Aug. 30, 1927. 1,640,471

E. B. STALEY

TANK

Filed June 2, 1926 3 Sheets-Sheet 1

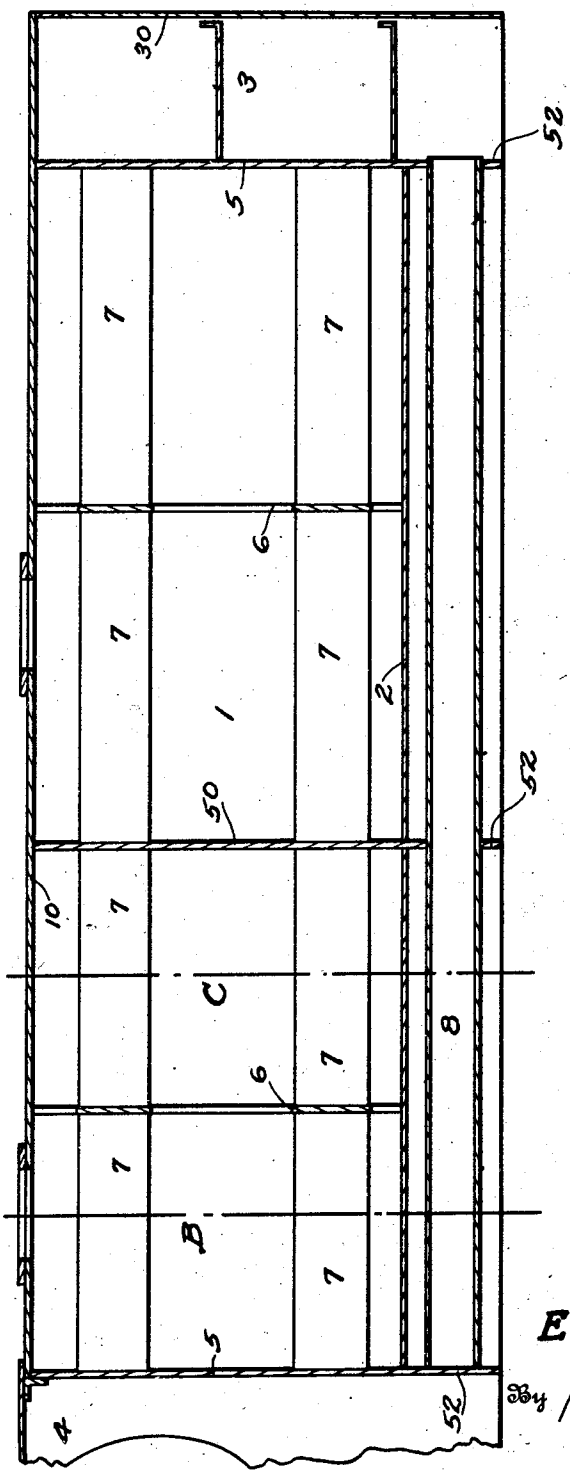


Fig. 1

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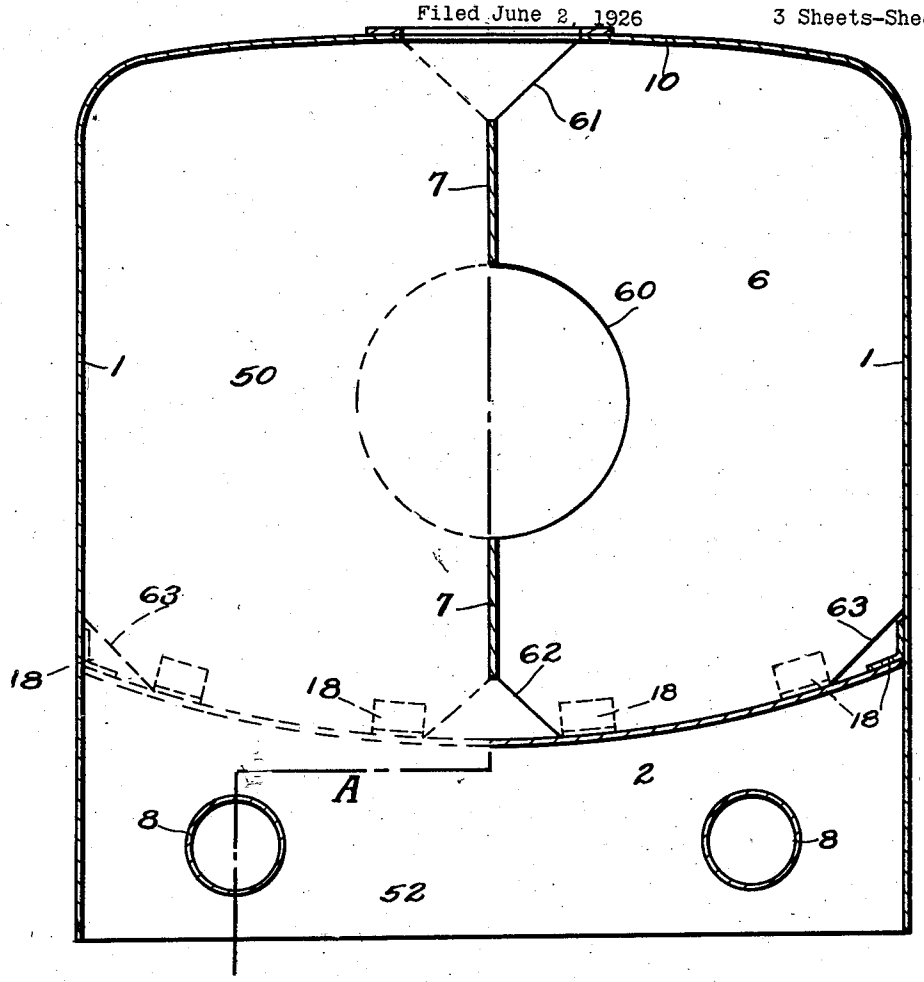


Fig - 2

