

No. 794,556.

PATENTED JULY 11, 1905.

J. SIEBEL.
BOILER FURNACE.
APPLICATION FILED APR. 21, 1905.

Fig. 1.

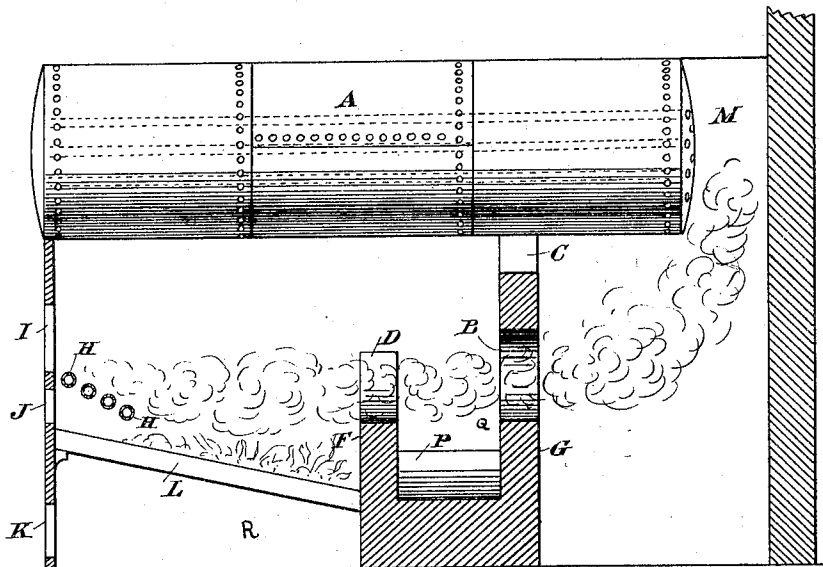


Fig. 3.

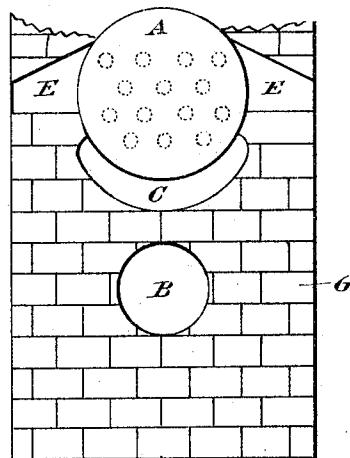
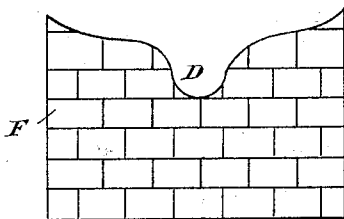


Fig. 2.



WITNESSES.

Lewis Adenitz
B. M. McChokey

John Siebel
by A. Lincoln Semlitz
Attorney

INVENTOR.

UNITED STATES PATENT OFFICE.

JOHN SIEBEL, OF LOUISVILLE, KENTUCKY.

BOILER-FURNACE.

SPECIFICATION forming part of Letters Patent No. 794,556, dated July 11, 1905.

Application filed April 21, 1905. Serial No. 256,783.

To all whom it may concern:

Be it known that I, JOHN SIEBEL, a citizen of the United States, and a resident of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Improvement in Boiler-Furnaces, of which the following is a specification.

My invention relates to the construction of the grates of boiler-furnaces and to the construction and arrangement of the bridge-walls.

The objects of my device are to create a better draft; to separate the hot gases from the cooler unburned gases and solids after their passage out of the furnace proper, so that they can then be burned; to produce a more complete combustion of the fuel, and to afford a means for more readily stoking and cleaning the grate. To attain these objects, I make use of the mechanism shown in the accompanying drawings, in which—

Figure 1 is an elevation of the contrivance, the walls being in section. Fig. 2 is an elevation of the front bridge-wall F. Fig. 3 is an elevation of the rear bridge-wall G.

The same letters refer to the same parts in all the figures.

