(No Model.)

W. A. LOVELACE.

CHARCOAL KILN.

No. 327,804. Patented Oct. 6, 1885.

Fig. 1.

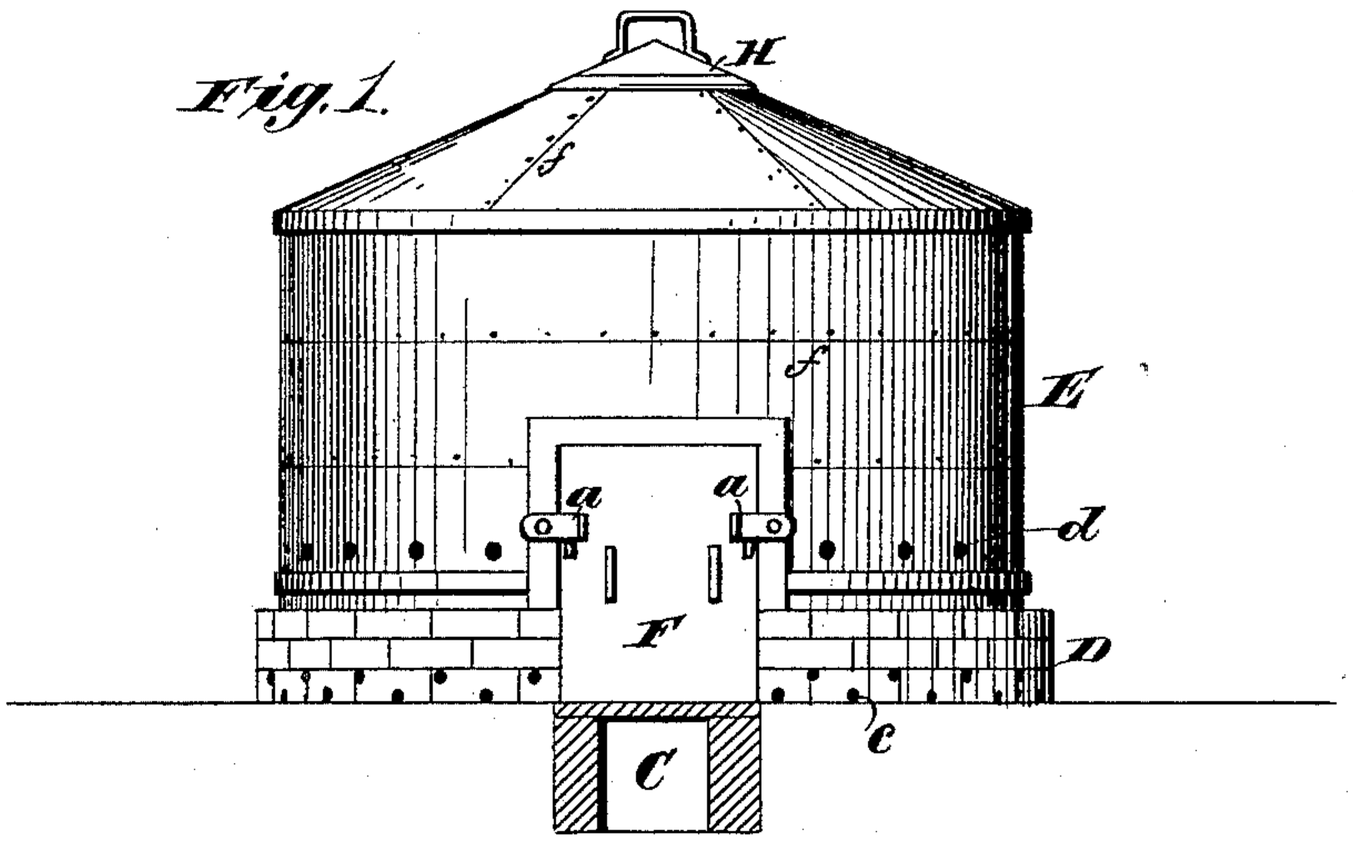


Fig. 2.

