T. N. RUSSELL.

CAR ROOF.

APPLICATION FILED OCT. 22, 1919.

1,347,974. Patented July 27, 1920.

2 SHEETS—SHEET 1.

Fig. 1

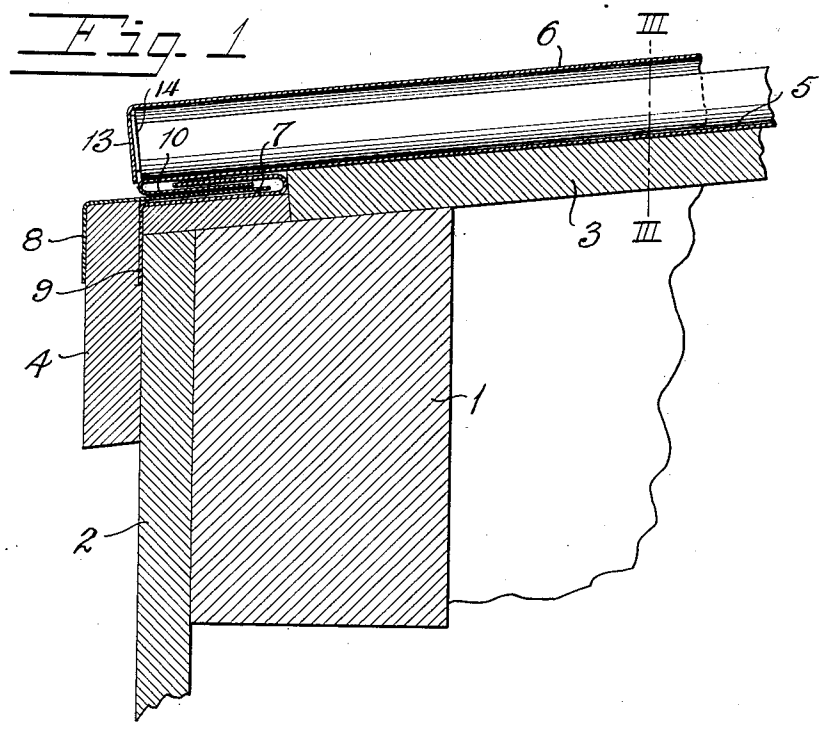
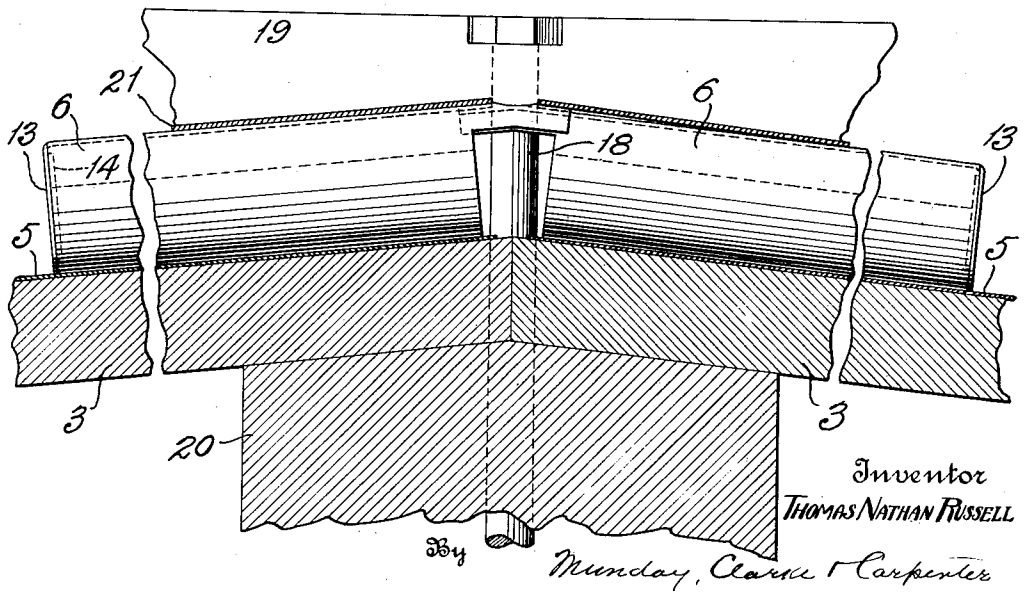


Fig. 2



Inventor
THOMAS NATHAN RUSSELL

By Munday, Clarke & Carpenter
Attorneys.

T. N. RUSSELL.

CAR ROOF.

