

A. E. BAUM & A. SCHOEL.
HEATING RADIATOR.
APPLICATION FILED MAY 18, 1912.

1,059,262.

Patented Apr. 15, 1913.

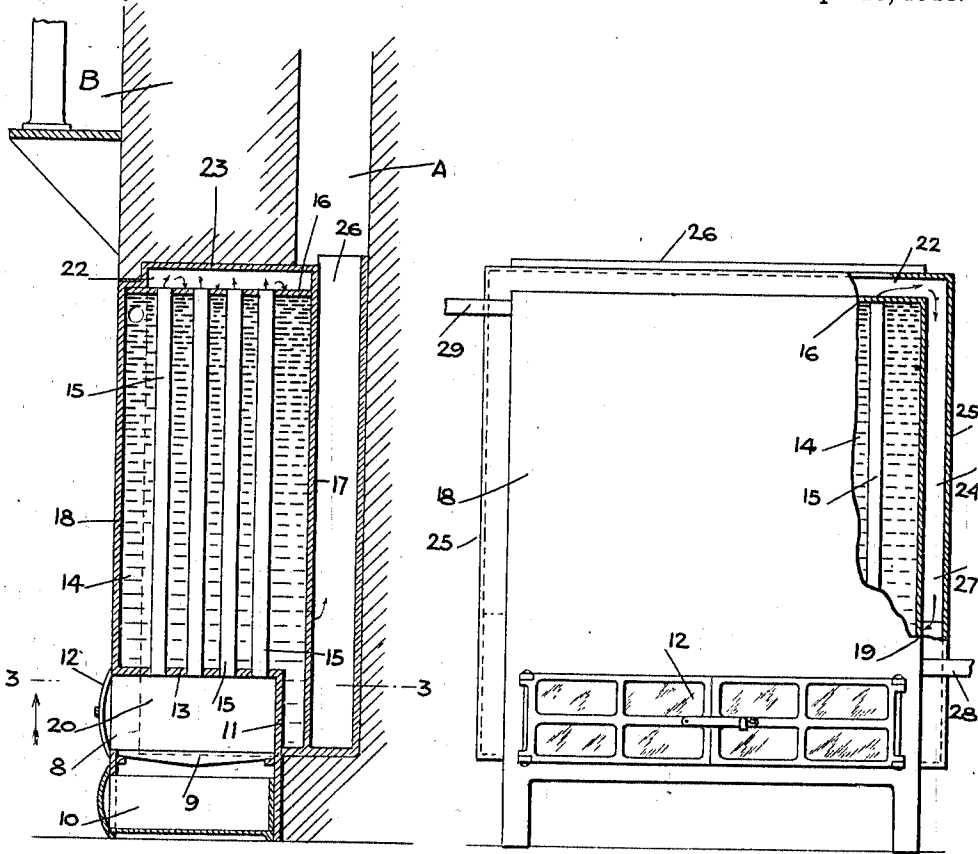


Fig. 1.

Fig. 2.

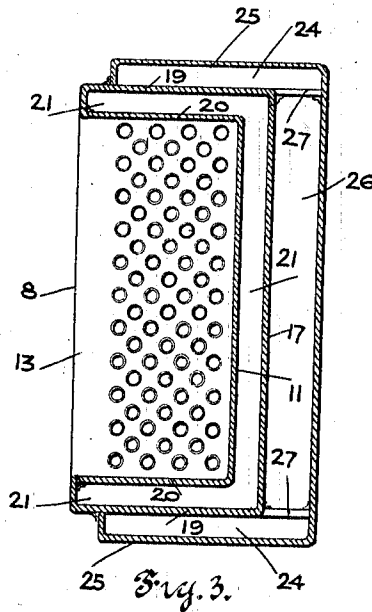


Fig. 3.

WITNESSES
Benedict Joffe
E. M. Munk

INVENTORS
Albert E. Baum
August Schoel
BY *M. M. Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

ALBERT E. BAUM AND AUGUST SCHOEL, OF WATERLOO, IOWA.

HEATING-RADIATOR.

1,059,262.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed May 18, 1912. Serial No. 698,166.

