

(No Model.)

2 Sheets—Sheet 1.

E. A. KINNEY & J. S. HOBBY.
DRYING KILN.

No. 513,188.

Patented Jan. 23, 1894.

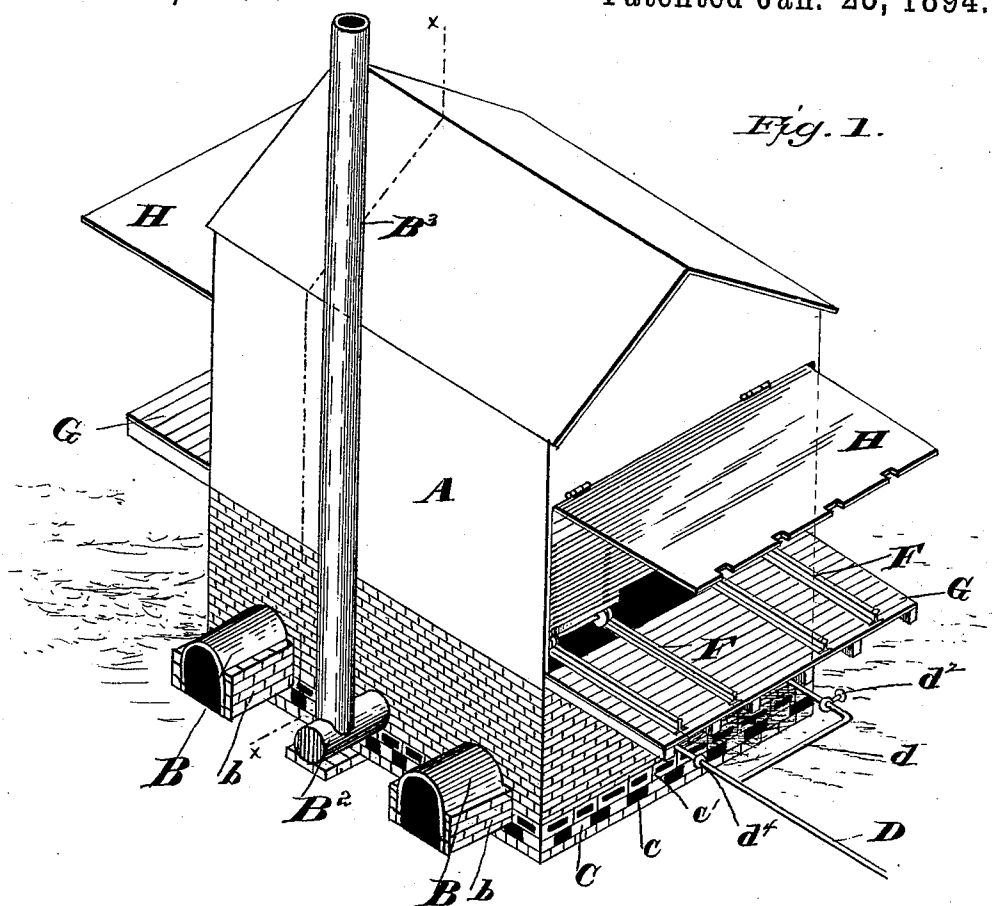
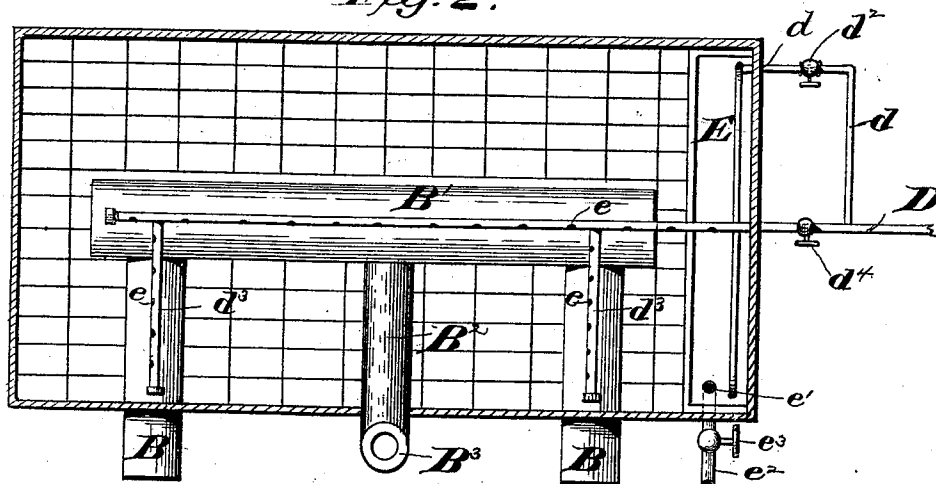


Fig. 2.



