Sept. 4, 1951 C. H. FOLMSBEE 2,567,015

TANK CRADLE MOUNTING

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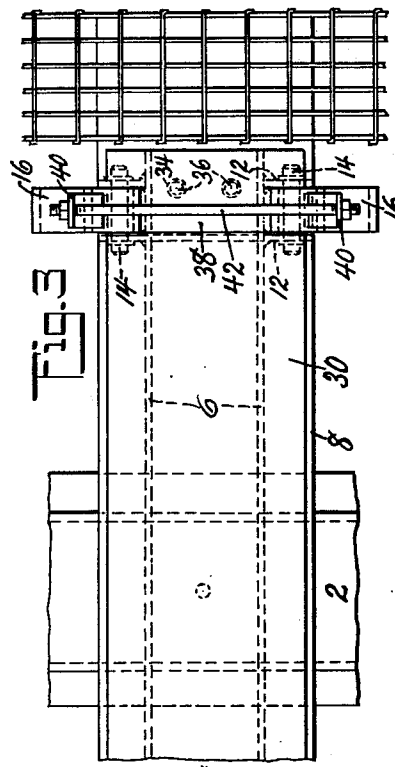

Fig. 3

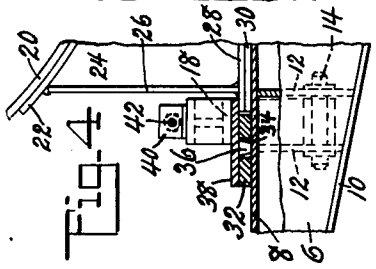

Fig. 4

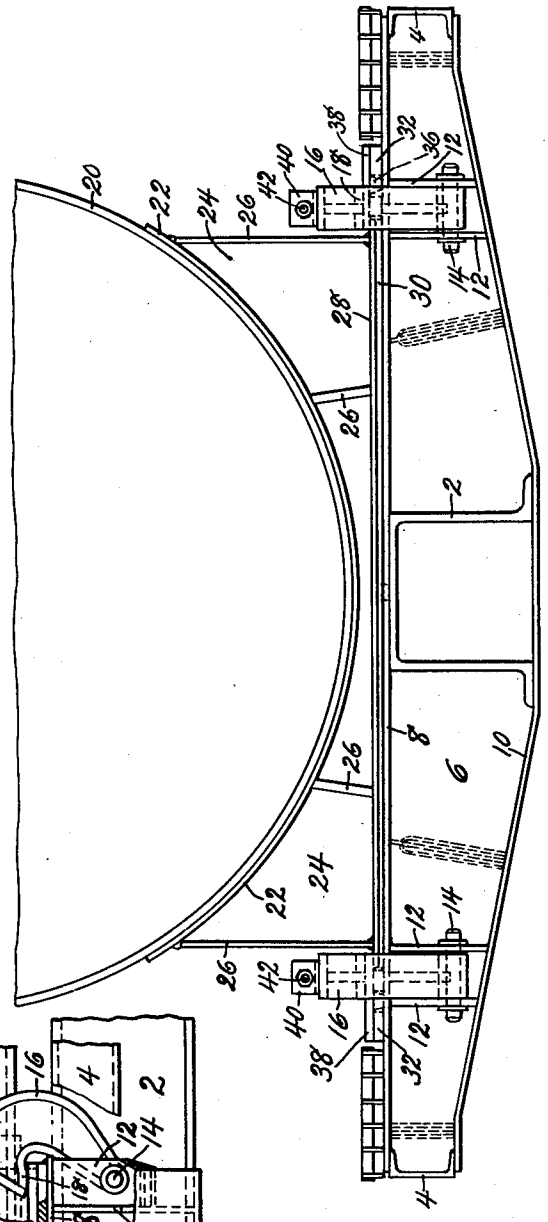

Fig. 1

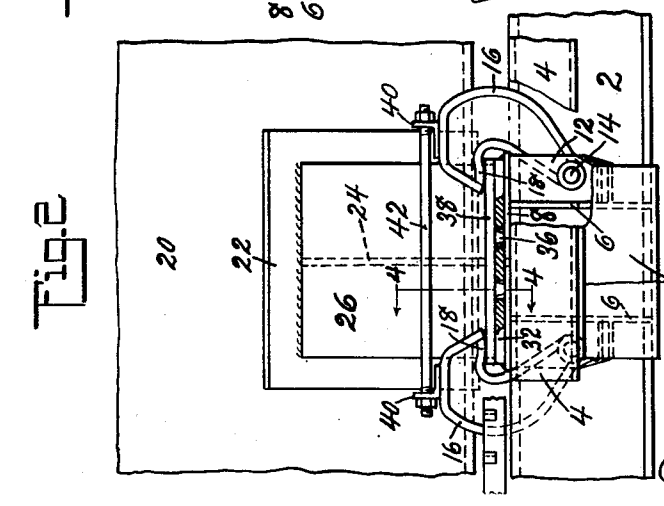

Fig. 2

INVENTOR
Clyde H. Folmsbee
BY
Robert A. Shields
ATTORNEY

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TANK CRADLE MOUNTING

Clyde H. Folmsbee, Bloomsburg, Pa., assignor to American Car and Foundry Company, New York, N. Y., a corporation of New Jersey

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5 Claims. (Cl. 105—362)

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This invention relates to tank cradle mounting in general and in particular to such a mounting intended for railway tank cars.

Railway tank cars during transit are subject to excessive temperature changes and to excessive shocks both longitudinally and vertically, as well as transversely of the vehicle. In the past it has been customary to mount the tanks on a curved bolster by means of wood blocks and with the tank held in place by means of the anchor and straps. Movements of the tank eventually stretch the strap anchors and this coupled with shrinkage and the wear of the wood blocks soon allows the tank considerable motion relative to its supporting cradles. It is an object, therefore, of the present invention to provide a tank car cradle which effectively resists transverse and vertical movements of the tank relative to the underframe while permitting expansion and contraction.

