M. EPSTEIN.

TANK CAR.

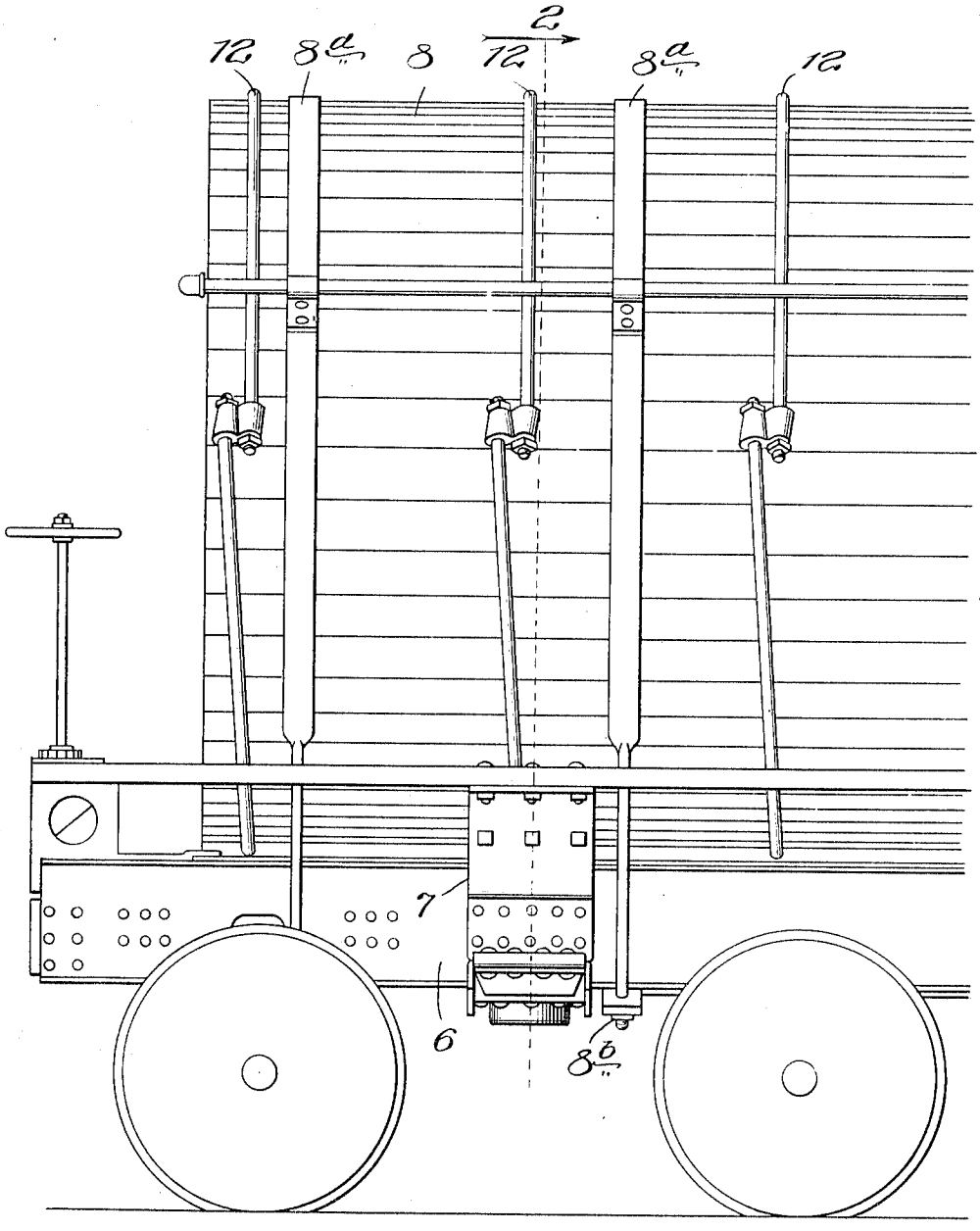
APPLICATION FILED JUNE 16, 1913.

1,096,497.

Patented May 12, 1914.

4 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
Chas. H. Bull.

Inventor:
Max Epstein,
By Dyrenforth, Lee, Chritton & Wilkinson
Attys.

