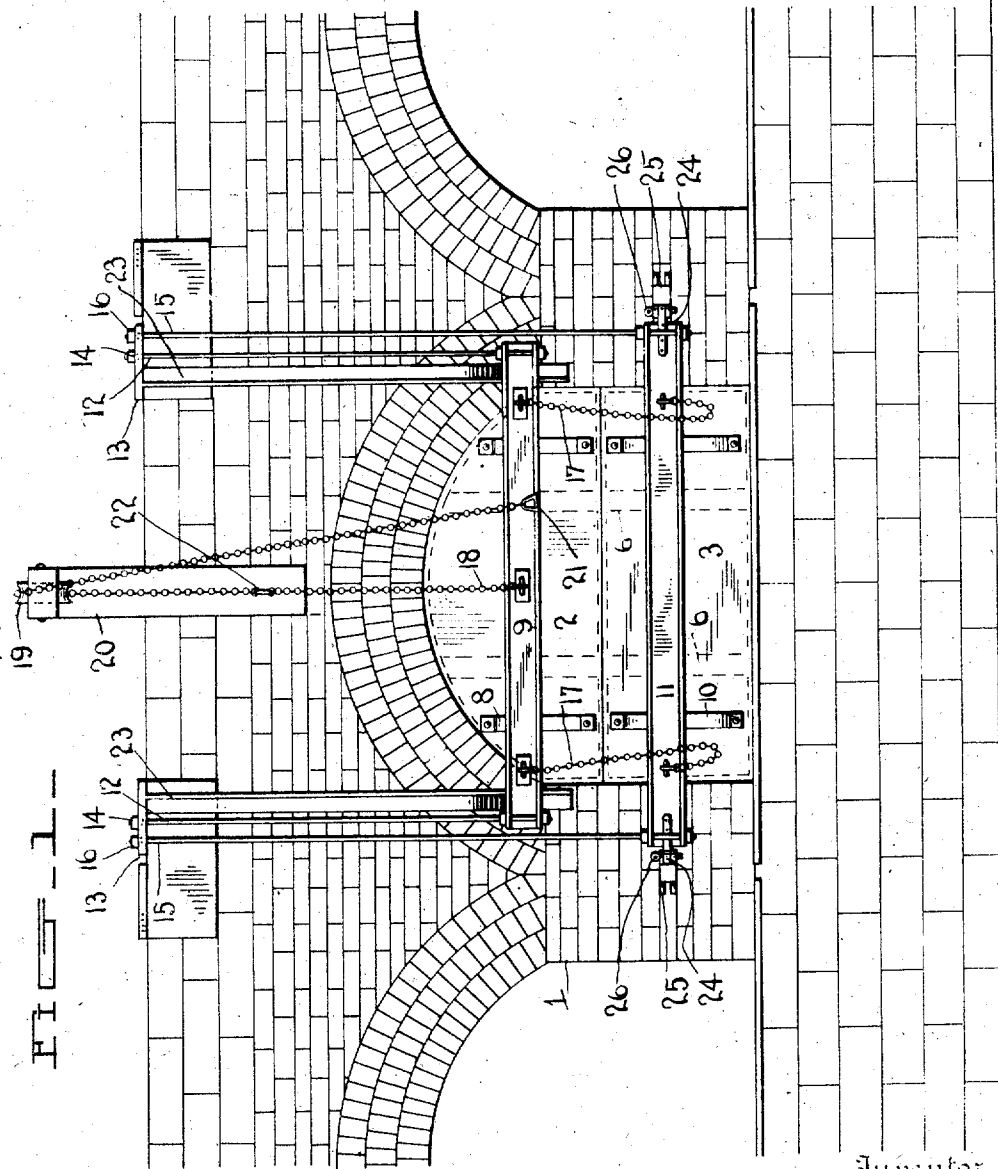


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DOORS FOR OVENS AND FURNACES.
APPLICATION FILED SEPT. 1, 1910.

986,340.

Patented Mar. 7, 1911.

