E. H. RUDOLPH.

TANK CAR LOADING DEVICE.

APPLICATION FILED NOV. 18, 1920.

1,424,037. Patented July 25, 1922.

2 SHEETS—SHEET 1.

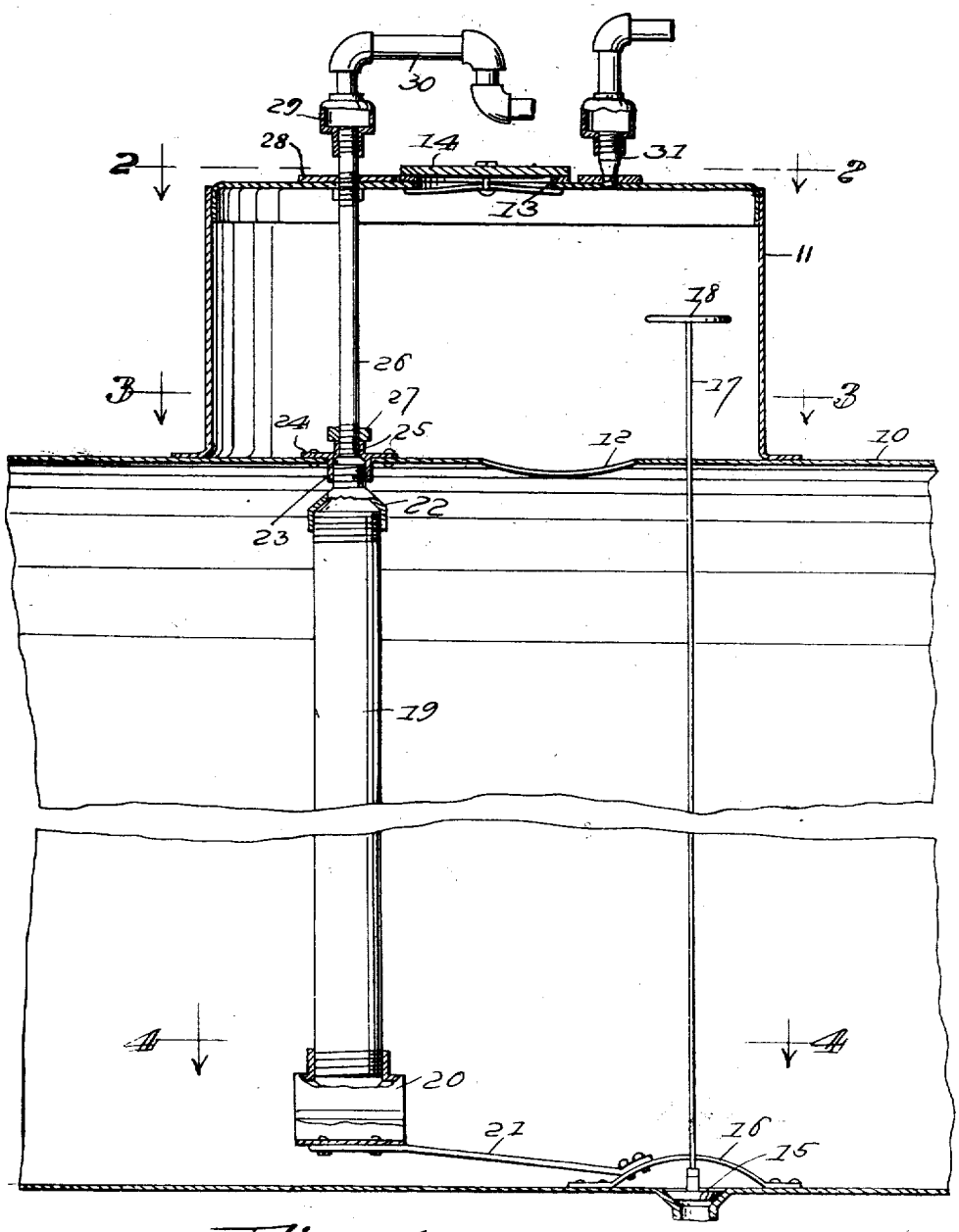


Fig. 1.

