

D. B. MORISON.
STEAM BOILER OR OTHER FURNACE.

No. 518,762.

Patented Apr. 24, 1894.

Fig. 1.

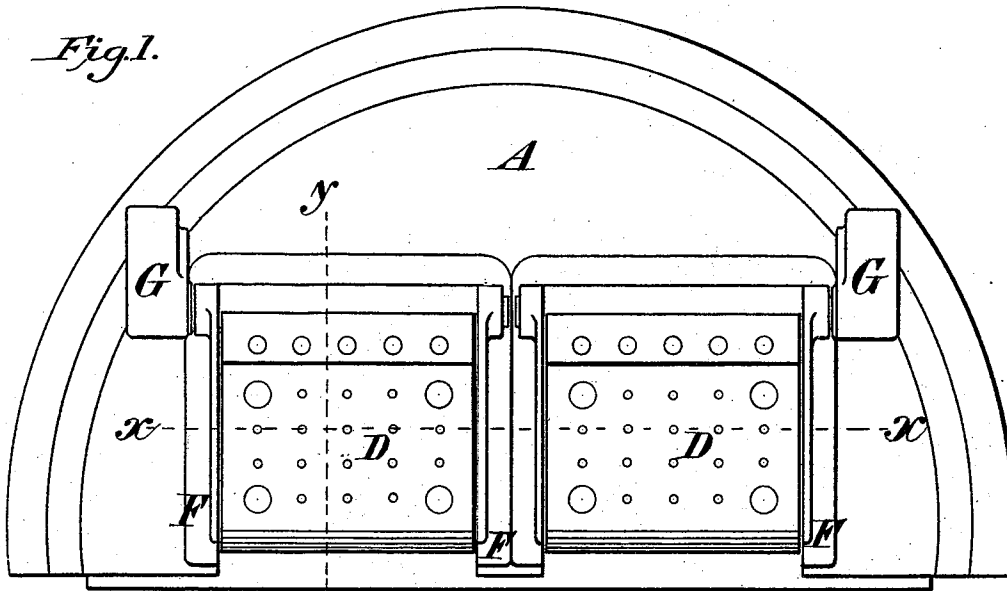


Fig. 2.

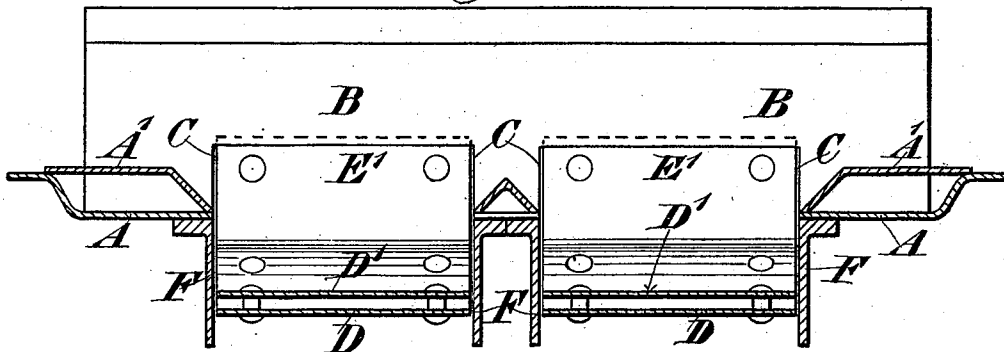
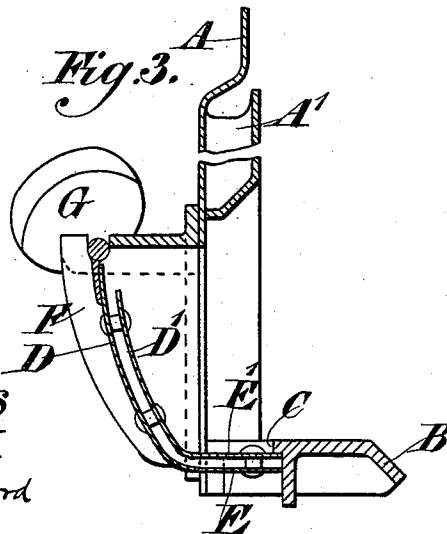


Fig. 3.



