

No. 898,177.

M. C. BLEST.
TANK CAR.

APPLICATION FILED JAN. 29, 1908.

PATENTED SEPT. 8, 1908.

4 SHEETS—SHEET 1.

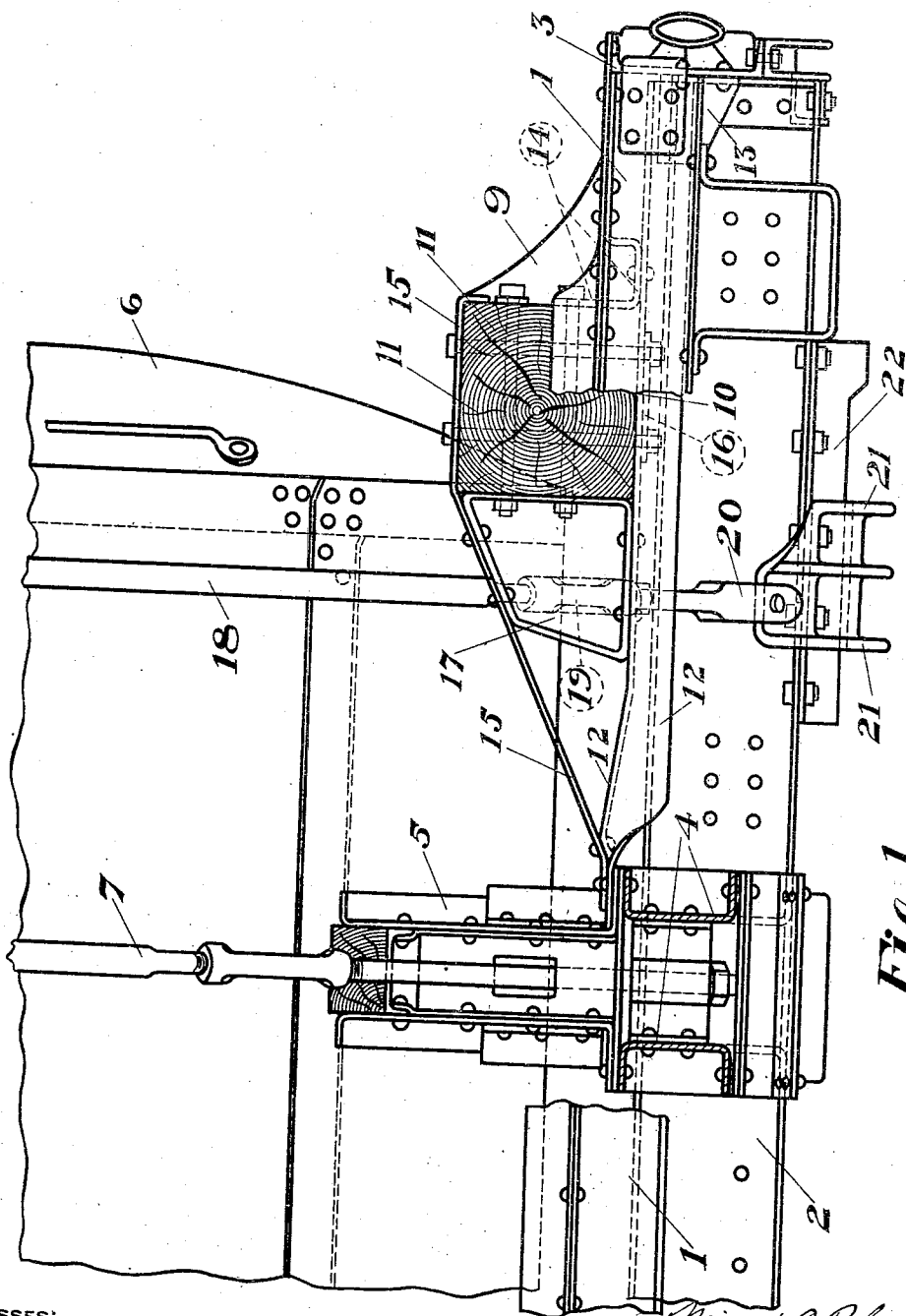


Fig. 1.

