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TANK AND FREIGHT CAR.

No. 190,542. Patented May 8, 1877.

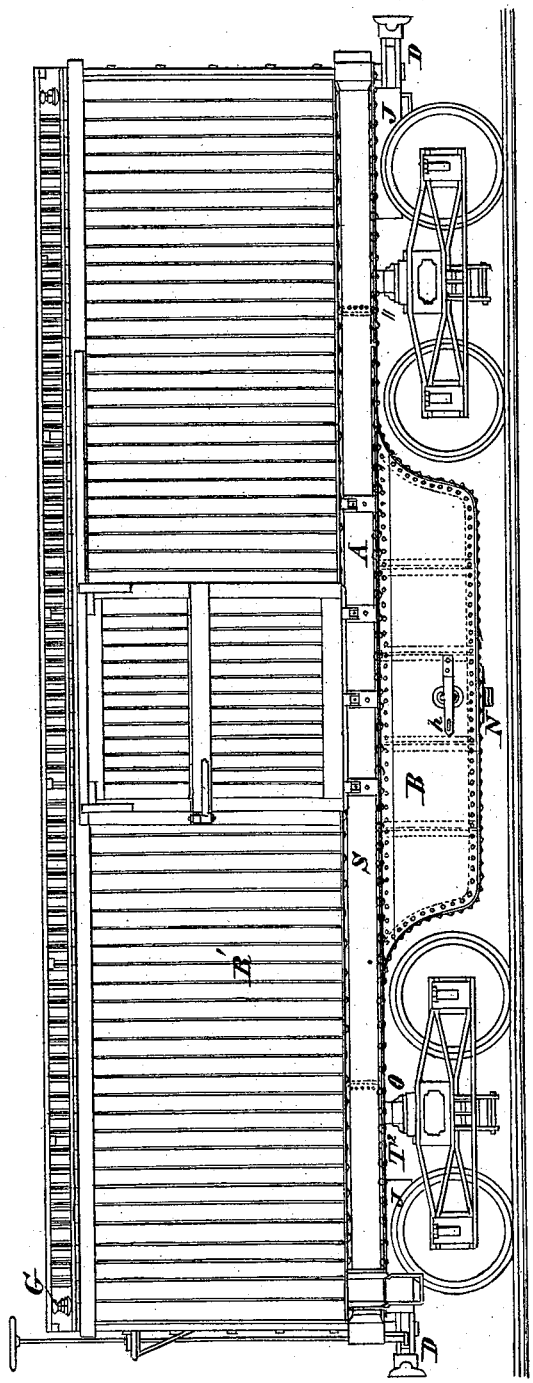

Fig. 1.

