

Jan. 24, 1939.

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2,145,113

REFRACTORY CAST BLOCK AND METHOD OF PRODUCING THE SAME

Filed Dec. 21, 1936

Fig. 1.

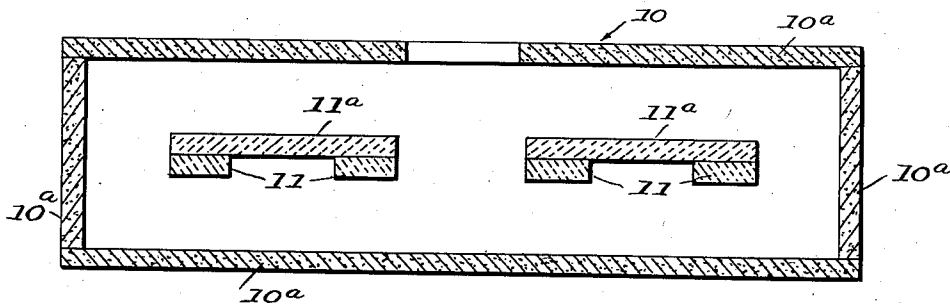


Fig. 2.

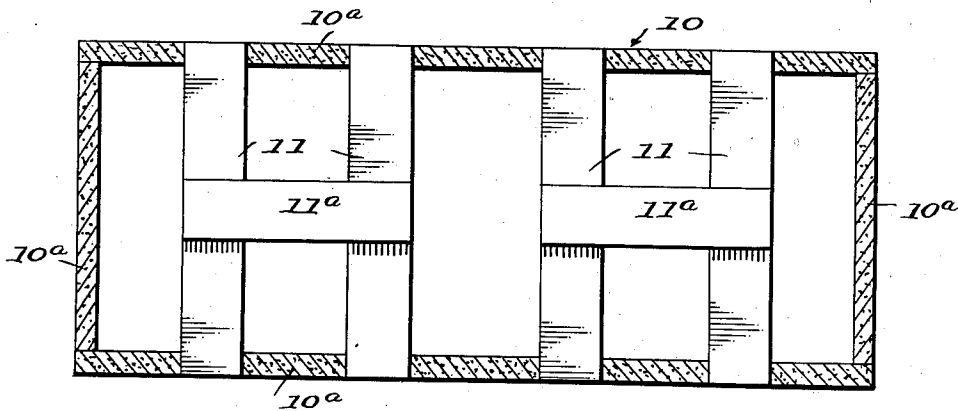
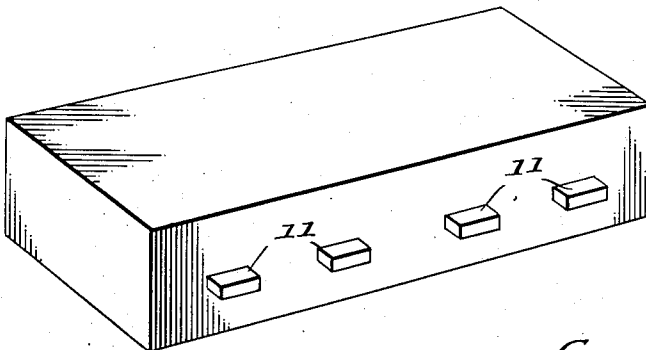


Fig. 3.



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UNITED STATES PATENT OFFICE

2,145,113

REFRACTORY CAST BLOCK AND METHOD
OF PRODUCING THE SAMEGordon S. Fulcher, Louisville, Ky., assignor to
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Application December 21, 1936, Serial No. 117,019

3 Claims. (Cl. 49—77)

In my prior Patent No. 1,879,676 I have described a method of casting refractory materials in which previously solidified lumps or particles of refractory material are placed in a mold and the molten material poured thereon, to the end of creating chilling centers within the mold.

This end I accomplish by the present invention in the most effective manner now known to me by placing in the mold blocks of fritted grains of the molten material, these blocks extending from side to side or end to end of the cast block being inserted in the mold during the assemblage thereof and being supported and located during the casting by their ends.

Referring to the accompanying drawing in which corresponding parts are designated by similar marks of reference,

Figure 1 is a vertical section through a mold having my invention incorporated therein.

Figure 2 is a horizontal section thereof.

Figure 3 is a section through a block produced by casting in the mold assembled as in the foregoing figures.

Referring to Figures 1 and 2, the mold 10 is built up of slabs 10-a of sand bonded with linseed oil. During the assemblage of such a mold blocks 11 in the form of slats are inserted therein, the slats extending into apertures in the side wall of the mold and being held in place thereby in positions remote from the top and bottom of the block to be cast. For this purpose the length of the slats should be greater than the width of the finished block. If desired, longitudinal slats 11-a may be laid on the cross slats 11. These slats are composed of sintered grains preferably of the same composition and physical character as the cast block, but if desired such grains may have some small percentage of a bonding material, such as bond clay or linseed oil, added thereto prior to the operation by which they are sintered. Good results by my invention have been obtained when the sintered slats have formed about 3% of the total weight of the blocks.

The mold parts being thus assembled, as shown

in Figures 1 and 2, the mold is filled with the pre-melted refractory material (for instance, with the now well known material containing about 80% alumina and 20% silica) and the casting is slowly cooled. In this solidification, solidification takes place not only from the sides but from around the slats, which improves the uniformity of temperature throughout the block and aids in obtaining a better crystal structure in the central portions thereof. Due to the high temperature at which the molten material is poured, on cooling it will be found to adhere firmly to the slats.

After the cast block has cooled and the mold slabs 10 removed, the ends of the slats 11 will project from the sides thereof, as shown in Figure 3. Such projections may be readily removed.

Having thus described my invention, what I claim is:

1. A cast refractory block having a slat therein extending from side to side of the block and remote from the top and bottom surfaces thereof, the slats being of sintered grains of the same material as the cast material and of the same physical characteristics as the cast material.

2. The hereinbefore described method of producing cast refractory blocks which comprises supporting refractory slats from their ends, casting the molten material around the slats intermediate of their ends, the slats being of sintered grains of the same material as the cast material and of the same physical characteristics as such material.

3. The hereinbefore described method of producing cast refractory blocks which comprises supporting refractory slats from their ends, casting the molten material around the slats intermediate of their ends, and removing the ends of the slats projecting beyond the cast material, the slats being of sintered grains of the same material as the cast material and of the same physical characteristics as such material.

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