Witnesses

L. D. Wingate.

John J. Rieckford

Inventor

J. B. Morison

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Fig. 4.

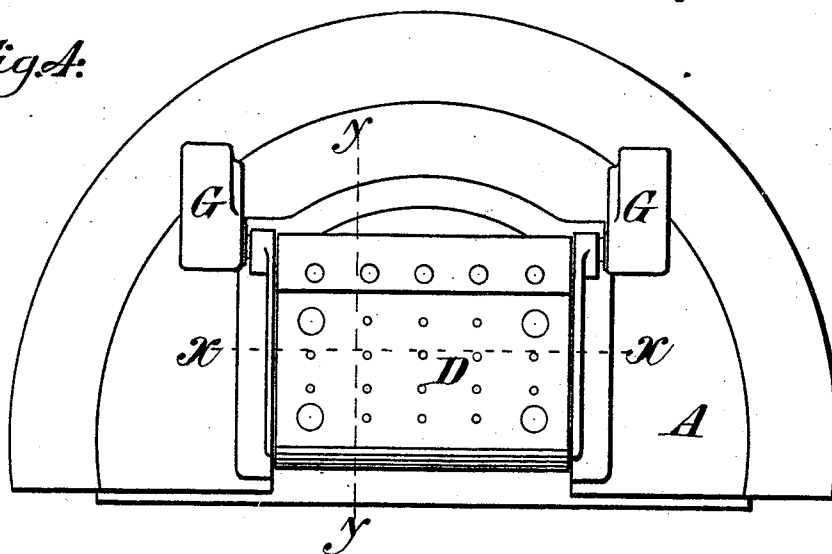


Fig. 5.

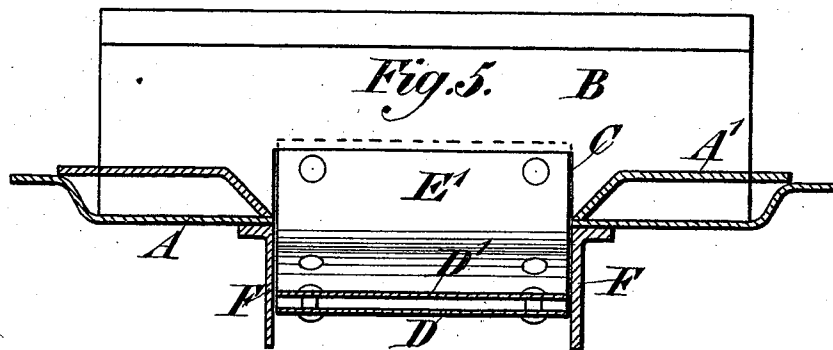
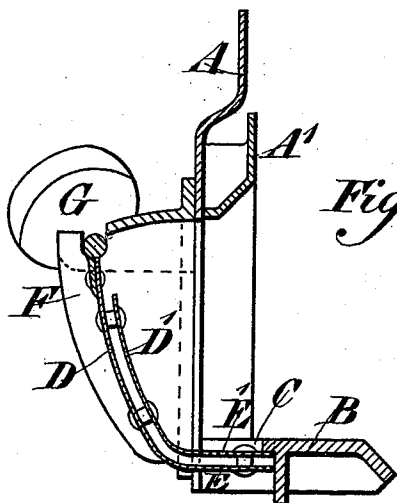


Fig. 6.



Witnesses

L. D. Wigate.

John T. Bickford

Inventor

J. B. Morrison

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Fig. 7.

