

(No Model.)

J. D. RASEY.

BOILER SETTING.

No. 386,159.

Patented July 17, 1888.

Fig. 1.

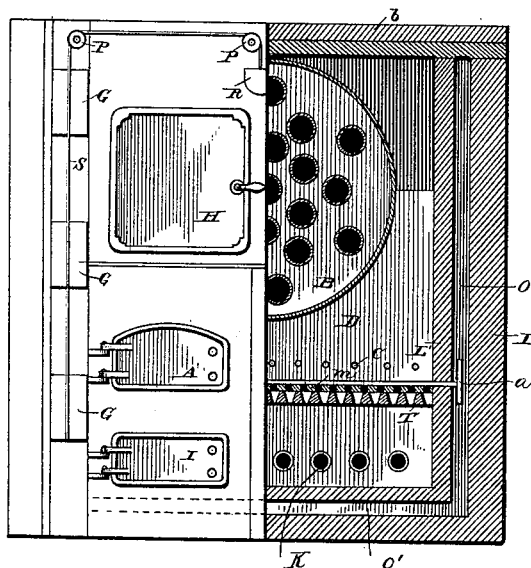


Fig. 2.

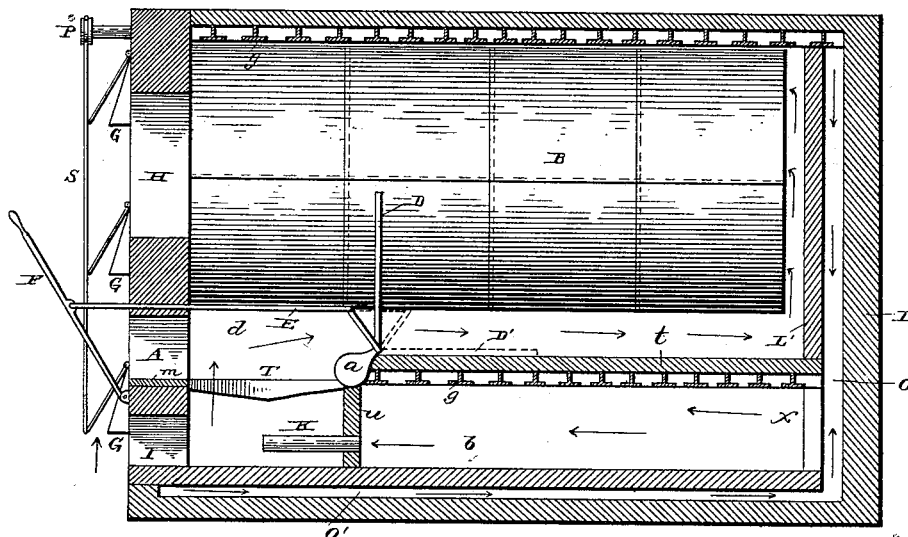
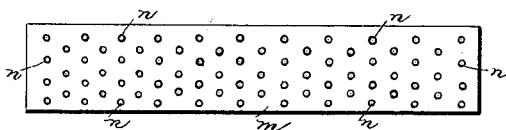


Fig. 3.



WITNESSES.

Edwin T. Yewell
John Enders Jr.

INVENTOR.

John D. Rasey.
by Rose & Head
Assoc. Attorney.

UNITED STATES PATENT OFFICE.

JOHN D. RASEY, OF OSHKOSH, WISCONSIN.

BOILER-SETTING.

SPECIFICATION forming part of Letters Patent No. 386,159, dated July 17, 1888.

Application filed March 16, 1888. Serial No. 267,436. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. RASEY, a citizen of the United States, residing at the city of Oshkosh, in the county of Winnebago and State of Wisconsin, have invented certain new and useful Improvements in Boiler-Settings; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in the construction of boiler-settings; and the objects of my invention are to supply a superheated supply of air for combustion and to exclude all cold air, and to prevent cold air from striking the boiler when supplying fuel through the fire-door, and increase the draft by expanding the air. I attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a front view with one-half of the iron front cut away to show the interior. Fig. 2 is a side view with the walls cut away to show interior of setting. Fig. 3 is a top view of the iron plate *m*.

Similar letters refer to similar parts throughout the several views.

A is the fire door and opening, I the ash door and opening, and H the boiler door and opening in the outside iron front, this iron front being lined with a brick wall for protection.