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TANK

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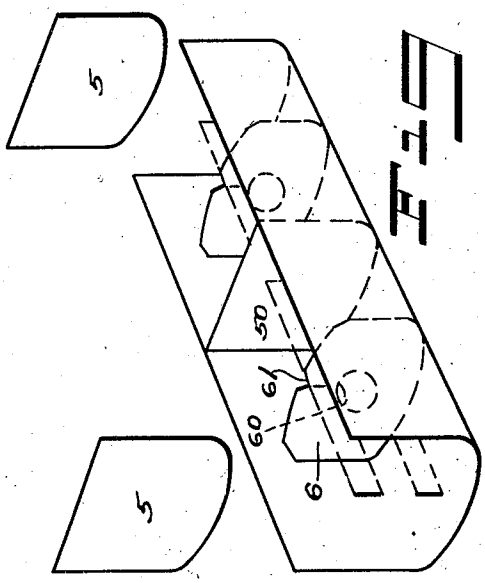


Fig. 4.

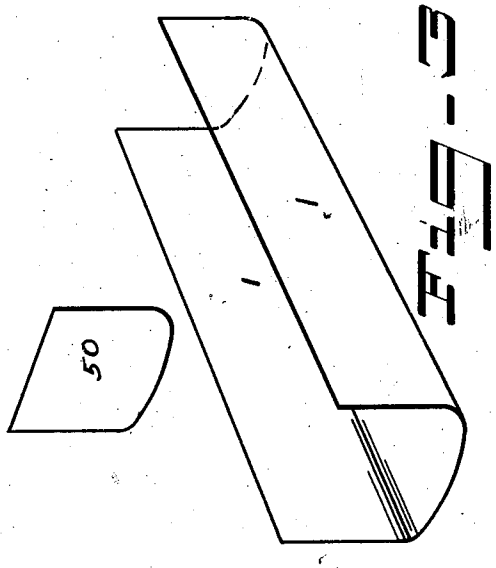


Fig. 3.

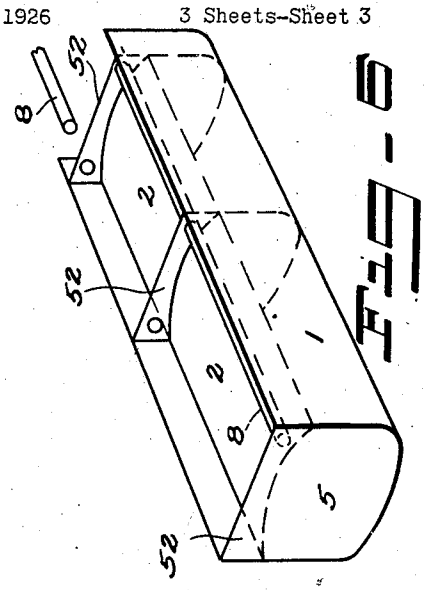


Fig. 6.

