

J. P. HOAG & W. THOMAS.
SHEET METAL TANK.
APPLICATION FILED OCT. 27, 1911.

1,041,472.

Patented Oct. 15, 1912.

Fig. 1.

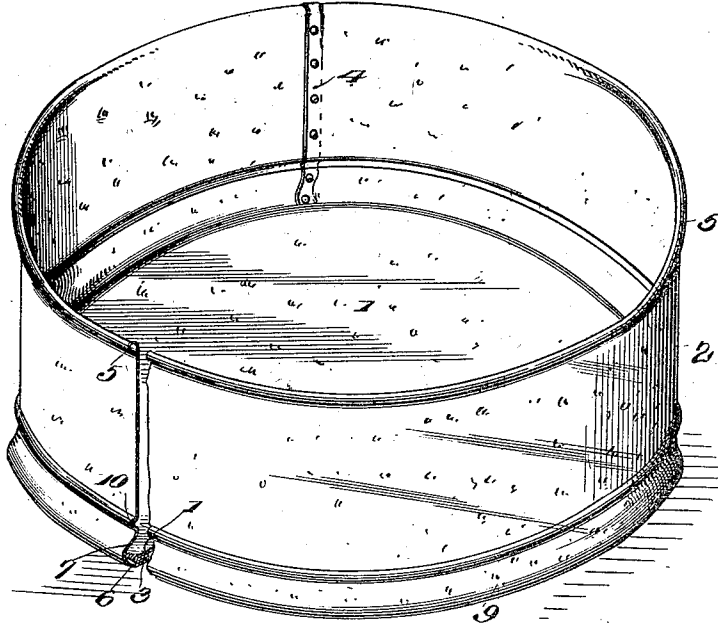


Fig. 2.

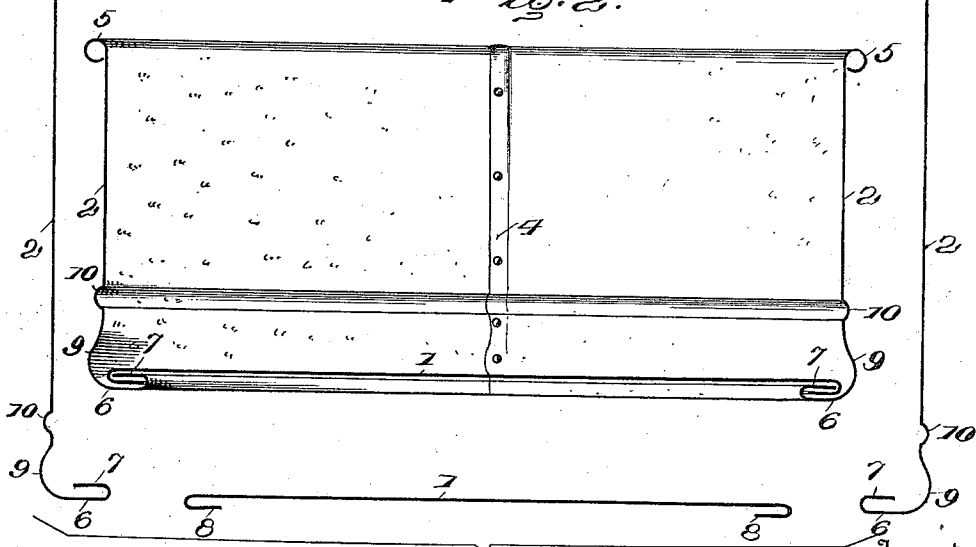


Fig. 3.

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SHEET-METAL TANK.

1,041,472.

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Patented Oct. 15, 1912.

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To all whom it may concern:

Be it known that we, JOHN F. HOAG and WILLIAM THOMAS, citizens of the United States, residing at Beatrice, in the county of Gage and State of Nebraska, have invented certain new and useful Improvements in Sheet-Metal Tanks, of which the following is a specification.

This invention relates to certain improvements in sheet metal tanks and the like; and the objects and nature of the invention will be readily understood by those skilled in the art in the light of the following explanation of the accompanying drawings illustrating what we now consider to be our preferred embodiment from among other arrangements and formations within the spirit and scope of our invention.

An object of the invention is to provide certain improvements in sheet metal tanks, particularly tanks of large size designed for use on the farm and elsewhere for holding large quantities of water or other liquid, whereby the lower ends of such tanks and the connections between the bottoms and side walls thereof will be rendered strong and durable and of the desired rigidity.

