

July 10, 1923.

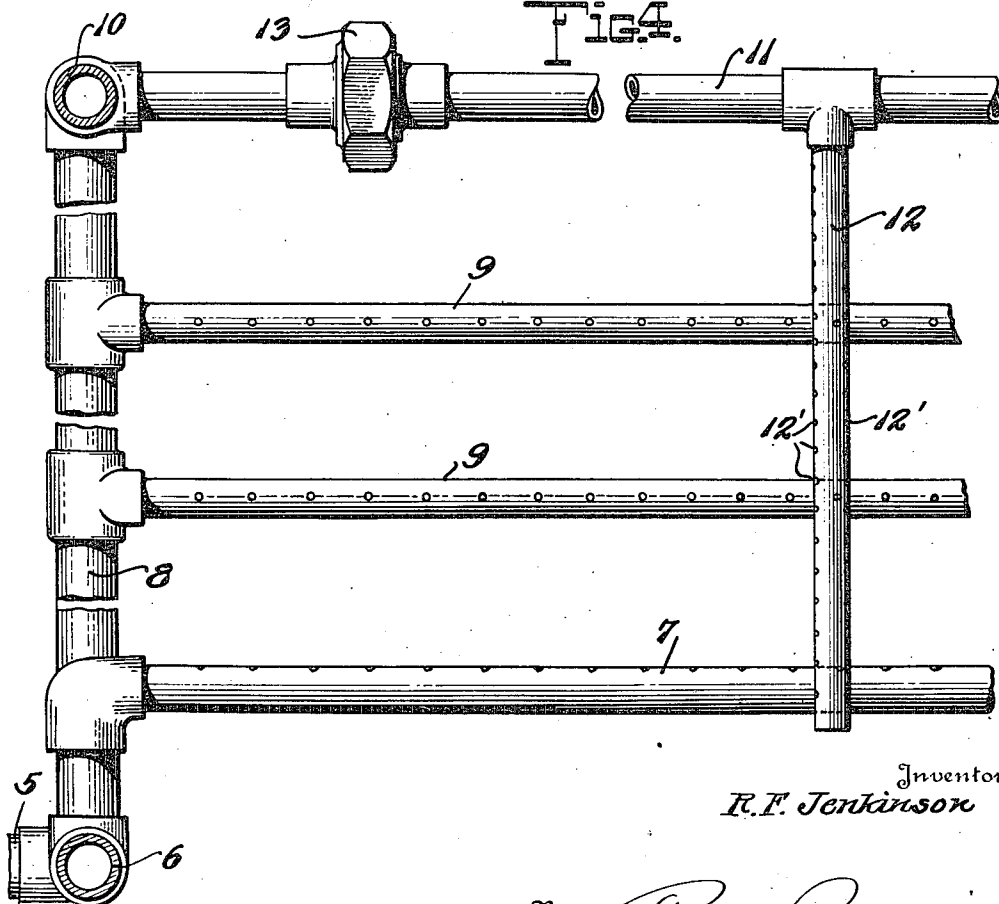
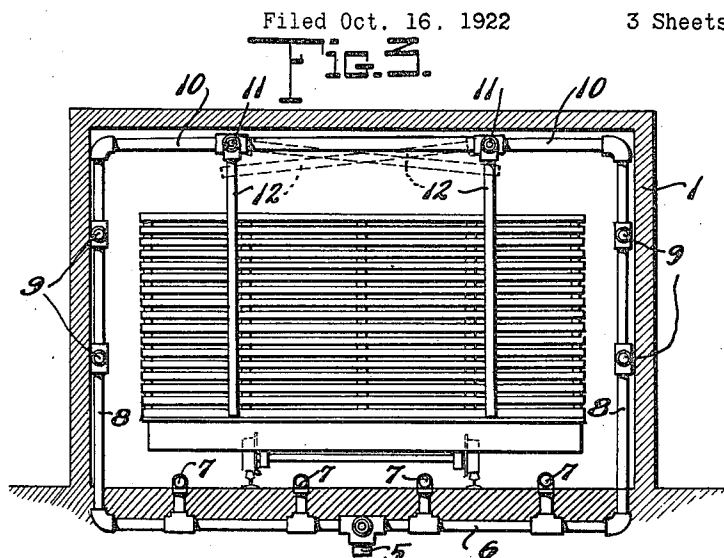
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R. F. JENKINSON

