July 11, 1933. V. WILLOUGHBY 1,917,912

TANK ANCHOR FOR TANK CARS

Filed Sept. 24, 1931 2 Sheets-Sheet 1

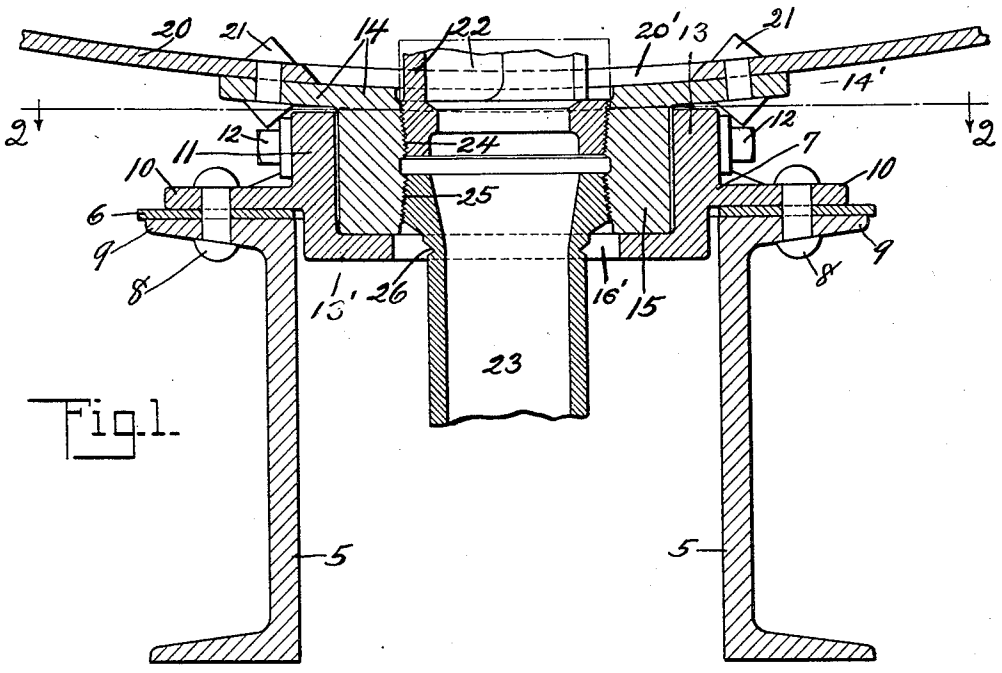
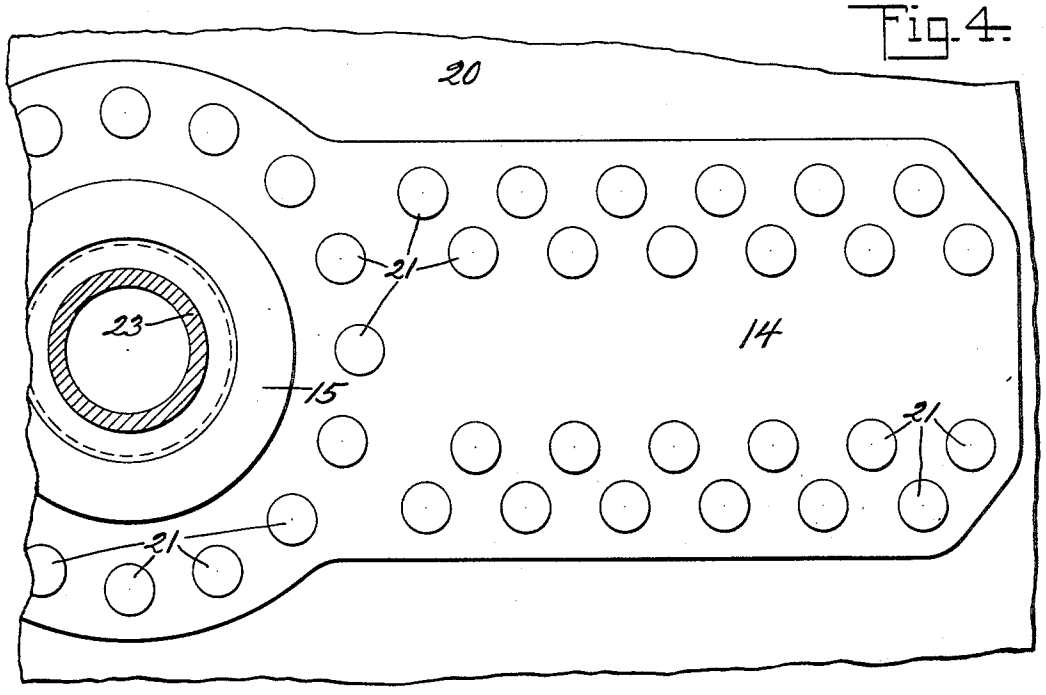


Fig. 1.

