No. 751,040. PATENTED FEB. 2, 1904.

E. ANDERSON.

TANK CAR.

APPLICATION FILED SEPT. 4, 1903.

NO MODEL. 3 SHEETS—SHEET 1.

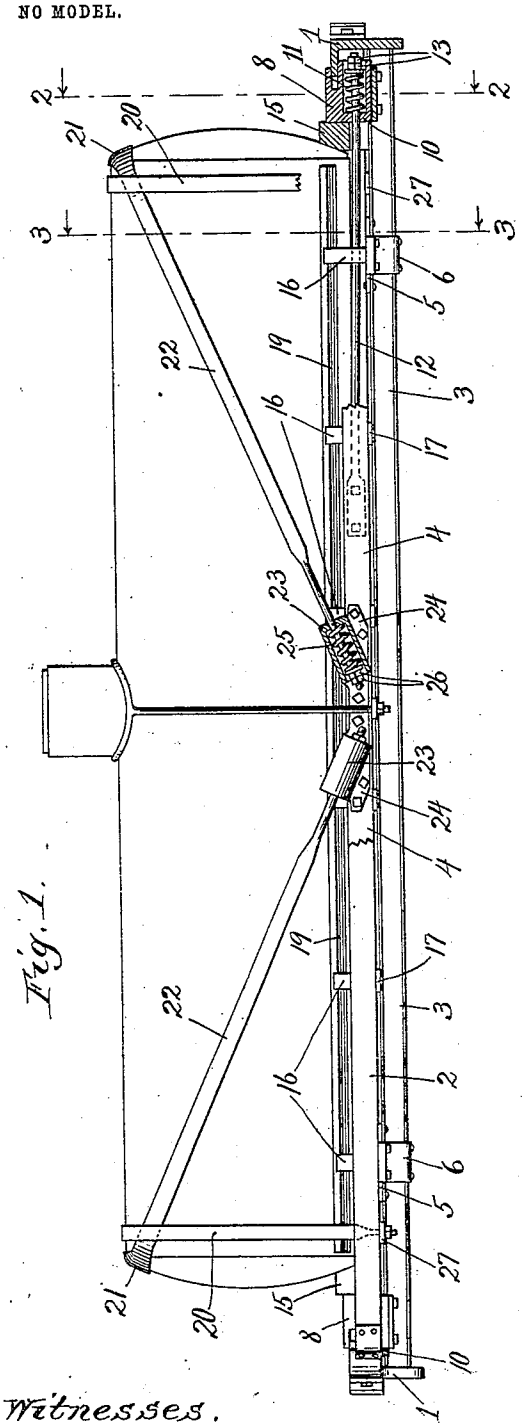


Fig. 1.

