

R. E. FERGUSON

Lumber Dryer.

No. 107,892.

Patented Oct. 4, 1870.

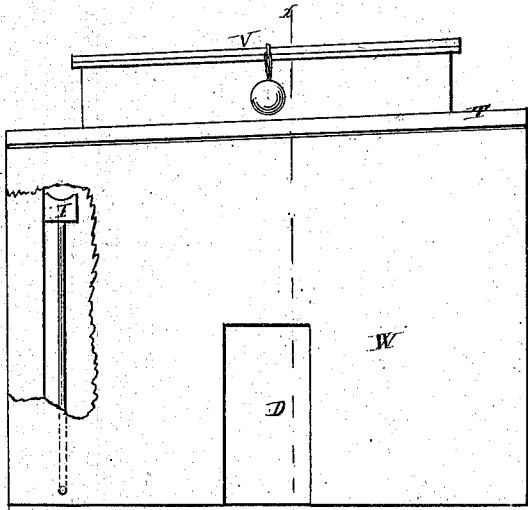


Fig. 1

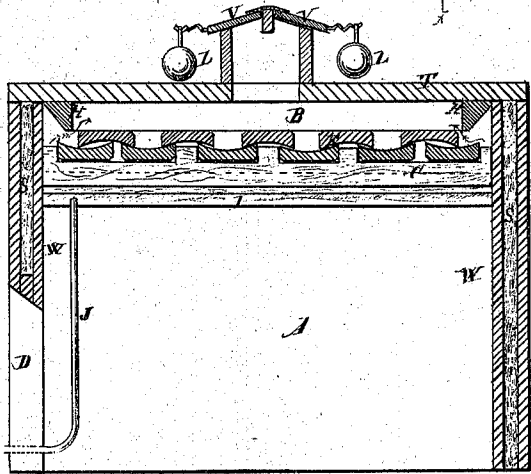


Fig. 2

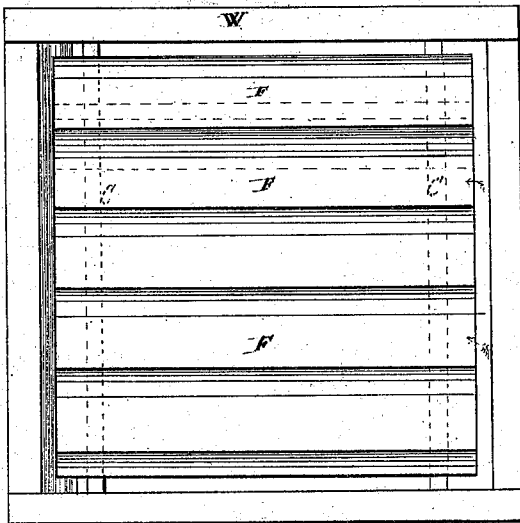


Fig. 3

WITNESSES:

Lewis L. Cushman
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ROBERT E. FERGUSON, OF CHICAGO, ILLINOIS.

Letters Patent No. 107,892, dated October 4, 1870.

IMPROVEMENT IN LUMBER-DRIERS.

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

I, ROBERT E. FERGUSON, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Lumber-Driers, of which the following is a specification, reference being had to the accompanying drawing.

The Nature and Object of my Invention.

My invention relates to the condensing-chamber B in the drier, into which the steam passes as it is evaporated from the lumber, to be condensed and flow off in the form of water. The steam passes freely into the cooling-chamber B, and there being retained till it condenses into water and flows off, the heat is retained in a great degree, and the steam arising from the lumber is so far retained in the drying-room or chamber A as to prevent the outside from drying too rapidly and checking. The condensing-chamber is so constructed that the condensed steam or vapor cannot flow back into the drying-chamber, but flows off outside of the building.

And my invention also consists of the combination of the trough I and discharge-pipe J with the condensing-chamber, constructed with a floor for retaining the water, as hereafter described.

Description of the Drawing.

Figure 1 represents a side elevation of my drier, with one corner cut away, to show the water-discharge pipe from the condensing-chamber;

Figure 2 represents a vertical sectional view, taken at the line *x x*, in fig. 1; and

Figure 3 represents a plan view, with the roof or top T removed.

General Description.

W represents the walls of a drier or dry-house, for drying lumber. I prefer making them with a space, S, which I fill with sawdust, but they may be made in any of the usual ways of making walls intended to retain the heat.

D is the doorway for admitting lumber.

A is the room or chamber where the lumber is placed to be dried. This chamber is made as tight as possible, and heated in any of the known ways of heating apartments of that kind. As lumber-driers are usually built in connection with steam-mills, I usually run a steam-pipe from the boiler, and pass steam through coils arranged in the drying-chamber A, and exhaust outside of the chamber, heating the chamber by radiation from the steam-coils, and not by admitting steam to escape into the chamber and coming in contact with the lumber.

C are cross-pieces, supporting the floor F, which is made so as to admit of the steam passing up, as indicated by the arrows, into the condensing-chamber B.

H are pieces to prevent the water that may gather on the roof or top of the chamber B from running

down the walls W. They conduct it upon the floor F, as shown; and one side of these pieces is beveled, so as to conduct all the moisture that may gather upon the pieces themselves, so that it will drop upon the floor F.

I is a trough, so arranged that the water flows into it from the floor F, and—

J is a pipe, extending from the trough I down and out through the wall, as shown. The steam, as fast as it condenses, flows into the trough I, and through the pipe J, to be discharged outside of the drier.

V are hinged covers or lids, and are weighted down by the weights L, which are hung on notched arms O, so that they can be moved thereon to regulate the pressure required to raise the lids V. These weighted lids are for an escape of steam, in case there is a sufficiently high temperature in the drying-chamber to cause the steam evaporated from the lumber so much faster than it would condense in the condensing-chamber as to cause a high pressure of steam.

The floor F is composed of overlapping strips or pieces, as shown, but I do not wish to limit my invention to that particular kind of floor, as a corrugated floor would admit of the steam passing up into the chamber B, and prevent the water from flowing back.

As the temperature in the drying-chamber A is raised the moisture in the lumber evaporates, and, in the form of steam or vapor, passes into the chamber B, as above described, where it condenses into water and flows off through the pipe J.

The valves V are not intended for the escape of steam, but it is intended to be retained till it condenses; but in case of a high degree of heat, so that the steam will not condense rapidly, the valves are intended as safety-escape valves.

It will be observed that my lumber-drier, or kiln, is very simple, cheap, and durable.

Claim.

Having described my lumber-drier,

What I claim, and desire to secure by Letters Patent, is—

1. The condensing-chamber B, when separated from the drying-chamber by a floor or partition, so constructed as to admit of the free passage of the steam into the condensing-chamber, but not admit the water or condensed steam to flow back, substantially as and for the purposes above specified.

2. The combination of the pipe J and trough I with the condensing-chamber, provided with a water-retaining floor, when constructed and operated substantially as and for the purposes described.

ROBT. E. FERGUSON.

Witnesses:

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