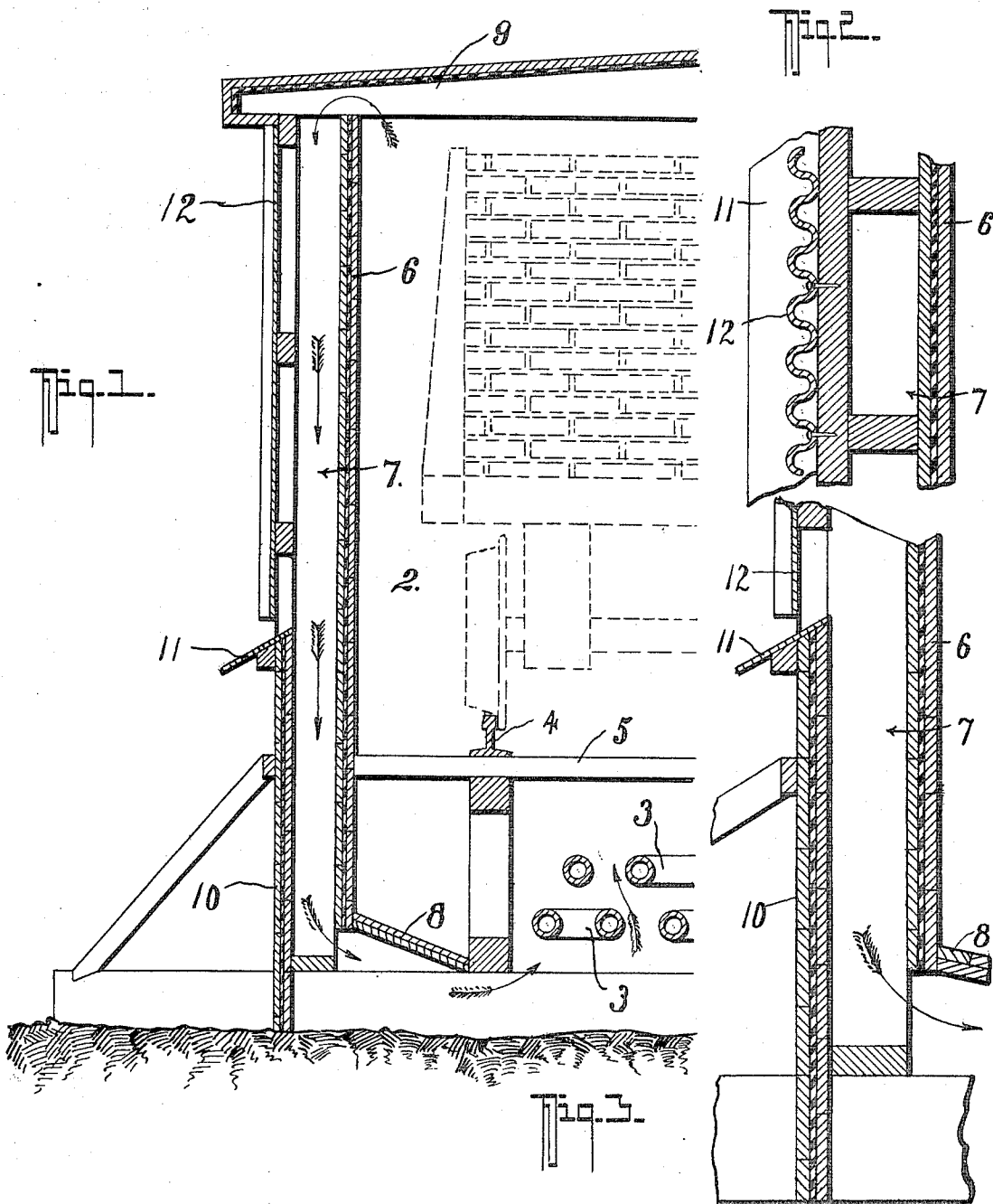


R. ABERNETHY.
 DRYING KILN.
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1,038,709.

Patented Sept. 17, 1912.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ROBERT ABERNETHY, OF PORT MOODY, BRITISH COLUMBIA, CANADA, ASSIGNOR OF
ONE-HALF TO ROBERT HAMILTON, OF VANCOUVER, CANADA.

DRYING-KILN.

1,038,709.

