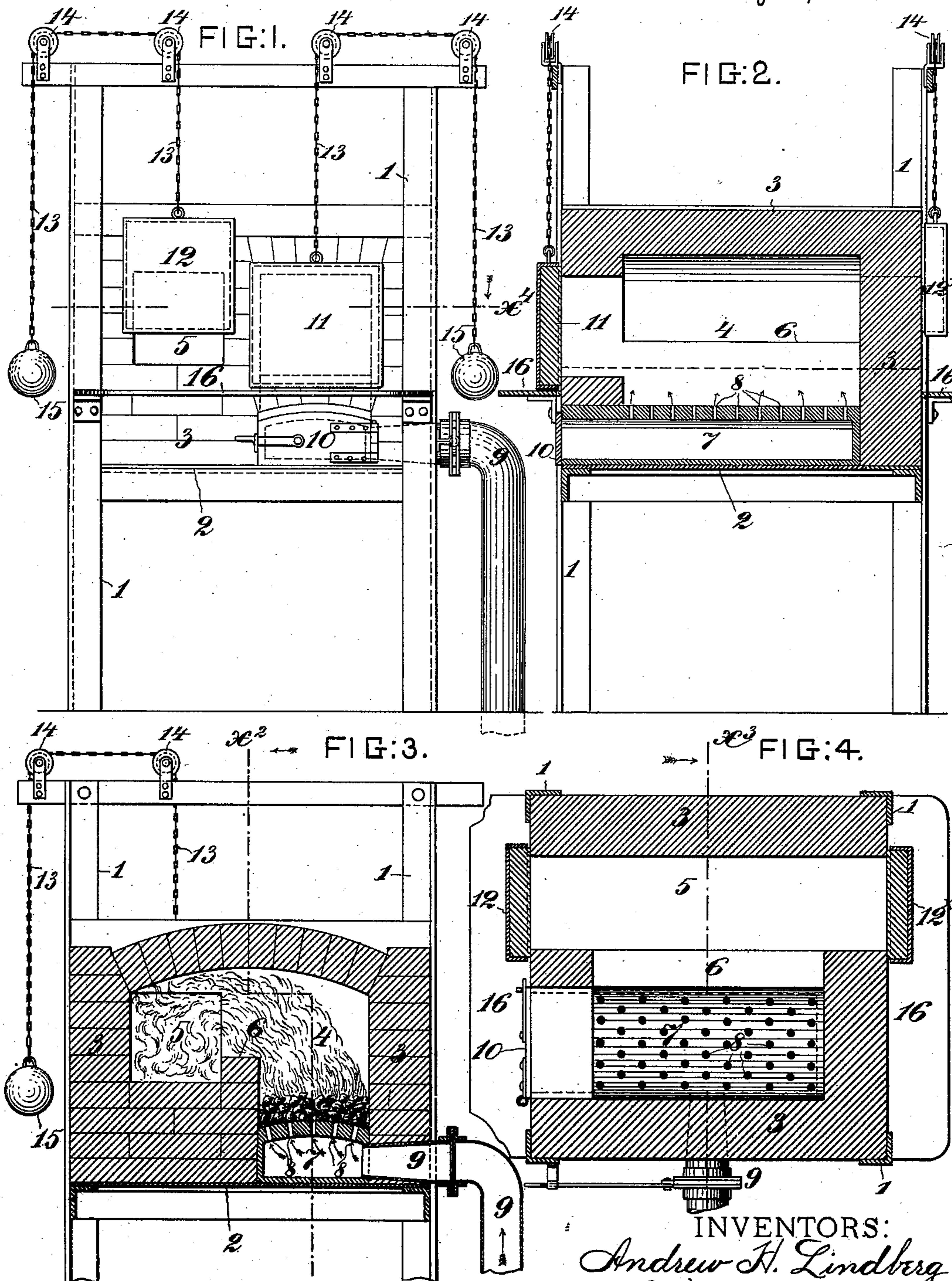


(No Model.)

A. H. & F. J. LINDBERG.
FURNACE FOR HEATING RIVETS OR FOR SIMILAR USES.

No. 603,470.

Patented May 3, 1898.



WITNESSES:

J. H. H. im an
Peter A. Ross

INVENTORS:

Andrew H. Lindberg
Fritz J. Lindberg

By

Henry Cornett
Attorney.

UNITED STATES PATENT OFFICE.

ANDREW H. LINDBERG AND FRITZ J. LINDBERG, OF NEW YORK, N. Y.

FURNACE FOR HEATING RIVETS OR FOR SIMILAR USES.

SPECIFICATION forming part of Letters Patent No. 603,470, dated May 3, 1898.

Application filed January 17, 1896. Serial No. 575,914. (No model.)

To all whom it may concern:

Be it known that we, ANDREW H. LINDBERG and FRITZ J. LINDBERG, citizens of the United States, and residents of the city, county, and State of New York, have invented certain new and useful Improvements in Furnaces for Heating Rivets or for Similar Uses, of which the following is a specification.

This invention relates to furnaces for heating articles, and particularly for heating rivets in considerable quantities; and the object is to provide a simple and inexpensive furnace requiring no chimney in which rivets or the like may be uniformly heated in mass in considerable quantity very quickly and without contact with the fuel.

The accompanying drawings illustrate an embodiment of the invention.

