Oct. 4, 1932. W. E. WINE 1,880,629

CROSS BEARER FOR FREIGHT CARS

Filed March 21, 1929 3 Sheets-Sheet 1

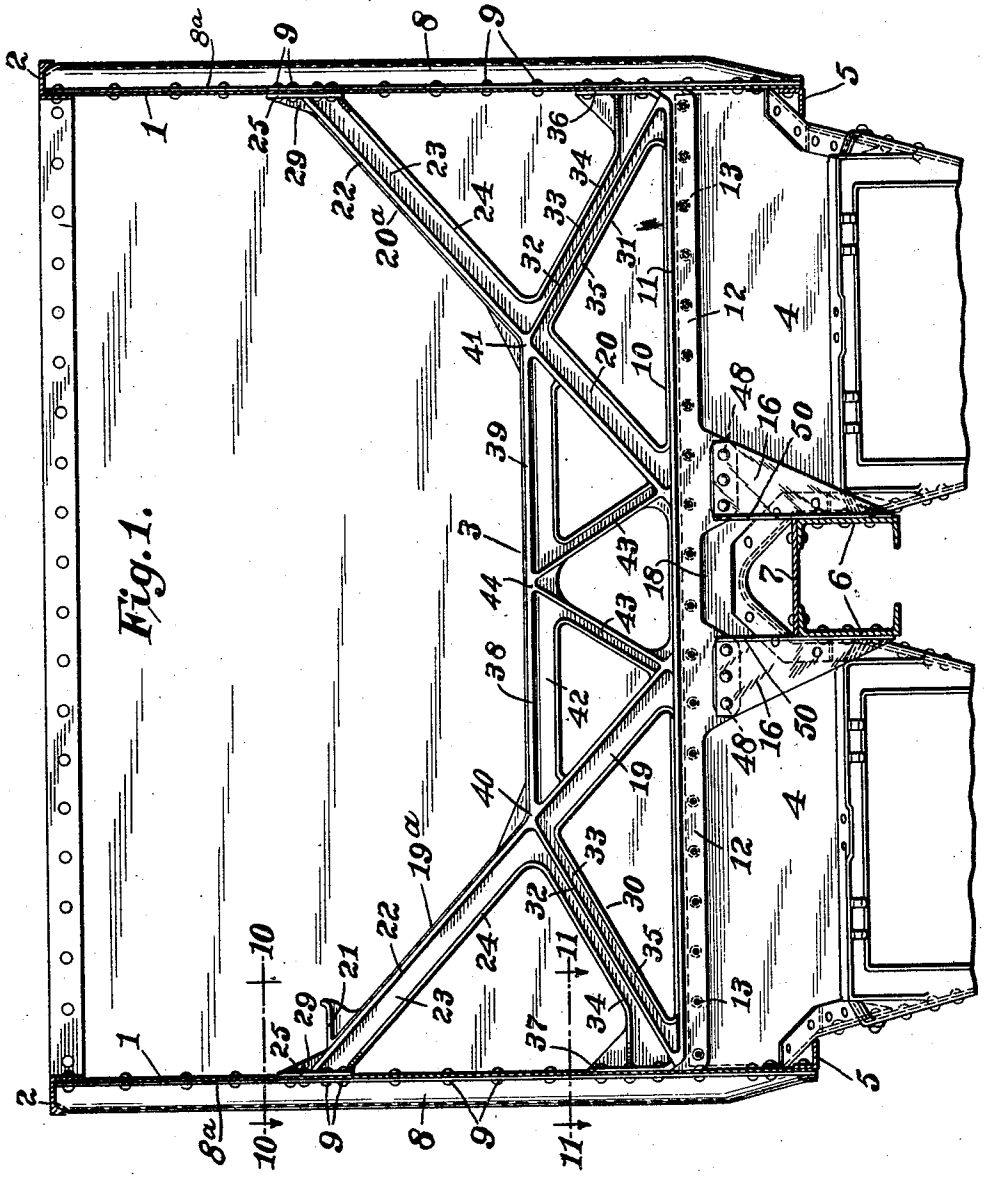


Fig. 1.