WITNESSES:
Frank C. Miller
Roy C. Munro

Minot C. Blest
INVENTOR
By Harry A. Knight
his Atty's

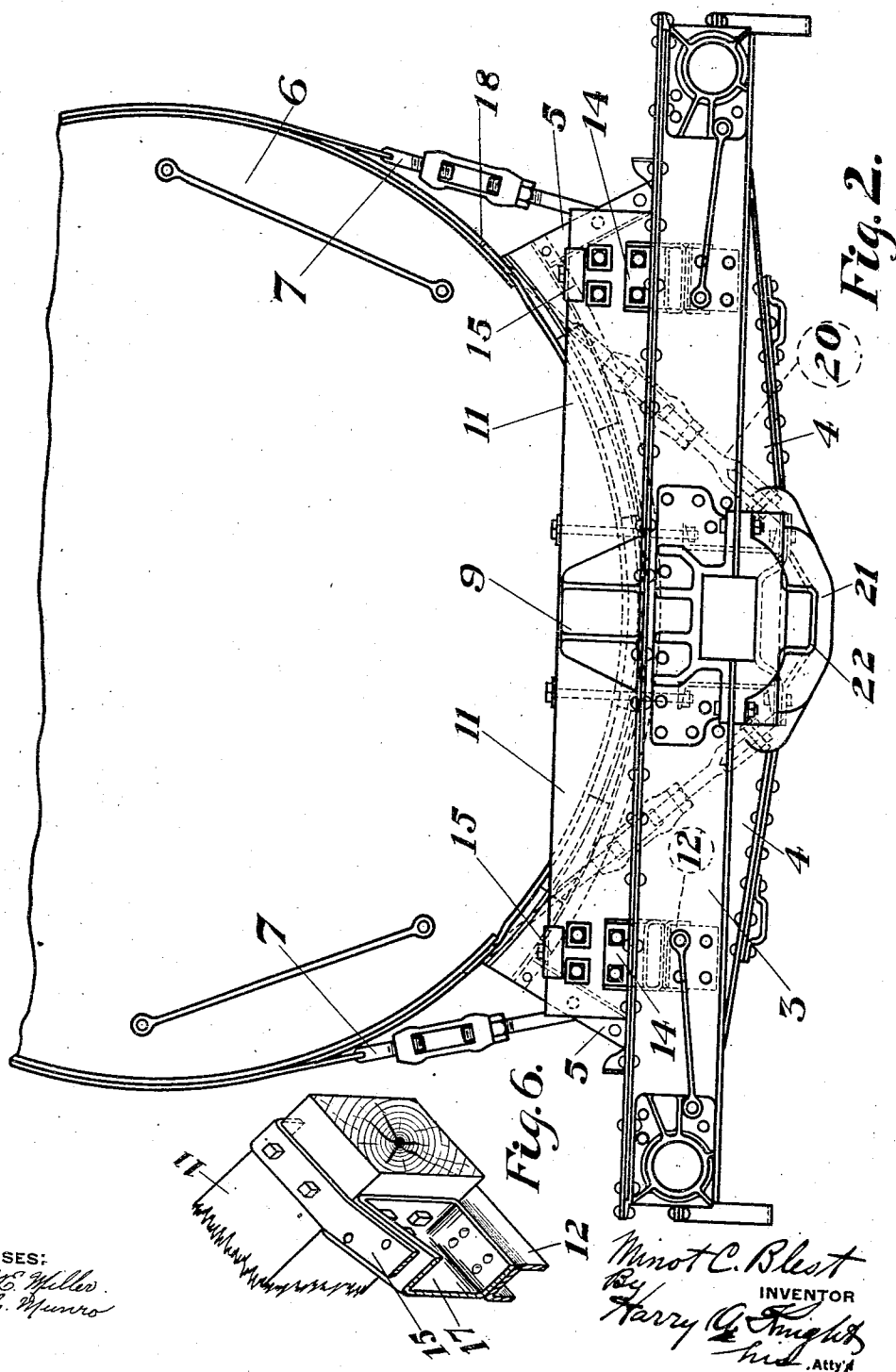
No. 898,177.