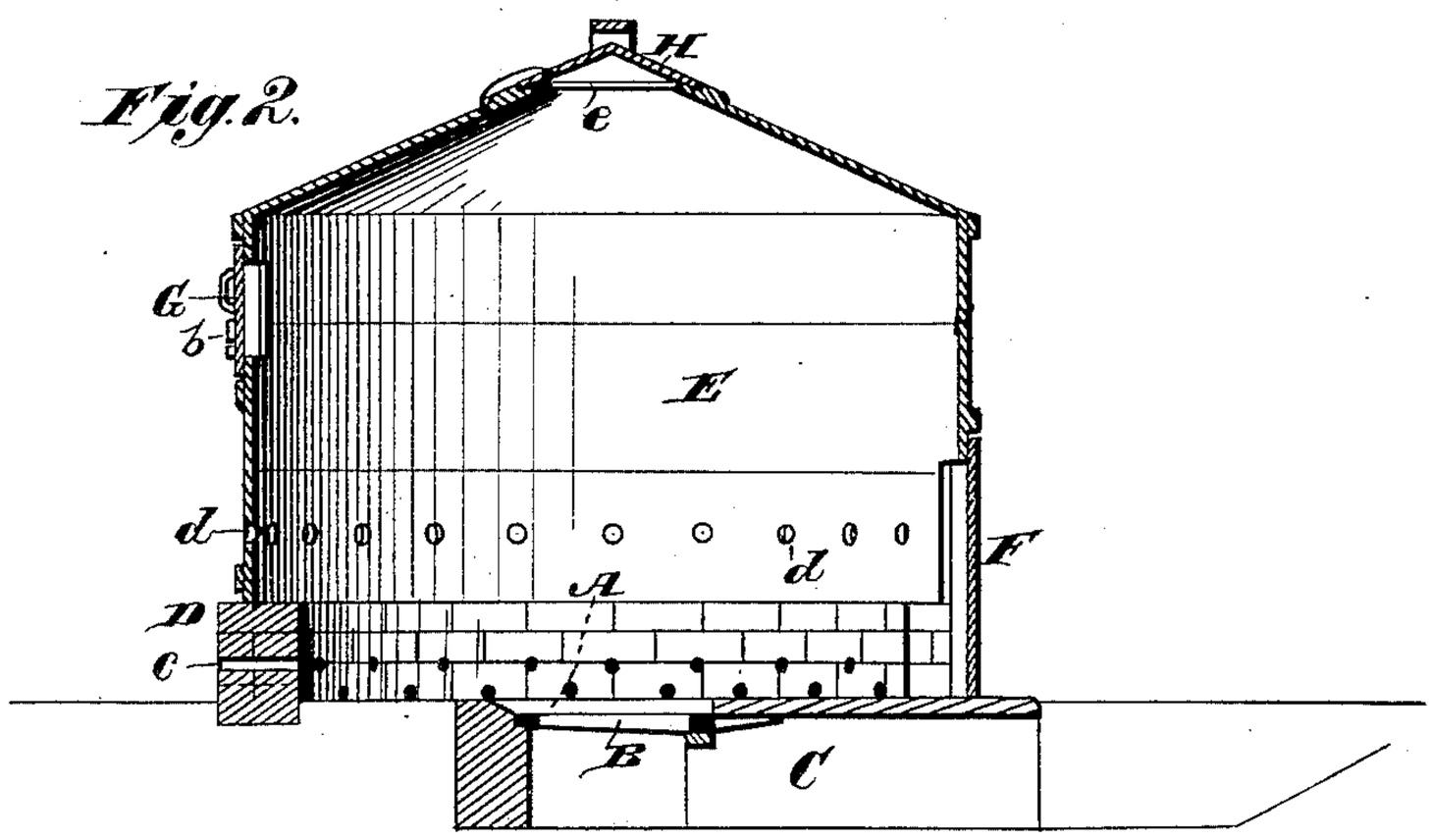
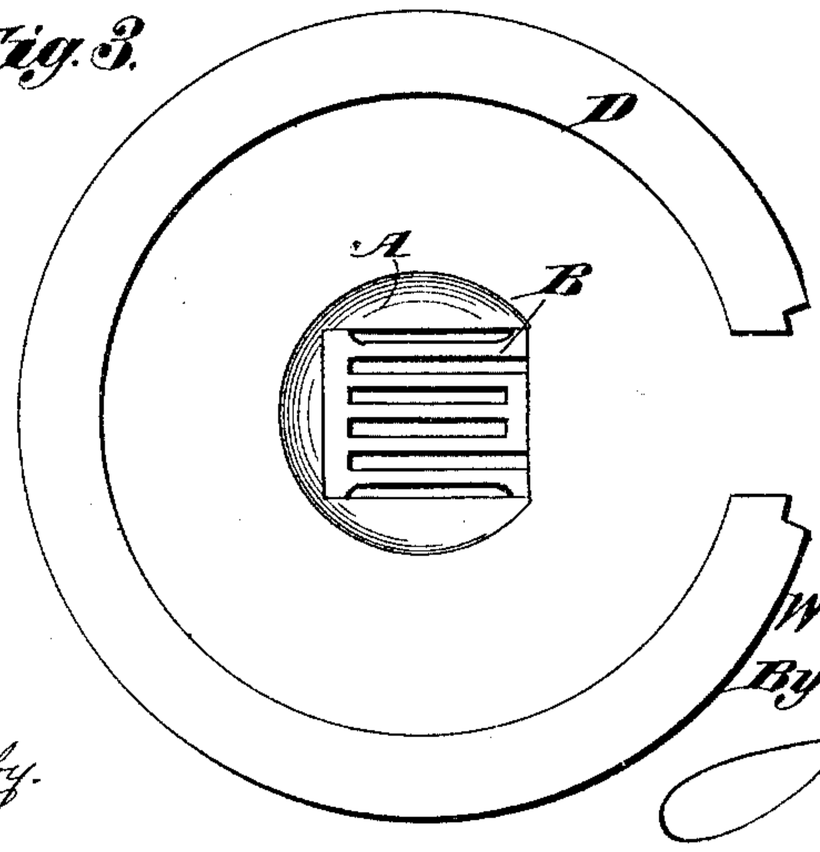


