

S. W. PEREGRINE.
DRYING KILN.

No. 467,953.

Patented Feb. 2, 1892.

Fig. 1.

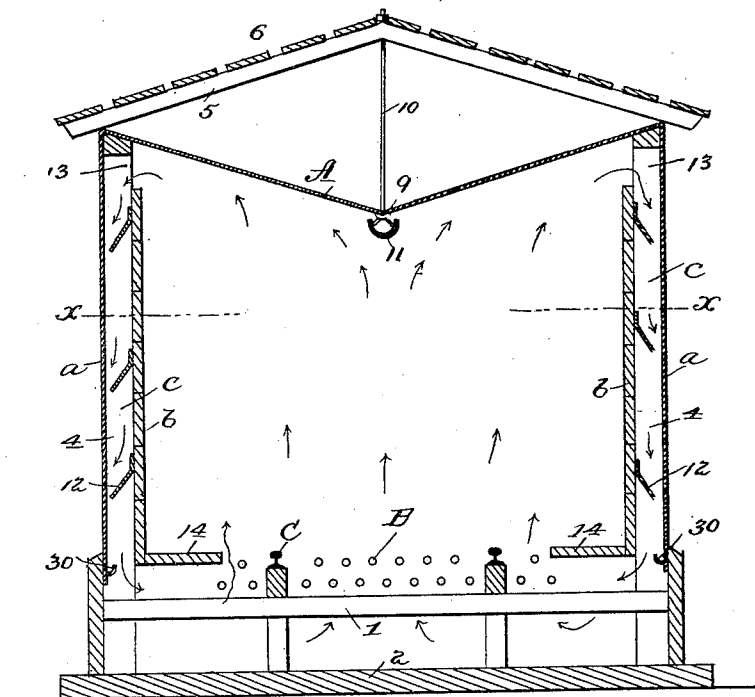
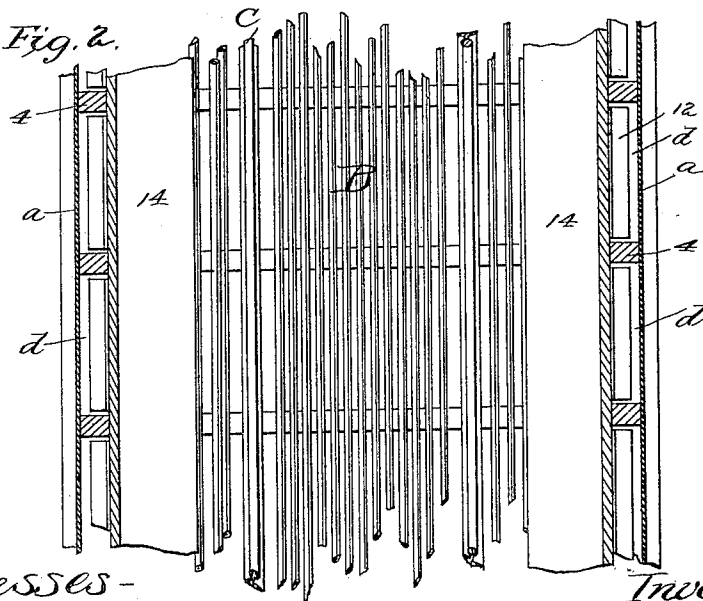


Fig. 2.



Witnesses—

J. P. Dutton
Lee D. Craig

Inventor,

S. W. PEREGRINE,

by *Ellis Spar* Atty

UNITED STATES PATENT OFFICE.

SEYMOUR W. PEREGRINE, OF GRAND RAPIDS, MICHIGAN.

DRYING-KILN.

SPECIFICATION forming part of Letters Patent No. 467,953, dated February 2, 1892.

Application filed July 2, 1890. Serial No. 357,528. (No model.)

To all whom it may concern:

Be it known that I, SEYMOUR W. PEREGRINE, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Drying-Kilns, of which the following is a specification.

The object of my invention is to provide a kiln for drying lumber, having special provision for accelerating the condensing of moisture and for carrying said moisture away.

