

Dec. 20, 1960

J. N. McCLURE

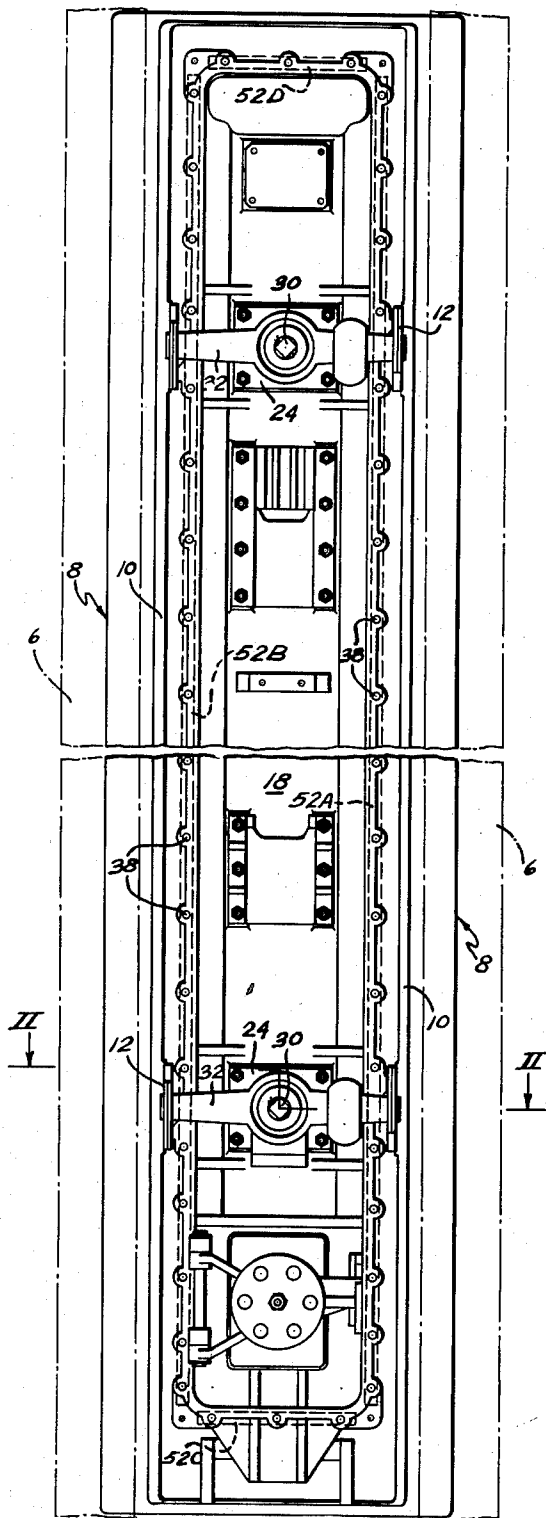
2,965,550

COKE OVEN DOOR

Filed Aug. 27, 1957

2 Sheets-Sheet 1

Fig. 1



INVENTOR.

