

No. 687,034.

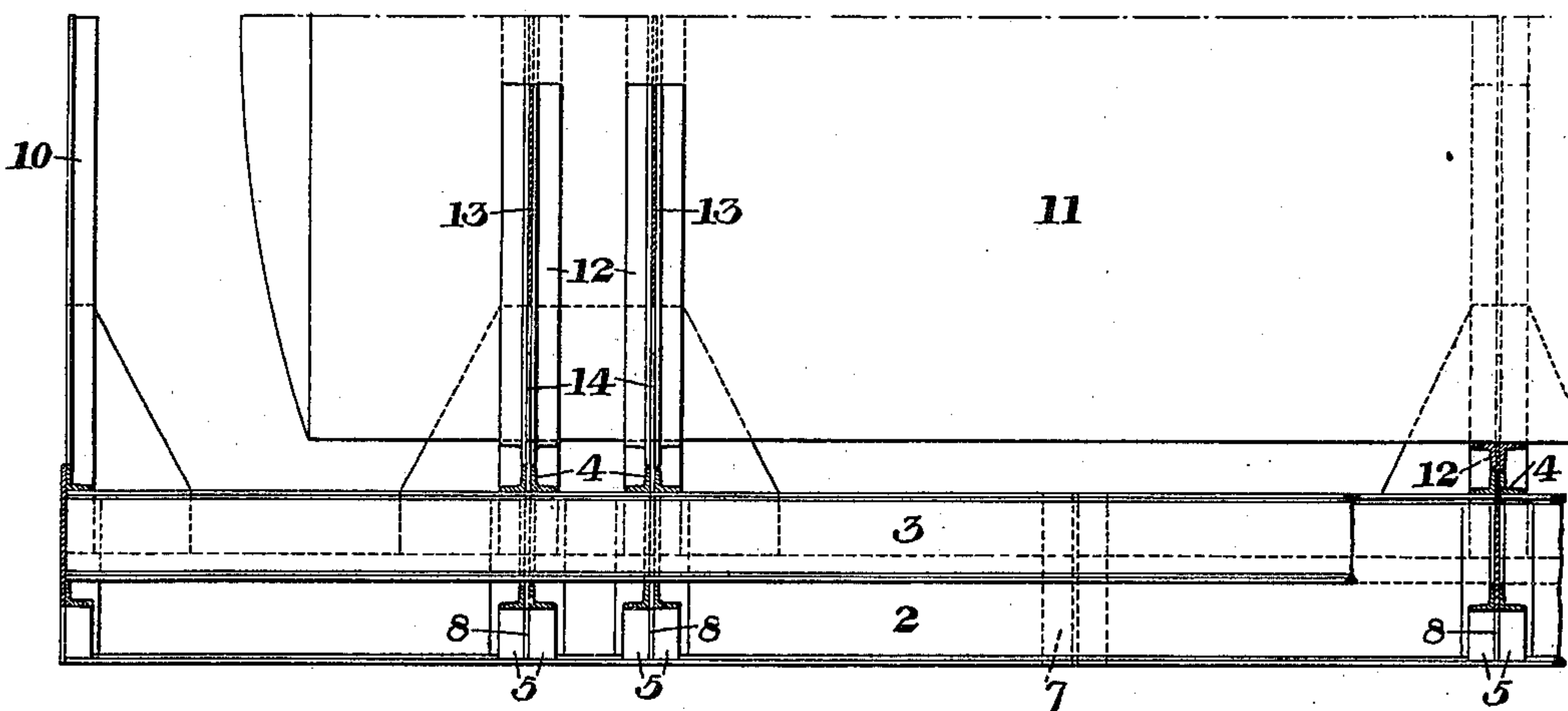