APPLICATION FILED OCT. 22, 1919.

1,347,974.

Patented July 27, 1920.

2 SHEETS—SHEET 2.

Fig. 3

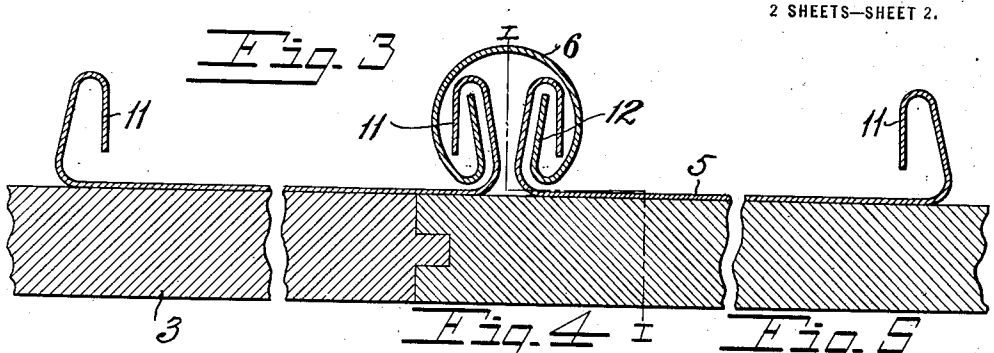


Fig. 4

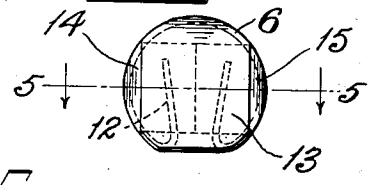


Fig. 5

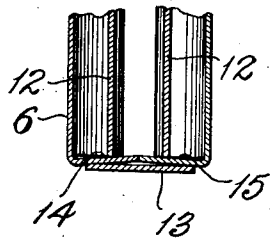
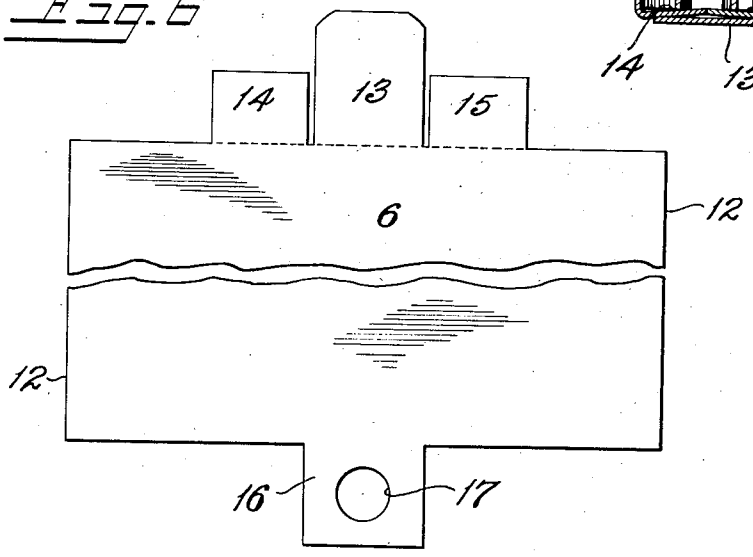


Fig. 6



Inventor

THOMAS NATHAN RUSSELL

By Munday, Clarke & Carpenter

Attorneys

UNITED STATES PATENT OFFICE.

THOMAS NATHAN RUSSELL, OF CHICAGO, ILLINOIS, ASSIGNOR TO CHICAGO-CLEVELAND CAR ROOFING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

CAR-ROOF.

1,347,974. Specification of Letters Patent. Patented July 27, 1920.

Application filed October 22, 1919. Serial No. 332,476.

To all whom it may concern:

Be it known that I, THOMAS NATHAN RUSSELL, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invention a new and useful Improvement in Car-Roofs, of which the following is a specification.

My invention relates to car roofs comprising sheet metal roofing plates or sheets, which are united side to side by a seam cap which makes the seam watertight and allows or may allow of some movement of the sheets relative to each other and to the seam cap. With such construction I do or may comprise a loose connection of the sheets with the roof frame at the eaves of the car.

The principal object of the invention is to eliminate the necessity for the use of seam cap clips, the eaves ends of the seam caps being closed by improved means integral with or carried by the cap, so that water and dirt are excluded and the roof sheets are held from movement away from the ridge and toward the eaves; and the seam caps are held from such movement, and thereby enabled to so hold the roof sheets, by a connection with each other, and preferably also with the ridge pole at the ridge of the car.

