

(No Model.)

2 Sheets—Sheet 1.

P. H. MURPHY.
CAR ROOF.

No. 554,288.

Patented Feb. 11, 1896.

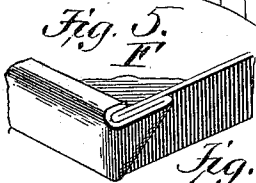
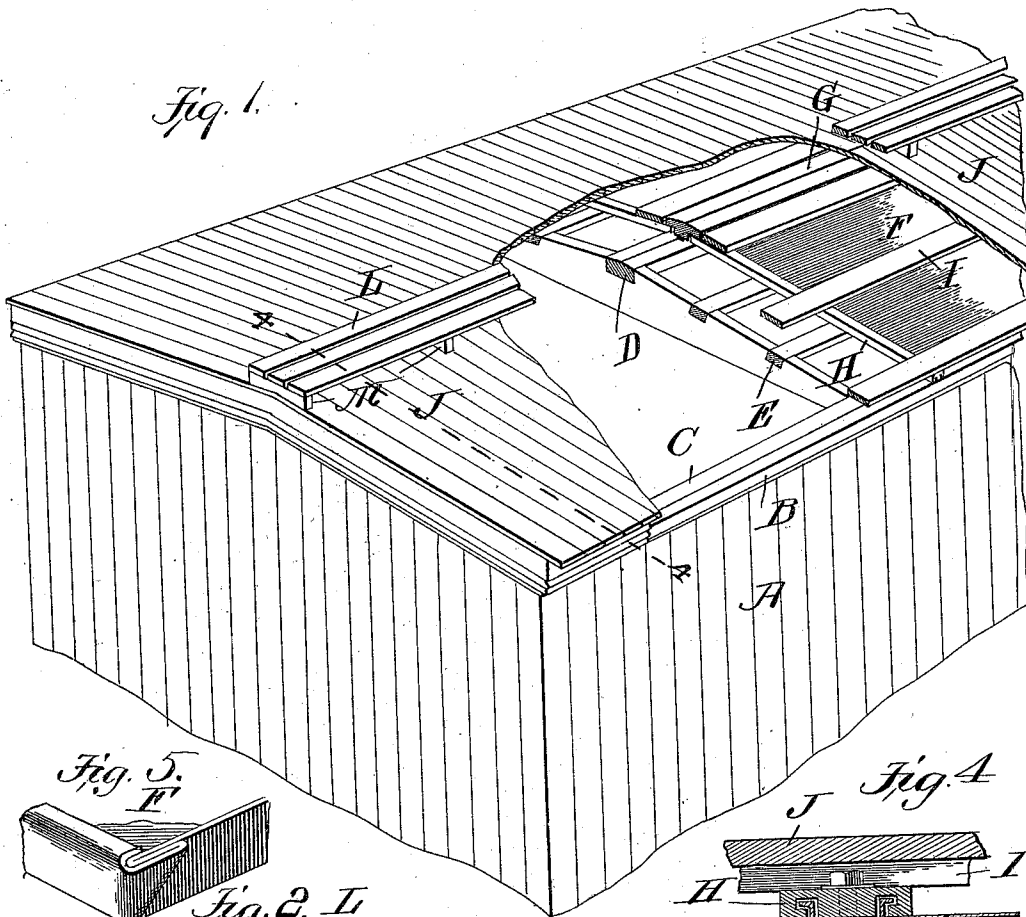


Fig. 2.

