H. ALDRIDGE.

CAR ROOF.

No. 182,739. Patented Oct. 3, 1876.

Fig 1.

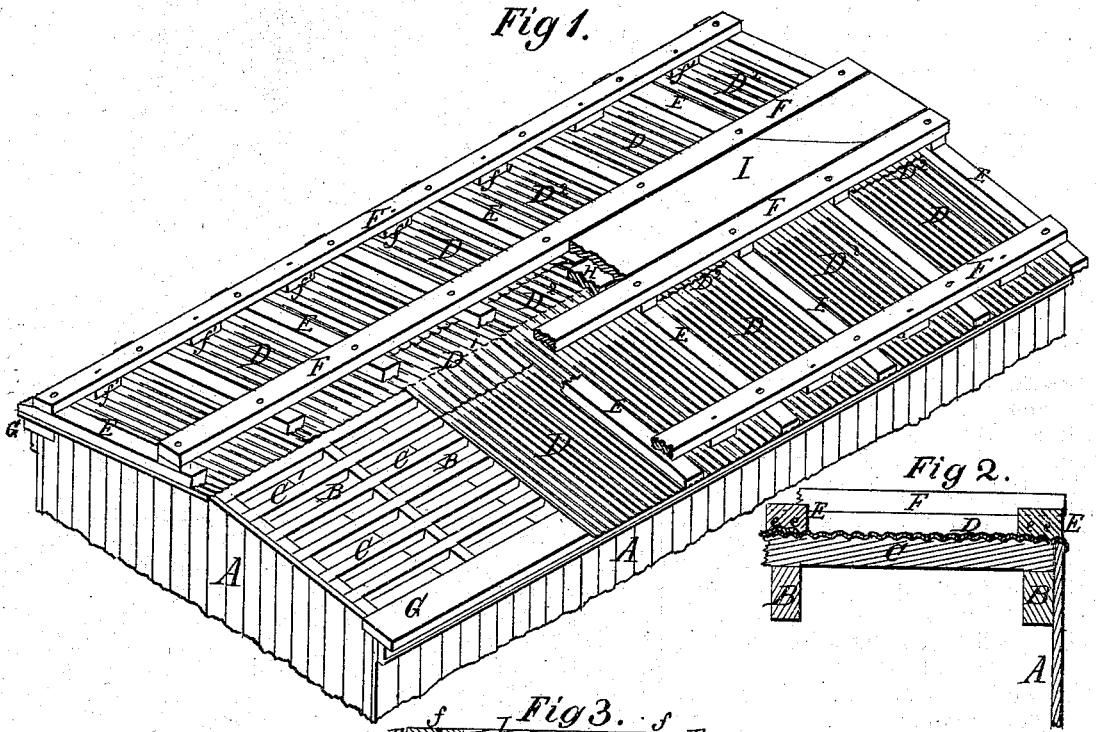


Fig 2.

Fig 3.

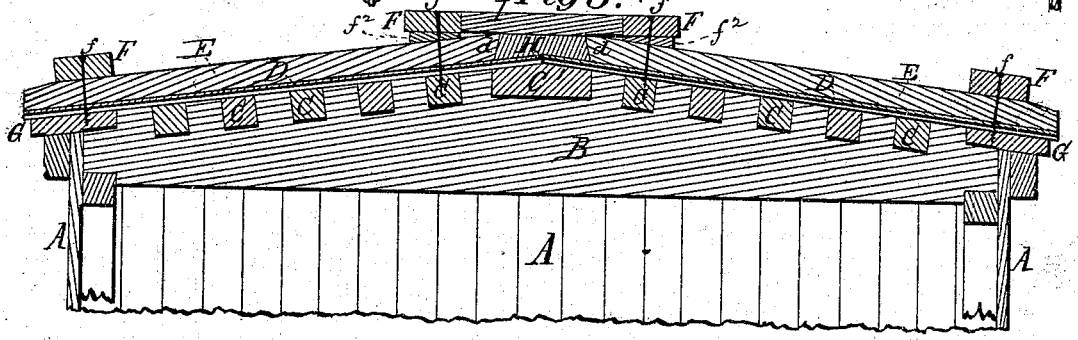


Fig 4.

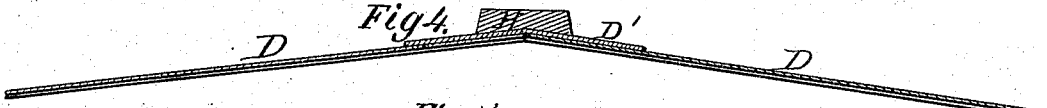
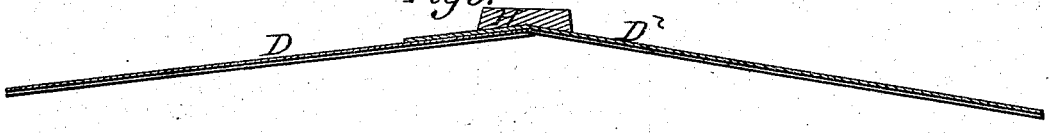


Fig 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

HIRAM ALDRIDGE, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN CAR-ROOFS.

Specification forming part of Letters Patent No. **182,739**, dated October 3, 1876; application filed August 4, 1876.

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 a new and useful Improvement in Roofs for Cars; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of my improved car-roof. Fig. 2 is a detailed longitudinal section of the same. Fig. 3 is a cross-section of the same; and Figs. 4 and 5 are similar sections representing modifications of my improvement in roofs.

