

(No Model.)

J. SCHUE.
DOOR FOR STEAM BOILER FURNACES.

No. 418,074.

Patented Dec. 24, 1889.

Fig. 1.

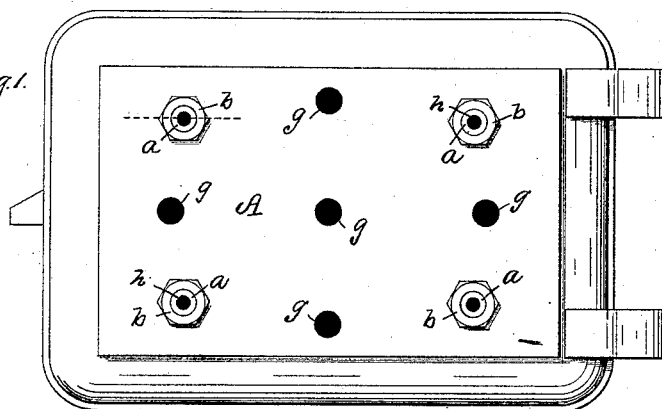


Fig. 2.

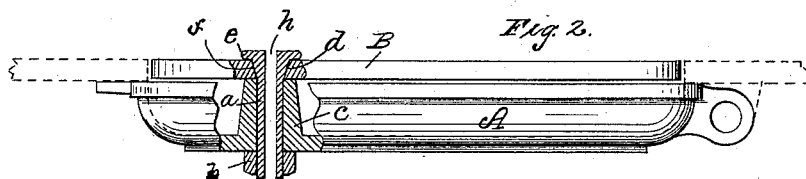


Fig. 4.

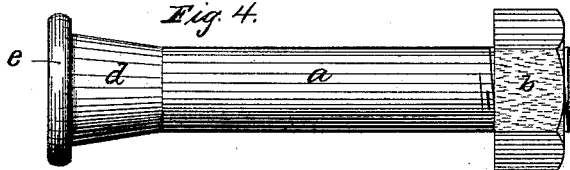
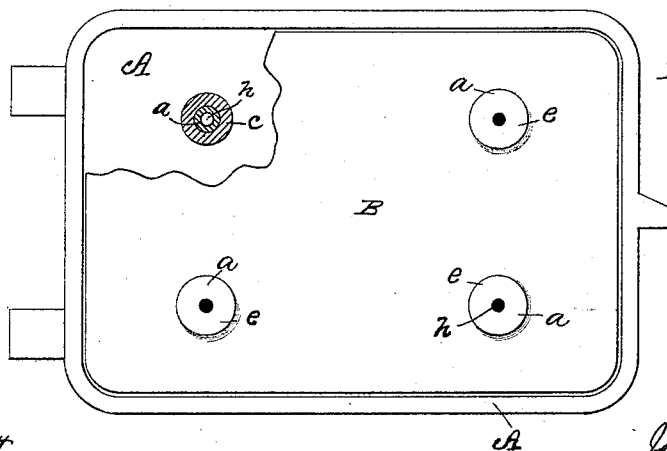


Fig. 3.



Attest:
M. L. DeGroot
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Inventor:
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By E. B. Whitmore, Atty.

UNITED STATES PATENT OFFICE.

JOHN SCHUE, OF ROCHESTER, NEW YORK, ASSIGNOR OF ONE-HALF TO
FRANK H. FALLS, OF SAME PLACE.

DOOR FOR STEAM-BOILER FURNACES.

SPECIFICATION forming part of Letters Patent No. 418,074, dated December 24, 1889.

Application filed June 24, 1889. Serial No. 315,404. (No model.)

To all whom it may concern:

Be it known that I, JOHN SCHUE, of Rochester, in the county of Monroe and State of New York, have invented a new and useful
5 Improvement in Doors for Steam-Boiler Furnaces, which improvement is fully set forth in the following specification and shown in accompanying drawings.

My invention is mainly an improved bolt
10 designed to be used in the construction of steam-boiler furnaces, more particularly the doors of such furnaces. One difficulty attending the use of ordinary bolts for holding the inner protecting-plate of a furnace-
15 door is that the heads of the bolts soon burn off from the intense heat to which they are subjected and allow the plate to become detached from the door; or, if the bolts are put in with the heads on the outside with
20 the nuts exposed to the heat, these, too, burn away, allowing the plate to become detached.

In my invention I provide a hollow bolt formed with both a tapered and a ring head, the employment of which bolt thus formed
25 effectually prevents the plate becoming loose or detached until it is all burned away.

This invention is hereinafter fully described, and more particularly pointed out in the claim.

30 Referring to the drawings, Figure 1 represents the outer face of an ordinary door of a boiler-furnace; Fig. 2, a view of the same indicated by arrow in Fig. 1, parts being broken away and sectioned as on the dotted line in
35 Fig. 1; and Fig. 3, a view of the inner face of the door, a part of the protecting-plate being broken away. Fig. 4 shows my improved bolt full size.

Referring to the parts, A is the shell or
40 outer plate of the door, and B the inner protecting-plate.

a is my improved bolt, placed with its head turned inward toward the fire, the clamping or tightening nut b being on the outside of
45 the door. The plate B is separated from the plate of the door by suitable spacers c, of any

common form, through which, if desired, the bolts may pass, as shown; or they may be at one side of and between the bolts, if found convenient.

As shown, the holding-bolts are formed hollow or with a longitudinal bore or cavity h
50 extending from end to end thereof, so that a steady stream of cold outside air may pass through each of them to the interior of the
55 furnace, this inward flow of air being a result of the draft of the chimney. The bolt is threaded at its end and provided with an ordinary screw-nut b, and formed at its opposite end with a conical head d and an extreme button or ring e. The conical part of
60 the head is made to fit in a corresponding cavity f in the plate B, as shown in Fig. 2, the ring part of the head bearing against the face of the plate. The current of cold air through
65 the bolt keeps it constantly cool, so that it cannot reach a red heat or a degree of heat destructive to the iron. If, however, the ring
e of the head should in any case become destroyed, the conical part of the head would
70 still hold the plate in place on the door.

Ordinarily the plate is kept comparatively cool from external air flowing through holes
g in the door.

What I claim as my invention is—

75 In combination with the front and back plates of a furnace-door, a holding-bolt for the plates, formed with a longitudinal cavity extending through it, and a nut for the bolt, said bolt being formed with a head consisting
80 of a tapered part fitting a tapered cavity extending through the back plate of the door, and a ring resting against said back plate, substantially as shown, and for the purpose set forth.

85 In witness whereof I have hereunto set my hand, this 28th day of May, 1889, in the presence of two subscribing witnesses.

JOHN SCHUE.

Witnesses:

E. B. WHITMORE,
M. L. McDERMOTT.