2 Sheets—Sheet 1.

# J. REYNOLDS.

## Portable Furnace.

No. 112,961. Patented Mar. 21, 1871.

Fig: 1

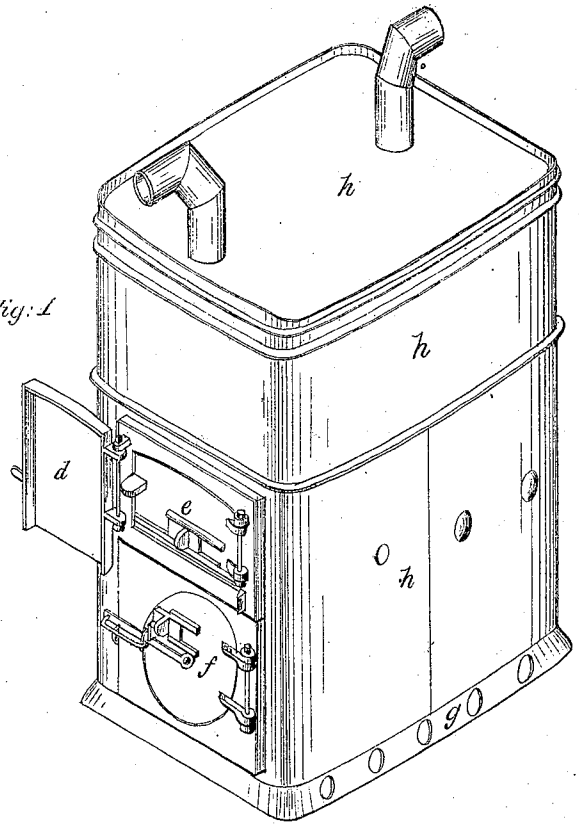
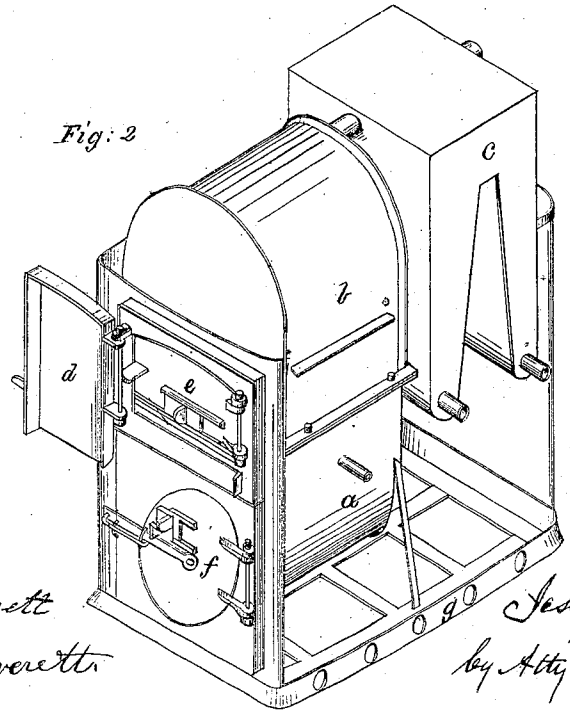



Fig: 2

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by Atty Thos. P. Everett

2 Sheets—Sheet 2.

# J. REYNOLDS.

## Portable Furnace.

No. 112,961. Patented Mar. 21, 1871.

Fig: 3.

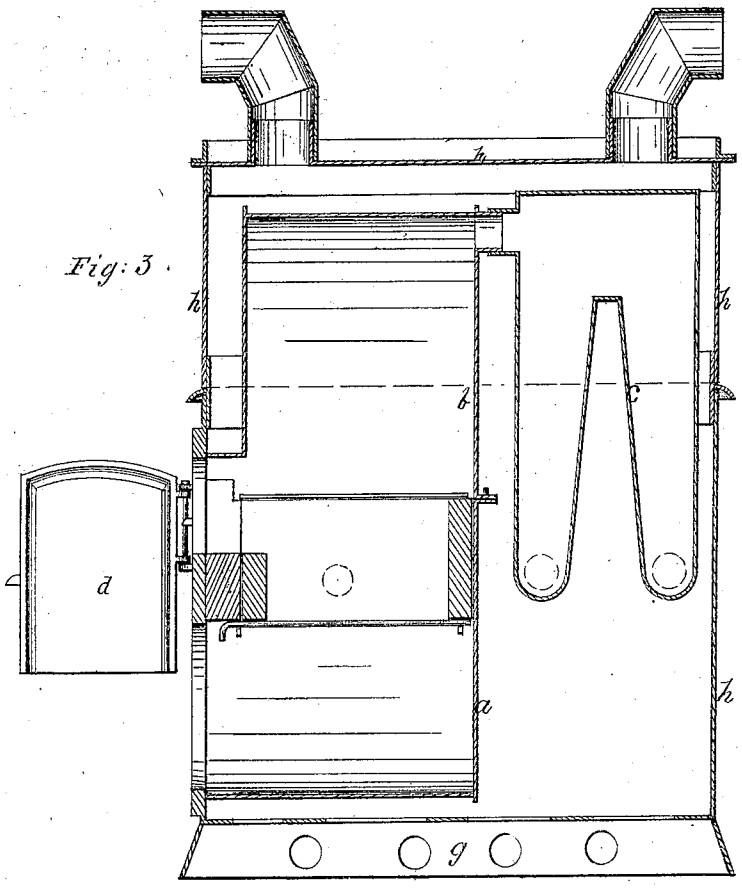
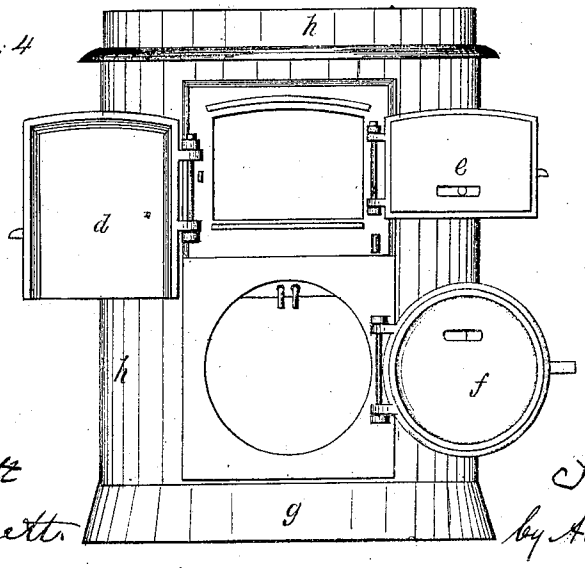



