June 9, 1953 L. L. LOWE 2,641,209

FURNACE FIRING DOOR FOR ENTRAPPING AND RELEASING ESCAPE GASES

Original Filed Dec. 7, 1945 2 Sheets-Sheet 1

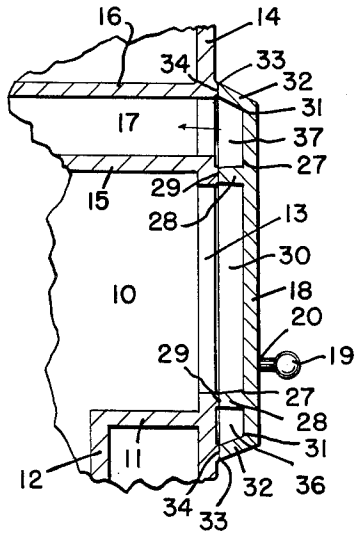


Fig. 1

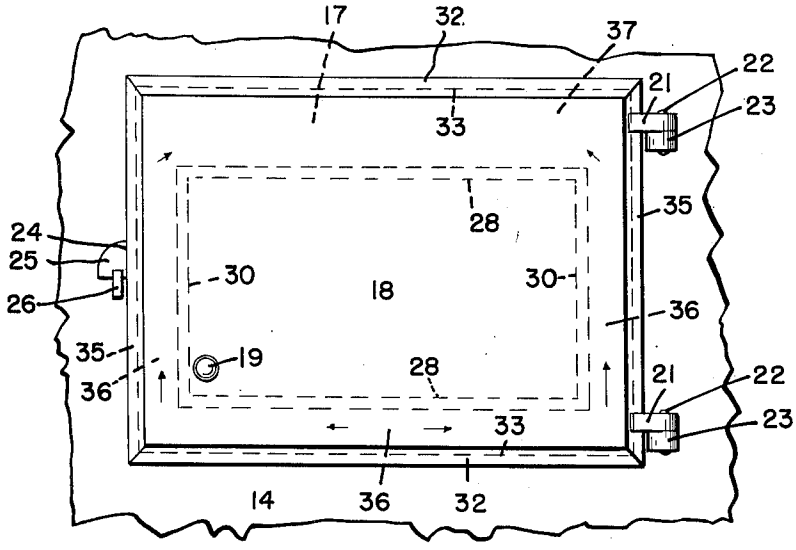


Fig. 2

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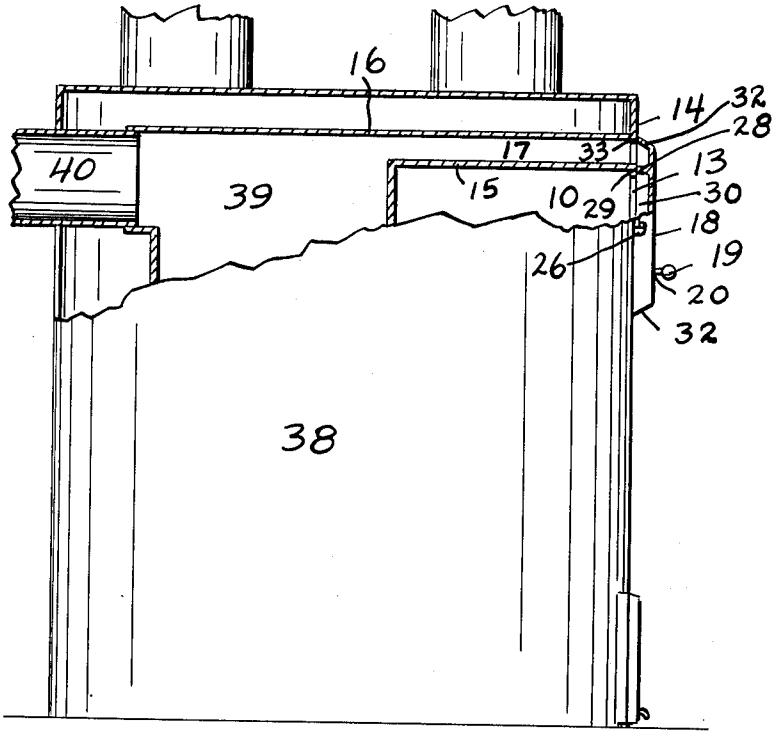


Fig. 3

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2,641,209

UNITED STATES PATENT OFFICE

2,641,209

FURNACE FIRING DOOR FOR ENTRAPPING AND RELEASING ESCAPE GASES

Lyall L. Lowe, Sioux City, Iowa

Original application December 7, 1945, Serial No. 633,379. Divided and this application September 22, 1948, Serial No. 50,620

1 Claim. (Cl. 110—173)

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My invention relates to a special type of furnace door.

