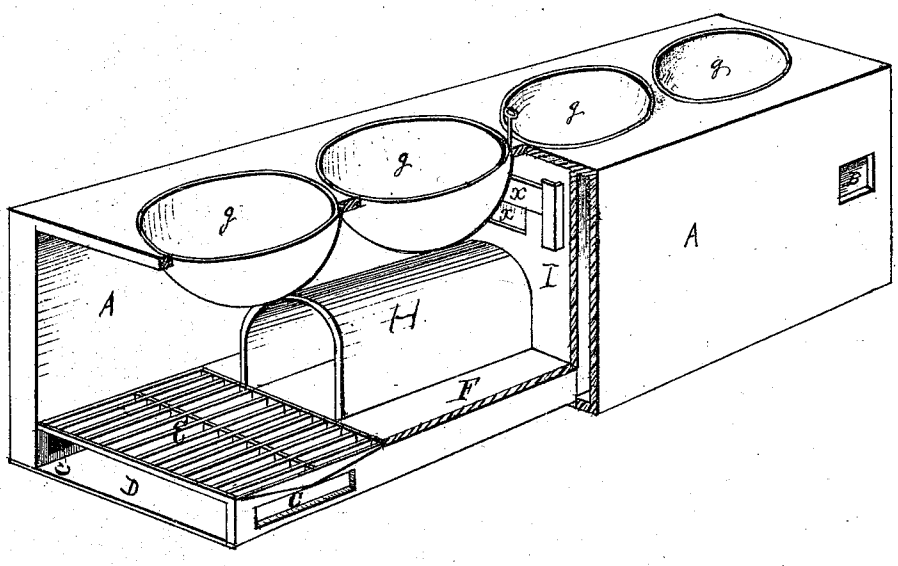
W. J. Dodge,

Salt Furnace.

No. 105,786. Patented July 26. 1870.



WITNESSES.

Jno. Duncan

F. A. Mosley

INVENTOR.

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United States Patent Office.

WILLIAM JAMES DODGE, OF SYRACUSE, NEW YORK.

Letters Patent No. 105,786, *dated July* 26, 1870.

IMPROVEMENT IN FURNACES FOR SALT-BOILING.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM JAMES DODGE, of Syracuse, in the county of Onondaga and State of New York, have invented a new and improved Furnace for Salt-Boiling, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a sectional view of the same with my improvements.

Similar letters of reference indicate like parts.

My invention consists in constructing the side walls of my arch hollow, with openings at the rear ends for the admission of cold air, regulated by dampers, and at the front ends, beneath the fire-grate, for the admission and supply of the same for the fire, the openings to the ash-pit being closed by dampers or drop, as desired, thus causing the draught of air for the fire to come through the walls.

I then, for the purpose of distributing the heated air and gases equally through the length of the arch, thus bringing the same in contact with the kettles, or other apparatus used for holding the liquids to be boiled or evaporated, at different points, without loss by radiation or absorption through the arch walls, divide the ordinary air or draught-chamber into sections, as many as shall be desired, by partitions, of any suitable material, having adjustable dampers, at and across the upper part, to regulate the draught through each.

I construct as large an independent flue, made circular, with one flat side, to rest the same upon, on the hearth, as can be readily placed within the arch, not coming in contact with any portion of the same, except the hearth upon which it rests.

This flue I make of materials to withstand heat, and in short sections, so as to be easily handled and placed, the end of one section butting against the next, thus forming a continuous flue.

I place one end of this flue immediately back of the fire, and continue the same to the first partition, and through the same, discharging its contents behind the same, and into the second section. If more sections are used I insert a smaller flue in the rear end of the first, thus continuing the draught to the third section, and repeat the same as often as desired.

In the accompanying drawing—

A A are the side walls of the arch, hollow.

B is the opening in same for cold air.

C C are the openings beneath the fire-grate for admission of air to fire.

D, ash-pit.

E, grate.

F, hearth.

g g g, kettles.

H, independent flue.

I, partition.

x x, damper in partition and opening.

By these means all loss by radiation through the side walls is saved, and the heat is utilized and distributed as desired, thus producing much greater results from the fuel, and economy in manufacture, at a very slight cost.

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

1. The flue H, placed in the rear of the combustion-chamber or grate E, and so arranged as to convey a portion of the heated gases from the furnace E to the rear kettles, without said heated gases coming in contact with the front kettles *g* or the side walls A A, while on the way from the furnace to said rear kettles, thereby distributing the heat to the series of kettles more evenly, as specified.

2. The hollow walls A A, with ports B and C, furnace E, distributing-flue H, and stop wall I, with regulating-damper *x* and kettles *g*, all constructed and arranged as herein shown and described, and for the purpose specified.

The above specification of my invention signed by me this 27th day of April, 1870.

WM. JAMES DODGE.

Witnesses:

F. A. MORLEY,

SAML. DUNCAN.