To all whom it may concern:

Be it known that we, ALBERT E. BAUM and AUGUST SCHOEL, both citizens of the United States, and residents of Waterloo, in the county of Blackhawk and State of Iowa, have invented a new and Improved Heating-Radiator, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to provide a heater adapted for installation in the usual fire opening of a chimney-breast, employing water as a storage medium; and to provide a boiler for a heater of the character mentioned, simple and economical in construction and adapted to provide free and easy circulation of heated air.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a vertical cross section of a chimney structure, showing as applied thereto a radiator constructed and arranged in accordance with the present invention; Fig. 2 is a front view of the same, partly cut away at one side to show the circulating passages provided in the construction; and Fig. 3 is a horizontal section taken on the line 3—3 in Fig. 1.

As seen in the accompanying drawings, the heater comprises a fire-box or pot 8, having grate bars 9 and an ash-pan 10, all of any desired and usual construction.

Where desired, it will be understood that any suitable form of gas fuel heater may be employed as a substitute for the heater herein shown, wherein the form of fuel is preferably small-sized coal.

The box 8 is in part formed by a plate-metal back 11, sides of the same material, a door 12, and a tube-plate 13. The back 11 and sides thereof, together with the tube plate 13, form the major portion of the bottom structure of a boiler 14. The boiler 14 is provided with a series of hot-air tubes 15, which are vertically disposed, and pass through a tube plate 16, which forms the top of the boiler 14. A back plate 17, front plate 18 and outer side plates 19 constitute the remainder of the structure of the boiler.

As shown best in Fig. 3 of drawings, the back plate 17 and the side plates 19, in conjunction with the back 11, and sides 20 of the fire-box, form a water-containing pas-

sage or jacket 21, which surrounds the fire-box, and, as seen in Fig. 1 of drawings, by the dotted lines therein, extends slightly below the upper surface of the grate-bars 9.

Above the tube-plate 16 is formed a flue passage 22, this passage being formed by a plate 23 extended across the structure. The passage 22 is provided to receive the hot air or gas delivered by the tubes 15, and to be thereafter carried to the vertical passages 24 formed at each side of the boiler by added plates 25, which form box flues for the delivery of the air to a main flue 26 at the back of the boiler and of the back plate 17 thereof. The communication between the passages 24 and the flue 26 is disposed adjacent the lower end of said flue 26, the side walls 27 of the flue 26 terminating above the lower end of said flue, as seen best in Fig. 3 of drawings. The open upper end of the flue 26 is disposed in service in delivery relation to the flue A of the chimney structure B.

It will now be seen that when a fire is produced in the box 8, the heated gases therefrom pass upward through the tubes 15 to the passage 22, and thence, by way of the passage 24, down the sides of the boiler 14, to be delivered to the flue 26, and thence to the open air through the flue A of the chimney structure B. It will also be observed that the direct heat of the combustion within the box 8 is imparted through the thin walls 11 and 20 to the water surrounding the box as a water jacket. In this manner provision is made for the maximum transfer of the heat generated in the box 8 to the water in the boiler 14. The circulation of the water in the boiler 14 is provided by means of inlet pipes 28 and outlet pipes 29.

It will be understood that any safety devices usual to constructions of this character may be provided.

Having thus described our invention, we claim as new and desire to secure by Letters Patent:—

A heating radiator, comprising a boiler having a front radiating plate shaped to fill a fireplace opening provided in a chimney-breast for a grate; a fire-box for said radiator disposed within said boiler and surrounded as by a water-jacket, by the lower end of said boiler; a hot-air flue disposed at the back of said boiler to register with the smoke-flue of the chimney; a plurality of hot-water tubes mounted in the top and bottom plates of said boiler; a smoke-flue

extending across the top of said boiler and
down the sides thereof to deliver into said
first-mentioned smoke-flue, adjacent the bot-
tom thereof, to envelop said boiler on all but
5 the front side and below the said fire-box,
with the flues for carrying off hot air and
burnt gases.

In testimony whereof we have signed our

names to this specification in the presence of
two subscribing witnesses:

ALBERT E. BAUM.
AUGUST SCHOEL.

Witnesses:

THEO. PECK,
W. H. BENTLEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."