In the accompanying drawings, Figure 1 is a transverse vertical section through the kiln. Fig. 2 is a plan view of a portion of the same on line *x x*, Fig. 1; and Fig. 3 represents modifications of the condensing-roof and shows means for collecting the moisture, which are applicable to other forms of roof.

The main structure of the kiln includes any suitable base composed of cross-beams 1 and side boards, from which extend vertical studs 4, placed at a suitable distance apart. These studs support the upper structure, consisting of the upwardly and inwardly inclined beams 5, which constitute the supports for covering-boards 6, hereinafter described. On the outside of the studs a sheet-metal wall *a* is secured, and on the inner side the studs are sheathed up by planks *b*. This construction leaves a flue-space *c* between the boards *b* and the metal outer wall, and the vertical extending studs divide this flue-space into a number of flues *d*, Fig. 2, each of which communicates with the interior of the kiln at the top and bottom.

Referring particularly to Figs. 1 and 2, at the upper portion of the kiln is placed an inverted metal roof *A*, which extends from the outer sheet-metal wall, inclining inwardly and downwardly to the point 9, where it is supported by means of the hangers 10. A trough 11 extends beneath the roof along the meeting edge of the two inclined sides constituting the inverted roof. Within the flues *d* deflector-plates 12 are secured to the inner board wall, said plates extending outwardly toward the sheet-metal wall and inclining downwardly. The heating-pipes are represented at *B*, and at *C* are shown tracks upon which the cars loaded with the lumber may be run into the kiln and held in position for

drying. The arrows in Fig. 1 indicate the circulation of the air-currents, the heated air rising through the interior of the kiln from the heating-coils being divided by the inverted sheet-metal roof and deflected laterally, thence passing through openings 13 over the inner board wall, thence downwardly through the flues *d*, and back to the heating-coil beneath the planks 14, which form a continuation of the inner board wall and of the flues *d*. The moisture condensed upon the under side of the inverted sheet-metal roof trickles down the inclined sides thereof into the trough 11, which conveys the moisture outside the kiln. The deflectors 12 cause the air-currents to be thrown at intervals outwardly against the outer sheet-metal wall and condensation also takes place here. Troughs 30 on the inner sides of the outer walls carry off the water of condensation. In order to keep the inverted roof cool, it is protected from the rays of the sun by the cover, consisting of the beams 5 and the boards 6. The boards are placed at a slight distance apart, so that the air is freely admitted to the upper side of the inverted roof, and rain and snow may also pass through into contact with the condenser-roof, thus aiding materially the condensation of the moisture upon the under side of said roof by keeping the same subjected to cooling influences.

While I prefer the form of cover shown, it will be understood that other forms may be provided, it being desirable that the roof be perforated for the purpose above described.

The deflectors in the flues *d* are made of spring material, so that they will accommodate themselves to the different strengths of the currents of air.

The gable ends of the kiln may be left open to aid the cooling action of the metal condensing-roof.

In Fig. 3 are shown modified arrangements of the condensing-roof. The inverted roof may be entirely upon one side of the center, as on the left of said Fig. 3, and the arrangement on the right may be the same, or the roof may be of the ordinary form, as on the right of Fig. 3, which shows both modifications for convenience. In each case, however, the roof consists of an inclined plate or plates having flues at their upper edges and

drip-troughs at their lower edges and having a perforated cover. This figure also shows additional means for facilitating the circulation and extracting the moisture from the air. A drum 14^a is placed in convenient position, preferably over the center of the kiln and above the roof-cover, and this drum has an annular receiving-space between its inner and outer walls 15 16. The interior 17 is hollow and open at both ends, so that the outside air can circulate freely within the inner wall of the drum. The receiving-space communicates with the interior of the kiln through a passage 18, and in the form shown it is arranged centrally, though I do not wish to be limited to this, as the drum may be used with other forms of roof than that shown in

Fig. 3. Return-pipes 19 lead from the upper end of the drum down outside the kiln and inward through its lower frame-work beneath the heating-pipes.

I claim as my invention—

In combination, the supporting structure, the heating apparatus, the roof for deflecting the air-currents and condensing the moisture, and a cover for said roof, having perforations or openings, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

SEYMOUR W. PEREGRINE.

Witnesses:

CHARLES A. RENWICK,
A. D. LINN.