A is the boiler.

L is a horizontal grate.

H H represent a supplemental grate sloping upward to the door I in the furnace-front and spaced from the horizontal grate which extends underneath it.

F is a bridge-wall having a central transverse recess D, preferably about three inches wide and about a foot deep. Behind this wall is the bridge-wall G, which is somewhat higher than the first wall and is provided with a passage-way B on the same horizontal plane as recess D and directly behind it. This passage-way is preferably circular and with a diameter of about a foot—that is, as great as the depth of the recess. The rear bridge-wall G is hollowed out at its top directly under the boiler, so as to leave an opening C for the passage of heated air and products of combustion, as in ordinary furnaces, this opening being preferably crescent-shaped. Between the two bridge-walls to some distance

below the recess rises the wall P, the three walls forming the chamber Q.

M is the combustion-chamber behind the rear wall, from which the heated air, &c., are conducted into the boiler-tubes.

R is the ash-pit, and K the door leading to it.

J is the door leading into the furnace underneath the inclined grate-bed H H.

Having now described my contrivance, I explain its operation.

The fresh or green coal being deposited on the inclined front of the grate, the flame is naturally directed rearward rather than upward more than with ordinary grates, thus improving the draft. When the flames reach the first bridge-wall, this draft is increased by reason of the recess D in line with the passage-way B, and the force of the fire, aided by gravity, precipitates much of the unburned substance into the chamber Q. There it is gradually consumed by the fierce flames passing through the recess. So much of the unburned substances as remain is carried on by the current through the passage-way B in the second wall and drops behind the second wall G into the combustion-chamber M. There it is gradually taken up and consumed by the heat of the flames passing over it. The main part of the flame passes over the wall G through the crescent-shaped opening C. It should be noted that the chief deposits of smoke, soot, &c., are made directly after a fresh firing, and until the next firing the flames have opportunity to consume these deposits. I find that very good effects can be obtained from my furnace even if the first bridge-wall be omitted. By having the front part of the grate-bed inclined and leaving a space between its lower end and the main grate-bed I not only improve the draft, but by allowing the hot coals to drop through between its bars onto the extension of the main bed I provide a very hot fire under the incline, thus aiding in the consumption of the fresh coal. When it is thoroughly ignited, it may be pushed back on the main grate, and through the space between the two parts of the bed it is convenient to stir the coals on the main floor

and pull out the clinkers. On account of the intense heat applied to the front portion of the grate-bed I prefer to make its bars of hollow pipe, through which water can be

5 kept flowing.

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

1. In a boiler-furnace, the combination of a boiler, a horizontal grate, a supplemental
10 rearwardly-inclined grate above, and spaced from, the front portion of said horizontal grate, a bridge-wall, provided at its top with a central transverse recess, a second bridge-
15 wall behind and spaced from said first-mentioned bridge-wall, said second wall having a passage-way therethrough, and extending upward around the boiler and having a recess thereunder, and a lower wall between the two
20 bridge-walls, said walls forming a chamber, substantially as described.

2. In a boiler-furnace, the combination of a boiler, a horizontal grate, a supplemental rearwardly-inclined grate above, and spaced

from, the front portion of said horizontal grate, a bridge-wall provided at its top with
25 a central transverse recess, a second bridge-wall behind, and spaced from said first-mentioned bridge-wall, said second wall having a passage-way therethrough and extending upward around the boiler and having a recess
30 thereunder, substantially as described.

3. In a boiler-furnace, the combination of a boiler, a bridge-wall provided at its top with a central transverse recess, a second
35 bridge-wall behind and spaced from, said first-mentioned bridge-wall, said second wall having a passage-way therethrough and extending upward around the boiler and having a recess thereunder, substantially as described.

In testimony of which I have signed this
40 specification before two witnesses.

JOHN SIEBEL.

Witnesses:

A. LINCOLN DEMBITZ,

HENRY W. BUSCHEMEYER.