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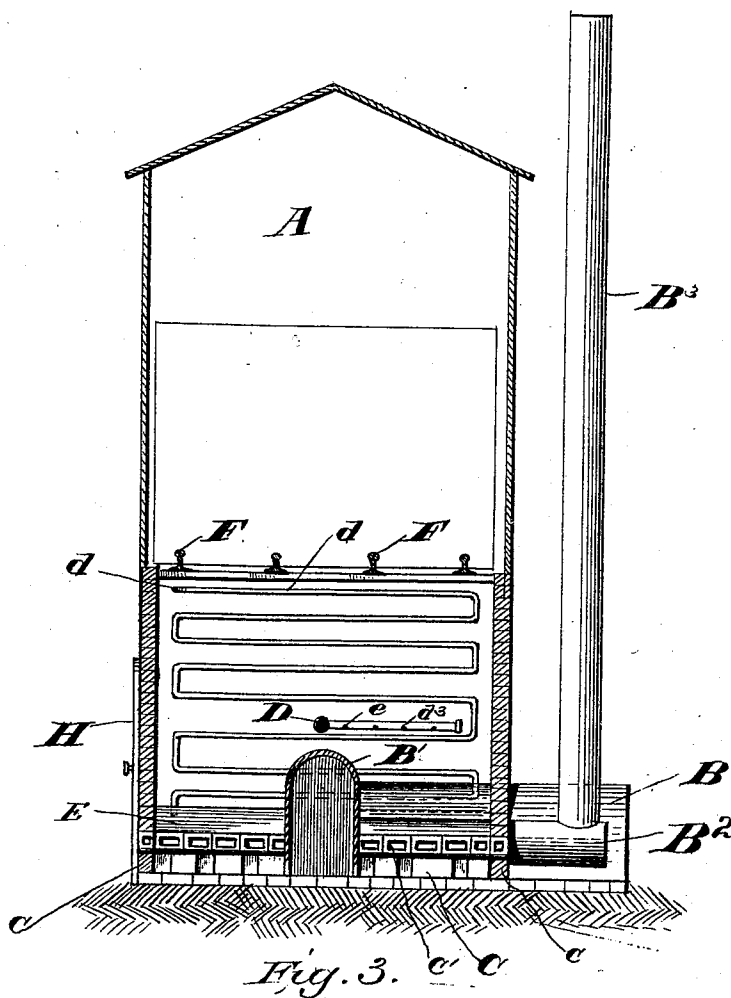
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UNITED STATES PATENT OFFICE.

ELMER A. KINNEY AND JAMES S. HOBBY, OF PINE BARREN, FLORIDA.

DRYING-KILN.

SPECIFICATION forming part of Letters Patent No. 513,188, dated January 23, 1894.

Application filed September 19, 1892. Serial No. 446,298. (No model.)

To all whom it may concern:

Be it known that we, ELMER A. KINNEY and JAMES S. HOBBY, citizens of the United States, residing at Pine Barren, in the county of Escambia and State of Florida, have invented certain new and useful Improvements in Dry-Kilns; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention is a dry kiln used for drying lumber, timber, logs, brick, tile, &c., and consists in the novel construction and arrangement of its parts.

In the accompanying drawings: Figure 1 is a perspective view of our dry kiln. Fig. 2 is a bottom plan view of the same, and Fig. 3 is a cross sectional view of the same.

Heretofore the surplus moisture that came from the material to be dried was allowed to pass off into the air or the ground or condensed by means of metal plates.

The object of our invention is to condense the moisture not needed for the proper drying of the materials by means of cold water and to enable us at any time to precipitate sufficient water on the flues to fill the kiln with steam, and in case of fire sufficient to extinguish the flames.

