W. F. KIESEL, Jr.

CAR ROOF.

APPLICATION FILED NOV. 16, 1909.

961,301. Patented June 14, 1910.

3 SHEETS—SHEET 1.

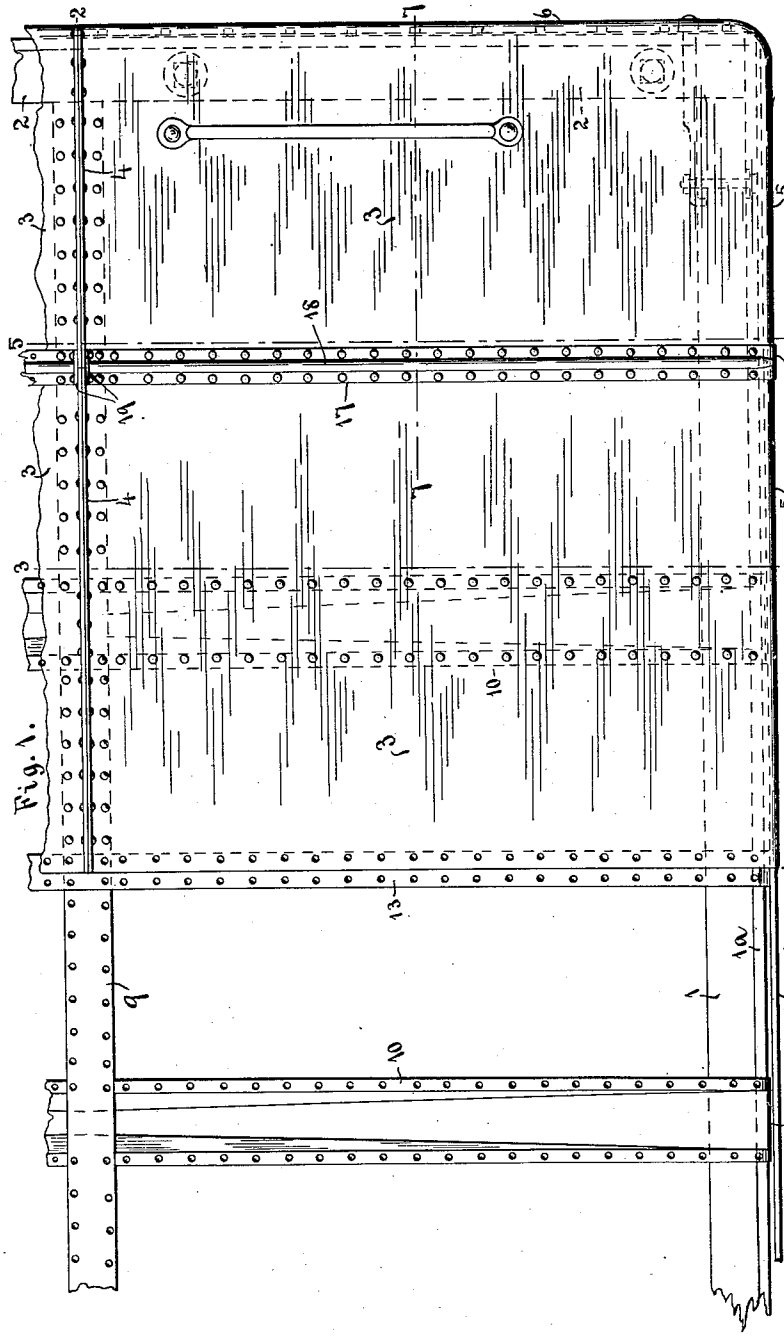

Fig. 1.

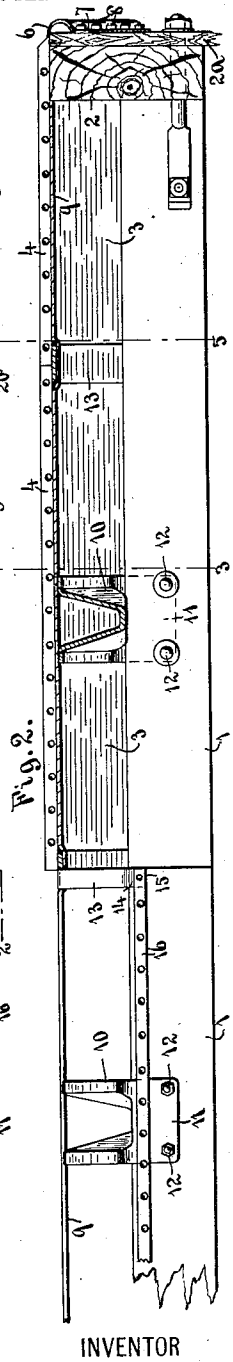

Fig. 2.

