

Aug. 31, 1926.

1,597,900

A. D. KEENE

ELECTRIC FURNACE

Filed Jan. 23, 1925

Fig. 1.

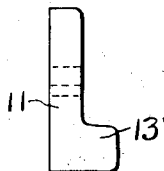


Fig. 2.

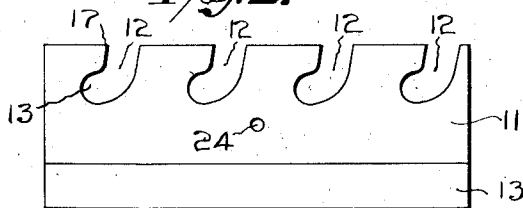


Fig. 3.

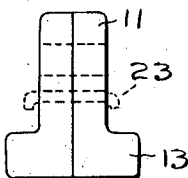


Fig. 4.

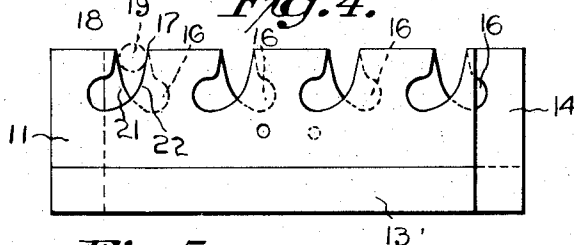


Fig. 5.

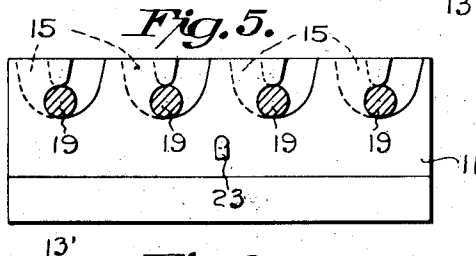


Fig. 6.

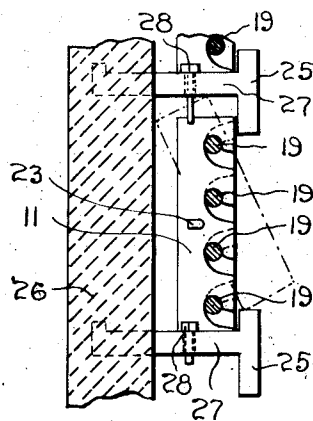
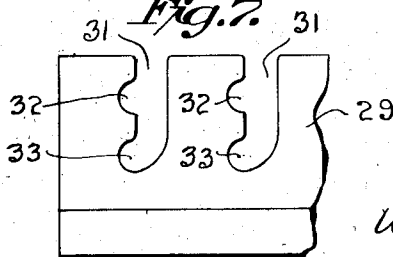


Fig. 7.



WITNESSES:

R. S. Harrison
W. B. Cooley

INVENTOR

Alvin D. Keene

BY

Wesley G. Carr
ATTORNEY

UNITED STATES PATENT OFFICE.

ALVIN D. KEENE, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE
ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

ELECTRIC FURNACE.

Application filed January 23, 1925. Serial No. 4,236.

My invention relates to electric furnaces and particularly to resistor supporting members.

One of the objects of my invention is to provide an electric resistor-supporting member that is designed to interlock with an electric resistor in operative position.

Another object of my invention is to provide an electric resistor-supporting member that is designed to permit the interlocking thereof with an electric resistor and the subsequent mounting of the resistor and the resistor supporting member as a unit adjacent the furnace wall.

In practicing my invention, I provide a plurality of spaced resistor-supporting members, each member comprising a pair of cooperative refractory bars or strips of any well known electrical insulating material. The refractory bars are provided with a plurality of slots extending inwardly from one face thereof, each slot having an offset portion located substantially at the innermost portion thereof. The offset portions of the slots of each bar are arranged in opposite relation to those of the adjacent cooperating bar. The slots are designed to be sufficiently wide to receive a resistor member which when in proper operative position is inclosed by the offset portions of the slots and firmly interlocked therewith.

The resistor and the spaced resistor-supporting members are interlocked as a unit and are installed in proper operative position adjacent to a wall of the furnace and supported by any well known structure. One such structure may comprise a bar of refractory electrically insulated members extending inwardly into the furnace chamber from the wall and of substantially T-shape. The resistor-supporting members extend therebetween and are maintained in operative position by pin members that are located in the members of T-shape and in abutting relation with the resistor supporting member.

In the single sheet of drawings,

Figure 1 is an end elevational view of a refractory member forming a part of a resistor-supporting member embodying my invention;

Fig. 2 is a side elevational view of the member shown in Figure 1;

Fig. 3 is an end elevational view of a com-

plete resistor-supporting member embodying my invention;

Fig. 4 is a side elevational view thereof in which the cooperating refractory members are located in position to receive a resistor member;

Fig. 5 is a side elevational view thereof with the refractory members arranged in operative position;

Fig. 6 is a view, partially in section and partially in side elevation, of an embodiment of my invention wherein a resistor-supporting member is supported adjacent to the wall of an electric furnace; and

Fig. 7 is a fragmentary view in side elevation of another embodiment of my invention.

A refractory bar 11 has a plurality of slots 12 located in one face thereof. Each of the slots 12 has an offset portion 13 that is substantially of the same width as slot 12 and is located at the innermost portion thereof. The refractory bar 11 is shown as having a laterally extending portion 13' suitable for cooperating with some supporting means not shown. The particular shape of the refractory bar 11 does not form a part of my present invention and I therefore do not wish to be limited by the particular shape shown.