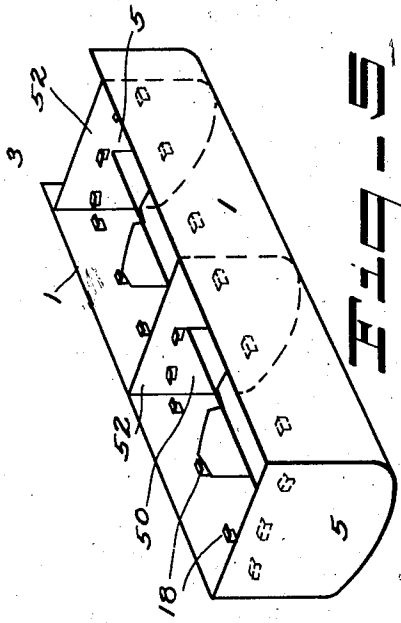


Fig. 5.

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Patented Aug. 30, 1927. 1,640,471

UNITED STATES PATENT OFFICE.

EARL B. STALEY, OF SEATTLE, WASHINGTON.

TANK.

Application filed June 2, 1926. Serial No. 113,317.

My invention relates to tanks, particularly such as are usually mounted upon trucks for the transportation and distribution of petroleum products.

An object of my invention is to produce cheaply a tank which will have greater capacity than the usual round tank for the space occupied, which has provision for neatly and securely carrying a certain amount of package goods, and to make the same by a method of procedure which is rapid and effective.

It is an important object of my invention to provide a tank construction having both longitudinal and transverse webs which are integral with the tank body, upon which webs the weight of the tank and its contents is supported, whereby the weight and inertia, particularly of the liquid contents of the tank, acting most strongly when starting and stopping and as affected by inequalities of the roadway, are supported and resisted by members which are integral with and incorporated in the body of the tank, and not connected therewith through any form of joints, which joints, even if of the most perfect character attainable, are not as dependable and strong as is the integral union between different parts of a sheet as it is manufactured.

The above object is in part attained by the extension of the transverse partition and head members beneath the tank shell and the utilization of these extensions as bolster members, and in part by the integral depending parts of the side plates, the transverse webs resisting most effectively the side racking strains, and the side webs the longitudinal racking strains.

A further object is to make a tank which shall have a simple and pleasing appearance and in which all packages, hose and like parts are enclosed and out of sight.

Further objects of my invention may be ascertained by a study of the following description and the accompanying drawings.

That upon which I ask a patent will be specifically defined by the claims which terminate this specification.

In the accompanying drawings I have shown a tank built in accordance with my invention.

Figure 1 is a longitudinal vertical section of the tank, the plane of section being removed just enough from the central plane to show the central slosh and reinforcing plates in full except that towards the bottom it is offset, as indicated by the broken line "A" of Figure 2.

Figure 2 is a transverse vertical section of which the left half is on the plane indicated by the broken line "B" of Figure 1 and the right half is on the plane of the line "C".

Figures 3 to 6 inclusive illustrate in perspective successive steps employed in assembling and constructing the tank.

The external appearance of the completed tank is that of a rectangle, preferably with the upper longitudinal corners somewhat rounded. I also prefer to slightly round or buckle upwardly the upper side of the tank. This gives two side walls 1 and top 10, all preferably made of one plate. The bottom plates 2 are also somewhat bowed downwardly, as shown in Figure 2, and have side edges secured to the side walls 1, some distance upwardly from the bottom edges of the side walls.

So far as it is feasible to do so, the side and top walls, throughout the entire length of the tank, are made of a single plate. The end walls 5, as well as the cross partition 50, are cut to match the cross-sectional outline of the tank.

The lower edges of these plates extend below the bottom plates 2, preferably to a level with the lower edges of the side plates 1. One or more intermediate transverse partition plates 50 divide the tank chamber into two or more compartments. Transverse slosh plates, as 6, are placed as needed in such compartments, these having openings cut therein to permit free flow of the liquid within each compartment. Such plates are shown as having notches 61 in their uppermost edge, a central hole 60 and notches 62 and 63 in their lower edges. The shape and location of these notches may be varied at will. Longitudinal slosh plates 7 extending between the transverse plates, also serve as strengthening ties.

It is designed that all these plates be firmly secured together wherever they meet. Preferably this is done by welding. Brackets 18 are secured to the side and transverse members to serve as accurate placement and supporting members for the bottom plates 2 when first put in place. These may be riveted or welded in place.