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Fig. 2.

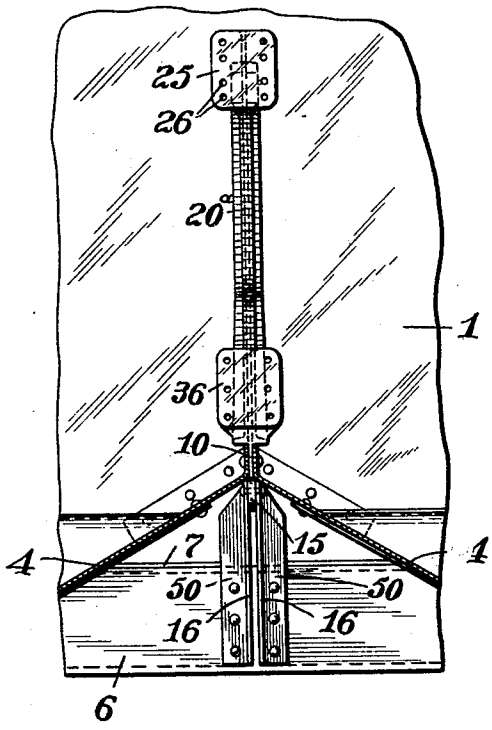


Fig. 6.

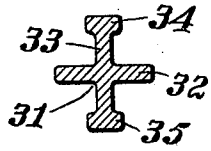


Fig. 7.

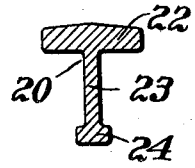


Fig. 8.

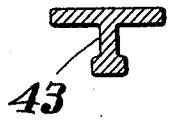


Fig. 9.

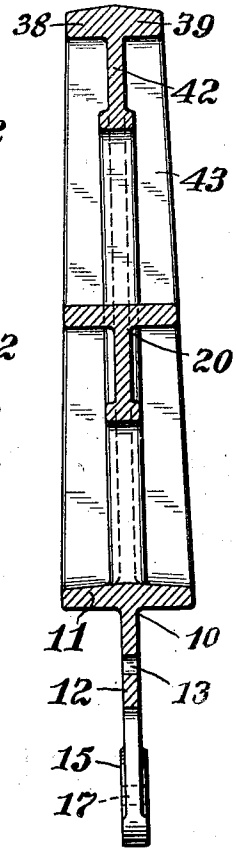


Fig. 10.

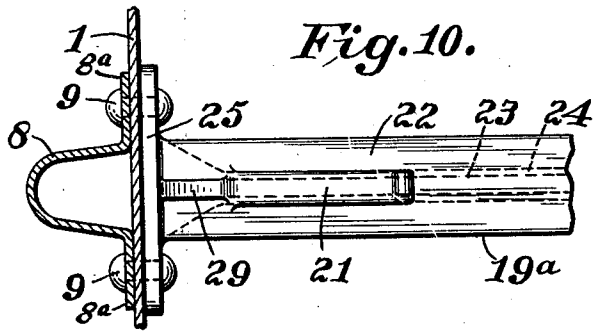


Fig. 11.

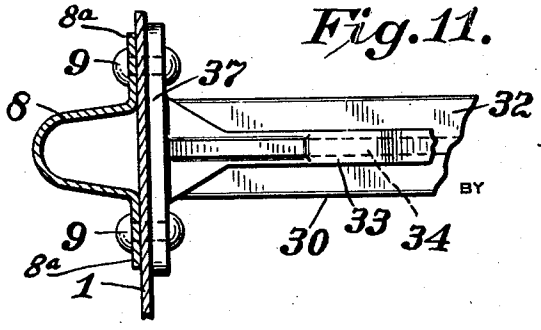
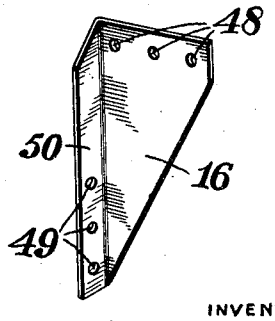


Fig. 12.



