

(No Model.)

C. M. JENNINGS.
ROOF OR FLOOR.

No. 551,352.

Patented Dec. 10, 1895.

Fig. 1.

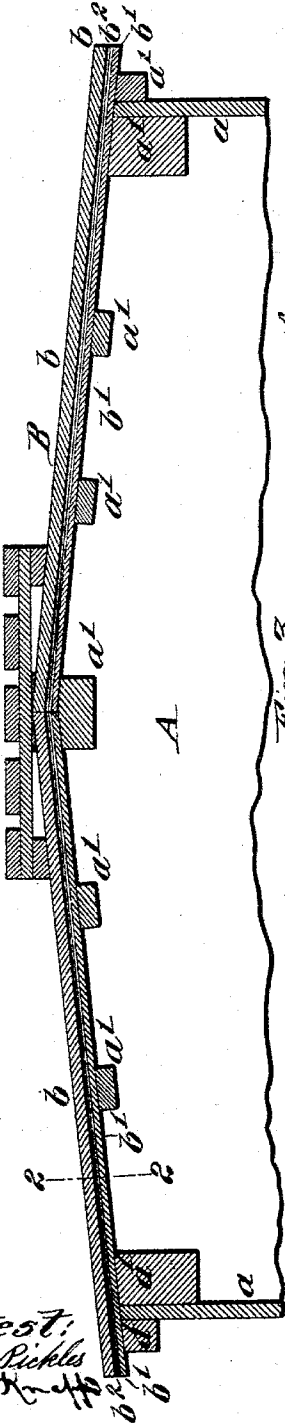


Fig. 3.

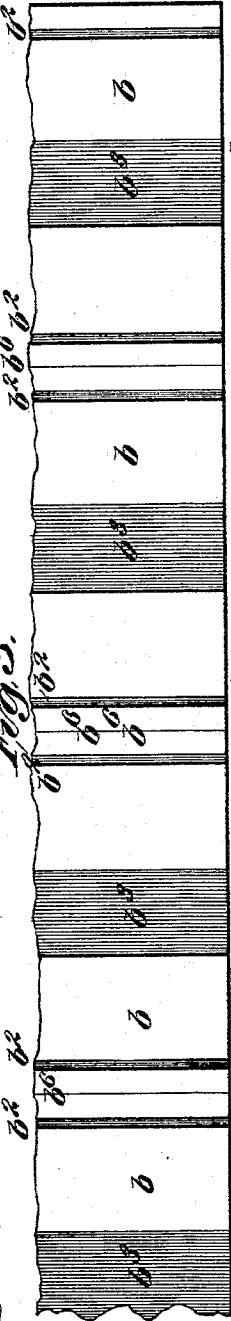


Fig. 4.

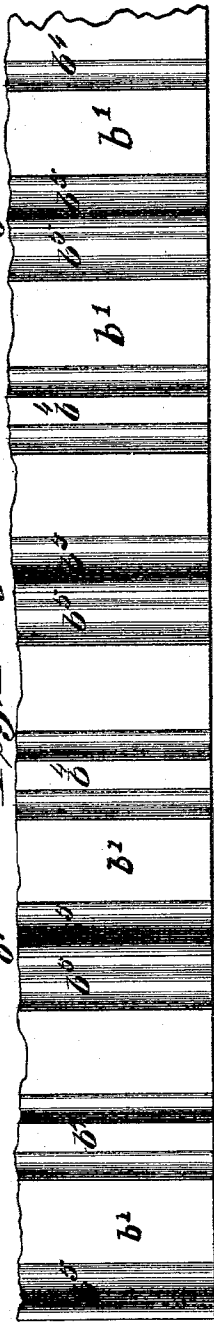
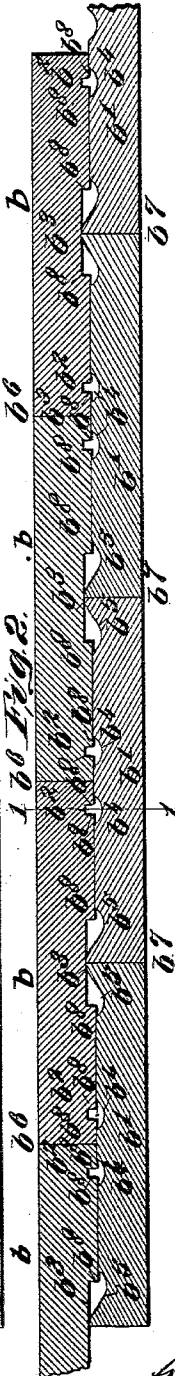


Fig. 2.



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UNITED STATES PATENT OFFICE.

CURTIS M. JENNINGS, OF ST. LOUIS, MISSOURI.