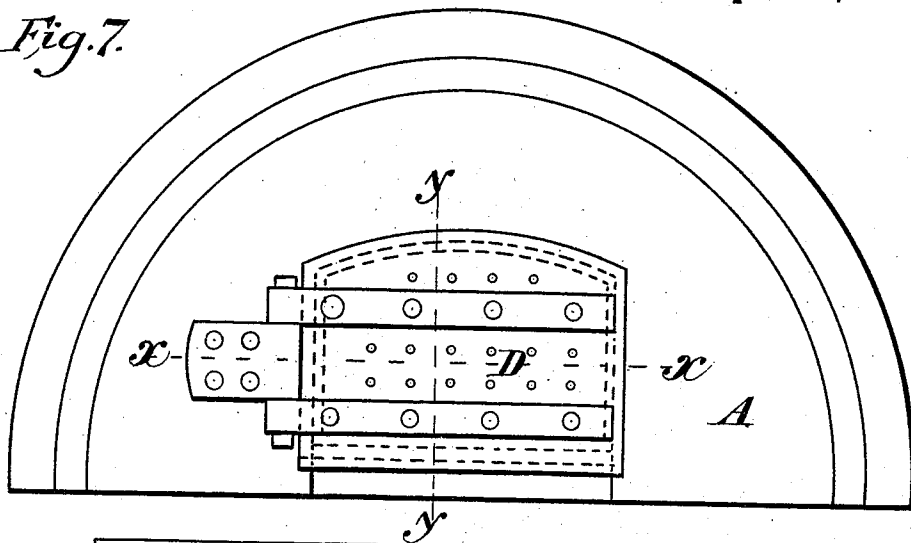


Fig. 8.

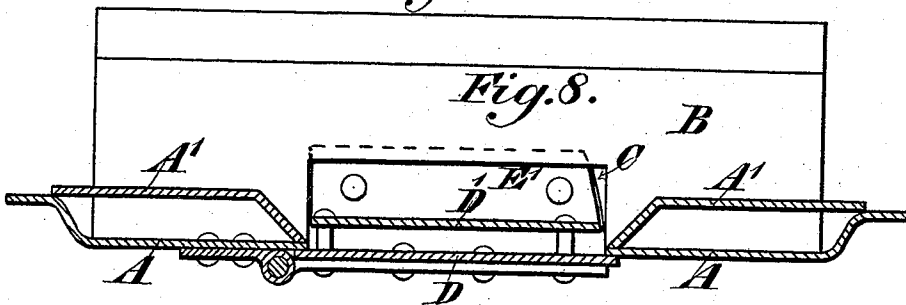
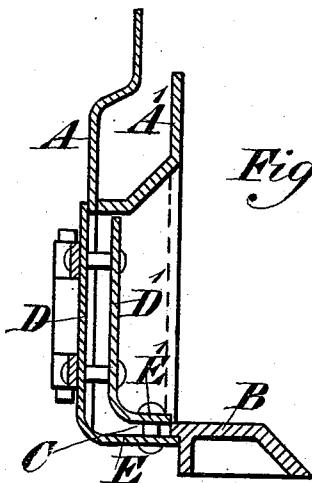


Fig. 9.



Witnesses

L. J. Wingate.
John T. Bickford

Inventor

J. B. Morison

UNITED STATES PATENT OFFICE.

DONALD BARNES MORISON, OF HARTLEPOOL, ENGLAND.

STEAM-BOILER OR OTHER FURNACE.

SPECIFICATION forming part of Letters Patent No. 518,762, dated April 24, 1894.

Application filed June 8, 1893. Serial No. 476,947. (No model.)

To all whom it may concern:

Be it known that I, DONALD BARNES MORISON, a subject of the Queen of Great Britain and Ireland, residing at Hartlepool, in the county of Durham, England, have invented Improvements in or Relating to Steam-Boiler or other Furnaces, of which the following is a specification.

This invention has reference to improvements in or relating to steam boiler and other furnaces and is designed to prevent the undue accumulation of fuel near the baffle plate of the fire door and the consequent injury to the same by burning, which frequently arises when such accumulation occurs, and also to give greater facilities for stoking. To this end I remove a portion of the dead plate immediately inside the furnace door so as to leave a recess or gap and I construct the door with an inward extension or ledge which when the door is closed, fills the said recess or gap. The said extension or ledge may be formed in one with or be secured to the door, and may be perforated and have a perforated baffle plate for the admission of air to the furnace in the same way as the vertical part of the door.

