P. PLANTINGA.

SELF SEALING OVEN DOOR.

APPLICATION FILED DEC. 18, 1916.

1,257,113.

Patented Feb. 19, 1918.

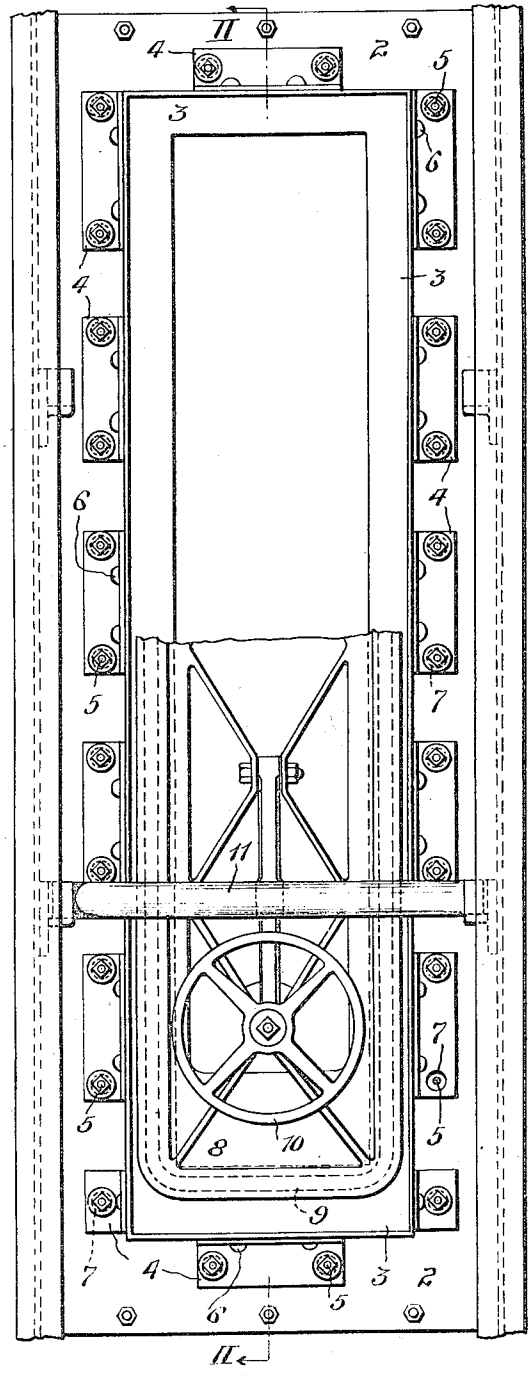


Fig. 1.

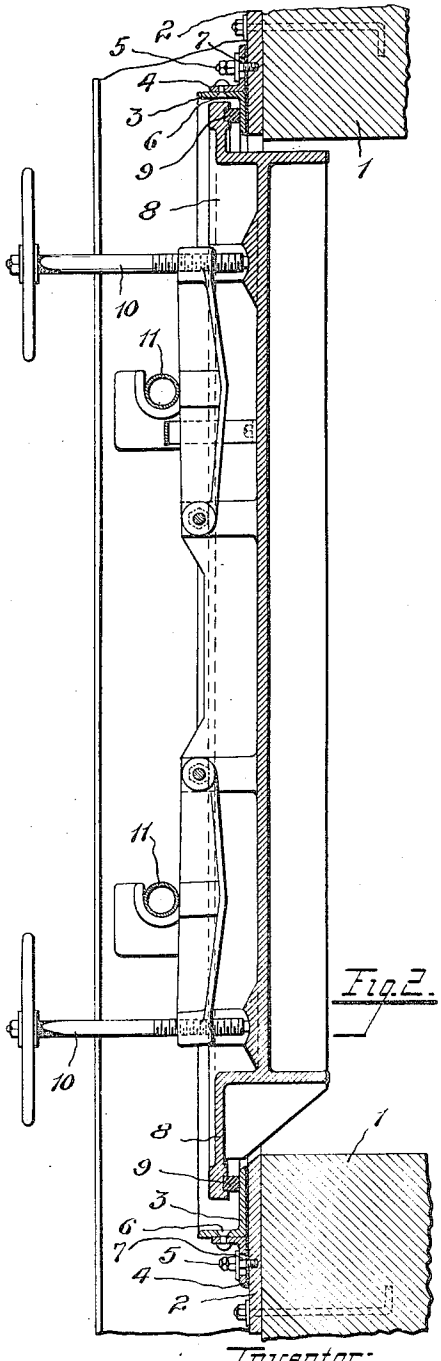


Fig. 2.

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UNITED STATES PATENT OFFICE.

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SELF-SEALING OVEN-DOOR.

1,257,113. Specification of Letters Patent. Patented Feb. 19, 1918.

Application filed December 18, 1916. Serial No. 137,692.

