To all whom it may concern:

Be it known that I, DAVISSON A. BENSON, a citizen of the United States, and a resident of Frostburg, in the county of Allegany and State of Maryland, have invented certain new and useful Improvements in Continuous-Firing Kilns, of which the following is a specification.

This invention relates to improvements in kilns intended principally for calcining clay and the object of the invention is to provide a kiln which may be operated practically continuously.

To this end I have designed a kiln wherein there are a large number of clay intakes through which the material may be fed between inner and outer arched walls, each of the outer walls having a series of furnaces and each vertical wall of the inner arch having discharge doors from which the calcined material may be delivered to cars and be ready for shipment.

In the preferred embodiment of my invention each furnace discharges into a wall of spaced fire brick having sloped tile at the top so that the material fed into the various intakes may pass down between the walls of fire brick and after it is thoroughly calcined be withdrawn from the doors between the same.

With this general statement in mind, my invention consists in the arrangement illustrated in the form which I now prefer and which will now be hereinafter described and claimed.

In the drawings accompanying and forming a part hereof: Figure 1 is a top plan view of a kiln constructed in accordance with my invention. Figure 2 is a side elevation of the same with parts shown in vertical section. Figure 3 is a vertical cross section through the line 3—3 of Fig. 1. Figure 4 is a vertical cross section through the line 4—4 of Fig. 2.

Referring now to the details of the drawings by numerals: 1 designates an inner arched wall which may be of any desirable construction, and 2 an outer arched wall between which walls the burning is done. In opposite sides of the outer wall are located any desirable number of furnaces, seventeen being shown in the accompanying drawings, each furnace comprising grates 5, fire door 6 and ash pit 7. The hot gases from the furnaces lead into short vertical walls 8 which are preferably chambered, formed of spaced fire brick, each vertical chambered wall 8 having on its top a row of sloped tile 10, as shown in Fig. 2. Thus the heated gases from the furnaces are compelled to pass into these vertical chambered walls 8 of spaced fire brick before passing into the burning chamber between the walls 1 and 2 where the gases come into direct contact with the clay being burned therein.

The interior arch 1 is provided on opposite sides with a plurality of discharge openings 12 which are arranged between the vertical chambered walls 8 of spaced fire brick so that the material, as it is completely burned, may be withdrawn from between the spaced fire brick through said discharge openings 12 and when sufficiently cool may be loaded into cars ready for shipment. The aforesaid discharge openings 12 are provided with doors 14 which may be arranged to slide, if preferred. At the upper end of the outer wall 2, I provide a series of clay intakes 16 so that the clay may be inserted through these intakes, as may be necessary.

Preferably, at the center of the entire plant, I provide a smoke stack 18 from which the products of combustion may be discharged or, if desired, lead off through a suitable pipe 20 to be again used in any desirable apparatus.

In operation: the clay is inserted through the intakes 16 and after it has been burned sufficiently to be thoroughly calcined it may be withdrawn through the discharge openings 12 and when cool enough loaded into cars for shipment.

From the foregoing and accompanying drawings, it will be seen that I have invented a continuous firing kiln having a large number of intakes through which the material may be fed as desired, and a large number of furnaces on opposite sides of a central discharge archway so that the material may be fed practically continuously and as it is calcined discharged almost continuously.

It is obvious that changes may be made in my invention without departing from the spirit thereof and reference should be made to the appended claims to determine the scope of the invention.

What I claim as my invention is:

1. In a device of the character described, inner and outer walls, said inner wall containing an archway through which cars may be passed, a burning chamber between
said walls, furnaces on opposite sides of said outer walls leading into said burning chamber, and discharge openings leading from the burning chamber into the inner archway.

2. In a device of the character described, inner and outer walls, said inner wall constituting an archway through which cars may be passed, a burning chamber between said walls, furnaces in opposite sides of said outer walls leading into said burning chamber, chambered walls of spaced brick receiving the heated gases from said furnace, and discharge doors in the inner archway between the walls of spaced brick.

3. In a device of the character described, inner and outer walls, said inner wall constituting an archway through which cars may be passed, a burning chamber between said walls, furnaces in opposite sides of said outer walls leading into said burning chamber, chambered walls of spaced brick receiving the heated gases from said furnace, sloped tile on top of said walls of spaced brick, and discharge doors in the inner archway between the walls of spaced brick.

4. In a device of the character described, inner and outer walls, the inner wall formed of an arch through which cars may pass and having on opposite sides thereof a series of discharge doors, a burning chamber between said walls, transverse chambered walls of spaced fire brick in said burning chamber, and a series of furnaces in the outer walls communicating with the interior of said transverse walls of spaced brick.

5. In a device of the character described, inner and outer arched walls, a burning chamber between said arched walls, the inner arched wall forming a passageway through which cars may pass and each vertical wall of said archway having discharge openings therein leading into said burning chamber, transverse chambered walls in said burning chamber formed of spaced fire brick, and a series of furnaces located in each outer wall and communicating with the interior spaces formed in the transverse walls.

In testimony whereof I affix my signature in presence of two witnesses.

DAVISSON A. BENSON.

Witnesses:

J. N. BENSON,
D. ARMSTRONG.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."