JAMES N. McCLURE

BY *Donald H. Dalton*

ATTORNEY

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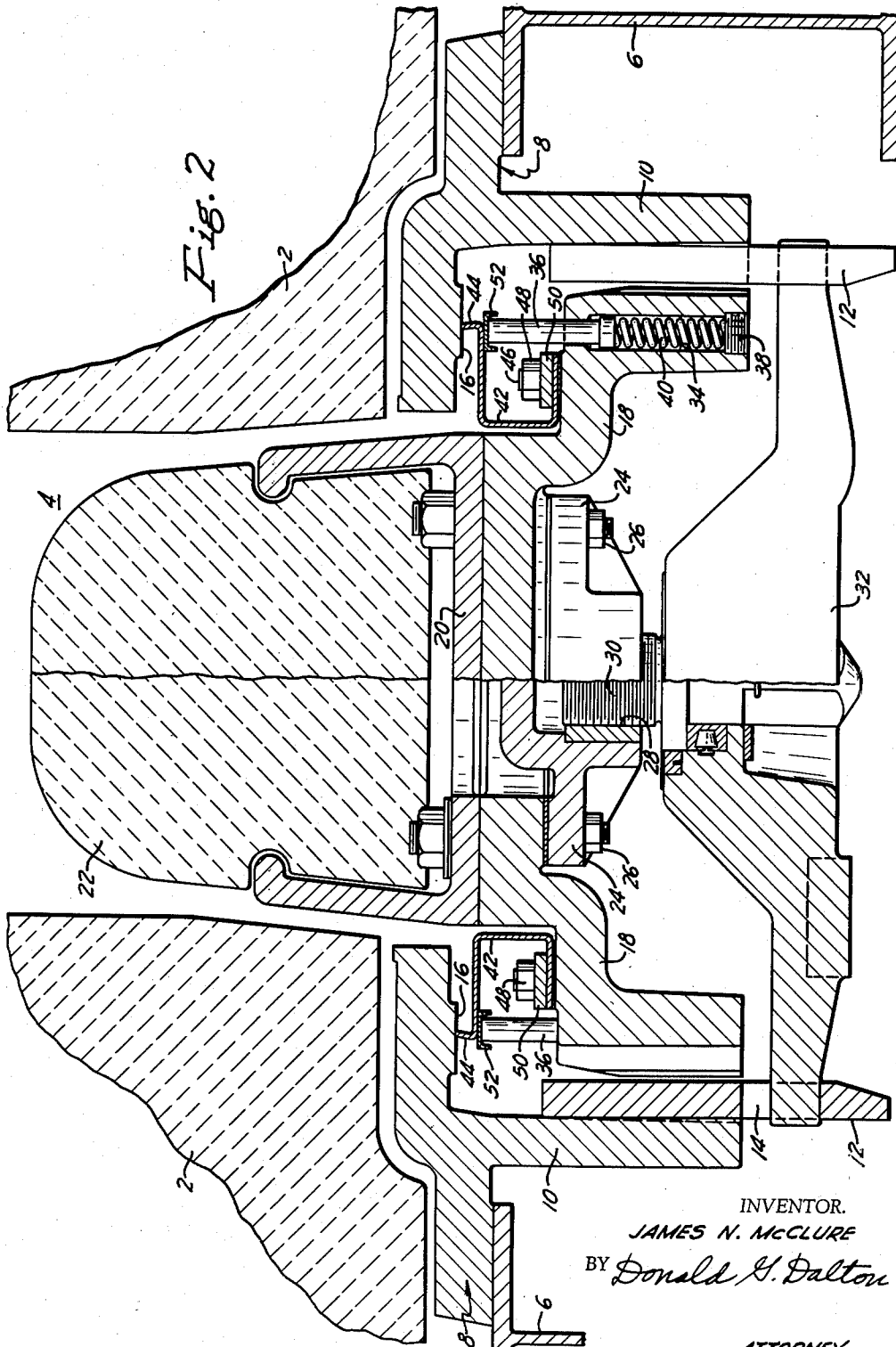
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COKE OVEN DOOR

James N. McClure, Elizabeth, Pa., assignor to United States Steel Corporation, a corporation of New Jersey

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2 Claims. (Cl. 202—248)

This invention relates to a coke oven door and more particularly to a self-sealing door. Such doors are provided with a steel sealing ring having a knife edge which bears upon the smooth face of the door jamb. These sealing rings are normally made of carbon steel and have a very short life, particularly in a rigid door. In flexible type doors such as shown in the patents to Wilputte No. 2,131,829, Freeman No. 2,236,092 and Wilputte No. 2,238,239, the problem is not as serious since the sealing ring is free to flex about rigid plungers. Since the sealing ring is subjected to considerable heat when the door is in place it is desirable to make the sealing ring of stainless steel or other high temperature resistant alloy. However, it was found that when using alloy rings they became warped and deformed in a relatively short time and had to be removed for repair.

It is therefore an object of my invention to provide a self-sealing coke oven door of the rigid type wherein the sealing ring has a long life and requires very little maintenance.

This and other objects will be more apparent after referring to the following specification and attached drawings, in which:

Figure 1 is a front elevation of a coke oven door in place on a coke oven; and

Figure 2 is a view taken on the line II—II of Figure 1.