WITNESSES:

Chas. L. Stoltz Jr.

M. E. Verbeck

INVENTOR

William F. Kiesel, Jr.

BY

Eugene Diven

ATTORNEY

W. F. KIESEL, Jr.

CAR ROOF.

APPLICATION FILED NOV. 16, 1909.

961,301. Patented June 14, 1910.

3 SHEETS—SHEET 2.

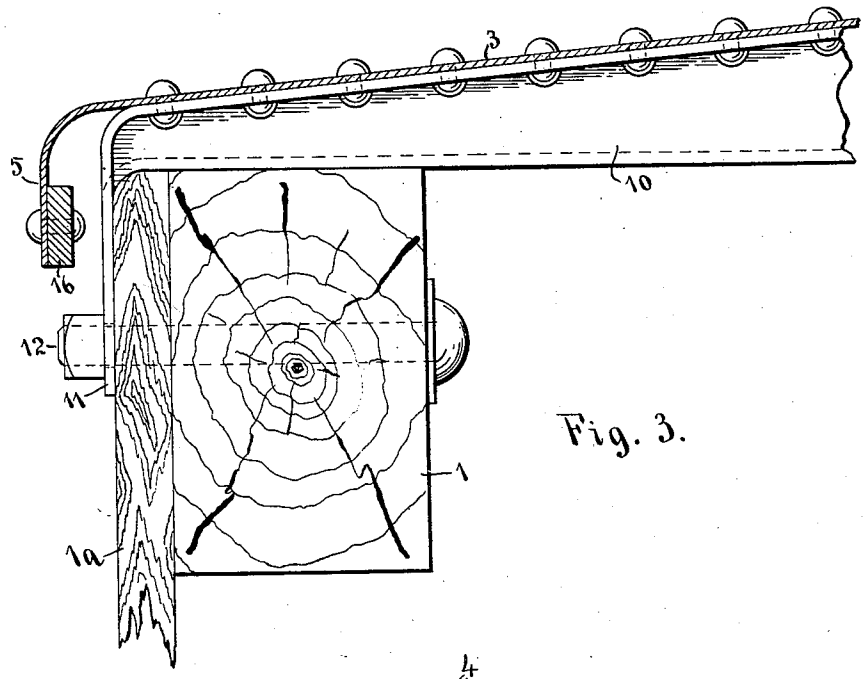

Fig. 3.

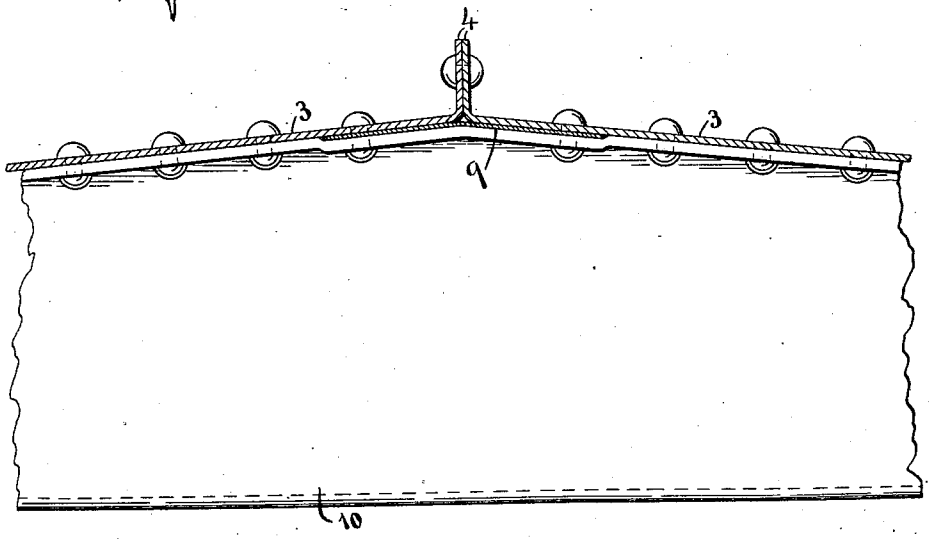

Fig. 4.

