No. 864,993. PATENTED SEPT. 3, 1907.

D. C. ROSS.

CAR ROOF.

APPLICATION FILED MAY 4, 1906.

3 SHEETS—SHEET 1

Fig. 1.

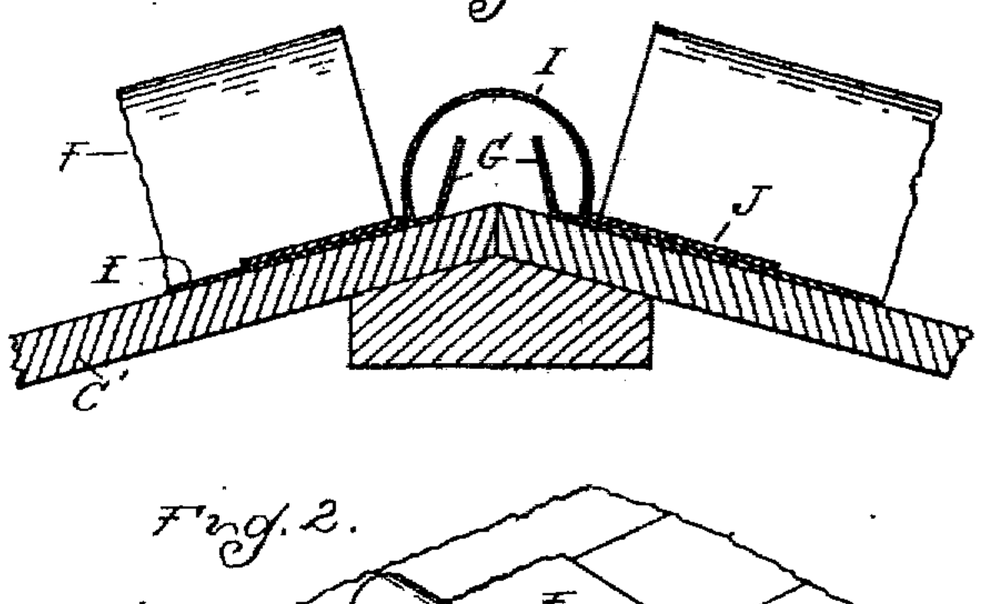


Fig. 2.