M. C. BLEST.
TANK CAR.

APPLICATION FILED JAN. 29, 1908.

PATENTED SEPT. 8, 1908.

4 SHEETS—SHEET 2.



No. 898,177.

M. C. BLEST.
TANK CAR.

PATENTED SEPT. 8, 1908

APPLICATION FILED JAN. 29, 1908.

4 SHEETS—SHEET 3.

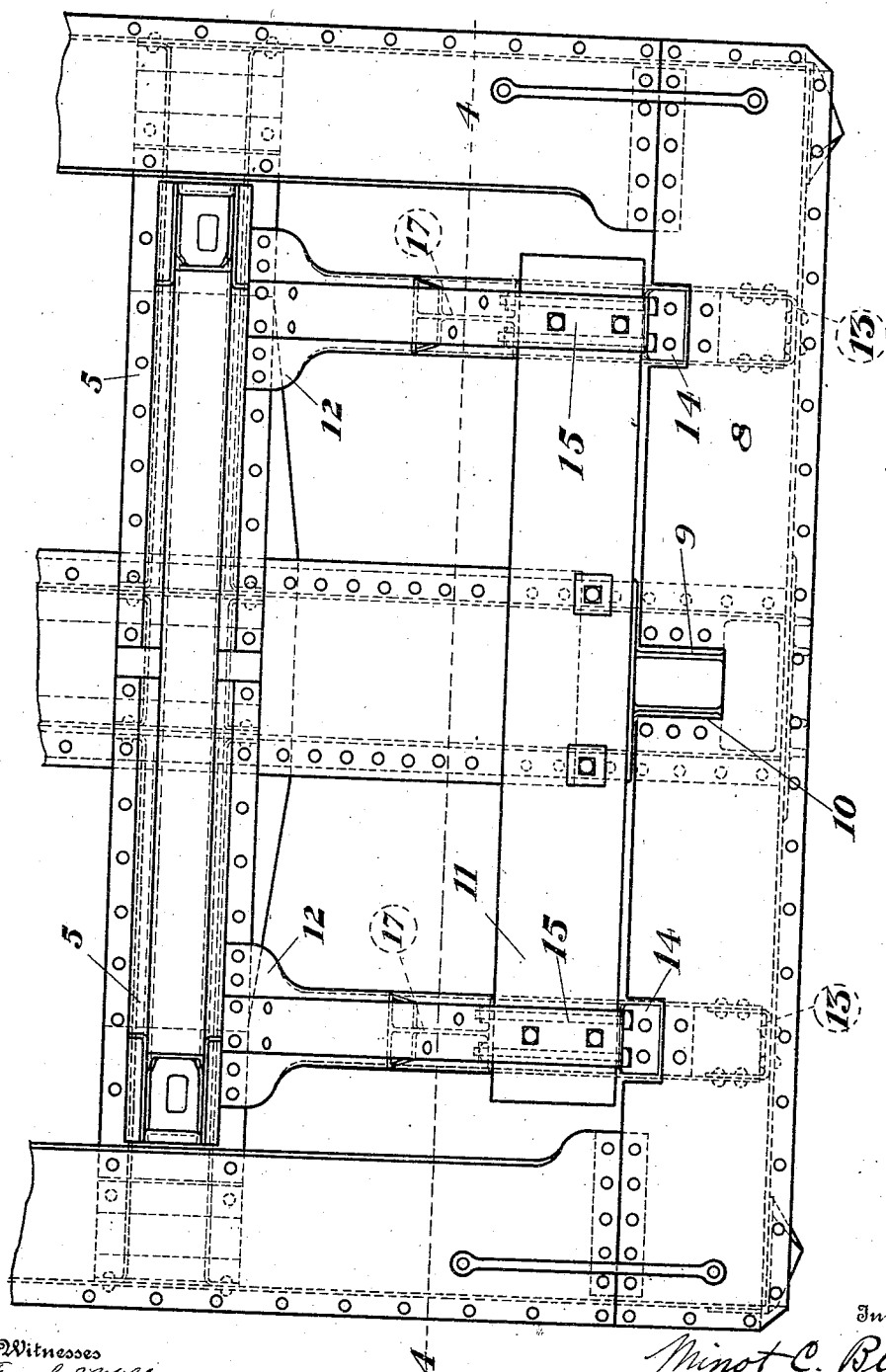


Fig. 3.