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CROSS BEARER FOR FREIGHT CARS

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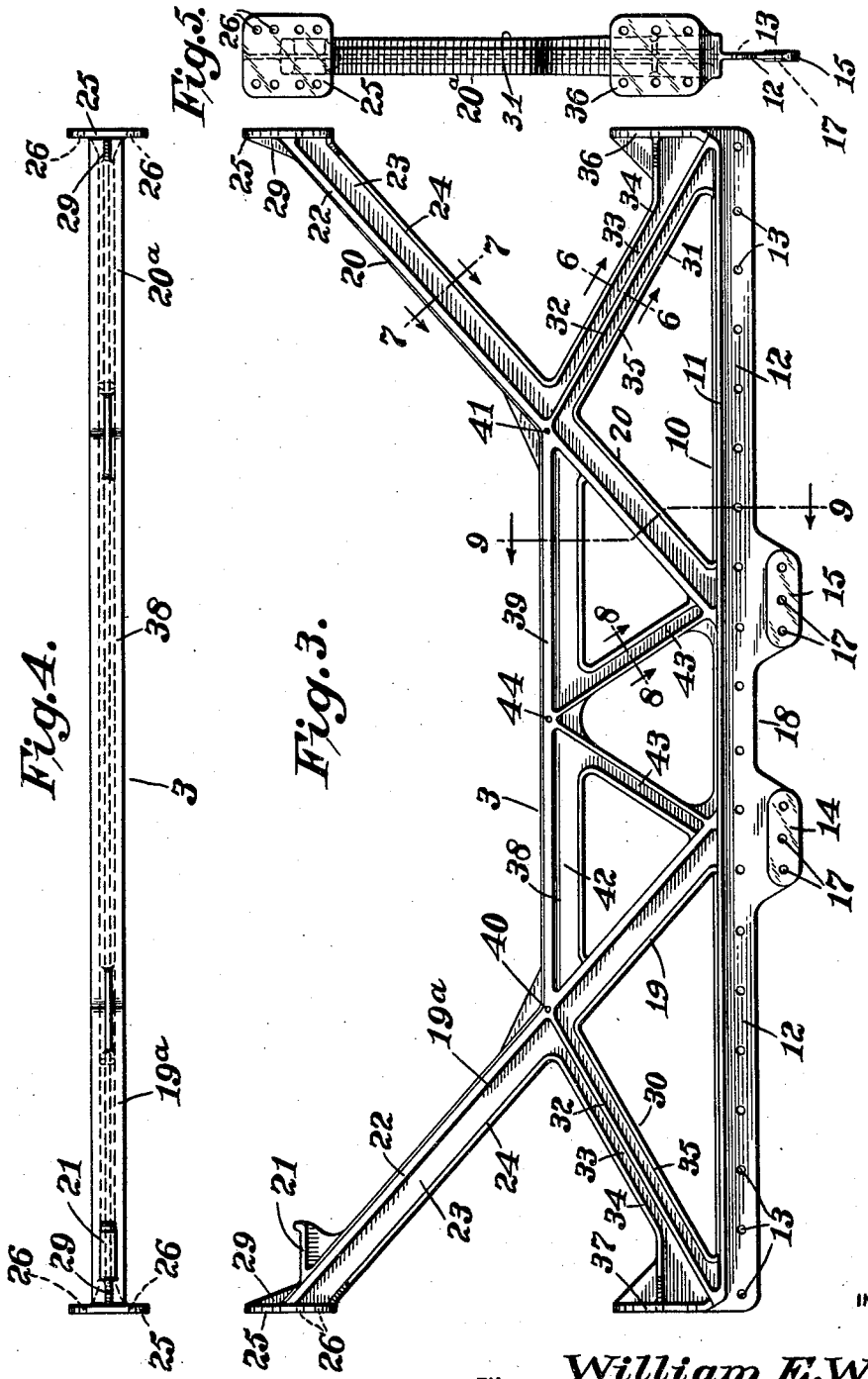


Fig. 5.

Fig. 4.

Fig. 3.