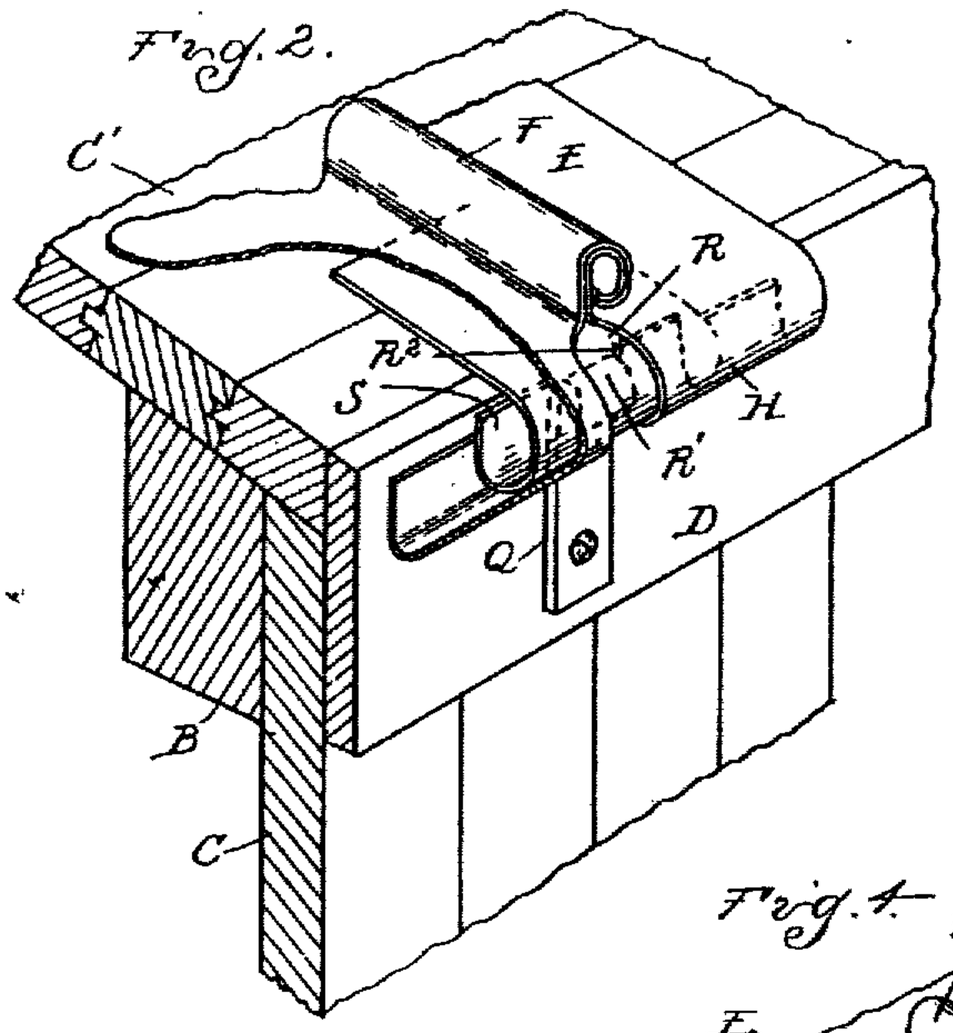


Fig. 4.

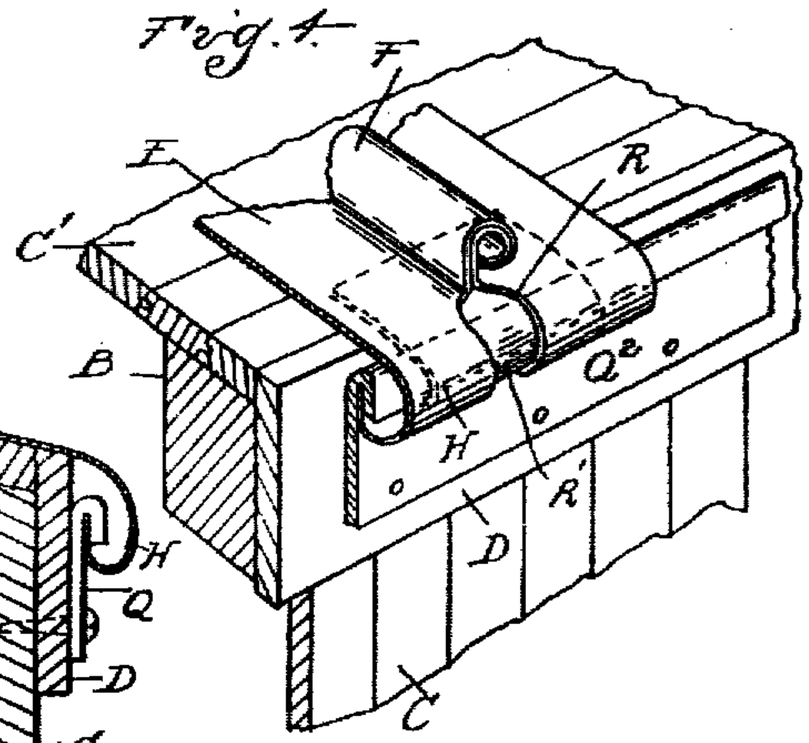
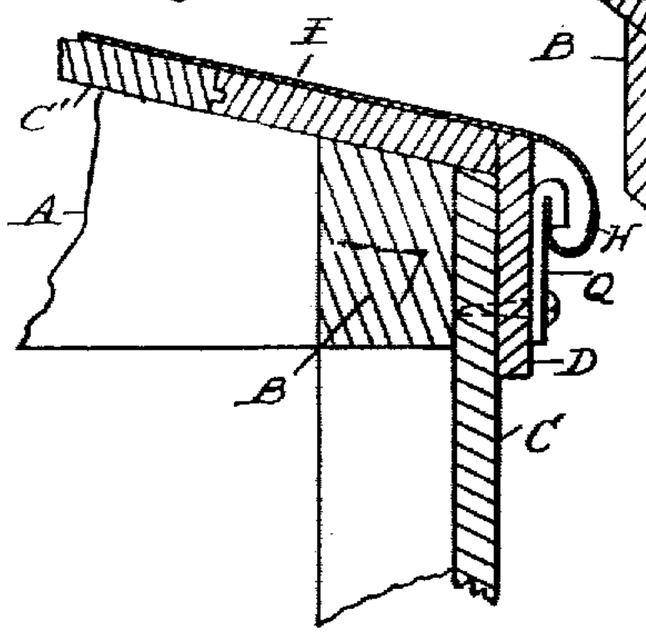


