R. H. HOOPER.

Cinder-Guard for Car-Roofs.

No. 210,035. Patented Nov. 19, 1878.

Fig 3.

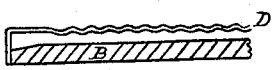


Fig. 1.

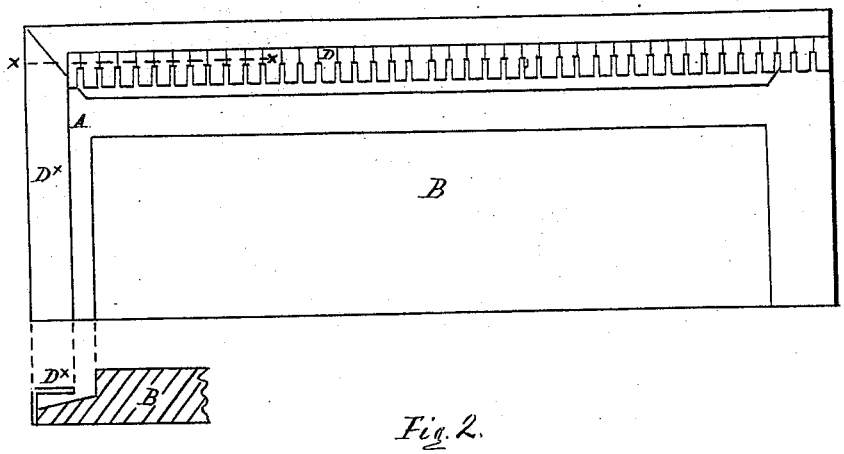
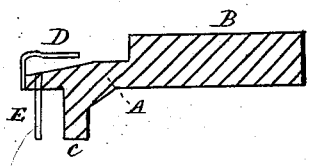


Fig. 2.



Witnesses

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RICHARD H. HOOPER, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN CINDER-GUARDS FOR CAR-ROOFS.

Specification forming part of Letters Patent No. **210,035**, dated November 19, 1878; application filed August 20, 1877.

To all whom it may concern:

Be it known that I, RICHARD HENRY HOOPER, of the city of Boston, county of Suffolk, and State of Massachusetts, have invented a new and Improved Cinder and Water Guard for Railroad-Cars, of which the following is a specification:

My invention consists of a continuous fence or flange passing round the edges of the top of the car, at the sides and ends, and inclined horizontally or at any desired angle, the top being beneath the fence and perforated with perpendicular holes communicating with conductors running in the sides or by the sides of the car to below the windows of the same; and the object is to catch and convey to the ground the cinders from the engine and the rain and other water falling upon the roof of the car.

Figure 1 is a view of a car provided with my device, with a figure at the left, below, showing a section of that portion of Fig. 1. Fig. 2 is a vertical cross-section of Fig. 1. Fig. 3 is a view in vertical section on the line *x x*, Fig. 1.

In the drawings, A, Figs. 1 and 2, is the top or roof of the car. B, Figs. 1 and 2, is the "monitor," so called, or clear-story of the car. C, Fig. 2, is the side of the car.

D D^{x}, Fig. 1, (D, Fig. 2,) is my cinder and water guard. This is formed of metal, (sometimes of other material,) and is a long sheet of metal, (seen in Fig. 2,) to be fastened to the edge of the side (and in Fig. 1, also at the end) of the car-roof, extending (see Fig. 2) a short way above it, and then bending at right angles and projecting over that part of the car-roof toward the center of the car. At the point marked, in Fig. 1, D^{x}, at the end of the car, the projecting portion of the guard is seen to be plain. In the longest part, however, at the side, (see mark D,) the projection is corrugated, as marked in Fig. 1.

The corrugations are sometimes separated, the concave portions being sometimes cut away a portion of their length, as seen in Fig. 1; but this is not absolutely essential.

E, Fig. 2, is a spout, disposed vertically, and passing through and from the roof, from beneath the space covered by the flange of the guard, downward to the bottom of the car. In Fig. 2 the portion of the roof beneath the flange of the guard is seen to be chamfered or cut away, so as to form an inclined plane.

I do not confine myself to either the corrugated or plain form of my projecting portion of the guard; and I sometimes dispense with the inclined plane, (seen in Fig. 2,) and occasionally cut or gouge out a concave channel on the roof beneath the flanges of the guard. I make my conductors or spouts of any eligible substance, and of any shape, in horizontal section, and put them either on the outside of the car, as seen in the drawings, or, at pleasure, in the body of the sides or ends, sometimes cutting them out from the woodwork.

I sometimes make these conductors smaller at the top than at the other parts, to avoid choking; and where wood fuel is used, and the cinders are consequently larger, it is occasionally well to make the conductors at the corners of the car-roof larger than at the other parts of the car.

I sometimes bend the conductors at their respective lower ends to an angle, to avail of the suction produced by the air-currents to clear them from the cinders. In this case I arrange them so that they may be semi-rotated at pleasure, as the cars go back or forward.

I do not confine myself to one flange or guard, sometimes putting one additional to that shown in the drawings on the edge of the monitor or clear-story, and in this case I sometimes connect the inner flange with the outer one by tin or other conductors running crosswise of the car-roof, horizontally or at an angle.

The flanges may be made either in sections or in one continuous line, and may be bent horizontally or at any angle, as when bent upward the removal of snow or hail is much facilitated.

I sometimes hinge the flanges to permit of

turning up for the purpose of clearing the space beneath, if required.

I do not claim flanged or hooked strips lying on the top of and covering the car-roof.

I claim—

1. The combination, with a railroad-car roof, of one or more flanges, D, extending upward from said roof and bent inward toward the middle of the same, when constructed and arranged to operate substantially as described and shown.

2. The combination, with a railroad-car roof, of one or more flanges, D, and one or more spouts or conductors, E, all constructed and arranged to operate substantially as described and shown.

RICHARD HENRY HOOPER.

Witnesses:
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