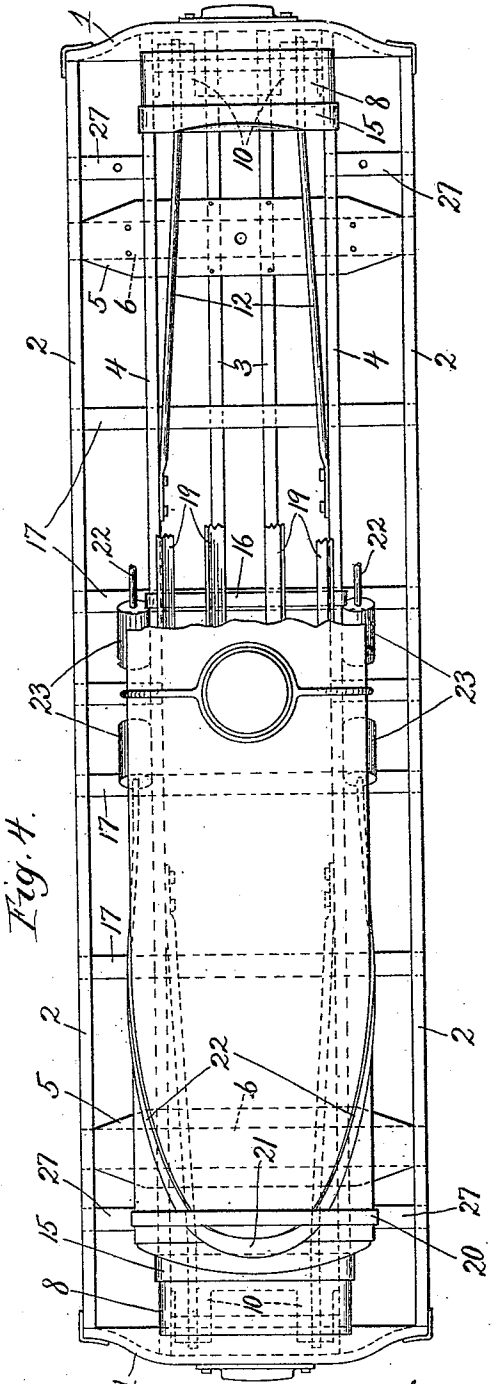


Fig. 4.

Witnesses.
Edward T. Wray.
Fred G. Fischer

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Elick Anderson
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his Atty's.

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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2.

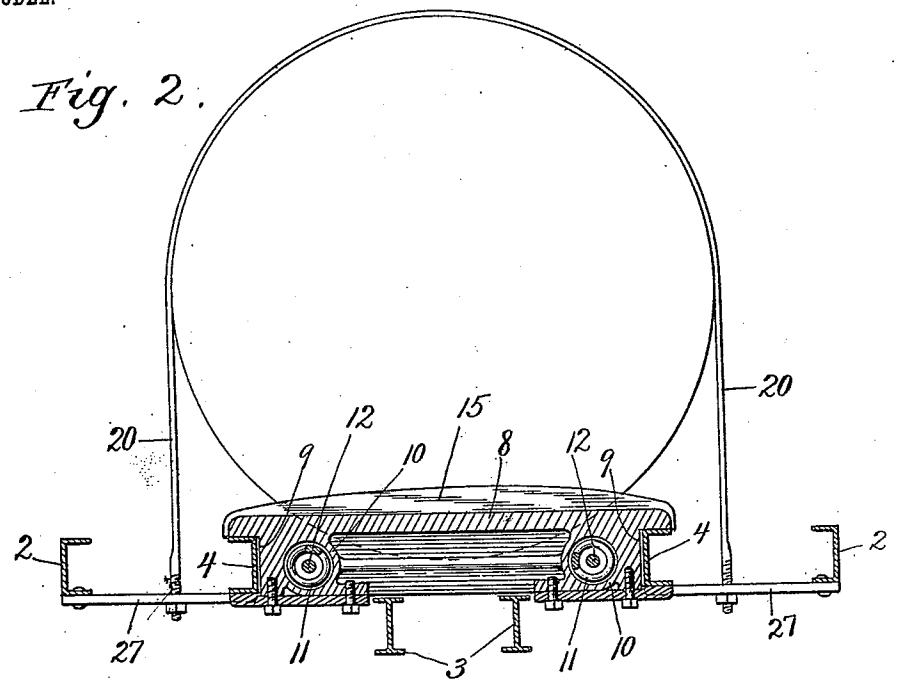
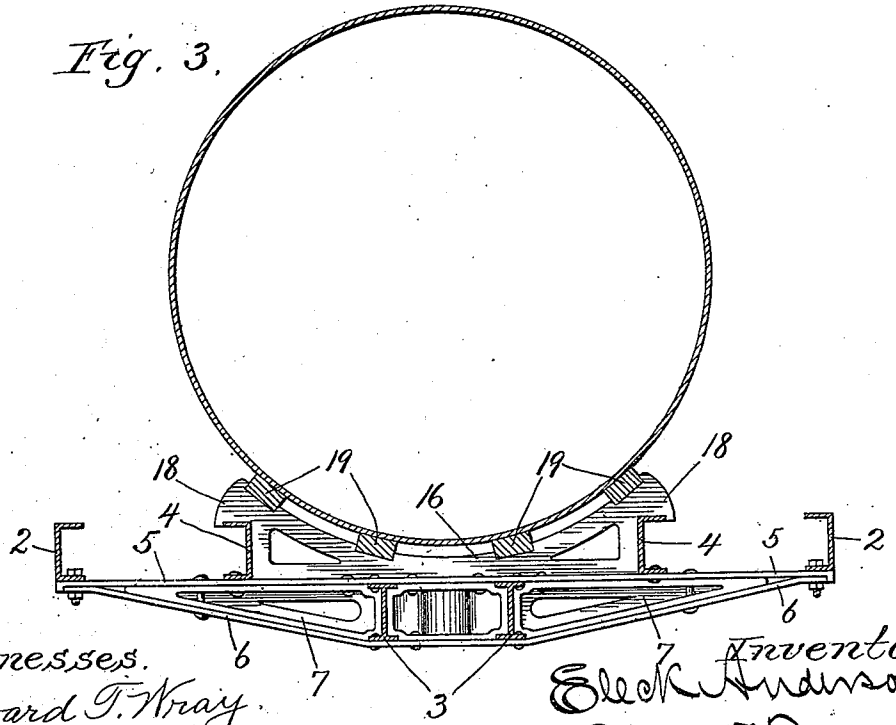


