G. W. SCOTT & P. CARPENTER.

TANK CAR CONSTRUCTION.

APPLICATION FILED NOV. 21, 1902. RENEWED NOV. 22, 1916.

**1,231,074.** Patented June 26, 1917.

2 SHEETS—SHEET 1.

Fig. 1

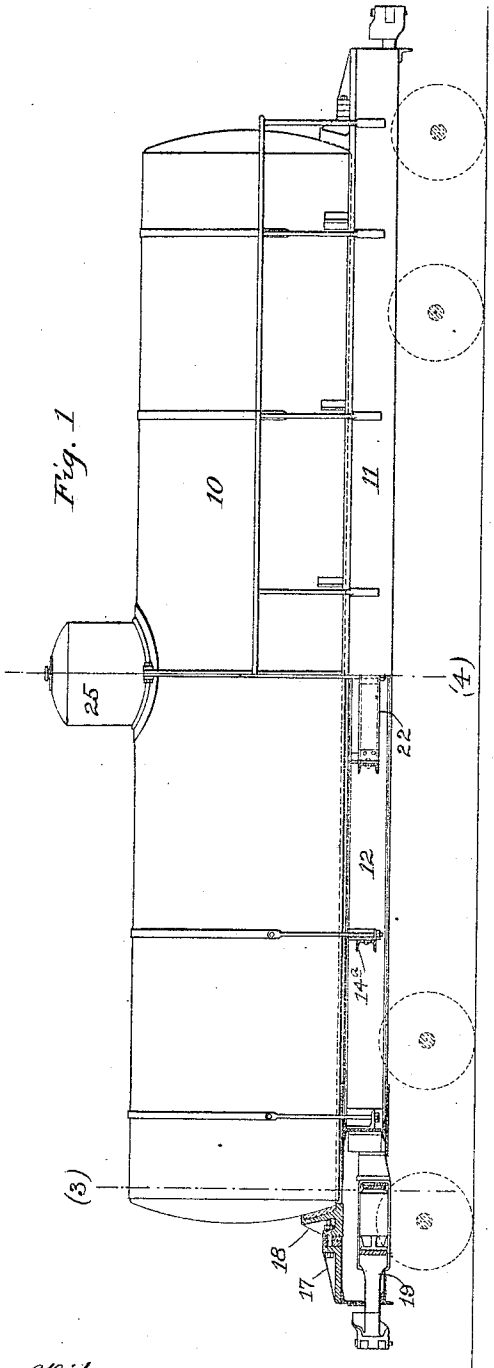
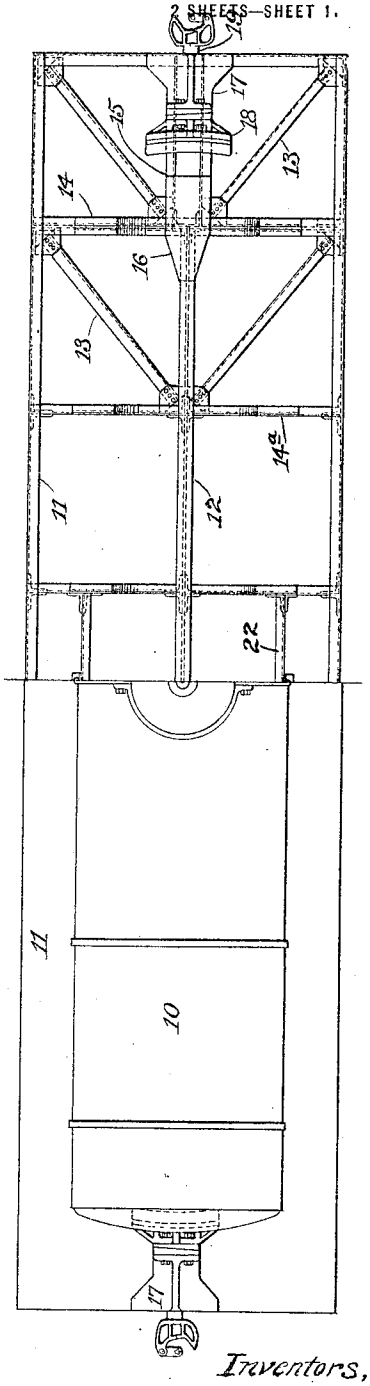



Fig. 2




Witnesses:
Oscar A Thelin.
F. W. H. Clay

Inventors,
George W. Scott
Paul Carpenter
by Paul Synnestvedt
Atty

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

G. W. SCOTT & P. CARPENTER.

TANK CAR CONSTRUCTION.

APPLICATION FILED NOV. 21, 1902. RENEWED NOV. 22, 1916.

