F. T. SNYDER.

ELECTRIC FURNACE.

APPLICATION FILED OCT. 28, 1912.

1,100,995. Patented June 23, 1914.

Fig. 1

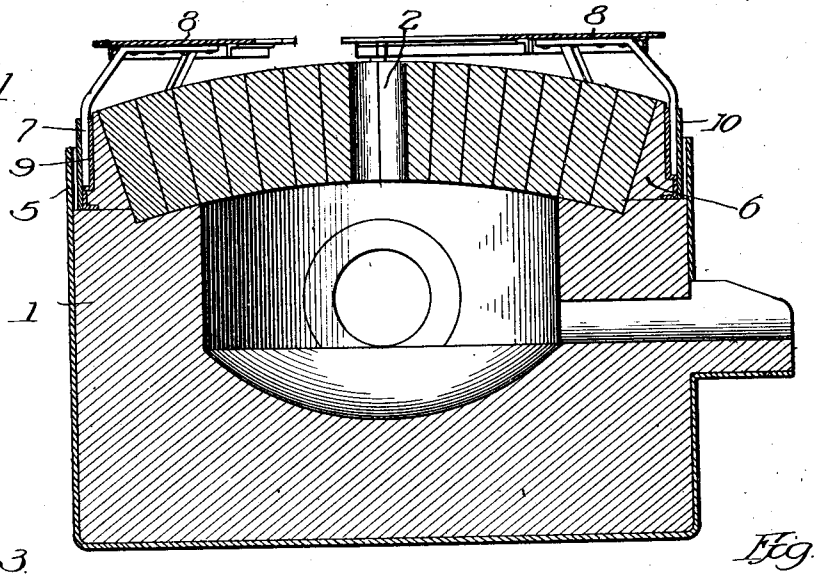


Fig. 3

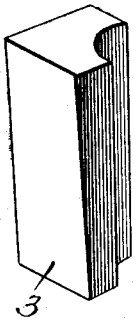


Fig. 2

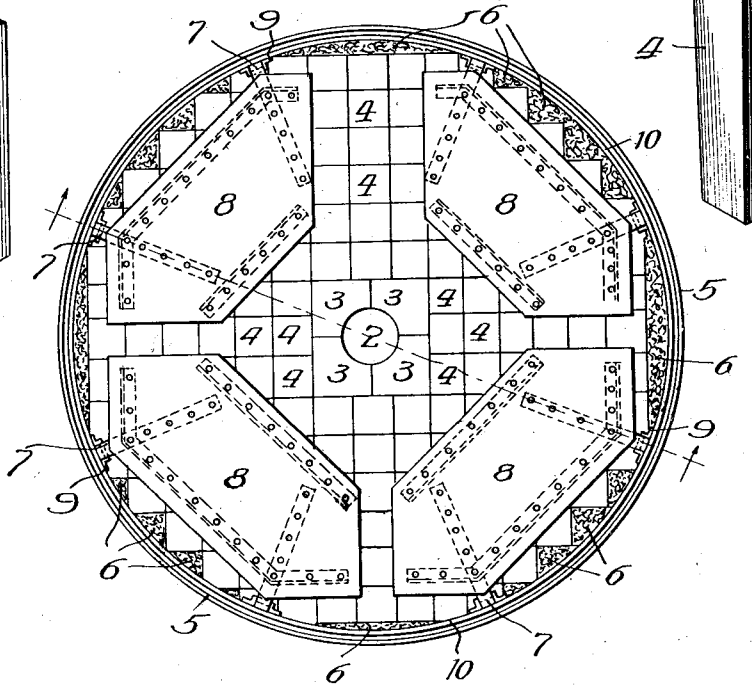
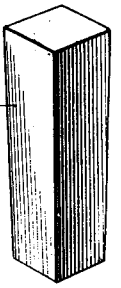


Fig. 4



Witnesses:

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By Barton & Folk, Attys.

UNITED STATES PATENT OFFICE.

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ELECTRIC FURNACE.

1,100,995. Specification of Letters Patent. Patented June 23, 1914.

Application filed October 28, 1912. Serial No. 728,090.

To all whom it may concern:

Be it known that I, FREDERICK T. SNYDER, a citizen of the United States, residing at Oak Park, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Electric Furnaces, of which the following is a full, clear, concise, and exact description.

My invention relates to a roof for an electric furnace having an electrode extending centrally through said roof.

One of its objects is to provide a roof-arch or dome of simple construction.

A further object is to provide a removable platform, the standing board of which is supported at a sufficient distance above the outer surface of the roof to prevent said standing board from becoming unduly heated, thus enabling the workmen to stand upon the platform for the purpose of adjusting or inserting an electrode through the electrode opening of the roof.