3 SHEETS-SHEET 1.



Inventor

William Young

Witnesses

L. B. James
C. H. Giesbauer

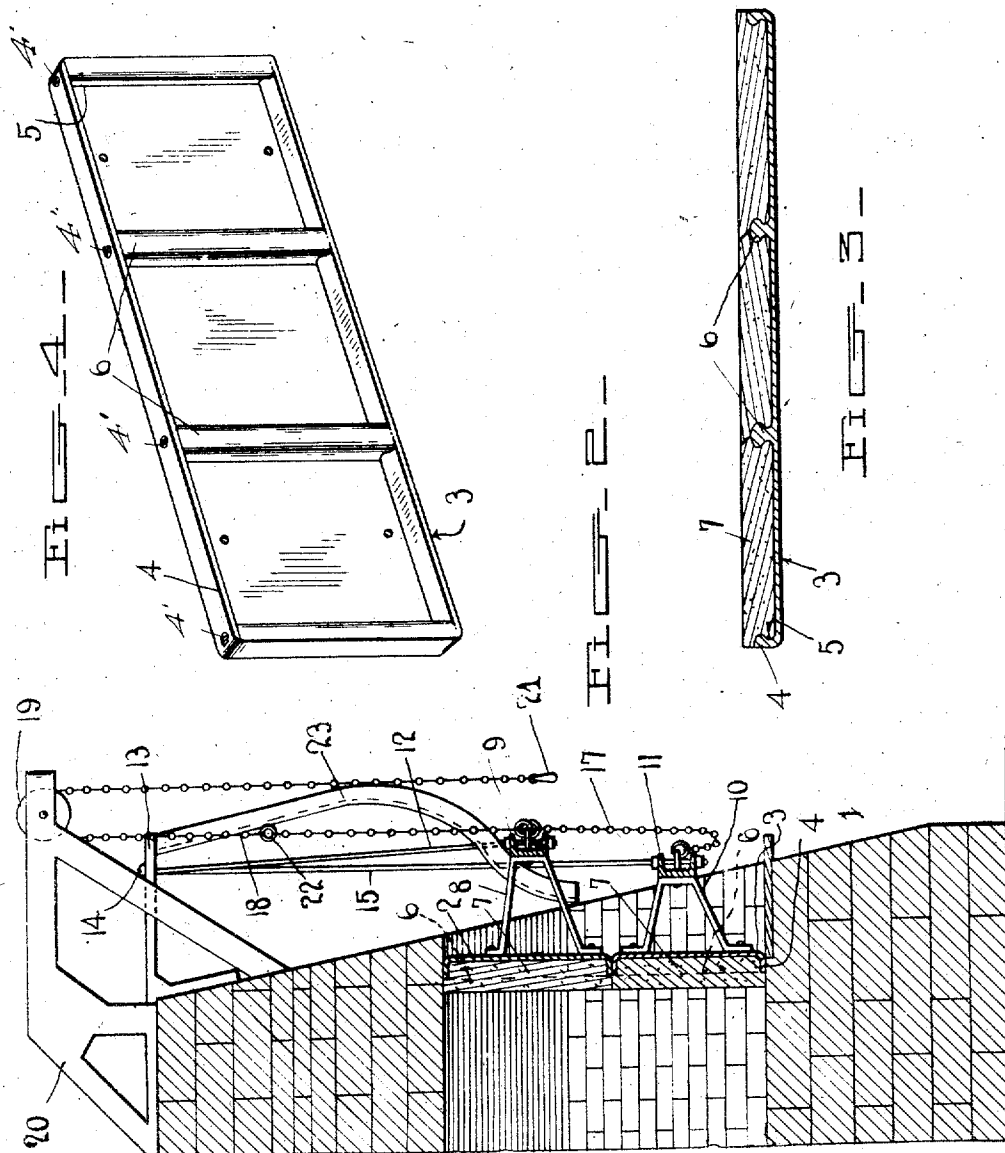
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UNITED STATES PATENT OFFICE.

WILLIAM YOUNG, OF ULEDI, PENNSYLVANIA.

DOOR FOR OVENS AND FURNACES.

986,340.

Specification of Letters Patent.

Patented Mar. 7, 1911.

Application filed September 1, 1910. Serial No. 580,035.

To all whom it may concern:

Be it known that I, WILLIAM YOUNG, a citizen of the United States, residing at Uledi, in the county of Fayette and State of Pennsylvania, have invented certain new and useful Improvements in Doors for Ovens and Furnaces; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in doors for coke ovens, furnaces and the like and means for operating the same.

One object of the invention is to provide an improved construction of doors for coke ovens or furnaces, arranged in such manner that one of the same may be opened independently of the other to a sufficient extent to permit the leveling of the oven.

Another object is to provide means whereby the doors are opened and supported in an open position with their hot inner sides toward the oven or furnace, means also being provided to prevent the doors scraping against the front of the oven when being raised.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1 is a front view of a coke oven showing the application of my improved doors; Fig. 2 is a central vertical sectional view of the same; Fig. 3 is a detail horizontal sectional view of one of the doors; Fig. 4 is a detail perspective view of the outer metal frame or casing for the fire brick of one of the doors.

Referring more particularly to the drawings 1 denotes a coke furnace the opening of which is closed by my improved doors 2 and 3 which are arranged one above the other as shown. The upper door 2 is formed with a rounded or arch shaped under edge which is adapted to fit the arch shaped upper portion of the door opening.