M. EPSTEIN.

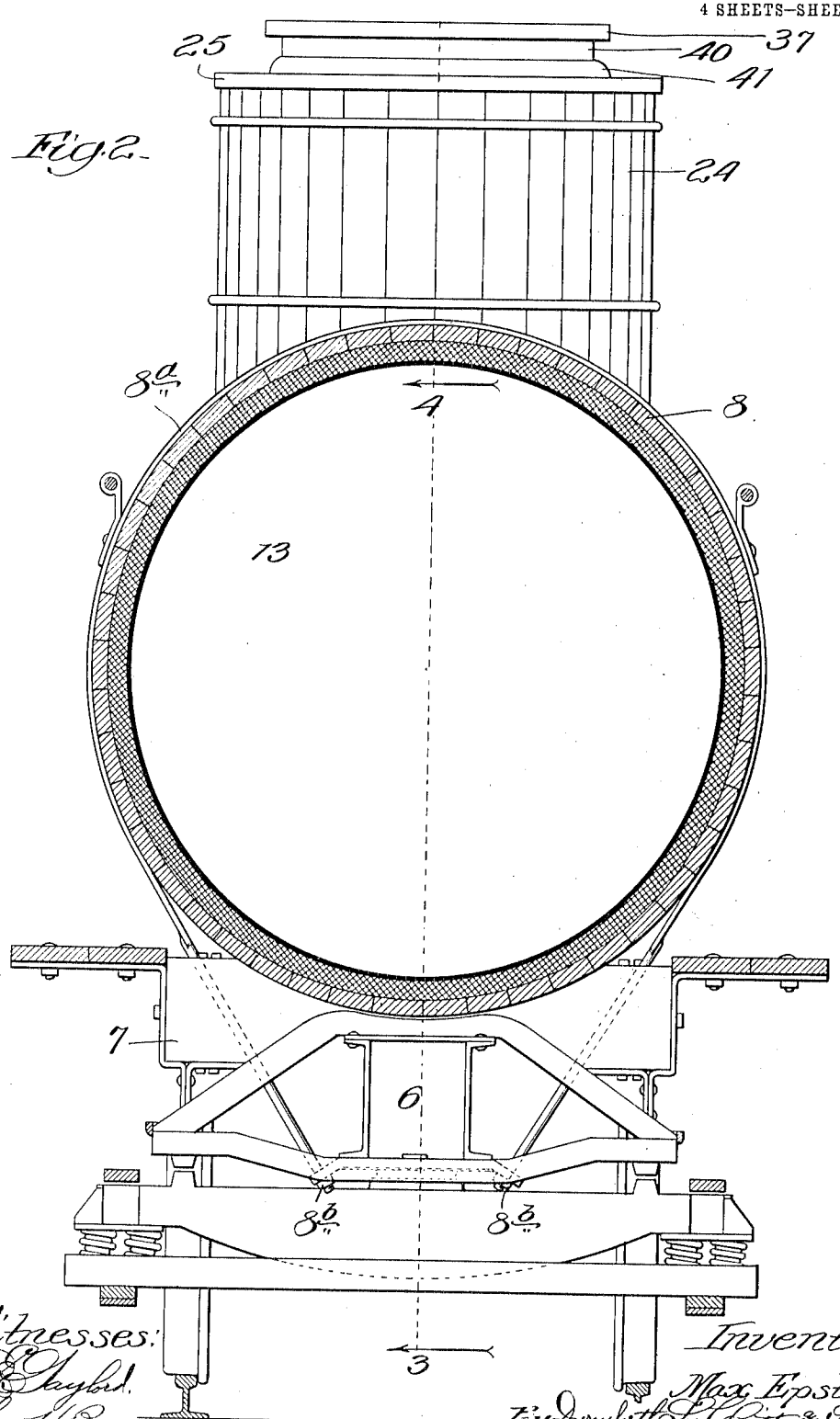
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4 SHEETS—SHEET 2.

Fig. 2.



Witnesses:
Chas. H. Duell.

Inventor:
Max Epstein,
By Dyrenforth, Lee, Chritton & Wiles,
Attys.

