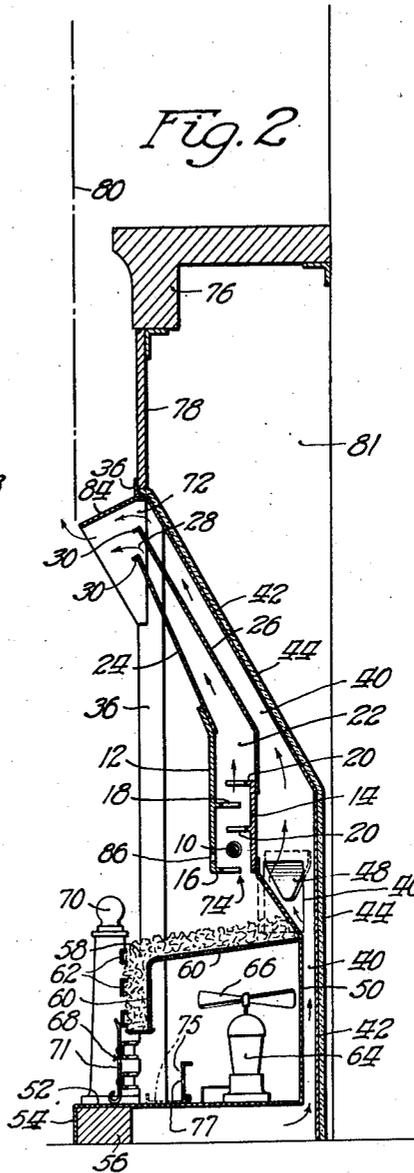


Fig. 4

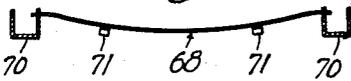


Fig. 5

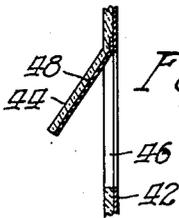
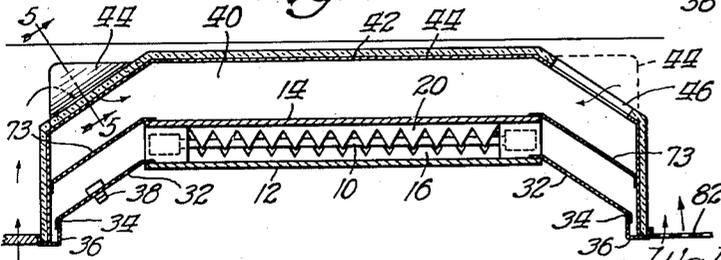


Fig. 3



Inventor
Walter W. Guy

By Emory Booth, James Varnum, Attys.

UNITED STATES PATENT OFFICE

WALTER W. GUY, OF OAK PARK, ILLINOIS

ELECTRIC FIREPLACE

Application filed December 31, 1928. Serial No. 329,399.

My invention relates to house furnishings and more specifically to an improved fireplace. It includes among its objects and advantages minimizing the special preparation of the room necessary in installing a fireplace; and getting the diffused cozy warmth of the old-fashioned fireplace with an incandescent electric source of heat.

In the accompanying drawing,

Fig. 1 is a front elevation of a fireplace; Fig. 2 is a central vertical section from front to back on line 2—2 of Fig. 1;

Fig. 3 is a horizontal section substantially on line 3—3 of Fig. 1;

Fig. 4 is a detailed section on line 4—4 of Fig. 1;

Fig. 5 is a detailed section on line 5—5 of Fig. 3.

In the embodiment of the invention selected for illustration, the heating element is a refractory rod 10 capable of rising to temperatures of incandescence on the passage of an electric current through the same. It is positioned between a front casting 12 and a rear casting 14. The front casting 12 has a fin 16 below the element 10 and another fin 18 above the same. Each of these fins is an integral lateral extension of the casting with a serrated edge. The casting 14 has two similar fins 20, one above and one below the fin 18. The castings 12 and 14, with their fins, define a vertical conduit or air passage 22 through which air heated by proximity to the heating element 10 will rise in a rather turbulent way, being mixed by its flow around and past the fins. The air passage 22 is continued above the castings by sheet metal partitions 24 and 26 and ends in a horizontal facing discharge orifice 28. The walls may be turned over a little as at 30 to help turn the gases issuing at 28 forward into a horizontal path.

The wall 24 is continued forwardly and outwardly by flanks 32 spot-welded at 34 to the peripheral frame 36. One of these flanks may carry an electric switch 38 for control of the current delivered to the rod 10.

To get practically all the heat out into the room, I form a second conduit or air passage 40 behind the passage 22. I have illus-

trated a third sheet metal partition 42 paralleling the forwardly inclined portion of the partition 26 and then extending vertically downward to the floor. To reduce the heat transmitted rearwardly toward the wall of the room to a negligible minimum, I cover the rear surface of the sheet metal partition 42 with insulation 44, such as asbestos sheeting. The partition 42 extends forward at the sides of the fireplace and is also spot-welded to the frame 36. Access to the conduit 40 is through two large side openings 46 in the partition 42. To improve the flow of air through these inlets, I provide hoods 48 extending out above them.

The lower edge of the casting 14 is fastened to the upper edge of a fireplace support 50 extending downwardly and then forward at 52 spaced from the floor and again down at 54 to the floor level. The horizontal portion 52 forms a raised hearth, and conduction of heat down to it is sufficiently poor so that it can be supported on one or more wooden spacers or fillers 56, which fillers may rest on a wooden floor.

