

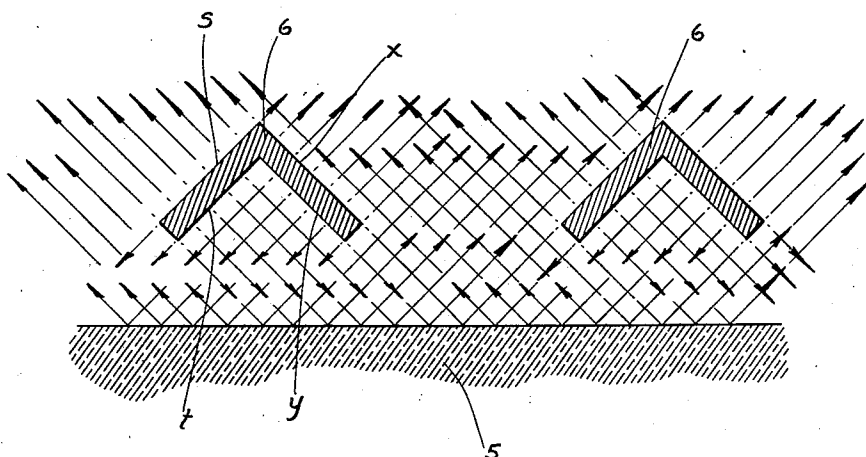
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ELECTRIC FURNACE

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ELECTRIC FURNACE.

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My invention relates broadly to electric furnaces and more particularly to the positioning of the heating element therein.

5 An object of my invention is to so position a heating element within an electric furnace that a maximum amount of heat will be delivered to the working chamber.

10 Another object of my invention is to so position a heating element within the chamber of an electric furnace that a uniform temperature along the walls of the furnace will prevail, thereby eliminating hot spots that cause rapid deterioration in the walls.

15 A further object of my invention is to eliminate continuous alternate heating and cooling of the chamber walls, so prevalent in the types of furnaces now employed.

20 With the above and other objects in view my invention consists in the construction, combination and arrangement of parts as will be hereinafter more fully described.

Reference is to be had to the accompanying drawing forming a part of this specification, wherein is illustrated one embodiment 25 of heating element of an electric furnace so positioned as to produce the advantages above enumerated.

30 Referring more particularly to the drawing, 5 indicates the wall of any conventional type of electric furnace having arranged in proximity thereto a heating element or grid 6.

35 In order to obtain the greatest amount of efficiency, it is desirable that the grid be made of bars or rods with parallel surfaces arranged at right angles to each other. Referring to the type of grid illustrated in the drawing it will be seen that the surfaces s and t are parallel to each other, that the surfaces 40 x and y are parallel to each other, and that the surfaces s and t are at right angles to the surfaces x and y . This produces a straight sided grid with the adjacent sides forming an angle of 90 degrees. In length, there may 45 be one continuous grid, arranged in a zigzag fashion over the interior of the wall, or elements of shorter lengths may be connected together in any suitable and desirable manner.

50 The position of the grid within the working chamber of the furnace is such that its surfaces will be at an angle of 45 degrees with the reflecting surface of the furnace wall, and at such a distance therefrom that

all of the heat rays that are originated in the 55 grid and then reflected from the wall, will pass into the working chamber unobstructed. In order that the rays reflected by the furnace wall will not be obstructed by the adjacent section of the grid, it is necessary that 60 the distance between the sections be such that all of the heat rays from an adjacent section that are reflected from the wall will pass between adjacent sections of the grid into the working chamber. 65

It will thus be seen that no hot spots are formed on the furnace wall and because of the peculiar shape of the grid a maximum amount of heat is delivered into the working chamber 70 of the furnace. By my arrangement of the grid the furnace wall does not store up an excessive amount of heat, therefore, when current is cut off, the furnace wall does not tend to raise the furnace temperature.

75 It will be understood that the above description and accompanying drawing comprehend only the general and preferred embodiment of my invention and that various minor changes in details of construction, proportion and arrangement of parts may be 80 made within the scope of the appended claims and without sacrificing any of the advantages of my invention.

The invention described herein may be manufactured and used by or for the Govern- 85 ment of the United States for governmental purposes without the payment to me of any royalty thereon.

What I claim is as follows:

1. In an electric furnace, a straight sided 90 angled grid, said angles being angles of 90 degrees; the sides of said grid subtending an angle of 45 degrees with the furnace wall.

2. In an electric furnace, a grid whose adjacent sides are planes at right angles and 95 whose opposite sides are planes parallel to each other, the sides of the grid being angularly disposed with respect to the furnace wall.

3. In an electric furnace, a wall having a 100 planar reflecting surface, and a right angled grid positioned at an angle to the wall to permit a portion of the heat radiating from the grid to pass directly into the furnace chamber and the balance of the heat radiating 105 from the grid to be reflected unobstructedly into the furnace chamber by the wall.

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