Fig. 3.



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Atty.

No. 864,993. PATENTED SEPT. 3, 1907.

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3 SHEETS—SHEET 2.

Fig. 5.

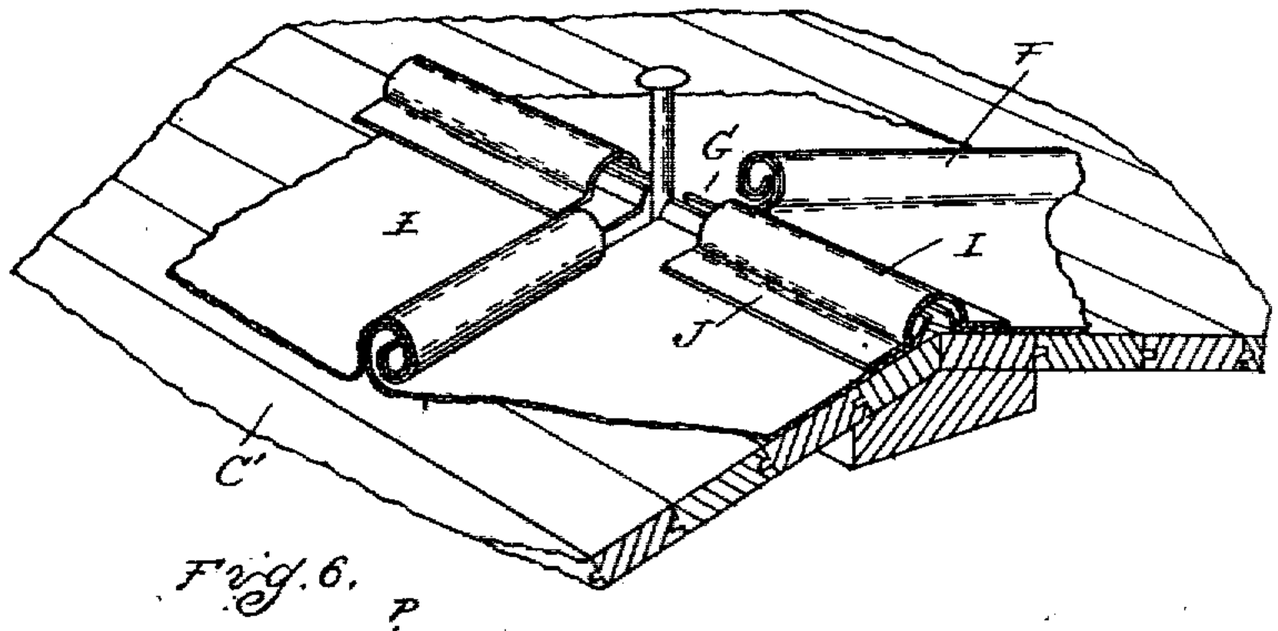


Fig. 6.

