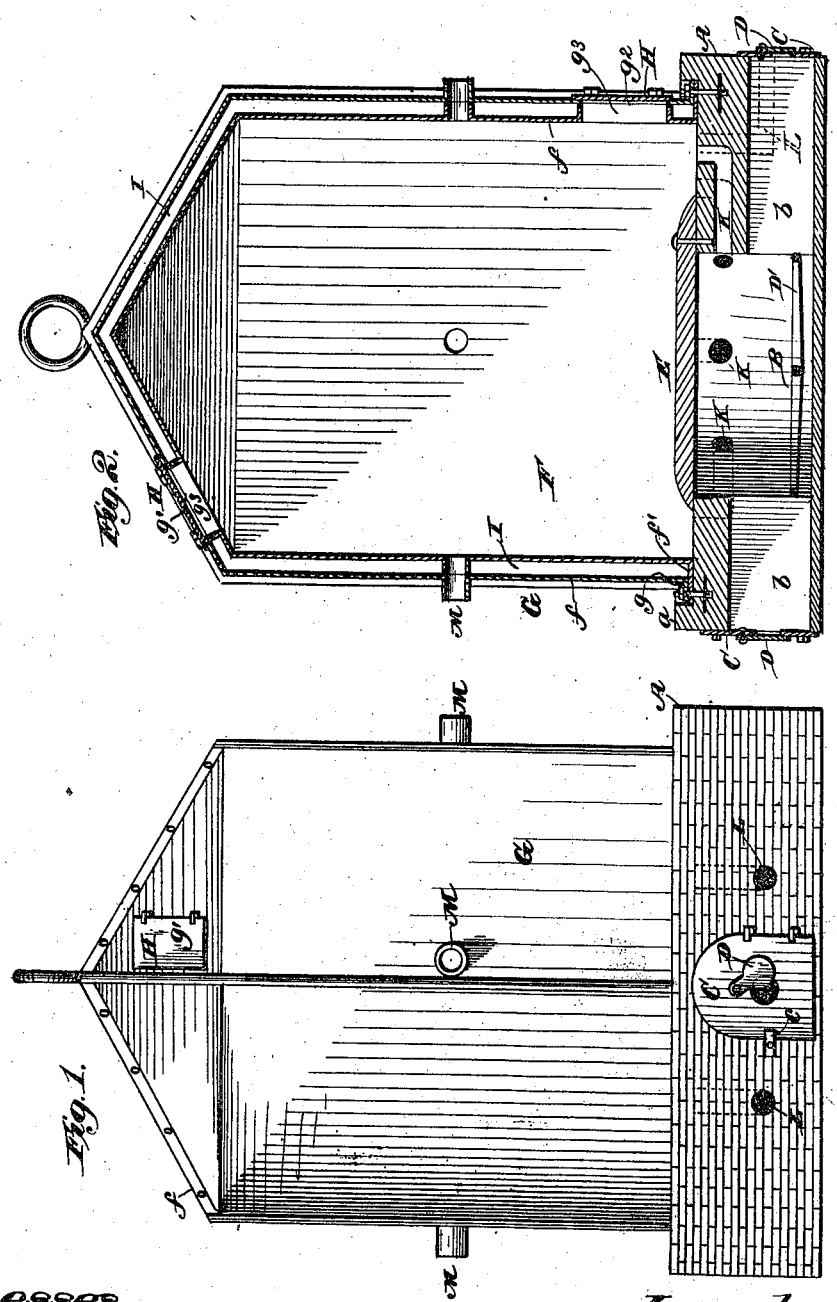
(No Model.) 2 Sheets—Sheet 1.

W. A. LOVELACE.

CHARCOAL KILN.

No. 266,850. Patented Oct. 31, 1882.



