July 29, 1947. H. E. TRENT 2,424,780

REFRACTORY SUPPORT FOR ELECTRIC RESISTORS

Filed Nov. 23, 1945

Fig. 1.

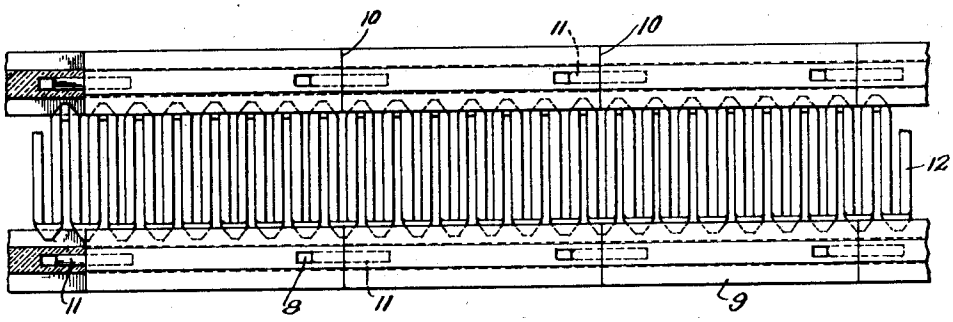


Fig. 2.

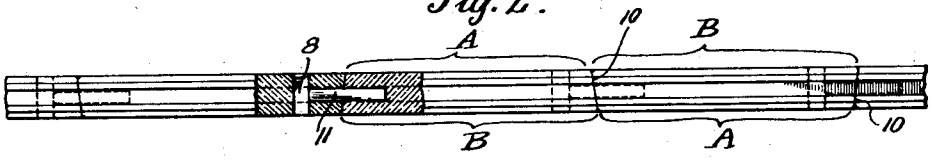


Fig. 3.

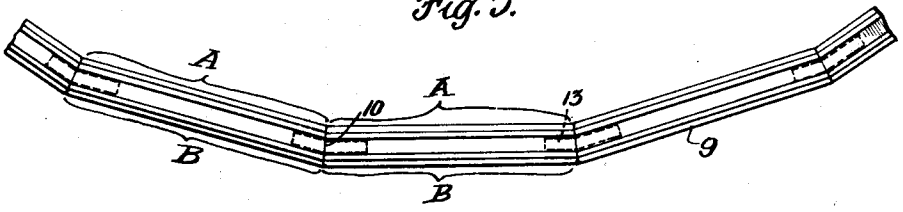
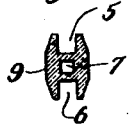


Fig. 4.



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REFRACTORY SUPPORT FOR ELECTRIC RESISTORS

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2 Claims. (Cl. 174—138)

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My invention relates to the support of uninsulated electric heating elements for example in kettles, ovens and furnaces and particularly to the form of the refractory blocks used in the resistor supporting frame or structure.

It is the primary object of my invention to provide a refractory block which is adaptable for use in the building of supporting frames of different shapes and sizes and thus to eliminate the need for providing a variety of differently shaped blocks.

It is a further object of my invention to provide a refractory block which can be quickly and easily assembled and secured in position to form a variety of forms of supporting frames.

It is a further object of my invention to provide a symmetrical supporting block which can be used to form straight or circular supporting frames, the blocks having recesses for reception of dowel pins which extend from block to block to hold the blocks in position in a supporting framework.

The foregoing, together with such other objects as may hereinafter appear or are incident to my invention, I have illustrated in preferred form in the accompanying drawings wherein—

Figure 1 illustrates, in elevation, the use of my improved refractory block in a resistor supporting framework;

Figure 2 is a plan view (partially in section) illustrating the blocks used to form a straight frame;

Figure 3 is a plan view showing the blocks used in the formation of a circular frame; and

Figure 4 is a cross-section through the block.