A similar refractory bar 14 has a plurality of slots 15 similar in shape and dimensions to slots 12 in bar 11. The slots 15 have offset portions 16 but extending in a direction opposite to offset portions 13 of bar 11 when the bar 14 is located in abutting cooperating position with refractory bar 11.

When the refractory bars 11 and 14 are placed in abutting cooperating position in such manner that the edge portions 17 and 18 of the slots 12 and 15 respectively are in alinement, the refractory members are in position to receive an electric resistor member 19. The electric resistor member may be of any desired shape but I prefer to use a member having a plurality of preformed substantially parallel extending return-bent convolutions.

A relative endwise movement of bars 11 and 14 permits the resistor member 19 to descend into slots 12 and 15 until received by the offset portions 13 and 16 respectively whereby the resistor member 19 is interlocked in operative position, thereby form-

ing substantially a bayonet joint. The end-wise movement of the refractory members 11 and 14 relatively to each other may be effected by applying a force on the resistor members at the beginning of its introduction into the slots 12 and 15, the pressure exerted by the resistor member 19 against the faces 21 and 22 causing the relative movement of the refractory members 11 and 14. When the resistor member 19 has reached its proper operative position in the offset portions 13 and 16 a pin member 23 is inserted in hole 24 that extends transversely through the blocks 11 and 14 to firmly secure the blocks in operative position whereby relative movement of one to the other is prevented.

In practicing my invention, a number of of resistor-supporting members are located in spaced relation, the number depending upon the dimensions of the furnace in which they are to be installed and a resistor member located therein and interlocked therewith as hereinbefore described to form a unit. Spaced sets of refractory resistor unit supporting members of substantially T-shape 25 extend inwardly from a furnace wall 26. The sets of refractory T-shape members 25 are aligned substantially with the resistor-supporting members. The resistor-supporting unit is then placed in proper operative position adjacent to the furnace wall 26 by a lateral and upwardly extending movement and permitted to rest on the upper face 27 of the lower T-shape member 25. A plurality of refractory pin members 28 are inserted through the member 25 of T-shape in an abutting position with the resistor supporting members 11 and 14 whereby lateral movement relatively to the members of T-shape is thereby prevented.

In case it is necessary to supply an additional amount of heat to any objects, not shown, located in the furnace chamber, I provide a means of supporting a plurality of resistor members in a manner similar to that hereinbefore described. A refractory member 29 as shown in Fig. 7 has a plurality of slots 31 each having a plurality of offset portions 32 and 33. The offset portions 32 and 33 are adapted to receive a plurality of resistor members in the manner hereinbefore described when cooperating with similar oppositely directed offset slot portions in a cooperating refractory member not shown.

By providing a structure as hereinbefore described, a simple form of resistor-supporting member may be used in an electric furnace whereby the resistor member may be supported in operative position and interlocked securely with the resistor support members. The structure provides for a readily removable resistor unit in case it is necessary for repairs to the furnace thereby

providing a very practical and simple structure.

This case is closely related to my copending application Serial No. 8202 filed Feb. 10, 1925, which is assigned to the Westinghouse Electric and Manufacturing Company.

Various modifications and changes may be made without departing from the spirit and scope of the invention, therefore, I desire that only such limitations shall be placed thereon as are imposed by the prior art or are set forth in the appended claims.

I claim as my invention:

1. An electric furnace resistor-supporting member comprising a pair of similar cooperating refractory members, having a slot therein having an offset portion, the members being arranged in opposed relation whereby the edge portion of the slots are aligned to receive a resistor, and by relative movement with respect to each other, cause the enclosure of the resistor by the offset portions of the slots to interlock said resistor in proper operative position.

2. An electric furnace resistor-supporting member comprising a pair of oppositely disposed refractory members having similar slots therein to form a bayonet joint with a resistor member for interlocking said resistor member in operative position.

3. An electric furnace resistor-supporting member comprising a pair of oppositely disposed refractory members having slots therein, said slots having an offset portion to interlock with a resistor member in operative position.

4. An electric furnace resistor-supporting member comprising a pair of oppositely disposed refractory members having slots therein adapted to receive a resistor member upon relative movement of the refractory members with respect to each other and to interlock therewith in proper operative position.

5. An electric furnace resistor-supporting member comprising a pair of oppositely disposed refractory members having a plurality of slots therein adapted to receive the substantially parallel convolutions of a resistor member and to interlock therewith in proper operative position upon relative movement of the said refractory members.

6. An electric furnace resistor supporting member comprising a pair of refractory members having a plurality of slots therein adapted to receive the substantially parallel convolution of a preformed, return bent, resistor member and to interlock therewith in proper operative position upon a relative movement of the refractory members with respect to each other.

7. An electric furnace resistor supporting member comprising a pair of cooperating refractory members having a plurality of spaced slots therein, each slot having an offset portion, the members being arranged

in opposed relation whereby the edge portions of the slots are aligned to receive the substantially parallel convolution of a pre-formed return bent resistor and by relative movement with respect to each other, permit the enclosure of the resistor by the offset portion of the slots to interlock said resistor in proper operative position. 15

8. A resistor-supporting member comprising a pair of oppositely disposed refractory members having slots therein, said slots having offset portions adapted to interlock with a resistor member in operative position, and means engaging both of said refractory members for positively maintaining said offset portions of the refractory members in interlocked relation with said resistor member. 20

In testimony whereof, I have hereunto subscribed my name this 10th day of January, 1925.

ALVIN D. KEENE.