Figure 1 is a front elevation of the furnace. Fig. 2 is a vertical section in the plane indicated by the line x^2 in Fig. 3. Fig. 3 is a transverse vertical section in the plane indicated by the line x^3 in Fig. 4. Fig. 4 is a horizontal section in the plane indicated by the line x^4 in Fig. 1.

1 represents a suitable skeleton frame made of angle-iron. In this frame is a metal floor 2, which supports the brickwork 3 of the furnace. Within this brickwork are included a combustion-chamber 4 and a heating-chamber 5, these chambers being arranged side by side, having an arched roof in common and being separated by a low bridge-wall 6. The chambers extend from front to rear, and the chamber 4 is recessed at its bottom to receive an air-box 7, which may be of cast-iron. This box is best illustrated in Figs. 2 and 3. It is open at its front end, has an arched top furnished with apertures or perforations 8, and receives a blast of compressed air at the side through an air-inlet pipe 9. The box 7 rests on the plate or floor 2, and its crown forms a bed for the fuel in the combustion-chamber. The open front end of the box 7 is closed by a tightly-fitting door 10, which permits of access to the box from time to time for the removal of dust and ashes that may pass down through the apertures 8.

The open front ends of the chambers 4 and 5 are closed, respectively, by closely-fitting sliding doors 11 and 12, suspended each from a chain 13, which passes over sheaves 14 on

the elevated part of the frame 1 and is supplied at its other end with a weight 15 to counterbalance the weight of the door. The doors 11 and 12 are not mounted in keepers or guides, but are merely suspended and free to swing or move bodily outward under pressure from the interior of the chambers, thus providing automatically for the gradual escape of gases should the internal gaseous pressure be too great. Each door will, by preference, be composed of a fire-brick or tile set in a metal frame.

Thus it will be seen that our furnace is small, compact, and portable and capable of being packed and shipped in its finished form, and as it has no chimney or chimney-flue it may be set up anywhere in a shop without reference to the position of the shop-chimney. In this respect the furnace presents all of the advantages of a portable forge combined with those of the larger stationary metallurgical furnaces.

The rivets to be heated are deposited on the floor or bottom of the heating-chamber 5 in considerable quantity, the fire started in the combustion-chamber, and coal or coke supplied. The doors are closed and air from a blower turned on at the inlet 9. Intense heat is generated, the hot gases passing over the bridge-wall into the chamber 5 and heating the mass of rivets. The hot rivets may be removed at any time by raising the door 12 and raking them out, and for convenience we prefer to provide the furnace with a metal shelf 16, which extends across the front of the furnace just below the door-openings of the chambers. We prefer also to provide the heating-chamber 5 with a door 12^x at its rear end, constructed and mounted in the same manner as the front door 12. This door 12^x makes it convenient to heat two kinds of rivets at the same time, one kind being charged and removed at the front and the other kind at the back of the chamber 5.

It will be obvious that in addition to the use of the heating-chamber in the manner described the fire in the combustion-chamber may be employed for all the purposes to which a blacksmith's forge is adapted, such as forging and welding, thus giving to the furnace, which is simple, inexpensive, and portable, a double utility.

It will be understood that our furnace is especially adapted to conditions where large numbers of rivets are being set and very rapidly. Under such conditions the ordinary portable forge is not available.

Having thus described our invention, we claim—

1. In a furnace for heating rivets, &c., the combination with a metal floor-plate, of a metallic box having a permanently-closed bottom, an open front, an opening at its outer side, and a perforated arched top or crown serving as the grate or the fuel-support, such box being inserted in the brickwork of the furnace and resting on said floor, a door on the furnace for closing the front of the box, and an opening in the side of the brickwork coinciding with the said opening in the box, and communicating with a blast-pipe adapted for discharging compressed air horizontally and directly into the box under the whole surface of its crown, as shown and described.

2. In combination with the air-box 7, having the closed bottom, open front, apertured side and arched perforated crown, the described combustion and heating chambers, the bottom plate 2 beneath them, the low wall between them, the guideless or unconfined counterweighted swing-doors 12, 12^x at front and rear of the heating-chamber and arranged to freely swing outward by the pressure of internal gases, all as shown and described.

3. A portable furnace having a combustion-chamber and a heating-chamber 5, provided with a bottom plate 2, and with the metal box

located underneath the combustion-chamber and side by side with but on a plane lower than that of the heating-chamber, and having a low brick wall between said chambers, and counterweighted doors at the ends of such chambers, adapted under undue internal pressure automatically to swing outward, and also to slide vertically without guideways, and serving by their own gravity to swing back to place and to hug tightly against the furnace to close its end openings, all as set forth.

4. The described rivet - heating furnace, having a skeleton angle-iron frame, a metal floor and brickwork supported thereon, the parallel chambers 4 and 5, the arched roof over both, the low bridge-wall, the air-box 7, inserted in an opening at the bottom of the combustion-chamber 4, and made with an open front, a thick and perforated arched crown or top, serving as a bed for the fuel, a closed bottom, an opening in its side, and a blast-pipe discharging into the box through such opening, and counterweighted swing-doors at front and rear of the heating-chamber, these parts being combined and operating as set forth.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

ANDREW H. LINDBERG.
FRITZ J. LINDBERG.

Witnesses:

PETER A. ROSS,
HENRY CONNETT.