Fig. 3.



Witnesses.
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Dennis Sumby.

Inventor:
Walter A. Lovelace.
By James L. Norris.
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UNITED STATES PATENT OFFICE.

WALTER A. LOVELACE, OF NEGAUNEE, MICHIGAN, ASSIGNOR OF ONE-HALF TO DUDLEY G. STONE, OF SAME PLACE.

CHARCOAL-KILN.

SPECIFICATION forming part of Letters Patent No. 327,804, dated October 6, 1885.

Application filed June 30, 1885. Serial No. 170,306. (No model.)

To all whom it may concern:

Be it known that I, WALTER A. LOVELACE, formerly of Richmond, Massachusetts, a citizen of the United States, residing at Negaunee, in the county of Marquette and State of Michigan, have invented new and useful Improvements in Charcoal-Kilns, of which the following is a specification.

The object of this invention is to provide a simple, cheap, and efficient portable kiln for charring wood without liability of waste from ignition of the material acted upon, and in which the process of manufacturing charcoal can be carried on with rapidity and economy.

My invention comprises a circular or dome-shaped hood of peculiar construction, in combination with a central fire-place, or seat of fire, having preferably an underground air-flue; and also in the combination, with said fire-place and dome-shaped hood, of a foundation or support for the latter, as hereinafter more fully set forth.

In the annexed drawings, illustrating the invention, Figure 1 is a front elevation of the kiln and its foundation. Fig. 2 is a vertical section of the same. Fig. 3 is a plan view of the foundation.

Referring to these drawings, the letter A designates a fire-place, and B a grate therefor, of any suitable or convenient form. This fire-place is preferably built in the ground below the level of the kiln-floor, and communicates directly with a horizontal air-flue, C, that is also preferably formed in the ground.

In some instances I prefer to build around the central fire-place, A, and at a suitable distance therefrom, a circular wall, D, of brick or stone. This wall D may be made of any convenient height, and serves as a foundation for a circular or dome-shaped hood, E, which forms the body of the kiln.

Access to the kiln is afforded through a suitable doorway formed partly in the foundation-wall D and partly in the lower portion of the hood E, said doorway or opening being closed when necessary by a door, F, having suitable fastenings, *a a*. Through this door F the kiln is supplied with material and the finished product removed.

