(No Model.)

W. G. GALLOWAY.

DRYING KILN.

No. 526,350. Patented Sept. 18, 1894.

Fig. 1.

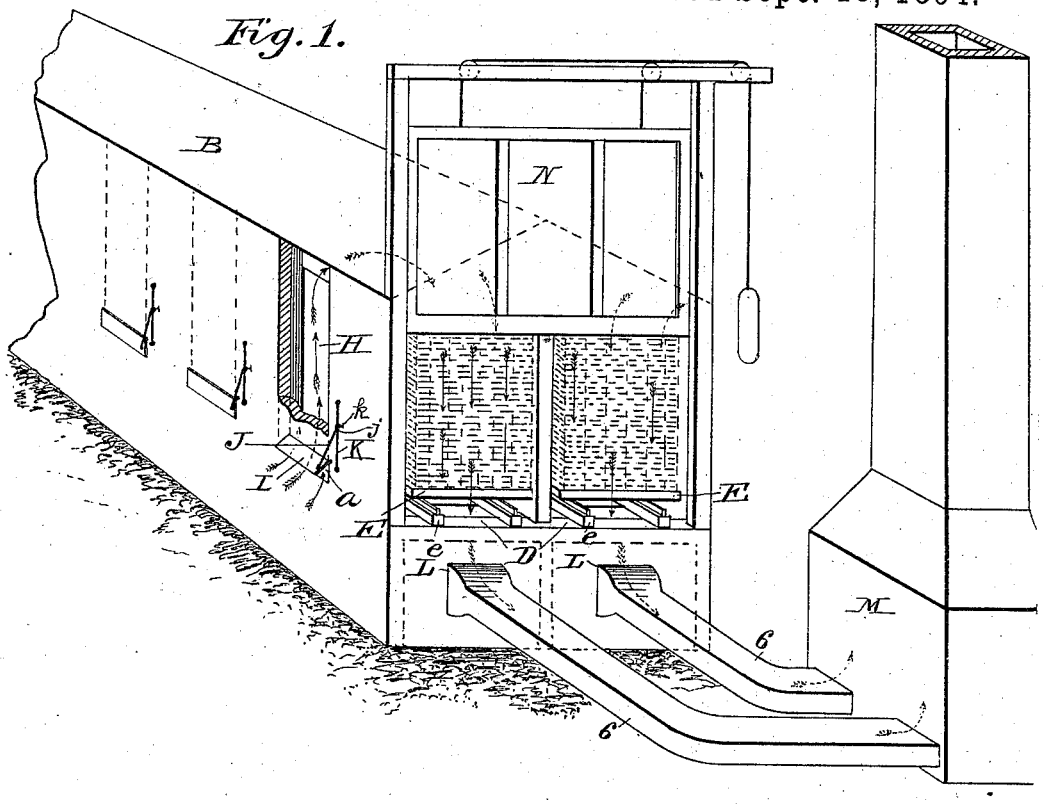
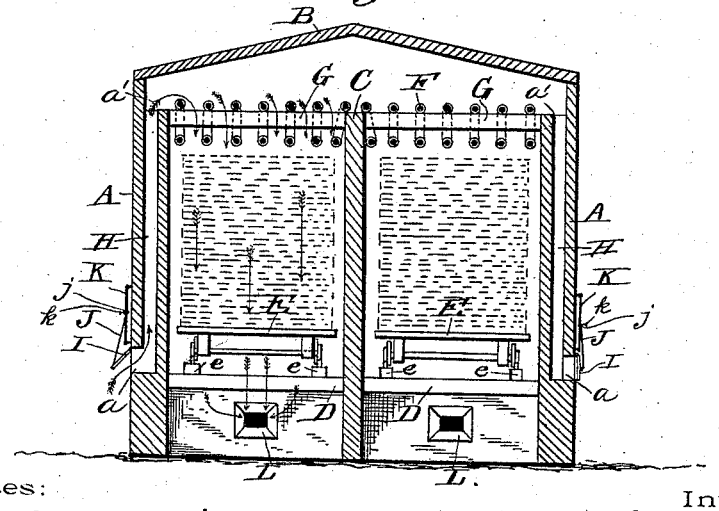


Fig. 2.