Witnesses.
Robert Everett
Linton Combs

Inventor.
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By James L. Norris.
Atty.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

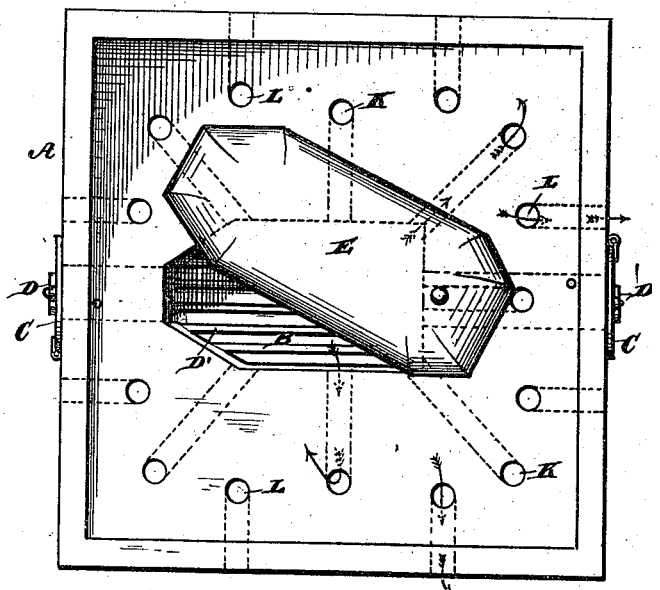
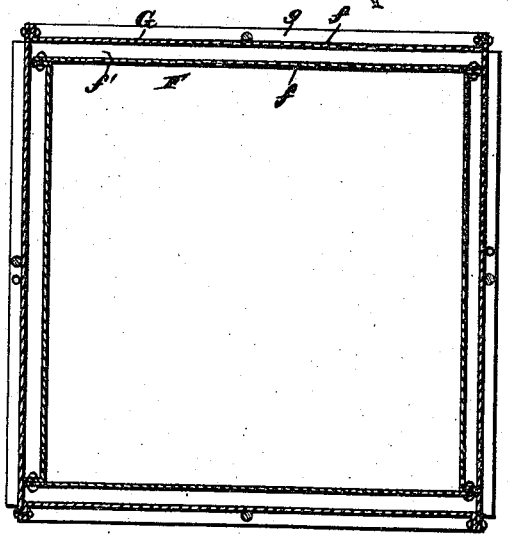


Fig. 4.



Witnesses,
Robert Everett,
Hinton Coombs

Inventor:
W. A. Lovelace.
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Atty.

UNITED STATES PATENT OFFICE

WALTER A. LOVELACE, OF WEST DE PERE, WISCONSIN.

CHARCOAL-KILN.

SPECIFICATION forming part of Letters Patent No. 266,850, dated October 31, 1882.

Application filed April 14, 1882. (No model.)

To all whom it may concern:

Be it known that I, WALTER A. LOVELACE, a citizen of the United States, residing at West De Pere, in the county of Brown and State of Wisconsin, have invented new and useful Improvements in Charcoal-Kilns, of which the following is a specification.

This invention relates to that class of charcoal-kilns in which the kiln consists of a hood adapted to be seated upon a foundation and provided with a door and with smoke and steam escape pipes.

My improvement is directed to the construction of the foundation for such hood; and it consists in the hereinafter-described combination and arrangement of the hood with certain flues which lead from a fire place centrally located in the foundation and pass up through the foundation, so as to open in the hood, and flues leading from the hood down through the foundation and extending to the outer walls of the latter.

In the drawings, Figure 1 is a side elevation of the kiln and its foundation. Fig. 2 is a vertical section through the same. Fig. 3 is a top view of the foundation. Fig. 4 is a horizontal section through the two hoods that form the kiln.

In carrying out my invention I construct a brick or stone foundation, A, for the kiln to rest upon. This foundation is provided with a central furnace or fire-chamber, B, from which the passages *b b* lead to the sides of the foundation, and at the outer ends of these passages I provide hinged doors C, with suitable fastenings, *c*, for locking the doors when closed. Each one of these doors is provided with an opening which can be either partially or entirely closed by a pivoted valve or damper, D, so as to regulate the draft, and consequently vary the intensity of the heat within the furnace and kiln.

