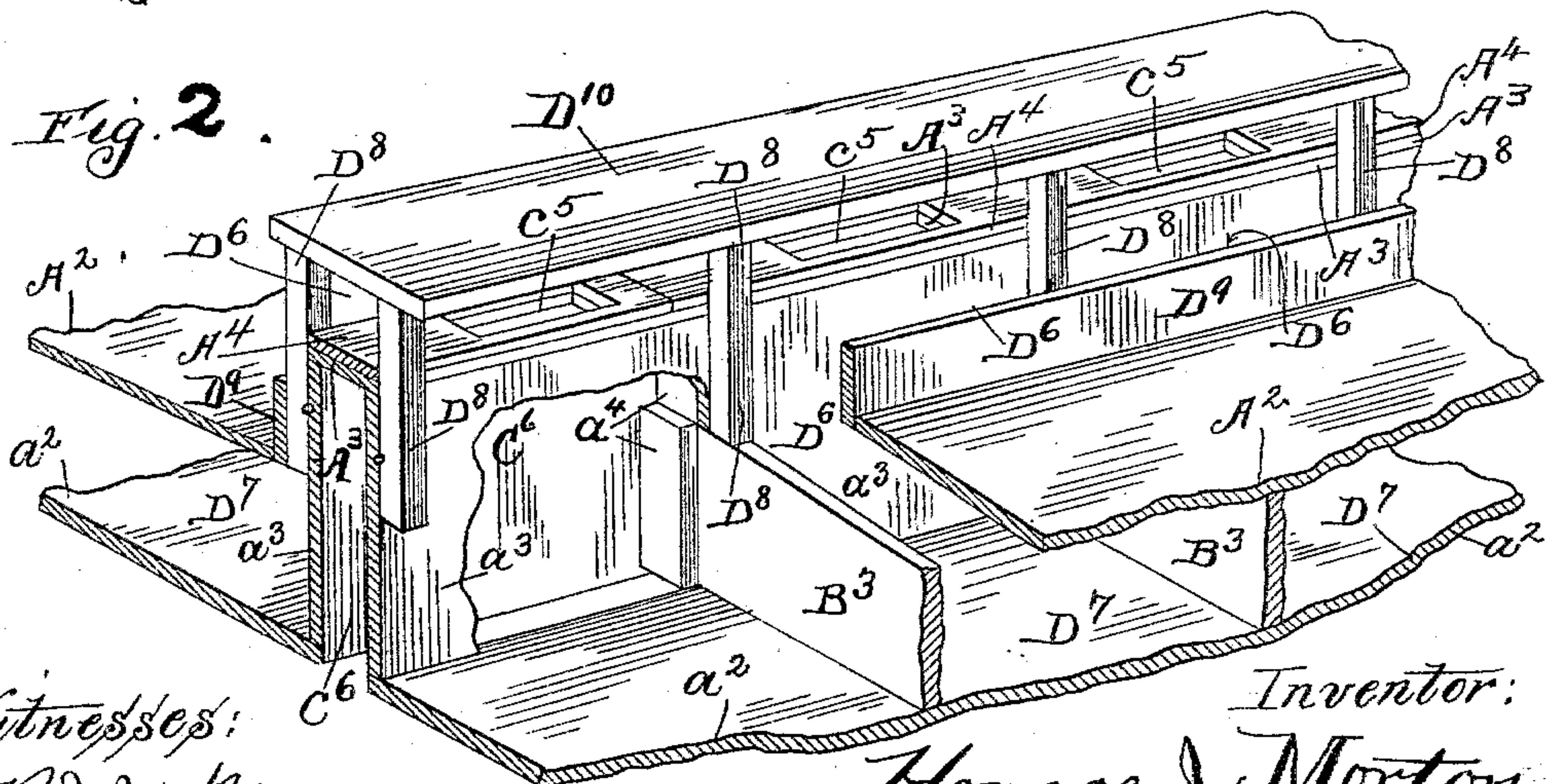
