Nov. 24, 1931. H. MILLER 1,833,466

LOCOMOTIVE TENDER

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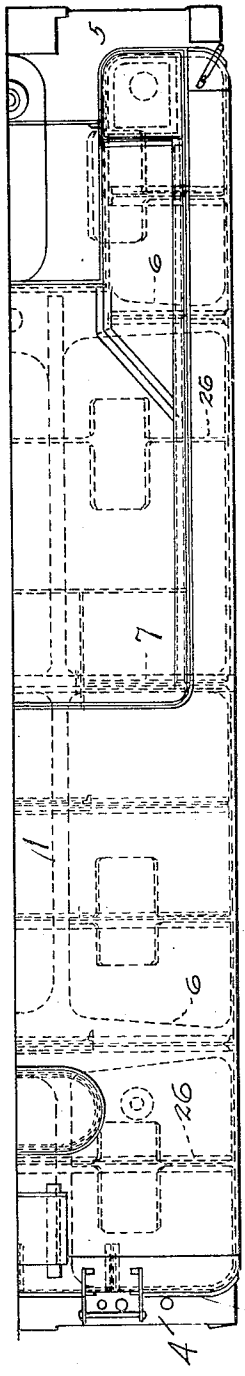

FIG. 1.

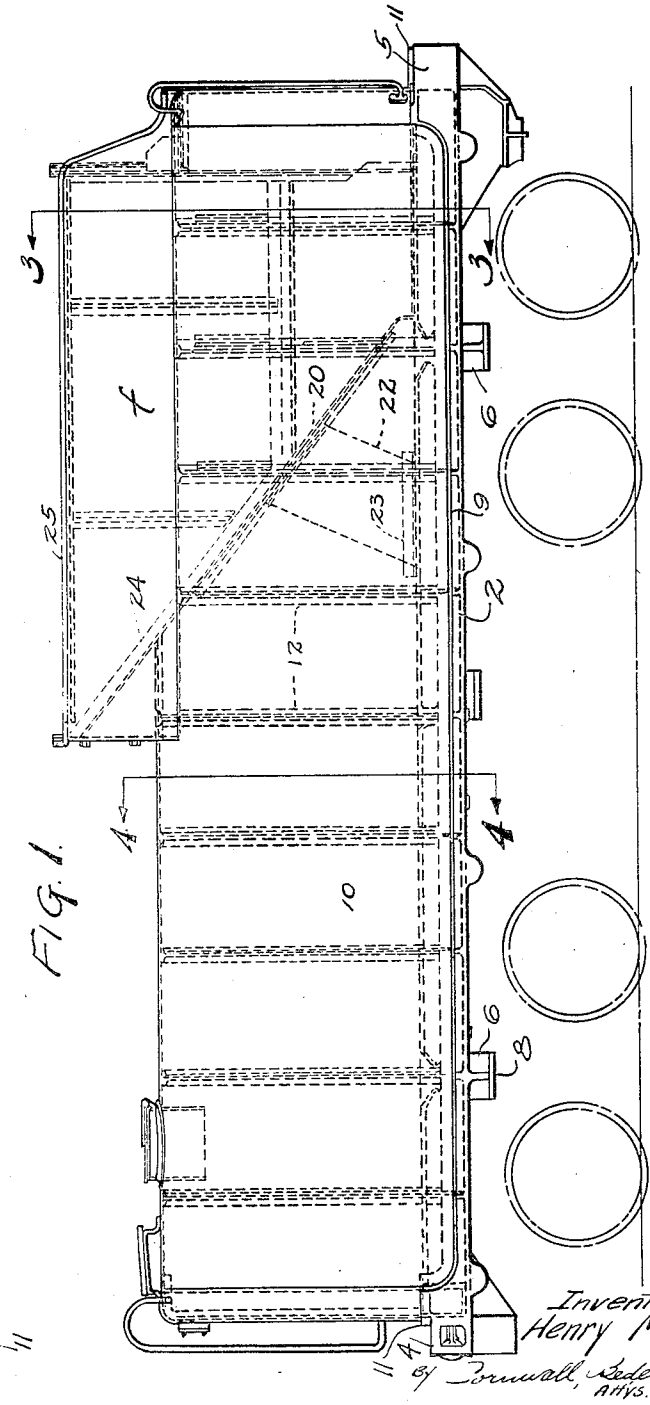

FIG. 2.