The fire-chamber is provided with a suitable grate, D′, and is closed at the top by a door, E, which can be hinged or pivoted or arranged to slide upon the foundation, as preferred, the method herein shown of attaching the door being by pivoting the same at one of its ends. The kiln which is supported upon this foundation comprises an inner and an outer hood or casing, both of which are closed at their top and sides and open at the bottom. These hoods are each composed of sections *f*, of sheet metal, flanged along their edges and secured together by suitable bolts or rivets passing through their flanges. The inner hood, F, which is provided with a flange, *f′*, at its base, is seated upon the foundation A, within a ridge or wall, *a*, which extends around the upper edge of the foundation, this said wall serving to maintain the hood upon the foundation. The outer hood, G, which incloses the inner hood, is also formed with a base-flange, *g*, which, when the two hoods are in position, rests upon the base-flange of the inner hood. These two hoods, which compose the kiln proper, are secured together by means of bolts which pass through their flanges, and are simply seated on the foundation. By thus arranging the kiln it can be raised bodily and transported from one foundation to another; but if used as a stationary or immovable kiln it can be filled through the feed-opening *g′* at the top, and then relieved of its contents through the discharge *g²*, located in the side of the kiln near its base. These feed and discharge openings are formed through both hoods, with a flange, *g³*, around the opening in either the outer or the inner hood, so that said flange will constitute a chute or passage between the hoods. Said feed and discharge openings are closed by suitable doors, H, which can be opened when the material is to be fed into or removed from the kiln. These hoods are of such relative size that a space, I, of about one-half an inch (or more) is left between the two. This space is filled with ashes or any other good non-conductor of heat, which will prevent the radiation of heat from the kiln and effectually exclude external air, thereby rendering it impossible for the wood or coal within the kiln to ignite. It will also be found that the outside hood will never become too hot to be handled.

The foundation is provided with a series of flues, K, for conveying the hot air from the fire-place into the kiln, these flues being arranged to branch out laterally from the fire-place and then extend upward to the top of the foundation. The foundation is also provided with a series of flues, L, for the escape of smoke and steam from the kiln. These smoke and steam escape flues L extend from

the top of the foundation downwardly and then outwardly to the outside of its vertical walls.

The hoods are also provided at their sides with the steam-escape pipes M, which, when the hoods are in place, form outlets for the steam generated when the fire is first started in the fire-place, any suitable form of valve being employed for closing said passages after the charring has begun.

The flues K and L serve as ventilators. The hot air from the fire-place passes up through the hot-air flues K into the kiln, where it is equally distributed, while the foul air and smoke pass down and out from the kiln through the escape-pipes L. By this mode of ventilating and also of conducting the hot air from the fire-place, which is separated from the kiln and connected therewith only by the flues, the wood or coal within the kiln will be charred but not ignited, since the flames will not reach the material in the kiln. It will also be found that after the fire has been put out or removed from the fire-place the kiln will cool rapidly—say in from three to six hours—the flues K and L being open so as to admit cool air.

The kiln can be made of any desired capacity, and it will not crack or warp, since the blaze does not reach either the inside or the outside hood.

During the charring process the inside hood will become coated with wood-tar, which will further serve to render the kiln air-tight and also prevent it from oxidation. Finally, the quality of the coal will be improved, the charring being accomplished with the least possible amount of air, and hence the carbon of the coal will be retained, and not burned out.

What I claim is—

1. The combination of the kiln-hood with the foundation A, provided with an inclosed centrally-located fire-place, B, the hot-air flues K for conducting the hot air from the fire-place into the kiln, and the smoke and steam escape flues L for conducting smoke and steam through the foundation from the kiln to the external atmosphere when the hood is closed, said members being constructed and organized substantially as described.

2. The combination, in a charcoal-kiln, of an open-bottom hood, in which the wood to be charred is placed, with the foundation A, upon which the hood is seated, formed with a central fire-place, B, closed at the top by a suitable door and having one or more side passages, *b*, a series of flues, K, radiating from the sides of the fire-place and leading up through the foundation, so as to open into the hood, and a second series of exit-flues, L, leading from the top of said foundation to points along its sides, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WALTER A. LOVELACE.

Witnesses:

W. M. WORKMAN,

WM. WORKMAN.