B is the boiler.

I construct an outside wall, L, around the main supporting inside wall, L', on both sides and at the rear end, leaving a space between the two walls O O. I cover the setting with a top wall supported upon T beams laid in the side walls, L, so that I have a continuous inclosed space between the outside and inside walls from front to rear on all sides. I allow a space between rear end of boiler and the inside of wall L' sufficient for proper draft.

T is the grate, supported in front upon the iron plate *m* and at the rear by the wall *u*.

t is a horizontal platform extending the whole width of the setting from the support-

wall *u* back to the rear wall of the setting. This is a brick platform supported by T beams or bars *g* laid in and running across from the side walls.

K K are iron tubes set into and extending through the wall *u* and extending forward, so as to carry the air nearly to the front of the grate T.

G G G are hinged doors covering openings into the spaces *o o'* between the walls. These doors are hinged at the top and are raised and governed by the rope S, attached to the bottom of each door and extending upward and over the pulleys P P and attached to the weight R.

By raising the doors G G G the outside air is drawn into the spaces *o* and *o'* between the outside and inside walls, and in the bottom of the setting passes to the rear, as indicated by the arrows, is then drawn through an arch in the inside rear wall and under the platform *t* at *x*, then passes into the hot-air space *b* under the platform *t*, where it becomes superheated, then passes through the tubes K K, up through the grate T and back over the platform *t* to the flues of the boiler.

Fig. 3 shows a top view of the perforated plate *m*, which is supported horizontally and extends across the front of the grate between the grate and the iron front, forming the support in front. When the grate is thickly covered with new coal, the hot air from the chamber *b* does not readily pass through the grate, but some of it passes forward through the perforated plate *m* and over the coal upon the grate, and, being superheated, ignites the gas from the coal on top of the grate, thereby preventing the fire from becoming smothered by adding too much coal at one time.

D is a damper located just back of the grate and closing the space under the boiler. This damper is controlled and operated by the lever F, connected with the damper by an iron rod running through the space between the walls. This damper is also attached to and controlled by the counter-balance *a*.

Before opening the fire door A to supply fuel, the damper is raised from the dotted position D' to the position D, thereby preventing the cold air from rushing in through the fire-door and cooling and injuring the boiler by alternate expansion and contraction. The

holes in the damper at C allow the smoke to pass back when the damper is shut. The air after being drawn into the space *o* from the outside first passes along the sides of the fire-box, and by contact with the walls as it passes along to the rear becomes gradually heated and expanded. After passing through the arch at *x* into the hot-air chamber *b*, the air becomes further heated and expanded by the heat from the grate and top of the platform. This chamber is large and holds a great supply of air and acts as a reservoir, through and into which new air is constantly being drawn by the draft of the smoke-stack. In ordinary operation the air in this chamber *b* becomes expanded at least fifty per cent., thereby creating an extra pressure through the tubes K and increasing the draft through the grate.

In the base of the setting is a channel, O', communicating with the side channels, through which air may also flow in the direction indicated by the arrows in Fig. 2.

Therefore, what I claim as my invention, and desire to secure by Letters Patent, is—

25 1. In a boiler-setting, the combination of an outside wall surrounding the supporting-wall, with an unobstructed space between the two walls leading from the front to the rear, the doors G G G, regulating and governing the

supply of air into said space, the wall *u* and the platform *t*, connected with the inside wall, *L'*, so as to form the inclosed hot-air chamber *b*, with a setting in the inside wall leading into said chamber, being in open communication with the grate, and a damper at the rear of the grate. 35

2. In a boiler-setting, the combination of an outside wall surrounding the main supporting-wall, inclosed at the top, forming an inclosed space between the two walls from front to rear upon all sides, the doors G G G, covering openings and controlling the supply of air into said space, an arch in the rear wall opening into an inclosed hot-air chamber extending from wall to wall back of the grate, and tubes K K, leading from the hot-air chamber and supplying air to the grate, with a perforated grate-support in front, and a damper closing the space from the boiler down to the platform *t*, operated by a lever from the front, substantially as shown, for the purposes specified. 40 45 50

In testimony whereof I affix my signature in presence of two witnesses.

JOHN D. RASEY.

Witnesses:

JAMES H. MERRILL,
A. L. TUTTLE.