Witnesses
Frank C. Miller.
Roy. C. Munro

Inventor
Minot C. Blest
By Harry C. Knight
Attorney

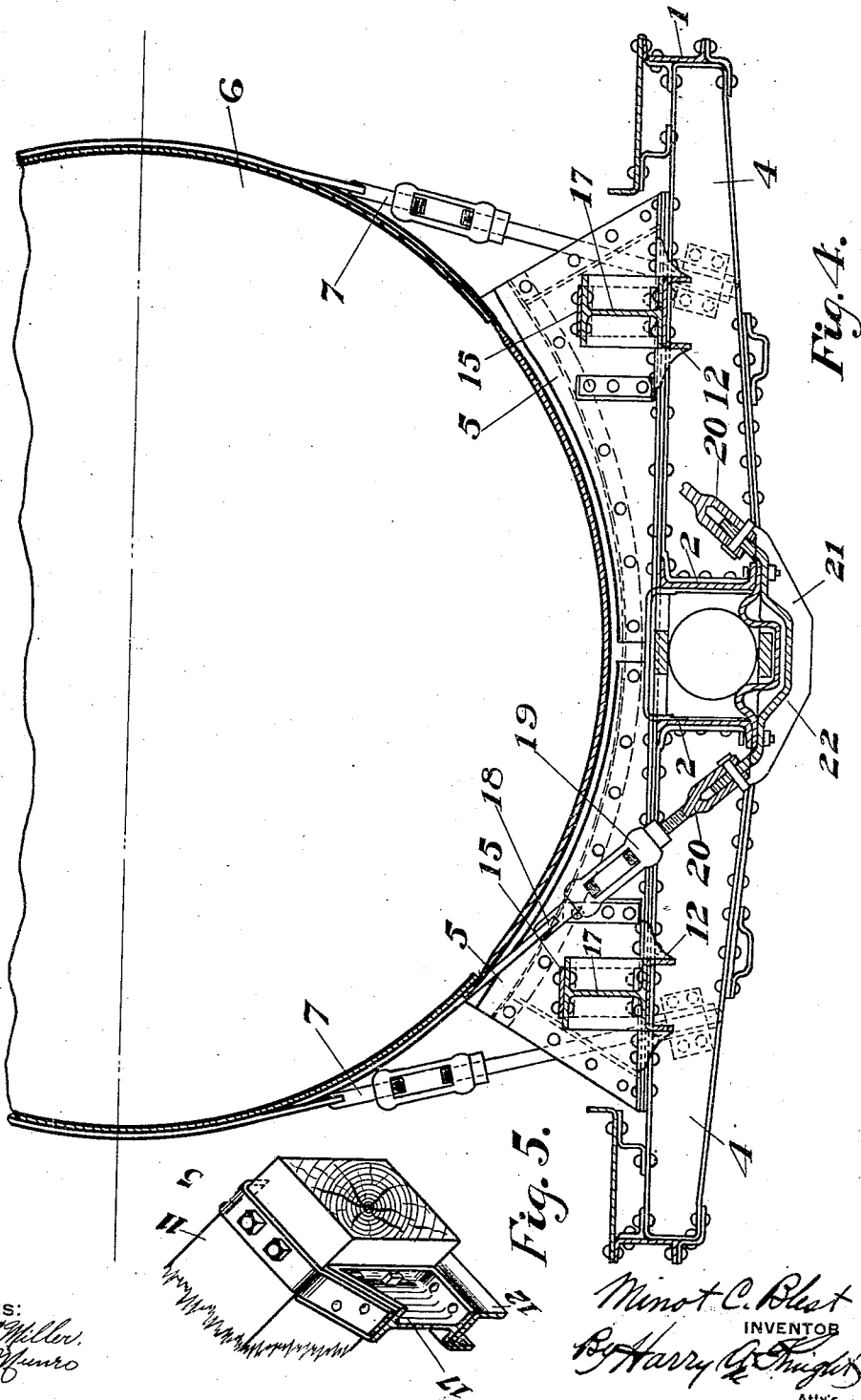
No. 898,177.