Another object of the invention is to provide certain improvements in the formation of the side walls of sheet metal tanks whereby the same can be advantageously manufactured and assembled with the tank bottoms to produce tanks of high efficiency and durability.

The invention consists in certain novel features in construction and in formation and arrangement of parts as more fully and particularly set forth hereinafter.

Referring to the accompanying drawings: Figure 1, is a perspective view of a tank constructed in accordance with our invention. Fig. 2, is a vertical cross section thereof. Fig. 3, is a cross sectional view showing the bottom and side wall before assembling.

The tank illustrated in the accompanying drawing consists of a sheet metal bottom 1, and a vertical sheet metal side wall 2, at its lower edge united to the edge of the bottom by a tight joint or seam 3. The side wall 2, can consist of a single sheet having its ends united by a suitable tight vertical seam or joint 4, to form the continuous wall whether the tank is cylindrical, or elongated with straight sides and rounded ends. The ends of the sheet can be overlapped and

riveted together to form the tight vertical side joint 4. The vertical wall of the tank is preferably provided with a longitudinal top rolled or beaded stiffening edge 5, although the invention is not so limited. The lower edge portion of the sheet (or sheets) forming the vertical wall is projected inwardly approximately horizontally or radially to form the outer peripheral or edge portion 6, of the horizontal bottom wall of the tank surrounding the tank floor or bottom sheet 1. This portion 6, has its inner edge doubled up and back into hook shape 7, to form one of the seam-forming members whereby the bottom sheet 1, is united by a tight seam with the portion 6, of the vertical wall sheet 2.

The horizontal bottom or floor sheet 1, has its surrounding edge portion bent or turned downwardly and inwardly into hook shape 8, corresponding to the hook bend 7. The said sheet 1, rests on the hook bend 7, with its hook bend 8, entering the same and meshing therewith, and said bends are tightly and rigidly compressed vertically to form the tight seam 3.

It will be noted that the bottom sheet 1, rests on the inturned lower edge of the sheet material forming the vertical wall of the tank and that the seam 3, is arranged in the bottom wall of the tank and is spaced inwardly from the surrounding vertical wall of the tank and from the vertical plane of the general vertical line of said vertical walls as distinguished from a seam formed in and at the angle or corner where the vertical wall and horizontal bottom wall meet.

The formation of a sharp corner angle is avoided and the structure is greatly strengthened by forming the vertical wall with an outward, downward and inward transverse curved portion constituting a marked exterior bulge or offset 9, extending completely around the lower end of the tank and continued inwardly into the bottom wall thereof, and this bulge can be braced and strengthened by a corrugation 10, extending around the vertical wall of the tank and joining the outward bulge 9, to the straight portion of the wall. The bulge projects outwardly beyond the general vertical plane of the tank side wall while the lower edge of the bulge is continued inwardly approximately horizontally.

The lower end of the tank is materially

stiffened and strengthened by the exterior surrounding bulge and by the avoidance of a sharp angle or corner containing the seam uniting the tank bottom and vertical wall.

5 The lower surrounding corner portion of the tank is also strengthened by the location of the seam 3, in the horizontal bottom wall of the tank spaced inwardly a distance from the vertical wall of the tank, and by this
10 arrangement cracking and breaking of the galvanized or other surfaces of the metal sheets is avoided, as usually occurs where the seam is formed in the angle between the vertical walls and bottom sheets.

15 In manufacturing tanks under this invention, metal sheets while flat are formed along one longitudinal edge to constitute the stiffening roll or bead and throughout the opposite edge are doubled back to form the
20 open hook bend. These flat sheets thus formed are then passed through a suitable machine to form the longitudinal corrugations and throughout their lengths to form the sheets with the wide curved lateral deflections constituting the exterior bulges in
25 the completed tanks. This machine will at the same time curve the sheets to the desired radius to produce tanks of any diameter, or tanks having straight sides and curved
30 ends. By suitable means, sheets of the desired sizes to form the tank bottoms have their edge portions doubled under to form the open hook bends hereinbefore described. In assembling these sheets to form the tank,
35 a bottom sheet is placed within a vertical wall sheet and down onto the inturned lower edge thereof, before the ends of the wall sheet are united to form the vertical side seam. The wall sheet is then usually
40 slightly contracted, collapsed, or compressed to reduce its diameter so that the bottom open-hook bend of the bottom sheet can drop down around and then enter the up-
45 turned open hook bend of the wall sheet when the wall sheet is expanded to normal diameter. When the open-hook bends of the vertical wall and bottom have been properly intermeshed and positioned one within the other, the ends of the vertical wall sheet
50 are permanently joined together by riveting or otherwise to form the vertical side seam, and the tight bottom seam is then formed by vertically compressing said hook bends. This can be done by hammering or
55 by pressure exerted within the tank by any suitable machine or other mechanism. The side walls of a tank can be formed by a single sheet or by several sheets united at their ends to form what is herein referred to as
60 a sheet.