WITNESSES

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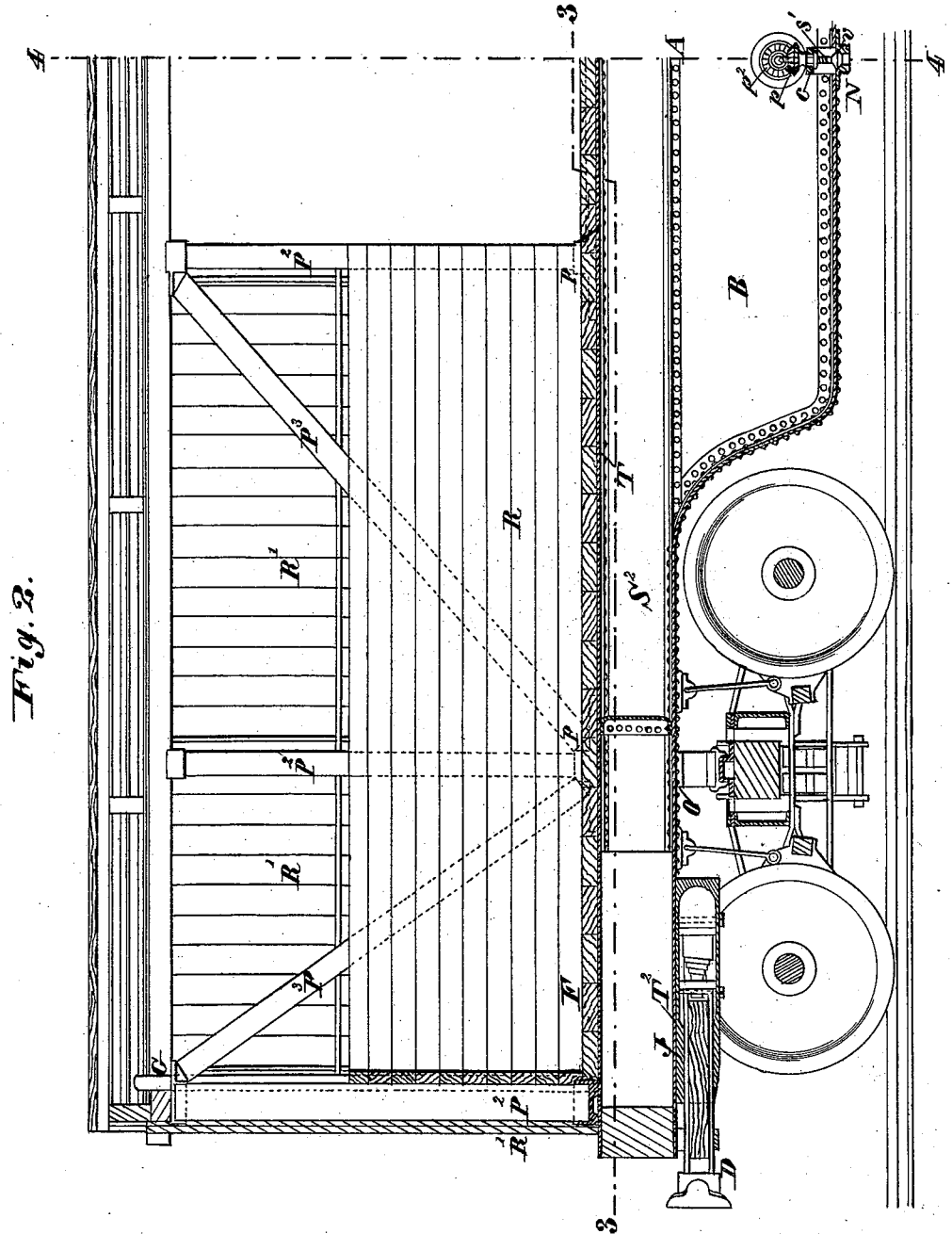

Fig. 2.

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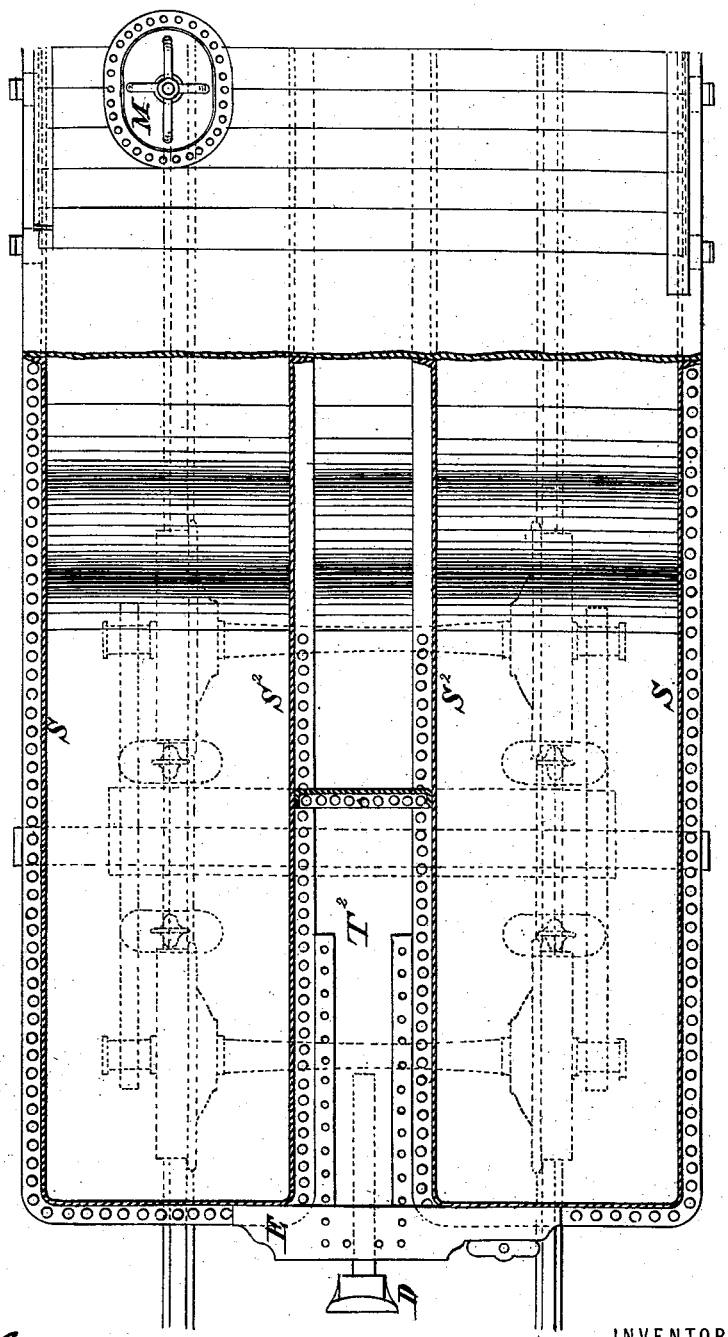
Fig. 3.