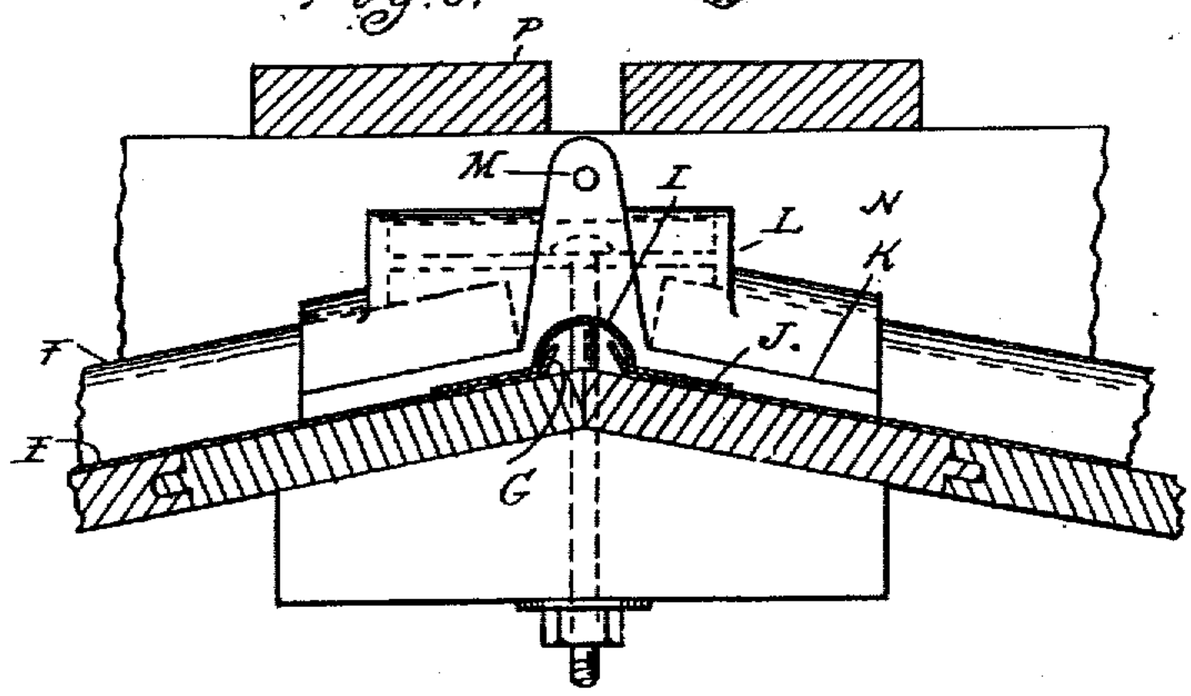
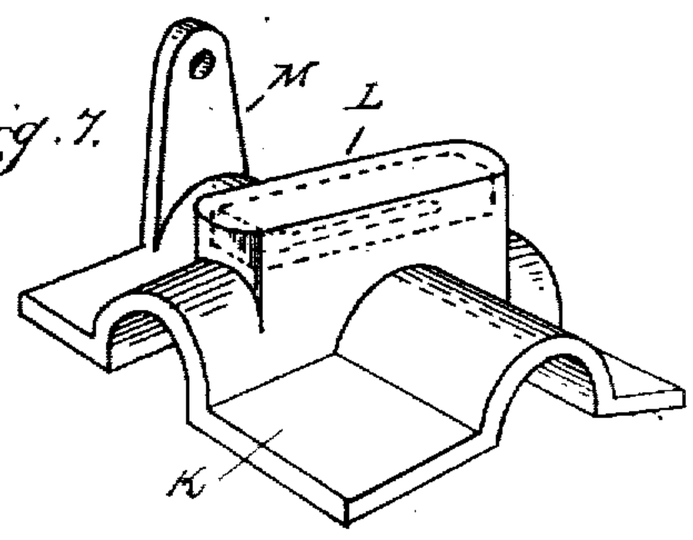


Fig. 7.



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No. 864,993. PATENTED SEPT. 3, 1907.

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CAR ROOF.

APPLICATION FILED MAY 4, 1905.

3 SHEETS—SHEET 3.

Fig. 8.

