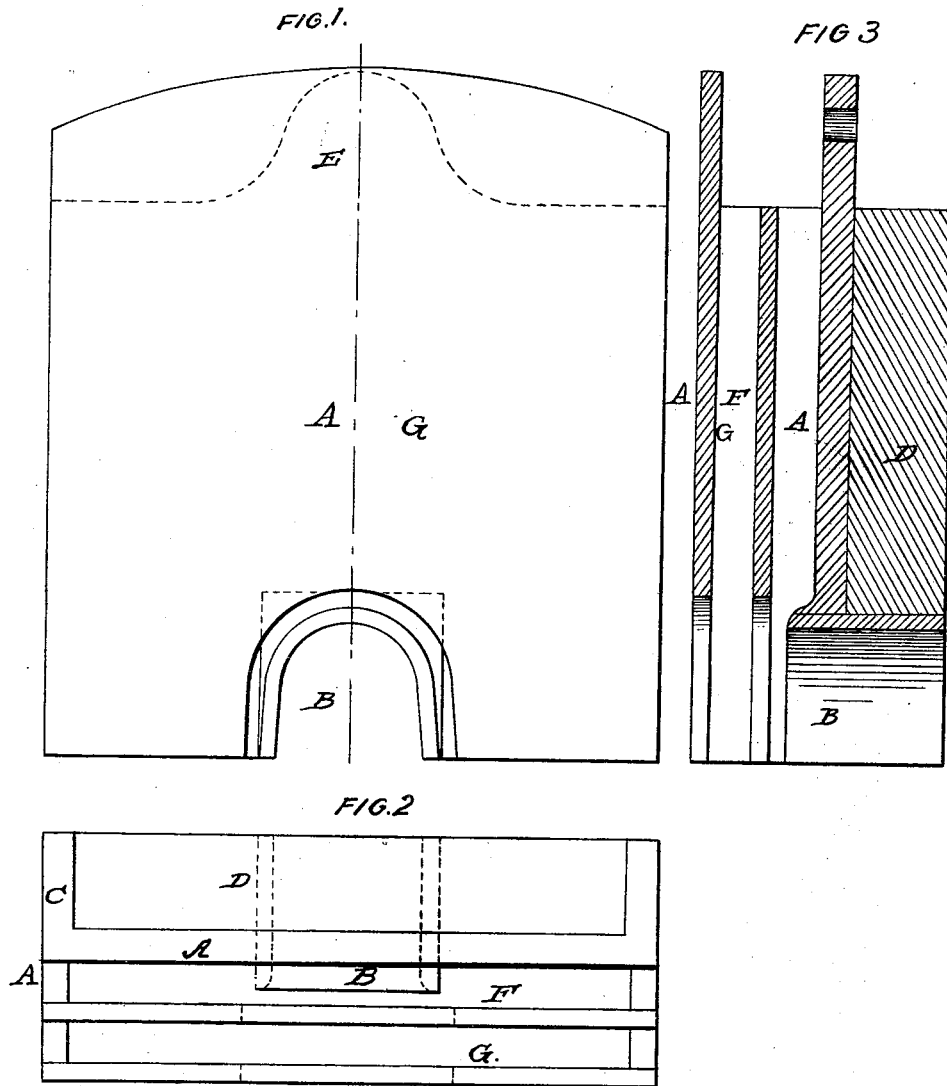


SIBLEY & SHIVERICK.

Furnace Door.

No. 49,041.

Patented July 25, 1865.



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UNITED STATES PATENT OFFICE.

NATHL. L. SIBLEY, OF WESTON, AND BENJN. SHIVERICK, OF WALTHAM,
MASSACHUSETTS.

IMPROVEMENT IN FURNACE-DOORS.

Specification forming part of Letters Patent No. **49,041**, dated July 25, 1865; antedated June 7, 1865.

To all whom it may concern:

Be it known that we, NATHANIEL L. SIBLEY, of Weston, and BENJAMIN SHIVERICK, of Waltham, and both of the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Furnace-Doors; and we do hereby declare that the same is described and represented in the following specifications and drawings.

To enable others skilled in the art to make and use our improvements, we will proceed to describe their construction and use, referring to the drawings, in which the same letters indicate like parts in each of the figures.

Figure 1 is an elevation of a furnace-door with our improvements. Fig. 2 is a plan or top view. Fig. 3 is a section of the door cut perpendicularly at the center.

The nature of our invention and improvements in doors for furnaces consists in the application of one, two, or more plates of metal or other material arranged so far from the door and from each by suitable means as to form proper and sufficient spaces for the free circulation of air between the door and the first plate and between the several plates to carry off part of the heat and prevent the radiation of the heat from the door from being so injurious to the man working in front of the door as it has heretofore been, and in connecting the applied plates to the door by means of bolts, studs, or flanges, either with or without the use of strips of soapstone, fire-clay, plaster, or other slow conductors of heat; also, in making an air-space between the door and a water-box arranged outside of the door.

In the accompanying drawings, A represents a furnace-door, such as are in common use, with a small opening, B, at the bottom. It is made of a plate of cast-iron, with a flange, C, at the bottom and sides to hold the fire-brick lining D, which may be cemented in or fastened in some other manner. The plate of the door extends up in the center, and is perforated at E, as shown in dotted lines in Fig. 1, for the hook of the link which connects it to a lever to raise it when required.

F is a plate, which is set three-fourths of an inch or more from the door, and G is a second plate, set three-fourths of an inch or more from the plate F, to leave a space between the plates and between the plate F and the door for a draft or blast of air to carry off some of the

heat of the door and to prevent the plates from becoming so hot as they would do if there was no draft or blast of air between them or between them and the door.

The plates F and G may be made of metal, soapstone, earthenware, or other materials that will not burn readily, and held in position by studs or bolts passing through them, with collars around the bolts between the plates and between the plates and door, and the bolts screwed into the door; or, instead of the collars on the bolts, there may be flanges on or recesses in the door and plates to hold strip of soapstone, fire-brick, or other material that will not burn readily and conducts heat slowly.

The plates F and G are provided with an opening corresponding with the opening in the door.

If it is desirable to have a water-box in front of the door, with an air-space between the box and the door, the plates F and G may be connected at the sides and bottom and cast in one piece, open at the top to receive and hold water, which may be conducted into and out of it by pipes, so as to keep the supply of water constantly changing to keep the box cool and protect the workman from the heat of the door.

We are aware that furnace-doors have been made to hold water and supplied by pipes; therefore we do not claim, broadly, a hollow door supplied with water; but

What we claim as our invention and improvement in furnace-doors is—

1. The application of one, two, or more plates of metal or other material arranged so far from the door and from each other by suitable means as to form proper and sufficient space for the free circulation of air between the door and the plate and between the several plates, substantially as described, for the purpose set forth.

2. Connecting the applied plates to the door by means of bolts, studs, or flanges, either with or without the use of strips of soapstone, fire-brick, plaster, or other slow conductors of heat.

3. A door provided with an air-space between the door and the water-box, arranged outside of the door, substantially as described.

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