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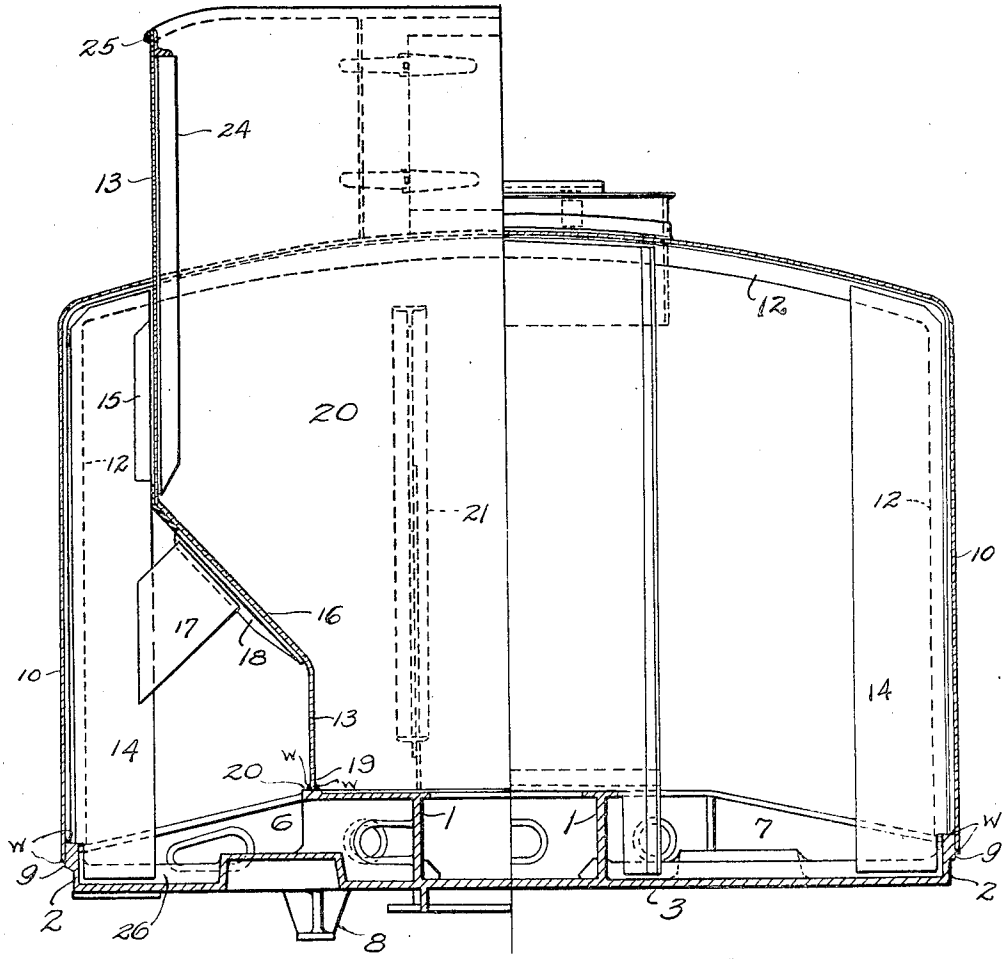

FIG. 3.

FIG. 4.

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1,833,466

UNITED STATES PATENT OFFICE

HENRY MILLER, OF ST. LOUIS, MISSOURI, ASSIGNOR, BY MESNE ASSIGNMENTS, TO GENERAL STEEL CASTINGS CORPORATION, OF GRANITE CITY, ILLINOIS, A CORPORATION OF DELAWARE

LOCOMOTIVE TENDER

Application filed August 1, 1927. Serial No. 209,699.

My invention relates to railway rolling stock and consists in an improved tank structure. My invention is particularly adapted for use in connection with locomotive tenders and in the following description I illustrate and describe such an embodiment of my invention, but it will be understood that the same may be used in connection with other railway vehicles intended to carry a liquid.

The main object of my invention is to simplify and improve the connections between the different parts of the vehicle superstructure and the connections between the superstructure and the underframe. In the usual riveted tank structure the crevices between the rivet heads and plates and between the plates themselves afford numerous points for corrosion to take place with resulting weakening of the joints and eventually leaks develop at such points. In many instances it is difficult to apply the tools necessary to properly drive the rivets and as a result the best possible riveted joints are not produced. By welding the various superstructure parts to each other and by welding the superstructure to the underframe, the above mentioned disadvantages are eliminated.

In the accompanying drawings which illustrate a preferred embodiment of my invention—

Figure 1 is a one-half longitudinal top view of a locomotive tender.

Figure 2 is a side elevation of the same.

Figure 3 is a vertical transverse section taken on line 3—3 of Figure 2.

Figure 4 is a similar section taken on line 4—4 of Figure 2.

Preferably, I utilize an underframe comprising a one-piece casting having center sills 1, side sills 2, and a horizontal web 3 connecting the center and side sills and forming therewith the bottom and the lower portions of the side walls of the tank structure. End sills 4 and 5 are also formed integrally with the underframe, as are the bolsters 6, transom 7, and side bearings 8. The side sill 2 is provided with a raised pad 9, the outer face of which may be machined to have the side plates 10 of the superstructure applied thereto. The plates 10 are welded to the pads 9 as indicated at *w* and a water tight and creviceless joint is thereby formed throughout the length of the side sills. The union of the heavy tank plates and the side sills permits the plates to act as girder-like extensions of the side sills and contributes to the supporting of the superstructure and load between the bolsters.