Fig. 3.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 751,040.

PATENTED FEB. 2, [illegible]

E. ANDERSON.

TANK CAR.

APPLICATION FILED SEPT. 4, 1903.

3 SHEETS—SHEET 3.

NO MODEL.

Fig. 5.

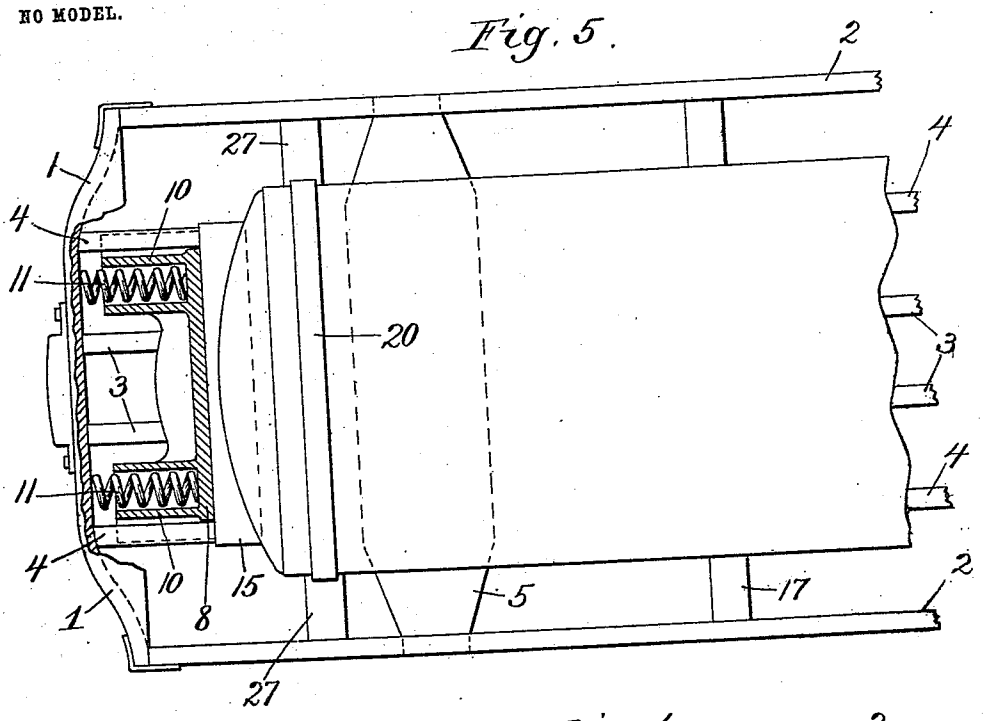
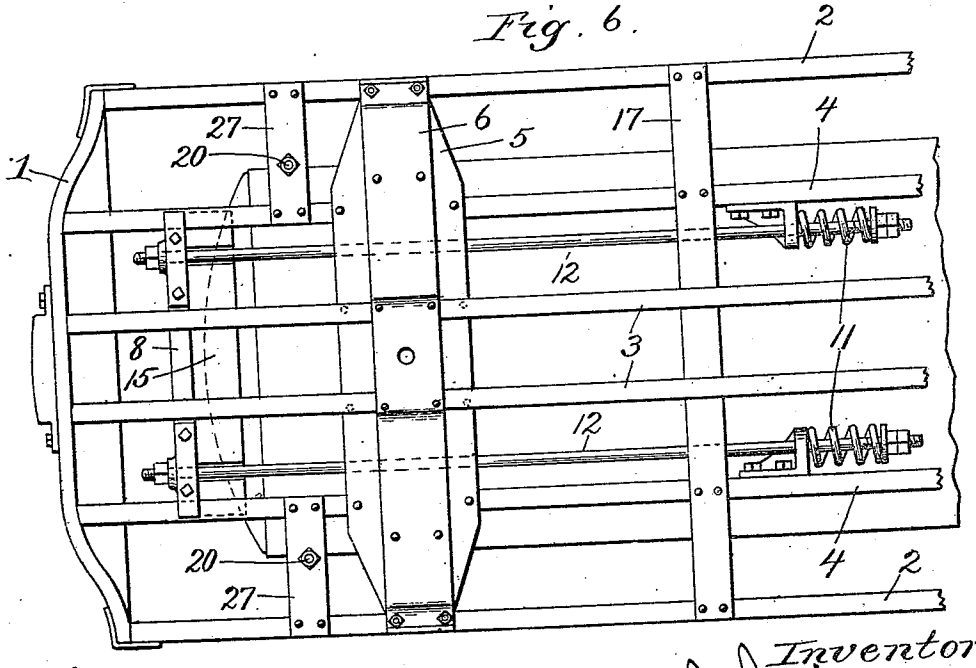