**1,231,074.** Patented June 26, 1917.

2 SHEETS—SHEET 2.

Fig. 7

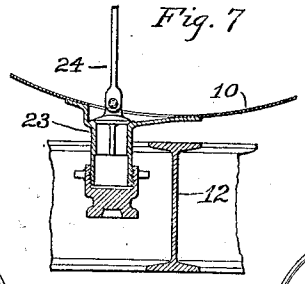



Fig. 3

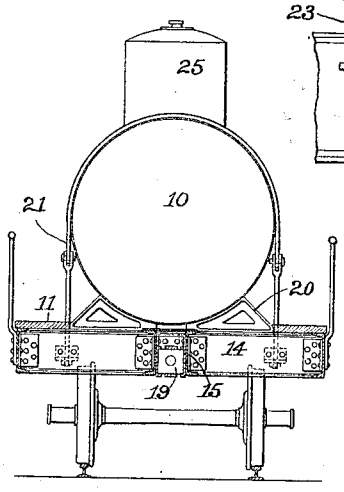



Fig. 4

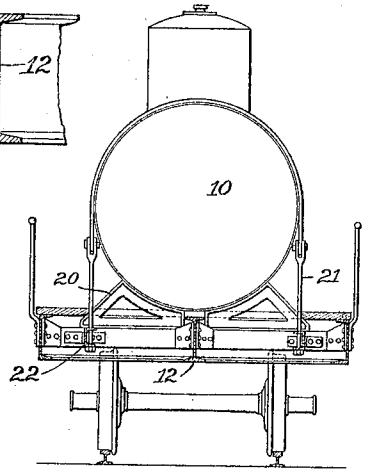



Fig. 5

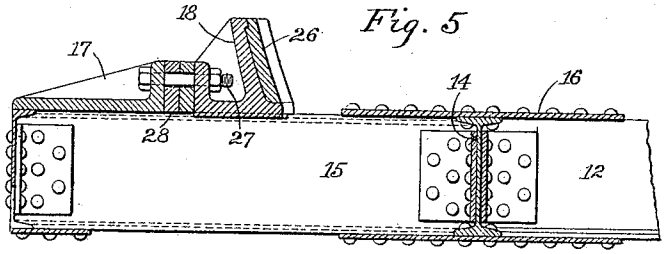
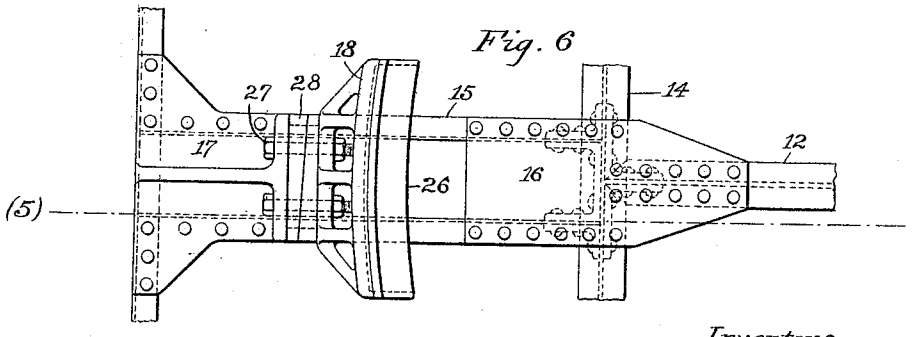



Fig. 6




Witnesses:
Oscar Q. Thelin.
F. W. H. Clay

Inventors,
George W. Scott
Paul Carpenter
by Paul Synnestvedt
Atty

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

# UNITED STATES PATENT OFFICE.

GEORGE W. SCOTT AND PAUL CARPENTER, OF CHICAGO, ILLINOIS.

## TANK-CAR CONSTRUCTION.

1,231,074. Specification of Letters Patent. Patented June 26, 1917.

Application filed November 21, 1902, Serial No. 132,309. Renewed November 22, 1916. Serial No. 132,918.

*To all whom it may concern:*

Be it known that we, GEORGE W. SCOTT and PAUL CARPENTER, citizens of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Tank-Car Construction, of which the following is a specification.

This invention relates to railway cars for carrying large quantities of liquids, such as usually called "tank cars," and it relates particularly to the framing of such cars, and to the supports for the tank thereon.

The objects of the present invention are, first, to provide a suitable mounting for a tank upon the style of under-framing which has been set forth in Patent No. 740,187 issued to George W. Scott, September 29, 1903, filed November 15, 1900; secondly to provide suitable straps and chocks for securely holding the tank in its place, the present invention having particularly for its object, to provide for properly chocking the end of the tank so that the hammer blow of the liquid in starting and stopping the car, may not loosen the tank from its place upon the framing. There is also provided a novel means for adjusting the end chock block and also for fitting the same neatly and securely to the tank itself.

In the accompanying drawings forming part of this specification, the device in preferred form has been illustrated as follows:

Figure 1 is a side elevation of the car, a part of one end of it being in section to show the mounting of the draft gear.

Fig. 2 is a plan view of the car and the tank, the right hand portion of the tank being removed to show the framing only.

Fig. 3 is an end elevation of the car, showing the framing in section along the line (3) of Fig. 1.

Fig. 4 is another end elevation of the car showing the framing in section along the center line, marked (4) in Fig. 1.

Fig. 5 is a section of the end of the frame taken along the line (5) in Fig. 6.

Fig. 6 is a plan view of the same, showing the end stop in detail, together with its mounting.