M. C. BLEST.
TANK CAR.

PATENTED SEPT. 8, 1908.

APPLICATION FILED JAN. 29, 1908.

4 SHEETS—SHEET 4.



WITNESSES:
Frank E. Miller
Ray C. Munro

Minot C. Blest
INVENTOR
By Harry C. Knight
Att'y's

UNITED STATES PATENT OFFICE.

MINOT C. BLEST, OF BELLEVUE, PENNSYLVANIA, ASSIGNOR TO PRESSED STEEL CAR COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

TANK-CAR.

No. 898,177.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed January 29, 1908. Serial No. 413,274.

To all whom it may concern:

Be it known that I, MINOT C. BLEST, a citizen of the United States, residing at Bellevue, Allegheny county, Pennsylvania, have invented certain new and useful Improvements in Tank-Cars, of which the following is a full, clear, and exact description.

The object of the present invention is to provide improvements in the end construction of tank cars in which is present a strong head block construction with a very economical disposition of material and which permits of a structure whereby the tank is securely stayed down at its ends without restricting expansion and contraction of metal, and additional support or bracing given to the draft sills or draft portions of the center sills, and parts carried thereby, these latter results being accomplished without detracting from the desirable qualities of a head block construction.

Such improvements are hereinafter described and shown in the accompanying drawings in which like reference characters refer to like parts, and in which:—

Figure 1 is a side elevation with parts broken away and parts in section of the end of a tank car, the trucks being removed; Fig. 2 is an end elevation of the same; Fig. 3 is a plan view of the same, the tank being removed; Fig. 4 is a sectional end elevation of the structure shown in Fig. 1 on the line 4—4 of Fig. 3; Fig. 5 is a detail sectional perspective view of one of the head block end braces showing also portions of the upper and lower head block tie members, and Fig. 6 is a modification of the same.

Referring now in detail to the drawings, 1 represents the side sills, 2 the center sills, and 3 the end sills of the underframe of the car.

4 are the cross-bearers connecting the side sills 1 and the center sills 2.

5 are saddle members mounted on cross-bearers 4 and adapted to support the tank 6. Tank 6 may be suitably stayed down upon saddles 5 by turn-buckle straps 7 suitably secured to the car underframe.

At each end of the car is an end sill cover plate 8 riveted to the upper flanges of the side and end sills and further riveted at an intermediate portion to the central head block brace 9 which is riveted to the center sills 2 and which extends upwardly through a

notch 10 in said end sill cover plate; 11 is the head block which rests at its central portion upon the center sill structure of the car and which is supported near its outer ends by the lower head block tie members 12 secured at their forward ends to brackets 13 riveted to the end sills 3. Lower tie members 12 are preferably of pressed steel formation, their flanges depending and embracing at their outer ends the sides of the brackets 13. Tie members 12 are flattened and secured by riveting through the lower outer flanges of the saddle members 5, the cover plate of the cross-bearers 4 and the upper outer flanges of the cross-bearers 4. The ends of the head blocks therefore rest upon the webs of the lower tie members 12.

14 are angular braces, one near each end of the head blocks 11, having a horizontal outward portion riveted to the end sill cover plate 8, a U-shaped intermediate portion riveted to the webs of the lower tie members 12 and a vertical inner portion abutting and bolted to the head block 11. Angular braces 14 brace the head block 11, stiffen the lower tie members 12 and help to support end sill cover plate 8.

