

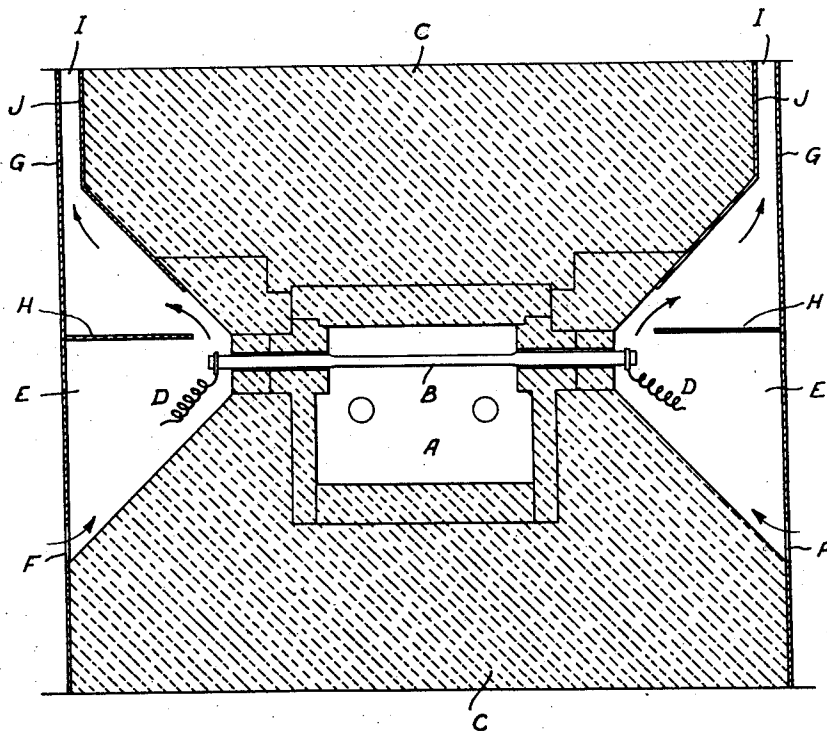
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ELECTRIC RESISTANCE FURNACE

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UNITED STATES PATENT OFFICE

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ELECTRIC RESISTANCE FURNACE

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When heating electric resistance furnaces to temperatures higher than those for which nickel chrome resistors are suitable, it is customary to use non-metallic resistors which can withstand high temperatures.

One of the chief difficulties with this type of resistor is to make a suitable connection between the cables carrying the electrical supply and the resistors. As the resistors are at a very high temperature, it is not convenient to make the connection inside the brickwork of the furnace, so that the resistor must be brought outside the brickwork.

In order to cool the heads of the resistance it has been previously proposed to provide spaces between the outside of the furnace walls and an outer casing through which air currents can flow.

According to the invention a recess is formed in the brickwork of the furnace at each end of the resistors and holes are provided in a metallic casing, enclosing the brickwork, for the admission of atmospheric air into the direct contact with the ends of the resistors, the current of air produced by convection being discharged through a vertical or substantially vertical passage between the brickwork and casing.

The accompanying drawing shows diagrammatically an example of a cooling device according to the invention.

A is the furnace, B a resistor, C the refractory brickwork, D connections between cables and the resistors.

The brickwork is cut away as shown at E and the ends of the resistors extend into the air space obtained by this means.

Air enters through an opening F in the metal casing G and by the baffle plate H is brought into contact with and cools the ends of the resistors, as it rises by convection in the path shown by the arrow, and escapes by the vertical space I provided between the casing G and a metal casing J provided at this part of the brickwork.

The arrangement according to the invention has the further advantage that it enables the greater part of the brickwork to be of sufficient thickness to form a satisfactory heat insulator without necessitating an abnor-

mally long resistor rod, which in the present state of the art cannot be obtained commercially.

I claim:—

1. In an electric furnace heated by non-metallic resistor elements, a recess formed in the brickwork at each end of the resistors, a metallic casing enclosing the brickwork and provided with holes for the admission of atmospheric air into direct contact with the ends of the resistors and a substantially vertical passage between the brickwork and casing for conveying away the current of air produced by convection.

2. An electric furnace according to claim 1, in which baffle plates are provided in the recesses to direct the air into contact with the ends of the resistors.

In testimony whereof I have signed my name to this specification.

WILLIAM JAMES MILLAR.