Dec. 15, 1925. 1,565,913

C. DE R. DOSKER

TANK CAR VALVE

Filed Nov. 12, 1921

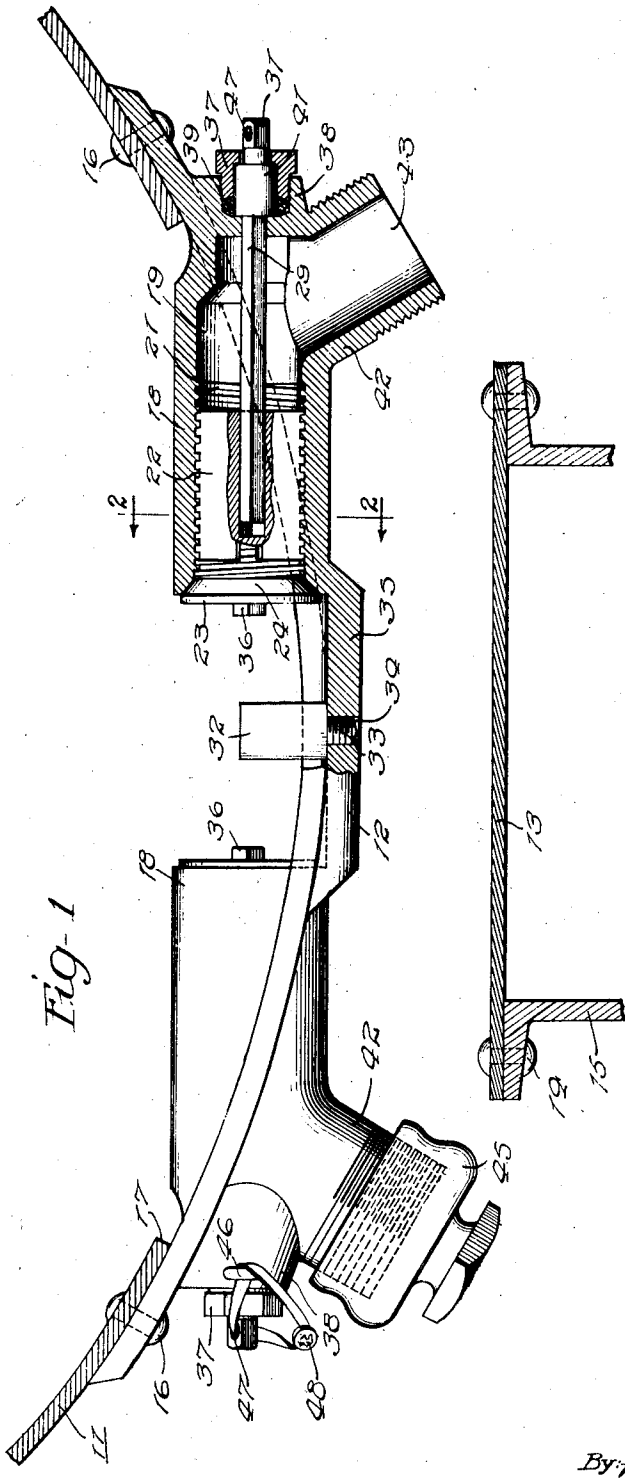


Fig. 1

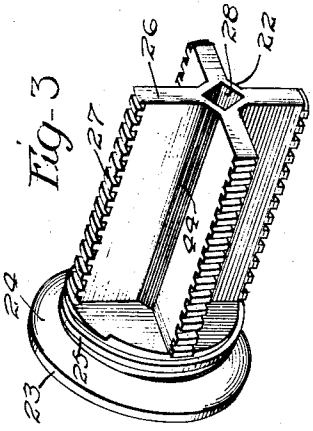


Fig. 3

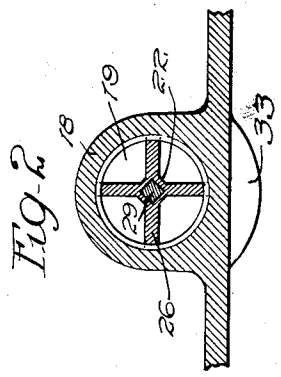


Fig. 2

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UNITED STATES PATENT OFFICE.

