May 25, 1926. 1,586,240

F. T. COPE

RESISTOR GRID

Filed Dec. 21, 1925

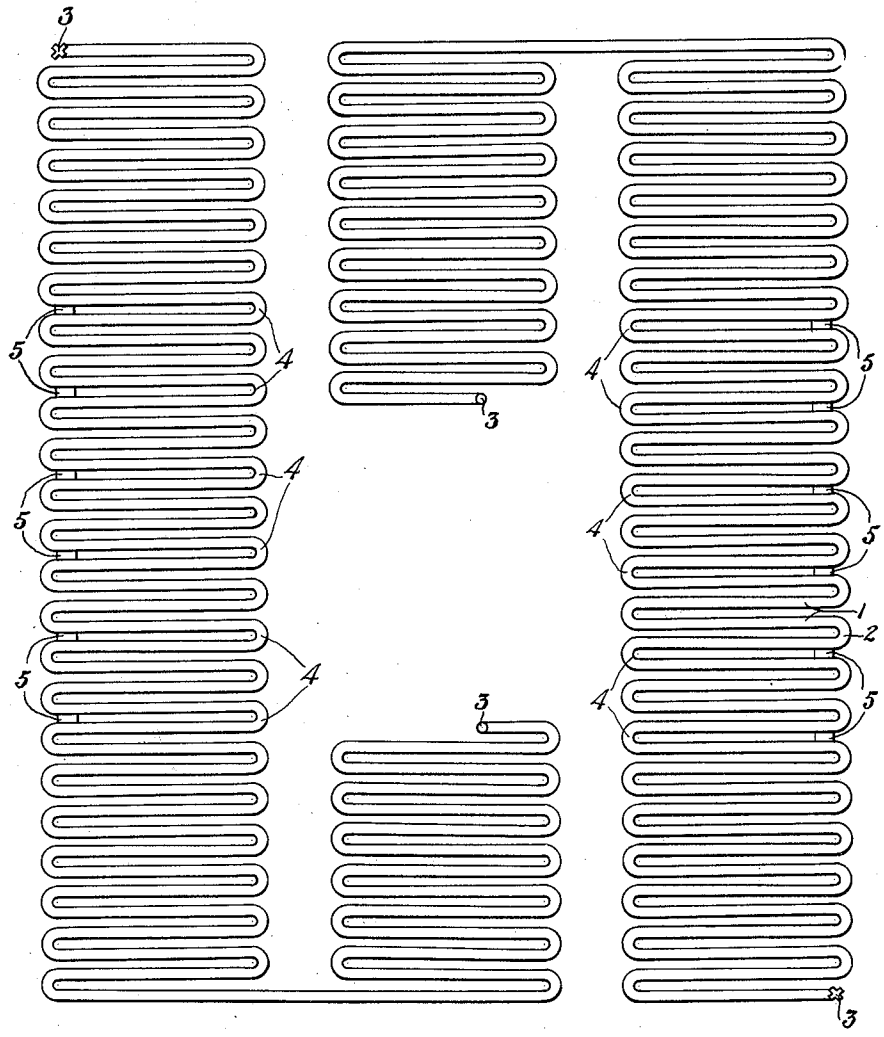


Fig. 1

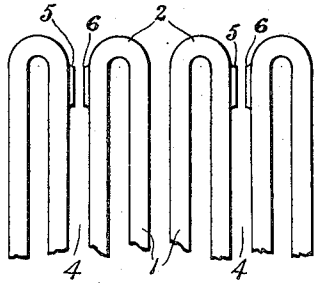


Fig. 2

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UNITED STATES PATENT OFFICE.

FRANK T. COPE, OF SALEM, OHIO, ASSIGNOR TO THE ELECTRIC FURNACE COMPANY, OF SALEM, OHIO, A CORPORATION OF OHIO.

RESISTOR GRID.

Application filed December 21, 1925. Serial No. 76,674.

The invention relates to metallic resistors for electric furnaces and the like, and more particularly to means for changing the resistance of such resistors.

The objects of the improvement are to provide a resistor grid of serpentine shape having connecting webs or shunts between certain loops for normally lowering the resistance, said webs being adapted to be severed or removed to increase the resistance of the grid.

An embodiment of the invention is illustrated in the accompanying drawing, in which

Figure 1 is an elevation of a pair of resistors embodying the invention located in the relative position in which they are mounted in a furnace or the like, and

Fig. 2, an enlarged fragmentary elevation of a portion of one of the resistors showing the webs severed or removed to increase the resistance.

Similar numerals of reference indicate corresponding parts throughout the drawing.

The grid or resistor to which the invention pertains is of a sinuous form comprising a plurality of parallel straight portions 1 alternately connected at opposite ends by curved portions 2, thus providing a plurality of alternate loops through which current is passed from end to end by connecting the terminals 3 in an electric circuit.

Resistors of this general type are adaptable for use in the side walls, roof or hearth of an electric furnace or the like, and for the purpose of illustration a pair of these grids are shown in Figure 1 in the position in which they may be mounted upon the furnace wall.

When these resistors are installed in a furnace the exact resistance required is not always known and for this purpose certain loops as indicated at 4 may be short circuited by means of webs 5 cast in the grid. The current will thus pass through these webs and not around the loops which are thus shunted out, obviously reducing the resistance of the grid.

After the resistors are installed in the furnace and current is applied to the same if it is found that the resistance is not sufficient, certain of the webs 5 may be severed or removed as indicated at 6 in Fig. 2, thus preventing the current from passing through the web and forcing it to go through the accompanying loop 4, increasing the resistance of the grid proportionately.

It will thus be obvious that by providing a sufficient number of these webs at spaced points upon the grid the resistance of each resistor may be properly fixed by severing or removing the necessary number of webs 5.

I claim:

1. A sinuous resistor provided with webs bridging spaced points therein, said webs being adapted to be severed to increase the resistance of the resistor.

2. A resistor comprising a plurality of loops and provided with webs bridging certain of said loops, said webs being adapted to be severed to increase the resistance of the resistor.

3. A resistor formed of a plurality of straight portions connected at their ends by curved portions, and provided with webs bridging certain of the straight portions, said webs being adapted to be severed to increase the resistance of the resistor.

4. A resistor formed of a plurality of parallel portions connected at their ends by curved portions, and provided with webs bridging certain of the parallel portions, said webs being adapted to be severed to increase the resistance of the resistor.

5. A cast resistor grid comprising a plurality of parallel portions connected at alternate ends by curved portions, and integral webs connecting certain pairs of parallel portions adjacent to the curved portions, said webs being adapted to be severed to increase the resistance of the resistor.

6. An electric furnace resistor in which

the initial resistance of the resistor as installed is lower than the operating resistance required for normal operation, and so constructed that the resistance may be increased to the desired point by the removal of shunts.

7. An electric furnace resistor, certain portions of which are initially shunted, the shunts being adapted to be removed as required to increase the resistance to the desired point for normal operation.

In testimony that I claim the above, I have hereunto subscribed my name.

FRANK T. COPE.