F. L. IRWIN.

CARLINE REINFORCING CONSTRUCTION.

APPLICATION FILED OCT. 17, 1907.

913,141.

Patented Feb. 23, 1909.

2 SHEETS—SHEET 1.

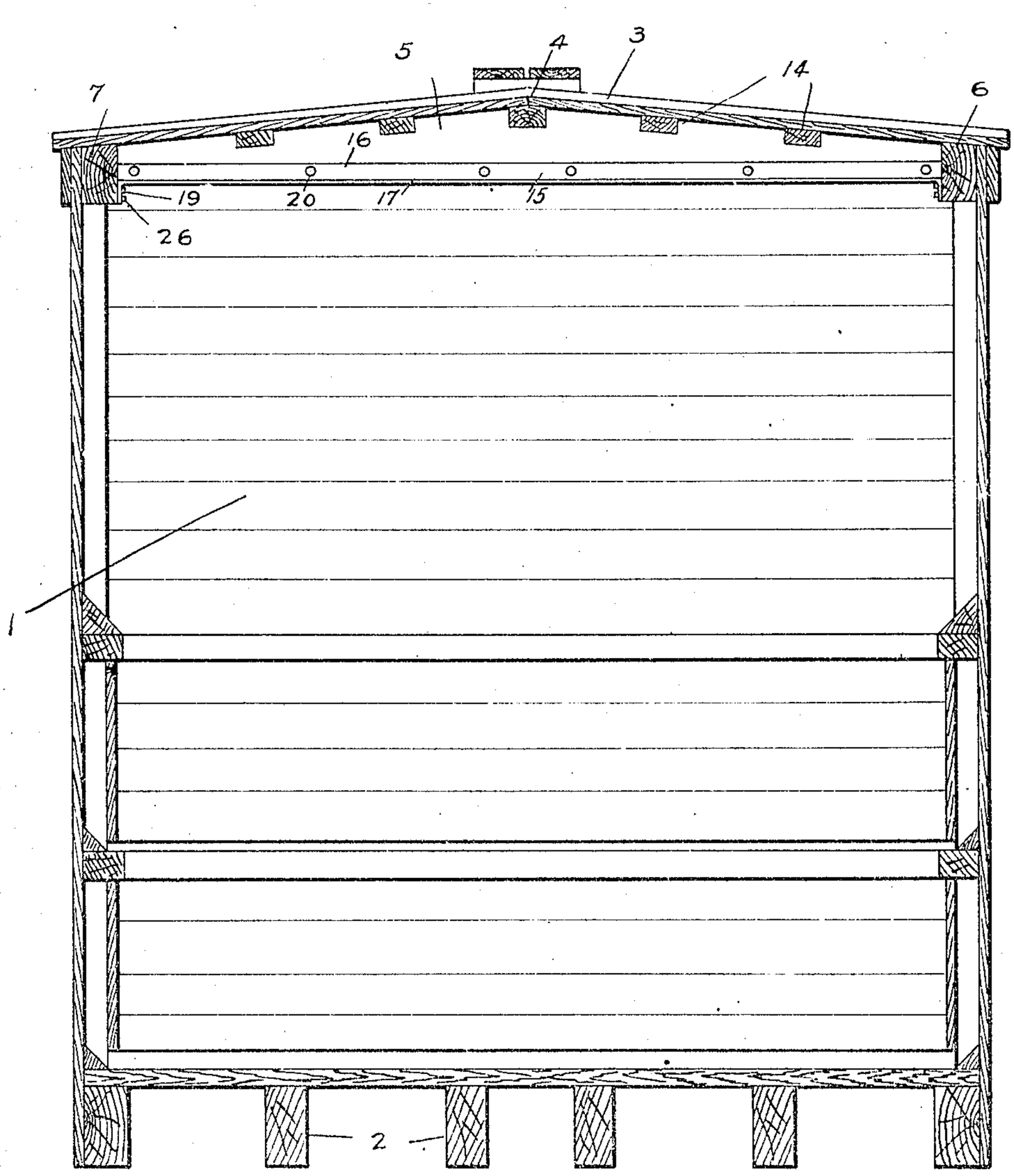

Fig 1

WITNESSES:

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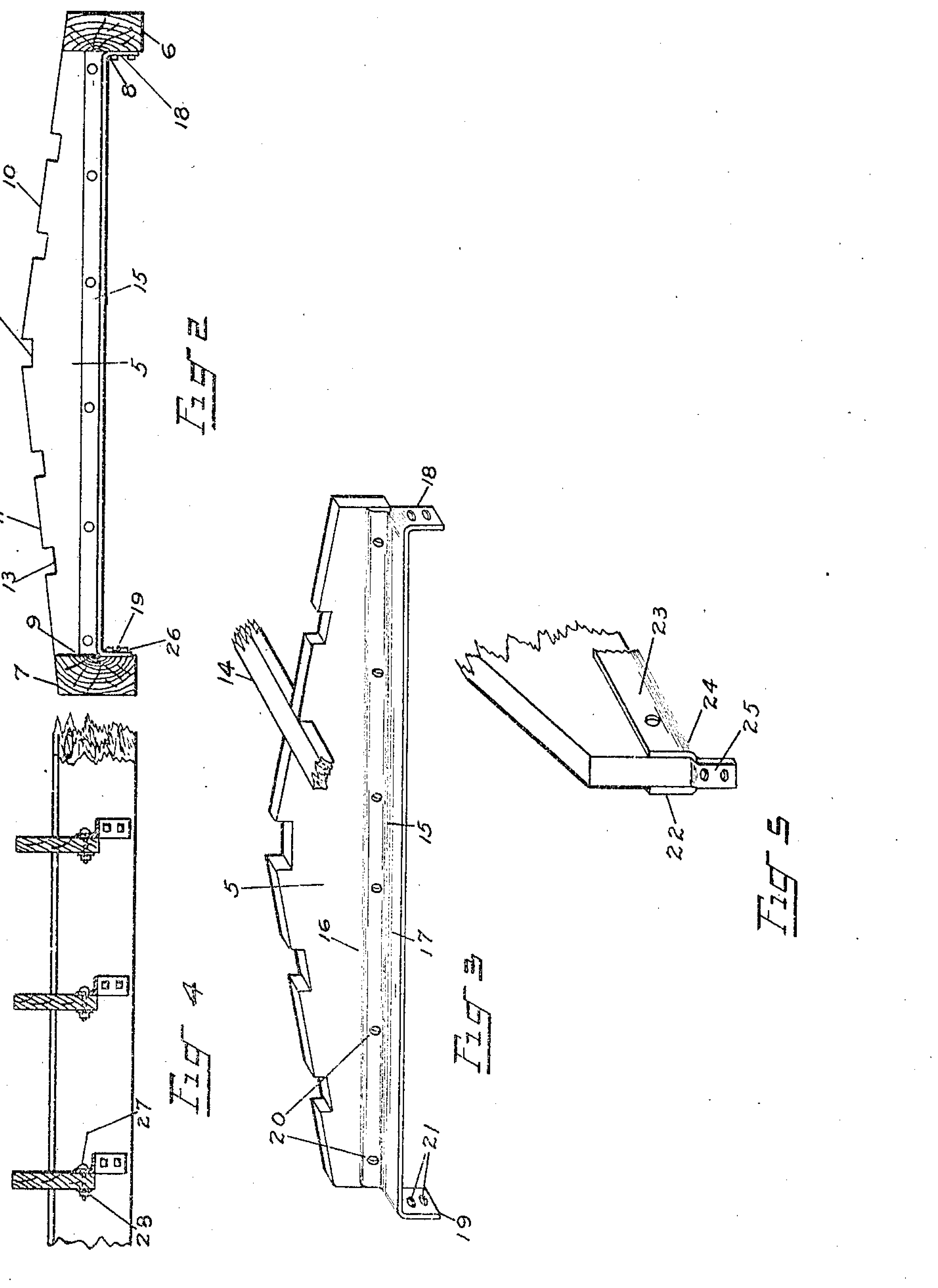

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UNITED STATES PATENT OFFICE.

FRANK L. IRWIN, OF COLUMBUS, OHIO, ASSIGNOR TO THE RALSTON STEEL CAR COMPANY, OF COLUMBUS, OHIO, A CORPORATION OF OHIO.

CARLINE-REINFORCING CONSTRUCTION.

No. 913,141. Specification of Letters Patent. Patented Feb. 23, 1909.

Application filed October 17, 1907. Serial No. 397,885.

To all whom it may concern:

Be it known that I, FRANK L. IRWIN, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Carline-Reinforcing Construction, of which the following is a specification.

My invention relates to improvements in the construction of the carline for box cars, especially to the means of reinforcing or bracing the carline when it has become weakened or deteriorated with usage.

In the use of box cars it has been demonstrated that the carline or cross beam at the upper side of the box tends gradually to become loosened from the plates to which it is joined at its ends, and also tends to crack or split longitudinally or diagonally with long and severe usage. The use to which the box car is put subjects it to severe strains in all parts of its construction, and when the box is heavily loaded, as it frequently is in practice, the roof and the sides are subject to strains severe enough to twist the frame parts and to tend to pull them apart. The effects of such strains are first noted at the junction of the carline with the plates, and in time a distinct breach is created at these points. It has been customary to secure the ends of the carline in the adjacent side plates by means of tenons. This construction for supporting the roof of a box car has long been employed, and hitherto when the parts have been strained and twisted through long usage and have thereby lost their efficiency in large measure, they have been cast aside, or repaired in a bungling and unsatisfactory fashion; in some cases it may be that the carline has been removed and a new one inserted, but this requires that the roof or a large section thereof be torn away and then replaced, which method of repair is not only arduous but also expensive, and in the case of old cars it is too expensive to justify its use. At this point my invention becomes valuable, inasmuch as by its use the carline may be supported from beneath effectively and neatly and may also be joined to the side plates, so that the whole construction comprising the carline and its abutting side plates is reinforced and rendered fit for subsequent long and severe usage. The application of my device to a carline is easy and performed expeditiously, and is also inexpensive.