The central partition plate 50 and the rear

end plate 5, and also the front head 5, if this be desired or thought necessary, are provided at each side of the tank with holes for the reception of large tubes 8. These are also welded to the transverse plates and serve both as stiffening beams and as receptacles in which to carry oil delivery hose. I have shown the front or head plate 5 as not provided with holes corresponding with the pipe 8, and this is the way I contemplate usually making it.

Either the outside shell plate is extended rearwardly of the rear head 5, or a supplemental plate is used, to form a flush extension 3, which is provided at its rear with doors 30, thus forming a compartment in which package goods may be carried.

The outer shell or a supplemental plate forming a forward extension thereof, forms a cab 4. The cab, tank and package compartment thus present a smooth, uniform external appearance which is quite pleasing. The tank being substantially square in cross section, will hold more liquid than a round tank of the same apparent bulk.

A tank thus constructed, instead of bolsters of shallow depth and consequent slight strength, imperfectly secured to the tank shell, has bolsters and connected longitudinal beam members, which extend as integral bodies from well below the tank bottom to the top of the tank and form integral parts of the tank shell. They have superior strength because of their great depth and also because of their integral incorporation in the tank shell, and because of the same integral incorporation with the shell there can be no separation between the bolsters and the shell.

This method of construction is held to be greatly superior to any form of construction which involves the attachment of a non-integral bolster and stiffening beam exteriorly to the tank shell. It has been found that the latter type of construction is quite subject to rupture in its attachment to the truck chassis. In the endeavor to overcome this weakness, heavier constructions, with increased weights, have been employed, and by eliminating the necessity for such constructions the total weight and cost of the tank has been reduced, and its strength has been increased.

In the process of manufacture the parts are assembled as follows: First, the plate forming the sides and top is cut to size and rolled to shape, appearing as shown in Figure 3. This is placed bottom up, as shown in Figure 3. The next step is placing and securing the head and partition plates 5 and 50. The transverse slosh plates 6 are next secured, followed by the longitudinal slosh plates 7.

At this stage, the small brackets 18 are secured to the side walls, heads and partitions, thereby locating the edges of the bottom plate 2. The edges of these plates are then secured by welding. Figure 5 shows the tank in condition for receiving the bottom. Figure 6 shows it with the bottom plates in position. The tubes 8 are secured last. During the assembly of the parts, the tank is in inverted position, whereby the work is accessible and may be quickly and easily done.

What I claim as my invention is:

1. A tank body having end and transverse partition plates extending well below the tank bottom to form bolsters, and a stiffening beam extending lengthwise of and beneath the tank body towards each side thereof and through the intermediate bolsters, said beams being integrally secured to all of said bolsters to form a structural reinforcement for the tank.

2. A tank body having tubular stiffening beams exterior of and structurally attached to the said body and open at one end to function as storage chambers for delivery hose and other parts.

3. A metal tank body for vehicles having vertical side walls, a bottom connected with the side walls well above their lower edges to thereby form a depending skirt at each side which is integral with the side walls, and a stiffening beam located at each side between the skirts and bottom.

4. A metal tank body having the plates forming its side walls extending below its bottom to form integral depending skirts extending along at each side, end and transverse partition plates integrally secured to the sides and bottom and extending well below the bottom to form bolsters, and a stiffening beam at each side inward from said skirts and beneath the tank bottom, said beams extending through the transverse plates and structurally secured thereto.

5. A metal tank body having tubular stiffening beams extending lengthwise under the lower quarters of the tank chamber, said tubular beams being open at the rear ends to provide hose storage chambers.

6. A metal tank body having sides depending below the body to form skirts, a tubular beam secured to the tank at each side behind said skirt and beneath the bottom, said tubular beams being open at one end to form hose storage chambers.

7. A method of constructing liquid tanks which comprises the following steps, substantially in the order named:—first, bending a plate to form the top and opposite side walls of the tank; second, inverting the bent plate to rest upon its top; third, securing the edges of an intermediate transverse partition and end heads to the interior of said top and side walls; fourth, securing between the partition and end heads, and between the side walls, longitudinal and

transverse slosh plates; fifth, securing to the interior of the side walls, partition, and end heads, inward of their bottom edges and in alignment with the bottom edges of the slosh plates, clips defining the edge of the bottom; sixth, pressing a bottom plate down on said clips and slosh plates to position it; and seventh, securing the edges of said bottom plate, while thus held in place, to the side walls, partition, and end heads.

Signed at Seattle, King County, Washington, this 21st day of April, 1926.

EARL B. STALEY.