

(No Model.)

L. DUFFNER.
FURNACE DOOR.

No. 520,730.

Patented May 29, 1894.

Fig. I.

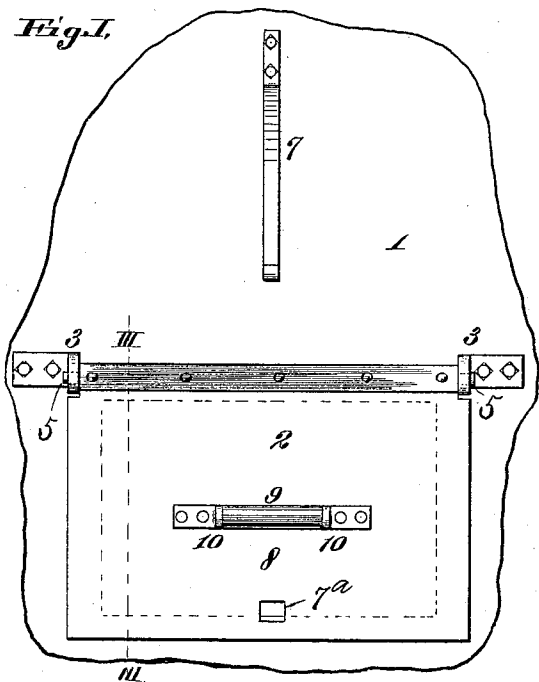


Fig. II.

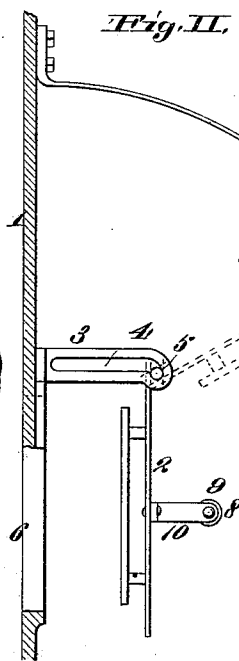
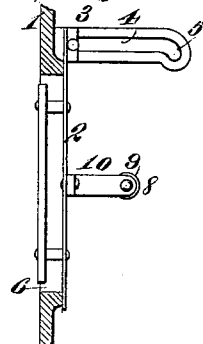


Fig. III.



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UNITED STATES PATENT OFFICE.

LUCAS DUFFNER, OF ST. LOUIS, MISSOURI, ASSIGNOR TO JOHN O'BRIEN, OF SAME PLACE.

FURNACE-DOOR.

SPECIFICATION forming part of Letters Patent No. 520,730, dated May 29, 1894.

Application filed May 18, 1893. Serial No. 474,712. (No model.)

To all whom it may concern:

Be it known that I, LUCAS DUFFNER, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Furnace-Doors, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to certain improvements in doors, intended more particularly for use in down-draft boiler furnaces, and my invention consists in features of novelty hereinafter fully described and pointed out in the claims.

Figure I is a front elevation, showing part of the front plate of a furnace, and showing the door, embodying my invention, in its lower position. Fig. II is a vertical section of the front plate of the furnace, showing the door in its lower position in full lines, and in its raised position in dotted lines. Fig. III is a vertical section, taken on line III—III, Fig. I and showing the door in its lower and inner position.

Referring to the drawings, 1 represents part of the front plate of a furnace.

2 represents the door.

3 represents arms secured to the front plate, and extending horizontally therefrom. These arms are provided with slots 4 to receive pins or journals 5 on the upper end of the door. The slots are curved downwardly at their outer ends, as shown in Figs. II and III.

It will be understood that in down-draft furnaces, the air has to enter, or should enter through the door opening 6 of the fire-box; and to provide for this, and at the same time to shut off the radiation of heat from the firemen when the furnace is in use, as well as to provide for the closing of the door opening, when desired, by means of a durable and simple arrangement, is the object of my invention.

When the furnace is in operation with the door opening 6 admitting air to the fire box, the door is supported on the outer ends of the arms 3, as shown by full lines in Fig. II, the journals 5 fitting in the down-turned ends of the slots 4, at which time the door serves as a guard to prevent the radiation of

heat from the fire-box door opening against the firemen, who may be passing back and forth in front of the furnace. When the furnace is to be supplied with coal, the door is raised into the position shown by dotted lines, Fig. II, where it is held by a spring hook 7 secured to the front plate 1, and which engages in an opening 7^a in the free edge of the door. When the door is thus raised to replenish the fire-box, the downward extension of the slots 4 in the arms 3 prevent the upper end of the door from sliding inwardly along the slots 4. The door 2 is provided with a handle 8, by which it may be manipulated. I have shown the handle in the form of a bar or roller 9, journaled in brackets 10 secured to the door. If it is desired to check, or entirely shut off the passage of air through the opening 6, it is done by simply moving the door 2 inwardly on the slotted arms 4. It is shown entirely closed in Fig. III.

I claim as my invention—

1. In a boiler furnace, the combination of a door, slotted arms adapted to support the door and to hold it in close proximity to the fire-box opening, or a distance therefrom, and means for holding the free edge of the door in a raised position; substantially as and for the purpose set forth.

2. In a boiler furnace, the combination of a door, slotted arms for supporting the door, and means for holding the free edge of the door in a raised position; the slots of said arms being curved in a downwardly direction at their outer ends; substantially as and for the purpose set forth.

3. In a boiler furnace, the combination of a door, slotted arms adapted to support the door, and a spring hook 7 adapted to engage in an opening in the free edge of the door, and hold the door while the furnace is being supplied with coal; substantially as and for the purpose set forth.

4. In a boiler furnace, the combination of a door, and arms having slots adapted to receive journals on the door, whereby the door can be moved to or from the front plate of the furnace; substantially as and for the purpose set forth.

5. In a boiler furnace, the combination of a

door, and arms adapted to support the door; said arms having slots downwardly curved at their outer ends, and which are adapted to receive journals on the door; substantially as
5 and for the purpose set forth.

6. In a boiler furnace, the combination of a door and arms adapted to receive journals on

the door, whereby the door can be moved to or from the front plate of the furnace along the arms, as and for the purpose set forth.

LUCAS DUFFNER.

In presence of—

E. S. KNIGHT,

BENJN. A. KNIGHT.