The several features of my invention may be more readily understood by reference to the accompanying drawings, in which—Figure 1 is a central, vertical section through an electric furnace embodying my invention; Fig. 2 is a top plan view of the furnace shown in Fig. 1; Fig. 3 is a perspective view of one of the electrode bricks which form the crown or key of the dome; and Fig. 4 is a perspective view of one of the bricks of which the remaining portion of the roof-arch is constructed.

Similar letters of reference refer to similar parts throughout the several views.

The heating chamber of the furnace is of circular, horizontal section, the upper circular wall 1 thereof constituting the abutment which supports the roof arch. The crown of the roof arch is of rectangular cross-section provided with a central electrode opening 2. Said crown comprises a plurality of tapering bricks 3, the converging corners of which are longitudinally grooved so that when said bricks are assembled, said grooves form the electrode opening 2. The crown of the arch preferably comprises four bricks 3 which are in the form of truncated pyramids, of square cross section, each having a groove formed in one corner thereof. Said four bricks, when assembled, form a crown of square cross-section provided with an electrode hole 2 through the center thereof. The roof arch other than the crown thereof is composed of a plurality of tapering bricks 4 having the form of truncated pyramids, of square cross-section, said bricks 4 being of such size with respect to the bricks 3 that a given number of the brick 4 will exactly cover the sides of the crown of the arch. For example, as shown in Fig. 2, three of the bricks 4 will fit against one of the sides of the crown. In other words, in the structure shown each of the bricks 4 is two-thirds of the thickness of the bricks 3. With bricks so constructed and arranged a roof-arch is formed of simple construction, the crown of which is composed of interchangeable brick and the remaining portion of the arch is also formed of interchangeable bricks which can readily be assembled into a dome-shaped roof.

By making roof bricks tapering in both directions and arranging them in rows, each brick forms part of two intersecting rows and is therefore keyed in two directions. This permits any single brick being removed, if repairs become necessary, without releasing the adjacent bricks from their other keying arrangement, which latter is transverse to the row from which said brick has been removed. While this form of construction makes the roof simple and uniform, it makes an irregular shaped skewback where my form of roof with rectangular rows is used on a circular furnace. I therefore provide economical and convenient skewback 6 of concrete which is stamped in place after the roof brick have been placed in position. This mode of construction avoids the usual expensive chipping of bricks to form a skewback. Preferentially the roof bricks are made of silica.

It is sometimes desirable that the workmen be able to stand upon the roof of the furnace, either to insert a new electrode through the opening 2 or to make some adjustment of the electrode. It is desirable, in some instances, that this may be done even while the roof of the furnace is extremely hot. For this reason I provide a roof platform which consists of a pair of vertical standards 7 which extend a slight distance above the upper surface of the roof and are bent at their upper ends inwardly toward the center of the furnace. Secured upon these inward extensions of the standards 7 is a standing board 8. The standards 8 are held in sockets 9 so that the roof platform is removable and need be inserted in place only when required for use.

In addition to the shell 5, the furnace is preferably provided about its roof with an annular ring 10 located inside of the shell 5, and the socket pieces 9 are preferably secured to the inner circumference of the shell 10. Any desired number of roof platforms my be provided and, in Fig. 2, I have shown the furnace with four of such platforms in position thereon.

The annular ring 10 is removable to permit the complete roof and platform being removed for repairs and another ring and new roof being placed on the furnace while the first roof is being renewed.

What I claim is:—

1. In an electric furnace, the combination with a heating chamber, of an arch-shaped roof therefor, comprising a crown portion of square cross-section composed of a plurality of tapering bricks having their converging corners grooved to provide in said crown an electrode opening, the remaining portion of the roof-arch being composed of tapering brick of rectangular cross-section, the upper end of the circular wall of said smelting chamber constituting an abutment for said roof-arch.

2. The combination in an electric furnace, of a roof formed of truncated pyramids of silica brick keyed together in more than one direction, and a skewback supporting said roof.

3. In an electric furnace, the combination with a heating chamber, of a domed roof therefor composed of bricks keyed in more than one direction, a group of said bricks being grooved to form, when assembled together, an electrode opening.

4. The combination in an electric furnace, of a roof formed of truncated pyramids of silica brick keyed together in more than one direction, and a skewback of concrete.

5. The combination in an electric furnace, of a domed roof formed of brick keyed in more than one direction, a skewback supporting said roof, and a metallic ring supporting said skewback.

In witness whereof, I hereunto subscribe my name this 26th day of October, A. D., 1912.

FREDERICK T. SNYDER.

Witnesses:

ALFRED H. MOORE,

MCCLELLAND YOUNG.