APPARATUS FOR DRYING LUMBER

Filed Oct. 16, 1922

3 Sheets-Sheet 2



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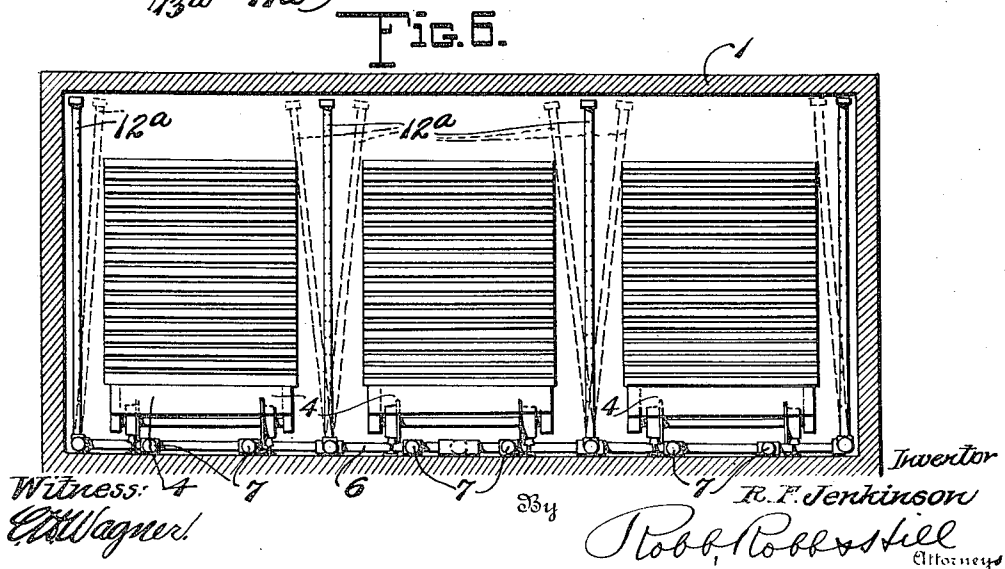
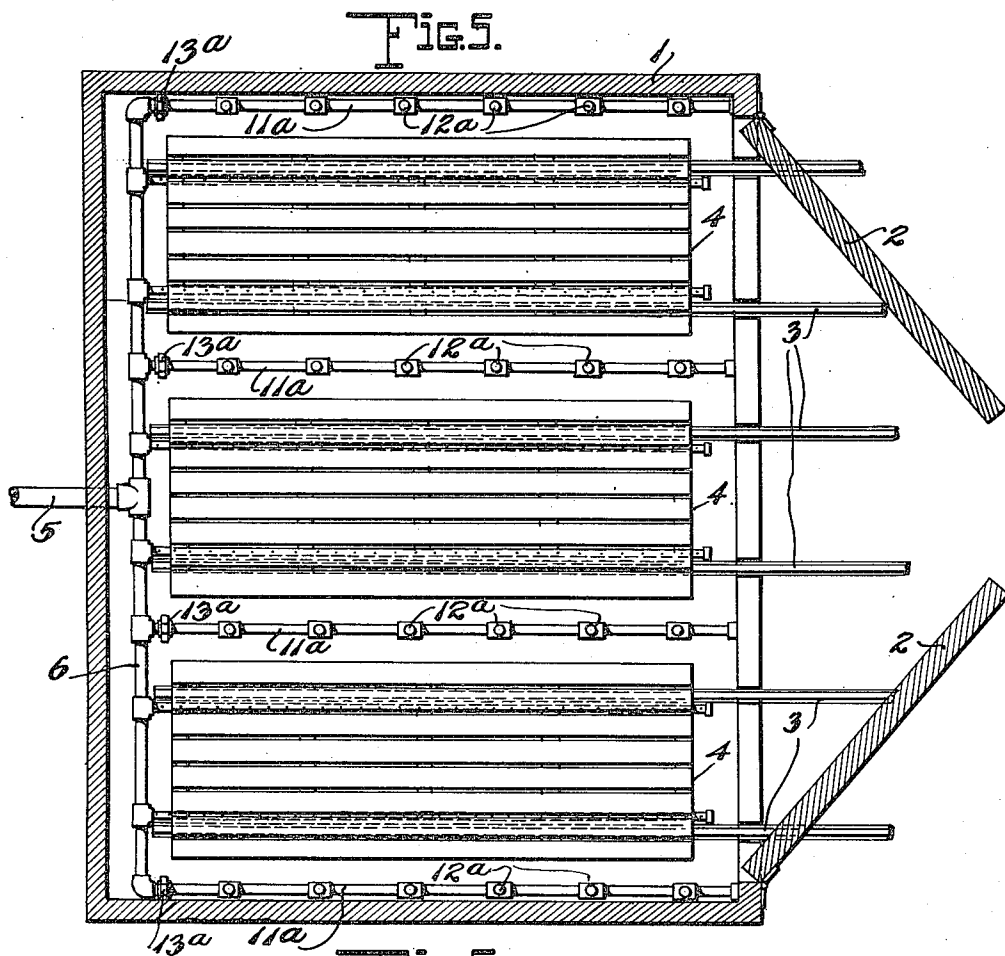
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Witness: 4
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UNITED STATES PATENT OFFICE.