15 are upper tie members, one near each end of head blocks 11, bent over the head block 11 at their forward ends and extending from the forward edge of the head block 11 over the upper surface of said head block downwardly to and riveted to the outer lower flanges of the saddle members 5, the cover plate of the cross-bearers 4 and to the upper outer flanges of said cross-bearers 4. Lower tie members 12 and upper tie members 15 are further secured in position and to said head block 11 by vertical bolts which pass through the head block and through said members, there being further a washer plate 16 carried by the bolts at their lower ends.

17 are head block end braces, one near each end of the head block, interposed between the lower tie member 12 and the upper tie member 15, here shown polygonal in shape and formed of castings having a central vertical web with peripheral flanges extending in either direction therefrom. Braces 17 are secured to lower tie members 12 and upper tie members 15 by rivets which pass through said members and through the flanges of the braces 17. Braces 17 are fur-

thermore secured to the head block by means of horizontal bolts which pass through the flanges of the braces and through the head block, which bolts carry washers at their outer ends bearing against the outer face of the head block; braces 17, therefore, further serve to secure tie members 12 and 15 to head block 11. Braces 17 may be made of pressed steel, if desired, as shown in Fig. 6. The tie members 12 and 15 are so bent that they meet at a point between the cross-bearers and the head block end braces at which point they are secured by means of rivets. In this way the stress is transformed into a shearing stress in the rivets. A further object of connecting the tie members 12 and 15 at this point is to obtain an increased rivet area, thus obtaining about an equal strength between the rivets and the smallest transverse sectional area of the top tie member to resist the turning action of the head block.

18 are end stay straps, one at each extreme end of tank, looped over the upper surface of the tank and connected to turnbuckles 19 which are suitably connected by link 20 to a ribbed anchor yoke 21; anchor yoke 21 extends beneath the draft portions of the center sills 2 and forms a support for the draft portions of the center sills 2, the draft gear and other parts carried by the draft portions of the center sills 2 likewise forming a brace for the draw bar guide or carrier plate 22, and the anchor yoke 21 is bolted through its web portions to the draw bar guide or carrier plate 22 and the lower flanges of the center sills.

The form of head block end braces herein shown and described not only permits of the location of the end tank stays nearer or at the extreme ends of the tank, but they furthermore permit of the bringing of said stays directly down to the center sills where they are secured to their anchor yokes. With this construction it will be seen that the end tank stays, therefore, perform the double function of supporting the draft rigging and draft portions of the center sills and of staying the tank down to the car underframe.

Only so much of the construction of a tank car has been shown and described as is necessary to illustrate the novel features of this invention.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a tank car, a head block, an inclined brace for securing said head block to the underframe and a head block brace fitted between said tie member and the head block.

2. In a tank car, a head block, an inclined upper tie member for securing said head block to the underframe and a flanged head block brace having an inclined upper surface bracing said tie member.

3. In a tank car, a head block, a horizontal

tie member, an inclined tie member for securing said head block to the underframe and a head block brace having an inclined surface bearing against said inclined member, a vertical surface bearing against said head block and a horizontal surface bearing against said horizontal tie member.

4. In a tank car, a head block and tie members converging and secured to the underframe at their ends.

5. In a tank car, a head block, upper and lower tie members for securing said head block to the car underframe and a head block brace member interposed between said tie members.

6. In a tank car, a head block, upper and lower tie members for securing said head block to the underframe and a brace member interposed between said tie members and secured to said head block.

7. In a tank car, a head block, upper and lower tie members for securing said head block to the underframe and a brace member interposed between said tie members and secured to said head block and tie members.

8. In a tank car, a head block, upper and lower tie members for securing said block to the underframe and a brace member interposed between said tie members and having a web and flanges.

9. In a tank car, a head block, upper and lower tie members for securing said head block to the underframe and a head block brace interposed between the said tie members, having a central web and flanges projecting in either direction therefrom.

10. In a tank car, a head block, upper and lower tie members for securing said head block to the underframe and a brace member interposed between said tie members and secured thereto.

11. In a tank car, a head block, upper and lower tie members for securing said head block to the underframe, a head block brace casting interposed between said tie members and secured to said head block.