Fig: 4




Witnesses

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# UNITED STATES PATENT OFFICE.

JESSE REYNOLDS, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN PORTABLE FURNACES.

Specification forming part of Letters Patent No. **112,961**, dated March 21, 1871.

*To all whom it may concern:*

Be it known that I, JESSE REYNOLDS, of the city of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Portable Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, and to the letters and marks thereon, which said drawing forms part of this specification, and shows a portable furnace and parts thereof as constructed under my invention—

Figure 1 being a view of a furnace complete for use, in elevation; Fig. 2, a view, also in elevation, of a furnace without the exterior covering or shell being a part thereof; Fig. 3, a view, by vertical section, of Fig. 1; and Fig. 4, a front view of the furnace shown by Fig. 1.

In each of these figures, where like parts are shown, like marks and letters are used to indicate the parts.

My invention relates to that class of furnaces intended for heating air for dwellings and other buildings wherein the cold air is passed over the heated surfaces of the furnace, and when heated is distributed to the rooms of the building, or to such portions thereof as may be desirable, when such furnaces are so constructed and arranged as to be removed readily as a whole, and without detaching of any of the parts thereof. In the trade this kind of furnace is known as a "portable furnace."

More commonly furnaces for heating buildings are of cast-iron. This is the character of most furnaces in use, whether made to be surrounded by brick-work or by metal.

A material objection to the use of cast-iron is the permeability of the cast metal to the gases produced by combustion of the fuel, which become mixed with the atmospheric air being heated, rendering such air impure and deleterious.

Another objection arises from the difficulty of forming tight joints without the aid of packing or cement.

Another objection to the use of cast-iron arises from the liability of cast-iron plates to crack under the changes of temperature to which the heating-plates are subjected.

In order to avoid these objections, and others of less importance, I construct my portable furnace, with the exception of the doors and base-piece, entirely of wrought-iron, which may be surrounded by a zinc, galvanized-iron, or other sheet-metal shell, and which, when so surrounded, will be a perfect and complete portable furnace, that can as readily and easily be moved, set up, or taken down as an ordinary stove.

When a furnace is thus constructed it can be used with or without dampers, as may be most desirable to adapt it to any peculiar location.

The drawing of this specification shows how a furnace of one form may be made, and from which it will readily be perceived how my invention may be adapted to other forms.

By this drawing the body of the furnace is shown made up of three parts, *a b c*, which are joined to each other by screw-bolts or any other suitable means. The plates of each of these parts are of heavy plate or sheet iron, riveted together as in the manner of constructing steam-boilers, so that the several parts or plates will have the same degree of expansion or contraction when the furnace is in use.

The feed and draft doors *d e f* are made of cast-iron, and have collars or flanges on their inner part, which fit tightly and securely in corresponding collars or surfaces projecting from the body-plates, thus enabling the furnace to be fitted up air-tight.

The door *f* is provided with a brass slide, planed and nicely adapted, fitting and moving over an aperture in the door, and is used to regulate the admission of air for draft, or checking it to control draft. The beveling of the edge on the door and frame and a slight curving or bending of the latch serve to prevent damage to the frame by the expansion of the door when hot, the door relieving itself.

*g* is the cast-iron bottom frame-work on which the structure rests, and is also a support for the casing. It is open for the admission of cold air.

The casing or shell *h* may be of galvanized sheet-iron, tin, Russia sheet-iron, or other similar material.

I claim as my invention—

The portable furnace *a b c*, having air-tight doors *d e f*, the body of the furnace being made of plate or wrought iron riveted together like the plates of a steam-boiler, incased in a sheet of galvanized iron or similar material, and constructed substantially as herein recited.

This specification signed by me this 9th day of August, 1870.

JESSE REYNOLDS.

Witnesses:
LEWIS GODBOU,
G. W. TAYLOR.