MEANS FOR ATTACHING FLEXIBLE ROOFING MATERIAL TO CAR ROOFS.

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To all whom it may concern:

Be it known that we, CHARLES S. BIRD and PHILIP R. ALLEN, citizens of the United States of America, residing at East Walpole, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in Means for Attaching Flexible Roofing Material to Car-Roofs, of which the following is a specification.

This invention relates to freight-car roofs, the object being to provide in roofs of this class which combine a subroof and an outer roof separated more or less one from the other, whereby an open space is formed between said two roofs, improved means for preventing water which from any cause shall have entered said chamber from entering the car through said subroof, and, furthermore, to provide a protective against said water flow of a character that will yield to the warping or like twisting movements of a loaded car while in motion without derangement or breakage, which would injure its waterproof qualities; and the invention consists in the combination, with a suitable flexible waterproof roofing material interposed between said two roofs, of improved means or devices loosely engaging the borders of said material and holding the same in place, said material serving, as described, to prevent the passing of any water onto the subroof thereunder and resisting breakage or other damage by reason of the car movements referred to above.

In the drawings forming part of this specification, Figure 1 is a perspective view of a portion of a freight-car roof and a part of the side of the car adjoining the eaves of said roof, illustrating a roof construction embodying our invention. Figure 2 is a vertical sectional view on line 22, Figure 3 is a vertical section on the line 3 3, Figure 4 is a sectional view on line 4 4, Figure 1. Figure 4 is a sectional view on line 4 4, Figure 1.

Referring to the drawings, B indicates the ordinary outer car-roofing; a, a part of the side of the car; b, a part of one end thereof, and c one of the transverse roof-supports under the same. The main or sub roof d is of the usual construction and presents a clear upper surface upon which are laid the subrafters e, extending from the unexposed face of the inner fascia-board x and having in the opposite borders thereof longitudinal slots f, upwardly inclined from the surface of the sub or inner roof and the borders of the rafters inwardly for receiving loosely therein the longitudinal borders of the strips g of the roofing material and holding the same in an upturned position, as below described and as illustrated clearly in Figures 1 and 4. Said roofing material is preferably of thick impermeable paper having such flexible nature as permits it to partake of the warping or swaying movements of a car while in motion without tearing or breaking the same. Improved means are also herein provided for holding said strips of roofing material in place on the roof and for retaining the lower free ends thereof, which extend in a downwardly-bent position over the face of the inner fascia-board x between the two fascia-boards x' and x'' for the free delivery of water and cinders therefrom, said lower end or ends being free of any fixed attachment whatever to the roof or other parts thereunder or at any point between said lower end and the ridge of the roof, and, furthermore, as shown in Figure 4, c is taken to provide sheets of said strips g of such width that the longitudinal borders thereof shall not strike the bottom of the said slots f, in the borders of the subrafters e and prevent in any measure said strips from lying flatly against the subroof, as shown in Figures 2, 3, and 4, and thereby guarding against the entry of wind thereunder and the consequent danger of lifting the strip from the roof. The upper extremities of said roofing strips g overlap on the ridge of the roof, as shown in Figure 3, and said extremities are secured one upon the other and to the roof 90 on the ridge-line (see Figure 3) by a block h, whose under surface conforms to the opposite roof inclines at that point. Said block may be secured in said position either, as shown, by a nail or by a screw passing through the block and the overlapping ends of the
roofing material and into the subroof thereunder, the object being to provide a single fastening, serving for both of the upper ends of said strips, which is easily removed and replaced in case of needed repairs. An essential feature of this invention consists in the means employed for retaining the lower ends of said roofing-strips $g$ in proper position between the inner and outer fascia-boards $x$ and $x'$, whereby said lower ends are not fixedly secured to any part of the structure at or near the eaves, but are free for more or less movement relative to the car parts thereunder, and thus are not subject to any injury from said warping motions of the car; nor can said unsecured ends of the roofing-strips be displaced by wind, but are retained in the downwardly-inclined position shown in Figs. 1 and 2. The means employed for retaining the lower ends of said strips $g$ continually in said positions on the car-roof are as follows: On the side of the inner fascia-board $x'$ and between the ends of the subrafters $e$ are fixed in any suitable manner one or more strip-retaining blocks $0, o$, between the upper ends of which and the adjoining side of said inner fascia-board is formed a recess $z$, (see Fig. 2,) which receives loosely the down-hanging lower end of the roofing-strip $g$, as shown in Figs. 1 and 2. Thus it will be seen that however strongly the wind may blow upwardly between said two fascia-boards the lower end of the roofing-strip cannot become displaced thereby, since the first movement of said lower end under a wind force would be against the sides of said blocks, and it would be there arrested. Furthermore, the engagement of the borders of the lower end of the roofing-strip in the lower ends of the slots $f$ of the subrafters $e$ serves to cooperate with said blocks $0$ for holding the lower end of the said roofing-strip in place, as shown in Figs. 1 and 2, against upward movement or damage by a wind force entering and moving upwardly between said inner and outer fascia-boards. The width of the open space between said fascia-boards, which is substantially that of the thickness of said blocks $0$, affords ample space through which water or other matter may be freely discharged from the roof of the car.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States, is——

In a car-roof construction embodying an inner and an outer roof, rafters separating said roofs extending from side to side of the car over the apex of the inner roof, having grooves in one or more borders thereof, which grooves incline upwardly from the borders of said rafters; sheets of roofing material extending between said rafters from side to side of the car and overlapping across the ridge of the inner roof having upwardly-inclined borders entering said rafter-grooves; a pin located centrally between two sides of the sheets at the ridge of the roof to hold the sheets against endwise movement while permitting the sheet on each side of the ridge to swing more or less on said pin as a pivot, together with means to hold the downwardly projecting outer edges of the sheets loosely against the side of the car without attaching them thereto.

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Witnesses:
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