On the hearth I provide an imitation fireplace comprising light diffusing material 58 supported on a reticulated support or screen 60 behind imitation grate bars 62. In the space below this material I provide one or more electric lights 64 provided with the flicker fans 66 for producing an illusion as of flickering flames in the light diffusing material 58. For convenient access to the lights 64 and fans 66, I terminate the light diffusing material 58 a little above the grate 52 and position a removable section 68 of grate bars in the opening. The corners of the hearth may carry ornamental posts 70 which may function also as a support for the grate bars 62 and the light diffusing material. The removable section is supported at its ends in notches in the edges of the posts 70, and the cross-pieces 71 ride on the hearth 52. Removal is by the simple process of sliding the section 68 to either side until the ends of the bars clear the posts 70.

When the place of installation is such that the occupants are apt to sit or lie in positions where they could see under the lower

edge of the diffusing material 58, a direct view of the lamps 64 and wiring may be cut off by a light sheet metal shield 75, pivoted to swing down out of the way when access to the lamps is desired. The shield is low enough to permit some light from the lamps to pass under the lower edge of the diffusing material 58. The illumination of the floor in front of the device may be made to increase the resemblance of the unit to a real fire by a few small apertures 77 in the shield 75.

The conduit 22 is completed by flanks 73 formed as extensions of the sheet metal partition 26. The currents of air rising through the conduits 22 and 40 are delivered at 28 and 72. The air delivered at 28 enters at 74 between the castings 12 and 14. The air delivered at 72 enters the fireplace proper at the openings 46. Where the fireplace is built into a larger unit comprising a mantel 76 and panel 78 to form a larger enclosure completed by side walls indicated at 80 in Fig. 2, the air passing through the openings 46 may gain access to the inside of this larger enclosure 81 through grills 82. It is not necessary to provide a conduit from the grills to the conduit 40 unless for manufacturing convenience, because the withdrawal of air at 46 necessitates its replacement at 82 and the movements of the body of air in the enclosure 81 are immaterial.

The currents of air issuing at 28 and 72 are carried slightly forward away from the panel 78 and forced to blend and commingle, by a hood 84 extending forward and downward from the upper edge of the orifice 72 to a level slightly above the level of the lower edge of the same orifice 72. This not only makes the complete unit look more like an actual fireplace, but it deflects the warm air out into the room and away from the wall above the fireplace.

One of the outstanding drawbacks to an electric heater of the ordinary type, from the standpoint of comfort, is the difference in the bodily sensation obtained, compared with the warmth of a real fireplace. I believe this difference to arise chiefly from the fact that the heat radiated is of materially shorter wave lengths than that from the hot walls of an ordinary fireplace, and that the small dimensions of the source of heat give a radiation in parallel or diverging lines that will cast sharp shadows. Thus, a person facing an ordinary electric heater will feel the warmth on his face, but if his head is turned a little to either side, the ear remote from the source of heat receives no heat at all. With a fireplace radiating heat from an extended area, the reverse would be the case, as the heat radiates from points so widely separated.

When the heater disclosed is supplied with current, the bar 10 immediately becomes incandescent and the glow from it may be ob-

served through a series of apertures 86 in the casting 12. After the heater has been turned on for a short time, the castings 12 and 14 become thoroughly heated through and too hot to touch. The partition 24 and its flanks 32 are very well connected with the casting 12 and also become quite hot. The radiation from this extended surface is of the same low wave length and distributed over the same large area as in a fireplace heated by flames, and the persons gathering around it are ordinarily quick to notice this difference.

Without further elaboration, the foregoing will so fully explain the gist of my invention, that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

I claim:

1. A fireplace unit comprising three spaced metal partitions, conduits permitting air flow through the spaces between said partitions, an incandescent electric heating element between two of said partitions near the lower end of the conduit between them, means near said element for retarding and mixing the air flowing through said conduit, the other conduit being unobstructed, the obstructed conduit having a horizontally directed delivery orifice at its upper end, the unobstructed conduit having a similar orifice immediately above the orifice for the obstructed conduit, a mixing hood extending forward and downward from the upper edge of the upper orifice and terminating above the level of the lower edge of the lower orifice, heat insulation covering the rear of said unobstructed conduit, the walls of the obstructed conduit near the heating element being of relatively thick cast metal, the remaining conduit walls being of relatively thin sheet metal, the middle one of said partitions being devoid of any insulation to function in the transfer of heat.

2. A fireplace unit comprising spaced partitions, an electric heating unit between the partitions near the lower end of the conduit between them, the walls of the conduit near the heating element being of relatively thick cast metal, the remaining conduit walls being of relatively thin sheet metal, said conduits being adapted to discharge all gases heated by said element into the room.

3. A fireplace unit comprising three spaced partitions, an electric heating unit between the front and middle partitions, conduits permitting air flow between said partitions, both conduits having horizontally directed delivery orifices at their upper ends, and a mixing hood extending forward and downward from the upper edge of the upper orifice and terminating above the level of the lower edge of the lower orifice.

4. A fireplace unit comprising three spaced partitions, an electric heating unit between

the front and middle partitions, conduits permitting air flow between said partitions, both conduits having horizontally directed delivery orifices at their upper ends, and a mixing hood extending forward and downward from the upper edge of the upper orifice and terminating above the level of the lower edge of the upper orifice.

5. A fireplace unit comprising spaced conduits having air inlet and discharge openings, the walls of one of said conduits near the inlet opening thereof being of relatively thick cast metal, the remaining conduit walls being of relatively thin sheet metal, an incandescent electric heating element inclosed within the thick cast metal walls of said conduit adjacent the inlet opening thereof to heat the air to a high temperature, and baffle means interposed between the inlet and discharge openings of said conduit to function in the transfer of a substantial portion of heat from said heated air to the room by conduction through the walls of the conduit, the remainder of the heat being discharged through said discharge openings into the room.

WALTER W. GUY.

30

35

40

45

50

55

60

65