At the end of the tank structure the end plates may abut the raised pads 11 provided on the end sills or the plates may be flanged horizontally to rest upon pads 11. In either case the joint between the plates and the end sills will be a welded joint. Preferably the side, end, and top plates of the superstructure will be welded to each other also.

The plates of the superstructure are reenforced by T irons 12 welded to the inner sides of the plates. To the rear of the fuel compartment *f* the upper portions of the T's 12 extend horizontally across the top of the tank and brace the same transversely. At the fuel compartment the T terminate at the vertical plates 13 which form the sides of the fuel compartment. Suitable splash sheets 14 are secured to the legs of T's 12 and extend inwardly from the sides of the tank, and the plates 14 which are adjacent the fuel compartment, are connected to the plates 13 of the latter by means of angles 15. The lower ends of splash sheets 14 extend below the top of the underframe and are welded to suitable reenforcing ribs 26 provided on the horzontal web 3 of the underframe.

The lower portions of plates 13 are inclined inwardly as indicated at 16 and are suitably braced from the lower portion of plates 14 by gussets 17 connected to plates 16 by angles 18. These fuel compartment side plates again extend downwardly vertically from the lower end of the inclined portion 16 and their lower edges are welded to suitable pads 19 provided on the underframe. The inclined floor 20 of the fuel compartment is preferably welded to the side sheets 13 and is braced by suitable T's 21 to which gusset plates 22 are connected, the lower end of the gussets being connected to the underframe by angles 23. The side sheets 13 of the fuel compartment are stiffened by in-

clined angles 24 applied to their inner faces and by a beading iron 25 applied along the upper edges of the plates 13 and the angles 15.

All the various parts mentioned above are preferably welded to each other similarly to the welding of the side plates and the side sills of the underframe, and the entire structure, when completed, is free from undesirable joints which may work lose, thereby weakening the structure, and which may afford openings for corrosion to start.

Obviously the details of the structure may be modified in many respects without departing from the spirit of my invention and I contemplate the exclusive use of all such variations in the structure described as come within the scope of my claims.

I claim:

1. In a railway vehicle, a cast underframe, and vertical plates welded to the sides of said underframe and forming girder-like extensions of said sides and also forming the sides of a tank.

2. In a railway vehicle, a cast underframe, and vertical plates welded to the sides and ends of said underframe and forming girder-like extensions of said sides and ends and also forming the sides and ends of a tank.

3. In a locomotive tender structure, an underframe, side sheets, and splash plates secured to said side sheets with the lower ends of said splash plates extending below the top of said underframe and welded thereto.

4. In a locomotive tender structure, an underframe, side sheets, upright splash plates secured to said side sheets, a sloping floor sheet extending between said splash plates, the lower ends of said splash plates and said floor sheet being welded to said underframe.

5. In a locomotive tender structure, a cast underframe forming a portion of the tender tank structure and having vertical webs intermediate its sides and ends, upright framing elements with their lower ends welded to said webs, and plate superstructure partially carried by said elements and having their lower ends welded to said underframe.

6. In a locomotive tender structure, a cast underframe, and a plate tank structure including side sheets and framing elements and splash plates welded to said underframe at all connections therewith in such manner as to avoid any crevices between said underframe and said superstructure.

7. A locomotive tender structure comprising an underframe, a superstructure formed of plates welded to each other and to said underframe, and reenforcing elements welded to said plates and to each other and to said underframe.

8. A locomotive tender structure comprising an underframe, a plate superstructure welded to said underframe, and bracing elements welded to said superstructure and underframe.

9. In a railway vehicle, underframe sill members and vertical plates welded to the sides of said members and forming girder-like extensions of said sides and also forming the sides of a tank superstructure.

10. In a railway vehicle tank structure, an underframe casting forming a tank bottom, tank side sheets extending upwardly from said underframe, and splash plates secured to said side sheets with the lower end of said splash plates engaging said underframe casting and welded thereto.

11. In a railway vehicle, an underframe casting forming substantially the entire bottom wall of a tank, and superstructure plates welded to each other to form substantially the entire side, end and top walls of the tank, the lower portions of said walls being welded to said underframe whereby a unitary tank structure is formed free of riveted or bolted joints and crevices between interengaging elements of interconnected parts.

12. A structure as described in claim 11 which includes as additional elements suitable splash sheets welded to said underframe and superstructure to avoid crevices between interengaging elements.

13. A structure as described in claim 11 which includes as additional elements suitable reenforcing members welded to said underframe and superstructure to avoid crevices between interengaging elements.

14. A structure as described in claim 11 which includes as additional elements suitable reenforcing members and splash sheets welded to said underframe and superstructure to avoid crevices between interengaging elements.

In testimony whereof I hereunto affix my signature this 29th day of June, 1927.

HENRY MILLER.