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MULTIUNIT TANK CAR

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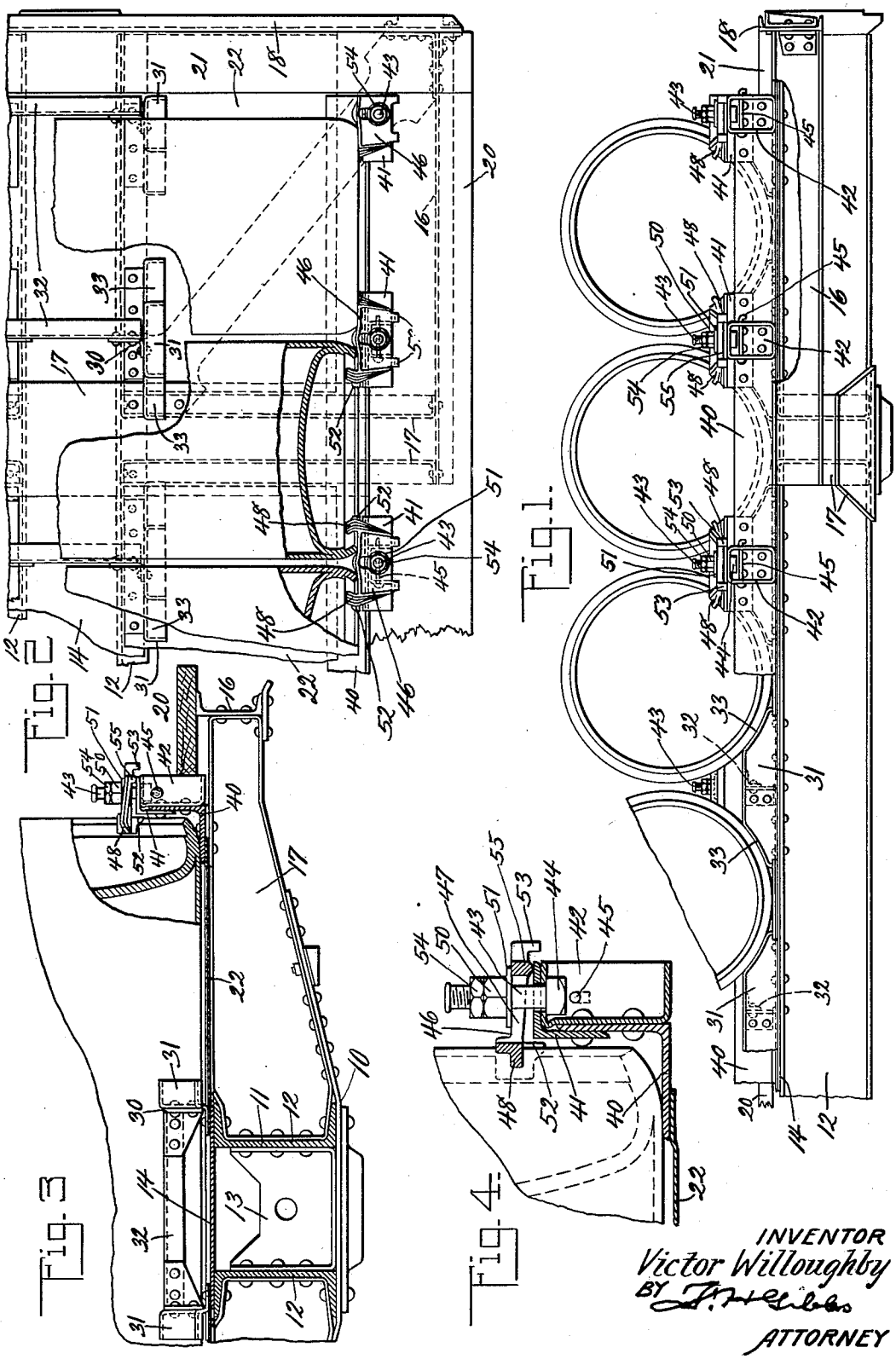

Fig. 1.

Fig. 2

Fig. 3

Fig. 4

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MULTIUNIT TANK CAR

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This invention relates to anchorage means for multiple unit tank cars and has for one of its objects to provide simple and reliable devices for joining the chimes of adjacent tanks directly to each other and simultaneously securing the tanks to the frame of the car. By the means employed relative rolling of a plurality of tanks transversely arranged on the frame is positively prevented and the tanks are bound firmly against rotation as well as against longitudinal or transverse shifting.

Another object is to cradle the tanks at or near the longitudinal central region of the car and secure the cradled tanks in a row by devices opposite the chimed ends of two adjacent tanks.

A further object is in the provision of a form of anchor for the chimes of adjacent tanks whereby operation of the means employed for setting the anchor in holding position effects a progressively increasing biting action on the adjacent chimes with a resultant maximum of security.

Other objects will be in part obvious and in part pointed out particularly as the description of one preferred embodiment of the invention proceeds.

The invention accordingly consists in the various features of construction, combinations of elements and arrangements of parts which will be exemplified by the construction hereinafter set forth and shown in the accompanying drawing, and the scope of the application of which will be indicated in the appended claims.

In the drawing Figure 1 is a fragmentary view in side elevation of a multiple unit tank car embodying the invention. Parts of the frame are broken away to show more clearly the means for cradling the tanks.

Fig. 2 is a fragmentary plan view of the construction shown in Fig. 1. It is to be understood that the anchorage devices shown in Fig. 2 are duplicated at the opposite ends of the tanks.

Fig. 3 is a fragmentary cross sectional view showing the longitudinal beam construction and the manner of cradling the tanks so they are supported on the beam.