Fig. 7 is a sectional detail showing the location of the valve for emptying the tank.

The framing of the car in the application above referred to is made entirely of steel. It consists essentially in the side sills, 11, and the end sills, made of channel bars, and a center sill 12, which is an I-beam, and several bolster sills 14, cross beams $14^a$ and braces 13, all of which will be evident from inspection of Fig. 2. Outside of the end of the bolster sill 14, the center sill 12, is cut off, and in its place are substituted two parallel channel bar draft sills 15, between which is a space for the draft gear and the mechanism of the coupler 19, all as will be evident from inspection.

Upon the cross beams, $14^a$, and the bolster sills 14, there are placed chock blocks 20, which may be either integral with said parts or simply set upon the same. These bolster sills and cross bars support the tank, and it is held in place by the tie straps 21, which are fastened by nuts on brackets on the cross beams $14^a$ and on tie bars 22. The outlet valve of the tank 23, as shown in Fig. 7, is placed at one side of the center sill 12, and is operated by the rod 24, from the dome 25, of the tank. In the ordinary construction of cars of this type there are provided abutment chocks at each end of the tank to prevent movement in that direction, and they have heretofore been made of wood and fixed in position. It is plain that the hammer like blow due to the surging of the liquid inside of the tank while the car is in motion, causes a very heavy impact on the face of these blocks, soon wearing them out, and increasing the end play thereby, so that the tank is no longer restrained, but moves from end to end with ever increasing effect and to such an extent that in many instances not only are the end chocks disabled, but the end of the car is broken down.

In order to avoid these difficulties, and to gain other advantages, there is provided at the end of the tank an adjustable block 18, on the bracket 17 attached to the top of the two draft sills and secured to the end sill, (see Figs. 5 and 6). The block 18 has the general form of the end of the tank and may be secured to the bracket 17 by means of bolts, or other equivalent means. Between the block and the bracket there may be interposed wedges, 28, which have elongated holes $28^a$, (see Fig. 6 dotted lines) in order that they may move over the bolts passing through them. But it is evident that any other means for adjusting the block to and from the tank may be chosen, and this particular form is not essential to the invention. The block 18 is provided on its inner side with a recess or other holding means

and inside of this, after the tank is placed, there is introduced some soft material, such for example, as lead, which secures the tank in perfect contact and does away with any play at all between the tank and the block.

The object being to prevent absolutely all play between the tank and its support, it is found important in the use of this device to supply the under-frame which is shown, which is an extremely rigid one and practically not admitting of elongation under strains. Upon such a frame, the use of an elastic abutment for the retention of the tank will result in the hammer like blow of the tank gradually enlarging its space and loosening the said abutment; for this reason it is preferred to use lead between the block 18 and the tank. And it will be observed that while such a packing bears without any elasticity against the tank, if it should become loosened it may be again tightened by means of the wedges 28, or by any such device for the purpose that may be there supplied. It will be observed that in this construction the entire thrust of the tank is taken by the center sill 12, from the channel bar draft sills 15, to which the brackets 17, for the end thrust are attached, and that the end blocks are fixed for continuous rigid retention of the tank; thus constituting self contained and resisting elements in the construction shown.

Having thus described our invention and illustrated its use, what we desire to secure by Letters Patent, and claim, is the following:

1. In a tank car, the combination with a tank, of an end chock block fixed upon the frame and composed of parts separated by wedges, the face of the block having a recess filled with lead, substantially as described.

2. An adjustable take-up device for anchoring tanks to cars, comprising an anchor bracket, a follower and one or more adjustable wedges interposed between the two.

3. The combination with a car body and a tank, of an adjustable take-up device for anchoring said tank to said car body, comprising an anchoring bracket, a follower and a pair of reversely acting wedges.

4. In a tank car and in combination, an under frame, a fixed abutment carried thereby, a block mounted on the frame in advance of the abutment and adapted to receive endwise pressure provided by a tank in opposition to the abutment, and a spacing structure between the block and abutment adapted to transfer the pressure on the block to the abutment, said spacing structure permitting variations in the position of the block relative to the abutment.

5. In a tank car and in combination, an under frame, a fixed abutment carried thereby, a block mounted on the frame in advance of the abutment and adapted to receive endwise pressure provided by a tank in opposition to the abutment, and a spacing structure between the block and abutment adapted to transfer the pressure on the block to the abutment, said spacing structure comprising spacing members adapted to vary the position of the block relative to the abutment.

6. In a tank car and in combination, an under frame, a fixed abutment carried thereby, a block mounted on the frame in advance of the abutment and adapted to receive endwise pressure provided by a tank in opposition to the abutment, and a spacing structure between the block and abutment adapted to transfer the pressure on the block to the abutment, said spacing structure comprising spacing members adapted to vary the position of the block relative to the abutment, said members being in the form of wedges.

In testimony whereof we have hereunder signed our names in the presence of the two subscribed witnesses.

GEORGE W. SCOTT.
PAUL CARPENTER.

Witnesses:
RALPH W. HICKS,
MAX J. SPIEGEL.

**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."**