(No Model.)

J. C. SHULER.

FURNACE FRONT FOR BOILERS.

No. 371,382. Patented Oct. 11, 1887.

Fig. 1.

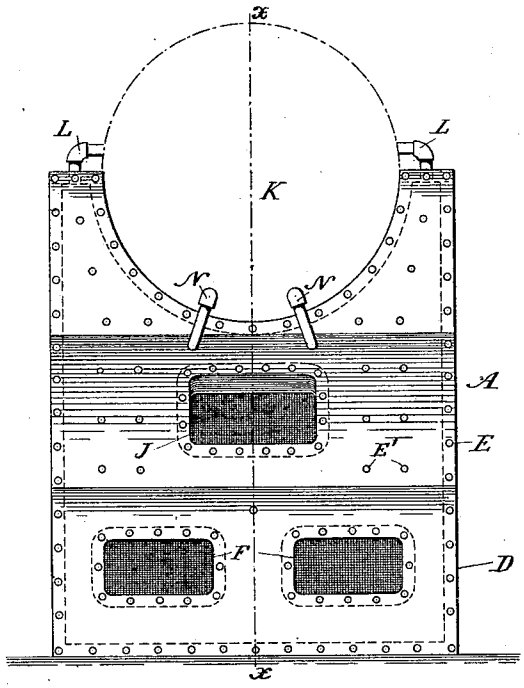
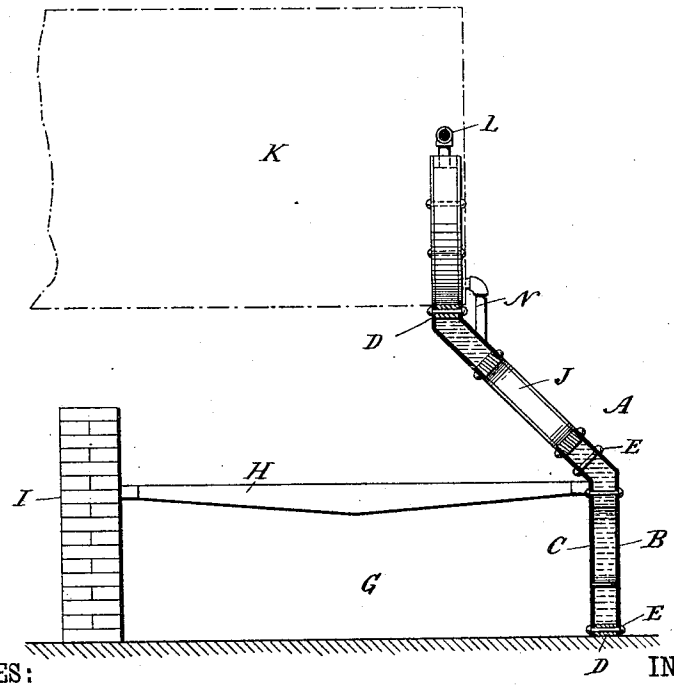


Fig. 2.



WITNESSES:

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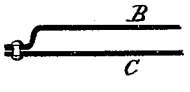
Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES C. SHULER, OF ST. JOSEPH, MICHIGAN.

FURNACE-FRONT FOR BOILERS.

SPECIFICATION forming part of Letters Patent No. 371,382, dated October 11, 1887.

Application filed July 13, 1887. Serial No. 244,191. (No model.)

To all whom it may concern:

Be it known that I, JAMES CLINTON SHULER, of St. Joseph, in the county of Berrien and State of Michigan, have invented a new and Improved Furnace-Front for Boilers, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved furnace-front for boilers which prevents waste of heat and serves as a feed-water heater.

The invention consists of a hollow furnace-front supporting the front end of the boiler, and connected with the interior of the latter by pipes or other suitable means.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation of my improvement. Fig. 2 is a longitudinal sectional elevation of the same on the line *x x* of Fig. 1. Fig. 3 is a sectional view of a modified form of my improvement.

My improved furnace-front A is provided with a front plate, B, and a rear plate, C, said plates being connected by cross-pieces D, held in place on said front and rear plates by stay-bolts E. The cross-pieces D extend around the outer edges of the front and rear plates, B and C, so as to form a hollow space in the boiler-front. The latter is formed of three sections, of which the lower one is vertical and contains the ash-pit openings F, which are lined according to their shape by cross-pieces which are similar in shape to the cross-pieces D. Instead of using the cross-pieces D, I may connect the front and rear plates, B and C, as illustrated in Fig. 3.

The ash-pit openings F open into the ash-pit G, above which are held the grate-bars H, the rear ends of which rest in the bridge-wall, the front ends resting on the vertical lower section of the furnace-front A. The latter continues into the upwardly or inwardly inclined middle section, which is provided with the boiler-door opening J, lined, in a similar manner to the ash-pit doors F, with cross-pieces similar in shape to the cross-pieces D. The fuel-door J opens on the grate-bars H in the usual manner.

The middle section of the furnace-front A continues into the vertical upper section, which is provided with a suitable opening in which the front of the boiler K is placed, which boiler has its water-compartment connected by the pipes L with the interior of the hollow furnace-front A, near the upper end of the top section, and said boiler K is also connected at the bottom of its water-compartment, and in front of the boiler, by the pipes N, with the hollow space in the middle section of the furnace-front A.

It will be seen that the water from the boiler K can pass through, and thus fully circulate in the hollow boiler-front A on account of the pipes L and N. The water thus passing into the furnace-front is heated by the heat radiated from the grate-bars H.

The peculiar arrangement of the three sections of the boiler-front A causes the heat from the grate-bars H to pass up and directly on the front part of the boiler K, so that the water in the latter is heated from one end to the other.

It will be observed that in furnaces with a straight front the heat does not strike the front end of the boiler on account of the draft, which causes the heat to pass toward the rear, so that the heat does not come in contact with the boiler at its front end.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A furnace-front composed of an upper and lower vertical section and an intermediate section inclined upwardly and inwardly, substantially as described, whereby provision is made for causing the heat to act upon the front part of the boiler, as set forth.

2. A hollow furnace-front having a lower vertical section containing the ash-pit opening and continuing into an inwardly-inclined section provided with the fuel-door opening, which inclined section continues into the upper vertical section which supports the front

end of the boiler, substantially as shown and described.

3. The combination of the sectional hollow furnace-front A, the intermediate section being inclined upwardly and inwardly, a boiler, the pipes L, leading from the boiler to the upper section of the front, and the pipes N, leading from the boiler to the intermediate section of the front, substantially as herein shown and described.

JAMES C. SHULER.

Witnesses:
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