Fig. 4 is a fragmentary view showing the anchorage device in vertical central cross section.

Referring now more particularly to the drawings, a flat car frame is indicated generally at 10 comprising a longitudinal sill or beam 11 consisting of spaced channels 12 suitably tied transversely as indicated at 13 and assembled with top cover plate 14, forming a beam or girder extending centrally between the ends of the car. Longitudinal sills 16 are spaced outwardly from the central sill or beam at opposite sides of the car and the sills are connected by bolsters 17 and suitable transverse sills 18 at opposite ends of the car. Mounted on the side sills 16 are running boards 20 matched at their opposite ends with transverse end boards 21. Suitable sheet metal flooring 22 is attached to the top of the bolsters 17 and to the central channels 12 over the top plate 14.

In order to position a multiplicity of tanks in substantially parallel arrangement transversely of the car and support them principally by the longitudinal central beam or sill, cradle frames 30 are riveted in spaced longitudinal relation to the upper flanges of the channels 12. Each frame comprises a pair of brackets 31 and one or more cross ties 32. The brackets are formed with curved tank receiving portions or seats 33 whereby the brackets of spaced adjacent frames cooperate to cradle a cylindrical tank.

The invention is particularly designed for use with tanks having chimed ends, and anchorage means for the cradled row of tanks is provided at spaced points along the ends of the tanks approximately opposite the space occurring where chimed portions of adjacent cylindrical tanks diverge downwardly. Each anchorage consists of a support 40 in the form of an angle member common to all of the anchorage devices and riveted to the flooring 22 and bolsters 17. The angle 40 is so arranged that the horizontal flange thereof is adapted to serve as a support for the end portions of the tanks, as clearly shown in Fig. 4. Spaced angle pieces 41 are riveted to the upstanding flange of the common angle member 40 and the assembly is provided with a box-

like pressing 42. Through suitable openings in the upper wall of the pressing 42 and the upper flange of angle member 41 a bolt 43 is projected having its head 44 within the member 42 and close enough to the walls thereof to limit the rotation of the bolt. A pin 45 is passed through the side walls of the pressing 42 slightly below the bolt head preventing the bolt from falling out of its projected position. A body member or yoke 46 is arranged above the angle member 41 and is slotted at 47 to receive the shank of bolt 43. The body has spaced engaging members or lips 48 which are shaped generally to conform to the inner faces of the diverging lower chime portions of adjacent tanks. A nut 50 is threaded on the upper end of bolt 43 and bears against a washer 51 loosely arranged over the bolt and bearing on the upper surface of the yoke 46. The yoke is provided with depending portions or ledges 52 and 53 which limit the rotative movement thereof on the angle member 41. By the construction described, loosening of the nut on bolt 43 permits the yoke member to be moved vertically a substantial distance and horizontal movement of the yoke member with respect to the supporting means is then possible by reason of the bolt and slot connection described. To release the anchor means from the tanks these movements are effected. In securing the tanks by the anchor means the tanks are positioned in the cradles, the yoke members 46 urged inwardly and the nut 50 is screwed on the threads of bolt 43 and secured in home position by lock nut 54. The lower face of the yoke member is provided with a fulcrum portion 55 bearing on the angle member 41 at a point outside the application of pressure by nut 50. This causes the engaging members or lips 48 of the yoke member to be forced against the diverging chime portions of the adjacent tanks with particular effect.

By the construction described the tanks are securely bound in their cradles and supported substantially directly on the longitudinal central beam. The tanks are also tied directly together at their ends and the forcing of the tilted or fulcrum yoke member against the diverging chimes of the tanks constitutes a particularly effective securing means which prevents any relative rolling or rotation of any of the tanks.

While the anchorages for the end tanks of the row are slightly different from the intermediate anchorages in that they omit one of the engaging lips and therefore the body member is not strictly a yoke, the general construction of these end anchor members is the same as the intermediate anchor except as noted and no more particular description of the end anchor members is necessary.

In operation the chimed tanks are deposited on the frame and flooring in cradled relation, the tightening nuts of the anchorage having first been suitably loosened and the yoke members withdrawn to permit introduction of the tanks. The yoke members are then individually projected inwardly to engage the lower diverging chime portions of adjacently arranged tanks and nuts 50 are screwed up tightly. It is to be noted that the direction of the application of pressure incident to the screwing up of the nut 50 is in opposition to the resistance of the curved tank receiving portions 33 of the cradle frames 30 so that the tanks are by this operation forced securely against the cradle frames and simultaneously tied to each other.

What is claimed is:

1. In a multiple tank car, a frame comprising a longitudinal central beam, means for cradling a row of tanks on said beam, and anchor devices loosely attached to the frame having provision for being tightened thereon, said anchor devices comprising spaced members each respectively positioned to engage chimes of adjacent tanks to tie them directly to each other as the anchor is tightened.

2. In a multi-unit tank car, an underframe provided with a center sill, cradle members substantially vertically alined with and secured to the center sill each adapted to support a tank transversely of the underframe, and anchors supported by the underframe adjacent the end portions of the tanks and each so formed as to clampingly engage the end portions of adjacent tanks.

3. In a multi-unit tank car, a frame comprising a center sill and bolsters, a plurality of cradles arranged at the longitudinal central zone of the frame each adapted to support a tank intermediate its ends, means arranged longitudinally of the frame and supported by the bolsters for supporting the tanks at their end portions, and anchor devices mounted on said means and each adapted to clampingly engage within the end portions of adjacent tanks.

In witness whereof I have hereunto set my hand.

VICTOR WILLOUGHBY.