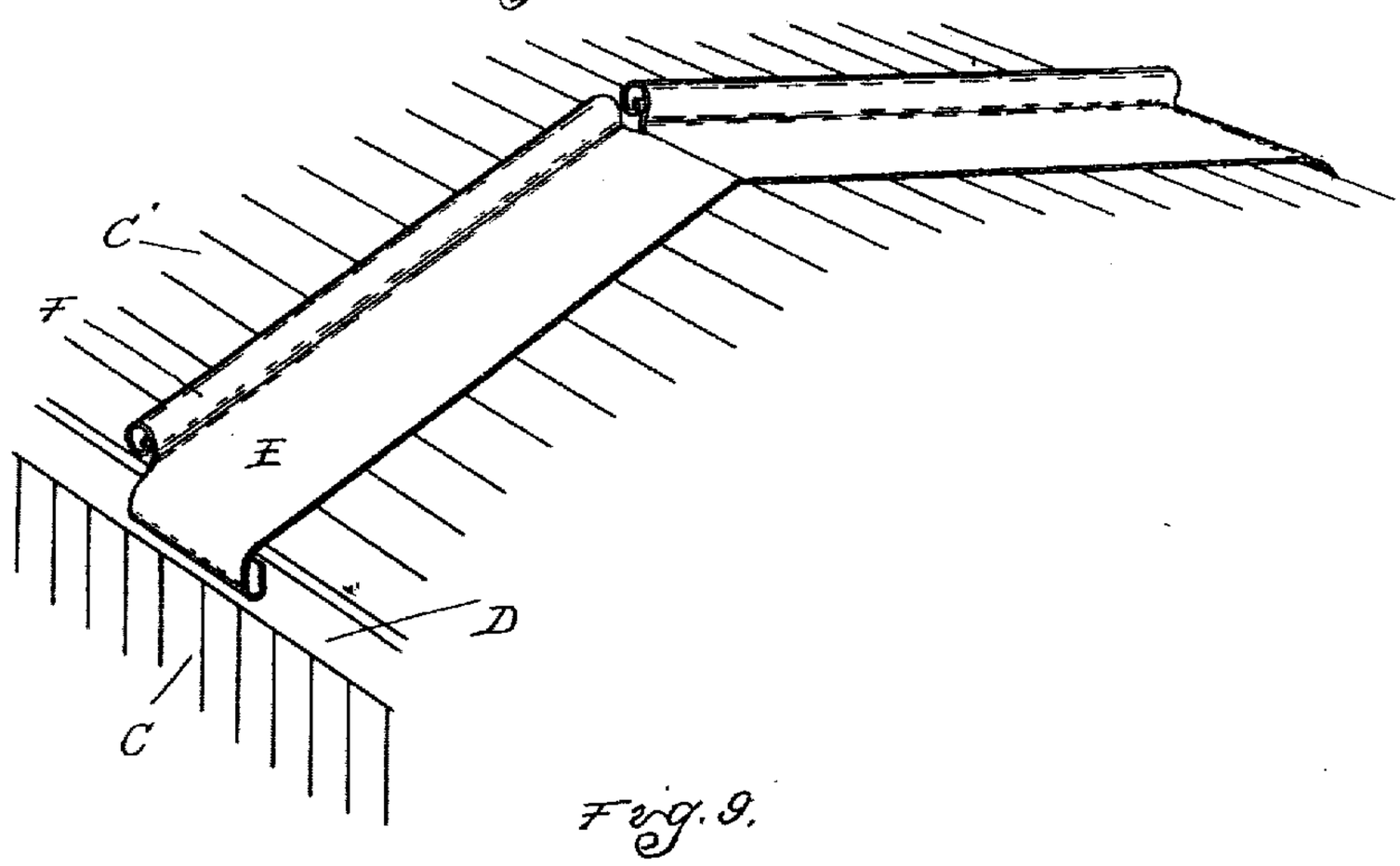
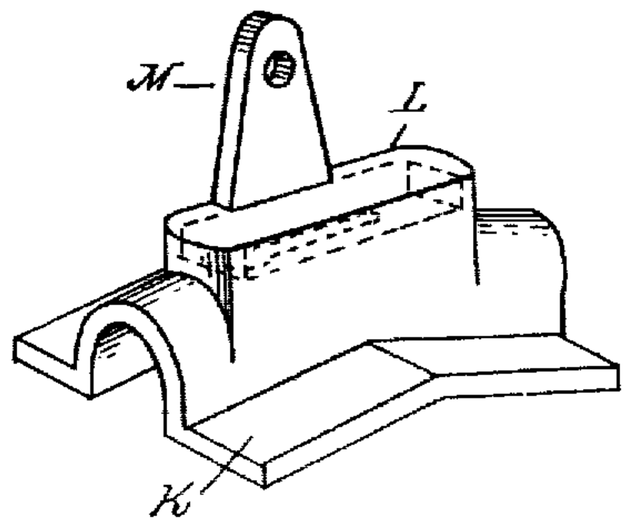