M. EPSTEIN.

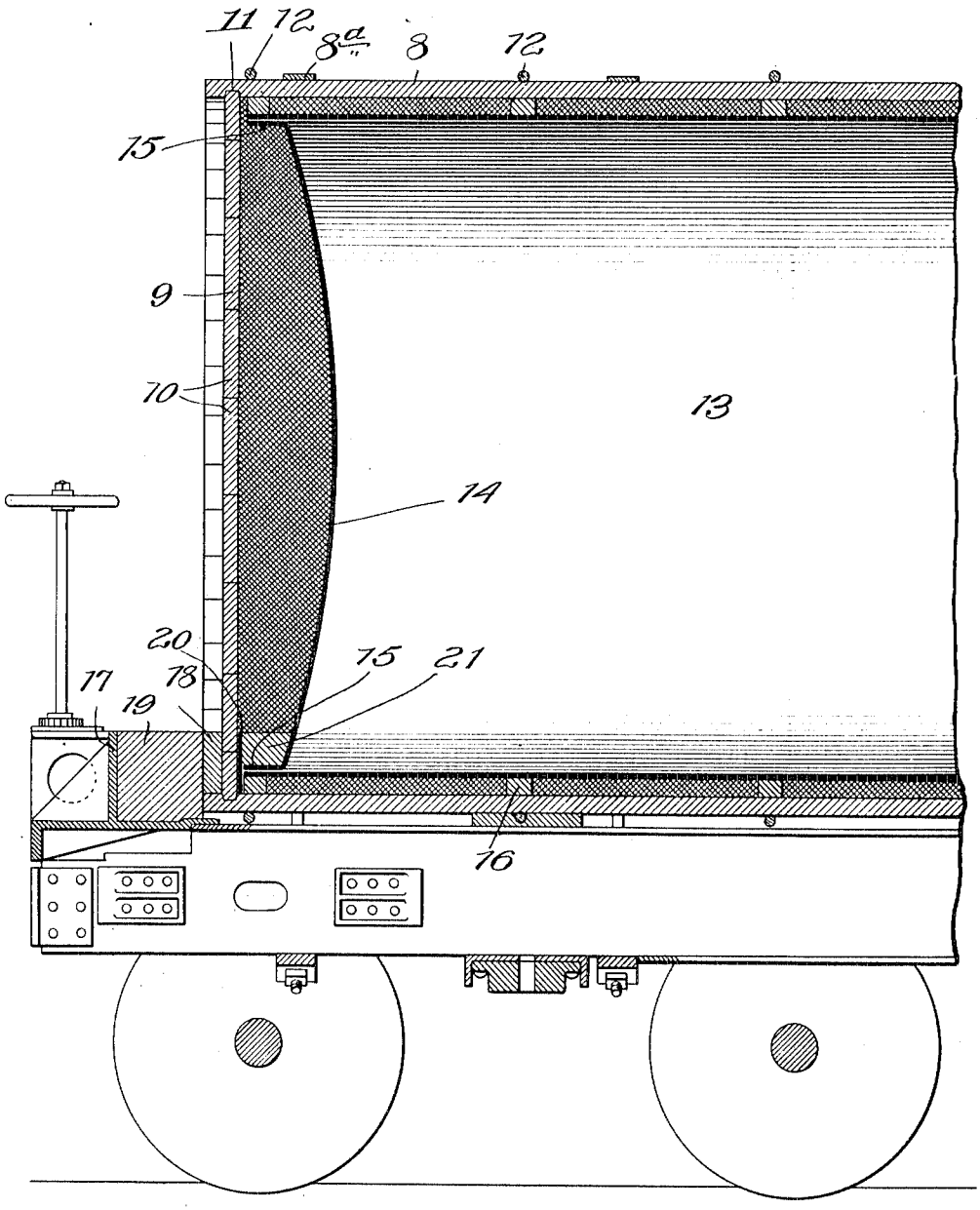
TANK CAR.

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4 SHEETS—SHEET 3.

Fig. 3.



Witnesses:
Chas. H. Buell.

Inventor:
Max Epstein,
By Dyrenforth, Lee, Chritton & Wiles,
Attys.