WITNESSES:

Chas. C. Stoltzbon.

M. E. Verbeck.

INVENTOR

William F. Kiesel, Jr.

BY

Eugene Diven

ATTORNEY

W. F. KIESEL, JR.

CAR ROOF.

APPLICATION FILED NOV. 16, 1909.

961,301. Patented June 14, 1910.

3 SHEETS—SHEET 3.

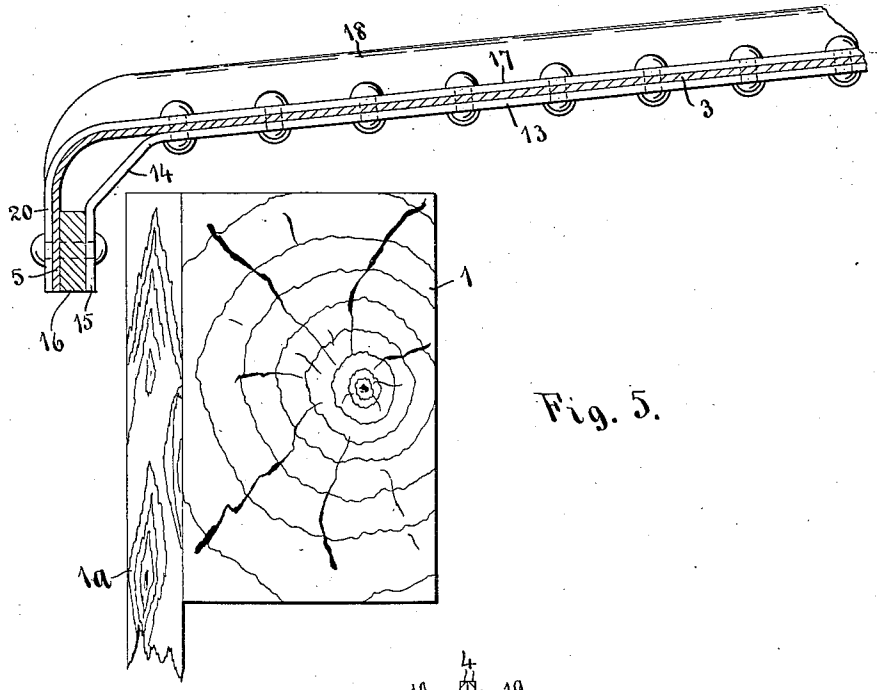

Fig. 5.

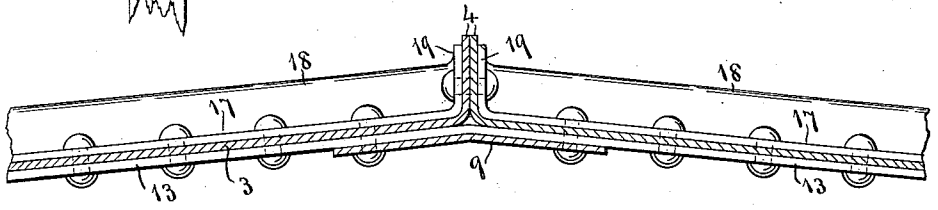

Fig. 6.

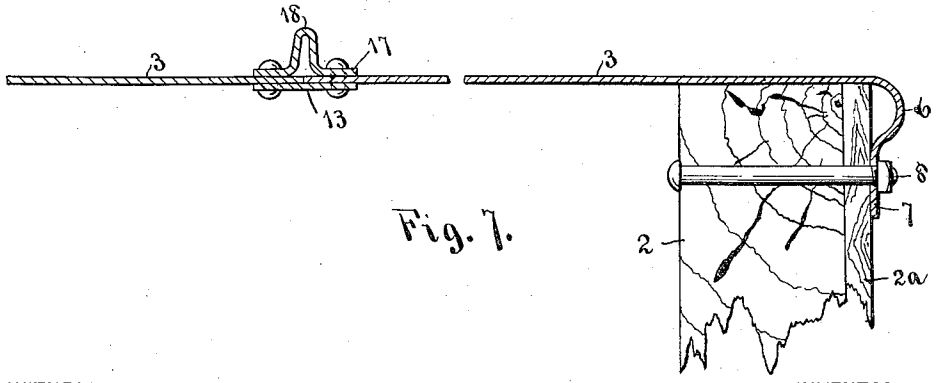

Fig. 7.