CORNELIUS DE RONDE DOSKER, OF CHICAGO, ILLINOIS.

TANK-CAR VALVE.

Application filed November 12, 1921. Serial No. 514,572.

To all whom it may concern:

Be it known that I, CORNELIUS DE RONDE DOSKER, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Tank-Car Valves, of which the following is a specification.

This invention relates to an improved outlet valve adapted particularly for use upon tank cars and the like, though it will be understood that the invention is capable of other and more general adaptations.

The objects and advantages of my invention may be most clearly set forth, it is believed, when considered in connection with the type of outlet valve commonly employed upon tank cars in the past. In the type of valve referred to the outlet passage and portions of the valve project directly from the bottom of the tank and extend through the center sill of the car, the oil or other liquid content of the car being received beneath said sill into a receptacle or receiving pipe or hose connection. It will be manifest that with the parts so positioned a wreck or mishap to the car, which moves the sill relatively to the car body or shell, is likely to shear off the parts of the valve and mounting extending through said sill, with resultant loss of the contents of the car. This difficulty has been frequently experienced and a principal object of my invention is to overcome it by the provision of a valve and outlet passage positioned entirely above and out of the way of the car sill.

A further object of the invention is the provision of an outlet valve readily operable from the outside of the car and without the necessity of removing the dome cover through which the normal type of valve is operated. Accidents have frequently resulted from the practice of removing the manhole or dome cover to permit opening of the valve by means of a valve rod which normally extends upwardly within the car, since cars used for transporting oils and acids often contain gases likely to exert great pressure upon said cover. It has been found necessary to permit such gases to escape before the cover could safely be removed and this involves considerable loss of time, which becomes unnecessary with the use of my invention.

Still another object of the invention is the provision of a simple valve member easily operable and so positioned that even if the projecting portions of the mounting should be sheared off, which is unlikely when they are located in the position which I have indicated, the valve member will not be unseated.

Another and important object of my invention is the provision of outlet valve mechanism having a plurality of outlet passages and independent valves in each passage whereby the contents may be removed at a plurality of points or very quickly in case each outlet is used.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings,

Figure 1 is a transverse section of the lower part of a tank car upon which my invention is employed, a portion of the valve mechanism being shown in section;

Fig. 2 is a sectional view taken substantially on the line 2—2 of Fig. 1; and

Fig. 3 is a perspective view of the valve proper.

Upon the drawings, which illustrate a preferred embodiment of my invention, I have shown the lower portion 11 of a car tank or shell, a valve mounting generally indicated by the reference numeral 12, and the center sill 13 of an ordinary car. The sill 13 is secured by bolts 14 to side braces 15 and it will be understood that the tank 11 is supported at suitable points from said sill. The mounting 12 is of generally oval shape and is secured to the shell by bolts 16, said shell being cut away at 17 and the opening completely closed by said mounting. The outlet and valve structure is duplicated at each side of the mounting and a description of one unit will suffice for both. The mounting is preferably an integral casting and comprises oppositely disposed valve seats 18 having horizontal apertures 19 which are interiorly screw threaded as at 21. A valve member 22 is seated in the aperture 19 by a screw threaded engagement with the threaded portion 21. The valve member 22 comprises a head 23 which is beveled at 24, a cylindrical threaded body portion

25 and threaded guides 26, of which four are provided in the present instance. The head and body parts of the valve are preferably integrally formed, though it will be manifest that the head might be a separate piece secured in any approved manner to the body. Threads 27 on the valve are pitched to provide firm engagement with the threaded portion 21 of the valve seat, and it will be apparent that said valve cannot be dislodged except by rotary movement thereof.