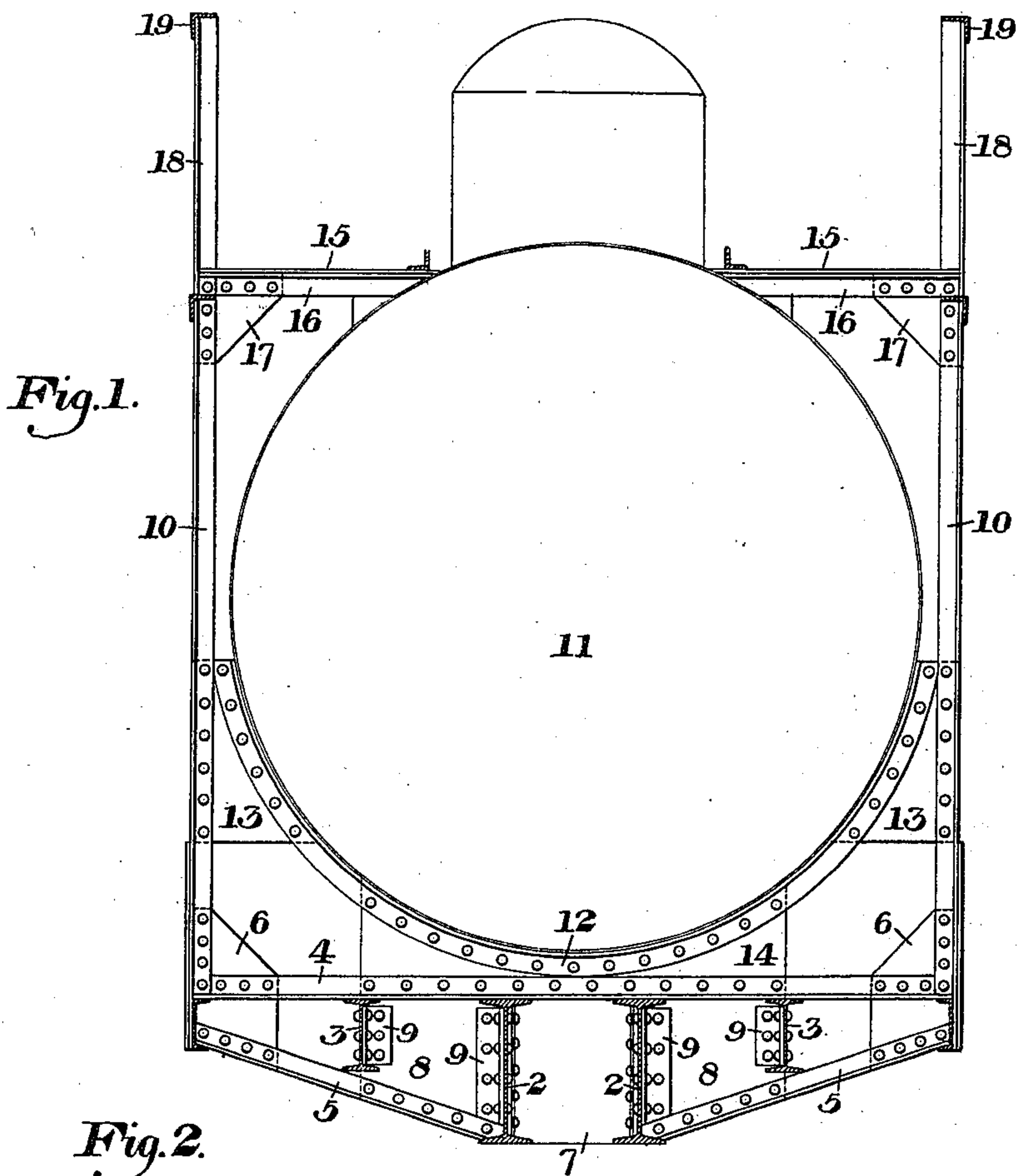
Patented Nov. 19, 1901.

