M. C. CURRAN.
Lumber-Drier.

No. 210,999. Patented Dec. 17, 1878.

Fig. 1

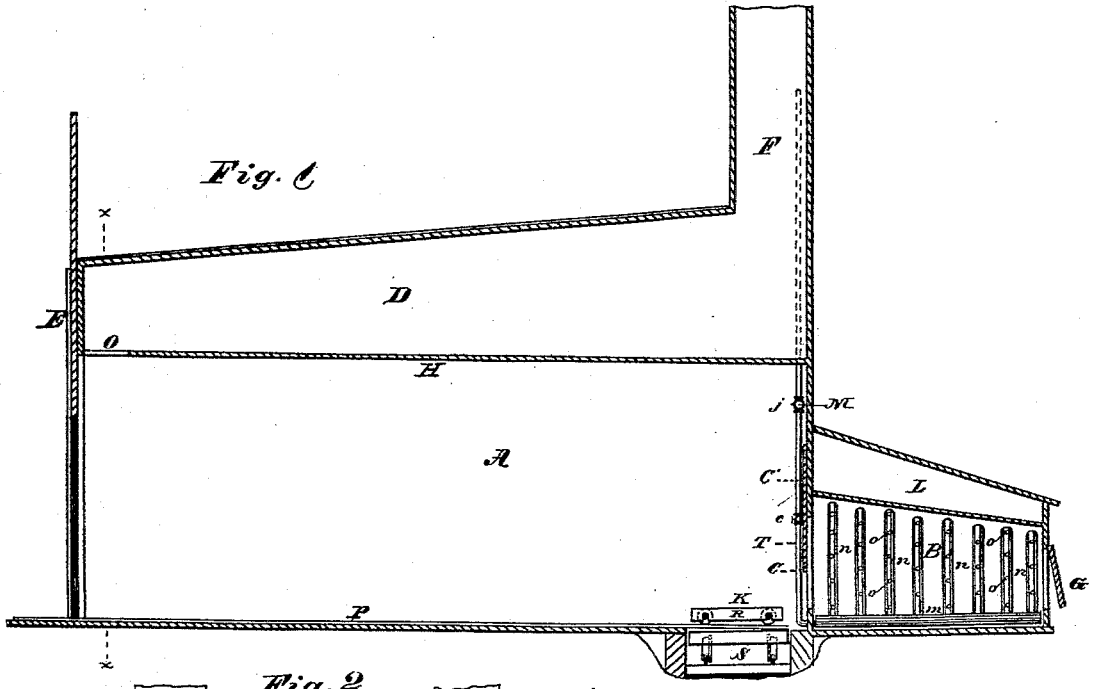


Fig. 2

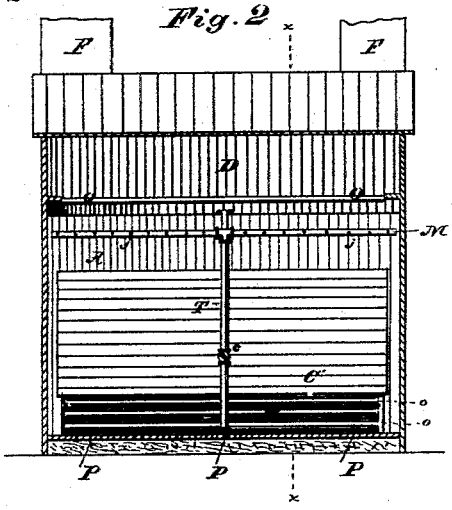


Fig. 3

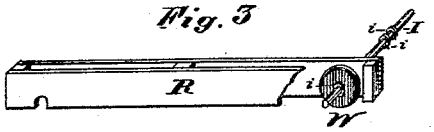
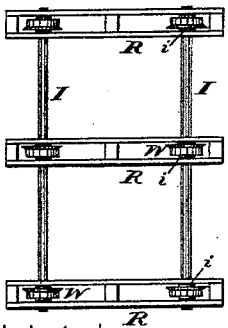


Fig. 4



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MICHAEL C. CURRAN, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN LUMBER-DRIERS.

Specification forming part of Letters Patent No. **210,999**, dated December 17, 1878; application filed June 5, 1878.

To all whom it may concern:

Be it known that I, MICHAEL C. CURRAN, of the city of Chicago, in the State of Illinois, have invented certain new and useful Improvements in Lumber-Driers, of which the following, taken together with the accompanying drawings, is a full and accurate specification.

My invention relates to lumber-driers, in which the air is heated by contact with steam-pipes, and passes horizontally through the drying-chamber and the lumber-piles therein contained.

It consists in placing the chimney at or toward the rear of the drier, where it may be more firmly sustained, and connecting its flue with the drying-chamber by means of a broad opening in the ceiling of the latter at its front end, and a horizontal, or nearly horizontal, flue or chamber located over the drying-chamber.

It further consists in a hot-air inlet and outlet for the same, both extending across the whole width and at opposite points of the drier.

It further consists in a register, arranged to regulate the amount of air admitted and the points and direction of its entrance.

It further consists in the steam-pipe chambers and elevated steam-jets, arranged as shown.

It further consists in a car, constructed substantially as hereinafter shown and described.