An object of my invention is to provide a fuel firing door for furnaces, which door includes means for entrapping objectionable gases, smoke, and the like which might otherwise have a tendency of escaping past the door, and to thence immediately transfer such objectionable gases rearwardly into the exhaust flues of the furnace.

A further object of my invention is to provide such entrapping means all about the outer edges of the door to insure that all of the objectionable gases and the like are entrapped.

With these and other objects in view, my invention consists in the construction, arrangement, and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claim, and illustrated in the accompanying drawings, in which:

Figure 1 is a sectional view taken through the furnace door,

Figure 2 is a forward view of the furnace door as attached to the furnace, and

Figure 3 is a view showing the cooperation of the furnace door of my invention with the flue portions thereof.

The present application is a divisional application of my co-pending application on a Furnace Construction, Serial No. 633,379, filed December 7, 1945, and which has become abandoned.

I have used the character 10 to designate the fuel firing opening of a furnace having an adjacent horizontal wall 11, which merges with the wall 12 of the fuel receiving chamber, the opening 10 communicating with the door opening 13.

The forward wall of the furnace is indicated by the character 14, and I have used the character 15 to designate an upper wall and the character 16 a further wall spaced from the wall 15, and thus being provided a passageway 17 which passageway communicates with the rear flues of the furnace.

The furnace door of my construction is indicated generally by the character 18 and includes the grasping knob 19 attached thereto at 20, the door including the ears 21 which are pivoted or hinged at 22 to the further stationary ears 23, the ears 23 being attached to the forward wall 14. Attached to the door at 24 is the extending locking flange 25 adapted to be retained within the member 26.

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Extending integrally from the door 18 at 27 are the inwardly extending horizontal ribs 28 which are normally seated at 29 against the perimeter of the opening 13, the ribs 28 merging integrally with the vertical ribs 30, which are seated in the same manner against the boundaries of the opening 13. Extending integrally from the door 18 at 31 are the sloping flanges 32 which are seated at 33 against slightly raised bosses 34, the flanges 32 being integrally formed with the vertically positioned further flanges 35.

By virtue of the above construction it will be noted that there is a continuous passage formed between the respective flanges 28, 30, 32, 35, such passage being indicated by the character 36 and passing in an unrestricted manner all about the perimeter of the door, with the passage communicating with the enlarged portion at 37 and with the portion 37 communicating directly with the passage 17.

As a result of the above mentioned structure it will be noted that after firing, and when the door is closed, any escaping gases which normally would escape into the basement or room, will pass into the passages 36 and 37, and will be entrapped therein and conveyed about the perimeter of the door up and into the passage 17, the natural flue draft assisting the action, whereby the smoke, gases, etc. will be prevented from exiting externally of the door and conveyed away in the above mentioned manner. Figure 3 discloses clearly the cooperation of my type of door with the flue portions of the furnace, the character 38 indicating the furnace itself, the character 39 indicating certain other flue gas portions, and the character 40 indicating the flue pipe, it being observed that the passageway 17 communicates directly with these portions for the purpose intended.

It will now be seen that I have provided the advantages mentioned in the objects of my invention, with further advantages being readily apparent.

Some changes may be made in the construction and arrangement of the parts of my invention without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claim any modified forms of structure or use of mechanical equivalents which may be reasonably included within its scope.

I claim as my invention:

In combination with a furnace, said furnace having an off-take flue for gases of combustion, and a firing door opening, a firing door including a substantially perimetrally arranged channel having inner side flanges and outside flanges integral with said door, said flanges contacting forward furnace portions adjacent to the firing door opening to thereby entrap escape gases when said door is closed, means forming a passageway communicating to a portion of said channel, and to said flue.

LYALL L. LOWE.

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