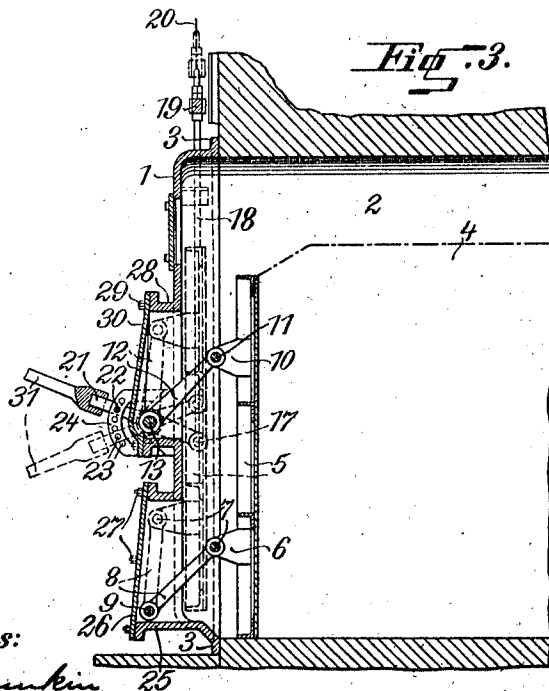
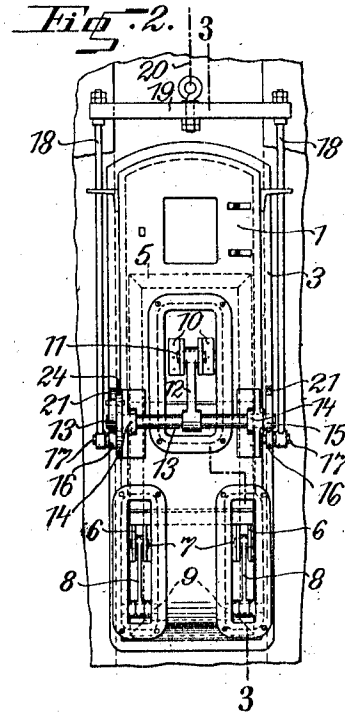
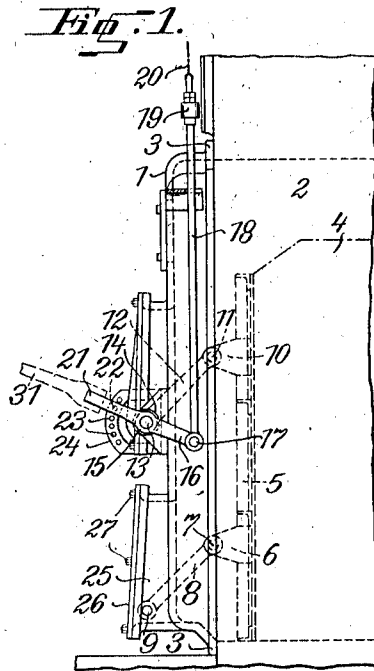


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 DOOR FOR GAS PRODUCING FURNACES AND THE LIKE.
 APPLICATION FILED APR. 9, 1910.

980,261.

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DOOR FOR GAS-PRODUCING FURNACES AND THE LIKE.

980,261.

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Patented Jan. 3, 1911.

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To all whom it may concern:

Be it known that I, EDMUND HOHMANN, a citizen of the German Empire, and a resident of Stettin, in the Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Doors for Gas-Producing Furnaces and the Like, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in doors for gas producing furnaces and ovens, such for example as coke ovens, and more particularly to that class of doors which at the rear are provided with a shield whereby they are protected against the heat of the incandescent material and the pressure exerted on the door by the charge during the gasifying or coking process.

The object of my invention is to provide a door of this class in which excessive strains of the expanding charge on the door are avoided, and the latter is prevented from being forced from its packing. For this purpose the shield is connected to the door so as to be able to follow the movement of the charge, if it is expanded during the gasifying or cooking process.

With this object in view, my invention consists in yieldingly connecting the shield to the rear of the door.

In the preferred form the shield is connected to the door by links, and the links are so constructed, that they can be secured in the desired position from the outside of the furnace or oven. Where the door of the oven is perpendicularly movable, the links are connected with the lifting mechanism of the door in such manner that the shield is retracted into a cavity provided in the rear of the door, or out of the plane of the packing of the door, so that it is out of the way, when the door is moved upward.

For the purpose of explaining the invention an example embodying the same has been shown in the accompanying drawing in which the same letters of reference have been used in all the views to indicate corresponding parts.

In said drawing Figure 1, is a side view of a door and the front part of the oven to which it is secured, Fig. 2, is a front view

of Fig. 1, and Fig. 3, is a vertical cross-section taken on the line 3—3 of Fig. 2.

Referring to the example illustrated in the drawing, a concave door plate 1 is shown which is used for closing the front end of a coking chamber 2 and which is fitted tightly thereon by means of a flange 3. At the rear of the said door plate a shield 5 is provided which in operation of the coke oven bears against the mass of coke 4 inclosed within the coking chamber, and which is formed at both sides and near its lower end with two lugs 6 which provide suitable bearings for pivot bolts 7 of inclined links 8 which at their lower ends are jointed to the rear face of the door 1 by means of pivots 9. Near its upper end the shield 5 is provided with two similar lugs 10 which provide a bearing for a pivot bolt 11 of a third inclined link 12 which with its lower end is keyed to a horizontal shaft 13. This shaft is mounted in lateral lugs 14 provided on the rear face of the door plate 1, and it projects with both ends beyond the frame of the door, where it is provided with levers 15 the inner arms 16 of which are jointed to rods 18 by means of pivots 17. The rods 18 are connected at their upper ends by a cross piece 19 which at its middle part is connected with the lifting mechanism for raising or lowering the door through a tension member, such for example as a rope, a chain, or the like. The links 8, 12 are inclined upward from their fulcrums to the shield 5, so that when the coke 4 presses on the shield, the latter may yield upward and outward. The front arm 21 of the lever 15 is formed with a hole 22, and it can be fixed by means of a bolt on a segment 24 provided with a plurality of holes 23.