Referring now to Figure 4, it will be seen that each block 9 has a channel 5 in the upper edge, a channel 6 in the lower edge, and a rectangular recess 7 located at the central axis of the block at each end thereof. As will be observed in Figures 1, 2 and 3, each block is also provided near one end with an opening 8 extending from one face of the block to the other. Also, as shown in Figures 1, 2 and 3, the recess 7 does not run all the way through the block from end to end but extends only a short distance into each end.

Referring now particularly to Figures 2 and 3, it will be seen that the ends of each block are beveled, as indicated by the reference numeral 10, to present an end surface lying in a plane oblique to a plane containing the axes of the channels 5 and 6 and the ends are so beveled that one side A of a block 9 is slightly shorter than the other side B of the block.

It is also seen from Figure 4 that the blocks

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are symmetrical in cross-section. That is to say, the blocks are symmetrical at opposite sides of a plane containing the axes of the channels 5 and 6 and are also symmetrical at opposite sides of a longitudinal plane through the axis of the block, vertical to said plane containing the axes of the channels.

By virtue of the novel shape of the block above described, I am able to construct supporting frames of a variety of shapes and adapted for a variety of uses.

In constructing a straight frame, for example such as would be desired along a flat wall of a furnace or on the bottom, the blocks 9 would be positioned as illustrated in Figures 1 and 2. In this arrangement alternate blocks 9 are reversed. In other words, along either face of the frame, the long side B and short side A of the blocks will alternate and the beveling of the ends of the blocks will allow them to abut with one end surface in full contact with the end surface of the adjoining block, as seen in Figure 2. Since the blocks are symmetrical as above described, it is possible to reverse them as desired without interfering with the formation of a continuous channel in either edge of a series of blocks or without interfering with the registry of dowel recesses 7 in one block with those of the adjacent block.

In forming the frame, a series of blocks are secured end to end as described against a wall of the furnace by any desired fastening means (e. g., nails or pins) which will extend through the openings 8 of each block into the furnace wall. The blocks are held in respective relative position by dowel pins 11 which extend between adjoining blocks in the recesses 7. In the case of a high temperature furnace, the dowel pins 11 would be made from a high heat resistant metal such as a nickel chromium alloy and the fasteners which extend through openings 8 in such case would be made of like material.

Any desired number of rows of blocks can be secured to a wall, and when the rows are in position the electric resistor 12 is slid into the channels formed in the edges of the rows as shown in Figure 1. The resistor illustrated is of the type shown in my Patent No. 1,928,142 but it will be understood that any type of resistor with sufficient stiffness can be used.

In forming an arcuate frame such as shown in Figure 3, the short face A of each block is always on the same face of the frame. The beveling of the ends of the blocks will permit the end surfaces to abut in full contact just as in the straight

frame and by using a dowel pin 13 which is bent slightly, the blocks can be held in relative position just as in a straight frame.

It will be understood that the straight and arcuate frames can be combined as desired.

I claim:

1. A block for an electric resistor supporting structure, said block being of rectangular shape and having a channel in the opposite edges thereof and a centrally located pin receiving recess in each end, said recess being adapted to receive a dowel pin, at least one end of said block being beveled to present an end surface lying in a plane oblique to a plane containing the axes of the channels, each said block being symmetrical at opposite sides of a central longitudinal plane perpendicular to said plane containing the axes of the channels, whereby said blocks may be used to form a straight or arcuate resistor supporting structure.

2. A block for an electric resistor supporting structure, said block being of rectangular shape and having a channel in the opposite edges thereof and a centrally located pin receiving recess in each end, said recess being adapted to receive a dowel pin, each end of said block being so beveled as to present an end surface lying in a plane oblique to a plane containing the axes of the channels with one side of said block being shorter than the other, each said block being symmetrical at opposite sides of a central longitudinal plane perpendicular to said plane containing the axes of the channels, whereby said blocks may be used to form a straight or arcuate resistor supporting structure.

HAROLD E. TRENT.

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The following references are of record in the file of this patent:

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