Fig. 4.



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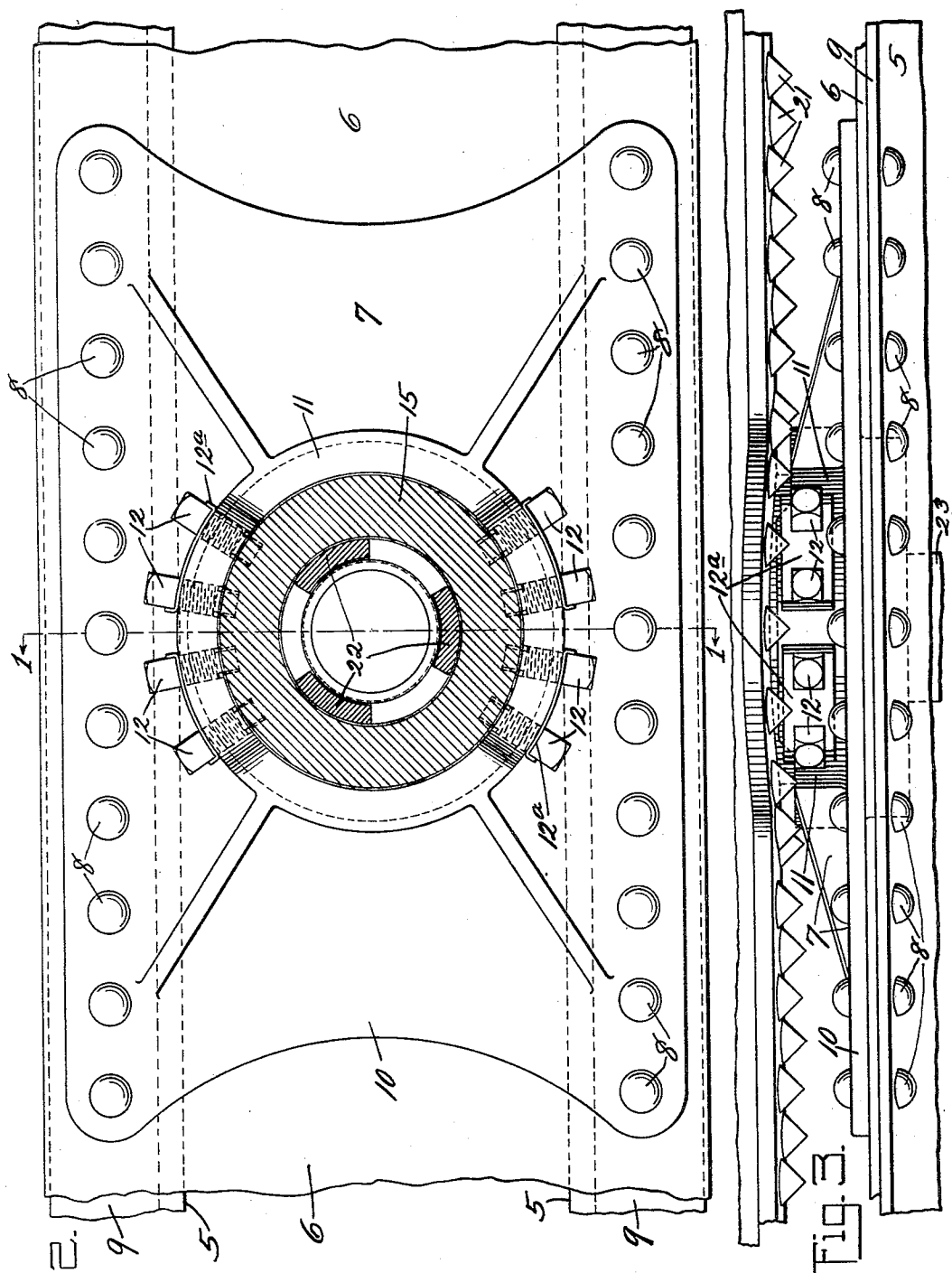

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE

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TANK ANCHOR FOR TANK CARS

Application filed September 24, 1931. Serial No. 564,854.