M. EPSTEIN.

TANK CAR.

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4 SHEETS—SHEET 4.

Fig 4.

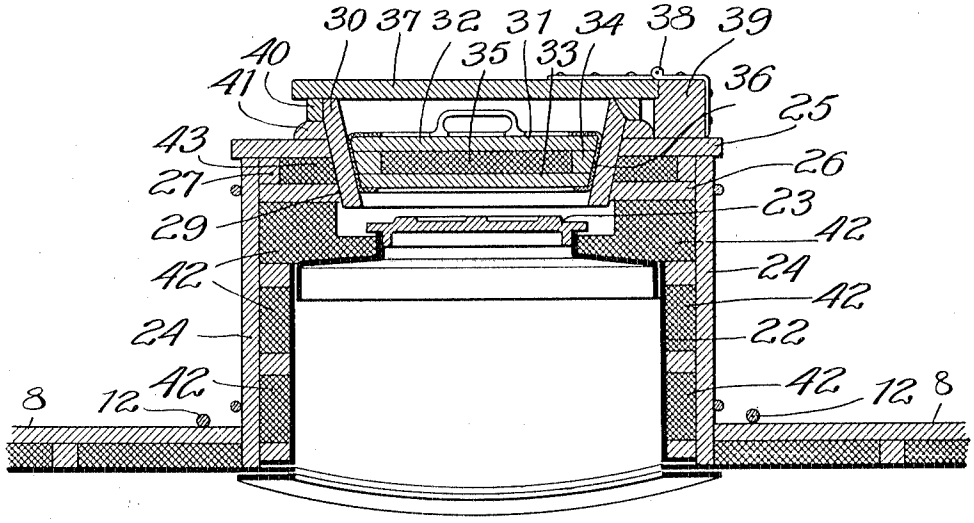
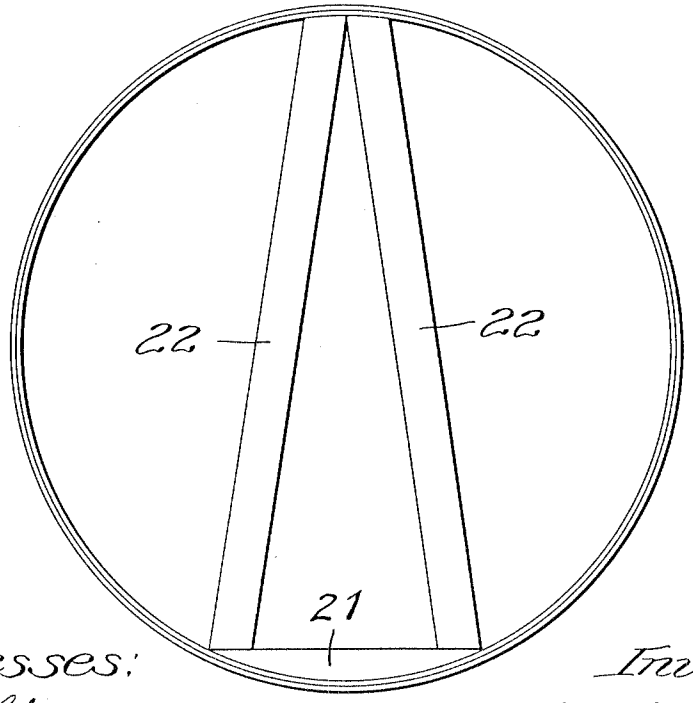


Fig 5.



Witnesses:

Inventor:

Max Epstein,

By Dyrenforth, Lee, Chritton & Wilkinson

Attys.

UNITED STATES PATENT OFFICE.

MAX EPSTEIN, OF CHICAGO, ILLINOIS.

TANK-CAR.

1,096,497. Specification of Letters Patent. Patented May 12, 1914.

Application filed June 16, 1913. Serial No. 773,953.

To all whom it may concern:

Be it known that I, MAX EPSTEIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Tank-Cars, of which the following is a specification.

My invention relates, more particularly, to tank-cars for transporting fluids of a character requiring that they be kept at a substantially uniform temperature, or shielded from changes in temperature of the surrounding atmosphere; and my object is to provide a construction of tank-car which shall be strong and durable, and whereby the fluid transported therein shall be effectually shielded against influence of the surrounding atmosphere.