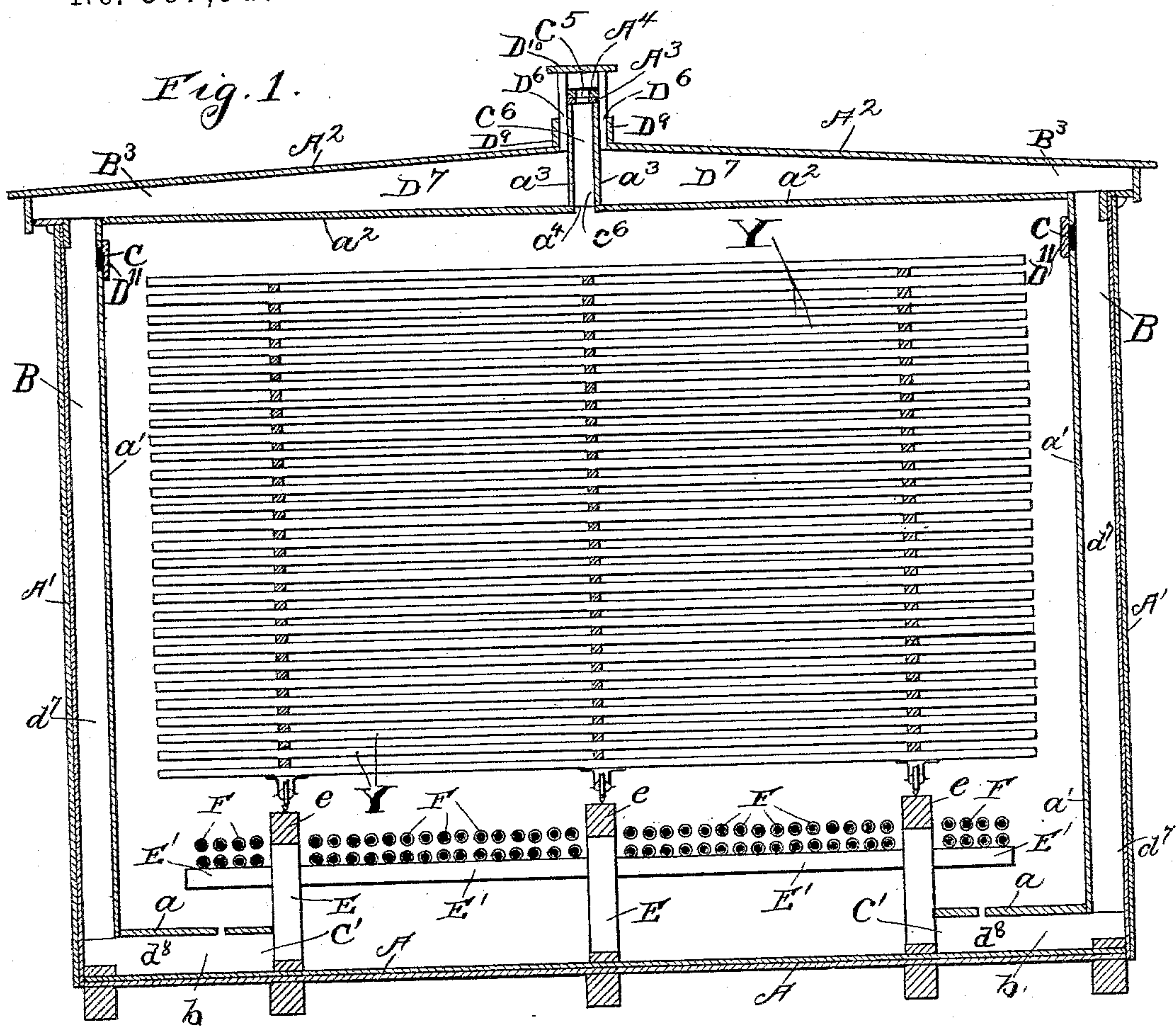