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Patented Oct. 4, 1932 1,880,629

UNITED STATES PATENT OFFICE

WILLIAM E. WINE, OF TOLEDO, OHIO

CROSS BEARER FOR FREIGHT CARS

Application filed March 21, 1929. Serial No. 348,862.

My invention relates to railway cars and more particularly to improvements in cross bearers therefor of the general type shown in my co-pending application, Serial No. 267,040, filed April 3, 1928.

A principal object of the invention is to provide improved means rigidly secured to the cross bearer and center sill for supporting the latter.

Another object of the invention is to provide means whereby the cross bearer may be rigidly secured to the side stakes which are mounted on the outside of the side sheets.

A primary feature of the invention consists in providing, in combination with the car center sill, a cross bearer which extends continuously from one side of the car to the other and is rigidly secured to opposite side stakes, the lower portion of the cross bearer being spaced above the center sill and having rigidly secured thereto means adapted to cooperate with the center sill for supporting the latter.

Another feature of the invention consists in providing, in combination with the car center sill, a cross bearer which extends continuously from one side of the car to the other and is formed with a lower chord member spaced above the center sill and provided with a substantially vertical portion, a plurality of bracket members being secured to the said vertical portion and depending from the cross bearer on opposite sides of the center sill for attachment thereto.

Another feature of the invention consists in rigidly securing to the cross bearer which extends above the center sill from one side of the car to the other a plurality of substantially triangularly shaped brackets having flanges adapted to be secured to the center sill for supporting the latter.

A further feature of the invention consists in providing the cross bearer with substantially vertically disposed portions lying in planes substantially parallel to the longitudinal axis of the car for attachment to outside side stakes.

Other and more specific features of the invention residing in advantageous forms, combinations and relations of parts will hereinafter appear and be pointed out in the claims.

In the drawings illustrating a preferred embodiment of the invention:

Figure 1 is a transverse vertical sectional view of a railway hopper car, the cross bearer being shown in elevation.

Figure 2 is a longitudinal sectional view of the car adjacent one of its sides, the adjacent side stakes, side sheet and side sill be omitted.

Figure 3 is an enlarged side elevational view of the cross bearer.

Figure 4 is a plan view of the cross bearer.

Figure 5 is an end elevational view of the cross bearer.

Figures 6, 7, 8 and 9 are enlarged sectional views taken on lines 6—6, 7—7, 8—8, 9—9, respectively, of Figure 3.

Figures 10 and 11 are fragmentary enlarged sectional views taken on lines 10—10, 11—11, respectively, of Figure 1.

Figure 12 is a perspective view of one of the center sill supporting brackets.

Referring more particularly to the drawings 1 indicates the side sheets of a railway hopper car which are secured at their upper edges to side top rails 2 and at their lower edges to side sills 5. The center sill of the car is formed by two longitudinally extending beams 6 which may be of any suitable or desirable shape. In the present instance the beams are of substantially channel shape having upper and lower inwardly projecting flanges, the upper ones of which are preferably joined or connected by a top cover plate 7.

Overlapping the outer faces of the side sheets 1 are vertically extending side stakes 8. Although these stakes may be of any convenient form I prefer to make them of substantially U-shape in cross section having oppositely projecting flanges 8^a which may advantageously be secured to the side sheets by rivets 9.

Extending transversely of the car from one side thereof to the other is the cross bearer 3, the lower portion of which is spaced above the top of the center sill. The cross bearer is preferably formed as a unitary cast-

ing having upper and lower horizontally extending chord members 38 and 10, respectively. The lower chord member is preferably of T-shaped having a substantially horizontal flange 11 and a substantially vertical stem or flange 12. The vertical flange 12 is formed with a plurality of holes or apertures 13 to receive rivets for attaching downwardly inclined transversely extending hopper sheets 4. The upper chord member 38 is also of substantially T-shape having a horizontal flange 39 and a vertical stem or flange 42.

At their opposite ends the upper and lower chord members are preferably connected by downwardly diverging members 30 and 31. Each of these members is preferably of cruciform shape having oppositely projecting flanges 32 and 33, respectively. If desired, the outer or free edges of the flanges 33 may be formed with rigidifying beads or ribs 34 and 35, respectively. Since the upper and lower chord members are substantially parallel and the members 30 and 31 are non-parallel it will be perceived that the cross bearer is of substantially trapezoidal shape.