Referring more particularly to the drawings, the reference numeral 2 indicates the walls of a coke oven chamber 4. A pair of buckstays 6 are arranged one on each side of the chamber 4 and a door jamb 8 is fastened thereto in any suitable manner. The door jamb 8 has spaced vertical walls 10. A pair of latch hooks 12 are fastened to each of the vertical walls 10 in any suitable manner such as by means of rivets (not shown). Each of the latch hooks 12 has an elongated vertical slot 14 therein on the portion thereof extending beyond the wall 10. The door jamb 8 has a sealing surface 16 around its periphery. A rigid door frame 18 is adapted to be received between the vertical walls 10. A liner retainer 20 is bolted or otherwise attached to the inner end of the door frames 18 and supports a refractory liner 22 which extends into the chamber 4. A pair of latch brackets 24 are fastened to the outer side of the door frame 18 in any suitable manner such as by means of screws and nuts 26. Each of the brackets 24 has a threaded opening 28 therein for receiving a screw 30. A latch bar 32 is secured to the screw 30 so that it can rotate with respect to the screw but cannot move axially with respect thereto. A plurality of openings 34 are arranged around the periphery of the door frame 18. A plunger 36 extends from the inner end of the frame 18 toward the surface 16. The outer end of each of the openings 34 is closed by means of a threaded plug 38. A spring 40 extends from each of the plugs 38 to the outer end of plunger 36. The structure so far described is conventional and it will be understood that gaskets, packing and the like will be provided where necessary. Other parts not specifically described correspond to parts

2

shown in the above mentioned patents and will function in essentially the same manner as in the patents. A sealing ring or diaphragm 42 is attached to the periphery of the door frame 18 adjacent the plungers 36. The ring 42 is U-shaped and has an inwardly extending flange 44 on its inner leg. The outer leg of the ring 42 is attached to the door frame 18 by means of spaced screws 46 having nuts 48 thereon which bear against bars 50. The sealing ring 42 is preferably made of stainless steel. An impact strip 52 is arranged between the ring 42 and the plungers 36. The impact strip 52 may be unitary or consist of four pieces, 52A, 52B, 52C and 52D, as shown, one for each side of the door, one for the top of the door and one for the bottom of the door. The impact strip 52 is preferably in the form of a channel with its legs extending outwardly to receive the ends of the plungers 36.

The operation of my device is as follows:

The door is positioned at the end of a coking chamber by door handling devices in the usual manner. When handling the door in this manner the springs 40 hold the plungers 36 against the impact strip 52 which in turn is held between the sealing ring 42 and the plungers 36 by pressure of the springs 40. The latch bars 32 are then rotated to a horizontal position with their ends being received in the slots 14 of the latch hooks 12. The screws 30 are then rotated so that the door frame 18 is forced toward coking chamber 4 causing the flange 44 of sealing ring 42 to contact the surface 16 of the door jamb 8. Continued rotation of the screws 30 causes the plungers 36 to compress the springs 40 thereby assuring constant and uniform pressure on the sealing ring 42 through the impact strip 52. I have found that use of the impact strip in this manner prevents or limits deformation of the sealing ring 42.

While one embodiment of my invention has been shown and described it will be apparent that other adaptations and modifications may be made without departing from the scope of the following claims.

I claim:

1. A coke oven door assembly comprising a door jamb having a sealing surface around its periphery, a rigid door frame, means for supporting said door adjacent said jamb, a high temperature resistant sealing ring carried by said door frame, said sealing ring including a portion spaced from said door frame and generally parallel to said sealing surface and a flange on the free end of said portion extending inwardly to contact said sealing surface, a plurality of spaced apart plungers carried by said door frame around its periphery, an elongated impact strip separate from and movable in respect to said sealing ring and adapted to bear against the side of said sealing ring opposite said sealing surface, said impact strip extending substantially around the periphery of said sealing ring, and means for urging said plungers against said impact strip.

2. A coke oven door assembly comprising a door jamb having a sealing surface around its periphery, a rigid door frame, means for supporting said door frame adjacent said jamb, a U-shaped stainless steel sealing ring, means for fastening one leg of said ring to said door frame, the other leg of said U-shaped ring being movable with respect to said one leg, a flange on the free end of said other leg extending inwardly to contact said sealing surface, a plurality of spaced apart plungers carried by said door frame around its periphery, an elongated channel shaped impact strip separate from and movable in respect to said sealing ring and adapted to bear against the side of the said other leg of said sealing ring opposite said flange, said impact strip extending substantially around the periphery of said sealing ring and having its legs extending outwardly to receive the

ends of said plungers, and a spring for urging each of said plungers against said impact strip.

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