To all whom it may concern:

Be it known that I, PIERRE PLANTINGA, a citizen of the United States, resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented new and useful Improvements in Self-Sealing Oven-Doors, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to self-sealing doors and particularly to that class of such devices as are adapted for use with coke ovens. By the improved construction herein disclosed, I am enabled to dispense with the difficulty and labor encountered in the present practice of using an ordinary cast iron door to butt up against the fire clay jambs of the coke oven and then making a joint around this door by using the desired amount of luting mud or other joint-making material.

The annexed drawing and the following description set forth in detail certain means embodying my invention, the disclosed means, however, constituting but one of various mechanical forms in which the principle of the invention may be employed.

In said annexed drawing:

Figure 1 represents an elevation of my improved door in locked position, a part of the door proper being broken away to disclose the steel angle frame beneath; and Fig. 2 represents a central vertical longitudinal section taken in the plane indicated by lines II—II, Fig. 1.

Referring to the annexed drawing, a suggestion of the ordinary fire clay jambs in the walls of a coke oven is shown at 1, upon the ouside of which is secured a cast iron plate 2. Abutting the cast iron plate 2 is a steel angle frame 3 provided around its periphery with a plurality of clips 4, as plainly shown in the drawing.

Said clips 4 are secured to the cast iron plate 2 by the studs 5 and to the steel angle frame 3 by the rivets 6, the holes 7 for the studs 5 being made large, as plainly shown in the drawing to provide for adjustment and also to allow for expansion.

The door proper is represented at 8 provided with suitable make-and-break joint material, the material utilized, as shown in the drawing, being asbestos gaskets 9. Common and well-known means for tightly securing the door proper 8 and loosening the same are provided, consisting, as shown, of the hand wheels 10 intersecting a pair of pivot arms, in combination with the holding bars 11.

In assembling and placing my improved self-sealing door, the cast iron plates 2 are first rigidly fixed on the outside of the fire clay jambs 1 and then the steel angle frame 3 and the door proper 8 assembled to close the door opening. After the battery of ovens has expanded, the steel angle frame is loosened at the studs 5 and a tight joint made once for all between said frame 3 and the cast iron plate 2 by luting mud or any other suitable joint-making material and then said studs tightly fastened. By the means thus provided, the said angle frame 3 will still present a flat surface to contact tightly with the asbestos gaskets 9 in the door proper 8, when the door is periodically locked after the periodic opening of the same for receiving and discharging coke-making material. Also, by means of the holes 7, large relative to the diameter of the studs, provision is made whereby during the expansion of the battery of ovens, the positions of the angle frame 3 and oven wall may be modified relatively according to the thermal conditions and after said oven expansion has ceased, then the said angle frame may be adjusted relatively to the oven wall so as to provide for the permanent relative connection of the same.

What I claim is:—

1. In self sealing oven doors, the combination of an oven wall formed with an opening; a jamb-member secured to said wall adjacent to said opening; positive means providing for the relative thermal movement of said member and wall; a door proper adapted to make a tight joint with said member; and means for loosening and tightly securing said door proper.

2. In self sealing oven doors, the combination of an oven wall formed with an opening; a jamb-member secured to said wall adjacent to said opening; positive means providing for the relative thermal movement and the relative manual adjustment of said member and wall; a door proper adapted to make a tight joint with said member; and means for loosening and tightly securing said door proper.

3. In self sealing oven doors, the com-

bination of an oven wall formed with an opening; a door proper; a jamb-member comprising a base portion fixed adjacent to said opening and a portion disposed intermediately of the door proper and said base portion; positive means providing for the relative thermal movement of said intermediate portion and said base portion; and means for loosening and tightly securing said door proper.

4. In self sealing oven doors, the combination of an oven wall formed with an opening; a door proper; a jamb-member comprising a cast iron base portion fixed adjacent to said opening and an angular frame disposed intermediately of said cast iron portion and said door proper; positive means providing for the relative thermal movement of said angle frame and said cast iron base portion; and means for loosening and tightly securing said door proper.

5. In self-sealing oven doors, the combination of an oven wall formed with an opening; a door proper; a jamb member comprising a base portion disposed adjacent to said opening and a portion disposed intermediately of the door proper and said base portion, said intermediate portion being secured to said base portion by studs, enlarged holes for the latter being formed in said intermediate portion, the latter in combination with the base portion being adapted to make a permanent tight joint around the periphery of the wall opening; and means for loosening and tightly securing said door proper.

6. A new and improved element in self-sealing oven doors for use intermediately the door proper and the oven wall consisting of, an angle frame; angular clips riveted at one side to said angle frame and formed in the other side with stud holes; and studs of a diameter less than the width of said holes.

7. A new and improved element in self-sealing oven doors for use intermediately the door proper and the oven wall consisting of, a base plate; and an angle frame and angular clips disposed each with one side adjacent to said base plate the connection between said base plate and clips being by means of studs and enlarged holes therefor in said clips, the other sides of said frame and clips being secured back to back.

Signed by me, this 15th day of December, 1916.

PIERRE PLANTINGA.