ROOF OR FLOOR.

SPECIFICATION forming part of Letters Patent No. 551,352, dated December 10, 1895.

Application filed March 28, 1895. Serial No. 543,549. (No model.)

To all whom it may concern:

Be it known that I, CURTIS M. JENNINGS, of the city of St. Louis, in the State of Missouri, have invented a new and useful Improvement in Roofs or Floors, of which the following is a specification.

My invention relates to wooden roofs and floors, and chiefly to roofs for freight-cars; and the chief objects of my improvement are, first, to construct a board roof which shall be water-tight even when its joints are open, and second, to prevent the boards composing the roof from warping and leaving openings between them. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical cross-section of a car-roof embodying my improvement along the line 1 1, Fig. 2. Fig. 2 is a vertical longitudinal section of the same roof along the line 2 2, Fig. 1. Fig. 3 is a plan view of the under side of the upper layer of boards shown in Fig. 2, and Fig. 4 is a plan view of the top of the under layer of boards represented in Fig. 3.

Similar letters refer to similar parts throughout the several views.

A, Fig. 1, represents the top of a freight-car, *a a* being the sides, *a' a' a' a' a' a' a' a'* the beams supporting the roof, B the roof, and C a running-board resting on the roof.

The roof B is composed of two layers of boards, preferably running from peak to eaves. *b b b b*, Figs. 1, 2, and 3, represent boards of the upper layer, and *b' b' b' b'*, Figs. 1, 2, and 4, represent boards of the lower layer. The boards *b* contain on their under sides, near each edge, a longitudinal groove *b²*, and near the center a preferably wider groove *b³*. The sides of the grooves *b²* and *b³* are preferably substantially vertical, and all of said grooves preferably extend from end to end of the boards and run substantially parallel with each other. Each of the boards *b'* has four longitudinal grooves running along its upper surface, two, *b⁴ b⁴*, about the center, and one, *b⁵*, near each edge. The grooves *b⁴* and *b⁵* are preferably concave in cross-section. The grooves *b⁴* are preferably wider than the grooves *b³*, and when a pair of boards *b'* are laid edge to edge the distance from the inner edge of the groove *b⁵* of one

board, next the joint, to the inner edge of the adjoining groove *b⁵* of the other board is greater than the width of one of the grooves *b³*, except where the grooves *b³* are made of different widths in different boards; but in any case the distance is greater than the width of the particular groove *b³* which is over the grooves *b⁵* in question. I use the word "inner" in the sense of next the center of the board. The upper surfaces of the boards *b'* are, preferably, so formed as to be higher in the neighborhood of their edges than elsewhere, as shown most clearly in Fig. 2. The boards of each layer are laid edge to edge, and the boards *b* in the upper layer are arranged, with reference to the boards *b'* in the lower layer, so as to break joints. The joints between the boards in the upper layer are lettered *b⁶*, and those between the boards in the lower layer *b⁷*. In the roof shown in the drawings the edges of the boards in each layer are plain; but no particular form of joint between the edges of the boards is essential. The boards *b* and *b'* of the two layers are also so laid as to bring each groove *b²* over, and preferably substantially centrally over, a groove *b⁴*, and each groove *b³* over a joint *b⁷* and two grooves *b⁵ b⁵*, one on each side of the joint. The sides of the grooves *b³* should be closer to the joint than the inner edges of the grooves *b⁵* beneath them.

By arranging the boards in the manner above described a gutter is formed between them on each side of each joint *b⁶* in the upper layer of boards and on each side of each joint *b⁷* in the lower layer. In case water enters through a joint *b⁶*, the gutters on each side of it usually suffice to carry it off and prevent its passing on toward the nearest joints *b⁷*. If any water passes the gutters next the joint *b⁶* and reaches a groove *b⁵* it is carried off by the gutter formed by that groove and the groove *b³* above it. By increasing the thickness of the boards *b'* at their edges I increase the difficulty in the way of any water reaching the joint *b⁷*.

I have three objects in the use of the grooves *b³* and *b⁵*—viz., first, to increase the size of the gutters; second, to prevent the boards from warping, and, third, to prevent water from running along the under sides of the boards *b*, and in that way passing over the

grooves b^4 and b^5 and reaching the joints b^7 . A further object, in the case of the grooves b^3 , is to make room for the upward extension of the upper surfaces of the boards b' at their edges. By making the sides of the grooves b^2 and b^3 vertical the tendency of the boards b to warp is greatly lessened, and when water, running along the under surface of one of the boards, reaches one of the corners b^8 it drips down into the groove beneath instead of continuing on over the latter groove, as it would be liable to do if the upper grooves were absent. As will be obvious, the grooves b^2 and b^3 may be of many different shapes in cross-section; but I consider it best to have their sides substantially vertical, not only to prevent warping, but also because when they are substantially vertical capillary attraction is more fully counteracted than when they are not. It is more important to have the outer sides of the grooves b^2 in the boards b vertical than the other sides, as will be obvious; but I consider it an advantage to have both sides vertical, as shown, for the reason that water passing downward from the top of a groove is more apt to drip from the corner b^8 into a groove beneath where its downward passage is vertical than where it descends at an angle or on a curve.

