H. ALDRIDGE.

Car-Roof.

No. 198,177. Patented Dec. 18, 1877.

Fig 1.

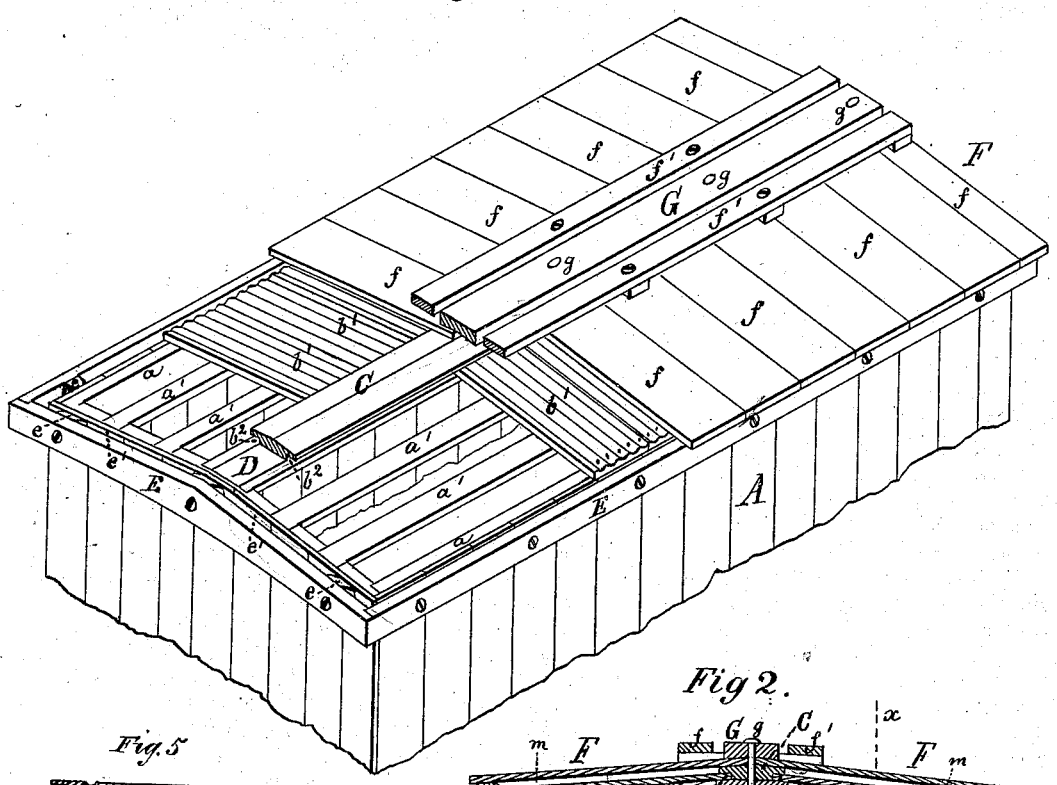



Fig 5.


Fig 2.

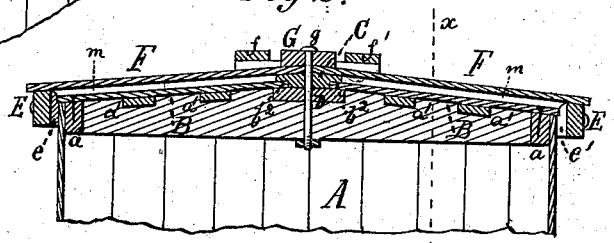



Fig 3.

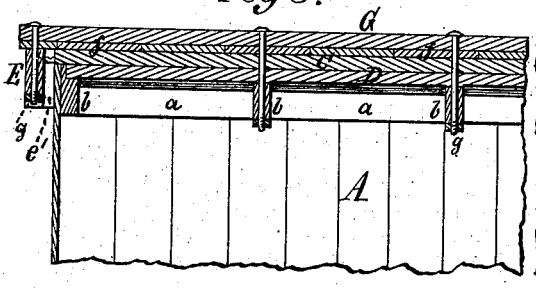
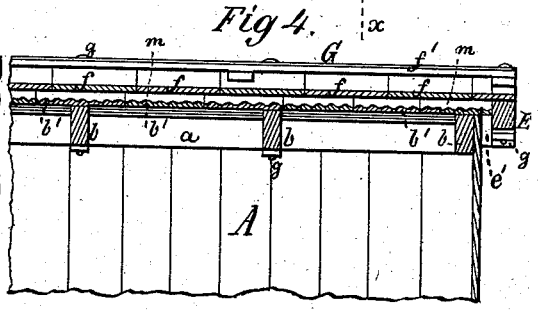



Fig 4.




Witnesses:
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Inventor:
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by
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# UNITED STATES PATENT OFFICE.

HIRAM ALDRIDGE, OF ST. LOUIS, MISSOURI, ASSIGNOR TO D. L. SKIDMORE, OF SAME PLACE, AND FRANK C. ALDRIDGE, OF BATESBURG, S. C.

## IMPROVEMENT IN CAR-ROOFS.

Specification forming part of Letters Patent No. **198,177**, dated December 18, 1877; application filed August 3, 1877.

*To all whom it may concern:*

Be it known that I, HIRAM ALDRIDGE, of the city and county of St. Louis, and State of Missouri, have invented certain new and useful Improvements in Car-Roofs; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of a car-roof, partly in section, and with a portion of its top covering removed for the purpose of exhibiting my improvements employed in its construction. Fig. 2 is a vertical cross-section of the same through one of the bolts by which the ridge-board and ridge-beams are clamped together. Fig. 3 is a vertical longitudinal section in the center line of the ridge of a car. Fig. 4 is a vertical longitudinal section in the line *x x* of Fig. 2.