This invention relates to new and useful improvements in means for anchoring the tank of a tank car to its underframe and comprises broadly a pair of cooperating socket plates secured respectively to the tank and to the underframe.

It comprises further means for carrying an outlet valve and a discharge nozzle in one of said socket plates. A further object of the invention comprises means for connecting the socket members of the socket plates in such a manner as to retain the tank securely in position upon the underframe and to support the underframe from the tank if such support is essential.

The present invention contemplates the provision wherein the discharge nozzle is separately formed and so combined with the anchoring means and secured thereto that it may be quickly and easily replaced without dismounting the tank.

Other objects and advantages will be apparent to those skilled in the art from the following description which illustrates the preferred form of the invention, though it is to be understood that the invention is not limited to the exact details of construction shown and described as it is obvious that various modifications within the scope of the claims will occur to persons skilled in the art.

In the drawings

Fig. 1 is a transverse vertical sectional view taken on the line 1—1 of Fig. 2 looking in the direction indicated by the arrows;

Fig. 2 is a plan view shown partly in section, the section being taken on line 2—2 of Fig. 1 looking downwardly, that is, in the direction of the arrows shown in Fig. 1;

Fig. 3 is a side elevational view of a fragment of the car underframe and the tank of a tank car connected together by means of the present invention; and

Fig. 4 is an inverted plan view showing a fragment of a car tank with the tank anchor plate hereinafter referred to connected thereto.

Referring specifically to the parts 5—5 indicates center sills of a car underframe, 6 indicates a cover plate extending from over the top flange of one of said sills to a corresponding position above the other sill, 7 indicates a casting comprising a horizontal plate portion 10 which extends transversely above the cover plate 6 as shown in Figs. 1 and 2 and is connected by means of the rivets 8 extending through the top flanges 9 of the sills, through the cover plate 6 and through the horizontal plate portion 10 of said casting 7 whereby the casting is secured in position upon the underframe and contributes to the stiffness thereof within the zone of the discharge mechanism hereinafter referred to.

The casting 7 constitutes an anchor element and is provided with a socket member indicated generally at 11 which receives the boss 15 of a tank anchor casting indicated generally at 14, the boss depending from an attaching portion 14′ secured to the tank sheet 20 by fasteners 21 adjacent a discharge opening 20′ formed in said tank sheet. The socket member 11 comprises a vertical wall or flange 13, annular in the instance shown, and a supporting base or bottom 13′ on which the before mentioned boss is supported. The boss 15 is annular to be complemental with the flange 13 of the socket member and the tank anchor casting 14 is provided with an opening therethrough alined with the discharge opening 20′ within which a discharge outlet 23 is threadedly secured as at 25 to depend from the boss 15 through an opening 16′ formed in the base 13′ of the socket member 11. Threadedly secured in the opening in the casting 14 as at 24 is a valve cage 22 for cooperation with a bottom discharge valve of suitable construction; a portion of said valve being indicated in broken lines in Fig. 1 in association with the valve cage. As is usual in discharge outlets, the outlet 23 is provided with a breaking groove indicated at 26.

For retaining the casting 14 against shifting in the socket member 11, set screws 12 are provided which pass through the flange 13 into the boss 15 (see Fig. 2) and are preferably retained against loosening by suitable nut locking devices such as the plates 12*a*.

From the above description it is believed that the construction of the device of the

present invention will be fully apparent to those skilled in the art. It is obvious that a tank may be easily and quickly mounted or dismounted from the underframe of a car. In assembling a tank with an underframe, the tank is lowered into position with the boss 15 arranged within the socket member 11; the castings 14 and 11 constituting anchor elements as will be apparent. The set screws 12 are then adjusted to connect the socket member 11 and boss 15 and it will be apparent that the tank is restrained against horizontal shifting in any direction and is also restrained against vertical shifting relative to the underframe.