Fig. 6.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 751,040. Patented February 2, 1904.

UNITED STATES PATENT OFFICE.

ELECK ANDERSON, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO O. C. MANN, OF CHICAGO, ILLINOIS.

TANK-CAR.

SPECIFICATION forming part of Letters Patent No. 751,040, dated February 2, 1904.

Application filed September 4, 1903. Serial No. 171,916. (No model.)

To all whom it may concern:

Be it known that I, ELECK ANDERSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Tank-Cars, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The purpose of this invention is to provide an improved construction of cars of the general class commonly called "tank-cars," which comprise a receptacle usually in the form of a cylindrical tank, but sometimes in the form of an open-topped tank of metal mounted upon a base-frame or flat-car and secured thereto in any manner which avoid liability to producing leaks in the tank by the strain on the fastenings resulting from the endwise thrust of the tank relatively to the support incident to transportation.

It consists in the features of construction set out in the claims.

Figure 1 is a side elevation of a car-platform frame and tank thereon mounted according to my invention. Fig. 2 is a section at the line 2 2 on Fig. 1. Fig. 3 is a section at the line 3 3 on Fig. 1. Fig. 4 is a plan view with the tank in part broken away to disclose the platform structure and other details. Fig. 5 is a detail plan view, partly sectional at the plane of the axis of the cushioning-springs, showing a modified construction of the head-block and connections. Fig. 6 is a detail bottom plan view of a part of the platform toward one end, showing another modification of the cushioning structure.

