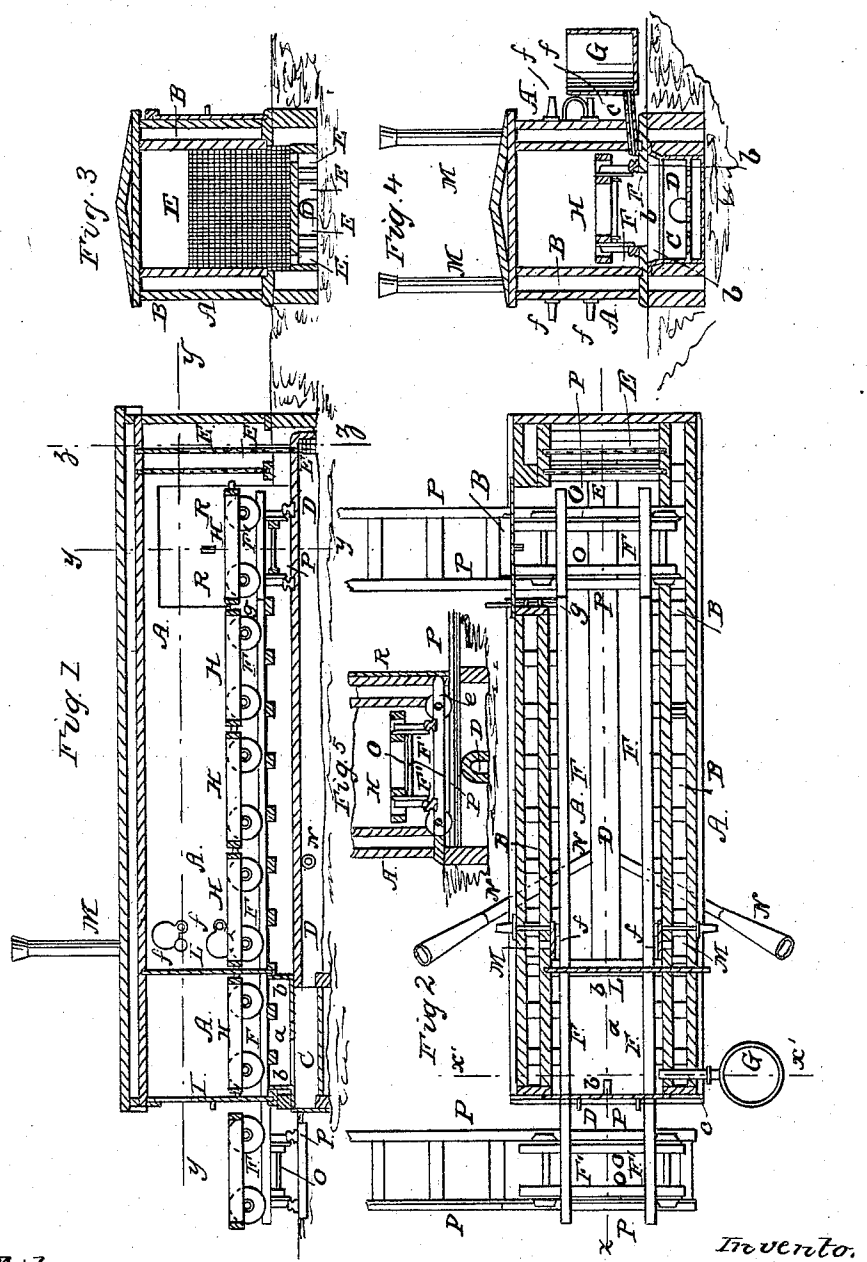
R. P. JOHNSON.

Lumber Drier.

No. 66,594 Patented July 9, 1867.



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Letters Patent No. 66,594, *dated July* 9, 1867.

IMPROVEMENT IN APPARATUS FOR DRYING LUMBER.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, RICHARD P. JOHNSON, of Wabash, Wabash county, Indiana, have invented a new and improved Apparatus for Drying Lumber; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a vertical longitudinal section of my improved apparatus for drying lumber, the plane of section being indicated by the line *x x*, fig. 2.

Figure 2 is a horizontal sectional view of the same, the plane of section being indicated by the line *y y*, fig. 1.

Figure 3 is a vertical cross-section of the same, the plane of section being indicated by the line *z z*, fig. 1.

Figure 4 is a similar view, the plane of section being indicated by the line *x x'*, fig. 2.

Figure 5 is a similar view, the plane of section being indicated by the line *y' y'*, fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to an apparatus wherein wood of any description, whether split into lumber or not, may be steamed and dried, so as to be thoroughly seasoned.