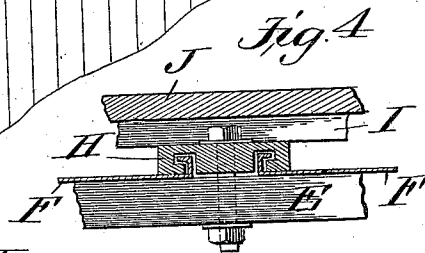
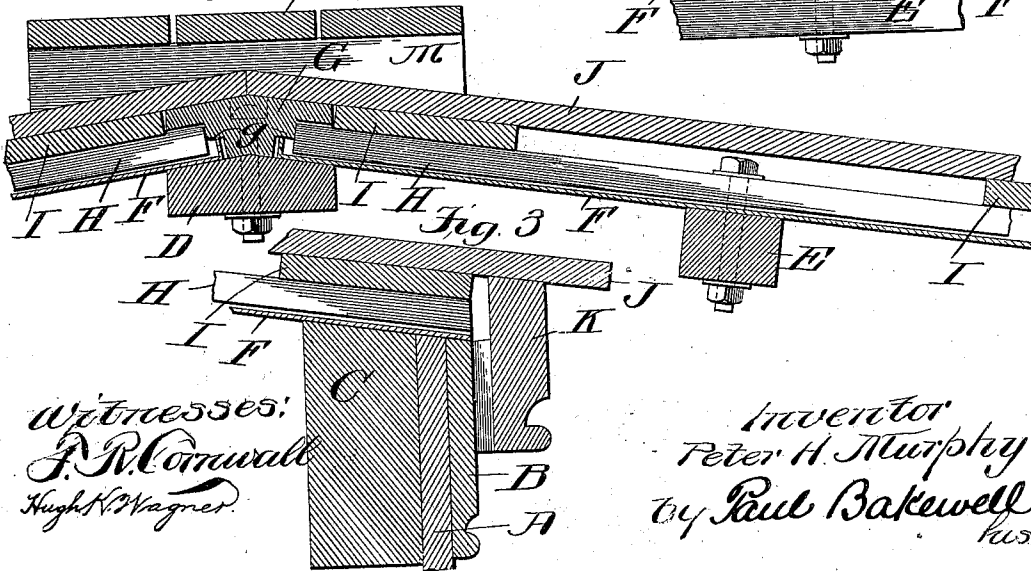


Fig. 3.

Witnesses:

J. R. Cornwall
Hugh H. Wagner.

Inventor
Peter H. Murphy
by Paul Bakewell

(No Model.)

2 Sheets—Sheet 2.

P. H. MURPHY.
CAR ROOF.

No. 554,288.

Patented Feb. 11, 1896.

Fig. 6

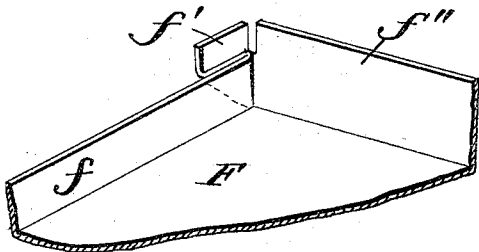


Fig. 7

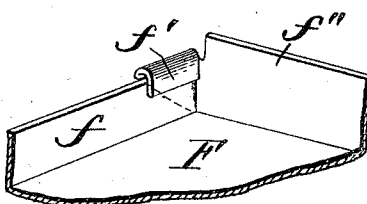


Fig. 8.

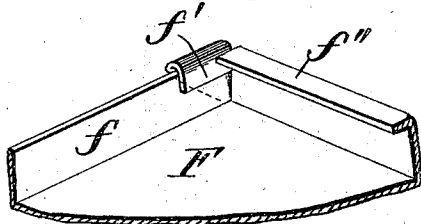
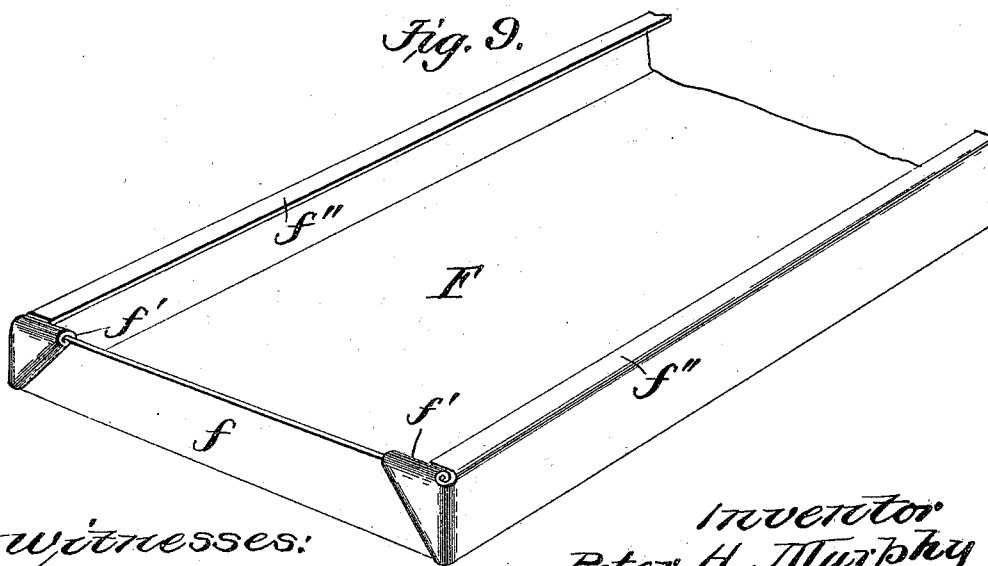


Fig. 9.



witnesses:

F. R. Cornwall
Hugh W. Wagner.

Inventor
Peter H. Murphy

by Paul Bakewell
his atty.