WITNESSES

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TANK AND FREIGHT CAR.

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Fig. 4.

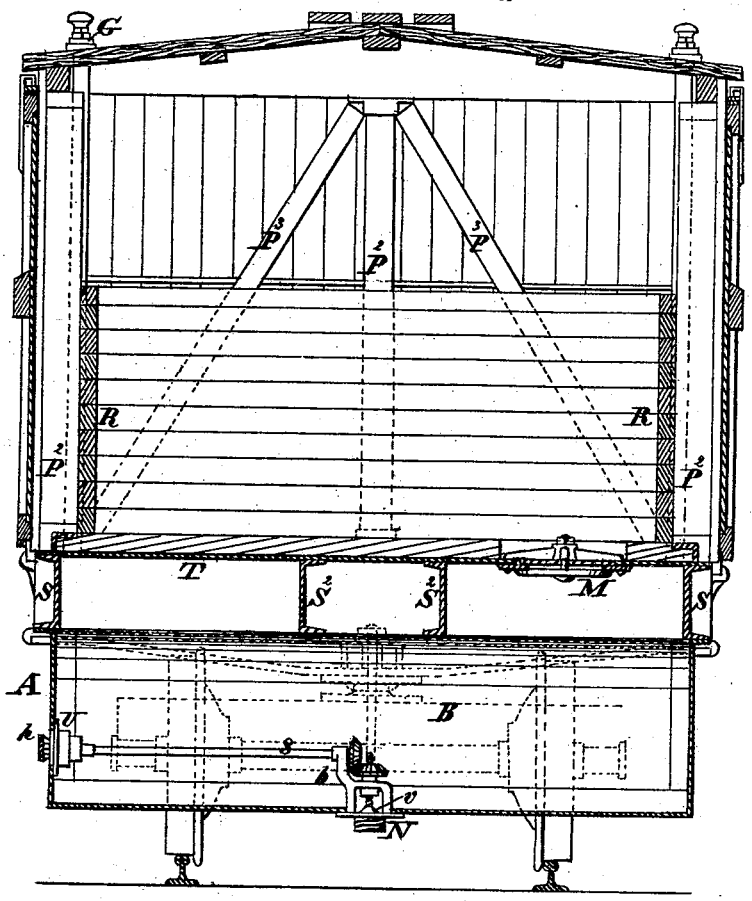
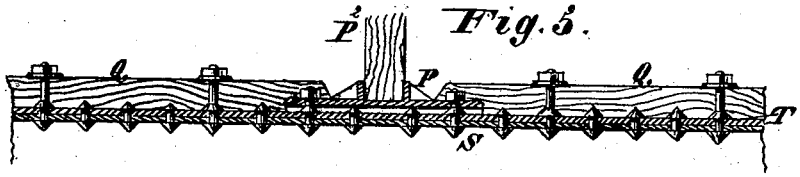


Fig. 5.