The invention consists in drying steamed lumber in a close chamber by passing the products of combustion directly into such chamber among the lumber, from a flue passing underneath the dry-house its entire length, and in providing tubes for the admission of cold air into said flue, by which a partial vacuum is produced in the drying-chamber and the current of hot air accelerated.

The floor of the building in which the apparatus is set up is provided with rails, so that the lumber on the trucks is passed into one end of the building and steamed. Thence it is brought into the drying-chamber, the floor of which is inclined, so that the trucks standing therein will be moved down automatically as the front truck is moved out of the drying-room. The lumber can thus be brought to market on the same trucks on which it was first loaded, having been steamed and dried without having been unloaded from the trucks.

A represents a wooden building, placed upon suitable foundations, and provided with double side walls B B, as shown in figs. 2, 3, and 4, for the purpose of better retaining the heat. Below one end of this building, and embedded in the ground if desired, is a furnace, C, built of brick or other suitable material, and having a sheet-metal or other metal cover *a*, that is provided with turned edges *b b*, as shown in figs. 1 and 4, to serve as a pan for holding water. One or more horizontal flues D, made of brick or metal, are arranged below the building, and are embedded in the ground, and extend from the furnace C to the other end of the building. They convey the products of combustion from the furnace to the opposite end of the building A, where the same enter the building through the meshes of wire-netting walls E E, arranged across the building, across the flues D, so as to arrest and prevent the sparks from entering the building. Upon the floor of the building are placed one or more pair of rails F, extending from one end of the building to the other, as shown in figs. 1 and 2, and even extending over the pan *a b*. Water is brought into the pan *a b* through a pipe, *c*, which is connected with a barrel or vessel, G, containing water.

The lumber to be dried is loaded upon trucks H H, and brought to that end of the building A under which the furnace is arranged. The trucks are then brought into the building, over the pan *a b*. The front doors I are then closed, and that part of the building in which the pan *a b* is contained is separated from the rest of the building by means of sliding doors L L. The water in the pan is evaporated by the heat from the furnace below, and the lumber on the truck, that stands above the pan, is thoroughly steamed.

When the steaming is completed, the doors L L are opened, and the trucks moved forward into the drying-room by simply bringing another truck-full of lumber into the steaming-room. In the drying-room, the rails are laid slightly inclined, as shown in fig. 1, so that the cars therein will move forward of their own accord. The heated air and products of combustion from the furnace enter at the lower end of the drying-chamber, and dry the lumber on that truck which is at the extreme end of the building, as that stands directly above, or nearly so, the discharge of heat from the flue D, as shown in fig. 3. The truck is then moved out of the building, and the other trucks move down, and so a continuous string of trucks is being operated upon, and a large quantity of wood can thus be dried.

The heat in the drying-chamber passes into the front part of the same, and near to the doors L; it passes out of the building through the chimneys M, in which dampers or registers *f* are arranged to regulate the escape of the hot air. N N are two funnel-shaped tubes, to conduct a suitable quantity of fresh air into the flue D, when required, so as to prevent the overheating of the air in the said flue, and to increase the draught through such flue and through the drying-chamber to the chimneys M″. The trucks are, of course, built in such a manner that the air can pass freely through the same into the lumber. When it is found impracticable to let the trucks out of the lower end of the building, but when they have to be discharged through the sides, it is necessary to have the lower or more forward part F′, which is further from the steam-pan of the rails F, mounted upon trucks O, which are placed upon cross-rails P, that are continued at the outside of the building, as shown in figs. 1, 2, and 5. As the lumber on the lower car is dried, stops *g*, figs. 1 and 2, are placed between the car and the next to it, so as to prevent the line of cars from moving ahead when the last car is removed. The doors R at the side of the building are then opened and the truck O moved out on the track P, the last car, standing on the car O, on the outside of the car H, can be taken down from the car O, and the latter is moved back again into the building; the stops are then removed to let the whole row of cars H move forward again, a new car is brought into the steaming-chamber, and the process of steaming and heating is then gone on with as before. A similar arrangement for a cross-track with trucks O, may be used for charging the steaming-chamber, as is indicated by red lines in figs. 1 and 2.

By this invention green lumber may be put into the building continuously, and dry lumber removed therefrom continuously, without slacking the fire or delaying the drying process of the lumber that remains in the kiln. Lumber is more equally and thoroughly dried, and in less time, than by any process heretofore used or known, and a great saving in fuel, time, and labor is consequently secured by the process.

I claim as new and desire to secure by Letters Patent—

1. The combination and arrangement of the furnace C, flue D, and perforated plates E, by which the products of combustion are discharged directly into the chamber A among the lumber, being driven through such chamber and discharged through the chimneys M, as herein described, for the purpose specified.

2. The tubes N, arranged in relation with the flue D, whereby the draught through the chamber A is accelerated, as herein set forth for the purpose specified.

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Witnesses:

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