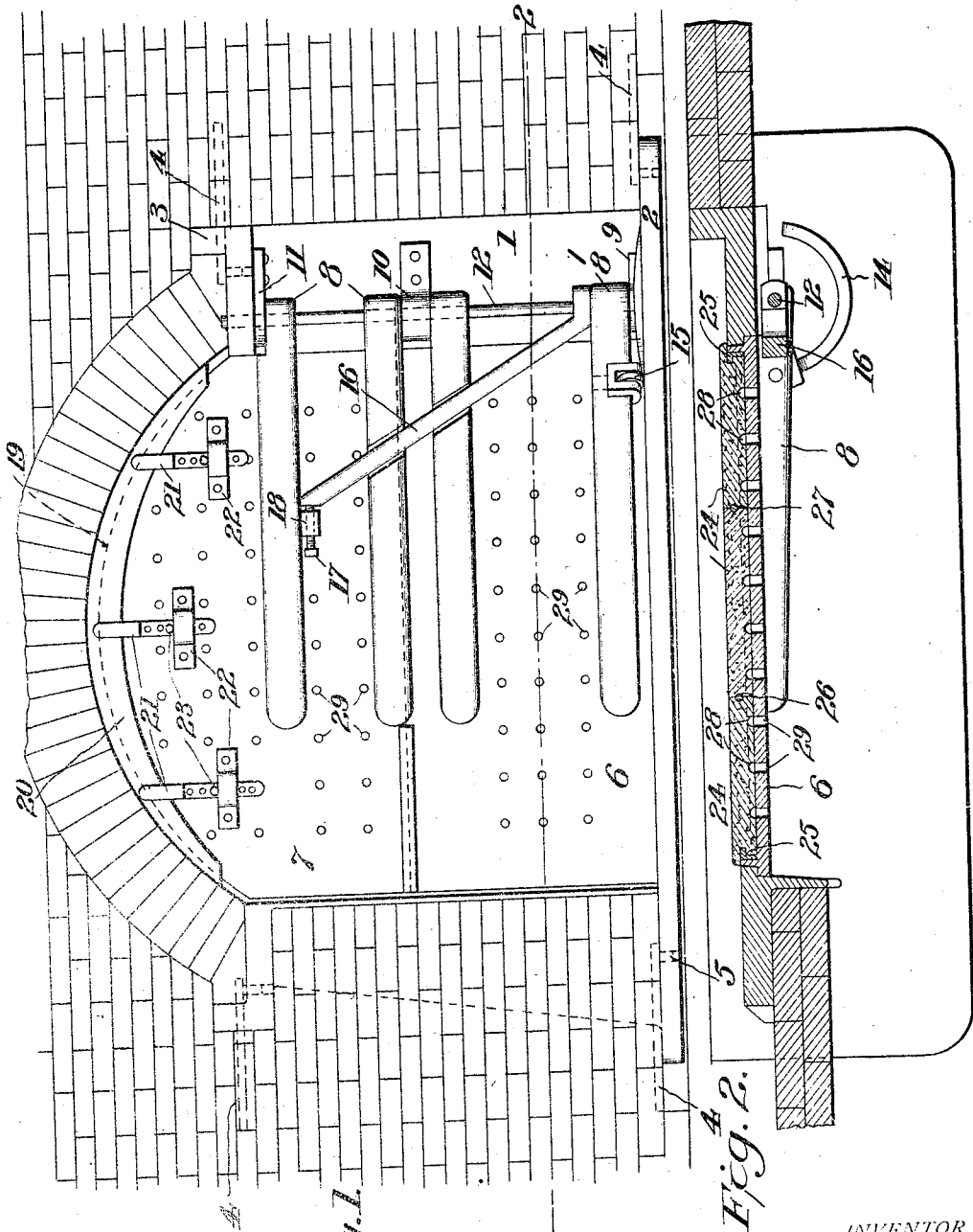


R. LUCIA.
COKE OVEN DOOR.
APPLICATION FILED JULY 22, 1911.

Patented Jan. 23, 1912.

1,015,696



WITNESSES

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Fig. 1.

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Fig. 2.

UNITED STATES PATENT OFFICE.

RAFFAELLO LUCIA, OF UNIONTOWN, PENNSYLVANIA

COKE-OVEN DOOR.

1,015,696.

Specification of Letters Patent.

Patented Jan. 23, 1912.

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To all whom it may concern:

Be it known that I, RAFFAELLO LUCIA, a citizen of the United States, residing at Uniontown, in the county of Fayette, State of Pennsylvania, have invented certain new and useful Improvements in Coke-Oven Doors, of which the following is a description, reference being had to the accompanying drawing and to the letters and figures of reference marked thereon.

The invention relates to new and useful improvements in coke ovens, and more especially to the construction of the door frame for supporting the door of the coke oven.

An object of the invention is to provide a construction of door frame which shall be securely held by the walls of the coke oven, whereby a heavy door having heat resisting material applied thereto, may be properly supported by the door frame.

In the drawings, which show by way of illustration one embodiment of the invention,—Figure 1 is a front view of a coke oven having my improvements applied thereto; Fig. 2 is a sectional view on the line 2—2 of Fig. 1.