H. J. MORTON.
LUMBER DRIER.

Patented Jan. 18, 1898.



Witnesses: C⁶ 
R. J. Jaeger,
C. L. Peterman.

Inventor:
Horace J. Morton,
By Brown & Brown, Attys.

UNITED STATES PATENT OFFICE.

HORACE J. MORTON, OF CHICAGO, ILLINOIS.

LUMBER-DRIER.

SPECIFICATION forming part of Letters Patent No. 597,543, dated January 18, 1898.

Application filed October 21, 1896. Serial No. 609,633. (No model.)

To all whom it may concern:

Be it known that I, HORACE J. MORTON, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Lumber-Driers, of which the following is a full and complete specification, sufficient to enable those skilled in the art to which it pertains to understand, make, and use the same.

This invention relates to the class of lumber-driers which have fresh-air ducts, conduits, or passage-ways taking air from above the piles or loads of lumber in the drier (and being dried) and discharging such air into the lumber-drier underneath the heating-coils (usually steam) therein; and the invention is particularly an improvement upon those set out, described, illustrated, and claimed in Letters Patent of the United States granted to me on the 22d day of October, 1895, numbered 548,445.

The object of this invention is to obtain an improved construction of the inlet and outlet air passage-ways, respectively, in a lumber-drier of the kind or class described—that is to say, to obtain a construction which will be more durable than the constructions heretofore used, more cheaply made, and which will afford better facilities for controlling the ingress and egress of air to and from the lumber-drier.

In the drawings accompanying and forming a part of this specification, Figure 1 is a vertical sectional view of a lumber-drier having my invention embodied therein; and Fig. 2, a perspective view of the central part of a portion of the top and roof of such lumber-drier, showing the several constructions particularly embodying the invention.

A reference-letter applied to a given part is used to designate such part throughout both figures of the drawings wherever the same appears.

A is the floor of the lumber-drier, and *a* the false floor thereof.

A' A' are the outer side walls of the lumber-drier, and *a' a'* are the inner side walls thereof. The studding B B of the lumber-drier being placed between such side walls A' *a'* vertical passage-ways are thereby formed. The false floor *a* preferably extends from the inner side walls *a' a'*, respectively, toward the center of

the lumber-drier and to underneath the steam heating coils or pipes F F.

B B are the studding of the side walls of the lumber-drier, and *b b* are pieces of studding laid on the floor A, on which pieces of studding the false floor *a* is laid.

C C are openings through the inner walls *a' a'*, through which the heated and moisture-laden air can pass from the lumber-drier into the passage-ways *d' d'* when covers D¹¹ are removed from thereover.

C' C' are the discharge-openings from the lateral passage-ways *d' d'*, such lateral passage-ways communicating with the vertical passage-ways *d'*, respectively.

E E are standards supporting the longitudinally-extending stringers *e e* and also supporting the cross-pieces E' E', on which the steam heating pipes or coils F F are placed.

A² is the roof of the drier, and *a*² is a sheathing thereunder, such roof and sheathing being secured to the rafters B³ B³.

C⁵ C⁵ are openings in planks A³ A⁴, respectively, through which openings moisture-laden air contained in longitudinally-extending passage-way C⁶ is discharged therefrom. More than one plank A⁴ is necessary to obtain the length required for the passage-way C⁶, and such planks are not connected together. Each of such planks can therefore be moved separately to register the openings C⁵ C⁵, and the number of such openings which are registered by the moving of any given plank A⁴ depends upon the length of the plank, which is usually an ordinary sixteen-foot plank having eight (8) openings C⁵ therein.

*a*³ *a*³ are the plankings forming the sides of the longitudinally-extending passage-way C⁶, such plankings being secured to the vertical studdings *a*⁴ *a*⁴, and such longitudinally-extending passage-way C⁶ being divided by the studdings *a*⁴ *a*⁴ into compartments which are open at the bottom to admit moisture-laden air from the lumber-drier and at the top (when the plank A⁴, forming a cover, is in proper relation to plank A³, forming the top or ceiling of such passage-way C⁶, so that the apertures C⁵ C⁵ are open) to permit such moisture-laden air to pass out therefrom.

D⁶ D⁶ are passage-ways communicating with lateral passage-ways D⁷ D⁷, respectively.

Passage-ways D^7 D^7 communicate, respectively, with vertical passage-ways d^7 d^7 . Passage-ways D^6 D^6 are formed by the planks a^3 a^3 , hereinbefore referred to as forming the walls of the longitudinally-extending chamber C^6 , the posts D^8 D^8 , rafters B^3 B^3 , and plank D^9 . The posts D^8 D^8 extend above the movable plank A^4 , and D^{10} is a plank resting on the top of such posts, such plank D^{10} extending longitudinally the entire length of the lumber-drier.