WITNESSES:

Chas. L. Stoltzlen.

M. E. Verbeck.

INVENTOR

William F. Kiesel, Jr.

BY

Eugene Owen

ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM F. KIESEL, JR., OF ALTOONA, PENNSYLVANIA.

CAR-ROOF.

961,301. Specification of Letters Patent. Patented June 14, 1910.

Application filed November 16, 1909. Serial No. 528,294.

To all whom it may concern:

Be it known that I, WILLIAM F. KIESEL, Jr., a citizen of the United States, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Car-Roofs, of which the following is a specification.

This invention relates to improvements in steel roofs for railway box cars, and the like, my object being to provide an all steel roof which will be strong, light, and self-supporting, and which may be built separately from the car body, and thereafter placed in position upon the completed car body and fastened to the top side and end plates of the car frame by bolts passed through the roof carlines and the roof end sheets.

A further object is to provide the roof with projecting eaves, and a ventilating space between the sides of the car and the eaves communicating with the interior of the car, to prevent the accumulation of moisture on the inside of the roof sheets by reason of the condensation of moisture in the air within the car or from the exhalations from the lading.

I attain my objects by constructing the roof in the manner illustrated in the accompanying drawings, in which—

Figure 1 presents a plan view of a portion of a car roof embodying my improvements, the roof sheets at the left being removed to show the skeleton of the roof frame; Fig. 2, a side elevation partly in section on the line 2—2 in Fig. 1; Figs. 3 and 4, enlarged section views on the line 3—3 in Figs. 1 and 2; Figs. 5 and 6, similar section views on the line 5—5 in Figs. 1 and 2; and Fig. 7, a section view on the line 7—7 in Fig. 1.

Like numerals designate like parts in the several views.

The upper frame of the car body, which may be of steel or wood construction, is provided with the side plates 1, and the end plates 2, to the outward side of which the outside sheathing of the car is fastened, as indicated at 1^a 2^a; and the end plates will be inclined upward from each side to the center, to correspond with the desired pitch of the roof, in the usual manner.

The roof is composed of a number of sheets of steel 3, provided at the center line of the roof with upturned flanges 4, which are riveted together to form, in combination with a flat ridge strip 9, a supporting ridge construction which takes the place of the usual ridge pole. At their outward ends, these roof sheets are bent downward at 5, and riveted to an eaves strip 16, which extends along from one end of the car to the other below the top of the car frame, and at a short distance outward therefrom, to provide an air space between the two. The corner sheets of the roof are bent downward at their sides with a convex curve 6, and flattened at 7 to rest against the end sheathing of the car, to which they are fastened by means of bolts 8 passed through the end plates 2.

Distributed throughout the length of the car are hollow pressed steel carlines 10, of V-shaped cross-section, said carlines being located at the center of each pair of roof sheets, and provided with flanges to which the roof sheets are riveted. These carlines extend in one piece across the roof, and are bent downward at each end at 11 to engage the outward sides of the car body; these outward ends, when the roof is in place, engaging the outward sides of the sheathing 1^a, (see Fig. 3), and being fastened in place by bolts 12, passed through the sheathing and the top side plate.

The sheets are united by butt joints, the ends of abutting sheets being laid upon inner butt strips 13, which pass across the car and are bent downward at an angle at each end at 14, (see Fig. 5), and then vertically at 15, the vertical ends 15 engaging the inward sides of the eaves strips 16, to form a braced support therefor intermediate the carlines. On the top side of the sheets are outer butt strips 17, which are crimped upward at the center at 18, to supply the necessary strength and stiffness for the roof sheets at their joints. These inner and outer strips are riveted together with the roof sheets between, the outer strips being turned upwardly at the ridge of the roof at 19 and riveted in with the upturned flanges 4 of the roof sheets. The outward ends of the outer butt strips are flattened and bent downward at 20, where they are riveted in with the ends 5 and 15 of the roof sheets and inner butt strips respectively to the eaves strips 16, as shown more clearly in Fig. 5.

