

(No Model.)

R. GAUL.
FURNACE.

No. 603,272.

Patented May 3, 1898.

Fig. 1,

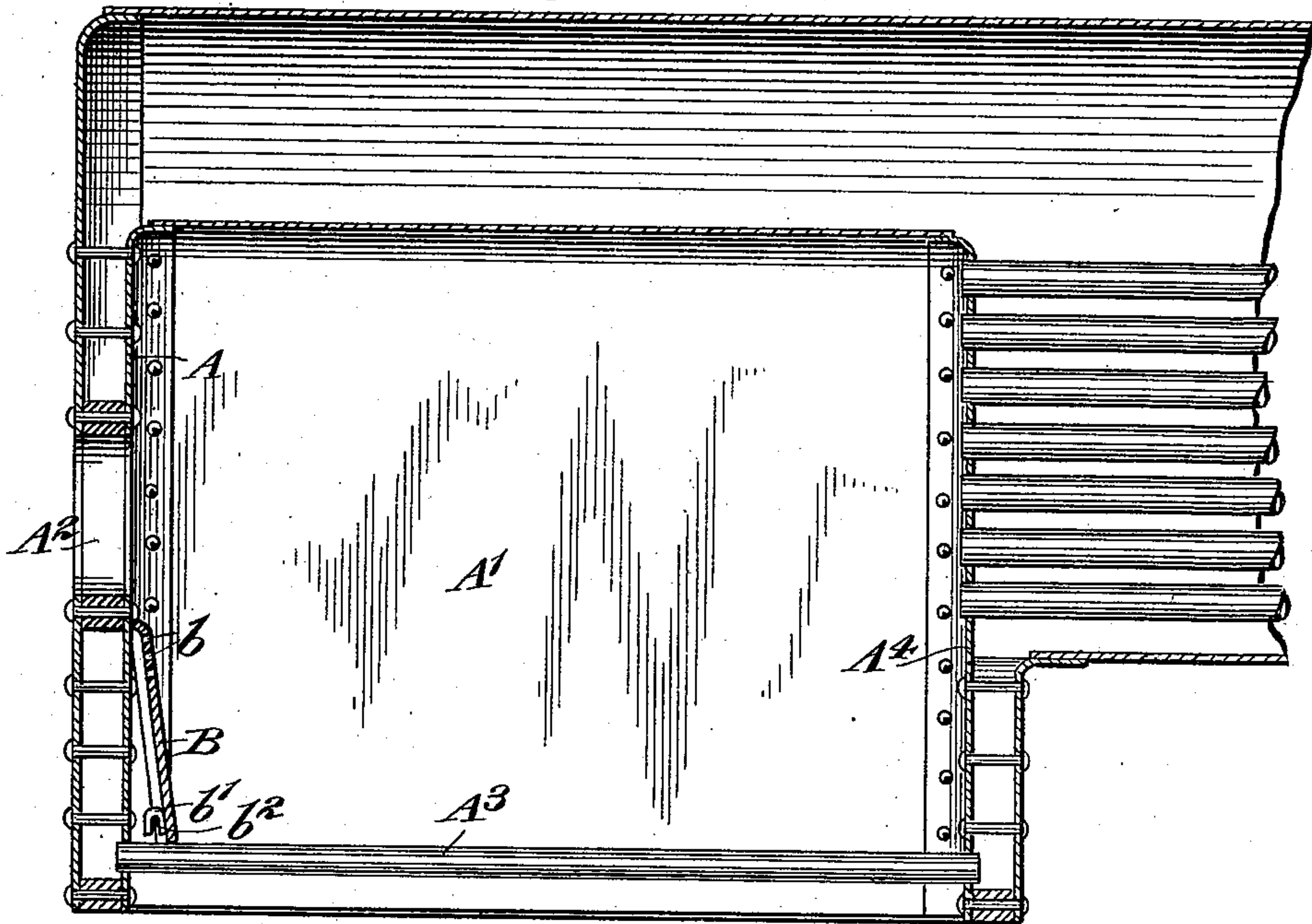
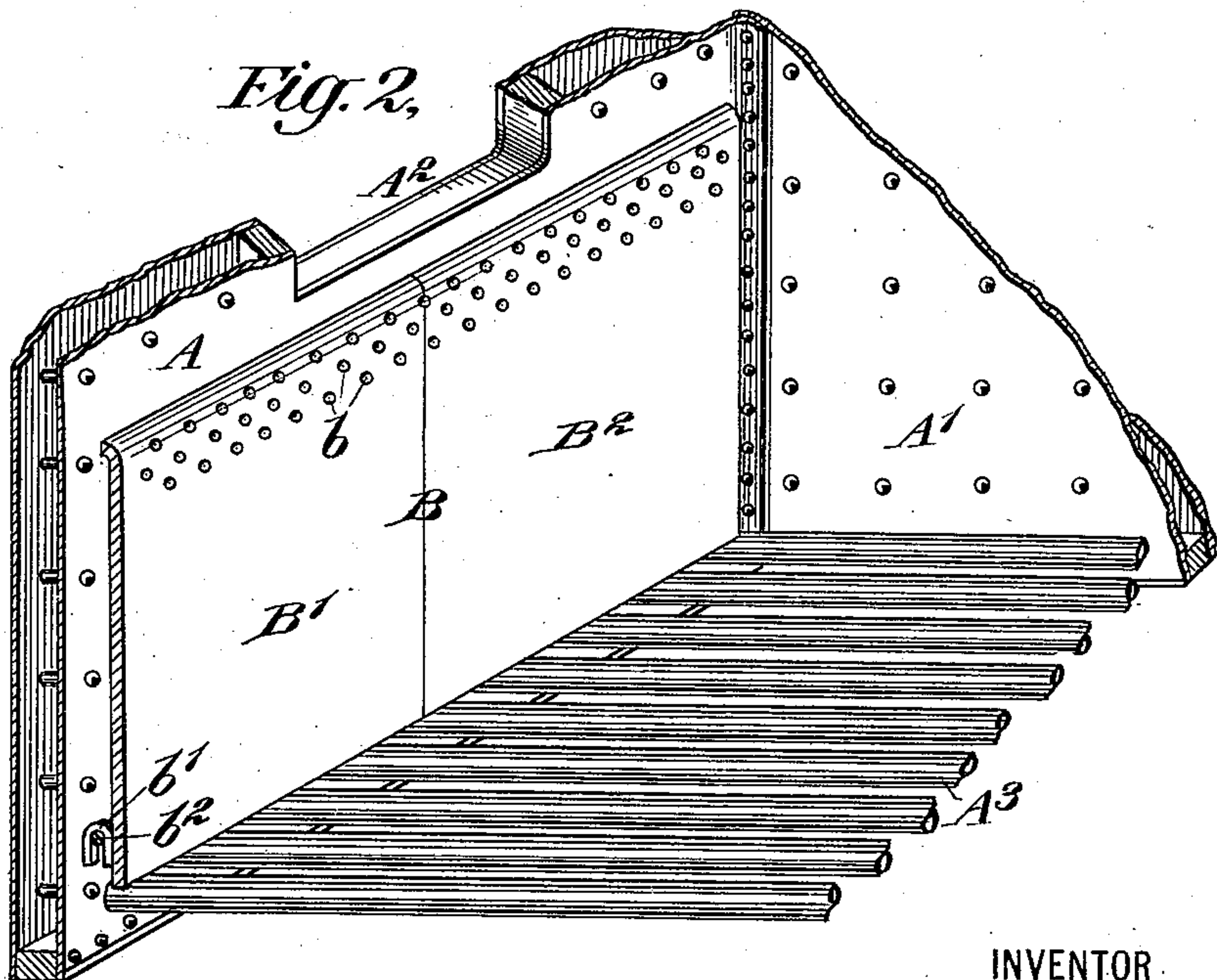