To receive the lower links 8 of the shield 5 when being moved toward the door, the latter is provided with two box shaped enlargements 25 which are closed at their outer sides by covers 26. If required the said covers can be removed after unscrewing the screws 27. In a similar way the upper central part of the door plate is provided with a box like enlargement 28 which is adapted to receive the link 12. The enlarged portion is closed at its outside by means of a cover 30 secured to the door by means of screws 29. In order to raise the shield 5 by turning

the shaft 13 and the links 12 associated therewith, a rod 31 can be slipped over the outer arm 21 of the lever 15, as appears from Fig. 3.

5 When the door plate 1 is lowered by means of the lifting mechanism 18, 19, 20, the shield is rocked by its own weight into the coking chamber 2 after the door has set on its bottom support, and such movement
10 may be assisted, if necessary, from the outside of the door by means of the rod 31. While the arm 21 has not been fixed to the segment 24, the shaft 13 and the link 12 secured thereto can freely rock. As also the
15 lower links 8 can freely rock, the shield can be forced against the rear face of the door plate 1, if the charge 4 of coke expands, and it can follow such movement of the coke.

By the construction described and illustrated, the shield 5 is allowed to move bodily, that is to say, its upper portion moves upward and outward simultaneously with the lower portion. When the links 8, 12 are of equal length (as shown) the shield remains
25 parallel to its original position, that is to say, vertical, during its entire motion. The shield can thus more efficiently yield to the expanding charge of coke. If required the shield can be secured in its position by
30 means of a bolt which is passed through the holes 22 and 23 of the arm 21 and segment 24 respectively.

If in the position illustrated in Fig. 3 in full lines the lifting mechanism is raised
35 by means of the tension member 20, the shaft 13 and the links 12 connected therewith are first rocked through the intermediary of the rods 18 connected with the arms 16 of the levers 15, so that the shield 5 is rocked into
40 the position shown in dotted lines in Fig. 3, in which it is inclosed within the cavity provided at the rear face of the door plate 1. In this position it is removed from the plane of the flange 3 of the door, and it
45 does therefore not hinder the upward movement of the door.

By removing the covers 26 and 30 access can be had to the box like enlargements 25 and 28 of the door plate for the purpose of
50 cleaning the same. The shield 5 rests on the floor of the chamber 2 and is of such a length that the links 8, 12 will always be inclined upward from their fulcrums 9, 13 toward the shield.

55 The means for securing the door plate in place and the packing of the same are known in the art and need no detailed description.

While in the foregoing for the purpose of explaining the invention reference has been
60 made to a particular embodiment of the same I wish it to be understood, that my invention is not limited to such embodiment shown, and that various alterations may be made without departing from the gist of
35 my invention. For example the mechanism

for securing the door in its position may be constructed in a different way.

What I claim is:—

1. In a door for gas producing furnaces and the like, the combination with a door
70 plate, of a shield provided at the rear side of the door plate, and a parallel movement connection between the said shield and door plate so that the shield, in its movement relatively to the door plate, will remain parallel
75 to its original position.

2. In a door for gas producing furnaces and the like, the combination with a door
plate, of a shield provided at the rear side of the door plate and adapted to rest on the
80 floor of the furnace, and links connecting the shield to the door plate and inclined upward permanently from the door plate to the shield.

3. In a door for gas producing furnaces
85 and the like, the combination with a door plate, of a shield provided at the rear side of the door plate, a yielding connection between the said shield and door plate, and means to secure the shield in position rela-
90 tively to the door plate.

4. In a door for gas producing furnaces and the like, the combination with a verti-
cally movable door plate, and lifting mechanism therefor, of a shield provided at the
95 rear of the door plate, a yielding connection between the shield and the door plate, and means operatively connected with the lifting mechanism to retract the shield in position
100 adjacent to the door plate.

5. In a door for gas producing furnaces and the like, the combination with a verti-
cally movable door plate concave at its rear, and elevating mechanism therefor, of a
105 shield provided at the rear of the door plate, a yielding connection between the shield and the door plate, and means operatively connected with the lifting mechanism to retract the shield into the cavity formed by
110 said door plate.

6. In a door for gas-producing furnaces and the like, the combination with a door
plate, of a shield located at the rear side of
115 said door plate, and connections interposed between the upper portions of the shield and door plate and also between the lower por-
tions of the shield and door plate, each of
120 said connections being movable inwardly and outwardly to increase or reduce the distance between the shield and the door plate at the top and simultaneously at the bottom.

7. In a door for gas-producing furnaces and the like, the combination with a door
plate, of a shield located at the rear side of
125 said door plate, and upper and lower connecting links having their ends pivoted to the door plate and to the shield respectively.

8. In a door for gas-producing furnaces and the like, the combination with a door
plate, of a shield located at the rear side of
130

said door plate, and a movable connection between the shield and the door plate which allows the shield to move bodily toward the door when the charge contained in the furnace expands.

9. In a door for gas-producing furnaces and the like, the combination with a sliding door plate chambered at its rear side, of a shield located at the rear side of the door plate, a movable connection between the

shield and the door plate, and means for retracting the shield into the chamber of the door plate.

In testimony whereof I hereunto affix my signature in the presence of two witnesses. 5

EDMUND HOHMANN.

Witnesses:

GEO. LILIEQUIST,
EMIL SCHMIDT.