In the center of the valve body is a preferably square aperture 28 which is adapted to receive a square rod 29 inserted through the mounting from the outside and operable to open and close the valve by means of a wrench or other suitable instrument applied to the outer end 31 of said rod which is readily accessible at all times. It will be noted that the rod 29 is rotatable in fixed longitudinal position and that the valve moves in or out thereon according to the direction of rotation.

I have provided in the center of the mounting and extending upwardly into the car a stop block 32 having a threaded projection 33 screwed tightly into an aperture 34 in the bottom portion 35 of said mounting. A projection 36 is provided upon the valve to abutt against the block 32 when said valve is fully open, though of course, this may be omitted if desired. The rod 29 is secured in operative position by a packing gland 37 which is threaded and adapted to be screwed into an outer portion 38 of the mounting, suitable packing 39 being provided within the recess into which this gland extends. The rod 29 is provided with a collar or sleeve 41 which shoulders at one end against the packing gland 37 and at the other end against the recessed portion 38 of the mounting. In this manner the rod is secured against longitudinal movement while left free for rotation and ample security is provided against leakage at the point at which said rod is inserted. While I have found the use of the rod 29 or a similar device to be entirely satisfactory for opening and closing the valve it should be noted that other instrumentalities, such as a square wrench might be inserted when it is desired to operate the valve and employed with almost equal facility.

The mounting is provided with projections 42 extending from the car at an angle with respect to the vertical and provided with an outlet passage 43 in communication with the aperture 19. When the valve is opened the contents of the car may flow through the grooves or passages 44 therein and out through the passage 43 into a receptacle or suitable conveying connection. A screw cap 45 is provided to close the passage 43 and to protect the same from foreign matter and may be readily removed and applied as occasion may demand. Since the structure just described is duplicated on the opposite side of the car it will appear that unloading may take place with much greater speed than when only a single outlet is provided, and furthermore, may be accomplished at either side of the car, which frequently is of very great advantage.

I have provided a punctured lug or projection 46 upon the outer part 38 of the mounting and the rod 29 is preferably apertured as at 47 to permit the positioning of a car seal 48 whereby to guard against unauthorized opening of the valve.

With the structure which I have shown and described, the difficulties commonly experienced with other types of valves are believed to be fully overcome since no part of my structure can be affected by abnormal movement of the car sill; the valve is so seated that even if the projecting portions of the mounting should be sheared off or distorted the outlet passage would not be opened; and the dangers and difficulties incident to the opening of the usual type of valve from the inside of the car do not exist when my invention is employed, since the valve which I have provided may be readily opened from the outside of the car by simply removing the car seal and applying a wrench to the outer end 31 of the rod 29. The entire structure is relatively small and capable of inexpensive manufacture since the mounting may be integrally cast and none of the parts need be made of expensive material. Replacement is seldom necessary since breakage is not likely to occur, and I therefore effect very material economy both in the matter of material and in the time involved in opening and emptying cars equipped with my invention.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A valve for tank cars and the like, comprising a mounting secured in the bottom of a car and having a laterally extending outlet aperture, a valve member having screw threaded engagement in the aperture of said mounting, and being horizontally operable therein, and stop means positioned inwardly from said valve and limiting inward movement thereof.

2. Outlet mechanism for tank cars and the like, comprising a mounting adapted to be secured in the lower part of the car

shell and having a plurality of outlet passages extending sidewise therefrom and above the sill of the car, and independent valves in the interior portion of said passages, said valves being separately operable from the exterior of the mounting.

3. An outlet valve for tank cars and the like, comprising a mounting positioned above the sill of the car and having a sidewise extending outlet passage and an interior grooved valve member having screw threaded engagement with said mounting, and being so positioned as to be unaffected by force applied to the projecting portions of said mounting.

4. A valve for tanks, drums and the like, comprising an internally screw-threaded housing, a valve member provided with a head disposed within the tank or drum and radially disposed threaded guides having outlet passages therebetween and having screw-threaded engagement in said housing, and means insertable from the exterior of the tank, or drum, for rotating said valve member to move the head thereof to and from seated position in said housing.