The carlines 10 rest upon the top side plates of the car frame, so that the roof sheets are spaced a short distance from the top of the frame, there being thus provided a space extending from end to end of the car below the roof sheets, which space communicates with the ventilating space provided between the eaves strips and the sides of the car. These ventilating spaces on each side of the car will thus be seen to extend from one end of the car to the other without interruption, except where the carlines are located; and it will also be seen that the interior spaces of the pressed carlines are also in communication with the outer air through these ventilating spaces provided between the eaves strip and the sides of the car.

As so constructed, the entire roof may be assembled in one piece, and wholly riveted together, and thereafter placed in position upon the top of the car to be fastened thereon by means of the bolts 8 and 12.

What I claim as my invention and desire to secure by Letters Patent is—

1. The combination, with a car body, of a metal roof therefor comprising roof sheets and carlines riveted together in one complete and self supporting whole, the sheets at each end of the car and the carlines along the sides of the car being bent downward to engage the ends and sides of the car respectively and provided with bolt holes for fastening them thereto, the sheets along the sides of the car being carried out and turned downward with a clear space between them and the car sides, and the carlines being so fastened to the car sides as to leave a clear space between the roof sheets and the top of the car sides.

2. The combination, with a car body, of a metal roof therefor comprising a plurality of roof sheets joined together in pairs by upturned flanges at the ridge line, carlines passing across at the center line of each pair of sheets, means for fastening the edges of the sheet pairs together and means for fastening the end sheets and carlines to the car body.

3. The combination, with a car body, of a metal roof therefor comprising a plurality of roof sheets joined together in pairs by upturned flanges at the ridge line, a ridge plate extending from end to end of the roof and riveted to the underside of the sheet pairs across their joints, carlines passing across at the center line of each pair of sheets, means for fastening the edges of the sheet pairs together, and means for fastening the end sheets and carlines to the car body.

4. The combination with a car body, of a metal roof therefor comprising a plurality of roof sheets extending transversely across the roof, the edges of the sheets being fastened together with butt joints by means of inner and outer butt strips, one of said strips being longitudinally crimped to form a supporting rib, and carlines fastened to the sheets between joints.

5. The combination, with a car body, of a metal roof therefor comprising a plurality of roof sheets fastened together in pairs by upturned flanges at the ridge line, the edges of the sheet pairs being fastened together with butt joints by means of inner butt strips extending in one piece across the roof and outer butt strips extending from eaves to ridge line, said outer butt strips being provided with longitudinal crimps and with upturned flanges at the ridge line riveted in with the sheet flanges.

6. The combination, with a car body, of a metal roof therefor comprising roof sheets fastened directly upon a plurality of carlines, said carlines being provided with means for fastening their ends to the car body, and the roof sheets being carried out beyond the carlines and bent downward to form eaves offset from the car body with a clear space between.

7. The combination, with a car body, of a metal roof therefor comprising roof sheets fastened directly upon a plurality of carlines, said carlines being provided with means for fastening their ends to the car body, the roof sheets being carried out beyond the carlines and bent downward, and eaves strips fastened to the inward sides of the roof sheets along the edges thereof, said eaves strips being spaced away from the car sides.

8. The combination, with a car body, of a metal roof therefor comprising roof sheets fastened directly upon a plurality of carlines, said carlines being so fastened upon the top members of the car body as to leave a space between said members and the roof sheets, and the roof sheets being carried out beyond the sides of the car body to form projecting eaves whereby ventilating spaces are provided along the sides of the car body at the top thereof.

9. The combination, with a car body, of a metal roof therefor comprising roof sheets fastened upon a plurality of carlines, said carlines being so fastened upon the top members of the car body as to leave a space between said members and the roof sheets, and the roof sheets being carried out and bent downward away from the car sides with their edges extending below the top of the car body, whereby ventilating spaces are provided along the sides of the car body at the top thereof.

10. The outer butt strips flanged up-

wardly at the ridge line, bent downward at the eaves line, and longitudinally crimped between ends.

11. The inner butt strips extending in one piece from the ridge line to the opposite eaves lines, and having each end bent downward at an obtuse angle terminating in a vertical bend, in combination with longitudinal eaves strips fastened to the vertical bends.

In testimony whereof I have affixed my signature, in presence of two witnesses.

WILLIAM F. KIESEL, JR.

Witnesses:

H. A. HOKE,

WILLIAM L. BROWN.