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TANK AND FREIGHT CAR.

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Fig. 6.

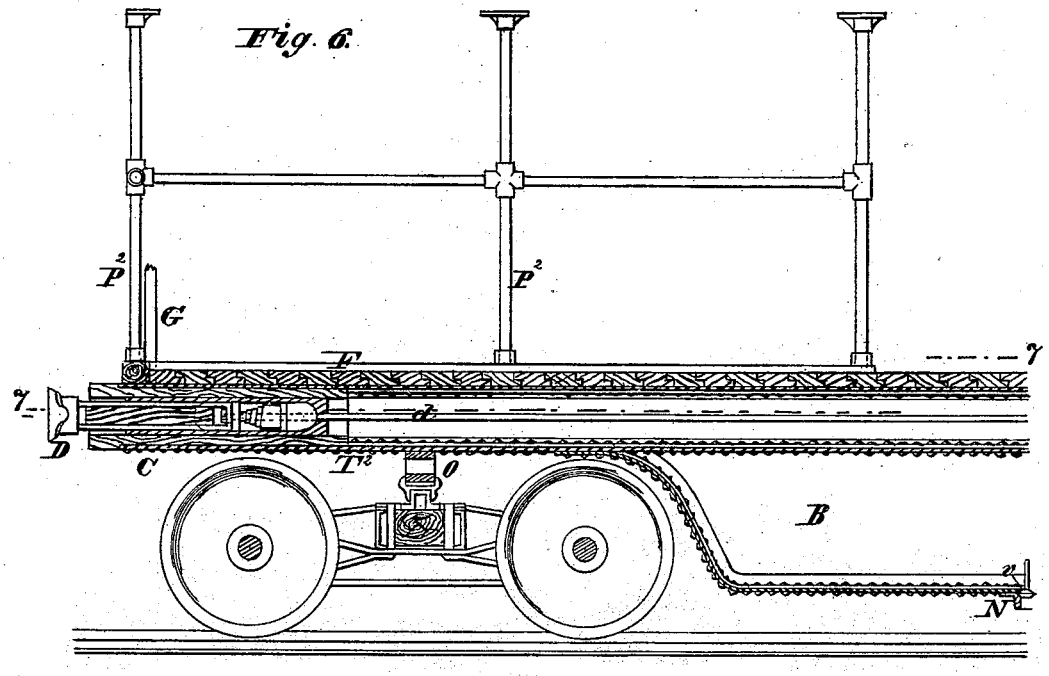


Fig. 7.