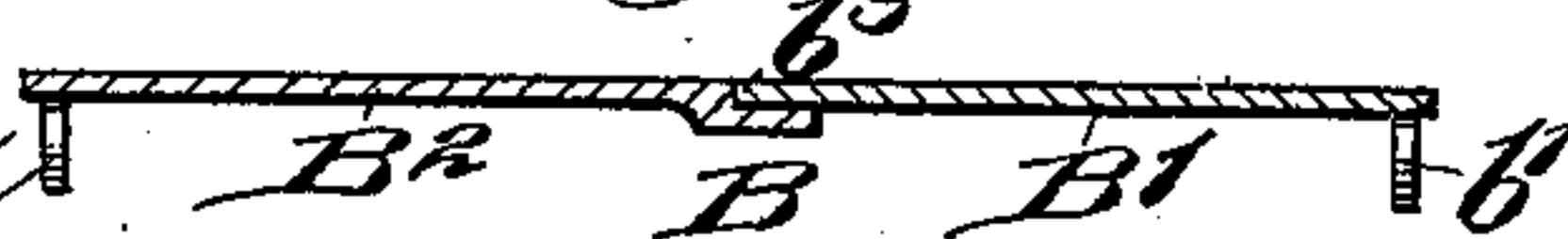
Fig. 2,



WITNESSES:

N. H. Hayward
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Fig. 3,



INVENTOR

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UNITED STATES PATENT OFFICE.

RAY GAUL, OF BROOKLYN, NEW YORK.

FURNACE.

SPECIFICATION forming part of Letters Patent No. 603,272, dated May 3, 1898.

Application filed March 1, 1897. Serial No. 625,575. (No model.)

To all whom it may concern:

Be it known that I, RAY GAUL, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement
5 in Furnaces, of which the following is a specification.

My invention relates to an improvement in furnaces in which an air-plate is located at the door end of the furnace for increasing the
10 combustion of the fuel therein.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 represents a longitudinal vertical
15 section through a portion of a locomotive boiler and furnace with my improved air-plate shown in position therein. Fig. 2 is a view in perspective of a portion of the boiler and furnace, showing more clearly the air-plate
20 and its outlet-openings; and Fig. 3 is a horizontal section through the plate, on a considerably-reduced scale, showing the manner of engaging the two sections which form the plate.

25 The boiler and furnace which I have represented are of the well-known type used in locomotives in which a water-space is formed between the walls of the furnace and boiler, the grate being shown as being made of water-
30 tube bars.

The door end of the furnace is denoted by A and its side walls by A'. Communication is obtained with the interior of the furnace through a suitable opening A², the door itself
35 not being shown in the accompanying drawings.

The water-grate is denoted by A³, the bars of which are spaced apart and extend from the door end A to the draft end A⁴ of the furnace at the base thereof. The air-plate is denoted by B, and it is spaced from the door end A of the furnace-box between its bottom and top, the bottom of the plate preferably resting upon or in close proximity to the grate A³
45 and its top extending to a point near the door-openings A². The top of the plate is provided with a number of perforations b, through which the air between the air-plate B and the end plate A is allowed to escape. These perforations
50 are so located that they feed the air very evenly along the door end of the furnace, at which point it is more effective than any other. The air is admitted through the

grate A³, thereby causing a constant current between the plate B and end plate A, whereby
55 the plate B is kept at a sufficiently low temperature to prolong its life to a considerable extent.

The plate B is preferably provided with suitable hooks b' at its bottom, which hooks
60 are adapted to engage suitable studs or lugs b², projecting from the sides of the furnace-box. The air-plate will thus be held positively at its bottom at the desired distance from the end plate A and yet at the same
65 time being easily removed when so desired.

The air-plate is preferably made in sections. In the present instance two, B' B², are shown at b³ to prevent a liability of the plate giving
70 away at that point.

By locating the air-plate as above described I am enabled to admit the air all the way across the furnace and distribute the same at the point where it will do most good, the plate at the same time being easily removed
75 or put in.

While I have shown the air-plate in connection with a locomotive furnace and boiler, it is evident that the same can be used in connection with any of the different styles of fur-
80 naces and boilers, and it is also evident that slight changes may be made in the construction and arrangement of the plate and that the number of distributing air-outlet openings in the plate may be varied to suit differ-
85 ent requirements without departing from the spirit and scope of my invention. Hence I do not wish to limit myself strictly to the particular form herein set forth; but

What I claim is—

90 The combination with a furnace-box, of a removable air-plate extending along one end of the same with its top in engagement with the end wall, the said air-plate being provided with hooks at its bottom adapted to engage
95 studs or lugs projecting from the sides of the furnace-box for removably holding the bottom of the plate spaced from the end wall to form an air-space, the said plate being further provided with air-distributing openings
100 near its top, substantially as set forth.

RAY GAUL.

Witnesses:

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EDWARD VIESER.