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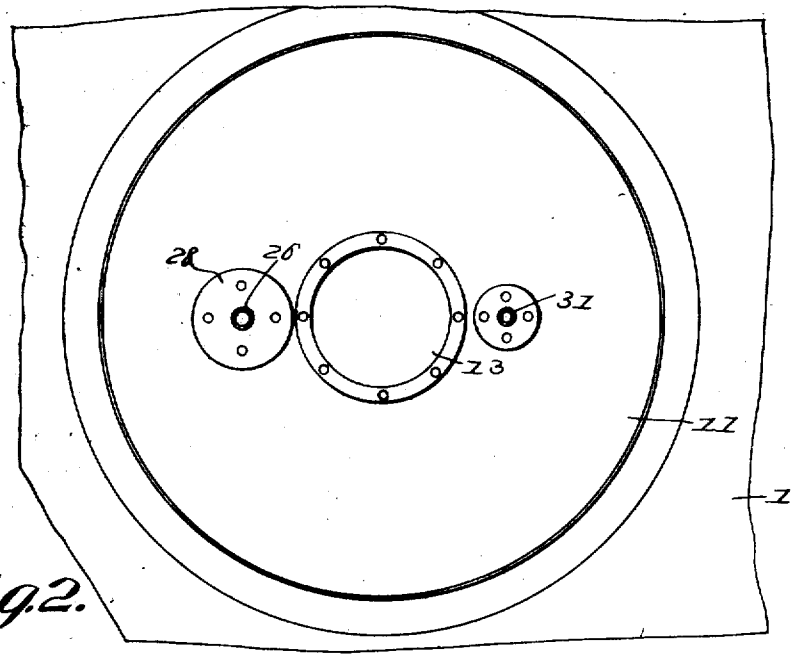


Fig. 2.

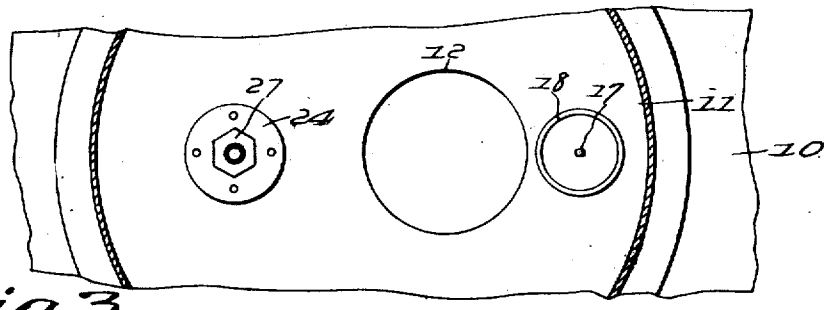


Fig. 3.

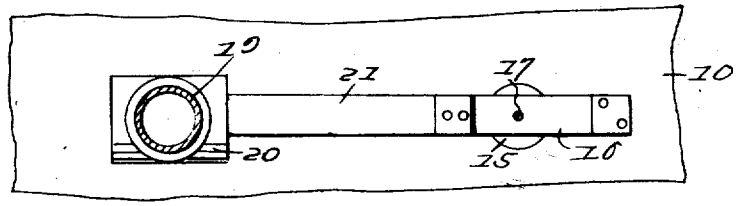


Fig. 4.

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UNITED STATES PATENT OFFICE.

EMETT H. RUDOLPH, OF PERSHING, OKLAHOMA.

TANK-CAR-LOADING DEVICE.

1,424,037. Specification of Letters Patent. Patented July 25, 1922.

Application filed November 18, 1920. Serial No. 424,954.

To all whom it may concern:

Be it known that I, EMETT H. RUDOLPH, a citizen of the United States of America, residing at Pershing, in the State of Oklahoma, have invented new and useful Improvements in Tank-Car-Loading Devices, of which the following is a specification.

The object of the invention is to provide means for facilitating the loading and unloading of tank cars designed for the transportation of gasoline and other volatile and inflammable oils and liquids, adapted for use in connection with tank cars of the type now in common use, and more especially to provide a device for the purpose indicated which is applicable to that form of the commercial type of tank car wherein the dome is secured exteriorly to the hull of the car and communicates therewith through a manhole in the hull or shell as distinguished from those cars in which the dome is formed as a part or continuation of the wall of the hull.

A further object of the invention is to provide simple and efficient means whereby the connection of the loading and unloading pipe or drum may be connected with the shell of the hull and the upper wall or top of the dome, and whereby the lower end or the outlet and inlet T of the loading and unloading drum may be supported in such a way as to avoid straining the joints or connections and yet in an unobstructive relation with the bottom or floor of the hull, to the end that the drainage of the car for the removal of accumulations of sediment or the like may be facilitated.

With these objects in view the invention consists in a construction, combination and relation of parts of which a preferred embodiment is shown in the drawing, wherein:—

Figure 1 is a sectional view of a tank car provided with a loading and unloading apparatus embodying the invention.

Figure 2 is a plan view of the same.

Figures 3 and 4 are horizontal sectional views respectively on the planes indicated by the lines 3—3 and 4—4 of Figure 1.

The tank car in connection with which the loading and unloading apparatus embodying the invention is shown applied embodies the cylindrical hull 10 surmounted by a dome 11, a manhole 12 being arranged in the shell of the hull for communication with the interior of the dome, and the latter being provided with a manhole 13 adapted when the car is in transit to be closed by a suitable plug 14 as in the ordinary practice. There is also provided an oil or drain valve 15 in the bottom or floor of the hull, covered by a guard strap 16 through which extends the valve rod 17 having a hand wheel 18 located in the dome for facilitating the unseating of the valve when it is desired to drain the car.