Intermediate their ends the upper and lower chord members are joined or connected by members 43 which diverge downwardly from the upper member as at 44 and intersect the lower one on opposite sides of the longitudinal axis of the car. The chord members are also connected by additional members 19 and 20 which diverge upwardly from the lower chord adjacent the points of intersection of the latter and the members 43 and join with the upper chord as at 40 and 41, which respectively designate the points of juncture of the upper chord member and the members 30 and 31. By connecting the upper and lower chords by the six members heretofore described it will be appreciated that the cross bearer affords a rigid truss extending from one side of the car to the other.

Extending upwardly and outwardly from the points 40 and 41 of the cross bearer are the legs 19^a and 20^a, respectively, for bracing the sides of the car. These legs constitute, in effect, continuations or extensions of the truss members 19 and 20 of the cross bearer and each is preferably of T-shape having a flange 22 and a stem or flange 23. The free or outer edge of the stem may be conveniently formed with a rigidifying bead or rib 24.

The outer ends of each of the legs is formed, preferably integrally, with a substantially vertical pad or foot portion 25 disposed in a plane forming an angle with the longitudinal axis of the leg and parallel with the longitudinal axis of the car. The portions 25 of the legs engage the inner faces of the side sheets and each is formed with a plurality of holes or apertures for receiving the adjacent rivets 9 employed for connecting the adjoining side stake to the side sheet. The portions 25 of the legs may be conveniently reinforced by a centrally disposed substantially triangularly shaped rib or flange 29. If desired, the leg 19^a may be integrally formed with a laterally projecting portion 21 affording a step whereby a trainman may walk within the car by stepping from one cross bearer to the adjacent one.

The ends of the lower chord member are also formed with substantially vertical pad or foot portions 36 or 37, respectively, for attachment to the adjacent side stakes by the rivets 9. These pad portions likewise are disposed in planes parallel with the longitudinal axis of the car and are integrally jointed with the adjacent members 30 and 31 of the cross bearer. For connecting the cross bearer to the center sill for supporting the latter, a plurality of pairs of substantially triangularly shaped brackets 16 are employed. To provide convenient means whereby the brackets may be rigidly attached to the cross bearer the vertical stem or flange 12 of the lower chord member is enlarged as at 14 and 15, respectively, affording lugs or projections which extend below the lower portion of the bearer. The brackets of each pair are secured to opposite sides of the lugs 14 and 15 by rivets which pass through apertures 17 in the lugs and apertures 48 in the brackets. The pairs of brackets depend downwardly on opposite sides of the center sill and each bracket is formed with a flange 50 having a plurality of apertures 49 for receiving rivets to rigidly attach it to the adjacent side of the center sill. By arranging the brackets in this manner and by forming each with angularly disposed portions respectively secured to the cross bearer and to the adjoining side of the center sill they serve as adequate and efficient means for supporting the center sill.

From the foregoing it will be appreciated that not only is strong and rigid means provided for supporting the center sill but the cross bearer is formed with portions which may be conveniently and rigidly secured to the outside side stakes of the car.

I claim:

1. A cross bearer for freight cars substantially in the form of a trapezoid and provided with upwardly and outwardly extending legs, said legs each having a foot formed at an angle to its longitudinal axis.

2. A cross bearer for freight cars having substantially the form of a trapezoid and provided with upwardly and outwardly extending legs, said legs respectively merging with the non-parallel members and with one of the parallel members of the trapezoid, said legs each having an angularly disposed portion adapted to be secured to a side stake mounted on the outside of the car.

3. A railway car having side sheets, side stakes secured to the outside of said sheets, and a cross bearer of truss form extending continuously from one side of the car to the other, said cross bearer being integrally formed with portions disposed in planes parallel with the side sheets for attachment to the latter and the side stakes.

4. A cross bearer for freight cars comprising upwardly and outwardly extending legs, each of said legs being provided with a substantially vertical portion disposed in a plane parallel with the longitudinal axis of the car for attachment to an adjacent outside side stake of the car.