Figure 1 is a vertical longitudinal section of the complete structure in a plane, *x x*, Fig. 2. Fig. 2 is a vertical transverse section through the plane *x x*, Fig. 1, viewed from the front. Fig. 3 is a broken view of a portion of my improved lumber-car. Fig. 4 is a top view of the car complete.

E is the front end of the drier, provided with a suitable door. A is the main drying-chamber, having its ceiling and floor parallel, and preferably slightly inclined, as shown, to allow the lumber-cars to be easily moved toward the rear. The floor is provided with car-tracks P P. B is a steam-pipe chamber, located across the rear end of the drying-chamber and communicating therewith by the passage C, extending across the entire width of the chamber, or nearly so. This passage is closed by a sliding door, C′, or other suitable device, for regulating and directing the hot-air current.

The chamber B is supplied with numerous horizontal transverse steam-pipes, sustained and supplied with steam by the horizontal and vertical headers *m* and *n*. The cold air is admitted to the chamber B through the register G, parallel with C and with the transverse pipes. O O is a broad opening in the ceiling of the drying-chamber, located at its extreme front end, affording escape to the hot air through the horizontal flue or chamber D into the chimney F.

A sliding door may be applied to O to regulate the draft or to contract and spread the current.

The chimney F being necessarily high requires to be firmly secured to the building. This can be well accomplished by placing it at the rear end of the building, when the boards of which it is made may be extended downwardly below its outer base. It may, however, be strongly placed at any point at the rear of O, as at the middle of the building. The opening O serving to spread the current when the chimney is remote from it, the chimney need not be of the full width of the drier, but may be divided, to offer less resistance to the wind; or two chimneys may be used, one at each side of the building.

The upper flue, D, of the drier may also serve as a drying-chamber, particularly for small stuff, and for storing material required to be kept dry. Such stuff should not be placed so as to impede the draft. It may be placed so as to assist the opening O to widen, or otherwise regulate the current through the chamber A.

A door reached by an outside stair or ladder may give easy access to the chamber D.

With my arrangement of the several parts of a drier, as described, the floor of the drying-chamber may be placed substantially on the ground-level, which will greatly facilitate the introduction and removal of lumber and the loading and unloading of the drier-cars. To obviate dampness from its proximity to the ground, a suitable filling should be put under the floor. Locating the floor at this level, however, and placing the steam-pipe chamber against the rear, requires the provision of a

depressed cross-passage, S, in which a truck is run to remove the lumber-cars, with their burden, through a side door over the passage. This cross-truck is provided with top rails, which form a continuation of the floor-rails P P, and sustain the inmost car of lumber in its last stage of drying. The depressed cross-passage extends outside the building any desired distance.

To avoid delay in returning the cross-truck to its place in the drier, a short exterior track may be laid outside the building, upon which the lumber-car removed may be run, to be disposed of at leisure, allowing the cross-truck to be at once run in and a lumber-car advanced upon it.

To dry lumber successfully it is often necessary, for reasons well known, to introduce steam into the current of heated air. I prefer to do this at an elevated point in the chamber, by reason of its tendency to fall as it is cooled, wherefore a vertical steam-pipe, T, is provided, connecting with the steam-supply and the elevated and perforated pipe M. Through the perforations *j j* jets of steam escape, subject to control by the single cock *c*.

If necessary to heat the flue F to stimulate draft, the pipe T may be extended and given any required form therein to effect the object; or it may exhaust therein near the top.

The draft will be materially aided by the arrangement of the registers G and C in substantially the line of air-passage through the chamber A.

Instead of the sliding door C′, upward or downward swinging doors may be applied to the passage C; or a system of slats, arranged to open and close singly or together, like those of a window-blind, may be used instead.

My improved car for lumber-drier use consists of the wheel-shafts I I, upon which the wheels W loosely turn, and the beams R. These beams are adapted to rest upon the shafts, to hold them the proper distance apart and at right angles with the beams. I prefer to make them open, as shown, and to set them astride the wheels. They are separately removable from the shafts. The wheels are held in position on the shafts by collars *i i* or otherwise. This construction allows the car to be separated into light parts, and thus easily moved by one man to the front of the drier. It forms, when put together on the track, a rigid whole, without the aid of diagonal braces connecting one beam with another.

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

1. In an automatic air-draft lumber-drier, the drying-chamber A and the upper horizontal flue, D, connected by the orifice or passage O, combined with the vertical chimney F, extending across the drier, substantially as described.

2. In a lumber-drier, the inclined drying-chamber A, having the adjustable hot-air inlet C across its lower or rear end, and the air-outlet O across the ceiling of the higher or front end, in combination with the upper horizontal flue, D, and vertical chimney F, at or toward the rear of the drier, substantially as described.

3. In combination with the drying-chamber A, having its outlet at O, and the steam-pipe chamber B, located on the same level, and having the cold-air register at G, the connecting hot-air passage provided with a register, C, adjustable to regulate both the amount of air admitted and the point or the direction of its entrance to the chamber A, substantially as described.

4. In combination with drying and steam-pipe chambers, arranged as shown, and communicating near their common floor-level, the elevated steam-jets *j j*, located over the hot-air opening, substantially as and for the purposes specified.

5. In combination with the floor-tracks of a lumber-drier, the car described, consisting of the shafts I I, loose wheels W, and removable beams R, resting upon the shafts, all substantially as shown, and for the purposes set forth.

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