(No Model.)

D. S. RICHARDSON.

HOT AIR FURNACE.

No. 304,666. Patented Sept. 2, 1884.

Fig. 1

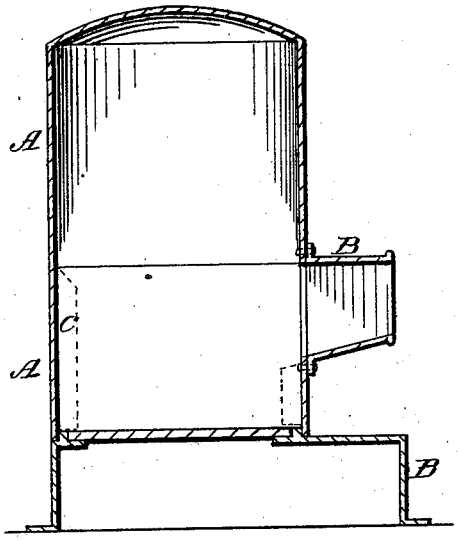
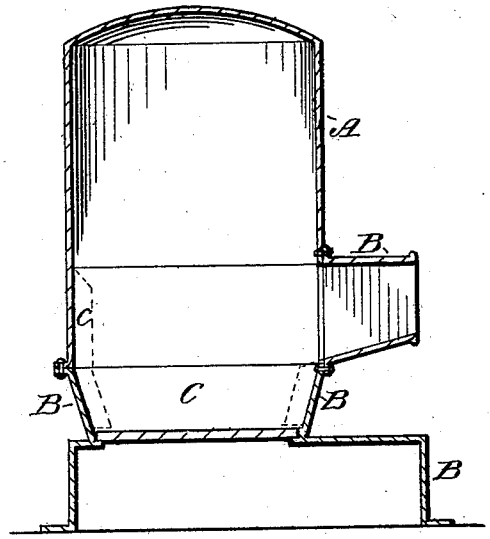


Fig. 2



WITNESSES

Robt. Haase

Walter D. Dodge.

INVENTOR

Dwight S. Richardson

By J. L. Ashley

Attorney

UNITED STATES PATENT OFFICE.

DWIGHT S. RICHARDSON, OF BROOKLYN, NEW YORK.

HOT-AIR FURNACE.

SPECIFICATION forming part of Letters Patent No. 304,666, dated September 2, 1884.

Application filed October 13, 1883. (No model.)

To all whom it may concern:

Be it known that I, DWIGHT S. RICHARDSON, a citizen of the United States, and a resident of the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Hot-Air Furnaces, of which the following is a full, clear, and exact description.

My invention relates to the body or shell of which the furnace is composed; and it consists in the substitution, for the ordinary wrought-iron or cast-iron body or shell, of a body or shell which is composed either wholly or mainly of steel.

From the beginning of the period during which hot-air furnaces have been used the shell or body has generally been constructed of cast-iron; but a belief having become quite prevalent that injurious gases, evolved in the process of combustion of the fuel, escaped through such cast-metal shell into the surrounding hot-air chamber, a demand has arisen for a construction in which this objection will be avoided; and in some recent instances portions of the shell have been composed of wrought-iron. This also having failed to give entire satisfaction, I have in this invention provided for the substitution of steel, in whole or in part, for the materials heretofore employed. This material, from the great compactness with which, in the process of its formation, its minute granular constituents are brought together, effectually prevents the escape of all deleterious gases, and is also more durable than any other which has been employed for a like purpose. The impermeability of this material by any gases generated in the combustion-chamber constitutes the most valuable feature in this invention; but incidental advantages are found in its power to resist fracture when being bent at an angle in the process of forming the shell, and in its greater cheapness as compared with the finer kinds of iron.

It is obvious that the invention is adapted as well to stoves as to furnaces.

In the drawings, Figures 1 and 2 each represent in vertical, longitudinal, central section a hot-air furnace which embodies my invention.

In both the figures, A represents the shell, or the main body thereof, which is composed of steel; and B designates the parts which are but slightly, if at all, exposed to the pressure of the injurious gases which are produced within the furnace, and which are composed of cast-iron or of wrought-iron, C being the ordinary fire-brick lining of the fuel-chamber or fire-pot.

It will be seen that a clear distinction exists between the combustion-chamber of a hot-air furnace, into which air is freely admitted and from which it is freely and continuously discharged, and a tank for soda-water, which is closed at all points when in use, and from which escape is permitted only at intervals.

Having thus described my invention, what I desire to claim, and secure by Letters Patent, is—

A hot-air furnace in which the body or shell is composed of steel, substantially as described.

DWIGHT S. RICHARDSON.

Witnesses:
HENRY RICHARDSON,
GEO. W. COLVER.