

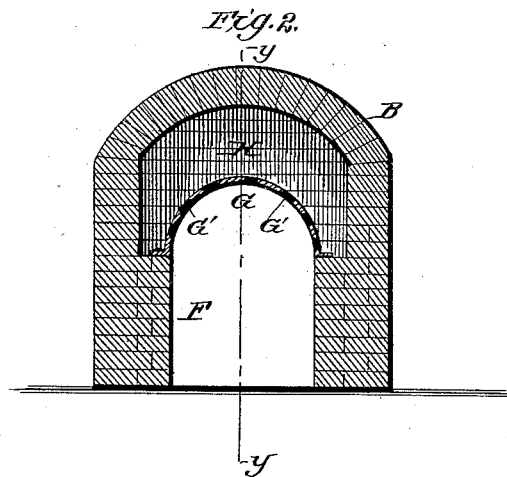
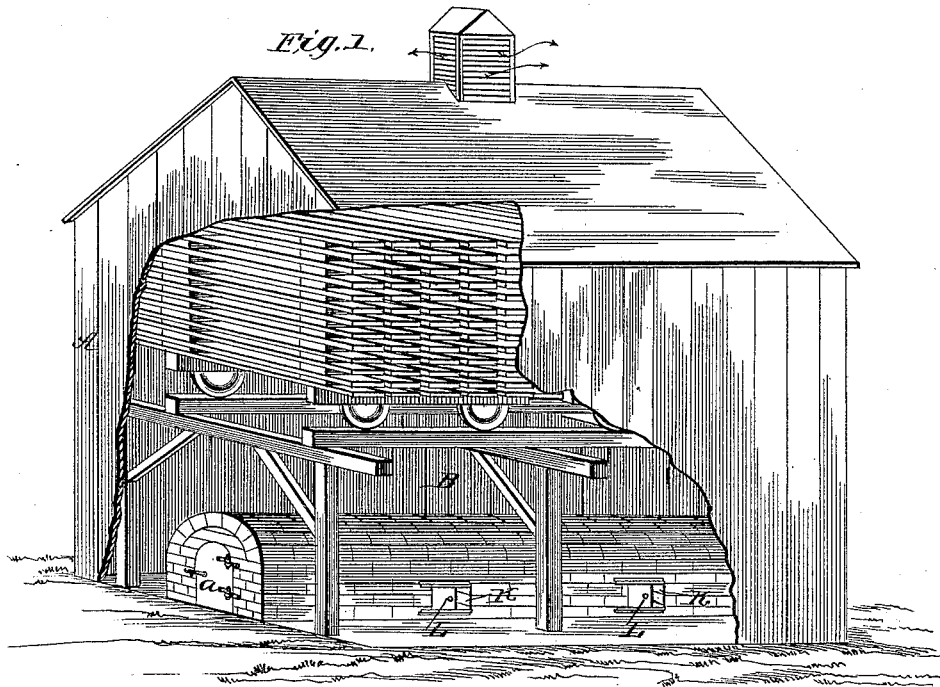
(No Model.)

2 Sheets—Sheet 1.

A. T. ANDERSON.
LUMBER KILN.

No. 422,106.

Patented Feb. 25, 1890.



WITNESSES:

Fred G. Dieterich
Joe. A. Ryan

INVENTOR

Andrew T. Anderson

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

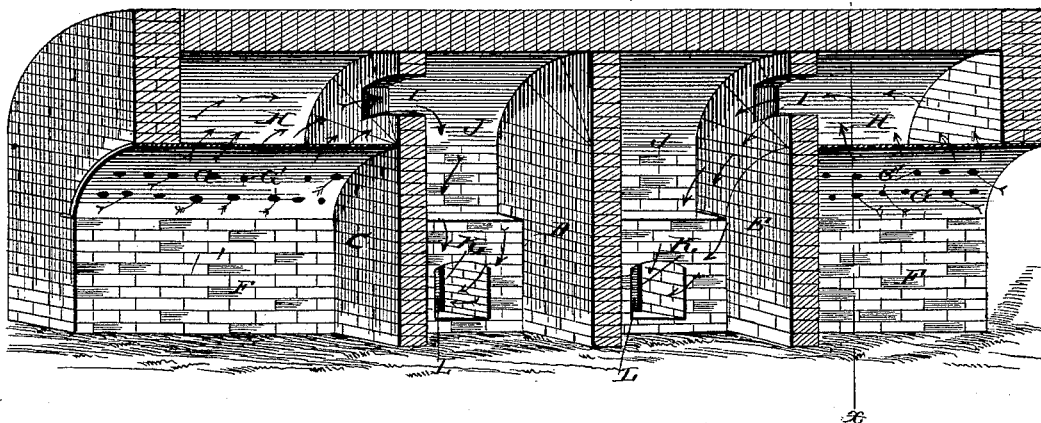


Fig. 4.