Fig. 9.



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UNITED STATES PATENT OFFICE.

DELMAR C. ROSS, OF DETROIT, MICHIGAN, ASSIGNOR TO C. B. HUTCHINS & SONS, OF DETROIT, MICHIGAN, A CORPORATION.

CAR-ROOF.

No. 864,993. Specification of Letters Patent. Patented Sept. 3, 1907.

Application filed May 4, 1905. Serial No. 258,797.

To all whom it may concern:

Be it known that I, DELMAR C. ROSS, residing at Detroit, in the county of Wayne and State of Michigan, a citizen of the United States, have invented certain new and useful Improvements in Car-Roofs, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates particularly to freight car roofs, primarily composed of a sheathing of wood and a metallic covering therefor, consisting of connected metallic plates, and it consists in the novel construction of roof, in the peculiar means employed for retaining the metallic sections upon the sheathing, and in other details of construction, as more fully hereinafter set forth.

In the drawings, Figure 1 is a horizontal section through the upper portion of the roof, showing the manner of covering the roof plates at the peak; Fig. 2 is a sectional perspective view of a portion of the roof illustrating the means for retaining the plates upon the sheathing and for covering the plate joints; Fig. 3 is a cross section through the side portion of the roof, showing the plate-retaining means; Fig. 4 is a sectional view showing a modification; Fig. 5 is a sectional perspective view showing the relative arrangement of the plates composing the roof covering; Fig. 6 is a view similar to Fig. 1, showing the application of the cap; Fig. 7 is a sectional perspective view of the cap; Fig. 8 is a view similar to Fig. 5 of a modified form of roof; and Fig. 9 is a perspective view of a modified cap for use in connection with the roof shown in Fig. 8.

In the drawings thus briefly described, the reference letter A represents the usual carlines, B the eaves and C the siding.

C' is the usual wooden sheathing, D the molding or nam facia, and E the metallic plate sections constituting the covering for the sheathing. The plates are preferably, though not necessarily, arranged upon the roof structure to extend from the ridge to the eaves, and for the reasons hereinafter specified at a distance beyond the eaves, as illustrated. Each plate is preferably formed with hooks, as F F, at its sides, formed by bending or rolling over the marginal portions of the plates; with upstanding flanges G at the upper edges, and with hook-shaped lower edges H. These latter portions project at some distance beyond the lower edge of the sheathing, and downwardly therefrom so as to form depending flexible connections between the plates and the car to permit of independent longitudinal movement of the plates. The side flanges or hooks of the plates engage one another, as indicated in Figs. 2 and 5, the manner of engagement being well known and forming no part of the present invention.

Where the plate sections of the roof extend only from the ridge to the eaves, they are arranged in such relation to one another that their upstanding flanges G at the peak are in proximity, as indicated in Fig. 1, and the plates are covered at this point by inverted channel-shaped plates I, marginally flanged, as at J, each cover extending between the adjoining hooks constituting the side flanges of the plates, as shown in Fig. 5. The opening in the metallic covering at the intersection of the four plates is covered by a suitable cap, preferably of the type indicated in Fig. 7, consisting of a plate K channeled to engage over the side flanges of the plates, E, having the housing L for the bolts, and upright M to which the usual sleeper N is secured, on which are supported the running boards P.

