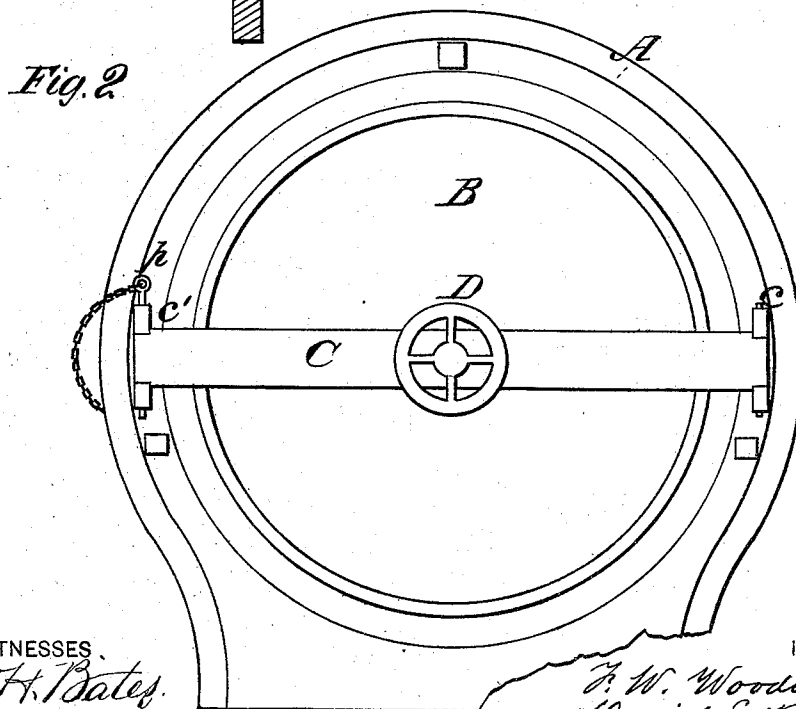
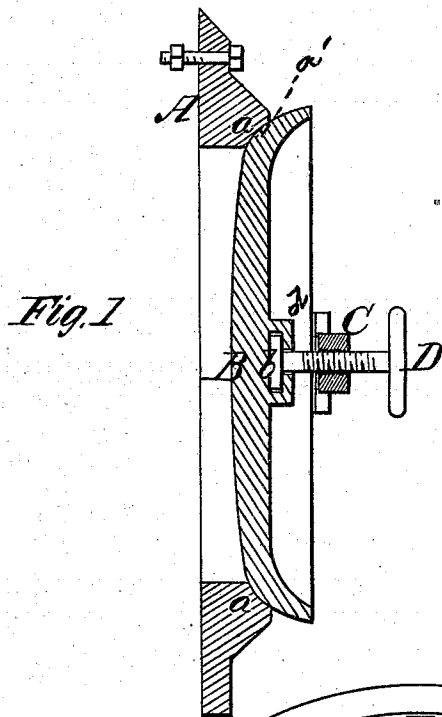


F. W. WOODWARD & D. E. BROWN.
Furnace-Doors.

No. 150,665.

Patented May 5, 1874.



WITNESSES.
E. H. Bates.
George E. Upham.

B₁

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UNITED STATES PATENT OFFICE.

FRANCIS W. WOODWARD AND DANIEL E. BROWN, OF EAU CLAIRE, WIS.

IMPROVEMENT IN FURNACE-DOORS.

Specification forming part of Letters Patent No. 150,665, dated May 5, 1874; application filed March 7, 1874.

To all whom it may concern:

Be it known that we, FRANCIS W. WOODWARD and DANIEL E. BROWN, of Eau Claire, in the county of Eau Claire and State of Wisconsin, have invented a new and valuable Improvement in Furnace-Doors; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a sectional view of our furnace-door. Fig. 2 is a plan view of the same.

This invention has relation to doors for wood and coal burning furnaces; and it consists in a door which is connected, by a centrally-arranged adjusting-screw, to a bar, which is hinged at one end to the door-frame, and connected to the frame at its other end by a removable pin, said door being constructed with an annular convex bearing-edge adapted to fit air-tight into a corresponding annular concavity in the frame, as will be more fully explained hereinafter.

In the annexed drawings, A designates the frame of a furnace-door, B, through which frame a circular passage is made, which is bounded by a concavity, *a*. The door B is circular, and it presents an annular convex surface, *a'*, which is adapted to fit snugly into the annular concavity *a* in the frame A, as shown in Fig. 1, and thus make an air-tight joint. In the center of the door a boss, *d*, is formed, having a circular recess in it, which receives a circular head, *b*, which is formed on the end of a screw, D, which head *b* is free to turn in the boss. The screw D is tapped through a cross-bar, C, which is hinged at one

end to an offset, *c*, of frame A, and connected, by its other end, to another offset, *c'*, by means of a pin, *p*, which is passed through eyes formed on the offset *c'* and the free end of the bar C.

When it is desired to feed the furnace or to have the door B fully open for any other purpose, the pin *p* is removed, and the bar C, with its door, is swung open on the hinge at *c*; but when it is desired to have the door only partly open for the purpose of regulating the draft of the furnace, the cross-bar C remains attached at both ends to the frame A; and the adjustment of the door is made by turning the hand-wheel on screw D. The door B is free to turn on the screw D; consequently, when the door is shut, by turning the screw the convex surface *a'* will closely seat itself into the annular concavity *a* in the frame A, and thus make a tight joint. By thus loosely applying the door to the adjusting-screw this door can at any time be rotated upon its seat, and thus ground tight.

What we claim as new, and desire to secure by Letters Patent, is—

A furnace-door of circular form, and having an annular convex surface, *a'*, adapted to fit snugly into an annular concave seat, *a*, in frame A; and a recessed boss, A, in combination with the hinged cross-bar C and the screw D, with head *b*, substantially as described.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

FRANCIS W. WOODWARD.
DANIEL E. BROWN.

Witnesses:

ROBERT K. BOYD,
ALEX. SIMONDS.