Peculiar advantages are attained particularly in the manufacture of large tanks by bending the sheets while flat to form the open hook bends, and then shaping the
65 sheets formed with such bends to provide

the wide curved deflections and curving the sheets to the desired radius for round or round end tanks.

It is evident that various changes, variations and modifications might be resorted to without departing from the invention defined by the claims and hence we do not wish to limit ourselves to the exact disclosure
70 hereof.

What we claim is;—

1. A sheet metal tank having its vertical surrounding side wall formed with an exterior bulge around the lower end of the tank and terminating in an inwardly extended horizontal edge around the tank bottom, and a tank bottom resting on and
80 united to said inwardly extended edge by a tight seam spaced inwardly from the general vertical line of the tank side wall, said bulge projecting outwardly beyond said general vertical line of said side wall, whereby
85 the side wall merges into the bottom on curved lines, and whereby the bottom can be inserted into the tank through the top thereof, in assembling.

2. A sheet metal tank having an end edge portion of its side wall formed with a surrounding continuous bulge transversely curving outwardly, downwardly and inwardly and terminating in an inwardly projected approximately radial portion provided at its inner side with an out-turned hook bend at its outer edge spaced radially
95 a distance from the adjacent inner surface of said bulge, and a plate forming a head of said tank and resting on the inner surface of said inwardly projected portion and at its outer side having an inturned hook bend engaging under said out-turned hook bend,
100 said hook bends being compressed to form a tight flat seam uniting said head to said side wall, the outermost edge of said head being spaced inwardly and radially from the surrounding inner surface of said bulge, whereby
105 the side wall merges into said head on transverse curved lines, and whereby said side wall can be previously rolled with said bulge and hook bend, and whereby said head can be previously formed with its hook bend and in assembling can be inserted into the
110 side wall onto the inner face of its inwardly extended portion and into mesh with the previously formed out-turned hook bend thereof.

3. A sheet metal tank having a vertical seam in its side wall, an end of said side wall being transversely curved inwardly and terminating in an inwardly projected approximately radial portion provided at its inner side with an out turned hook bend at its
120 outer edge spaced radially a distance from the adjacent inner surface of said wall, and a plate forming a head of said tank and resting on the inner surface of said inwardly projected portion and at its outer side hav-
125

ing an inturned hook bend engaging under said out turned hook bend, said bends being compressed to form a seam uniting the head to the side wall, the outermost edge of said head being spaced inwardly from the surrounding inner surface of said side wall, substantially as described.

4. A sheet metal tank having its surrounding wall formed with a side seam extending longitudinally of the tank, the lower end of said wall extending inwardly and terminating in an inwardly projected approximately radial portion provided at its upper side with a seam member spaced radially a distance inwardly from the adjacent inner surface of said wall, and a bottom plate resting on the upper surface of said inwardly projected radial portion and at its under side provided with a seam member corresponding to said seam member first mentioned and cooperating therewith to form a tight seam uniting the bottom and side, the outermost edge of said bottom plate being spaced inwardly a distance from the surrounding inner surface of said side wall, whereby in assembling the tank, said bottom plate can be inserted in the side wall before the side seam is formed and placed down on said inwardly projected portion to cause

said seam members to mesh for the formation of the seam uniting the bottom and side walls.

5. A sheet metal tank having its vertical side wall formed with a vertical side seam, the lower end portion of said wall formed with an exterior surrounding bulge and terminating in a portion extending inwardly and radially and at its upper side formed with a seam member, and a bottom resting on said inwardly extending portion and at its under side formed with a seam member meshing with said first mentioned seam member to form a tight joint between the bottom and side wall, said seam members being spaced inwardly and radially a distance from the inner surface of the surrounding bulge to permit placing of the bottom on said inwardly extending portion and intermeshing of the seam members in the assembling of the tank before said vertical side seam is formed.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN F. HOAG.

WILLIAM THOMAS.

Witnesses:

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