I have shown the platform-frame in a form such as would be desirable when such frame is made of structural iron; but it will be understood that my invention is not limited to such a form of construction. As illustrated, the platform-frame comprises the end sills 1 1 and side sills 2 2, rigidly framed together in any suitable and approved manner. The end sills are wider in the middle than at the ends and are connected by I-beams 3 3, extending between them at their lower edges—that is, below the horizontal plane of the side sills 2 2—and additional longitudinal beams 4 4 extend between the end sills parallel with the side sills and at the same horizontal plane as the latter. The bolsters at which the trucks are to be swiveled are made each of two plates 5 and 6, the former extending below and secured to the lower edges of the side sills 2 2 and the longitudinal beams 4 4 and above and secured to the upper edges of the longitudinal beams 3 3. The lower plate 6 of the bolster extends below the I-beams 3 3 and is deflected upward at the ends for junction with the side sills 2 2 immediately below and in contact with the ends of the plate 5. The I-beams thus serve as struts for the trussed bolsters which are further reinforced and stiffened by the malleable iron filling-blocks 7 7, which occupy the triangular intervals at the outer sides of the I-beams and between the plates 5 and 6. In order to avoid weakening the longitudinal beams at the point at which they are liable to be exposed to the greatest breaking strain—that is, at the transverse line of the pivoting of the frame to the trucks—being the medial line of the bolsters, I make the plate 5 considerably wider than the plate 6, so that the bolts by which it is secured to the longitudinal means penetrate and require apertures in those beams at a considerable distance from the said line of breaking strain. On the upper side of the I-beams 3 3 and between the longitudinal beams 4 4 there are mounted, so as to be guided in movement longitudinally thereof by said beams and to be supported by them or either pair of them, head-blocks 8 8. Preferably these head-blocks have at the ends recesses 9 9, in which the longitudinal beams 4 4 are received and serve to guide the head-blocks. In these head-blocks there are formed spring-pockets 10 10, in which are lodged coil-springs 11 11, and to the beams 4 4, at a considerable distance back from the ends of the platform-frame, rods 12 12 are made fast, said rods extending through the pockets 10 and the springs 11, coiled therein, and having on their ends beyond the springs stop-nuts 13 13 for tensioning the springs and drawing the head-blocks up against the ends of the tank 14, the head-blocks being provided each with a wooden block 15, of any suitable

width, extending up facing the ends of the tank and shaped to accommodate the customary bulge or convexity of the heads of the tank, so as to distribute over a suitable portion of the same the pressure or stress necessary for holding the tank against longitudinal displacement liable to occur in starting, stopping, and changes of speed during the running of the car. The springs 11 are of such weight and adjusted to such tension as to adequately cushion the shock of such endwise thrust or tendency of the tank, thereby saving the tank from the jamming of the heads, which results from mounting it between rigid stops in the customary manner. An equally important function of these cushioned head-blocks is to accommonate the expansion of the tank, which occurs when steam is turned into it for cleansing, as it is customary and necessary when tanks are used for oil. The expansion in such cleansing by means of steam amounts to over an inch and not only rapidly destroys the usual fixed wooden stop-blocks, but also causes the heads of the tank to be crushed in and the joints opened. The yielding head-blocks prevent these injuries.

The tank is seated intermediate its ends at as many points as may be deemed desirable, according to its length and stiffness, on chairs 16 16 16, which are rigidly supported on the platform-frame, being preferably formed as shown, so that they seat upon flat cross-bars 17, extending in the same plane as the upper bars 5 of the bolsters—that is, above the I-beams 3 and below the longitudinal beams 4—and the chairs have at their ends the projections 18, the projections overhanging and adapted to engage them with the longitudinal beams 4; but they are preferably left without bolt-fastenings to any of the beams. These chairs have notches or recesses which receive longitudinal wooden bars 19, which extend substantially the entire length of the tank and serve as rests upon which it is directly and immediately lodged for support in the chairs. The tank will be secured and bound tightly down onto these rests on the chairs by straps 20 20 near the ends of the tank, the straps being secured at their ends in cross-blocks 27, bolted to the longitudinal beams 4 4 and 2 2.