In the accompanying drawings, Figure 1 is a front elevation; Fig. 2 a horizontal section on the line *x x* Fig. 1; and Fig. 3 a vertical section on the line *y y* Fig. 1, showing a furnace front with double doors constructed according to this invention, the doors being arranged to turn on a horizontal axis. Figs. 4, 5 and 6 are corresponding views of the front part of a furnace having a single door mounted in the same way as that shown in Figs. 1, 2 and 3. Figs. 7, 8 and 9 are also corresponding views the furnace in this case having a single door turning on a vertical axis.

The same letters indicate corresponding parts in all the figures.

A represents the furnace front plate fitted with an ordinary internal baffle plate A'.

B is the dead plate in the front part of which according to this invention is formed one or more recesses C C according to the number of fire doors with which the furnace front is provided.

D D are the furnace doors the lower end of each of which is formed with an inwardly projecting horizontal extension or ledge E herein-

after called an extension that fits the corresponding recess C in the dead plate B, and a corresponding extension E' is formed on the baffle plate D' inside and above the said extension E. The lower inner edge of this extension E' fits under the inner edge of the recess C as indicated more clearly in the vertical section shown in Figs. 3, 6 and 9 so as to effectually close the recess into which the said extensions enter.

In the arrangements illustrated in Figs. 1, 2, 3, 4, 5 and 6, wherein the doors turn up and down on horizontal axes, the doors are placed between cheeks F riveted or otherwise secured to the furnace front A and baffle plate A', and are balanced by weights G, in the ordinary way. In the arrangement shown in Figs. 7, 8 and 9 in which the door is hinged to turn about a vertical axis, the cheeks F are of course unnecessary. The arrangement with double doors Figs. 1, 2 and 3 may advantageously be used for furnaces of large diameter.

By either of the constructions of furnace described it will be seen that it is practically impossible for the fireman to leave a mass of burning fuel heaped up against the baffle plate of the fire door, as frequently occurs with furnaces as heretofore generally constructed with the front edge of the dead plate opposite the door flush with the furnace front plate. Thus the burning away of the baffle plates attached to the doors is obviated and this being a frequent source of expense, it follows that a considerable economy will result from the adoption of the construction hereinbefore described.

What I claim is—

1. A furnace having a dead plate formed with a recess in its outer side opposite the fire door opening, and a door adapted when in its closed position, to close said recess substantially as herein described for the purpose specified.

2. A furnace constructed with a recessed dead plate and with a door having an inward extension adapted to close the recess in said dead plate for the purpose specified.

3. A furnace constructed with a recessed dead plate, and with a door having an inward extension adapted to close the recess in said dead plate, and having a corresponding ex-

tension on its baffle plate substantially as described for the purpose specified.

4. In a furnace the combination of a dead plate formed with a recess C, and a door having at its lower part an inward extension adapted to fit said recess substantially as described.

5. The combination with a furnace front plate of a dead plate formed with a recess C opposite the fire door opening in said front plate, a door having a lower inward extension E, and a baffle plate secured to the inner side of said door and formed with a corresponding inward extension E' substantially as described.

6. The combination with a furnace front plate, of a dead plate formed with a recess C opposite the fire door opening a metal fire door D having its lower portion bent inwardly

so as to form an extension E adapted to close the said recess when the door is in its closed position, balance weights secured to said door, brackets secured to said front plate and whereon said door is mounted to turn about a horizontal axis and a baffle plate D' secured to the inner side of said door and having its lower portion bent to form an inward extension E' arranged above the extension E, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DONALD BARNES MORISON.

Witnesses:

T. HARRY TILLY,

Notary Public, West Hartlepool.

I. BAKEWELL STROVER,

Solicitor, West Hartlepool.