The body portion or drum 19 of the loading and unloading pipe is provided at its lower end with the usual T 20 supported by a strap 21 which may be attached to the guard strap or cage 16 covering the outlet or floor valve, so that the lower end of the said loading and unloading pipe is supported above and out of contact with and hence in unobstructive relation to the bottom or floor of the tank or car hull, so as not to interfere with the drainage of the liquid and sediment in the car to the outlet valve when the latter has been unseated or opened.

In connection with the upper end of the drum or body portion of the loading and unloading pipe is arranged a reducer 22 having threaded engagement with a collar 23 which forms a part of a flange nipple 24. Depending through an opening in the top of the shell or hull of the tank and suitably bolted or riveted thereto, the upper collar 25 of said nipple having threaded thereinto the lower end of the reduced upper section 26 of the loading and unloading pipe upon which is arranged a lock nut 27, said flange nipple in turn forming a further reducer.

The upper end of the reduced section 26 extends through and has threaded engagement with a plate 28 supported by the top of the dome and carries a union 29 for engagement with the loading nozzle 30. Also in communication with the interior of the dome as for example at the opposite side of the manhole 13 therein from the upper end of the loading and unloading pipe is a vacuum outlet tube 31 designed to facilitate the removal from the dome of any accumulation of vapor finding access thereto from the body of the tank by reason of the volatilization of the contents thereof.

Aside from its highly efficient function as a loading means, the invention combines therewith the function for saving the gasoline or other inflammable oil as it is transferred to the tank, volatile liquid passing

from the upper reduced section 26 into the body portion 19 of the drum, the pressure is materially reduced in the latter and as the liquid passes into the car there is very little agitation and what gases form in the drum are readily concentrated. In a car having a capacity of approximately eight thousand gallons, a saving of from one hundred and fifty to two hundred and fifty gallons results from the employment of a construction such as is herein described.

Having described the invention what is claimed as new and useful is:—

1. The combination with a tank car having a hull and a dome surmounting the hull, of a pipe having a drum or enlarged member located in the hull, a diametrically reduced member arranged in the dome, and a reducing coupling supported by the division wall between the hull and the dome and connecting the adjacent ends of said pipe member.

2. The combination with a tank car having a hull and a dome surmounting the hull, of a pipe having a drum or enlarged member located in the hull, a diametrically reduced member arranged in the dome, a reducing coupling supported by the wall between the hull and the dome and connecting the adjacent ends of said pipe members, and a T carried at the lower end of the drum or enlarged member adjacent to but out of contact with the bottom wall of the hull.

3. The combination with a tank car having a hull and a dome surmounting the hull, of a pipe having a drum or enlarged member located in the hull, a diametrically reduced member arranged in the dome, a reducing coupling supported by the wall between the hull and the dome and connecting the adjacent ends of said pipe members, and an outlet T carried at the lower end of the drum or enlarged member and yieldingly supported above and out of contact with the bottom of the hull.

4. The combination with a tank car having a hull and a dome surmounting the hull, of a pipe having a drum or enlarged member located in the hull, a diametrically reduced member arranged in the dome, a reducing coupling supported by the wall between the hull and the dome and connecting the adjacent ends of said pipe members, said coupling consisting of a flange nipple having upwardly and downwardly extending collars, a reducer connecting the upper end of the drum or enlarged member with the lower collar, and a lock nut engaged with the lower end of the reduced member and in abutting engagement with the upper collar of said nipple.

5. The combination with a tank car having a hull and a dome surmounting the hull and in communication therewith by a manhole in the shell of the hull, said dome being provided with a manhole fitted with a removable plug, and the hull being provided with a bottom vent valve and a guard strap spanning the same, of a loading and unloading device consisting of a pipe having a drum or enlarged portion arranged in the hull and provided at its lower end with an outlet T, and a reduced upper member arranged in the dome and provided at its upper end with a union for attachment of a loading nozzle, a reducer interposed between the adjacent extremities of said members of the pipe, and a strap supporting the lower end of the drum and attached to said guard strap.

6. The combination with a tank car having a hull and a dome surmounting the hull and in communication therewith by a manhole in the shell of the hull, said dome being provided with a manhole fitted with a removable plug, and the hull being provided with a bottom vent valve and a guard strap spanning the same, of a loading and unloading device having relatively enlarged and reduced pipe sections arranged respectively in the hull and dome and connected by a reducer arranged adjacent to the top of the hull and supported thereon by a flange nipple, and a vacuum vent pipe in communication with the interior of said dome.

In testimony whereof he affixes his signature.

EMETT H. RUDOLPH.