Witnesses:

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DRYING-KILN.

SPECIFICATION forming part of Letters Patent No. 526,350, dated September 18, 1894.

Application filed February 28, 1894. Serial No. 501,831. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. GALLOWAY, a citizen of the United States, residing at Chicago, in the county of Cook, and State of Illinois, have invented certain new and useful Improvements in Drying-Kilns, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improved drying-kiln, for drying lumber, brick, &c.; the object of the invention being to provide for a down draft of the heated air within the kiln, the advantages of which will be hereinafter set forth.

The invention will first be described in connection with the accompanying drawings, and then pointed out in the claims.

Figure 1 of the drawings is a broken perspective view of a kiln embodying my invention. Fig. 2 is a transverse sectional view of the kiln, taken through one of the air-ducts on each side and looking toward the draft-flues.

Referring to the drawings, A represents the side walls of the kiln; B, the roof; and C, a partition dividing the building longitudinally into compartments, of which there may be any number, limited only by the width of the building. In the lower part of the building, a short distance above the ground, (there being no flooring,) are joists D, on which are laid longitudinal tracks *e*, over which pass trucks E bearing the lumber or brick to be dried.

Instead of locating the heating-coils F beneath the tracks, as is usually done, I place them at the top of the compartments, they being supported by joists G, as clearly seen in Fig. 2.

In the side walls A, at suitable intervals throughout their length, I form air-ducts H, which open to the outside atmosphere at about on a line with the level of the tracks, as at *a*, their inner openings *a'* being about flush with the heating-coils F, all as clearly illustrated in Fig. 2. The entrance of air to these ducts is regulated by means of dampers I, hinged to the walls, they being held in any desired open position with relation to the openings *a*, as seen at the left of Fig. 2, or so as to close said openings, as seen at the right of that figure, by means of rods J, each rod being pivoted at one end to a damper, and provided at its other end with a thimble *j*, which is adapted to slide on a vertical bracket K secured to the wall A, the thimble being held at any adjusted position by means of a set-screw *k*. The gables of the kiln are permanently closed, as is also each end beneath the tracks, with the exception that in one end there are openings for the reception of the draft-flues L, the outer ends of which communicate with a chimney M. As usual, the space at each end between the gable and the tracks is closed by a vertically-sliding door N.

It will be apparent that in a kiln constructed in accordance with my invention the air, after having become heated in the upper portion of the kiln, will have a slow movement downward through the material to be dried, owing to the natural tendency of heated air to rise, this tendency being overcome by the draft in the lower portion of the kiln. A slow movement of the heated air downward through the lumber or brick has two important features, one of which is that the hot air is caused to gradually absorb a maximum quantity of moisture from the articles, extracting it from the interior as well as from the surface of the lumber or brick; and as this hot air carries the moisture with it during its slow descent, the lumber or brick is kept moist during the entire operation of drying, whereby it is prevented from cracking or warping; and, furthermore, as the air is fully saturated by the time it has passed through the articles being dried, it falls by gravity to the ground, where the moisture is condensed, freeing the air and permitting it to be carried off through the draft-flues, thus maintaining the draft necessary to a successful working of the kiln. Another feature is, that as the hot air has a down draft, it is, of course, more effective in drying the articles than if it had a natural upward draft, in which latter case the more the air is heated the more rapidly it will ascend, while in my kiln the hotter the air the slower will be its descent.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A drying-kiln having an air-heating device in its upper portion, air-inlet ducts opening into the side walls, near the bottom of the

kiln, and leading to the heating device, and an outlet draft-flue in its lower portion, substantially as described.

2. A drying-kiln having heating-coils in its upper portion, air-inlet ducts in its side walls leading to the coils, a truck-track in its lower portion, and an outlet draft-flue beneath the track.

3. A compartment drying-kiln having a heating-coil at the top of the compartments, air-inlet ducts in the side walls leading to the coil, a truck-track in the lower portion of each compartment, and an outlet draft-flue beneath each track.

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

WILLIAM G. GALLOWAY.

Witnesses:
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