It will also be apparent that the present invention provides a novel tank anchor structure comprising a pair of interfitting connected castings, one secured to the underframe and the other secured to the tank; the said castings being so formed and arranged in their connected relation as to prevent excessive shifting of the tank relative to the underframe in any direction. The present invention also provides a new and improved tank anchor casting having provision for the support or attachment of a discharge outlet for tank lading.

What is claimed is:

1. In a tank car, the combination with its center sills, of a tank having an anchor member attached thereto, said anchor including a depending boss having an opening therethrough, a discharge outlet secured to the boss in the opening, and means for anchoring the tank to said sills comprising an attaching element secured to the sills and provided with a socket adapted to receive the anchor member and secured thereto.

2. In a tank car, the combination with its center sills, of a tank having an anchor member attached thereto, said member having an attaching portion for a discharge outlet, and means for anchoring the tank to said sills comprising a member secured to the sills provided with an upwardly extending flange for engagement with said anchor member and secured thereto.

3. In a tank car, the combination with its center sills, of a tank having an anchor member attached thereto, said anchor having an attaching portion for a discharge outlet, and means for anchoring the tank to said sills comprising an attaching element mounted on and secured to the sill flanges and provided with a socket adapted to enclose the anchor member, and fasteners connecting the anchor member and attaching element to prevent relative movement therebetween.

4. In a tank car, the combination with its center sills having upper flanges, of a tank having a perforated anchor member attached thereto, a discharge outlet extending into the perforation in said anchor member, means for anchoring the tank to said sills comprising an attaching element secured to the sill flanges and provided with a socket for the reception of said anchor member and secured thereto.

5. In a tank car, the combination with its center sills, of a tank having an anchor member attached thereto, said member having an attaching portion for a discharge outlet, means for anchoring the tank to said sills comprising an attaching element secured to the sills, the said anchor member and the said attaching element comprising male and female portions, respectively, cooperating to prevent substantial lateral movement therebetween, and means for securing the said male and female portions together.

6. In a tank car, the combination with its center sills, of a tank having an anchor member attached thereto, said anchor having an attaching portion for a discharge outlet, means for anchoring the tank to said sills comprising a socketed casting secured to the sills, the said anchor member and the socket comprising male and female portions, respectively, cooperating to prevent substantial lateral movement therebetween, and means for securing the said male and female portions together.

7. In a tank car, the combination with its center sills having upper flanges, of a tank having an anchor member attached thereto, said anchor being provided with a discharge opening for said tank, a discharge outlet in said opening, means for anchoring the tank to the sills comprising an attaching element secured to the sill flanges, the said anchor member and the said attaching element comprising male and female portions, respectively, cooperating to prevent substantial longitudinal movement therebetween, and means for securing the said male and female portions together.

8. In a tank car, in combination, a tank, a perforated anchor member attached thereto, a discharge outlet for said tank secured to the anchor member, an attaching element secured to the sill flanges for anchoring the tank to said sills comprising a socket in which said anchor member depends and detachable means for securing said socket and said anchor member together.

9. Means for anchoring a tank to a car underframe comprising cooperating circumferentially interfitted castings secured respectively to the car underframe and the tank, and means connecting said castings to restrain the same against relative movement in any direction, one of said castings having provision for attachment thereto of a discharge outlet.

10. In a tank car, the combination with center sills of a tank having an anchor element secured thereto, a discharge outlet carried by said element and depending there-

from, an anchor member secured to the center sills and provided with a socketed portion complemental with and receiving the anchor element in direct supporting relation, said socketed portion being so formed that said discharge outlet passes therethrough, and means connecting the anchor element and anchor member to restrain the same against relative movement in any direction.

11. In a tank anchor, a pair of interfitted castings, means connecting said castings to restrain the latter against relative shifting in any direction, one of said castings having an opening therethrough whereby said casting has provision for the attachment thereto of a discharge outlet.

12. In a tank car, the combination with its center sills, of a tank having an anchor member secured thereto including a depending boss with an opening therethrough, a discharge outlet secured to the boss at the opening, and means for anchoring the tank to said sills comprising a socketed casting secured to the center sills and provided with a supporting base on which the boss is supported, and means securing the anchor member to said casting.

In witness whereof I have hereunto set my hand.

VICTOR WILLOUGHBY.