(No Model.)

P. KIEFER, Jr.

FURNACE FOR JAPANNING.

No. 307,204. Patented Oct. 28, 1884.

FIG. 1.

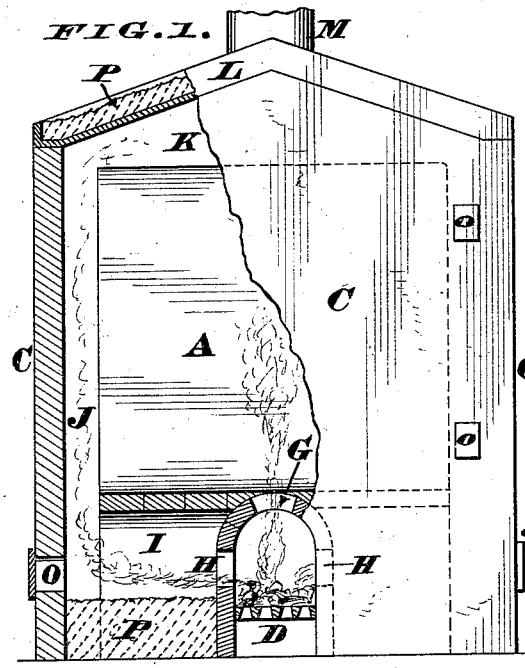


FIG. 2.

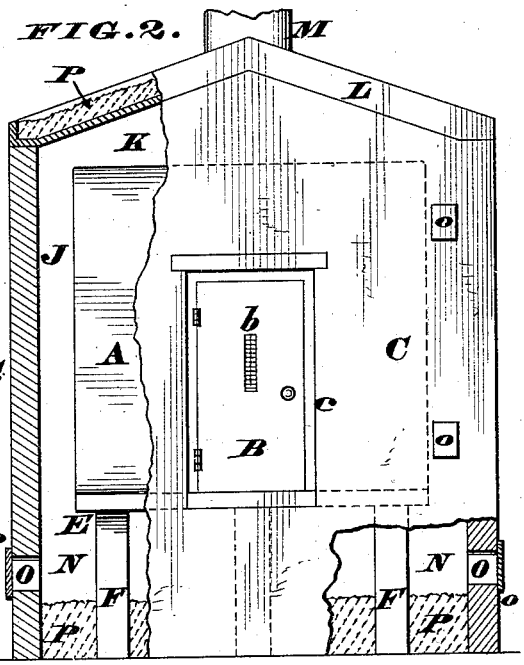
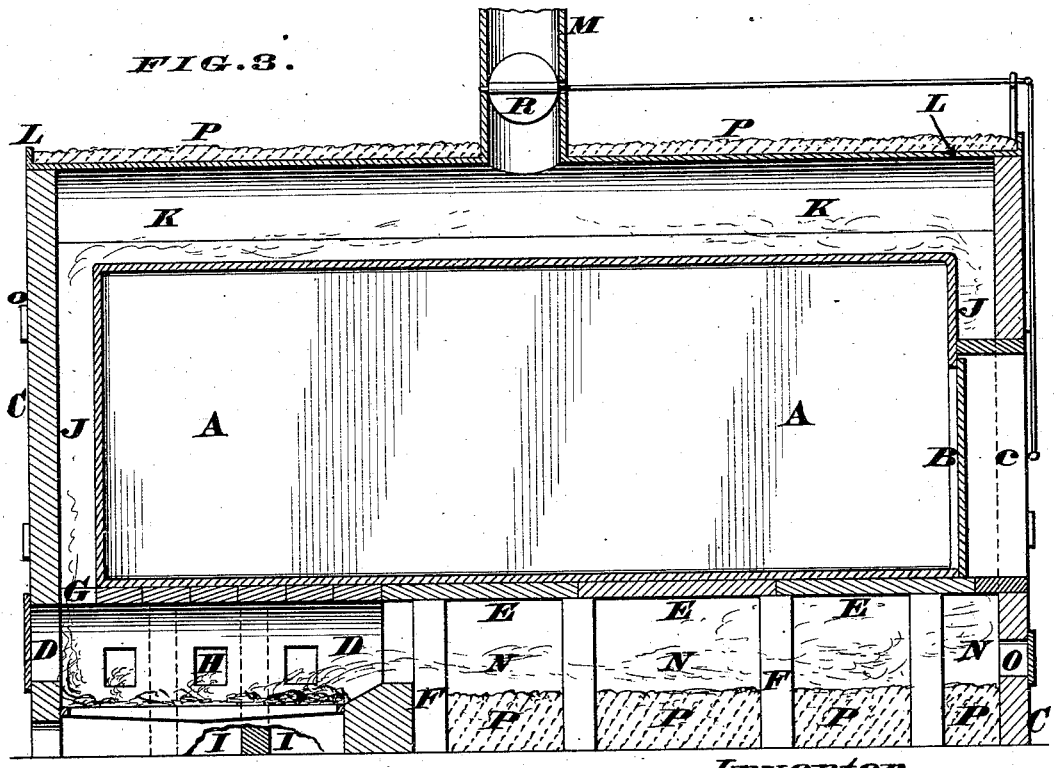


FIG. 3.



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FURNACE FOR JAPANNING.

SPECIFICATION forming part of Letters Patent No. 307,204, dated October 28, 1884.

Application filed March 22, 1884. (No model.)

