

UNITED STATES PATENT OFFICE

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TANK DECK

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3 Claims. (Cl. 108—32)

This invention relates to metal storage tanks and, among other objects, aims to provide an improved deck or roof structure. The invention involves certain important improvements on the deck structure shown in my copending application, Ser. No. 604,617, filed April 11, 1932. The main idea is to provide improved deck plates having integral stiffening flanges at one edge and separate structural members secured to the stiffening flanges greatly to increase their bending resistance and also to serve as means for holding the seam bolts and their channels in place while a deck is being assembled.

Other aims and advantages of the invention will appear in the specification, when considered in connection with the accompanying drawing, wherein:

Fig. 1 is a fragmentary side elevation of a tank having a radial deck embodying the invention;

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

Fig. 3 is an enlarged sectional view taken on the line 3—3 of Fig. 2.

Referring particularly to the drawing, the improved deck is shown as being of radial construction such as is used on ordinary round tanks. However, it is to be understood that the invention is applicable to tanks of different shapes. In this example, the deck is composed of sector-shaped plates 10 bolted at their lower ends to the upper edge of a metal tank 11 and at their upper ends to the flange 12 of the usual manhole 13. These deck plates are usually bolted together at their joints and are sealed by suitable gaskets or strips to make them airtight.

Referring to Figs. 2 and 3, each of the sector-shaped deck plates 10 is shown as having an integral, downwardly bent vertical flange 14 which terminates short of the inside wall of the tank and of the outer edge of the manhole flange 12. The plates are preferably cut away at the ends of the flanged portion before the flanges are bent. After the flanges are formed and the bolt holes are punched, they may be shipped to the job, where they are prepared for assembly.

To prepare each of the deck plates for assembly, and further to strengthen the flanges, the seam bolts 15 are inserted through an ordinary bolt channel 16 and the bolt holes in the plate. This is preferably done while the plate is turned upside down. Then, a flanged member, such as a Z-bar 17, having a horizontal flange 18 underlying the channel and bolt heads is secured to the inside of the flange 14 conveniently

by means of a series of bolts 19 preferably having their heads carried in another channel 20. However, it is to be understood that the Z-bar may be otherwise secured to the vertical flange.

After the Z-bars are attached as shown in Fig. 3, all of the deck plates are ready to be bolted on the tank. When the plates are positioned on the tank, they may be bolted down by workmen on the roof, without requiring any workmen in the tank to hold the bolts until their nuts are screwed on. The flanges on the Z-bars support the bolts and bolt channels and prevent them from falling into the tank and hold the bolt heads within the channels so that the bolts cannot turn while the nuts are screwed on them. Thus, the Z-bars not only serve to strengthen and further reinforce the deck plates by virtue of the two laterally extending flanges, but greatly facilitate the assembly of the deck. Moreover, the Z-bars can be ordinary standard shapes and will be shipped to the job punched and cut into lengths corresponding with the lengths of the vertical stiffening flanges 14. They do not have to be secured at their ends either to the tank wall or to the manhole flange. The flanges of the Z-bars greatly strengthen the whole deck and act as roof trusses or beams to impart lateral stiffness to the plate flanges.

From the foregoing description, it will be seen that the deck plates may be manufactured at a relatively low cost and prepared for assembly on the job very quickly. Also, they can be assembled in much less time than has heretofore been required. Also, the cost of labor in assembling is considerably reduced.

Obviously the present invention is not restricted to the particular embodiment thereof herein shown and described.

What is claimed is:

1. In a radial tank deck of the character described, a plurality of sector-shaped deck plates each having a downwardly bent flange at one edge only terminating short of the inner wall of the tank; a reinforcing structural member removably secured to the inner face of each downwardly bent flange and having a flange spaced below and parallel with the inside face of the deck plate; a row of seam bolts extending through the plate overlying said member; and a channel through which the seam bolts are inserted so that their heads are held in place by said flange on the reinforcing member while the deck plate is being bolted down.

2. A deck plate for metal tanks comprising a sector-shaped sheet having a bent vertical flange

5	at one edge and presenting a series of seam bolt openings adjacent to said flange; seam bolts inserted through said openings; a channel member embracing the heads of the seam bolts; and a reinforcing, flanged structural member bolted to the inner face of said vertical flange below the channel member to hold the seam bolts and channel in place while the plate is being bolted down.	at one edge only and presenting a series of seam bolt openings; seam bolts in said openings having a flanged member embracing their heads on the inner side of the plate; and a Z-bar removably secured to the inner face of said vertical flange and having a flange underlying the bolt heads to support the bolts in their openings with their heads embraced by said flanged member while the deck is being assembled.	80
10	3. A deck plate for metal tanks comprising a sector-shaped sheet having a bent vertical flange	W. P. LINCOLN.	85
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