To carry our invention into effect we run cold water into the kiln keeping it at a temperature cold enough to condense the moisture. We regulate this by the amount of water used. We may introduce the water into the kiln openly or in covered materials; the object being to cool a portion of the kiln so that the surplus moisture condenses upon the surface by reason of its being colder than the moisture. In case of not having moisture sufficient for the proper drying of the materials the supply of water is cut off, the water allowed to warm to the same temperature of the kiln, causing more moisture by moisture rising from the water, and settling upon the material to be dried.

A striking advantage of our process is that we have the means at all times to control the amount of moisture used.

Our invention is described as follows: We use a floor in our kiln and have no connection with the ground as to using the ground to condense the moisture. The kiln is made of brick, iron or wood, or partly of each. The kiln is two stories high, the lower story for the heating apparatus, the upper for the storage room.

A, represents the building; B, B', the furnaces, the tops of which are oval and extend considerably above the level of the floor. The cross furnaces enter into the side of the kiln and connect with the center furnace, B', which is situated at the middle of the kiln; the furnaces are built on and into narrow brick walls, b, and have the ground for a bottom. We show the furnaces without any doors, but they have the usual doors, grate bars, &c.

Leading from the furnace, B', is a smoke pipe, B², and from said smoke pipe extends upwardly a smoke stack, B³. The furnaces are made of iron.

The kiln rests on a brick foundation, C, having openings, c, so that there may be ventilation under the floor of the kiln. On this open work foundation of brick is built the floor, c'. The floor is made of porous clay tiles, or brick having longitudinal and cross openings c', and may rest immediately on the brick foundation or on wooden sills laid on said brick foundation. The said open brick foundation is high enough from the ground to allow cool air to freely circulate under the floor, the air coming in at the sides and ends of the foundation and at the sides and ends of the floor. The floor being of porous clay and for that reason being the coldest part of the kiln the hot air drives the moisture out, it condenses on the clay, and passes through into space beneath. The porous clay floor or brick also allows the drip from the substance to be dried to pass freely through it.

D, represents a supply water pipe having a branch, d, which passes into the end of the kiln at the point, d', about two feet above the floor and runs backward, forward and downward until its lower end enters into a trough, E, at that end of the kiln. Said branch pipe is provided with a stop-cock, d², to regulate the flow of the water or cut it off at will. Said branch pipe d being supplied with cold water

also acts as a condenser. The supply water pipe, D, enters the kiln just above the furnaces, B', and has branches, d^3 , which extend over the furnaces, B. Said pipe and branches
 5 are provided with perforations, e , which allow the water to pass through them and on to the furnaces. The furnaces being hot cause steam to arise and if the kiln is on fire extinguishes it. Said pipe, D, is provided with a
 10 stop-cock, d^4 , between the branch, d , and the kiln. Thus the water may be let in through branch pipe, d , or through main pipe, D, or through both at the same time.

Trough E, is provided in its bottom with
 15 an opening, e' , and pipe, e^2 , and stop-cock, e^3 .

The upper part of the kiln is provided with tracks, F, to carry the cars containing the lumber or other material to be dried, and with the usual platforms, G, and doors, H.

20 Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the building A, provided with suitable means for manipulating
 25 the material to be dried; base C, ventilated on all four sides; porous tile or brick bottom c' , ventilated on all four sides laid on said base; cross furnaces B, entering the kiln; center furnace B', uniting said cross furnaces;

smoke-pipe and stack, B², B³, and means for 30
 inducing water in and out of said kiln, substantially as shown and described and for the purposes set forth.

2. The combination of the building A, provided with suitable means for manipulating 35
 the material to be dried; base C, ventilated on all four sides; porous tile or brick bottom c' , ventilated on all four sides laid on said base; cross furnaces B, entering the kiln; center furnace B', uniting said cross furnaces; 40
 smoke-pipe and stack B², B³; water-pipe D, passing into said kiln over the furnace B', and provided with perforations; perforated branch-pipes d^3 , passing over furnaces B; water trough E, situated in one end of the building; 45
 condenser-pipe d , entering the building and coiling down the inner wall of same until its lower end enters said trough and means for letting said water out of the kiln, substantially as shown and described and for the purposes set forth. 50

In testimony whereof we affix our signatures in presence of two witnesses.

ELMER A. KINNEY.
 JAMES S. HOBBY.

Witnesses:

GEO. LAPPINGTON,
 J. EMMET WOLFE.