With such objects in view, as well as other advantages which may be incident to the use of the improvements, the invention consists in the parts and combinations thereof hereinafter set forth and claimed, with the understanding that the several necessary elements constituting the same may be varied in proportions and arrangement without departing from the nature and scope of the invention.

In order to make the invention more clearly understood there are shown in the accompanying drawings means for carrying the same into practical effect, without limiting the improvements, in their useful applications, to the particular constructions which, for the purpose of explanation, have been made the subject of illustration. In the said drawings:—

Figure 1 is a vertical transverse section of a portion of the roof at the eaves, on the line 1—1 of Fig. 3.

Fig. 2 is a similar section, partly broken away, showing in elevation the ridge ends and eaves ends of two alined seam caps connected together.

Fig. 3 is a vertical section taken longitudinally of the car on the line 3—3 of Fig. 1 and partly broken away, showing two roof sheets and their confining seam cap.

Fig. 4 is an elevation of the outer or eaves end of the seam cap.

Fig. 5 is a horizontal section of a portion of the latter on line 5—5 of Fig. 4.

Fig. 6 is a plan view, partly broken away, of a flat sheet of metal from which the seam cap is to be formed, and showing the formation of the eaves end for the production of the closure of that end and the construction of the ridge end for the connection of the cap at the ridge of the car.

Referring to the drawings, 1 indicates one of the side plates of the roof frame, 2 the side sheathing, 3 the top sheathing, 4 the side fascia, 5 the roof sheet, 6 the seam cap, 7 the longitudinal eaves hook strip and 8 the eaves flashing.

The hook strip 7 extends in one or more sections along the eaves of the car from end to end of the latter and is formed with a depending flange 9 which is secured between the sheathings 2 and 3 and the fascia 4. With this hook strip there is loosely engaged the hooked eaves edge 10 of the roof sheet 5, as best seen in Fig. 1. The flashing 8 extends longitudinally of the car in one or more sections, as may be convenient, and is formed with an inwardly and upwardly extending flange which extends to the inner portion of the loose seam which is formed between the hook strip and the roof sheet and is also formed with a depending flange 10 nailed to the outer side of the fascia 4, this arrangement being such that it does not interfere with any necessary movements of the roof sheet but closes against the entrance of water any joints between the hook strip and roof frame which might otherwise allow a leakage.

The roof sheets are formed at their edges with upwardly and downwardly extending seam flanges 11, which have a hooked formation and are best seen in Fig. 3, these flanges being intended for interengagement with the upwardly inclined edges of the interior flanges 12 of the seam caps, this arrangement being shown at the middle portion of Fig. 3. The roof sheets and seam caps thus have a loose hooked interengagement which holds the caps from upward displacement. The parts are assembled by sliding the seam caps, or the roof sheets, endwise.

At the outer end of each seam cap is formed a set of closing plates 13, 14 and 15, these plates being preferably integral with the seam cap. As or after the seam cap is bent into its tubular form, illustrated in Fig. 3, the flanges 14 and 15 are bent at right angles to the longitudinal line of the cap so as to meet each other, as seen in Fig. 5, and the closing plate 13 is bent downwardly to a position parallel with the plates 14 and 15 and overlapping the same, as illustrated in Figs. 4 and 5.

The arrangement is such that all openings into the outer end of the seam cap are closed, as seen in Fig. 4, and at the same time is formed an abutment against which the eaves ends of the roof sheet flanges 11 may engage so that the roof sheets will be held from outward movement toward the eaves.

At the ridge end the seam cap is provided or formed with an extension 16 in which is a perforation 17 for a bolt 18 (Fig. 2) which bolt connects together two seam caps at opposite sides of the roof which are in line with each other, and holds the said caps, as well as the engaged roof sheets from movement toward the eaves of the car, at both sides of the latter. The bolt 18 preferably passes through the saddle 19, top sheathing 3 and ridge pole 20. The bolt will also pass through the ridge cap 21.

The ridge ends of the roof sheets are or may be formed with inverted U-shaped flanges of usual construction, said flange of the sheet at one side of the ridge interengaging with the similar flange of the sheet at the other side of the ridge, the seam thus formed being inclosed by the seam cap 21, and at the ends of the car by ridge caps of suitable character.