I do not limit myself to connecting the head-blocks with the platform-frame of the car by means of rods, between which and the head-blocks the cushioning-springs react. On the contrary, the cushioning-springs may be interposed derectly between the head-blocks and the end sills of the platform-frame. Such construction is illustrated in Fig. 5; but when it is employed it is obviously necessary that the end sills should be joined to the longitudinal beams in a manner to properly resist the end thrust of the tank and avoid the liability to which such a structure would be exposed of having the end sills torn away by the longitudinal thrust of the tank when heavily loaded. The preferable construction therefore is that first above described, which employs the rods attached to the longitudinal sills and having the cushioning-springs reacting between them and the head-blocks with the longitudinal stress on the rods. It will be manifest, however, that the springs may be interposed between the rods and the platform-frame structure instead of between the rods and the head-block, as by providing stops on the longitudinal beams between which and nuts on the rods the springs may be interposed. Such structure is shown in Fig. 6, the head-blocks being retained, but not necessarily having any springs lodged in them.

To further cushion the end thrust of the tank and distribute the strain somewhat more generally than it would be distributed by the employment of the cushioned head-blocks at the lower side only, I employ, preferably, in addition to these, saddles 21 21 fitted to the ends at the upper edge and connected by rods 22 22, extending obliquely down inward from the ends toward the middle to the base-frame, the connection being made by extending the rods 22 through spring-pockets 23 23, situated obliquely on plates 24 24, which are mounted upon the outer sides of the longitudinal beams 4 4, respectively, springs 25 25 being lodged in the pockets and encircling the rods, respectively, the latter having stop-nuts 26 26 beyond the spring operating to suitably tension the springs to draw the saddles firmly on the opposite corners, respectively, of the tank. This construction, it will be seen, is closely analogous to that shown in Fig. 6, as a modification of the structure shown in the principal figures for cushioning the head-blocks at the lower side.

I claim—

1. In a car structure for the purpose specified, in combination with a supporting platform or frame and the tank supported thereon, head-blocks at the opposite ends of the tank having a range of longitudinal movement, and springs reacting on said head-blocks to force them yieldingly inward against the ends of the tank.

2. In a car structure for the purpose specified, in combination with the supporting-platform and the tank lodged thereupon, head-blocks at the opposite ends of the tank guided longitudinally on the platform; strain-rods connecting said head-blocks with the platform structure and springs interposed in the connection to yieldingly resist the longitudinal separation of the head-blocks.

3. In a car structure of the character specified, in combination with a supporting-platform and the tank lodged thereon; head-blocks at opposite ends of the tank supported and guided on the platform with range of movement longitudinally thereof; rods secured to the platform at a distance inward from the ends of the tank respectively, and extending

thence outward through the head-blocks respectively; springs on said rods bearing on the head-blocks and adjustable stops on the rods beyond the springs.

4. In a car structure of the character specified, in combination with the platform and the tank lodged thereon; head-blocks bearing on the opposite ends of the tank supported on the platform and guided longitudinally with respect thereto, said head-blocks having in their outer sides spring-pockets; strain-rods secured to the platform structure at a distance inward from the ends of the tank respectively, and extending through the pockets; springs coiled about the rods within the pockets and stops on the rods beyond the springs.

5. In a tank-car in combination with the supporting-platform and the tank lodged thereon, saddles lodged upon the opposite ends of the tank at the upper side; rods extending from said saddles at opposite sides obliquely downward toward the middle of the length of the car; spring-pockets mounted on the platform underneath the tank at a distance back from the ends, said strain-rods extending through said pockets; springs coiled about the rods within the pockets, and adjustable stops on the rods beyond the springs.

6. In a tank-car in combination with a platform and the tank lodged thereon; head-blocks supported on the platform at opposite ends of the tank; springs reacting between the head-blocks and the platform structure to hold the head-blocks yieldingly toward the opposite ends of the car and toward each other; saddles lodged upon the upper corners of the tank at opposite ends; strain-rods extending from the saddles down along the opposite sides of the car obliquely toward the middle; spring-pockets on the platform structure below the tank, the strain-rods extending through said pockets; springs lodged in such pockets and stops in the rods beyond the springs.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, at Chicago, Illinois, this 29th day of August, 1903.

ELECK ANDERSON.

In presence of—
CHAS. S. BURTON,
FRED G. FISCHER.