The doors 2 and 3 comprise an outer metal frame or casing having on its side and end edges inwardly projecting flanges 4 said end flanges being provided with vertical grooves 5 the purpose of which will be hereinafter described. Arranged at intervals across the

inner side of the casing are a series of vertically disposed substantially T-shaped flanges 6. Between the flanges 6 and the grooved end flanges 4 of the frame or casing and engaging the inner side of the latter are a series of fire brick 7 the edges of which have an interlocking engagement with the flanges of the door frame whereby the brick are held in place, said brick being inserted by removing the side member 4 after the screws 4' have been loosened.

Secured to the outer sides of the door and spaced a suitable distance therefrom by supporting brackets 8 is a horizontally disposed channel iron operating bar 9 and secured to the door 3 by brackets 10 is a channel iron operating bar 11.

The bar 9 of the door 2 is connected near its outer ends to the lower ends of a pair of guide rods 12 the upper ends of which are loosely engaged with slotted bracket plates 13 secured to the top of the oven, said upper ends of the rods having thereon retaining nuts 14. By thus engaging the upper ends of the rods with the bracket plates said rods are adapted to slide loosely therethrough and to swing therein when the door 2 is opened and raised.

The bar 11 of the door 3 is connected to the lower ends of guide rods 15 which correspond to the rods 12 of the door 2 and are loosely connected in a similar manner to the slotted bracket plates 13 by retaining nuts 16.

The bars 9 and 11 of the doors 2 and 3 are connected by short chains 17 and to the center of the bar 9 of the door 2 is connected the lower end of a door opening and raising chain 18 which extends upwardly and around a guide pulley 19 mounted in a bracket 20 secured to the top of the oven as shown. The lower end of the chain 18 has connected thereto an eye or loop 21 whereby the same may be attached to a power or manually operated winding drum, or to any other suitable winding mechanism (not shown). By thus winding up the chain first the upper door 2 will be drawn out and elevated the limit of the connecting chains 17 whereupon further winding of the chain 18 the lower door will be drawn out and raised.

In the chain 18 at a suitable distance above the bar 9 of the door 2 is arranged an enlarged link 22 through which is adapted to be inserted a supporting rod or bar 110

(not shown) but which is adapted to engage the bracket plates 13 whereby the upper door 2 will be held open a sufficient distance to permit the leveling of the oven.

5 Secured at their lower ends to the front of the oven and at their upper ends to bracket plates 13 are outwardly curved angle iron door guiding bars 23 which are adapted to draw and hold the doors out to prevent
10 the same from engaging or scratching against the front of the oven, when raised by the chain 18.

The bar 11 of the lower door 3 is provided on its opposite ends with latch members 24
15 which are adapted to engage similar devices 25 on the front of the furnace, said latch members having engaged therewith fastening pins 26 whereby the lower door 3 may be
20 securely fastened in closed position when the upper door is opened for leveling the oven.

By means of my improved doors the usual method of bricking up the opening in the oven is dispensed with thereby saving a
25 great deal of time, labor and expense and by means of the improved door opening and raising mechanism herein shown and described both doors are raised and held up
30 out of the way with their hot inner sides toward the front of the oven.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without re-
35 quiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as defined in the ap-
40 pended claims.

Having thus described my invention, what I claim is:

1. In an oven, furnace or the like, a pair
45 of doors arranged one above the other, means for connecting said doors together, means whereby one of the doors may be opened to a limited extent independently of the other, the extent of independent opening of said
50 door being controlled by said connecting

means, and means to complete the opening of the doors together.

2. In an oven, furnace or the like, a pair of doors arranged one above the other, operating bars secured to said doors, connect- 55 ing chains to fasten said doors together, a hoisting chain connected to said upper door whereby the same may be opened independently of the lower door to the limit of said connecting chains, means to guide said doors 60 and means to hold the same out of engagement with the outer side of the oven or furnace when the doors are being opened and raised.

3. In an oven, furnace or the like, a pair 65 of doors arranged one above the other, operating bars secured to said doors, connecting chains to fasten said doors together, a pulley, a hoisting chain connected to said upper door and passing over said pulley 70 whereby said upper door may be opened and raised independently of said lower door to the limit of said connecting chains, guide brackets arranged on said oven or furnace, door guiding rods connected to said doors 75 and having a sliding engagement with said brackets and means to hold said doors out of engagement with the oven or furnace when the doors are opened and raised.

4. In an oven, furnace or the like, a pair 80 of doors comprising an outer metal frame or casing, a fire brick lining secured in said frame or casing, operating bars secured to said doors, connecting chains fastened to said bars, guide rods secured to the oppo 85 site sides of said bars, means to slidably connect said rods to the furnace or oven, a hoisting chain connected to the bar of the upper door, and curved guide bars adapted to hold said doors out of engagement with 90 the furnace or oven when the doors are raised and to keep the hot inner sides of the doors next to the furnace.

In testimony whereof I have hereunto set my hand in presence of two subscribing wit- 95 nesses.

WILLIAM YOUNG.

Witnesses:

FRANK P. COTTOM,
MYERS BOYD.