12. In a tank car, a head block, upper and lower tie members for securing said head block to the underframe and a head block brace interposed between said tie members, having a central web and flanges projecting in either direction from said web and secured to said tie members and said head block.

13. In a tank car, a head block, a central brace for said head block on one side thereof, upper and lower tie members secured to said head block at or near each end thereof, a flanged head block end brace casting interposed between said tie members on the side opposite said central brace and secured to said tie members and to said head block.

14. In a tank car, a head block, a pressed steel tie member extending from end sill to cross-bearer of the underframe supporting said head block at its end, an upper tie mem-

ber secured to the cross-bearer passing over said head block and secured to the upper face thereof and a brace or stiffener interposed between said tie members, secured thereto and to said head block.

15. In a tank car, a head block, a lower tie member secured to the end of said head block of pressed steel formation and extending from end sill to cross-bearer, an end sill cover plate and angular brace secured to the head block and to said lower tie member and helping to support said cover plate, an upper tie member for said head block secured to and extending from said cross member over the upper face of said head block and bent downwardly over the outer face of said head block and said lower tie member and a flanged head block end brace interposed between and secured to said tie members and to said head block.

16. In a tank car, a head block and a pressed metal head block tie member secured thereto and to a cross-bearer and end sill of the underframe.

17. In a tank car, a head block and a pressed metal head block tie member secured to one of the cross-bearers of the underframe with its flanges depending, its web bearing against the head block and secured also to the end sill.

18. In a tank car, a head block, and means for securing said head block to the underframe and a narrow flanged head block end brace, in combination with an end tank stay extending over the upper surface of the tank, downwardly between the tank and said end brace and secured to the center sills of the underframe.

19. In a tank car, an end stay comprising a suitable band extending over the upper surface of the tank, an anchor yoke connecting the lower ends of said band beneath the draft rigging.

20. In a tank car, an end stay comprising a suitable band extending over the upper surface of the tank, a ribbed anchor yoke connecting the lower ends of said band beneath the draft rigging.

21. In a tank car, an end stay comprising a suitable band extending over the upper surface of the tank, a ribbed anchor yoke secured to the center sills beneath the draft rigging.

22. In a tank car having a customary draw bar guide or carrier plate carried by the center sills, a tank stay extending down from the tank and an anchor yoke connected to

said tank stay and secured to the center sills and draw bar guide or carrier plate.

23. In a tank car having a customary draw bar guide or carrier plate carried by the center sills, a tank stay extending down from the tank and a ribbed anchor yoke connected to said tank stay and secured to the center sills and draw bar guide or carrier plate.

24. In a tank car, a head block, an end sill cover plate, and a brace secured to said head block and supporting said cover plate.

25. In a tank car, a head block, an end sill, a pressed steel head block tie member, with flanges depending, supporting said head block near its end, and secured to said end sill and a brace secured to said head block and tie member and supporting said cover plate.

26. In a tank car, a head block, a tie member running longitudinally of the car and a narrow flanged metal brace running longitudinally of the car and secured to said tie member.

27. In a tank car, a head block, upper and lower tie members for said head block and a narrow flanged brace extending longitudinally with said tie members, interposed therebetween and secured to said tie members and to said head block.

28. In a tank car, a tank stay anchor plate having a plurality of strengthening flanges and a connection for the stay secured between the said flanges.

29. In a tank car, a tank stay anchor plate recessed to receive the draft rigging carrier plate.

30. In a tank car, a tank stay anchor plate shaped to form a brace and support for the draft rigging carrier plate.

31. In a tank car, a head block, and a narrow vertical head block brace having flanges on three or more of its edges.

32. In a tank car, a tank staying device extending beneath the draft rigging to support the latter.

33. In a tank car, tank staying means extending from the tank under the draft rigging to support the latter.

The foregoing specification signed at McKees Rocks, Allegheny county, Pennsylvania, this thirteenth day of January, 1908.

MINOT C. BLEST.

Witnesses:

G. C. LAMBE,
H. B. FISHER.