5. A valve for tank cars, drums, or the like, comprising a casing member attachable to said tank car, drum, or the like and communicating with the interior thereof, a valve member disposed within said casing and arranged well inwardly from the outer end thereof, thereby to protect it against external forces upon the casing, said casing being internally screw-threaded and said valve member having radial flanges threaded to cooperate with the threads of the casing, and means insertable from the exterior of the casing and engagable with said valve member to rotate and thereby open and close the same.

6. A valve for tank cars, drums, or the like, comprising a casing member attachable to said tank car, drum, or the like and communicating with the interior thereof, a valve member disposed within said casing and arranged well inwardly from the outer end thereof, thereby to protect it against external forces upon the casing, said casing being internally screw-threaded and said valve member having radial flanges threaded to cooperate with the threads of the casing, and an operating member insertable into said casing and into a socket provided in said valve member, rotation of said operating member producing endwise movement of the valve member to open and close the same.

7. A valve for tank cars, drums, or the like, comprising a single member providing a valve casing and an outlet passage, the interior of said casing being threaded and having a valve seat at the inner end thereof, a valve member having a head engageable with said seat, and a body having threads adapted to cooperate with the internal threads of said casing to move the valve lengthwise, said body having outlet passages therein and being formed to cooperate with an operating member inserted from the exterior of the casing to rotate and thereby open and close said valve by endwise movement thereof.

8. A valve for tank cars, drums, or the like, comprising a single member providing a valve casing and an outlet passage, the interior of said casing being threaded and having a valve seat at the inner end thereof, a valve member having a head engageable with said seat, a body having threads adapted to cooperate with the internal threads of said casing to move the valve lengthwise, said body having outlet passages therein and being formed to cooperate with an operating member inserted from the exterior of the casing to rotate and thereby open and close said valve by endwise movement thereof, and means for limiting the opening movement of said valve.

9. A valve for tank cars, drums, or the like, comprising a mounting attachable to the body of the tank and having parts extending through an opening provided in the latter, said mounting having a valve casing, an outlet passage extending laterally thereof, a valve threaded into said casing and disposed well inwardly from said outlet passage, said valve being operable by a separate member engageable therewith when inserted laterally of said mounting and lengthwise of said casing.

10. A valve for tank cars, drums, or the like, comprising a mounting attachable to the wall of the tank, or drum, and arrangeable over an opening in the latter, thereby forming a part of the wall, said mounting being formed to provide a laterally extending valve casing and an outlet passage disposed at the side and above the sill of the car, and a valve member disposed within said casing and operable from the exterior of said mounting to open and close the same.

11. A valve for tank cars, drums, or the like, comprising a mounting attachable to the wall of the tank, or drum, and arrangeable over an opening in the latter, thereby forming a part of the wall, said mounting being formed to provide valve casings and outlet passages at opposite sides thereof, and separate valve members arranged respectively in said casings, said valve members being operable from the exterior of said mounting.

12. A valve for tank cars, drums, or the like, comprising a mounting attachable to the wall of the tank, or drum, and arrangeable over an opening in the latter, thereby forming a part of the wall, said mounting being formed to provide valve casings and outlet passages at opposite sides thereof, and

separate valve members arranged respectively in said casings, said valve members being operable from the exterior of said mounting and said casings extending horizontally when the mounting is attached to the bottom of a tank car or the like, the outlet passages being then arranged to avoid the sill of the car.

13. A valve for tank cars, drums, or the like, comprising a mounting attachable to the wall of the tank or drum and arrangeable over an opening in the latter, thereby forming a part of the wall, said mounting being formed to provide a valve casing and outlet passage, and a valve member disposed within said casing and operable from the exterior of said mounting to open and close the same and said casing extending horizontally when the mounting is attached to the bottom of a tank car or the like, the outlet passage being then arranged to avoid the sill of the car.

CORNELIUS DE RONDE DOSKER.