In my claims, where I specify a particular number of grooves I wish it to be understood that I desire to cover either the number specified or any greater number.

I claim—

1. In a roof or floor containing two layers of boards arranged substantially parallel to each other, and so that those in the upper layer and those in the lower layer break longitudinal joints; a gutter between the two layers on each side of each longitudinal joint between boards in the upper layer; each gutter formed by a longitudinal groove in the upper surface of the board beneath the joint and a longitudinal groove in the under surface of an upper board.

2. In a roof or floor containing two layers of boards arranged substantially parallel to each other, and so that those in the upper layer and those in the layer below, break longitudinal joints, a gutter between the two layers on each side of each longitudinal joint, each gutter formed by a longitudinal groove in the upper surface of the board beneath the joint and a narrower longitudinal groove in the under surface of an upper board, each of said grooves in the lower board having its outer side between the edges of the groove beneath it, substantially as described.

3. In a roof or floor containing two layers of boards arranged substantially parallel to each other, and so that those in the upper layer and those in the layer below break longitudinal joints, a gutter between the two layers on each side of each longitudinal joint between boards of the upper layer, each gutter formed by a longitudinal groove in the upper surface of the boards beneath the joint,

and a longitudinal groove, having an outer vertical side, in the under surface of an upper board, and arranged so that the outer side of the latter groove runs between the edges of the under one, substantially as described.

4. In a roof or floor containing two layers of boards arranged substantially parallel to each other and so that those in the upper layer and those in the layer beneath break joints, a gutter between the two layers on each side of each longitudinal joint, between boards of the upper layer, each gutter formed by a longitudinal groove in the upper surface of the board beneath the joint and a narrower longitudinal groove in the board above the first groove, the groove in the upper board having substantially vertical sides and both its sides running between the edges of the groove beneath, substantially as described.

5. In a roof or floor containing two layers of boards laid substantially parallel to each other and so as to break joints, a gutter between the layers of boards, formed by a longitudinal groove in the upper surface of a board of the lower layer and a narrower longitudinal groove in the under surface of the board above, arranged so that the sides of the latter groove run between the sides of the former groove, substantially as described.

6. The combination in a roof or floor containing an upper and lower layer of boards laid substantially parallel and so as to break joints, of a longitudinal groove in the upper surface of each lower board, near each edge, and a longitudinal groove in the under surface of each upper board, over a joint between lower boards, with its sides extending over the grooves next said joint, and running, respectively, between the inner edges of said grooves and the joint, substantially as described.

7. The combination in a roof or floor having two layers of boards laid parallel, so as to break joints, and having the upper surfaces of the under boards higher, in the neighborhood of their edges, than elsewhere, of grooves b^5 , on each side of each longitudinal joint between boards in the lower layer, and the groove b^3 , over the joint, with substantially vertical sides, overhanging the grooves b^5 , substantially as described.

8. The combination in a roof or floor of an upper and lower layer of boards, each board of the upper layer having three grooves in its under surface, one near each edge, and one about the center, and each lower board having four grooves in its upper surface, one near each edge, and two near the center, the boards of each layer being laid edge to edge, and those of the upper layer being arranged, with reference to those of the lower layer, so as to break joints, and to bring the grooves next the edges of the upper boards, over grooves near the center of the lower boards, and the groove in the center of each upper board over a joint between lower boards beneath, and

grooves near the edges of each lower board, substantially as described.

5 9. The combination of a roof or floor composed of two layers of boards b and b' , arranged so as to break longitudinal joints, of the grooves b^2 and b^3 , in each upper board, and the grooves b^4 and b^5 , in each lower board, arranged and operating substantially as described.

10 10. The combination of two layers of boards laid so as to break longitudinal joints, and a gutter between the layers of boards and between a longitudinal joint, between upper boards, on one side, and a longitudinal joint, 15 between lower boards on the other side, formed

by a longitudinal groove in the upper surface of a lower board and a longitudinal groove in the under surface of an upper board, said grooves being arranged, with reference to each other, so that the outer edge of the groove 20 in the upper board overhangs the lower groove and runs between the edges of the latter groove, substantially as described.

Witness my hand this 23d day of March, 1895.

CURTIS M. JENNINGS.

Witnesses:

MARK MOODY,
B. F. REX.