

J. I. MARSHALL & J. FAULDS.

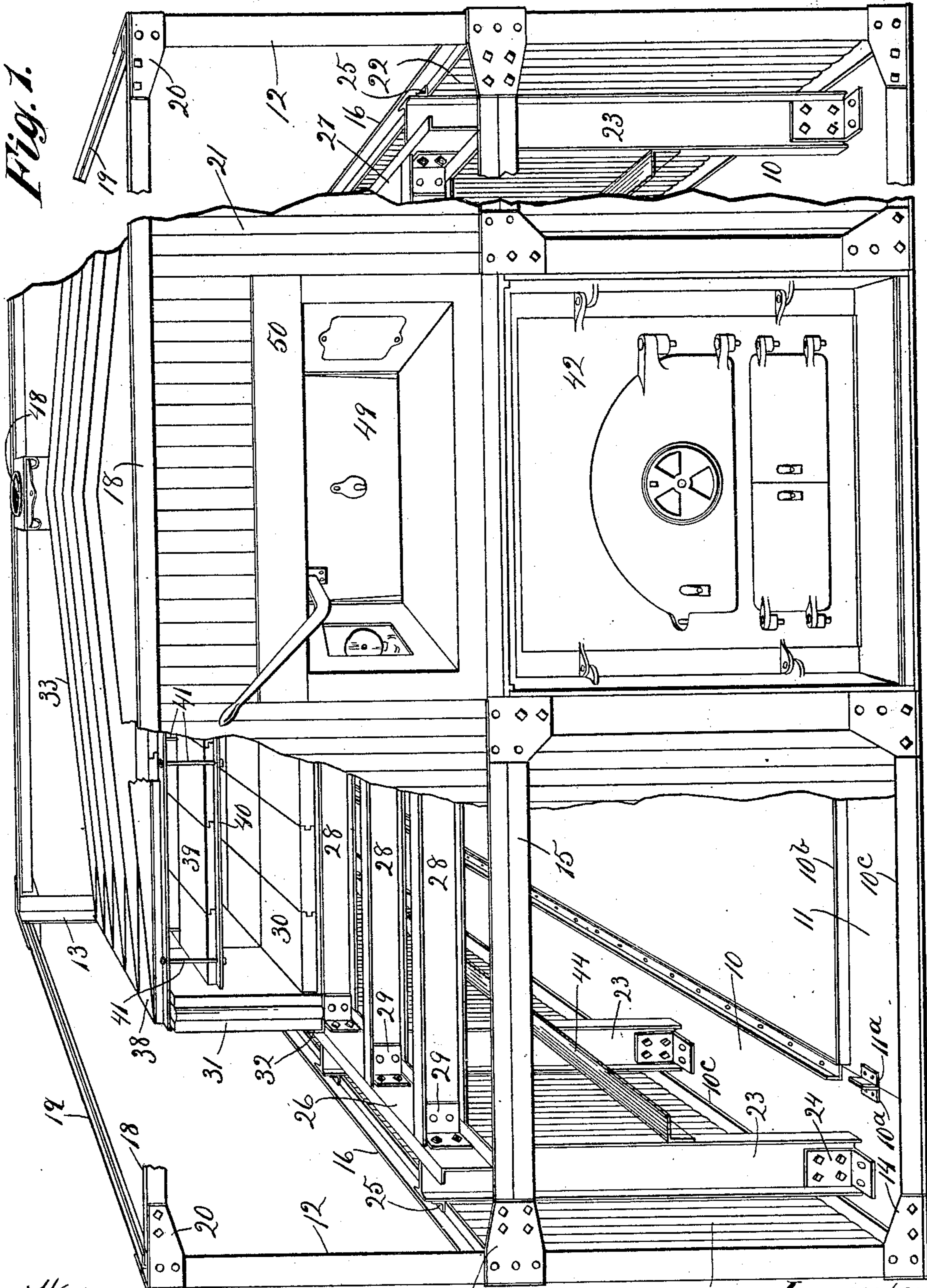
BAKE OVEN.

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944,804.

Patented Dec. 28, 1909.

2 SHEETS—SHEET 1.



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# UNITED STATES PATENT OFFICE.

JOHN I. MARSHALL, OF CHICAGO, AND JOHN FAULDS, OF OAK PARK, ILLINOIS; SAID  
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## BAKE-OVEN.

944,804.

Specification of Letters Patent.

Patented Dec. 28, 1909.

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*To all whom it may concern:*

Be it known that we, JOHN I. MARSHALL, a citizen of the United States, and resident of Chicago, county of Cook, and State of Illinois, and JOHN FAULDS, a subject of the Kingdom of Great Britain, and resident of Oak Park, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Bake-Ovens, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to what are commonly known in the art as portable bake ovens, comprising a separable frame carrying the oven constructed mainly of tiling, a suitable furnace being provided and smoke flues being formed in the tile work.

The object of the invention is to simplify the construction and increase the efficiency of ovens of this type; and it consists of the structure hereinafter described and which is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective of the oven, portions being broken away to show the internal construction; Fig. 2 is a detail transverse section through the oven proper; and Fig. 3 is a detail longitudinal section.

The structure rests upon floor plates 10 and 11, which carry the frame, these plates being united by means of angle clips 10<sup>a</sup>, 11<sup>a</sup>, arranged in pairs, one leaf of each of these plates being secured to one of the floor plates and the other leaves thereof lying and being secured together. The floor plates are strengthened by means of angle bars 10<sup>b</sup>, 10<sup>c</sup>, one at each edge of each plate. From the outer corners of the base formed of the floor plates 10 and 11 there rise corner posts 12, 13, preferably formed of angle bars and secured to the outer binding or angle-bars 10<sup>c</sup> by means of corner brackets 14.

