(No Model.)

T. M. LINCOLN.

STOVE FOR HEATING OVENS FOR JAPANNING, ENAMELING, AND GLAZING.

No. 482,485. Patented Sept. 13, 1892.

Fig. 1

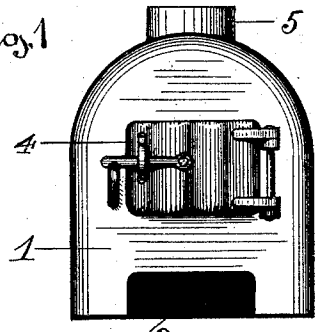


Fig. 3

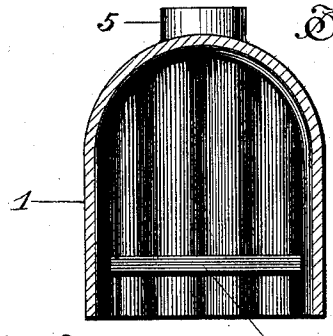


Fig. 2

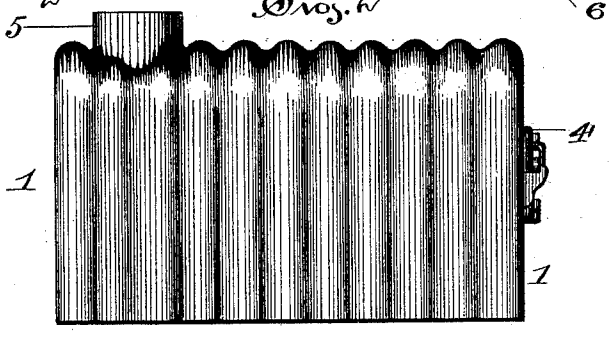


Fig. 4

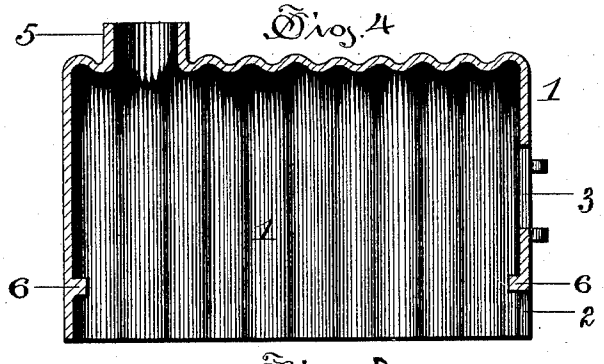
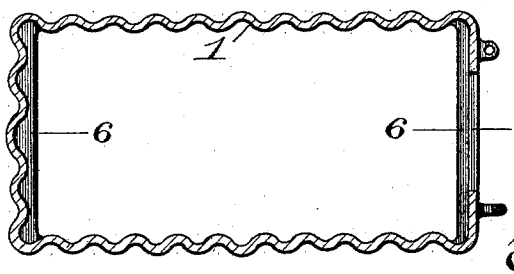


Fig. 5



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UNITED STATES PATENT OFFICE.

THEODORE M. LINCOLN, OF HARTFORD, CONNECTICUT.

STOVE FOR HEATING OVENS FOR JAPANNING, ENAMELING, AND GLAZING.

SPECIFICATION forming part of Letters Patent No. 482,485, dated September 13, 1892.

Application filed February 23, 1892. Serial No. 422,454. (No model.)

To all whom it may concern:

Be it known that I, THEODORE M. LINCOLN, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Stoves for Heating Ovens for Japanning, Enameling, and Glazing, of which the following is a full, clear, and exact specification.

This invention relates to the class of stoves which are set in ovens or kilns for heating, baking, and hardening enamel, japan, or glazing compositions coated upon articles placed therein to produce a fine surface or finish.

The object of the invention is to provide a stove of this class which shall be very simple and cheap to manufacture and so constructed that it will not readily burn out, crack, or tear apart under the molecular changes of the metal due to the strains produced by the expansion and contraction incident to the greatly-varying degrees of temperature to which such stoves are subjected, giving long life, and which construction results in a shape having a large radiating-surface, rendering the stove efficient with an economical use of fuel.

Referring to the accompanying drawings, Figure 1 is a front elevation of the stove. Fig. 2 is a side elevation. Fig. 3 is a vertical tranverse section with the grate removed. Fig. 4 is a vertical longitudinal section of the same, and Fig. 5 is a horizontal section.

In the views, 1 indicates the shell of the stove, which is to be set into a common oven or kiln of any desired plan and fired in some instances to a great heat, in order that by radiation it will produce a temperature to properly influence the composition on the articles placed in the oven. This shell is an integral casting, preferably of iron, which is cheap and easily manipulated, in the shape of a continuous stilted arch, (oblong in plan and arched in elevation,) with an open bottom, and with its ends closed by integral walls connected by round corners—that is, without an angular or sharp corner. The arch of the shell is corrugated with parallel rows of vertical flutes, and the rear end wall is preferably similarly corrugated, there being no angles between the corrugations. The front end wall is usually made plane, but without angles where it joins with the arch, with an ash-opening 2 and a fuel-opening 3, which is closed by a door 4, having a corrugated face, hinged to the front of the shell. From the crown of the arch, near the rear of the stove, with an opening to the interior, cast integral with the shell, is a hub 5, adapted to receive a pipe for conveying away the products of combustion and producing a draft. Preferably cast on the interior are ledges 6, upon which any common form of grate may be supported below the fuel-door to form a combustion-chamber above and an ash-pit below.

The shell, with an open bottom, a grate in position, and a smoke-pipe leading to the exterior, is set upon the floor of the oven or kiln in which the articles coated with bituminous, vitreous, or other enamel, japan, or glaze are placed. A hot fire is built and maintained in the stove, so as to keep the temperature of the oven quite high for a number of hours to melt and bake the composition upon the articles in the oven to produce the desired finish. During this process the stove becomes very hot and if made of thin metal would at once burn out, and on account of the greatly-varying degrees of temperature to which it is subjected during the firing the molecular action of the metal caused by the flames and the expansion and contraction is great, which where there are angular corners to resist soon tears the metal apart, making cracks and ruptures. In the form of stove shown the shell is made of a single cheap casting of iron so thick that it will not readily burn out, in the shape of an open-bottom arch, in order to have a free lateral expansion and contraction, with vertical corrugations to allow longitudinal action, and with no angular, but rounded, corners where the corrugated ends join the arch. The ends offer no rigid resistance to the expansion and contraction of the shell, which gives in all directions, whether the metal is contracting or expanding, under the varying temperature without pulling the molecules of the metal apart, causing weaknesses, ruptures and cracks. This shape also provides the largest possible amount of radiating-surface, so that the device is very efficient and requires but an economical amount of fuel to keep the oven heated to the proper temperature.

I claim as my invention—

1. A stove for an enamel, japan, or glazing

oven or kiln, formed of a single casting in the shape of a continuous arch having a corrugated wall, with integral end walls connected to the arch by circular corners, and having fuel, ash, and smoke openings, substantially as specified.

2. A stove for an enamel, japan, or glazing oven or kiln, formed of a single casting in the shape of a continuous arch having a vertical corrugated wall and end walls with vertical corrugations, connected to the arch by circular corners, and having fuel, ash, and smoke openings, substantially as specified.

THEODORE M. LINCOLN.

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