The nature of my invention consists in certain constructions, combinations, and arrangements of parts, hereinafter fully described and specifically claimed, whereby a double car-roof of wood or other suitable material is produced, the inner roof of which receives and discharges the leakage-water of the outer roof at the sides of the car, and the inner and outer roofs of which are so ventilated as to prevent rain or snow from getting between them, and permit free access of atmospheric air between them.

In the accompanying drawings, A represents the body of a car; *a*, the upper girders, and *b* the rafters of the roof. The rafters may be connected by longitudinal bars *a'*, which assist in supporting the inside roof B, which consists of boards $b^1$, with plain or corrugated upper surfaces. These boards may be matched or tongued and grooved, and may abut at the ridge of the car, or, what is better, may be inserted into a step, $b^2$, or a slot in the upper ridge-piece C, while the lower ridge-piece or bar D of the car supports both of said pieces from below. The lower ends of the boards are fastened to the girders *b*, and are just long enough to cover the ends of the weather-boards of the car.

Around the upper extremity of the car an auxiliary frame, E, is provided, which is fastened thereto by means of screws or other means passed through the frame and interposed blocks *e*. The said blocks *e* are arranged on the inner side of the frame, between it and the side of the car, so as to form a number of open spaces, *e'*. The said frame E projects above the inner roof B, and serves, in conjunction with the ridge-piece C, as the support of the outer or upper roof F, which is made of plain boards *f*, adjoined or matched. A ridge-board, G, is fitted upon the roof F, to which the lateral extensions *f'* may also be added at pleasure, as in other cars constructed in accordance with my former patent.

The roof F thus constructed is about three-fourths of an inch or more above the roof B, with a space, *m*, between the two, and it is fastened to the frame E by means of screws or nails, while the ridge-board G is clamped upon it by means of screw-bolts *g*, which pass through the ridge-board G, ridge-pieces C and D, and the rafters *b*, and firmly unite them together.

The atmospheric air enters the space *m* between the two roofs B and F by means of the spaces *e'*, between the blocks *e*, the car-body A, and the auxiliary frame E; and while this is the case the frame E prevents rain or snow from being blown in directly between the roofs B and F.

The leakage-water of the upper roof F drops down upon the lower roof B, whence it is conducted by means of the corrugations therein to the eaves, and through the spaces *e'* down to the ground.

The advantage of my construction over the old construction of double roofs is this: The ventilation afforded between the upper and lower roofs prevents rot, and renders the roofs as durable as the car-body. In the old construction the double roof is made by fastening one layer of boards closely upon the other. The upper layer soon becomes leaky by reason of exposure, and the leakage-water enters the leaks and the joint between the two layers of boards, where it remains and creates mildew and rot, which destroy the roof so fast that it often does not last as long as the single roof. Such roofs generally leak after being in use and subjected to exposure but a short time, and cannot as easily be prevented from leaking as a single roof.

The double roof of old construction can only

be repaired by tearing up a portion of both layers of boards, which are thereby rendered unfit for further use, and have to be thrown away, while in my improved roof its upper layer of boards can be removed and repaired without disturbing the lower layer, and the same can be replaced with less expense and without damage to any portion of the roof.

The lower roof very seldom requires any repair, as it is not exposed to the weather, nor to inner dampness between the two layers of boards; but if there is any necessity for repair one or two boards of the upper roof may easily be removed by loosening the bolts *g*, and lessening the grasp or pressure of the ridge-pieces C and D and ridge-board G upon the higher ends of both roofs, after which the screws at their lower ends are removed, and the boards *f* and $b^1$ may be removed or replaced at pleasure.

The steps or grooves $b^2$ at the edges of the ridge-piece C serve the double purpose of avoiding the expense of extra means, such as nails and screws, for fastening the upper ends of the boards $b^1$, and the consequent piercing of the boards; and a great saving of material is effected by being able to use shorter boards, which do not require to abut at the ridge.

In Fig. 5 I have shown a modification of the boards $b^1$ of the inner roof B, wherein channeled upper surfaces and tongue-and-grooved edges are represented.

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

1. A car or other vehicle having an inner roof, B, formed of laterally adjoined or matched pieces running from the eaves to the ridge-piece, and fastened directly to its body, and an outer roof, F, formed of laterally adjoined or matched pieces running from the eaves to the ridge-piece, and fastened to the ridge C of the roof B, and to a frame, E, fastened around the upper part of the car-body, substantially as and for the purpose set forth.

2. The combination of a weather-roof and a lower leakage collecting and guiding roof, and an uninterrupted ventilating air-chamber, *m*, between the said roofs, extending from the ridge to the eaves and discharging its leakage-water at the eaves, and having communication with the atmosphere at the eaves, substantially as set forth.

3. The combination of the roofs B and F and the ridge-pieces C D, ridge-board G, and bolts *g*, whereby the roofs are kept separated, and upper ends of the said roofs are fastened and held in position, substantially as described.

4. In a car or other vehicle, the combination of the roof-pieces *f* and $b^1$ and the ridge-piece C, having under steps or grooves $b^2$, substantially as set forth.

Witness my hand in the matter of my application for a patent on a car-roof this 28th day of July, 1877.

HIRAM ALDRIDGE.

Witnesses:
GEO. P. STRONG,
ANTON STUCKER.