J. JENKS.
Boiler-Furnace.

No. 202,657. Patented April 23, 1878.

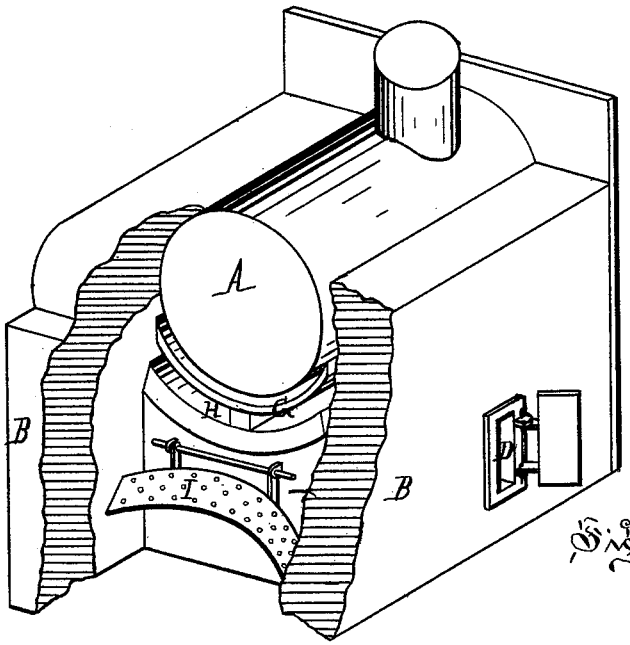

Fig. 1.

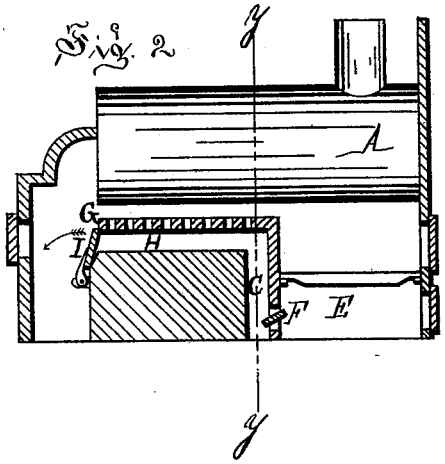

Fig. 2.

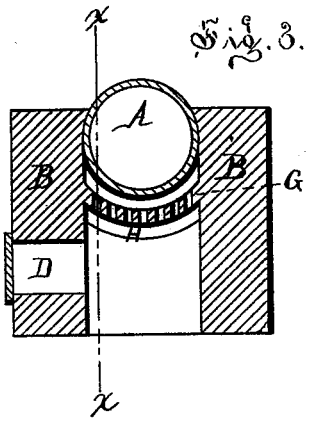

Fig. 3.

Attest:
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Inventor:
J. Jenks
By Atty
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UNITED STATES PATENT OFFICE.

JAMES JENKS, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF HIS RIGHT TO GEORGE A. JENKS, OF SAME PLACE.

IMPROVEMENT IN BOILER-FURNACES.

Specification forming part of Letters Patent No. **202,657**, dated April 23, 1878; application filed September 3, 1877.

To all whom it may concern:

Be it known that I, JAMES JENKS, of Detroit, in the county of Wayne and State of Michigan, have invented an Improvement in Boiler-Furnaces, of which the following is a specification:

The nature of my invention relates to certain new and useful improvements in boiler-furnaces, by which better results in the utilization of the heat are obtained, and the gases are consumed where said combustion will produce like results.

The invention consists in the arrangement of parts by which such results are accomplished, as more fully hereinafter described.

Figure 1 is a perspective view of the rear end of a boiler-furnace, with portions of the wall broken away in order to disclose the interior arrangement. Fig. 2 is a longitudinal vertical section on the line *x x* in Fig. 3. Fig. 3 is a vertical cross-section on the line *y y* in Fig. 2.

Like letters indicate like parts in each figure.

In the drawings, A represents a boiler, and B the walls of the furnace. C is a hollow bridge-wall, to which air may be admitted through the corresponding opening D in the side wall of the furnace, or, when desired, to take the air from the ash-pit E through the dampered opening F in the front of the bridge-wall, the damper being provided with a rod (not shown) extending through the furnace-wall, so that said damper may be operated from outside the furnace.

G is a horizontal wall, conforming to the shape of the boiler, extending from the front of the bridge-wall to the rear end of the boiler. The object of this plate is to compel the products of combustion to pass to the rear in close contact with the bottom of the boiler, and it is perforated to allow air to pass through to assist in the combustion of the gases. The air is received through the passage or air flue H, which communicates with the interior of the hollow bridge-wall, as shown in Fig. 2. Débris which falls through the perforations into the flue H may be withdrawn by a proper tool through the opening at its rear end, as disclosed by the open damper I, in Fig. 1, and as closed by the damper in Fig. 2.

The horizontal wall G may be constructed of iron, with its upper face lined with fire-clay, or it may be of fire-brick, supported upon an inverted arch formed of iron bars, the ends of which are supported in the furnace-wall; or it may be of any suitable refractory material, care being taken to preserve the perforations for the admission of air to the space between said wall and the bottom of the boiler.

By this arrangement a great saving of fuel, to produce a given result, will be had, as the products of combustion are forced to expend their heat directly upon the boiler, and the perfect combustion of the gases at the point where such combustion will do the most good materially assists in accomplishing the desired ends.

The perforations may be left out of the horizontal wall, and the air pass from the air-flue through the perforated damper, and mingle with the gases at the rear end of the horizontal wall; but I prefer the said wall should be perforated, as described, to produce the better result.

What I claim as my invention is—

1. In a boiler-furnace, the combination, with the air-flue H, formed below the combustion-space, of the perforated damper I at the rear end of such flue, constructed and arranged substantially as described and shown.

2. In a boiler-furnace, the combination, with the hollow bridge-wall C, into which air is admitted, of the perforated plate G, forming flue H, and the damper I, all constructed and arranged substantially as described and shown.

JAMES JENKS.

Witnesses:

H. S. SPRAGUE,

H. L. AULLS.