May 31, 1927. 1,630,368

J. C. WOODSON

RESISTOR MOUNTING FOR ELECTRIC FURNACES

Filed April 8, 1924

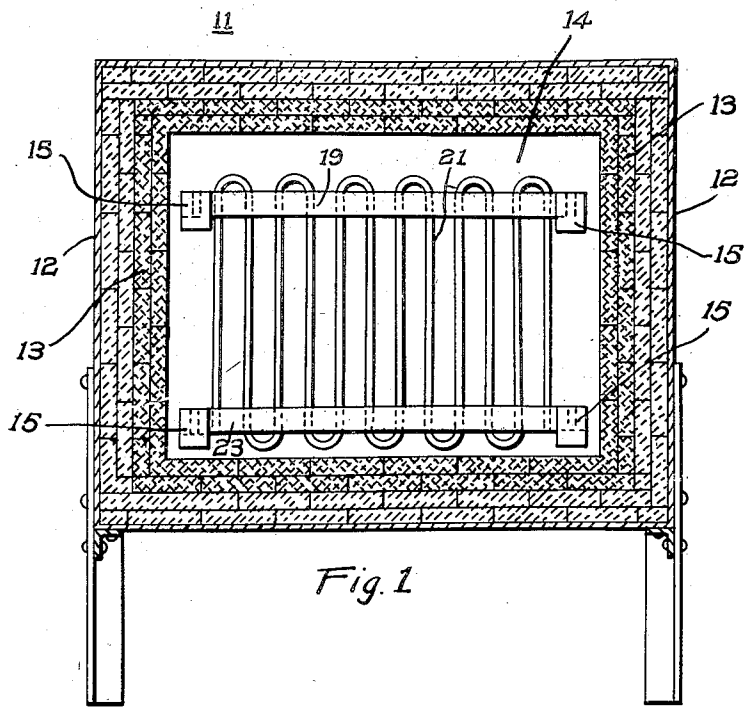


Fig. 1

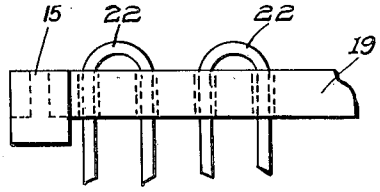


Fig. 2

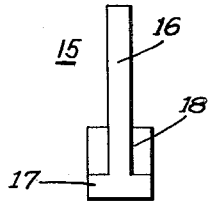


Fig. 3.

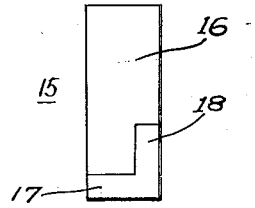


Fig. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

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RESISTOR MOUNTING FOR ELECTRIC FURNACES.

Application filed April 8, 1924. Serial No. 704,972.

My invention relates to electric furnaces and particularly to electric resistance furnaces, and it has for its object to provide a relatively simple resistor supporting means for an electric furnace.

In practicing my invention, I provide a plurality of refractory resistor-unit supporting members, supported by the walls of a furnace in any well known manner. A resistor unit is supported by said members and comprises a plurality of return bent convolutions supported in spaced relation by a refractory member in such manner that it will not be inadvertently displaced.

In the single sheet of drawings.

Figure 1 is a front view, partially in elevation, and partially in section, of the device employed in my invention;

Fig. 2 is a detailed front elevational view of a portion of a resistor unit and support therefor;

Fig. 3 is a top plan view of a resistor unit supporting member; and

Fig. 4 is a side elevational view of a resistor unit supporting member employed in my invention.

A furnace generally designated by the numeral 11 comprises a casing 12 of suitable heat-insulating material that constitutes the walls of a furnace chamber. An inner lining 13 is located within the casing 12 and is composed of suitable refractory material such as is usually employed in the art. The walls are suitably spaced apart to constitute or enclose a furnace chamber 14 of any suitable or desired contour or dimensions.