5. A cross bearer of truss formation, the lower member of the bearer being provided with two downwardly extending lugs, triangular-shaped brackets with outwardly extending flanges riveted to each of said lugs, said outwardly extending flanges being adapted to be riveted to the center sill of the car.

6. A cross bearer of integral truss formation having lugs formed on its lower member, brackets comprising plates riveted to the said lugs, each of said brackets having a flange adapted to be secured to the center sill of the car.

7. In a railway car having a center sill, the combination with side stakes, of a cross bearer extending continuously from one side of the car to the other and rigidly secured to said side stakes, said cross bearer having a substantially horizontally extending lower chord member spaced above the center sill, and separable members rigidly secured to said chord member and to opposite sides of the center sill for supporting the latter.

8. In a railway car having a center sill, the combination with side stakes, of an integral cross bearer extending from one side of the car to the other and rigidly secured to said stakes, the lower portion of said bearer being spaced above the center sill, and separable members secured to the cross bearer and depending therefrom, said members being secured to the center sill on opposite sides thereof.

9. In a railway car having a center sill, the combination with side stakes, of a cross bearer extending continuously from one side of the car to the other and rigidly secured to said stakes, said cross bearer having a lower chord member spaced above the center sill, said chord member having a substantially vertical portion, and separable means rigidly secured to the said vertical portion and to the sides of the center sill for supporting the latter.

10. In a railway car having a center sill, the combination with side stakes, of an integral cross bearer extending from one side of the car to the other and rigidly secured to said stakes, said bearer having a substantially horizontally extending lower chord member spaced above the center sill, the central portion of said member having enlarged substantially vertically disposed spaced portions, and separable members rigidly secured to the said portions and to the center sill on opposite sides of the latter.

11. In a railway car having a center sill, the combination with side stakes, of a cross bearer extending continuously from one side of the car to the other and rigidly secured to said stakes, the lower central portion of said cross bearer being spaced above the center sill, and means for supporting said sill involving a plurality of brackets respectively disposed on opposite sides of the sill and having angularly disposed portions, one of the said portions of each bracket being secured to the cross bearer and the other of said portions being secured to the adjacent side of the center sill.

12. In a railway car having a center sill, the combination with side stakes, of a cross bearer extending continuously from one side of the car to the other and rigidly secured to said stakes, said cross bearer having a substantially horizontally extending lower chord member spaced above the center sill and formed with a substantially vertical flange, and means for supporting the center sill involving a plurality of brackets respectively disposed on opposite sides of the sill and having angularly disposed portions, one of the said portions of each bracket being secured to the vertical flange of the cross bearer and the other of said portions being secured to the adjacent side of the center sill.

13. In a railway car having a center sill, the combination with side stakes, of a cross bearer extending continuously from one side of the car to the other and rigidly secured to said stakes, the lower central portion of said cross bearer being spaced above the center sill, and substantially triangularly shaped brackets secured to said cross bearer and depending therefrom on opposite sides of the center sill, each of said brackets having a flange secured to the adjacent side of the center sill.

14. In a railway car having a center sill, the combination with side stakes, of a cross bearer extending continuously from one side of the car to the other and rigidly secured to said stakes, said cross bearer having a substantially horizontally extending lower chord member spaced above the center sill and formed with a substantially vertical flange, and substantially triangularly shaped brackets secured to the vertical flange of the cross bearer and depending therefrom on opposite sides of the center sill, each of said brackets having a flange secured to the adjacent side of the center sill.

15. In a railway car having a center sill, the combination with side stakes, of an inte-

gral cross bearer extending from one side of the car to the other and rigidly secured to said stakes, said bearer having a substantially horizontally extending lower chord member spaced above the center sill, the central portion of said member having enlarged substantially vertically disposed spaced portions, and substantially triangularly shaped brackets respectively secured to the said enlarged portions and depending from the cross bearer on opposite sides of the center sill, each of said brackets having a flange rigidly secured to the adjacent side of the center sill.

In testimony whereof I affix my signature.

WILLIAM E. WINE.