F. H. KINDL.

STEEL CAR.

(Application filed Sept. 5, 1900.)

(No Model.)



WITNESSES

*Warren W. Swartz*  
*H. M. Corbin*

INVENTOR

*F. H. Kindl*  
*by Barker & Barker*  
*his attys.*



# UNITED STATES PATENT OFFICE.

FREDERICK H. KINDL, OF PITTSBURG, PENNSYLVANIA.

## STEEL CAR.

SPECIFICATION forming part of Letters Patent No. 687,034, dated November 19, 1901.

Application filed September 5, 1900. Serial No. 29,034. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK H. KINDL, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Steel Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical cross-section showing one form of my improved car, and Fig. 2 is a diagrammatic partial longitudinal section of the same.

My invention relates to steel cars, and is designed to provide an improved body-frame construction therefor whereby the strains are more evenly distributed than heretofore and the material more economically distributed, and, further, to improve the construction of tank-cars, especially in connection with their framing.

In the drawings, 2 2 represent parallel I-beams, forming the center sills of a car and extending continuously from end to end, and 3 3 are side bearing-sills, which may be either continuous or may be formed in sections, as desired. Instead of the usual cross-sills I employ throughout the length of the car a series of supporting body-bolsters, the intermediate portion of the car between the usual body-bolsters being thus strengthened and supported. I preferably form each of these bolsters, as shown in the drawings, with a continuous top member 4, secured at its ends to the side sills, and inclined bottom members 5 5, extending between the side sills and the bottom portion of the center sill. Each of these members 4 and 5 is preferably formed of two angle-irons set back to back and riveted together, with interposed gusset-plates 6 6 secured between their vertical flanges. Spacing-plates 7 are secured between the two members of the center sill at each body-bolster, these spacers preferably consisting of sections of an I-beam placed vertically with the flanges or cut away to fit the flanges of the longitudinal beam. Web-plates 8 are also preferably provided between the center sill and the side bearing-sill at each bolster, these plates being secured to the sills by suitable angles 9 riveted thereto and also by

means of rivets to the top and bottom angles of the bolsters. The body-bolsters are preferably duplicated or made in pairs at those points of the car-body where the usual body-bolsters are provided over the truck-bolsters, as shown in Fig. 2.

The features of the framework above described are applicable to any type of steel car, and I intend to cover the same, broadly, irrespective of the particular type of car. I have, however, shown the frame in connection with a tank-car having side standards 10 10, composed of two angles placed back to back and secured to the gusset-plates 6 at each bolster. The tank-body 11 rests within and is secured to curved angle-iron supports 12, which are riveted to side plates 13, secured to the side standards and to base-plates 14, secured between the angles forming the top member of each body-bolster. The tank-car is provided with two footboards 15, extending along the top of the tank and carried upon horizontal supports 16, secured to the side supports with interposed gusset-plates 17 and to the tank. The side standards may be provided with extensions 18, carrying hand-rails 19. The advantage of using a footboard along the top of the tank is obvious, since a tank of much larger diameter may be used than was possible where footboards were used along the base. The capacity of tank-cars may be thus greatly increased without changing their length.

The advantages of the base-frame will be apparent to those skilled in the art. The top member of each body-bolster is continuous, as is also the center sill, thus greatly increasing their strength over that of constructions where one of these members is made in sections. Where wooden flooring or a wooden superstructure is used, wooden cross-pieces may be secured to each top bolster member and the bottom spiked to these wooden supports. The inclined bottom members of each bolster are in compression and carry the strains to the center sill, where they are received by the spacers. A strong bolster construction is thus afforded wherein the strains are evenly distributed and the whole weight carried on the center sill.

Many variations may be made in the form



and arrangement of the parts without departing from my invention.

I claim—

1. A steel tank-car having a longitudinal  
5 center sill, side bearing-sills between the center sill and the car sides, and body-bolsters located at points between the truck-bolsters and secured to the side bearing-sills in their intermediate portions, said body-bolsters hav-  
10 ing bottom members extending from the sides to the center sill and passing beneath the side bearing-sills, and being provided with top members extending upwardly and forming supports for the tank; substantially as de-  
15 scribed.

2. A steel car having a longitudinal center sill and side bearing-sills intermediate of the center sill and car sides, the tops of the side bearing-sills being substantially flush with  
20 the top of the center sill, and a series of body-bolsters supporting the car-body, and having top members extending across the tops of the side bearing-sills and the center sill, and bottom members extending below the side bearing-sills and joining the sides and the center  
25 sills, said body-bolsters having their intermediate portions secured to the side bearing-sills; substantially as described.

3. A steel car, having a longitudinal center  
30 sill, and side bearing-sills between the center sill and the car sides, and webbed body-bolsters supporting the intermediate part of the car-body, and each having a top member extending across the tops of the center and side  
35 bearing-sills, and flanged bottom members extending beneath the side bearing-sills and connecting the sides and center sill, said bol-

sters having intermediate joints with the side bearing-sills; substantially as described.

4. A tank-car having side supports, foot- 40 boards extending along the top of the tank and carried on said side supports, and hand-rails for the footboards; substantially as described.

5. A tank-car having vertical side supports 45 secured to the frame carrying the tank, and a footboard carried upon said supports above the center of the tank; substantially as described.

6. A steel car having a body-bolster with 50 a continuous top member composed of two angles placed back to back and having gusset-plates riveted between them; substantially as described.

7. A steel tank-car having body-bolsters 55 provided with upwardly-extending members forming supports for the tank, side supports also secured to said bolsters and extending upwardly, and a footboard carried on said supports; substantially as described. 60

8. A steel tank-car having body-bolsters lo-  
cated over the truck-bolsters, and provided  
with additional body-bolsters at intermediate  
points of the body between the truck-bolsters,  
said body-bolsters having web members ex- 65  
tending upwardly and forming supports for  
the tank; substantially as described.

In testimony whereof I have hereunto set  
my hand.

FREDERICK H. KINDL.

Witnesses:

H. M. CORWIN,

GEO. B. BLEMING.