In the upper part of the hood E, on the side opposite the door F, or at any other convenient point, is another door, G, secured by fastenings *b b*, and through which the kiln can also be supplied.

In the foundation-wall D are lateral openings or passages *c c* for the escape of smoke, steam, and foul air, and similar openings, *d d*, are made in the lower portion of the hood E for the same purpose.

At the top of the dome-shaped hood E is a circular opening, *e*, closed by a conical cap, H, for controlling the escape of vapors and gaseous emanations.

The circular or dome-shaped hood E is preferably composed of iron plates of single thickness bolted or riveted together, as shown at *f*, and is of sufficient weight to maintain its position when set on the foundation D or on the ground without requiring any fastenings.

The horizontal draft-flue C for the central fire-place extends in all cases from a point outside of the kiln to a point immediately under the seat of fire.

The small openings *c d*, for the exit of smoke and gas or watery vapors, may be made either in the foundation-wall or in the hood, or in both, as shown, and should extend completely around the kiln.

The draft-flue C conducts air from the exterior to the grate in the center of the kiln, whence it passes to the interior.

The smoke, vapor, and other gaseous products of decomposition pass out through the openings *c*, *d*, and *e*, the latter opening being located at the top for the escape of the lighter and more inflammable gases, thereby obviating any liability of explosion.

It will be understood that the wood to be charred will be stacked or arranged in such a manner as to be thoroughly exposed to the action of the heated air without incurring any liability of ignition, and so that the process of charring will be accomplished quickly and without great loss or waste of combustible material.

I find by experience that in a kiln of this construction, in which the fire-place or grate is located below the kiln-floor, the wood to be charred does not ignite above the level of the floor of the kiln, and thus it is not necessary

to separate the fire-place from the body of the kiln.

The air enters the kiln through the draft-flue C and passes through the fire-place, and in a heated state fills the kiln, and then finds vent through the lateral openings.

After a fire has been properly started the fire-place is kept supplied with fuel to the necessary slight extent by the falling of small pieces of charred wood into the grate.

As all the draft enters at a point below the level of the grate, which is itself depressed below the kiln-floor, no cold air will be admitted to the kiln, and thus the charring of the wood is more speedily accomplished.

I am aware that a charcoal-kiln has heretofore been composed of a hood or dome composed of a single thickness of iron plates bolted together, said hood being provided at the bottom with a circular series of lateral openings, and having other openings or doors above. I am also aware that foundation-walls have been arranged to support such domes of charcoal-kilns. I do not therefore, broadly, claim such constructions, as my invention differs therefrom in that the kiln combines in its structure a circular foundation-wall, a dome-shaped hood resting thereon, with a main door located partly in said foundation-wall and partly in the hood, and a central underground fire-place having a horizontal draft-flue extended beneath the foundation-wall to the exterior of the kiln. A charcoal-kiln made according to my invention as herein described possesses many obvious advantages in simplicity, economy, and efficiency of operation, and enables large quantities of wood to be properly and uniformly charred with great rapidity by reason of its thorough exposure to heated air.

What I claim as my invention is—

1. In a charcoal-kiln, the combination, with a central underground fire-place, A, having a grate, B, and a horizontal underground draft-flue, C, extending from beneath said fire-place to a point outside the kiln, of a portable dome-shaped hood, E, composed of a single thickness of iron plates, and having doors F G, a series of lateral openings, *d*, near the bottom, and a circular opening, *e*, at the top closed by a cap, H, substantially as described.

2. In a charcoal-kiln, the combination of a central underground fire-place, A, having grate B, a horizontal underground draft-flue, C, extending from beneath said fire-place to a point outside the kiln, a circular wall, D, having lateral openings *c*, and a dome-shaped hood, E, located on said wall and having a circular opening, *e*, at the top closed by a cap, H, and a series of lateral openings, *d*, near its lower edge, said kiln being provided with a door, F, located partly in the hood and partly in the foundation-wall, substantially as described.

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

WALTER A. LOVELACE.

Witnesses:
D. G. STONE,
B. G. WILBOR.