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Application filed November 1, 1911. Serial No. 658,028.

To all whom it may concern:

Be it known that I, ROBERT ABERNETHY, citizen of the Dominion of Canada, residing at Port Moody, in the Province of British Columbia, Canada, have invented a new and useful Drying-Kiln, of which the following is a specification.

This invention relates to a kiln for drying lumber or shingles and belongs to that class wherein heated air is circulated through a chamber in which the material to be dried is stacked.

In kilns of this description, after the air within the kiln has become laden with moisture, its drying efficiency is considerably impaired; yet if this moisture laden air is withdrawn or permitted to escape and fresh air is substituted, a considerable amount of heat is wasted.

The object of this invention is to conduct the moisture laden air in the course of its circulation to where it will come in contact with a condensing surface on which the moisture will deposit, and the air, after the moisture has been abstracted from it, is reheated and again passed through the drying chamber. The particular construction by which this object may be attained in a simple and convenient manner is fully set forth in the following specification and illustrated in the drawings by which it is accompanied, in which:

Figure 1 is a cross section through the kiln. Fig. 2 is a horizontal section to an enlarged scale of the double wall of the kiln, and Fig. 3, a vertical section of the same.

In these drawings, which illustrate the experimental installation, 2 represents the drying chamber, which is heated by steam pipes 3 extending lengthwise along the middle of the chamber. The tracks 4 on which the trucks carrying the lumber to be dried are run into the chamber are supported on cross ties 5 at a sufficient distance above the heating pipes to afford the heated air ample room to distribute itself through the lumber. The side walls of the chamber have an inner lining 6 of double shiplap with tar paper between secured on the studding and this inner lining 6 is carried up to the roof joists 9 from a similar double boarded floor 8, which extends lengthwise of the chamber from the lining 6 to the steam pipes 3. A passage or interspace 7 is left between the studding. Each side wall has an outer cas-

ing 10 of double boards with tar paper, which is carried from the bottom for a short distance up the studding on the upper edge of which casing a downwardly angled shedding plate 11 is secured. This plate 11, is preferably of thin sheet metal and projects a sufficient distance beyond the wall 10 to deliver water clear of it. Above this shedding plate 11 the outer casing of the walls is of corrugated sheet metal, as at 12, which is carried up to the cornice of the roof. The roof is preferably of low pitch secured directly upon the roof joists 9 and may be covered with any suitable weathering that is airtight. A passage 7 is thus left connecting the upper side of the chamber passing down the walls and under the flooring 8, with the middle space of the chamber wherein are the heating pipes 3.

The moisture laden hot air rising through the lumber stacked in the chamber 2 will by convection be carried down the passage 7 within the walls and in the upper part of that passage will be brought in contact with the outer casing 12 of corrugated metal, which being exposed to the external air will be cooler than the air within the drying chamber and on which therefore the surplus moisture in that air will condense. The water of condensation will run down the corrugated plate 12 and will be delivered outside the building by the shedding plate 11, while the air from which this moisture has been abstracted will be delivered under the floor 8 to the mid space wherein are the heating pipes 3 to be reheated by them before passing upward again through the drying chamber 2.

This constitutes the general construction of a kiln to meet the requirements of this invention but it must be distinctly understood that the invention is not comprised in the specific structure of the building but in the provision of a condensing surface past which the hot vapors rising from the material being dried are conveyed and in the provision for conveying the water of condensation to without the building.

In its improved form the building may be made of concrete or of a combination of concrete and wood or concrete and metal without departing from the spirit of this invention.

Having now particularly described my invention and the manner of its use, I here-

by declare that what I claim as new and desire to be protected in by Letters Patent, is:

5 In a drying kiln having a non-conducting inner wall and an outer wall composed of an upper and a lower section, said lower section formed of non-conducting material, said upper section including an open frame work and vertically disposed corrugated
10 sheet metal sheathing over said frame work, said upper wall section being spaced from said lower wall section, and a downwardly and outwardly inclined shedding plate

mounted in the space between the upper and lower outer wall sections to receive the water 15 of condensation from said corrugated sheathing and deliver it to the outside of the kiln.

In testimony whereof I have signed my name to this specification in the presence 20 of two subscribing witnesses.

ROBERT ABERNETHY.

Witnesses:

ROWLAND BRITAIN,
WM. S. SOUTAR.