A further object of the invention is the provision of a tank cradle mounting by means of which the tank and its attached cradle can be readily attached to and removed from the car underframe.

A still further object of the invention is the provision of an improved tank cradle mounting in which the resilient parts thereof can be made flat and do not require any shaping.

There and other objects of the invention will be apparent to persons skilled in the art from a study of the following description and accompanying drawings, in which

Fig. 1 is an end view of the improved tank cradle mounting;

Fig. 2 is a side elevational view;

Fig. 3 is a plan view with the tank removed from the cradle, and

Fig. 4 is a sectional view taken substantially on line 4—4 of Fig. 2.

Referring now to the drawings in detail it will be seen that the underframe is made up of the customary flanged channel center sills 2 and side sills 4 connected by spaced bolster webs 6. The bolster webs are suitably braced internally and connected together and to the sills by top and bottom cover plates 8 and 10 respectively. Joining the top and bottom cover plates and welded to the web plates adjacent the ends of the bolster are pairs of plates 12 pierced to receive a pivot pin 14. Pivotally mounted on the pins 14 and swingable between the plates 12 are hooks 16. These hooks have the engaging portion 18 directly above the pivot pins 14 thereby eliminating any tendency of the hooks to swing outwardly under vertical pressures.

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The tank itself is of more or less standard construction and comprises a shell 20 welded or otherwise securely attached to a top cradle plate 22 curved to conform to the tank shell and welded to cradle web plates 24 which are braced by plates 26 and firmly attached by any suitable means such as welding to a bottom cradle plate 28. This bottom cradle plate projects outwardly beyond the outermost cradle plate 26 and has its lower surface substantially plane. This bottom cradle plate may either rest directly on the top of the bolster or, as is more desirable, will rest on a resilient or shock absorbing plate 30 interposed between the cradle and the bolster top cover plate.

Welded or otherwise secured to the top cover plate of the bolster outwardly of the projecting edges of the cradle bottom plate are stop members 32. These stop members are provided with openings 34 to receive dowel pins 36 formed on retainer plates 38. These retainer plates bear upon the stop members and overlap the projecting edges of the cradle bottom plate, all as clearly shown in Figs. 1 and 4. Also, as clearly shown in these figures the hooks 16 are of sufficient width as to overlap the stop members and projecting edges of the cradle, thus effectively preventing any rotational tendency of the retainer plates when placed under vertical loading. In order to prevent any possibility of the hooks 16 becoming disengaged from the retainer plates 38, lugs 40 are welded or otherwise formed on the hooks and pierced to receive tension bolts 42. By tightening the nuts on these bolts the hooks may be firmly and positively held in their locking position overlapping the retainer plate, stop member and projecting edges of the cradle bottom plate. It is, of course, obvious that slight inaccuracies in construction in the various parts can be readily and quickly accommodated by merely varying the thickness of the small retainer plates 38. It will also be obvious that with this attachment the tank can expand and contract longitudinally of the underframe without placing any stress on the securing members, which members prevent transverse and vertical movements of the tank and its cradle relative to the underframe.

While the improved construction has been described more or less in detail with particular reference to the figures, it is obvious that various modifications and rearrangements of parts may be made and all such modifications and rearrangements are contemplated as fall within the scope of the appended claims defining my invention.

What is claimed is:

1. In a tank car, a tank shell, an underframe having a bolster for supporting the tank shell, a tank craddle supporting the tank shell upon the bolster, means secured to the bolster and limiting transverse movement of the tank cradle relative to the underframe, a pair of hook means pivotally carried adjacent each end of the bolster and swingable into engagement with a surface of said tank cradle to hold said tank cradle against vertical movements relative to the bolster, and means holding said hook means in the operative position.

2. In a tank car, a tank shell, an underframe having a bolster for supporting the tank shell, a tank cradle supporting the tank shell upon the bolster, means secured to the bolster and limiting transverse movement of the tank cradle relative to the underframe, a pair of hook means pivotally carried adjacent the ends of the bolster and swingable toward each other longitudinally of the car into engagement with a surface of said tank cradle to hold the tank cradle against vertical movement relative to the bolster, and means joining said hook means to hold the same in operative position holding the tank cradle on the bolster.

3. In a tank car, a tank shell, an underframe having a bolster for supporting the tank shell, a tank cradle supporting the tank shell upon the bolster, means secured to the bolster and limiting transverse movement of the tank cradle relative to the underframe, hooks pivoted on either side of the bolster and adjacent the ends thereof, said hooks being swingable upwardly and inwardly into operative position overlapping

portions of the tank cradle, and tension means holding said hooks in their operative position.

4. In a tank car, a tank shell, an underframe having a bolster for supporting the tank shell, a tank cradle supporting the tank shell upon the bolster and having projecting edge portions, stop means secured to the bolster adjacent said projecting edge portions, retainer plates overlapping said stop means and projecting edge portions, and hook means pivoted on said underframe and swingable upwardly and inwardly to overlap said retainer plates to prevent vertical movement of said cradle relative to said bolster.

5. In a tank car, a tank shell, an underframe having a bolster for supporting the tank shell, a tank cradle supporting the tank shell upon the bolster and having projecting edge portions, stop means secured to the bolster adjacent said projecting edge portions, retainer plates overlapping said stop means and projecting edge portions, hook means pivoted to said bolster adjacent the ends and on each side thereof and swingable longitudinally of the car into overlapping relation to said retainer plates, and means preventing movement of said hooks out of overlapping relation to the retainer plates.

CLYDE H. FOLMSBEE.

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The following references are of record in the file of this patent:

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