Refractory supporting members 15 are supported by the walls 13 and extend into the furnace chamber. The members 15 are more particularly illustrated in Figures 3 and 4 of the drawing and as shown, are provided with the usual straight portion 16 and web or shoulder 17 and an additional web or shoulder 18 that is located at right angles and beneath the usual web 17.

The members 15 are located in spaced relation and support a refractory bar 19 that supports and maintains in spaced relation the convolutions of an electric resistance element 21, said resistance-element supporting member 19 and resistance element 21 constituting an electric resistor unit.

The resistor-unit supporting members 15, by reason of the straight portions 16, the web 17 and the web 18 support the resistor unit in such a manner that movement laterally, downwardly and inwardly thereof is prevented.

The refractory member 19 of the resistor unit is perforated to permit threading the resistance element 21 through the perforations in such manner that the resistance element is supported by the engagement of the bent portions 22 thereof with the upper surface of the refractory member 19. It is obvious that the refractory member 19 supports the resistance element and maintains the convolutions thereof in spaced relation. Another refractory member 23 may be used also to maintain the convolutions of the resistance element 21 in spaced relation.

In assembling the parts embodying the furnace structure, the resistor unit supporting members are located in proper spaced relation, and the resistor unit is mounted thereon. The ends of the refractory members 19 and 23, upon which the resistance element 21 has been previously mounted or placed, are located within the enclosure in the resistor supporting members 15, formed by the straight extending portion 16 and the webs 17 and 18, and by a movement downwardly and laterally relatively to the furnace walls.

Various modifications may be made in the device embodying my invention and I desire that only such limitations shall be placed thereon as are imposed by the prior art or are specifically set forth in the appended claims.

I claim as my invention:

1. In an electric furnace, the combination with a furnace chamber and a plurality of spaced refractory members supported by the walls of said chamber and extending therefrom into said chamber, of a resistor unit supported thereby having a single refractory member and a return-bent electric heating element supported by the bent portions only of said element and coacting with said last-named refractory member.

2. In an electric furnace, the combination with a furnace chamber, a plurality of refractory members supported by the walls of said chamber and extending into said chamber, of a resistor unit supported by the refractory members and comprising a plurality of refractory members and an electric heating element supported by one of said last named refractory members having a

plurality of substantially straight portions maintained in spaced relation only by another of said last named refractory members.

3. In an electric furnace, the combination with a plurality of refractory walls enclosing a furnace chamber and a plurality of refractory members supported by said walls and extending into said chamber, of a resistor unit supported by the refractory members and comprising a refractory member and a return-bent electric heating element having a plurality of substantially straight portions maintained in spaced relation and supported by said last named refractory member.

4. In an electric furnace, the combination with a wall of a plurality of refractory, horizontally extending, spaced members, each member having one end extending into the wall and provided at its other end with a pair of webs positioned at right angles to each other, a refractory resistor supporting member, extending horizontally between a pair of said spaced members and maintained in horizontal position by said webs, said resistor supporting member being provided with grooves in one surface thereof, and a vertically depending resistor member having return-bent end portions, and supported at only said end portions by said resistor supporting member.

5. In an electric furnace, the combination with a plurality of spaced members, of substantially T-shape, located in, and having a portion extending horizontally from, said wall, a refractory supporting bar extending horizontally between said spaced members and supported thereby and having a plurality of laterally-extending grooves in the surface adjacent to the wall, and a vertically depending resistor member, having return-bent end portions, extending through said grooves and supported at the return-bent end portions only.

6. In an electric furnace, in combination, a wall, an electric heating unit comprising a resistor member having return-bent portions and intermediate straight portions and a refractory laterally-grooved bar for supporting said resistor member at only the return-bent portions thereof, and spaced means located in said wall and having portions extending therefrom for supporting said bar and for preventing lateral and longitudinal movement thereof.

In testimony whereof, I have hereunto subscribed my name this 27th day of March 1924.

JAMES C. WOODSON.