In the accompanying drawings which are hereto attached and hereby made a part of this specification, Figure 1 is a vertical transverse section through a box car at a carline showing the position of the parts in use; Fig. 2 shows the carline secured to its abutting plates with my reinforcing means applied thereto; Fig. 3 is a carline disconnected from the car box and showing my device in place thereon, the view being somewhat in perspective; Fig. 4 is a side view of a plate showing the carline in cross section and the manner of securing the same to the plate by my reinforcing means; Fig. 5 shows an end of a carline having secured thereto my reinforcing means constructed in a modified form.

Reference being had to the drawings in which the same numeral indicates the same part throughout, 1 is a car box built upon the stringers 2, with the roof 3 in place; the roof is formed in the ordinary manner with a ridge 4 from which it slopes in both directions, and rests upon the construction at the upper sides of the ends of the car and the carlines 5 disposed at intervals along the upper side of the car box; the carlines 5 are secured at their ends in the plates 6 and 7, which are secured in the said frame of the box on its upper side. Usually the carline has been secured in the plates by means of tenons shown at 8 and 9; the carline is formed with its upper face sloping in both directions from the center thereof as appears at 10 and 11, and is provided in its upper face with the recesses shown at 12 and 13, in which recesses are fitted the purlins 14 shown in Fig. 3, upon which the roof is laid.

When the carline through usage has pulled loose from the plates and the car box has thereby become weakened, I provide for the repair of the same by the use of my reinforcing means shown at 15; this consists of a rolled angle having the upwardly extending flange portion 16 and the laterally extending flange portion 17, the flange portion 17 at its ends being bent downwardly to form the extensions 18 and 19. Bolt holes 20 are provided at intervals in the flange 16, and at 21 are shown bolt holes in the depending extension 19, similar ones being shown in the depending extension 18 at the oppo-

site end of the carline. In Fig. 5 I show a modified form of reinforcing construction, in which the same is rolled into a U-shape having the side portions 22 and 23 and the bottom portion 24, and the depending extension 25 at the end thereof. The construction shown in Fig. 3 is adapted to be placed against the side of the carline 5 along the lower edge thereof, the bolts 27 are then inserted through the holes 20 into the carline itself, and preferably through the same and are secured on the other side by the threaded nut 28 in the usual way. This construction makes the reinforcing means easy and quick of application. At the ends of the reinforcing angle 15 the depending extensions 18 and 19 engage the inner faces of the plates 6 and 7 respectively, and are firmly secured thereto by means of the bolts shown at 26. In the use of the modified form shown in Fig. 5, the lower edge and sides of the carline are embraced by the reinforcing means while the depending extension 25 engages the inner face of the plate as above described. In this manner the carline is supported in its normal position and is also securely tied to the plates at its ends, the flange portions 15 and 16 are formed of sufficient width to engage the face of the carline and the faces of the plates firmly and to furnish rigid supports to the structure.

It will be noted that the reinforcing means can readily be formed of any desired length, so as to be applicable to car boxes of any dimensions; the reinforcing means will be applied thereto without removing any portion of the car construction, since the workmen may enter the car door in the usual manner and carry into the car box the reinforcing means or angles, and will apply the same to the face of the carline and to the inner faces of the plates by merely boring holes through these parts at convenient distances to receive the bolts which will be inserted through the holes provided in the reinforcing angle. The application of the reinforcing construction is therefore not attended by any removal of the parts of the car box, the whole car box structure remaining intact and the supporting or reinforcing means being applied thereto. The ready application of my reinforcing means renders it of especial value for the reason that when the car boxes have reached the stage at which repair is needed, it is inadvisable to make repairs thereon which are expensive in their nature, inasmuch as a car ordinarily at this stage is deteriorating in other parts of its construction also.

The chief feature of my reinforcing means is that it may be applied to a car to strengthen and repair the same without removing parts of the car construction and without displacing any of the ordinary parts of the car box; it is quickly applied and is cheaply and simply constructed and is effective to reinforce the carline and plate construction so that they may be subjected afterwards to long and severe usage.

What I claim is:

In a box car having plates arranged upon the upper edges of its sides, a wooden carline extending transversely of said car and secured to said plates at its ends, a reinforcing metallic angle member having one flange applied to the side of said carline throughout its length, the other flange thereof being arranged at a right angle to the depth of said carline, and having its ends bent to engage the inner sides of said plates, and means for securing said reinforcing member through said first flange to the side of said carline, and for securing said reinforcing member to said plates through said bent end members, whereby said carline is reinforced and repaired.

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

FRANK L. IRWIN.

Witnesses:

GEO. W. RIGHTMIRE,

HORACE S. KERR.