What is claimed is—

1. In a car roof, the combination of a roof frame, roof sheets having upstanding hooked side flanges, seam caps having inturned hooked flanges loosely interengaged with said flanges of the roof sheets, means carried entirely by the seam caps for closing the eaves ends thereof and for holding the roof sheets from outward sliding, a connection holding together the ridge ends of the seam caps, and interchanging hook elements on the roof frame and on the eaves ends of the roof sheets whereby the roof sheets and seam caps are held from upward movement.

2. In a car roof, the combination of a roof frame, roof sheets having upstanding hooked side flanges, seam caps having inturned hooked flanges loosely interengaged with said flanges of the roof sheets, means carried entirely by the seam caps for closing the eaves ends thereof and for holding the roof sheets from outward sliding, a connection holding together the ridge ends of the seam caps, and interengaging hook elements on the roof frame and on the eaves ends of the roof sheets whereby the roof sheets and seam caps are held from upward movement irrespective of any seam slip.

3. In a car roof, the combination of a roof frame, roof sheets having upstanding hooked side flanges, seam caps having inturned hooked flanges loosely interengaged with said flanges of the roof sheets, means carried entirely by the seam caps for closing the eaves ends thereof and for holding the roof sheets from outward sliding, a connection at the inner ends of the seam caps uniting them with the frame of the roof and holding them from sliding outward, and interengaging hook elements on the roof frame and on the eaves ends of the roof sheets whereby the roof sheets and seam caps are held from upward movement.

4. In a car roof, the combination of a roof frame, top sheathing carried thereby, roof sheets having upstanding side flanges, seam caps loosely inclosing the side flanges of the roof sheets and having laterally extending plates which close the eaves ends of the seam caps and act as stops against the outward sliding of the roof sheets, a connection holding together the ridge ends of the seam caps, and interengaging hook elements on the roof frame and on the eaves ends of the roof sheets whereby the roof sheets and seam caps are held from upward movement.

5. In a car roof, the combination of a roof frame, top sheathing carried thereby, roof sheets having upstanding downwardly hooked side flanges, seam caps loosely inclosing the side flanges of the roof sheets and having hook elements engaging with the hook elements of the roof sheets, and having laterally extending plates which close the eaves ends of the seam caps and act as stops against the outward sliding of the roof sheets, a connection holding together the ridge ends of the seam caps, and interengaging hook elements on the roof frame and on the eaves ends of the roof sheets whereby the roof sheets and seam caps are held from upward movement.

6. In a car roof, the combination of a roof frame, top sheathing carried thereby, roof sheets having upstanding side flanges, seam caps loosely inclosing the side flanges of the roof sheets and having inwardly extending transverse plates which close the eaves ends of the seam caps and act as stops against the outward sliding of the roof sheets, a connection holding together the ridge ends of the seam cap, and interengaging hook elements on the roof frame and on the eaves ends of the roof sheets whereby the roof sheets and seam caps are held from upward movement.

7. A car roof having in combination roof sheets and seam caps loosely engaged therewith, means for holding the seam caps from upward movement away from the roof

sheets, means for holding the roof sheets from outward sliding relative to the seam caps, means for loosely confining the eaves ends of the roof sheets against upward movement, and means for positively locking the seam caps from movement away from the ridge of the roof.

8. A car roof having in combination roof sheets and seam caps loosely engaged therewith, means for holding the seam caps from upward movement away from the roof sheets, means for holding the roof sheets from outward sliding relative to the seam caps, means for loosely confining the eaves ends of the roof sheets against upward movement, and means for positively locking two alined seam caps together against movement away from the ridge of the roof.

9. A seam cap for car roofs, embodying, an elongated sheet-metal member of tubular form provided with means along its sides for loosely engaging side flanges of roof sheets disposed on opposite sides of said member, and having its metal bent to form a closed eaves end, substantially as specified.

10. A seam cap for car roofs, embodying, an elongated sheet-metal member provided with means along its sides for loosely engaging side flanges of roof sheets disposed on opposite sides of said member, and having, at its end, closure flaps bent inwardly toward each other to cover the end of the latter and another closure flap bent into position for closing the joint between the aforesaid flaps, substantially as specified.

11. A seam cap for car roofs, embodying, an elongated sheet-metal member having side flanges adapted to engage loosely side flanges of roof sheets disposed on opposite sides of said member, and having at its end, interior closure flaps bent inwardly toward each other from the opposite sides of the sheet-metal member to cover the end of the latter and an exterior closure flap bent downwardly from the top of the sheet-metal member against the aforesaid interior closure flaps, to close the joint between the latter, substantially as specified.

In testimony whereof I have hereunto set my hand.

THOMAS NATHAN RUSSELL.