UNITED STATES PATENT OFFICE.

PETER H. MURPHY, OF EAST ST. LOUIS, ILLINOIS.

CAR-ROOF.

SPECIFICATION forming part of Letters Patent No. 554,288, dated February 11, 1896.

Application filed September 16, 1895. Serial No. 562,651. (No model.)

To all whom it may concern:

Be it known that I, PETER H. MURPHY, a citizen of the United States, residing at East St. Louis, in the county of St. Clair, State of Illinois, have invented a certain new and useful Improvement in Car-Roofs, of which the following is a full, clear and exact description, reference being had to the accompanying drawings, forming a part of this specification
10 wherein—

Figure 1 is a perspective view of a portion of a car to which my improved roof is applied. Fig. 2 is a cross-sectional view through the roof at the ridge. Fig. 3 is a similar view, the section being taken at the eave. Fig. 4 is a sectional view on line 4 4, Fig. 2. Fig. 5 is a detail view of one way of forming the corner of one of the metallic roof-plates. Figs. 6, 7, and 8 are detail views showing the manner of
20 forming and locking the corners of the roof-plates. Fig. 9 is a detail view of one of the plates.

This invention relates to a new and useful improvement in car-roofs of that class known as "double" or "inside" roofs; and it consists, generally stated, in so constructing the several parts that the plates are capable of moving independently of the parts which hold the plates in position. The object of this is to
30 relieve the plates of their tendency to buckle when the body of the car is strained, as when going around curves.

The invention is designed as an improvement upon the car-roof shown in United States Letters Patent No. 499,641, granted to me June 13, 1893. In this patent, the roof-plates are held rigidly in place, and in straining, the car will exert a tendency to loosen the joints of the sheets and their attachments. When
40 this is done, its virtue as a roof is lost.

The present invention resides in the construction, arrangement and combination of the several parts, all as will hereinafter be described and afterward pointed out in the
45 claims.

In the drawings, A indicates the side walls of the car; B, the crown-mold; C, the end plate; D, the ridge-pole, and E the purlins.

F indicates the metal roof plates or sheets, which are formed with a single upturned flange *f* at their upper ends, and the flanges
50

f'' at their sides, which are rebent or turned in over the plates proper. The object of thus rebending the side flanges is to prevent the plates from buckling during the application
55 of the plates to the roof, as from accidental pressure applied by the workmen. It will be seen that the rebent portions of these side flanges greatly strengthen the sheet and form, practically, a channel-beam, or its equivalent, at the side edges of the sheet. Another function these rebent portions perform is to prevent rain from being driven in the spaces between the flanges and the carlings, the rebent portions forming a tortuous passage,
60 which offers great resistance and retards the passage of water, especially as this entrance of the water is largely dependent upon the wind-pressure between the supersheeting and the plates.

The corners of the plates at the meeting of the top and side flanges are made solid—that is, the metal is bent upon itself, making a closed joint through which water cannot pass except that it rise to a greater height than
75 the flanges. This is important, as all car-roofs of this character with which I am familiar leave these corners unprotected, and the water will find its way to the interior of the car through this opening, especially when
80 the car is tilted, as when standing on a siding. In such an event the eave is often higher than the ridge-pole, (due to the slight pitch of the roof, which is generally about one to twelve,) and water will be carried to the
85 center of the car and through these openings, as by a funnel. When, however, the corners of the plates are made solid, such a contingency is not liable to occur, for should the water rise on the plates it will generally run
90 off at the eave before running over the flanges. To lock these solid corners and prevent their working loose, due to the motion of the car, I form a tongue *f'* at the corners, which tongue is folded down on the inside of flange *f* and
95 prevents the turned-over or folded corner from straightening out. The manner of forming this lock-joint is fully illustrated in Figs. 6, 7, and 8, where it will be seen that the tongue *f'* is a continuation of the side flange
100 *f''*, being severed therefrom by a slit at the corner. When the first fold is made at the

corner, this tongue projects up behind the top flange *f*, as shown in Fig. 6. The next step is to fold this tongue over and against the inside face of the flange *f*, as shown in Fig. 7.

5 The rebent portion of the side flange is now formed, the upper end thereof serving as a lock to prevent the displacement of the tongue *f*. The upper ends of these plates rest upon the ridge-pole and fit in a groove or recess formed
10 on the under side of the superridge-pole *G*, in which groove the plates are free to move. The under side of this superridge-pole is, figuratively speaking, formed with a series of inverted steps, whose pitch converges toward
15 the center of the bottom of the superridge-pole.