The roof plates described are held down upon the sheathing by means of one or more retaining devices adapted to engage the flexible extensions at the lower edges of the plates. In Figs. 2 and 3 I have shown the retaining means in the form of a series of clips, designated by the letter Q, secured to the molding and engaging the depending sections upon the roof plates. In Fig. 4 the retainer is in the form of a single continuous hook Q^2, arranged upon the molding and engaging all of the flexible extensions upon the roof plates. In both of the above instances, however, the hook portion of the clip is inverted and turned outwardly to engage the upstanding free edge of the inturned plate hook, so that the interlocking of the parts is effected in a vertical plane. By this method of connection I am not only enabled to hold the plates down upon the roof sheathing as desired, but I prevent disengagement between the retaining devices and the plate extensions, the vertical free edges of the yielding sections remaining constantly in contact with the clip, while the body portions of the extensions yield in every instance to compensate for vertical or lateral movement of the plates occasioned by the strains imposed upon the car.

In constructing roof plates with the marginal side flanges of the type described, the plates are ordinarily cut in such manner as to leave more or less space between the extensions at their lower edge at a point beyond the marginal flange, as indicated at R. These openings are covered by closures so constructed as to yield upon the flexing of the plate extensions to permit of the independent movement of the plates desired. The preferable form of closure is indicated at R', and consists of a plate arranged beneath the lower adjoining corners of two roof plates and terminating in a hook S lying within the adjoining plate hooks and covering the space therebetween. The hook portions of the closures extend preferably above the plate hooks and at a point opposite the clips are recessed, as at R^2, to receive the clip, as indicated in Fig. 2 in dotted lines. In this manner the retaining devices serve not only to hold the roof plate upon the sheathing but also prevent endwise movement of the closures. Where a continu-

ous clip, as Q^2, is employed as the retaining means for the roof plates the closures may be used in the same manner, but their independent endwise movement is not guarded against.

In some instances it is desirable to form the metallic covering with plates that extend uninterruptedly over the ridge instead of from the ridge to the eaves, as indicated in the drawings from Figs. 1 to 7 inclusive. I have shown what I term a continuous plate construction in Fig. 8, each plate in this instance extending from eave to eave, the joints formed between the side flanges being broken at the ridge, as indicated. Where the continuous type of covering is used, caps such as shown in Fig. 9 may be employed to cover the breaks along the ridge or peak, these caps being precisely the same as shown and described in Fig. 7, with the exception that the only channels formed in the plate proper of the cap are those for covering the joints along the sides of the sheets.

What I claim is:—

1. In a car roof, the combination with a roof sheathing of a plurality of roof plates thereon having flexible sections at their lower edges connected to the car, and yielding closures covering the joints between the flexible sections.

2. In a car roof, the combination with a roof sheathing, of a plurality of metallic roof plates thereon having hook-shaped extensions at their lower edges beyond the sheathing, closures covering the joints between the extensions, and retaining clips on the car engaging the plate hooks and locking the closures against endwise movement.

3. In a car roof, the combination with the roof sheathing, of metallic plates thereon having depending extensions at their lower edges, closures covering the joints between the extensions, and means on the car engaging the extensions and locking the closures against endwise movement.

4. The combination with a car, of an inner roof, an outside metal roof thereon, flexible joints connecting the sheets, permitting movement of the sheets longitudinally of the car and means at the eaves for holding the sheets down upon the inner roof, such holding-down means also permitting such longitudinal movement.

5. The combination with a car and its roof, of an outside metal roof thereon, flexible joints connecting the sheets, permitting relative movement of the sheets longitudinally of the roof, downturned hooks on the car and a hook-shaped eave portion on the sheets, said hooks on the side of the car slidably engaging such hook portion of the sheet to hold the sheets upon the inner roof, but to permit longitudinal movement thereof.

6. In a car roof, the combination with the sheathing, of roof plates thereon extending from the eaves to the ridge and holding down means for the plates at the eaves and at the ridge, said holding down means permitting movement of said plates longitudinally of the car.

In testimony whereof I affix my signature in presence of two witnesses.

DELMAR C. ROSS.

Witnesses:
JOHN FOSTER,
WILLIAM D. THOMPSON.