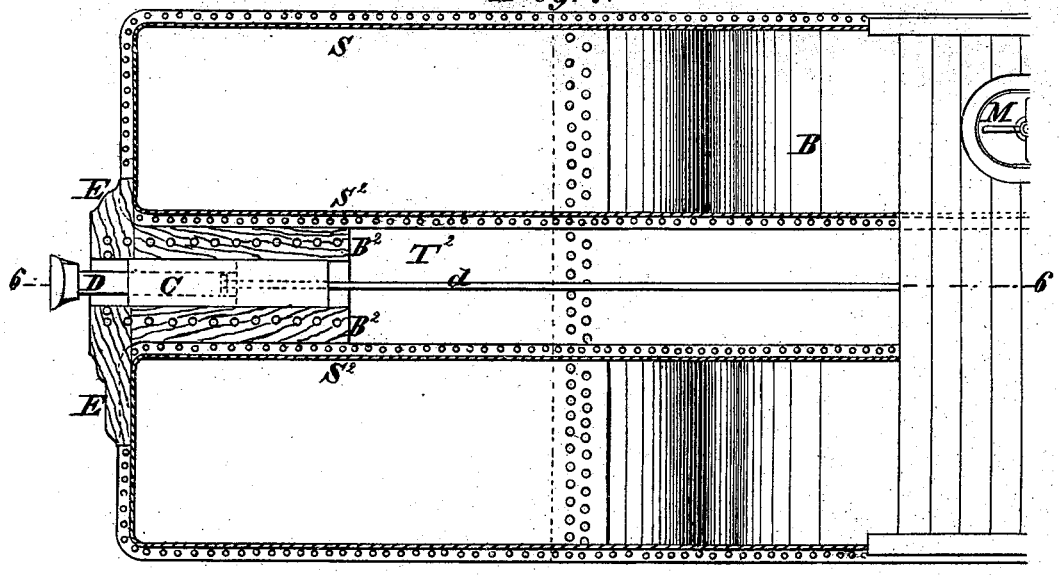


Fig. 8.

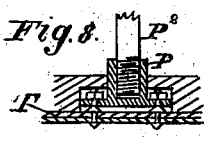
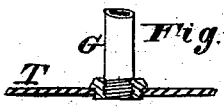


Fig. 9.



WITNESSES

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INVENTOR.

H. G. Brooks

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UNITED STATES PATENT OFFICE.

HORATIO G. BROOKS, OF DUNKIRK, NEW YORK.

IMPROVEMENT IN TANK AND FREIGHT CARS.

Specification forming part of Letters Patent No. **190,542**, dated May 8, 1877; application filed November 14, 1876.

To all whom it may concern:

Be it known that I, HORATIO G. BROOKS, of Dunkirk, in the county of Chautauqua and State of New York, have invented a new and Improved Railway-Car, for carrying petroleum and other liquid in bulk, of which the following is a specification:

The object of this invention is to render practicable the shipment overland of any kind of merchandise, even grain, in bulk, without injury, as return-freight for petroleum or other liquid in bulk.

To this end, I construct a box-car with a base consisting of a tank, and formed with a drop extending down between the trucks, so as to increase the capacity of the tank, and serve as a truss for the frame. The draft and thrust are sustained by intermediate longitudinal sills, with spaces between them to accommodate the draw-head fixtures. The attachments of the draw-heads and the box-frame are made independently of the tank-plates or their fastenings, so that any rupture of the said attachments cannot communicate with the interior of the tank or endanger leakage. The discharge part of the tank is closed by a valve, protected by a lock and key, and either the same or a separate port is used for filling.

In the accompanying drawings, Figure 1 is a side elevation of a car, illustrating the invention. Fig. 2 is a central vertical longitudinal section of the same on a larger scale. Fig. 3 is a horizontal section on the line 3 3, Fig. 2. Fig. 4 is a transverse section on the line 4 4, Fig. 2. Fig. 5 is a partial section, illustrating the mode of attaching the box-frame and sills to the base-frame or tank. Fig. 6 is a longitudinal section, illustrating modifications in the draft-connection and in the box-framing. Fig. 7 is a horizontal section on the line 7 7, Fig. 6. Fig. 8 is a detached sectional view of one mode of attachment of iron posts for the box-frame. Fig. 9 is an illustration of a mode of attachment for ventilating or other pipes.

Like letters of reference indicate corresponding parts in the several figures.

The main sills S S^2 of this improved car, instead of being constructed from wood, are constructed of iron or steel channel or T beams, as preferred; and to these sills is riveted plate iron or steel T, which, together with said iron or steel sills, forms the tank.

The sills, instead of being eight inches deep, as in an ordinary car, are preferably twelve or more inches deep; and in order to obtain a chamber or chambers of the full capacity for carrying the standard load of three thousand six hundred gallons, with a low center of gravity, in a box-car of ordinary height, the tank is dropped in the center, as shown, or, in other words, is constructed with a drop or belly, B, between the trucks, which extends the space between the sills, and also forms a complete truss for the latter.

The channel-beams, which form the outer sills S, as shown, are arranged with their flanges projecting outward; and to these flanges, at top, cast or wrought iron pockets P are bolted or riveted, to receive the posts P^2 P^3 of the upper frame-work.

This upper frame-work is intended to be either of wood, as shown in Figs. 2, 4, and 5, or of iron, as shown in Figs. 6 and 8. The sheathing will be of wood or iron, as preferred in either case.