RICHARD F. JENKINSON, OF TUSCALOOSA, ALABAMA, ASSIGNOR OF ONE-HALF TO
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APPARATUS FOR DRYING LUMBER.

Application filed October 16, 1922. Serial No. 594,799.

To all whom it may concern:

Be it known that I, RICHARD F. JENKINSON, a citizen of the United States, residing at Tuscaloosa, in the county of Tuscaloosa and State of Alabama, have invented certain new and useful Improvements in Apparatus for Drying Lumber, of which the following is a specification.

The present invention appertains to improvements in methods of and apparatus for drying lumber.

It is well known in the lumber trade that the most satisfactory method of drying lumber is the commonly practiced method of seasoning by atmospheric exposure, but this method requires a great length of time if thoroughly carried out. Numerous methods have been proposed heretofore for accomplishing the desired result involving a considerable shortening of the usual seasoning period, but these in most instances either fail to eliminate the sap and acid from the green lumber or produce what are known as seasoning checks or cracks, the latter being due to the exterior drying rapidly before the interior has lost its moisture.

By experimentation over a long period of years. I have devised a very inexpensive and economical apparatus by means of which the process of drying lumber is greatly facilitated while at the same time thoroughly efficient in overcoming the defects above referred to. In the carrying out of my invention I subject the lumber while stacked in the drying kiln to the action of steam.

Among other objects, my aim has been to secure an effective distribution of the steam, for on this the efficiency of the apparatus primarily depends. I secure the desired result by a special arrangement of piping which disposes nozzle branches in a position projecting between the piles of lumber and at the sides thereof so as to project multiple streams of the steam against the lumber piles, insuring the contact of the steam with individual pieces.

A further object in view has been to so mount the steam conduits that they may be readily shifted out of the way to give ample clearance for introducing into and removing the lumber piles from the kiln.

With the above and other objects in view, the invention consists in certain combinations and arrangements of the parts as will

more fully appear as the description proceeds, the novel features thereof being pointed out in the appended claims.

In the drawings:

Figure 1 is a horizontal sectional view through a drying kiln constructed in accordance with my invention showing the steam conduits in operative position.

Figure 2 is a vertical sectional view through the drying room showing the piping system in elevation.

Figure 3 is a sectional view at right angles to the section in Figure 2 showing the steam conduits in operative position in full lines and the inoperative position of certain of the nozzle branches in dotted lines.

Figure 4 is a fragmentary vertical sectional view of the piping arrangement alone.

Figure 5 is a horizontal sectional view of a drying room embodying a slightly modified arrangement of piping.

Figure 6 is a vertical sectional view of the drying room shown in Figure 5, and illustrating the movability of the nozzle branches to afford room in introducing the lumber into the kiln.

Corresponding and like parts are referred to in the following description and indicated in all of the views of the drawings, by like reference characters.