Girders 15, 16, unite adjacent corner posts, being attached thereto intermediate of their ends by means of bracket plates 17. These girders may be T-bars, or preferably, as shown, a pair of angle-bars, one flange of each of which projects inwardly, the other flanges projecting upwardly and downwardly, respectively. Tie-beams 18, 19, unite the upper ends of the corner posts, being attached thereto by the brackets 20. Outer walls of metal, preferably formed of

corrugated plates, as shown at 21, 22, are secured to the frame thus formed.

The oven, formed mainly of tiling, is carried by an inner frame comprising suitable standards or columns, sills and cross-beams. The standards or columns 23 of this inner frame are preferably I-beams, their height being, in the structure illustrated in the drawings, approximately one half that of the outer casing. These columns rest upon the floor plates 10 and are secured thereto by means of angle-bars 24, and are secured to the girders 16 by similar brackets 25. These columns are as many in number as may be necessary for strength, and to their upper ends are secured a pair of girders 26, 27, preferably having the form of Z-bars, one flange resting upon the tops of the columns, the web portion bearing against the inner faces thereof and the other flange projecting inwardly. A plurality of cross-beams 28, preferably of I-beams, rest upon the inner flanges of the sills 26, 27, and are secured thereto by angle brackets 29, the bolts securing the latter to the sills also passing through the flanges of the columns 23.

The floor of the baking chamber is formed of tile 30 resting upon the cross-beams 28. The side walls of this chamber are formed of tile 31, also resting upon these cross-beams, and held in place by angle-bars 32, suitably secured at the ends of the cross-beams, one of their flanges rising to form a bearing for the outer face of the tile. Cross-beams 33, as many as may be necessary, rest upon the tops of the tile 31 forming the sides of the baking chamber, each of these cross-beams preferably being formed of a plate 34 standing on edge, this plate being widest at its center and tapering toward each end, there being a pair of angle-bars 35, 36, upon each side of and bolted to the plate 34. An angle bracket 37 is secured to each of the ends of each of the cross-beams 33, one of its leaves projecting downwardly and forming a binder for a side of the tiling wall. Upon the lateral flanges of the cross-beams 33 rest heavy tiling 38.

The roof of the baking chamber is formed of thin tiling 39, carried by flat bars 40, supported by means of rods 41 pendent from the beams 33, this roof forming the floor of a flue space of which the tiling 38 is the roof, which extends over the entire baking chamber.

A heat storage chamber is located below the baking chamber and incloses the furnace, the front of which is shown at 42. The side walls of the heat storage chamber are  
 5 formed of tile 43 carried by angle-bars 44, secured to the columns 23. The roof of this heat storage chamber is formed of tile 45, supported by the cross-beams 28, and preferably having grooved edges for engaging the  
 10 lower flanges thereof. The bottom of the heat storage chamber may be a mass of sand 46 filling the oven casing to the bottoms of the tile 43.

The smoke of the furnace is discharged directly into the heat storage chamber, and is  
 15 led therefrom through flues 47, opening through the corner tile of the roof of the heat storage chamber and extending through the corner tile of the side wall of the baking chamber to the flue space above the latter, and making their exit to the stack at 48. The oven door is shown at 49, and may be of any preferred form, as shown its casing 50 being secured to the outer shell of the oven  
 25 and extending inwardly through the front wall of the baking chamber, as is usual. As neither the furnace nor the oven door contain novel features which are herein claimed, they are not shown in detail. The space between the outer shell 22 and the walls of the baking chamber and heat storage chamber is filled with sand, and the roof of the upper flue is also preferably covered with sand. By giving the girders 26, 27, the Z-bar form,  
 35 provision is made for securely closing the space between the top of the side wall of the heat-storage chamber and the bottom of the side wall of the baking chamber, thereby preventing the sand filling of the side walls of  
 40 the structure as a whole from finding its way into the heat-storage chamber. This form of construction entirely obviates the necessity for a tile filling between the beams carrying the baking chamber floor, a form of filling which it is practically impossible to  
 45 insert in such manner as to exclude the dry sand.

In ovens of the type herein shown and described, wherein the furnace is external to  
 50 the baking chamber, there has been difficulty in securing a proper balancing of the

temperature of the floor and roof of the baking chamber. Usually the floor has been heated more than the roof. One of the features of the oven forming the subject of this  
 55 specification is in the floor and roof construction. The greatest heat is, of course, present in the heat storage chamber within which the furnace is located, and which is below the baking chamber. To prevent the  
 60 floor of the baking chamber from being too highly heated, it is separated from the roof of the heat storage chamber by a dead air space. As usually constructed the two chambers are ten inches apart, the two sets of til-  
 65 ing each being three inches thick and being spaced apart four inches.

The roof of the baking chamber is formed of thin tiling. It has been found that tiling one-half inch thick is suitable with the size  
 70 of furnace that has been employed. This roof being of tiling, prevents sudden variations in temperature, and yet being thin permits the heat to pass readily from the upper flue space into the baking chamber. The up-  
 75 per arch or roof of the upper flue space being of heavy tiling and covered with sand, conserves the heat and maintains the roof of the baking chamber at a uniform temperature.  
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We claim as our invention—

1. In a bake-oven, in combination, supporting columns, Z-bars suspended from the tops of the columns by one of their flanges, cross-beams resting on the lower flanges of  
 85 the bars, and a floor for the baking chamber resting on the cross-beams.

2. In a bake-oven, in combination, a frame comprising columns and cross-beams, a baking chamber floor resting on the cross-  
 90 beams, side walls of masonry for the baking chamber, cross-beams resting on the walls and tying them together, a roof of masonry carried by the last-named cross-beams, and a roof of masonry for the baking chamber  
 95 suspended from such beams.

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