The object of my invention is to make a light, durable, and cheap roof for a car, which roof is water and fire proof, and of very simple construction.

In the accompanying drawings, A represents the upright boarding of a car; B, the purlins, and C the car-lines. The said purlins and car-lines are covered with corrugated metal sheets D, their corrugations following the slope of the roof. The corrugated sheets used may be of any length; but they are arranged upon the said car-lines and purlins in layers or sections parallel with the purlins, and so that they overlap each other sidewise and lengthwise. The side overlappings are in every case arranged in a straight line from the eave to the ridge, so that they may be covered by tightly-fitting strips E, which have grooves *e* matching the corrugations of the metal. The said strips E are held down upon the metal covering by longitudinal ties F, two of which are generally sufficient. The ties F are fastened to the car-lines and purlins by screws *f*, or other means, which pass through the ties, through the strips E, and through the lapped corrugated metal sheets D. The lower ties F′ are provided with bearing-blocks f^1 between the strips F, whereby the corrugated sheets D are firmly pressed down upon the eaves, which are strengthened by top or eave boards G. The said bearing-blocks f^1 are not fitted into the corrugations of the sheets D, but rest on top, so that rain or other water may freely pass beneath them. If the sheets D are arranged to abut at the ridge, I cover the ridge with a ridge-board, H, which I place between the upper ends of the strips D. The said upper ends *d* of the strips D are so shaped that two of them leave a dovetailed space, into which the inclined sides of the ridge-board are fitted. The bottom of the ridge-board is shaped to fit upon the tops of the corrugations of the sheets D. By this construction a very slight fastening, by means of nails or screws, is required to prevent longitudinal movement of the ridge-board. A ridge-cap, D^1, of corrugated sheet-metal, may be used to more effectually cover up the ridge abutment or joint, or when sheets may be had of sufficient length they may be bent over the ridge, so as to lap over the sheets on the other side, either successively or alternately, as represented by D^2 in Fig. 1, and in Fig. 5 in section. In all the described cases the ridge-board may be used to hold the covering sheets D with their ridge-caps and overlappings firmly down upon the center car-line C′, which is therefore made much stronger than the other car-lines. Between the upper ties F, and upon the ends of the strips E, the running-board I is fastened, and by raising the said upper ties by means of block f^2 to the level of the running-board, I increase the width of the running-board and the safety of its passage. I do not intend to confine myself to the construction above described, as I do not intend to lay claim to the modes only of overlapping corrugated metal sheets upon roofs, and I, therefore, state some other modifications in the mode of covering roofs with corrugated metal sheets, which are applicable to my improved mode of fastening and of making them water-tight in the above-stated manner.

It should be understood that the construction of my improved roof is most compensating in an establishment where cars of different classes or grades are built. There I would select sheets long enough to pass over the ridge from eave to eave for first-class cars, for reasons well known to skilled men. Cars of the second rate could be covered in the manner above described and illustrated by the accompanying drawings, and the remnants left from the original sheets, as supplied by the rolling-mills, could be used for covering third-rate cars, where appearance is no object. The ties F and the strips E are ordinarily made of

wood, which, although combustible, does not suffice in quantity to diminish the safety of the car in a conflagration. The ties F and strips E may be of metal or they may be of wood, and covered or capped with metal.

In covering ships'-cabins and other exposed roofs of little slope it is advisable to make use of the longest kind of corrugated sheets in order to avoid overlappings across the corrugations, which would be apt to leak.

It is seen that by my improved mode of fastening the sheets to the frame-work of the roof I am enabled to fasten the said corrugated sheet very firmly, and also to make the joints and laps water-tight with but few screws or bolts, thus necessitating only a small number of perforations through the metal plates, and lessening the labor in the construction of such roof. The described mode of fastening does not prevent the corrugated metal sheets from contracting and expanding under the influence of the surrounding atmosphere, nor do the effects in jolting of the car upon the frame of its roof in such manner with the corrugated sheets as to strain or disarrange them, as the places of direct fastening are far enough apart to permit a slight momentary vibration or deviation of the connected parts.

A decided advantage is gained by my improved car-roof in regard to weight. It has actually been proved that a car, the old roof of which has been removed and substituted by one of my improved construction, weighs between five and six hundred pounds less than by any other known construction. Thus five or six hundred pounds of dead weight are removed from a car without impairing its strength or capacity. This is the most important item of my invention, and is duly appreciated by every railroad man.

The above-described improvement is applicable to all other kinds of roofs, either in the same form or with slight modifications.

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

1. A car-roof consisting of corrugated metal sheets, joint or lap covering cross-strips, and longitudinal ties arranged and fastened upon the frame-work of a car, substantially as and for the purpose described.

2. The combination of the eave board, the bearing-blocks, and the corrugated metal sheets, substantially as and for the purpose set forth.

3. A superstructure or top-frame consisting of lap or joint covering cross-pieces, and of longitudinal ties, whereby the said cross-pieces are kept in position and in close contact with a sectional covering in sheet form upon the frame-work of a roof, substantially as described.

Witness my hand in the matter of my aplication for a patent for an improved railroad-car roof this 31st day of July, 1876.

HIRAM ALDRIDGE.

Witnesses:
JAMES MARTIN, Jr.,
A. G. HEYLMAN.