It indicates carlings which are grooved on their under side to receive the side flanges of the plates *F*, said grooves having a lateral extension at their upper end to receive the rebent portions of said flanges, as shown in Fig. 4. These grooves are of such dimensions as to permit the flanges of the plates to play therein, allowing expansion, contraction, and
25 twisting of the car-body without buckling of the plates. The upper ends of the carlings abut against the shoulder *g* of the superridge-pole, which shoulders form practically the second inverted step. The carlings are secured
30 to the purlins by bolts or other fastenings, as shown in Figs. 2 and 4.

Arranged above the carlings at different points along the pitch of the roof are superpurlins *I*, preferably made of wide boards,
35 which are nailed or otherwise secured to the carlings. Secured to these superpurlins is the supersheeting *J*, which extends somewhat beyond the frieze-board *K*, which frieze-board is placed upon the crown-mold in any
40 suitable manner to make a drip-space for the water running off the plates at the eaves.

L indicates the running-board, and *M* the sleepers therefor, such parts being of ordinary construction and applied in the usual
45 manner.

In applying the roof the superridge-pole is first placed in position and the plates *F* arranged in place. The carlings *H* are now laid in position from the eaves until the ends
50 of the carlings abut against the shoulder *g*. The superpurlins are now put on and the supersheeting nailed to the eave, after which the sleepers and running-board are attached.

From the above it will be seen that the roof-plates are free to move independently, and that buckling thereof, by reason of the sinuous motion of the car, contraction, expansion, &c., is practically impossible, as said plates
55 have play in every direction. It will also be noted that the solid corners at the ridge ends of the plates prevent an evil which is present in all other constructions with which I am familiar.

I am aware that many minor changes in the
65 construction, arrangement, and combination of the several parts of my invention may be

made and substituted for those herein shown and described, without in the least departing from the nature and principle of my invention.

Having thus described my invention, what 70 I claim, and desire to secure by Letters Patent, is—

1. In a car-roof, the combination with the ridge-pole, of independent sheets formed with single upturned flanges at their sides, said
75 flanges having a rebent portion at their top and extending from ridge-pole to the eaves of the car, and carlings formed with grooves on their under side corresponding in shape to the side flanges of the sheet to receive said
80 flanges, said grooves being of such dimensions as to permit the flanges of the sheets to play therein, whereby the tendency of the sheets to buckle, due to the straining of the car, contraction, expansion, &c., is obviated; sub-
85 stantially as described.

2. In a car-roof, the combination with the ridge-pole, of a superridge-pole formed with a pocket or recess on its under side, metal
90 sheets having single upturned flanges on its ridge end and two sides, said side flanges having a rebent portion, the pocket in the superridge-pole receiving the top flange of the sheet and being of such dimensions as to permit
95 the sheets to have independent movement, and carlings formed with grooves corresponding in shape to the side flanges but of greater dimensions than said side flanges, to receive
100 said flanges, said carlings abutting at their upper ends against the shoulder formed by the pocket; substantially as described.

3. In a car-roof the combination with the ridge-pole, of independent sheets formed with upturned flanges at their tops and sides, the
105 side flanges being formed with a rebent portion, and carlings formed of grooves corresponding in shape with the side flanges of the sheets which carlings embrace said side flanges, substantially as described.

4. In a car-roof, the combination with the
110 ridge-pole, of sheets having lock-joints at their corners, where the side and top flanges meet, and carlings which secure the side edges of the sheet by engaging the flanges thereof, substantially as described. 115

5. The combination with a ridge-pole, of sheets formed with rebent portions on their
120 side flanges making substantially channel-beams along the sides of the sheets, and carlings which engage said flanges, said carlings being grooved corresponding to the channel-beams of the sheets, substantially as described.

6. The combination with the sheets proper, having a top flange and side flanges, the corners
125 of the sheets at the intersection of said flanges being folded over, and a tongue, which extends from said folded portion over one of said flanges to lock the fold at the corner, substantially as described. 130

7. The combination with the sheets proper, of a single flange formed thereon at the top,

side flanges, the point of intersection of said
flanges being folded and forming a projection
tongue which is bent in upon the top flange
to lock the corner fold, the side flanges being
5 rebent, said rebent portions locking the tongue
in place, substantially as described.

In testimony whereof I hereunto affix my

signature, in presence of two witnesses, this
7th day of September, 1895.

PETER H. MURPHY.

Witnesses:

F. R. CORNWALL,
HUGH K. WAGNER.