The deck or wooden floor F is fastened down upon the top of the tank A by the lower board of the horizontal inner sheathing R, which is fastened to the frame-posts over the ends of the floor-planks.

Longitudinal timbers Q, bolted to the upper flanges of the outer sills, form spike-holds for the outside sheathing R′.

The trucks and brakes may be of any suitable construction. The bolsters O are bolted to the lower flanges of the sills S S^2. This attachment may be re-enforced in any approved way.

The space between the channel-beams which form the intermediate sills S^2, as shown, is left open at the ends for a sufficient distance, to accommodate the attachments or fixtures of the draw-heads D. The cheek-pieces or guides I of the draw-bars are made of stout angle-iron, and attached by bolting or riveting through the iron plates T^2 and the lower flanges of the intermediate channel-beams or sills S^2, independently of the fastenings which connect the tank-plates themselves to the channel-beams. An attachment is thus afforded possessing all the necessary strength

for draft and thrust, and the draft is transferred directly to the longitudinal sills.

If preferred, the space between the intermediate channel-beams is formed into a passage-way extending the whole length of the car, as illustrated in Figs. 6 and 7, and the draw-heads connected to each other by rods *d*, so as to secure a continuous draft throughout the train. In either case the draft attachments, as well as the box-frame attachments, are entirely independent of the fastenings of the tank-plates, so that the breaking or tearing away of any of these attachments cannot open any communication with the interior of the tank or cause a leak.

Each end sill E of the improved car is formed of a heavy plate of iron sufficiently strong to admit of the attachment thereto of buffer-plates C. Between the end plates and said buffer-plates rubber cushions B^2 are arranged so as to abut against the ends of the intermediate channel-beams S^2.

For filling and discharging the liquid a neck, N, is provided at the lowest point of the bottom. If preferred, a separate neck may be provided at the top for filling, but the oil is readily introduced through a hose applied to the discharge-neck, and communicating either with a pump or an elevated reservoir. The style, number, and arrangement of these necks may vary. A peculiar valve mechanism for effecting and controlling the discharge is shown in Figs. 1, 2, and 4. A conical valve, *v*, opens inward, and is provided with a screw-stem, *s'*, which passes through a central orifice in a cage, *c*, on top of which is a concentric beveled pinion, *p*, meshing with a like pinion, p^2, on the inner end of a horizontal shaft, *s*. This shaft extends outward to one side of the tank, and is supported at its inner end by a branch, *b*, springing from the cage *c*. Its outer end passes through a stuffing-box, U, and is constructed with a square to receive a key or wrench. The screw-stem is made rotary, and the bore of the cage screw-threaded, or the screw-stem is splined in the latter, and the bore of the horizontal pinion screw-threaded, so that the valve will be raised and lowered by rotating the shaft *s*. To prevent any tampering with the valve or access to the shaft *s* by unauthorized parties, a hasp, *h*, fitting over the square end of the shaft, is attached to the side of the tank, and adapted to be secured by a lock or seal.

For carrying off any gas which may form in the tank, and at the same time to provide for expansion and contraction, pipes G are arranged at the several corners of the car, extending upward through the roof. To prevent the accidental ignition of the gas escaping from the upper ends of these pipes, shields of wire-gauze or its equivalent are applied thereto.

A man-hole, M, is formed in the top of the tank, and provided with a sunken lid or cap, so as to be covered by the flooring of the car, access thereto being unnecessary, except repairs should be needed.

The same construction in substance is applicable to platform-cars or gondolas, as well as to box-cars.

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

1. The tank A, forming the sills or bottom frame-work of a car, as herein set forth.

2. The tank A constituting the base-frame of a box-car, constructed with a central portion dropped between the trucks, for the combined purpose of constituting a portion of the truss-frame, adding carrying capacity, and lowering the center of gravity of the load.

3. The intermediate sills S^2, employed to sustain the draft and thrust, in combination with a tank located in the base of the car or projecting down between the trucks, as set forth.

4. A tank constructed with an open space or spaces between the intermediate sills, to accommodate the draw-head fixtures.

HORATIO G. BROOKS.

Witnesses:

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WALTER ALLEN.