Referring to the accompanying drawings Figure 1 is a view in elevation of an end of a tank-car constructed in accordance with my invention. Fig. 2 is an enlarged section taken at the line 2 on Fig. 1 and viewed in the direction of the arrow. Fig. 3 is a section taken at the line 3 on Fig. 2 and viewed in the direction of the arrow. Fig. 4 is a broken section taken at the line 4 on Fig. 2 and viewed in the direction of the arrow, this view showing the details of insulating the dome-section of the fluid-containing tank from the housing for the latter; and Fig. 5, an end view of the fluid-containing tank showing the manner of bracing a filler member coöperating with the end of the tank.

The under-frame of the car may be of any suitable construction, that shown being of a form in common use, and thus it is deemed unnecessary to explain the construction thereof, further than to state that the frame includes a channeled girder 6 which extends lengthwise of the car and is supported from the trucks thereof, this girder supporting horizontally-disposed saddles 7 rigidly secured thereto, the top sides of these saddles being concaved to form recesses into which the superstructure of the tank-car and involving the parts hereinafter described, extend and are seated.

The superstructure of the car comprises, generally stated, an outer shell or housing 8, preferably of wood and cylindrical in form, its circular wall being formed of longitudinally-extending staves and the ends of the housing being in the form of heads 9 made up of edge-wise abutting sections 10, these heads 9 fitting at their circumference into chimes 11 formed about the inner periphery of the circular wall of the housing, the parts of the housing just referred to being held together in assembled relation by retaining hoops 12 and the housing being held in place on the under-frame of the car as by bands 8^a which extend over the top of the housing and are secured at their ends to the under-frame as indicated at 8^b.

The housing 8 is provided for inclosing a tank for receiving and storing the material to be transported by the car, such tank being represented at 13 and preferably constructed of sheet-steel and of cylindrical form, the heads of the tank being represented at 14 and each preferably externally concaved as represented in Fig. 3 with its outer margins flanged as represented at 15, at which flanges it fits within the circular wall of the tank 13 and is secured therein in any suitable manner as by riveting (not shown), the tank described thus having concaved inset heads. The tank 13 is caused to be spaced throughout its cylindrical side from the housing 8, as by spacing members 16 confined between the tank and housing, and the space thus provided between these parts is packed with insulating material, as hereinafter described.

It will be understood from the foregoing that the tank 13, when filled, is of relatively great weight and provision must be made to prevent the tank from freely shifting on the body of the car. This result is preferably accomplished by the construction disclosed in the drawings wherein the under-frame of the car is provided at opposite ends, as is usual in constructions of this character, with head-blocks 17. A plate member 18 curved along its bottom to correspond with the contour of the inner circumference of the side wall of the housing 8, rests on the latter beyond the heads 9, and confined between each head-block 17 and each end of the housing 8 and the adjacent plate-member 18 is a block 19, it being understood, that in the preferred construction illustrated, one of the blocks 19 is provided at each end of the car to fill out the space between the head-blocks 17 and the ends of the housing 8, and that one of the plate-members 18 coöperates with each head 9 of the housing, the parts being pref-

erably so arranged that the stress exerted by the housing 8 tending to move it longitudinally, is communicated to the head-blocks 17 through the heads 9. It is intended that longitudinal movement of the tank 13 relative to the car be resisted by the head-blocks 17 and this is preferably accomplished by causing the ends of the tank 13 to coöperate either directly or indirectly with the heads 9. In the preferred arrangement illustrated a plate 20, preferably of metal, and located in the housing 8, extends between the inner side of each head 9 and the ends of the tank 13 as represented of one end of the tank in Fig. 3. In order to more effectually resist the movement of the tank 13 relative to the car and distribute strains, I interpose between the concaved portion of each head 14 and the inner side of the adjacent plate 20, a block 21, whereby the area of the tank resisting the tendency to movement of the latter on the understructure is augmented. In order to prevent displacement of the blocks 21, as might occur where the heads 14 are concaved as illustrated, I prefer to brace these blocks as illustrated in the drawing, by means of bars 22 which are wedged between the upper surface of the blocks 21 and the diametrically opposed portion of the flanges 15 (Fig. 5).