Referring to Figures 1 to 4, inclusive, 1 designates a drying room of suitable size and configuration having doors 2 at the end thereof and rails 3 on which the lumber is adapted to be conveyed on trucks 4 into the drying room, the lumber being stacked upon the trucks so as to lie in spaced relation. In this arrangement the maximum capacity is obtained by introducing the lumber piles into the room sidewise as distinguished from the endwise introduction shown in the modified arrangement of Figure 6. Leading from a suitable source of steam supply is a main feeder or conduit 5 from which extends the lower horizontal header or conduit 6 for conveying steam to the floor branches 7, a suitable number of which is provided as shown in Figure 1, so as to extend substantially throughout the length of the room and beneath the lumber. These floor branches are provided with perforations substantially their complete length so as to project steam in multiple sprays from beneath

the lumber. Vertical headers 8 extend from the branch 6 and supply steam to a pair of side branches 9 extending throughout each side of the room, these branches like those designated 7 being perforated so as to project the steam against the ends of the lumber stacks. Upper horizontal branches 10 supply the steam to the overhanging pipe headers 11 which likewise extend substantially the complete length of the drying room. From these pipe headers 11 nozzle branches 12 depend at points which in the operative position of the pipes lie between the lumber stacks and at the outer sides thereof. The intermediate nozzle branches 12 have perforations 12' at opposite sides thereof so as to project jets of steam in opposite directions against the two adjacent lumber stacks. Those nozzle branches 12 at the ends are perforated preferably only on one side. The pipe headers 11 are each provided with a universal coupling 13 so that whenever it is desired to introduce into or remove the lumber from the drying room the nozzle branches 12 may be shifted upwardly as shown in dotted lines in Figure 3, out of the path of movement of the lumber stacks. This is readily accomplished by grasping one of the nozzle branches 12 and actuating the same in the proper direction, all of those on the particular header 11 moving as a unit.

It will be obvious from this special arrangement of the piping that the thorough distribution of the steam in the drying room is obtained so that a large multiple of steam jets are projected against the lumber from all sides substantially thoroughly permeating the lumber with the steam and driving out the sap and acid. The steaming step is, therefore, very efficient and I have found that it is necessary to subject the lumber to this steam in the manner indicated for only a period of about twelve hours. The lumber is thereafter subjected to the second step, either in the same drying room or elsewhere, of dry heat, any suitable heating means being employed for this purpose. This second heating operation is carried on for a period of twelve to twenty-four hours, depending upon the character of the lumber and then the lumber is removed into the atmosphere where it is allowed to stand from eight to ten days. At the end of this period, the sap,

acids and pitch streaks are entirely eliminated and the lumber found to be in thoroughly seasoned condition.

In Figures 5 and 6 I have shown a slight modification of my piping arrangement wherein the perforated nozzle branches instead of depending from overhanging supply conduits extend upwardly from floor conduits, these nozzle branches being designated 12^a. The horizontal floor conduits 11^a to which they are connected are, however, similarly provided with universal joints 13^a so that the nozzle branches may be shifted as units laterally into the dotted line position shown most clearly in Figure 6. Swinging in this manner will enable the pipes to be disposed in out of the way positions when the lumber is rolled into the drying room or removed therefrom.

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

1. A drying kiln, comprising a drying room, heating means arranged in the room in position to direct its heating medium substantially upon all sides of the lumber, said means including nozzle pipes, certain of said pipes being free to swing laterally to facilitate introduction into and removal of lumber from the room.

2. A drying kiln, comprising a drying room, heating means in said room including a steam supply pipe, branch conduits extending longitudinally of the room from said supply pipes, and nozzle branches connected to said longitudinal branch conduits, said nozzle branches being adapted to swing as units to permit of free access to the room.

3. A drying kiln, comprising a drying room, heating means arranged in said room and embodying steam supply pipes arranged at the sides and near the floor of the room, each being provided with jet openings throughout their entire length, overhanging supply pipes extending longitudinally of the room having universal joints therein, and pendant nozzle branches extending from said last named pipes, the series of nozzle branches for each pipe being shiftable laterally to dispose the same in inoperative position adjacent the ceiling of the room.

In testimony whereof I affix my signature.
RICHARD F. JENKINSON.