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UNITED STATES PATENT OFFICE.

ANDREW T. ANDERSON, OF TRINITY, TEXAS.

LUMBER-KILN.

SPECIFICATION forming part of Letters Patent No. 422,106, dated February 25, 1890.

Application filed May 3, 1889. Serial No. 309,517. (No model.)

To all whom it may concern:

Be it known that I, ANDREW T. ANDERSON, of Trinity, in the county of Trinity and State of Texas, have invented a new and useful Improvement in Lumber-Kilns, of which the following is a specification.

The kiln proper is constructed with special reference to combustion of cinders or sparks, and thereby preventing their escape into the chamber containing the lumber.

The features constituting the improvement are as hereinafter described and claimed.

Referring to the accompanying drawings, Figure 1 is a perspective view with part of the walls of the building in which the kiln is contained broken away. Fig. 2 is a transverse vertical sectional view on the plane indicated by line *xx* of Fig. 3, and Fig. 3 is a longitudinal vertical sectional view on the plane indicated by line *yy* of Fig. 2. Fig. 4 is a detail sectional view showing a portion (enlarged) of the arch of the fuel-chamber.

In Fig. 1, the letter A indicates the drying house or building containing the kiln B, and suitable frame-work and rails for supporting a lumber-car over the kiln, as shown. The latter is built of brick, and located on the ground, and arranged in the lengthwise middle of the drying-house A.

The kiln is divided interiorly, by means of three transverse brick partitions C D E, into four chambers, as shown in Fig. 3, Sheet 2.

The fire-boxes or fuel-chambers F are located one at each end of the kiln, and have an outer door *a*, Fig. 1.

Above the perforated arch G of each fuel-chamber F is a primary gas-combustion chamber H. Both the chambers H communicate, by means of an opening I, with the more capacious secondary gas-combustion chambers J J, which are located, respectively, on opposite sides of the central solid or imperforate partition D, between it and the partitions C E. Each of said secondary combustion-chambers J has lateral openings K near the bottom, and these openings are provided with sliding doors L, which regulate the escape of heated unconsumed gases from the kiln into the lumber-drying chamber.

The iron arch G of the fuel-chambers F has numerous conical openings G', (see Fig. 4,) which in practice number twelve to every

square foot of surface of the arch, and measure about one-half inch in diameter at the top and one and one-half inch at the bottom. The arch-plate G is made of cast-iron.

The course of the draft and products of combustion from the fuel-chambers F is indicated by arrows, it being through the conical openings G' into chambers H, thence through the openings I in the adjacent bridge-walls into the secondary or inner combustion-chambers J J, and then downward and out through the lateral openings K into the drying-chamber, wherein they rise into contact with the lumber.

When the fire is first started, and at any time previous to the metallic arch becoming highly heated, the excess of oxygen over that required for support of combustion in the primary chamber F passes into the chamber H, thence into the chamber J, and finally into the drying-room; but afterward—namely, after the arch has become heated to a sufficient degree—it in turn heats the surplus oxygen, so that it combines with the inflammable gases and products of combustion that have escaped consumption in the lower chamber F, so that a new fierce combustion takes place in chamber H. The final combustion occurs in the inner chamber J. The larger cinders or sparks carried upward by the draft lodge and wedge in the conical openings G', where they remain until wholly or partially consumed, so that as a final result no incandescent particles enter the lumber-drying chamber, and there is hence no danger of the lumber being fired. In practice, also, no smoke—i. e., no visible uninflamed carbonaceous matter—escapes from the openings K, (when the kiln is heated,) so that the lumber is not discolored while being dried. The degree of heat is perfectly regulated by adjusting the doors L so as to close the openings K more or less. The doors *a* of fuel-chambers F are kept open all the time the kiln is in operation, in order to allow a full supply of oxygen, and none is admitted at any other point.

What I claim is—

1. In a lumber-drier, the combination, with a drying-house, of the kiln having the following parts constructed and arranged as shown and described: a fuel-chamber whose

arched top is provided with small perforations for passage of products of combustion, the primary combustion-chamber H, located above said top, a cross-partition forming the
5 inner end of the said chambers, and having an opening I, that serves for exit of products of combustion from chamber H, and the adjacent final combustion-chamber J, having lateral exits K, located near its base, through
10 which the unconsumed heated gases pass into the drying-chamber, as specified.

2. In a lumber-drier, the combination, with the drying-house, of the kiln having a fuel-chamber whose top is provided with conical

openings G', made largest at the base, the primary gas-combustion chamber H, located
15 over the fuel-chamber, the secondary or final combustion-chamber J, located adjacent to the primary and having openings I and K, which respectively allow passage of products
20 of combustion from one chamber to the other, and thence into the lumber-drying house, as shown and described.

ANDREW T. ANDERSON.

Witnesses:

ABE FRISBY,
R. T. CONNELL.