As hereinbefore stated, the tank 13 is insulated from the housing 8, and this is effected by filling the spaces provided, as described, between the tank and housing, with any suitable material, such as for example, hair-felt, the insulating material being interposed between the ends of the tank 13 and the housing as well as between the cylindrical sides of these members in order that as complete insulation as possible of the tank 13 from the atmosphere be effected. As is usual in tank-cars, the tank for the fluid is equipped with a dome having a removable closure through which the fluid may be introduced therein, such dome being represented at 22 and the removable closure at 23.

In order that effectual insulation of the tank 13 from the atmosphere be effected it is necessary that the dome 22 also be insulated from the surrounding atmosphere and this is preferably accomplished by the following-described construction: The housing 8 is formed with an upwardly-extending hollow cylindrical section 24 which opens into the interior of the housing 8, this extension surrounding the dome 22 and being of such diameter that it will be spaced therefrom as indicated in Fig. 4. The top portion of the extension 24 is formed of two horizontally-disposed spaced plate-members 25 and 26 with a ring 27 interposed therebetween and fitting against the inner circumference of the extension 24. The plate members 25 and 26 contain rectangular openings 28 and 29 which register with the closure 23 and in which is secured a rectangular frame 30, preferably downwardly tapering, as illustrated in Fig. 4. Coöperating with the interior of the frame 30 is a plug 31 preferably formed of upper and lower plate-sections 32 and 33 spaced apart by a frame 34 to render the plug 31 hollow, as indicated at 35, for receiving any suitable heat-insulating material, such as hair-felt, the sides of the plug 31 being preferably covered with any suitable fabric, represented at 36, for insuring a tight joint between the plug and the frame 30. A cover 37, hinged as indicated at 38, on a block 39 secured to the plate-section 25, coöperates with the upper end of the frame 30 and in its preferred form is provided about its under-side with a rectangular frame 40, which, when the cover 37 is in closed position (Fig. 4) bears downwardly on a beading 41 carried on the upper surface of the plate-section 25. Any suitable insulating material is packed into the spaces between the dome 22 and the extension 24 as represented at 42; and also into the space indicated at 43 and afforded between the plate members 25 and 26 and into the space 35, thereby effectually insulating the dome 22 from the surrounding atmosphere.

While I have illustrated and described a particular embodiment of my invention, I do not wish to be understood as intending to limit it thereto as the same may be variously modified and altered without departing from the spirit of my invention.

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

1. In a tank-car, the combination of its under-frame, head-blocks thereon, a housing on said under-frame and located between said head-blocks, means interposed between said head-blocks and the heads of said housing for resisting longitudinal movement of said housing on said under-frame, and a tank in said housing in a position to be resisted by said heads under conditions tending to shift said tank longitudinally.

2. In a tank-car, the combination of its under-frame, head-blocks thereon, a housing on said under-frame and located between said head-blocks, means interposed between said head-blocks and the heads of said housing for resisting longitudinal movement of said housing on said under-frame, and a tank in said housing having concavo-convex heads with their convexed surfaces on the inside of the tank, said tank being positioned in said housing to be resisted by the heads of said housing under conditions tending to shift said tank longitudinally.

3. In a tank-car, the combination of its under-frame, a housing on said under-frame and braced at its heads on said under-frame against longitudinal movement thereon, and

a tank in said housing braced against the heads of said housing to prevent longitudinal movement therein.

4. In a tank-car, the combination of its under-frame, head-blocks thereon, a housing on said under-frame and located between said head-blocks, means interposed between said head-blocks and the heads of said housing for resisting longitudinal movement of said housing on said under-frame, a tank in said housing having inset heads and arranged to exert at the ends of its side-wall longitudinally-directed stresses against the heads of said housing, and means confined between the heads of said tank and the heads of said housing for causing the heads of said tank to aid in resisting longitudinal stresses exerted by said tank.

MAX EPSTEIN.

In presence of—
D. C. THORSEN,
O. C. AVISUS.