The coke oven is of the usual construction, and is provided with a door frame 1, which consists of side portions and a door sill or base plate 2. The door sill 2 at its ends extends into the side walls of the oven, and is embedded therein.

The sides of the frame 1 are integral with the base plate 2 and also extend into the brick portions of the oven. At the upper part of the frame are plates 3, which support the brick arch for the oven. Anchor plates 4 are preferably provided, and these anchor plates are embedded in the walls of the oven and overlap same portion of the frame. The ends of the anchor plates 4 are bent downward, as at 5, and are adapted to engage sockets formed in the frame. These anchor plates serve to hold the frame firmly in the walls of the oven, and prevent the dislodging of the frame on the raking of the oven.

The sides of the frame 1, as clearly shown in Fig. 2, are arranged so as to extend longitudinally of the door sill or base plate 2. These sides are also set back from the rear edge of the base plate, so that the bricks of the wall of the oven may be placed on each side of the door frame. By extending the base plate back of the side frame, said

base plate may be firmly held in the brick structure, so that the weight of the doors when swinging to open position will not pull the frame from the oven structure. Furthermore, by this arrangement of the side frame, the weight of the door causes a strain transversely across the width of the frame, and, therefore, there is no liability of bending the frame.

Mounted within the frame 1 is a lower door section 6 and an upper door section 7. These door sections are formed with long hinged members 8. The hinged members 8 of the lower door section 6 are adapted to engage between the supporting lugs 9 and 10, secured to the door frame. The hinged sections 8 on the upper door sections 7 are located between the lug 10 and a lug 11, mounted on the door frame. A rod 12 is adapted to be inserted in the lugs 9, 10 and 11. Preferably the rod is moved upward through an opening in the door sill, and by this construction the rod may be readily inserted or removed, for the purpose of replacing or taking out one of the door sections. As additional means of supporting the lower door section, I have provided a circular track 14, on which runs a roller 15, mounted in a suitable bearing carried by the hinged member at the lower edge of the door section 6. This roller 15 is located at some distance from the pivotal point of the door, and will, therefore, take considerable weight off the door, and relieve the hinged rod from side strain.

The upper door section 7 is supported by a bar 16, which is pivoted on the rod 12 and rests against the upper part of the lower hinged member of the lower door section. The upper end of the bar 16 is beveled and rests against an adjusting screw 17, carried by a lug 18, formed on the upper hinged member of the upper door section. By adjusting the screw 17, the outer end of the door section 7 may be raised or lowered, so as to swing freely over the top of the lower door section. The upper door section 7 is curved on a larger circle than the curvature of the brick arch of the oven, as indicated in dotted lines at 19, Fig. 1. This forms a space over the upper door section, so as to provide a suitable draft opening for the oven. As a means for closing said opening wholly or in part, I have provided a segmental plate 20, which is shaped at its upper edge to fit the arch. This plate is mounted

on bars 21, which slide in keepers 22, carried by the upper door section. The bars 21 are formed with suitable openings, in which pins 23 may be inserted to hold the plate 20 in various adjusted positions.

In order to protect the inner faces of the door section, I have provided fire bricks 24, which are made in sections. The door sections at the side walls thereof, are formed with projecting ribs 25, which are adapted to fit grooves formed in the side walls of the end sections of the fire bricks.

As herein shown, I have provided the door with three sections. The adjacent walls of the sections have corresponding grooves 26. In assembling the fire bricks, the outer sections are first put in place; then the inner section is put in place and the rods 27 are passed through the upper ledge of the door and through the grooves 26, into the lower ledge of the door. This rod fits the groove between the sections of the fire brick, and effectively holds the fire brick secured to the frame of the door. I preferably form the fire brick with the outer edges thereof extending to the extreme outer edges of the door, so that there are no metal parts of the door exposed to the intense heat of the coke oven.

To aid in carrying the heat away from the metal parts of the door, I have formed the inner faces of the fire bricks with a plurality of channels 28, which, as herein shown, are arranged at right angles to one another, and these channels are in line with openings 29 in the doors. This allows a free circulation of the air through these channels which aids in keeping the metal parts of the door cool.

It is obvious that minor changes in the details of construction may be made, without

departing from the spirit of my invention, as set forth in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A coke oven door including in combination, a door frame having a base plate, side members formed integral therewith, said base plate projecting beyond the side members and being embedded in the wall of the oven, the upper ends of said side members having laterally projecting portions on which the arch of the oven is adapted to rest, said side members being arranged so as to extend longitudinally of the base plate, and said base plate extending in rear of the side members, whereby said side members may be embedded in the wall of the oven.

2. A coke oven door including in combination, a door frame having a base plate, side members formed integral therewith, said base plate projecting beyond the side members and being embedded in the wall of the oven, the upper ends of said side members having laterally projecting portions on which the arch of the oven is adapted to rest, said side members being arranged so as to extend longitudinally of the base plate, and said base plate extending in rear of the side members, whereby said side members may be embedded in the wall of the oven, and a door hinged to said door frame and having a line of fire bricks secured thereto.

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

RAFFAELLO LUCIA.

Witnesses:

J. O. CLARK,
LUIGI LUCIA.