To all whom it may concern:

Be it known that I, PETER KIEFER, Jr., a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Japanning-Furnaces, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of my invention is to provide a japanning-furnace that will be subjected to a uniform degree of heat on all sides, in order that the articles to be baked therein may be thoroughly coated without being burned. To accomplish this result I construct the oven proper of sheet metal of any desired thickness, and completely inclose it within a housing composed of masonry, a furnace or fire-box being preferably located at one end of said housing. This furnace extends back about one-third the length of the entire apparatus and sustains a portion of the oven, the remainder of the latter being supported on tiles or slabs that rest on suitable piers or columns. Furthermore, a passage is left between the ends and sides of the oven and the inclosing-walls, which passage serves as a flue, that allows the products of combustion to escape freely from the furnace and be discharged at the chimney, which latter projects from the roof of the apparatus and near its center. This roof is elevated a sufficient distance above the oven to allow the products of combustion to circulate over the latter before they escape at the chimney, a damper or register being fitted in said chimney for the purpose of regulating the draft.

In order to insure a uniform heating of the oven, the furnace has openings at its sides, which openings communicate with lateral flues that discharge into passages at the opposite sides of said oven, by which arrangement a thorough heating of the apparatus is effected on account of the products of combustion being allowed to circulate completely around the inclosed chamber within which the various articles are baked, as hereinafter more fully described.

In the annexed drawings, Figure 1 is a sectionized front elevation of my japanning-furnace. Fig. 2 is a sectionized rear elevation of the same. Fig. 3 is a vertical section taken through the center of the apparatus.

A represents the oven proper, which is made of sheet metal, and is closed on all sides except where the door B is placed, which latter is preferably located at the rear end of the apparatus, and is furnished with a thermometer, *b*, that indicates the temperature of said oven. Furthermore, this oven is completely inclosed within a housing, C, made of any suitable masonry, the rear wall thereof having a niche, *c*, that allows access to the door B. Built into the front wall of this housing is a furnace, D, of any suitable width and length, the arch thereof serving to support a portion of the oven or baking-chamber A, while the remainder of said oven rests on a series of tiles or slabs, E, composed of fire-clay or other refractory material. These tiles or slabs E are supported on a series of tiles or columns, F, properly disposed to sustain the weight of the oven and its contents. Located at the front end of the furnace-arch is an opening, G, while the opposite sides of said furnace are pierced at H, to communicate with a series of lateral flues, I, a separate flue being arranged for each of said passages H. The opening G and lateral flues I communicate with a passage, J, that extends completely around the oven, except where the niche *c* occurs, and said passage leads into a chamber, K, situated between the top of said oven and the roof L, from which roof the chimney M projects. Furthermore, this passage J communicates with the main flue N, that leads directly back from the furnace D.

O are openings in the wall, said openings being covered with suitable caps, *o*, the removal of which latter allows the dust, soot, &c., to be scraped out of the apparatus.

P is a filling of clay or sand or other cheap and non-combustible material, which filling is employed to diminish the area of flue N, and may be spread over the roof L, so as to prevent the radiation of heat from the latter, as it is usually made of sheet metal. Chimney M is provided with a damper or register, R, so arranged as to be operated from either side or end of the apparatus. After the articles to

be japanned are placed in the oven A, its door B is tightly closed, and a fire is started in furnace D, the damper R being first opened, so as to allow a free draft. The fire from the furnace does not find its exit solely through the direct flue N, but is broken up into numerous lateral currents that escape at the various openings G H, thereby producing an equal distribution of heat under the oven A. From the opening G and flues I N the fire escapes into and traverses the passage J, and finally enters the chamber K at the top of the apparatus, thereby circulating completely around the oven, and causing it to be heated in the most thorough and uniform manner, the damper R being set so as to maintain the temperature of the oven at any desired degree. Reference to Fig. 1 shows that the bottom of this oven would be speedily burned out were it not for the fact that it is protected by the arch of the furnace and the tiles or slabs E; hence it follows that the apparatus can be used for an indefinite time without being compelled to renew the plates composing the floor of oven A.

I am aware that it is not new to inclose the oven or baking-chamber of a japanning-furnace within walls of masonry, and provide flues for leading the products of combustion around such an inclosed oven, as this construction is seen in Letters Patent No. 246,766, granted September 6, 1881, to John D. Hass. Therefore my claims are not to be construed as an attempt to cover the inclosed baking-chamber or oven, but are limited to the specific combination of parts herein shown and described.

I claim as my invention—

1. The combination, in a japanning apparatus, of the oven A, inclosed within the walls C, and provided with a suitable door, B, said oven having a passage, J, around its ends and sides, a chamber, K, at top, and a furnace, D, direct flue N, and lateral flues I beneath it, whereby the products of combustion issuing from said furnace are caused to circulate completely around said oven, in the manner described.

2. The japanning-oven A B, inclosed within the wall C, and having flues I N beneath it, a passage, J, at its ends and sides, and a chamber, K, at top, the floor of said oven being supported in part by the arch of furnace D and in part by the tiles E, which tiles rest on the piers F, for the purpose described.

3. In combination with the inclosed oven of a japanning apparatus, the furnace D, having a direct exit, N, lateral flues H I, and an opening, G, in the arch, which opening communicates with the passage J at the end of said inclosed oven, substantially as herein described.

In testimony whereof I affix my signature in presence of two witnesses.

PETER KIEFER, JR.

Witnesses:
JAMES H. LAYMAN,
S. S. CARPENTER.