D^{11} D^{11} are the covers to apertures C C in the inner side walls a' a' .

Y Y is a pile of lumber in position for drying in the lumber-drier.

The operation of the lumber-drier hereinbefore described is as follows: Steam being admitted to the heating-pipes F F , the air heated thereby will rise in the lumber-drier and will become moisture-laden by the vapor or moisture obtained from the pile of lumber Y , and so much of such moisture-laden air as enters compartments of longitudinally-extending chamber C^6 which have openings C^5 C^5 open will pass from the lumber-drier through such openings. Other portions of such moisture-laden air will pass through the openings C C , which have the covers D^{11} D^{11} thereof open, and will become mixed with the fresh air passing downward in passage-ways d^7 d^7 , (into which passage-ways the apertures C C open,) and passing along with such air are discharged from the lateral passage-ways d^8 d^8 through openings or discharge ends C' C' into the drier underneath the pipes or coils F F , to be thereby heated and forced upward through the lumber-drier and the contents thereof. The admission of air into the passage-ways D^6 D^6 and passing thence through passage-ways D^7 D^7 , d^7 d^7 , and d^8 d^8 and discharged therefrom into the drier is controlled by those of the openings C^5 C^5 which are opened by the proper relative position of planks A^3 A^4 , as when a certain pressure of air and vapor obtains in the drier no more air will pass into the drier until some of the discharge-openings C^5 C^5 in planks A^3 A^4 are made to register and so opened. When some of the planks A^3 A^4 are brought into proper relative position to register the openings C^5 C^5 , fresh air will enter several of the adjacent passage-ways D^6 D^6 , so that fresh air is supplied to the drier along the length thereof through those of the passage-ways D^6 D^6 corresponding in position longitudinally with those of the openings C^5 C^5 which are registered by longitudinal adjustment of plank A^4 on plank A^3 , respectively.

In the use of the lumber-drier it will at times be found necessary to have the openings C^5 C^5 at one end of such lumber-drier entirely open, those at the other end entirely closed, and the intervening ones partly open and partly closed, such openings being from time to time changed to suit the varying kinds and conditions of the lumber being dried.

I do not deem it necessary to have the apertures C C opened ordinarily, and at no time is the opening thereof to equal in volume of delivery the capacity of the several passage-ways D^6 , D^7 , d^7 , and d^8 .

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

1. In a lumber-drier receiving and discharging air through the roof thereof, and having laterally-extending air passage-ways under the roof, studding extending along the middle line of the roof and resting on the rafters of the drier, parallel, longitudinally-extending perpendicular walls forming in combination with the studding and rafters a series of air-discharge compartments, a top having openings therethrough, to such air-discharge compartments, longitudinally-movable planks, resting on such top, openings through such planks which may be registered with the openings through the top of the compartments by sliding the plank, additional studding resting on the rafters and against the longitudinally-extending walls of the air-discharge compartments, and additional perpendicular walls secured to the last-named studding, whereby a series of air-outlets are obtained extending longitudinally along the middle line of the roof of the drier and a series of air-inlets discharging into the laterally-extending air passage-ways are obtained adjacent to and on each side of the air-outlets; substantially as described.

2. In a lumber-drier, the combination of rafters extending laterally across the lumber-drier, studding on the rafters midway thereof, planking secured to such studding and extending down between the rafters, forming a series of air-discharge chambers, a top with openings therethrough to such series of air-discharge chambers, a movable board having openings therein corresponding with the openings through the top of such air-discharge chambers, lateral passage-ways between the roof and the sheathing under the rafters, on each side of the air-discharge chambers, additional studding on the rafters and against the planking of the first-named studding and extending above such planking, planking secured to the additional studding, forming series of air-inlets communicating with the lateral air passage-ways, means for conducting the air from such lateral air passage-ways into the lumber-drier underneath the heating-pipes thereof, and a roof resting on the outside series of studding above the openings from the discharge-chambers, forming a longitudinally-extending chamber discharging its contents between the outer series of studding; substantially as described.

HORACE J. MORTON.

In presence of—

CHARLES TURNER BROWN,
F. L. BROWN.